SIEMENS

Preface

List of system variables 1

Appendix A A

SINUMERIK

SINUMERIK 840D sl
System variables

Parameter Manual

Valid for

SINUMERIK 840D sl / 840DE sl control

Software	version
CNC software	4.5 SP2

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6FC5397-6AP40-3BA1

Legal information

Warning notice system

This manual contains notices you have to observe in order to ensure your personal safety, as well as to prevent damage to property. The notices referring to your personal safety are highlighted in the manual by a safety alert symbol, notices referring only to property damage have no safety alert symbol. These notices shown below are graded according to the degree of danger.

⚠DANGER
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⚠WARNING
indicates that death or severe personal injury **may** result if proper precautions are not taken.

⚠CAUTION
indicates that minor personal injury can result if proper precautions are not taken.

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indicates that property damage can result if proper precautions are not taken.

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Preface

SINUMERIK documentation

The SINUMERIK documentation is organized in the following categories:

- General documentation
- User documentation
- Manufacturer/service documentation

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SINUMERIK

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Target group

This publication is intended for project engineers, commissioning engineers, machine operators and service and maintenance personnel.

Benefits

The intended target group can use the Parameter Manual to test and commission the system or the plant correctly and safely.

Utilization phase: Setup and commissioning phase

Standard scope

This documentation describes the functionality of the standard scope. Extensions or changes made by the machine manufacturer are documented by the machine manufacturer.

Other functions not described in this documentation might be executable in the control. This does not, however, represent an obligation to supply such functions with a new control or when servicing.

Furthermore, for the sake of clarity, this documentation does not contain all detailed information about all types of the product and cannot cover every conceivable case of installation, operation or maintenance.

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Table of contents

Preface **3**

1 List of system variables **7**

1.1 Properties of system variables 7
1.1.1 Arrangement of system variable information 8
1.2 R parameters 8
1.3 Channel-specific synchronized action variables 9
1.4 Channel-specific system variables 10
1.5 Frames 226
1.6 Tool carrier data 231
1.7 Channel-specific protect 252
1.8 Tool parameters 258
1.9 Cutting edge data for OEM users 273
1.10 Tool management monitoring data 321
1.11 OEM user monitoring data 325
1.12 Tool-related data 332
1.13 Tool-related grinding data 343
1.14 Magazine location data 347
1.15 Magazine location data for OEM users 350
1.16 Magazine description data for tool management 359
1.17 Magazine description data for OEM user tool management 363
1.18 Magazine block parameters 370
1.19 Adapter data 371
1.20 MultiTool data 372
1.21 Measuring system compensation values 392
1.22 Quadrant error compensation 394
1.23 Interpolatory compensation 399
1.24 NCK-specific protection areas 403
1.25 Cycle parameterization 409
1.26 System data 439
1.27 Axial system variables 473
1.28 Safety Integrated 600

1.29 User-specific system variables 618
1.30 Kinematic chain 640
1.31 Orientation transformation 645
1.32 Protection area elements 656
1.33 Coordinate system-specific working area limitation 666
1.34 ePS Network Services 668
1.35 Tool data ISO dialect milling 670
1.36 Tool data ISO dialect turning 672
A Appendix A 677
A.1 List of abbreviations 677
A.2 Documentation overview 683

List of system variables

1

1.1 Properties of system variables

You will find the information below in the table entries of the system variables:

Data type, variable name, if necessary with index 1 ...n, short name (may not yet be defined), reference to literature

Detailed description of variables

Index description for index 1 ...n (optional)

Unit

Value range (minimum and maximum values) and initial value

Properties with regard to reading/writing in:

- PP: Part program
- SA: Synchronized action
- PP/SA protection level: Protection level with regard to part program/synchronized action
- OPI: Operator panel interface
- OPI protection level: Protection level with regard to operator panel interface
- OEM: OEM compile cycles

Read: Properties with regard to reading

- PP: X = Reading possible, no preprocessing stop
- PP: VL_STOP = Reading possible, preprocessing stop carried out

Write: Properties with regard to writing

- PP: X = Writing possible, no preprocessing stop
- PP: VL_Stop = Preprocessing stop is carried out during writing
- PP: HL_Sync = Writing is carried out synchronously with main run

Permissible names for axis-specific indices:

- GEO: Names of geometry axes
- CHAN: Names of channel axes
- MACH: Names of machine axes
- SPIN: Names of spindles

Properties with regard to valuation:

- Channel-specific: Value of variable in current channel
- Cross-channel: Value of axis-specific variable in the channel, where the axis is currently active

Properties with regard to block search

Properties with regard to NCU-Link

1.1.1 Arrangement of system variable information

Type	**Identifier [Field limit 1,Field limit 2,]**			Short name			**reference:**	Reference to literature
description: Description lines ...								
Index 1:	Description of field limit 1							
Index 2:	Description of field limit 2							
Index 3:	Description of field limit 3							
unit:	Unit							
min.:	Minimum value		**max.:**	Maximum value		**std:**		Default value
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**		
read:	X	X	0-7	X	0-7	X		
write:	Mrun syn	X	0-7	X	0-7	X		
axis identifier:					**Valuation:**	Cross-channel		
block search	Search run condition				**link**	Link condition		

1.2 R parameters

DOUBLE	**R [n]**			Arithmetic variable of type Real			**reference:**	
description: Array variable Rn or R[n] is an arithmetic variable of type Real and is user-definable. Rn or R[n] is used to program the variable in the part program. $Rn or $R[n] is used to program the variable in a synchronized action. The arithmetic variables are stored in SRAM and can be read in and out using the data backup feature.								
Index 1:	The maximum number of R parameters is defined via $MC_MM_NUM_R_PARAM							
unit:	-							
min.:	-1,8E308		**max.:**	1,8E308		**std:**		0.0
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**		
read:	X	X	7	X	7	X		
write:	X	X	7	X	7	X		
axis identifier:					**Valuation:**	channel-specific		
block search	Program sensitive				**link**	No restrictions		

1.3 Channel-specific synchronized action variables

INT	**$AC_MARKER [n]**			User array variable of type Integer			**reference:**	
description:								
Array variable $AC_MARKER[n] is used to store application-related integer arithmetic results.								
The variable is stored in DRAM or in SRAM depending on $MC_MM_BUFFERED_AC_MARKER. The array elements of the variable in volatile memory (DRAM) are set to 0 on a Reset.								
Index 1:		The dimension is defined via the MD $MC_MM_NUM_AC_MARKER.						
unit:		-						
min.:		-2147483648	**max.:**	2147483647		**std:**	0	
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**		
read:	runin stp	X	7	X	7	X		
write:	runin stp	X	7	-	0	X		
axis identifier:					**Valuation:**	channel-specific		
block search		Not classified			**link**	No restrictions		

INT	**$AC_SYSTEM_MARKER [n]**			System array variable of type Integer			**reference:**	
description:								
Array variable $AC_SYSTEM_MARKER[n] is used to store application-related integer arithmetic results. The variable is reserved for SIEMENS applications.								
The variable is stored in DRAM or in SRAM depending on $MC_MM_BUFFERED_AC_MARKER. The array elements of the variable in volatile memory (DRAM) are set to 0 on a Reset.								
Index 1:		The dimension is defined via the MD $MC_MM_NUM_AC_SYSTEM_MARKER.						
unit:		-						
min.:		-2147483648	**max.:**	2147483647		**std:**	0	
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**		
read:	runin stp	X	7	X	7	X		
write:	runin stp	X	7	-	0	X		
axis identifier:					**Valuation:**	channel-specific		
block search		Not classified			**link**	No restrictions		

DOUBLE	**$AC_PARAM [n]**			User array variable of type Real			**reference:**	
description:								
Array variable $AC_PARAM[n] is used to store application-related Real arithmetic results.								
The variable is stored in DRAM or in SRAM depending on $MC_MM_BUFFERED_AC_PARAM. The array elements of the variable in volatile memory (DRAM) are set to 0 on a Reset.								
Index 1:		The dimension is defined via the MD $MC_MM_NUM_AC_PARAM.						
unit:		-						
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	runin stp	X	7	-	0	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$AC_SYSTEM_PARAM [n]**	System array variable of type Real	**reference:**	

description:

Array variable $AC_SYSTEM_PARAM[n] is used to store application-related Real arithmetic results. The variable is reserved for SIEMENS applications.

The variable is stored in DRAM or in SRAM depending on $MC_MM_BUFFERED_AC_PARAM. The array elements of the variable in volatile memory (DRAM) are set to 0 on a Reset.

Index 1:	The dimension is defined via the MD $MC_MM_NUM_AC_SYSTEM_PARAM.				
unit:	-				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	runin stp	X	7	-	0	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

1.4 Channel-specific system variables

FRAME	**$P_UBFR**	1st basic frame in the data management system	**reference:**	

description:

Variable $P_UBFR is used to program the 1st basic frame in the data management system. G500, G54 .. G599 can be used to activate the corresponding data management frame. The data management frames are stored in SRAM and can be read in and out using the data backup feature. $P_UBFR is equivalent to $P_CHBFR[0].

Application:

$P_UBFR = ctrans(x,10) : crot(z,45)

$P_UBFR[y,tr] = 5

unit:	-				
min.:		**max.:**		**std:**	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	No restrictions

FRAME	**$P_SETFRAME**			Active system frame for preset actual value memory		**reference:**	
description:							
Variable $P_SETFRAME is used to program the active system frame for preset actual value memory and scratching.							
On a Reset, the activation of the system frame depends on the following machine data:							
Bit0 in $MC_RESET_MODE_MASK							
Bit0 in $MC_CHSFRAME_RESET_MASK							
unit:		-					
min.:			**max.:**		**std:**		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	No restrictions

FRAME	**$P_EXTFRAME**			Active system frame for external frame		**reference:**	
description:							
Variable $P_EXTFRAME is used to program the active system frame for the external work offset.							
On a Reset, the activation of the system frame depends on the following machine data:							
Bit0 in $MC_RESET_MODE_MASK							
Bit1 in $MC_CHSFRAME_RESET_MASK							
unit:		-					
min.:			**max.:**		**std:**		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	No restrictions

FRAME	**$P_PARTFRAME**			Active system frame for toolholder		**reference:**	
description:							
Variable $P_PARTFRAME determines the active system frame for TCARR and PAROT.							
On a Reset, the activation of the system frame depends on the following machine data:							
Bit0 in $MC_RESET_MODE_MASK							
$MC_GCODE_RESET_MODE[51]							
$MC_GCODE_RESET_VALUES[51]							
unit:		-					
min.:			**max.:**		**std:**		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	

write:	X	-	7		-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific	
block search		Not classified				**link**	No restrictions	

FRAME	**$P_TOOLFRAME**			Active system frame for TOROT		**reference:**	
description:							
Variable $P_TOOLFRAME determines the active system frame for TOROT and TOFRAME.							
On a Reset, the activation of the system frame depends on the following machine data:							
Bit0 in $MC_RESET_MODE_MASK							
$MC_GCODE_RESET_MODE[52]							
$MC_GCODE_RESET_VALUES[52]							
unit:		-					
min.:			**max.:**		**std:**		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	No restrictions

FRAME	**$P_WPFRAME**			Active system frame for the workpiece		**reference:**	
description:							
Variable $P_WPFRAME is used to program the active system frame for workpiece reference points.							
On a Reset, the activation of the system frame depends on the following machine data:							
Bit0 in $MC_RESET_MODE_MASK							
Bit4 in $MC_CHSFRAME_RESET_MASK							
unit:		-					
min.:			**max.:**		**std:**		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	No restrictions

FRAME	**$P_CYCFRAME**			Active system frame for cycles		**reference:**	
description:							
Variable $P_CYCFRAME is used to program the active system frame for cycles.							
On a Reset, the activation of the system frame depends on the following machine data:							
Bit0 in $MC_RESET_MODE_MASK							
Bit5 in $MC_CHSFRAME_RESET_MASK							
unit:		-					
min.:			**max.:**		**std:**		

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	-	0	-	
axis identifier:		GEO	CHAN MACH	SPIN	**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

FRAME	**$P_TRAFRAME**	Active system frame for transformations	**reference:**	

description:

Variable $P_TRAFRAME is used to program the active system frame for transformations. This system frame is configured as follows when a transformation is selected with TRANSMIT or TRACYL:

$MN_FRAME_GEOAX_CHANGE_MODE = 1 oder 2

$MC_TRANSMIT_ROT_AX_FRAME_1 = 2

$MC_TRANSMIT_ROT_AX_FRAME_2 = 2

$MC_TRACYL_ROT_AX_FRAME_1 = 2

$MC_TRACYL_ROT_AX_FRAME_2 = 2

unit:	-		
min.:	**max.:**	**std:**	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	-	0	-	
axis identifier:		GEO	CHAN MACH	SPIN	**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

FRAME	**$P_CHBFRAME [n]**	Active basic frame in channel	**reference:**	

description:

Array variable $P_CHBFRAME[n] is used to program the nth active basic frame in the channel.

On a Reset, the activation of the basic frame depends on the following machine data:

Bit0 and Bit14 in $MC_RESET_MODE_MASK

$MC_CHBFRAME_RESET_MASK

Index 1:	The dimension is defined via $MC_MM_NUM_BASE_FRAMES.		
unit:	-		
min.:	**max.:**	**std:**	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	-	0	-	
axis identifier:		GEO	CHAN MACH	SPIN	**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

FRAME	**$P_NCBFRAME [n]**			Active global basic frame		**reference:**	
description:							
Array variable $P_NCBFRAME[n] is used to program the nth active global basic frame.							
On a Reset, the activation of the basic frame depends on the following machine data:							
Bit0 and Bit14 in $MC_RESET_MODE_MASK							
$MN_NCBFRAME_RESET_MASK							
Index 1:	The dimension is defined via $MN_MM_NUM_GLOBAL_BASE_FRAMES.						
unit:	-						
min.:		**max.:**			**std:**		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	-	0	-	
axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

FRAME	**$P_ACTBFRAME**			Active overall basic frame		**reference:**	
description:							
Variable $P_ACTBFRAME determines the active chained overall basic frame. This frame is produced by chaining together all valid (see $P_NCBFRMASK) global basic frames and all valid (see $P_CHBFRMASK) basic frames in the channel. The overall basic frame is always recalculated when a basic frame is activated.							
On a Reset, the activation of the basic frames depend on the following machine data:							
Bit0 and Bit14 in $MC_RESET_MODE_MASK							
$MN_NCBFRAME_RESET_MASK							
$MC_CHBFRAME_RESET_MASK							
unit:	-						
min.:		**max.:**			**std:**		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	-	-	0	-	0	-	
axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

FRAME	**$P_BFRAME**			1. active basic frame in channel		**reference:**	
description:							
Variable $P_BFRAME is used to program the 1st active basic frame in the channel. The variable is equivalent to $P_CHBFRAME[0].							
On a Reset, the activation of the basic frame depends on the following machine data:							
Bit0 and Bit14 in $MC_RESET_MODE_MASK							
$MC_CHBFRAME_RESET_MASK							
unit:	-						
min.:		**max.:**			**std:**		

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	-	0	-	
axis identifier:		GEO	CHAN MACH	SPIN	**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

FRAME	**$P_IFRAME**	Active settable frame	**reference:**	

description:

Variable $P_IFRAME is used to program the active settable frame. A settable data management frame $P_UIFR[n] becomes the active settable frame on execution of G500, G54 to G599.

On a Reset, the activation of the settable frame depends on the following machine data:

Bit0 in $MC_RESET_MODE_MASK

$MC_GCODE_RESET_MODE[7]

$MC_GCODE_RESET_VALUES[7]

unit:	-			
min.:		**max.:**	**std:**	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	-	0	-	
axis identifier:		GEO	CHAN MACH	SPIN	**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

FRAME	**$P_PFRAME**	Programmable frame	**reference:**	

description:

Variable $P_PFRAME is used to program the active programmable frame.

The programmable frame is retained on a Reset when the following setting is configured:

$MC_PFRAME_RESET_MODE = 1

unit:	-			
min.:		**max.:**	**std:**	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	-	0	-	
axis identifier:		GEO	CHAN MACH	SPIN	**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

FRAME	**$P_ACTFRAME**	Active overall frame	**reference:**	

description:

The variable $P_ACTFRAME determines the active chained total frame. The active total frame is calculated using the following formula:

$P_ACTFRAME = $P_PARTFRAME : $P_SETFRAME : $P_EXTFRAME : $P_ISO1FRAME : $P_ISO2FRAME : $P_ISO3FRAME : $P_ACTBFRAME : $P_IFRAME : $P_TOOLFRAME : $P_WPFRAME : $P_TRAFRAME : $P_PFRAME : $P_ISO4FRAME : $P_CYCFRAME

The total frame is recalculated each time a frame belonging to the frame chain is activated and upon a reset.

unit:	-				
min.:		**max.:**		**std:**	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	-	-	0	-	0	-	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search	Not classified				**link**	No restrictions

INT	**$P_UIFRNUM**	Number of active settable frames	**reference:**	

description:

Variable $P_UIFRNUM is used to determine the number of the active settable frame. A settable data management frame $P_UIFR[n] becomes the active settable frame on execution of G500, G54 to G599.

G500: $P_UIFRNUM = 0

G54: $P_UIFRNUM = 1

G599: $P_UIFRNUM = 99

On a Reset, the activation of the settable frame depends on the following machine data:

Bit0 in $MC_RESET_MODE_MASK

$MC_GCODE_RESET_MODE[7]

$MC_GCODE_RESET_VALUES[7]

unit:	-				
min.:	0	**max.:**	99	**std:**	0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	

axis identifier:					**Valuation:**	channel-specific
block search	Not classified				**link**	No restrictions

INT	**$P_NCBFRMASK**	Global basic frame mask	**reference:**	

description:

Variable $P_NCBFRMASK is used to define the NCU-global basic frame included in the calculation of the overall basic frame $P_ACTBFRAME. The variable is implemented in the form of a bit mask in which the global basic frames can be selected. On a Reset, the mask is initialized by $MN_NCBFRAME_RESET_MASK.

unit:	-

min.:		0	**max.:**	0xFFFF	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

INT	**$P_CHBFRMASK**	Basic frame mask in the channel	**reference:**

description:

Variable $P_CHBFRMASK is used to define the channel-specific basic frame included in the calculation of the overall basic frame $P_ACTBFRAME. The variable is implemented in the form of a bit mask in which the basic frames can be selected. On a Reset, the mask is initialized by $MC_CHBFRAME_RESET_MASK.

unit:		-					
min.:		0	**max.:**	0xFFFF	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

INT	**$P_CHSFRMASK**	System frame mask	**reference:**

description:

Variable $P_CHSFRMASK is used to define the channel-specific system frame included in the calculation of the overall frame $P_ACTFRAME. The variable is implemented in the form of a bit mask in which the system frames can be selected. On a Reset, the mask is initialized by $MC_CHSFRAME_RESET_MASK.

unit:		-					
min.:		0	**max.:**	0x7FF	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$P_AD [35]**	Active tool offsets	**reference:**

description:

$P_AD[n]

Active tool offsets

n: Parameter numbers 1 - 34

n = 1-25 $TC_DP1 to $TC_DP25

n = 26 $TC_DPCE

n = 27 $TC_DPH
n = 28 $TC_DPV
n = 29 $TC_DPV3
n = 30 $TC_DPV4
n = 31 $TC_DPV5
n = 32 $TC_DPVN3
n = 33 $TC_DPVN4
n = 34 $TC_DPVN5
n = 35 $TC_DPNT
An alarm is issued if a compensation parameter belongs to a function that is not active.

Index 1:	n: Parameter numbers 1 - 31 n = 1-25 $TC_DP1 to $TC_DP25 n = 26 $TC_DPCE n = 27 $TC_DPH n = 28 $TC_DPV n = 29 $TC_DPV3 n = 30 $TC_DPV4 n = 31 $TC_DPV5 n = 32 $TC_DPVN3 n = 33 $TC_DPVN4 n = 34 $TC_DPVN5 n = 35 $TC_DPNT						
unit:	-						
min.:	-1,8E308	**max.:**	1,8E308		**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Program sensitive				**link**	No restrictions	

DOUBLE	**$P_ADT [35]**	Active tool offsets transformed		**reference:**	

description:
$P_AD[n]
Active tool offsets transformed
n: Parameter numbers 1 - 34
n = 1-25 $TC_DP1 to $TC_DP25
n = 26 $TC_DPCE
n = 27 $TC_DPH
n = 28 $TC_DPV
n = 29 $TC_DPV3
n = 30 $TC_DPV4
n = 31 $TC_DPV5
n = 32 $TC_DPVN3
n = 33 $TC_DPVN4
n = 34 $TC_DPVN5
An alarm is issued if a compensation parameter belongs to a function that is not active.

Index 1:	n: Parameter numbers 1 - 31 n = 1-25 $TC_DP1 to $TC_DP25 n = 26 $TC_DPCE n = 27 $TC_DPH n = 28 $TC_DPV n = 29 $TC_DPV3 n = 30 $TC_DPV4 n = 31 $TC_DPV5				
unit:	-				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Program sensitive				**link**	No restrictions	

INT	**$P_DLNO**	-	**reference:**	

description:

$P_DLNO

Active additive offset number DL=0 - DL='max.'; 'max'= value of $MN_MM_MAX_SUMCORR_PER_CUTTEDGE

unit:	-				
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$P_TOOL**	-	**reference:**	

description:

$P_TOOL

Active tool cutting edge D0 - D'max.'; 'max'= value of $MN_MM_MAX_CUTTING_EDGE_NO

unit:	-				
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$P_TOOLNO**	-	**reference:**	

description:

$P_TOOLNO

Active tool number T0 - T32000; T can be an 8-digit number when 'flat D number' function is active

This command should not generally be used when magazine management is active.

When magazine management is active, GETEXET should be used instead.

(T number programming always works reliably when $MC_CUTTING_EDGE_DEFAULT=-1, or> 0.

In cases where $MC_CUTTING_EDGE_DEFAULT=0, or =-2, T number read errors can occur.

The T number mechanism is also reliable if it is programmed after D> 0.

Notice: Particularly with a setting of $MC_CUTTING_EDGE_DEFAULT=-2, $P_TOOLNO (the T no. of the active tool with which the currently active D offset has been calculated) and GETEXET (the changed tool) can return different T numbers. ->see also $P_MTHSDC and the documentation relating to the subject of multiple toolholders/spindles.						
unit:	-					
min.:	0	**max.:**	32000	**std:**		0
Properties with regard to reading/writing:						
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**
read:	X	-	7	-	0	-
write:	-	-	0	-	0	-
axis identifier:					**Valuation:**	channel-specific
block search	Not classified				**link**	No restrictions

INT	**$P_TOOLP**	-			**reference:**	
description: $P_TOOLP Last programmed tool number T0 - T32000 (in operation without magazine management). This command cannot be used when magazine management is active. When magazine management is active, GETSELT must be used instead. If the function 'T alarm delay after M06' is active, the result T number = -1 if the preceding T address has been programmed incorrectly.						
unit:	-					
min.:	0	**max.:**	32000	**std:**		0
Properties with regard to reading/writing:						
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**
read:	X	-	7	-	0	-
write:	-	-	0	-	0	-
axis identifier:					**Valuation:**	channel-specific
block search	Program sensitive				**link**	No restrictions

DOUBLE	**$P_TOOLL [3]**	-			**reference:**	
description: $P_TOOLL[n] Active tool total length						
Index 1:	n: Length 1 - 3					
unit:	mm					
min.:	-1,8E308	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:						
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**
read:	X	-	7	-	0	-
write:	-	-	0	-	0	-
axis identifier:					**Valuation:**	channel-specific
block search	Not classified				**link**	No restrictions

DOUBLE	**$P_TOOLO [3]**			Active tool orientation			**reference:**	
description:								
$P_TOOLO[n]								
Active tool orientation								
Index 1:		n: Components 1 - 3						
unit:		-						
min.:		-1,8E308	**max.:**	1,8E308		**std:**		0.0
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**		
read:	X	-	7	-	0	-		
write:	-	-	0	-	0	-		
axis identifier:					**Valuation:**	channel-specific		
block search		Not classified			**link**	No restrictions		

DOUBLE	**$AC_TOOLO_ACT [3]**			Active setpoint orientation			**reference:**	
description:								
$AC_TOOLO_ACT[n]								
Active command orientation								
Index 1:		n: Components 1 - 3						
unit:		-						
min.:		-1.0	**max.:**	1.0		**std:**		0.0
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**		
read:	runin stp	X	7	X	7	X		
write:	-	-	0	-	0	-		
axis identifier:					**Valuation:**	channel-specific		
block search		Not classified			**link**	No restrictions		

DOUBLE	**$AC_TOOLO_END [3]**			Final orientation of the active block			**reference:**	
description:								
$AC_TOOLO_END[n]								
End orientation of active block								
Index 1:		n: Components 1 - 3						
unit:		-						
min.:		-1.0	**max.:**	1.0		**std:**		0.0
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**		
read:	runin stp	X	7	X	7	X		
write:	-	-	0	-	0	-		
axis identifier:					**Valuation:**	channel-specific		
block search		Not classified			**link**	No restrictions		

DOUBLE	**$AC_TOOLO_DIFF**			Remaining angle to the orientation in the active block		**reference:**	
description: $AC_TOOLO_DIFF Remaining angle of tool orientation in active block							
unit:		deg.					
min.:		0.0	**max.:**	360.0	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$VC_TOOLO [3]**			Actual orientation		**reference:**	
description: $VC_TOOLO[n] Actual orientation							
Index 1:		n: Components 1 - 3					
unit:		-					
min.:		-1.0	**max.:**	1.0	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$VC_TOOLO_DIFF**			Angle between set and actual orientation		**reference:**	
description: $VC_TOOLO_DIFF Angle between command and actual orientation							
unit:		deg.					
min.:		0.0	**max.:**	180.0	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

INT	**$VC_TOOLO_STAT**			Status of the calculation of the actual orientation		**reference:**	
description:							
$VC_TOOLO_STAT							
Status of calculation of actual orientation							
unit:		-					
min.:		-1	**max.:**	2147483647		**std:**	0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

INT	**$P_TC**			Active toolholder		**reference:**	
description:							
$P_TC							
Active toolholder							
unit:		-					
min.:		-2147483648	**max.:**	2147483647		**std:**	0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

INT	**$AC_TC**			Active tool carrier		**reference:**	
description:							
$AC_TC							
Active toolholder							
unit:		-					
min.:		-2147483648	**max.:**	2147483647		**std:**	0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

INT	**$P_TCNUM**			Number of tool carriers available in the channel		**reference:**	
description: $P_TCNUM Number of available toolholders in the channel							
unit:	-						
min.:	-2147483648	**max.:**	2147483647	**std:**	0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:				**Valuation:**	channel-specific		
block search	Not classified			**link**	No restrictions		

DOUBLE	**$P_TCANG [2]**			Active angle of a tool carrier axis		**reference:**	
description: $P_TCANG[n] Active angle of a toolholder axis							
Index 1:	n: Angle 1 - 2						
unit:	-						
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:				**Valuation:**	channel-specific		
block search	Not classified			**link**	No restrictions		

DOUBLE	**$P_TCDIFF [2]**			Angle difference with Hirth teeth		**reference:**	
description: $P_TCDIFF[n] Difference between calculated and used angle of a toolholder axis with angle incrementation (Hirth tooth system)							
Index 1:	n: Angle 1 - 2						
unit:	-						
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:				**Valuation:**	channel-specific		
block search	Not classified			**link**	No restrictions		

INT	**$P_TCSOL**	Solution number for tool carrier	**reference:**	

description:

$P_TCSOL

Number of solutions when the angle of the axis of rotation of an orientable tool carrier is defined from a frame

In the case of 0 to 2 solutions, the relevant value is returned.

The return value is 3 when the number of solutions is infinite.

If the angles are specified (TCOABS), the number of solutions is always 1.

unit:	-				
min.:	-2147483648	**max.:**	3	**std:**	0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	

axis identifier:				**Valuation:**	channel-specific
block search	Not classified			**link**	No restrictions

INT	**$P_TCSTAT**	Status of an orientable tool carrier.	**reference:**	

description:

$P_TCSTAT

Specifies the status of an orientatable toolholder.

The variable is bit-coded with the following bit meanings:

0x1 The first axis of rotation exists

0x2 The second axis of rotation exists

0x4 The angles used in the calculation are acquired from an orientation in the frame direction

0x8 The angles used in the calculation have been specified absolutely

0x10 The polar axis angle is uncertain with the toolholder orientated in the frame direction

0x1000 Only the tool is rotatable (kinematic type T)

0x2000 Only the workpiece is rotatable (kinetmatic type P)

0x4000 Tool and workpiece are rotatable (kinematic type M)

The bits specified here are not currently assigned.

unit:	-				
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	

axis identifier:				**Valuation:**	channel-specific
block search	Not classified			**link**	No restrictions

DOUBLE	**$P_TOOLR**			Active tool radius			**reference:**	
description: $P_TOOLR Active tool radius (total)								
unit:		mm						
min.:		-1,8E308	**max.:**	1,8E308		**std:**		0.0
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**		**OEM**	
read:	X	-	7	-	0		-	
write:	-	-	0	-	0		-	
axis identifier:					**Valuation:**		channel-specific	
block search		Not classified			**link**		No restrictions	

INT	**$P_TOOLND [32000]**			Number of edges of tool T			**reference:**	
description: $P_TOOLND[t] Number of tool edges of tool t								
Index 1:		t: T number 1 - 32000						
unit:		-						
min.:		-2147483648	**max.:**	2147483647		**std:**		0
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**		**OEM**	
read:	X	-	7	-	0		-	
write:	-	-	0	-	0		-	
axis identifier:					**Valuation:**		channel-specific	
block search		Not classified			**link**		No restrictions	

BOOL	**$P_TOOLEXIST [32000]**			Tool exists with T no. t			**reference:**	
description: $P_TOOLEXIST[t] Does the tool with T no. t exist								
Index 1:		t: T number 1 - 32000						
unit:		-						
min.:		FALSE	**max.:**	TRUE		**std:**		FALSE
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**		**OEM**	
read:	X	-	7	-	0		-	
write:	-	-	0	-	0		-	
axis identifier:					**Valuation:**		channel-specific	
block search		Program sensitive			**link**		No restrictions	

INT	**$P_D**			Programmed D number (ISO2.1 mode)		**reference:**	
description:							
$P_D							
Programmed D number in ISO_2.1 language mode							
The D number is the tool offset number in ISO mode 2.1 (millling). If no tool offset is active, the value 0 is output.							
The tool offset can be selected with D or H. However, this variable only ever contains the D value.							
unit:		-					
min.:		-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Program sensitive			**link**	No restrictions	

INT	**$P_H**			Programmed H number (ISO2.1 milling)		**reference:**	
description:							
$P_H							
Programmed H number in ISO_2.1 language mode							
The H number is the tool offset number in ISO mode 2.1 (millling). If no tool offset is active, the value 0 is output.							
The tool offset can be selected with D or H. However, this variable only ever contains the H value.							
unit:		-					
min.:		-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Program sensitive			**link**	No restrictions	

INT	**$A_TOOLMN [32000]**			-		**reference:**	
description:							
$A_TOOLMN[t]							
Magazine number of tool t							
Index 1:		t: T number 1 - 32000					
unit:		-					
min.:		-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	

write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$A_TOOLMLN [32000]**		-		**reference:**	
description:						
$A_TOOLMLN[t]						
Magazine location number of tool t						
Index 1:	t: T number 1 - 32000					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$A_MYMN [32000]**		-		**reference:**	
description:						
$A_MYMN[t]						
Number of home magazine of tool with T no. t.						
(A magazine becomes the home magazine of the tool if the tool is being loaded onto a						
magazine location of kind 1 ($TC_MPP1=1).)						
Resulting value = 0 = tool is not loaded (if $A_TOOLMN> 0, then manual tool).						
Resulting value = -1 = tool management is not active						
Resulting value = -2 = tool with T no. t does not exist.						
Index 1:	t: T number 1 - 32000					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$A_MYMLN [32000]**	-	**reference:**	

description:
$A_MYMLN[t]
Number of the home magazine location of the tool with T no. t.
(A magazine location becomes the home magazine location of a tool if the tool is being loaded onto a magazine location of kind 1 ($TC_MPP1=1).)
Resulting value = 0 = tool is not loaded (if $A_TOOLMLN> 0, then manual tool).
Resulting value = -1 = tool management is not active
Resulting value = -2 = tool with T no. t does not exist.

Index 1:	t: T number 1 - 32000					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:				**Valuation:**	channel-specific	
block search	Not classified			**link**	No restrictions	

DOUBLE	**$A_MONIFACT**	-	**reference:**	

description:
$A_MONIFACT
Factor for tool life monitoring

unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	runin stp	X	7	-	0	X	

axis identifier:				**Valuation:**	channel-specific	
block search	Not classified			**link**	No restrictions	

INT	**$P_TOOLNG**	Number of defined tool groups	**reference:**	

description:
$P_TOOLNG
Number of defined tool groups assigned to the channel
OPI block type= TM

unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	

write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$P_TOOLNT**			Number of defined tools		**reference:**	
description:							
$P_TOOLNT							
Number of defined tools assigned to the channel							
OPI block type= TV							
unit:	-						
min.:	-2147483648	**max.:**	2147483647	**std:**	0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$P_TOOLT [600]**			Tool number		**reference:**	
description:							
$P_TOOLT[i]							
ith tool number T							
OPI block type= TV							
Index 1:	i= 1,..., $P_TOOLNT						
unit:	-						
min.:	-2147483648	**max.:**	2147483647	**std:**	0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$P_TOOLD [32000,12]**		D no. of tool T	**reference:**	
description:					
$P_TOOLD[t,i]					
ith D no. of tool with T no. t; i=1,2...					
If t is the value of an undefined tool, -2 is returned					
If i is a value outside the permissible range, 0 is returned					
OPI block type= TO					
Index 1:	t = 1, ..., 32000				
Index 2:	i = 1,....., $P_TOOLND				
unit:	-				

min.:		-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

INT	**$P_USEKT**			Tool selection screen		**reference:**	
description:							
$P_USEKT (= USE Kind of Tool)							
Is a bit-coded value							
All tools whose parameter $TC_TP11 has set one of the bits of $P_USEKT							
are available for the following tool changes. The value 'zero' has the equivalent content of							
'all bits are set'							
OPI block= C/S							
unit:		-					
min.:		-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

INT	**$P_TOOLNDL [32000,32000]**			Number of DL offsets		**reference:**	
description:							
$P_TOOLNDL[t,d]							
Number of DL offsets of D offset specified by T no. t and D no. d							
>0 Number of DL offsets							
0No DL offset for this D offset							
-1Additive offset function not active							
-2t is the value of an undefined tool							
-3 d is the value of an undefined D offset							
OPI block type= TOS; TOE							
Index 1:		t = 1, ..., 32000					
Index 2:		d = 1,....., 32000					
unit:		-					
min.:		-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	

write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$P_MAGN**		Number of defined magazines		**reference:**	
description:						
$P_MAGN						
Number of defined magazines assigned to the channel.						
> 0Successful read access						
0No magazine defined						
-1WZMG is not active						
OPI block= TM						
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$P_MAG [32]**		Magazine number		**reference:**	
description:						
$P_MAG[i]						
ith magazine number						
> 0Successful read access						
0i is outside the permissible range						
-1WZMG is not active						
OPI block= TM						
Index 1:	i= 1,..., $P_MAGN					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$P_MAGNDIS [32000,32000]**			Number of magazines connected to the internal magazine		**reference:**	
description: P_MAGNDIS[n, m] Number of magazines connected to location m of internal magazine n. > 0Successful read access 0No magazine is connected to the buffer location -1WZMG is not active -2n is not the number of an internal magazine -3m is not the number of an internal magazine location OPI block TPM							
Index 1:	n= must be the number of the buffer magazine or of the loading magazine						
Index 2:	m= 1,..., max. number of a location in the named internal magazine						
unit:	-						
min.:	-2147483648		**max.:**	2147483647		**std:**	0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$P_MAGDISS [32000,32]**			Number of the magazine connected to the buffer		**reference:**	
description: P_MAGDISS[l, i] Number of ith magazine connected to location l of the buffer magazine. > 0Successful read access 0i is outside the permissible range -1WZMG is not active -2m is not the number of a buffer magazine location -3 no buffer magazine defined OPI block TPM							
Index 1:	l= 1,..., max. number of a location in the buffer magazine						
Index 2:	i= 1,..., $P_MAGNDIS[No. of the buffer magazine, refLoc]						
unit:	-						
min.:	-2147483648		**max.:**	2147483647		**std:**	0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$P_MAGDISL [32000,32]**			Number of the magazine connected to the loading magazine		**reference:**	
description: P_MAGDISL[l, i] Number of ith magazine connected to location l of the load magazine. > 0Successful read access 0i is outside the permissible range -1WZMG is not active -2m is not the number of a load magazine location -3 no load magazine defined OPI block TPM							
Index 1:	l= 1,..., max. number of a location in the loading magazine						
Index 2:	i= 1,..., $P_MAGNDIS[No. of the loading magazine, refLoc]						
unit:	-						
min.:	-2147483648		**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	-	-	0	-	0	-	

axis identifier:					**Valuation:**	channel-specific
block search	Not classified				**link**	No restrictions

INT	**$P_MAGNS**			Number of spindle locations / toolholder locations in the buffer		**reference:**	
description: $P_MAGNS Number of spindle locations / toolholder locations in the buffer assigned to the channel. > 0Successful read access 0No spindle locations defined -1WZMG is not active -3No buffer magazine defined							
unit:	-						
min.:	-2147483648		**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	

axis identifier:					**Valuation:**	channel-specific
block search	Not classified				**link**	No restrictions

INT	**$P_MAGS [20]**			Number of the spindle / toolholder in the buffer			**reference:**	
description: $P_MAGS[n] nth number of spindle / of toolholder in buffer > 0Successful read access 0n is outside the permissible range -1WZMG is not active -3No buffer magazine defined								
Index 1:		n= 1,..., max. tool holder number						
unit:		-						
min.:		-2147483648	**max.:**	2147483647		**std:**		0
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**		**OEM**	
read:	X	-	7	-	0		-	
write:	-	-	0	-	0		-	
axis identifier:					**Valuation:**		channel-specific	
block search		Not classified			**link**		No restrictions	

INT	**$P_MAGNREL [20]**			Number of buffers assigned			**reference:**	
description: $P_MAGNREL[n] Number of buffers assigned to the spindle number / toolholder number n > 0Successful read access 0No buffer location assigned to spindle location -1WZMG is not active -2n is not the number of a spindle location -3No buffer magazine defined								
Index 1:		n= 1,..., max. tool holder number						
unit:		-						
min.:		-2147483648	**max.:**	2147483647		**std:**		0
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**		**OEM**	
read:	X	-	7	-	0		-	
write:	-	-	0	-	0		-	
axis identifier:					**Valuation:**		channel-specific	
block search		Not classified			**link**		No restrictions	

INT	**$P_MAGREL [20,600]**		Buffer number			**reference:**	
description: P_MAGREL[n, m] mth buffer number of nth spindle number / toolholder number > 0Successful read access 0m is outside the permissible range -1WZMG is not active -2n is not the number of a spindle location -3No buffer magazine defined							
Index 1:	n= 1,..., max. tool holder number						
Index 2:	m= 1,..., $P_MAGNREL						
unit:	-						
min.:	-2147483648	**max.:**	2147483647	**std:**		0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$P_MAGNH**		Number of defined magazine location type hierarchies			**reference:**	
description: $P_MAGNH Number of defined magazine location type hierarchies assigned to the channel. > 0Successful read access 0No location type hierarchies are defined -1WZMG is not active OPI block= TT							
unit:	-						
min.:	-2147483648	**max.:**	2147483647	**std:**		0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$P_MAGNHLT [32]**		Number of defined location types		**reference:**	
description:						
$P_MAGNHLT[n]						
Number of defined location types in the nth defined hierarchy						
> 0Successful read access						
0n is outside the defined range						
-1Function 'Location type hierachy' or TMMG is not active						
OPI block= TT						
Index 1:	n= 1,..., $P_MAGNH					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	-	-	0	-	0	-	

axis identifier:				**Valuation:**	channel-specific	
block search	Not classified			**link**	No restrictions	

INT	**$P_MAGHLT [32,32]**		Location type of the hierarchy		**reference:**	
description:						
P_MAGHLT[n, m]						
mth location type of hierarchy n; n= 1,..., $P_MAGNH; m= 1,..., $P_MAGNHLT						
> 0Successful read access						
0m is outside the defined range						
-1Function 'Location type hierachy' or TMMG is not active						
-2Hierarchy n has no defined location types						
OPI block= TT						
Index 1:	n= 1,..., $P_MAGNH					
Index 2:	m= 1,..., $P_MAGNHLT					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	-	-	0	-	0	-	

axis identifier:				**Valuation:**	channel-specific	
block search	Not classified			**link**	No restrictions	

INT	**$P_MAGNA**			Number of defined adapters			**reference:**	
description: $P_MAGNA Number of defined adapters assigned to the channel. > 0Successful read access 0No adapters defined -1'Adapter' function or TMMG is not active OPI block= AD								
unit:	-							
min.:	-2147483648		**max.:**	2147483647		**std:**		0
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**		**OEM**	
read:	X	-	7	X	7		-	
write:	-	-	0	-	0		-	
axis identifier:					**Valuation:**		channel-specific	
block search	Not classified				**link**		No restrictions	

INT	**$P_MAGA [600]**			Adapter number			**reference:**	
description: $P_MAGA[i] ith adapter number > 0Successful read access 0i is outside the permissible range -1'Adapter' function or TMMG is not active OPI block= AD								
Index 1:	i= 1,..., $P_MAGNA							
unit:	-							
min.:	-2147483648		**max.:**	2147483647		**std:**		0
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**		**OEM**	
read:	X	-	7	X	7		-	
write:	-	-	0	-	0		-	
axis identifier:					**Valuation:**		channel-specific	
block search	Not classified				**link**		No restrictions	

INT	**$P_MTHSDC**	Master spindle/toolholder for tool offset	**reference:**	

description:

$P_MTHSDC

Master toolholder no. or master spindle no. with reference to which the active tool is determined for the next D offset selection.

>0Successful read access

0No master toolholder or master spindle available.

The next D offset works with T0.

-1TMMG not available.

If read as an OPI variable, this is valid for the status in the current main run block

unit:	-				
min.:	-1	**max.:**	20	**std:**	0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	-	-	0	-	0	-	

axis identifier:		**Valuation:**	channel-specific
block search	Not classified	**link**	No restrictions

DOUBLE	**$AC_MONMIN**	-	**reference:**	

description:

$AC_MONMIN

Relation between tool monitoring actual value and setpoint.

Threshold for tool search strategy "Load only tools with

an actual value higher than threshold"

unit:	-				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	runin stp	X	7	-	0	X	

axis identifier:		**Valuation:**	channel-specific
block search	Not classified	**link**	No restrictions

INT	**$P_VDITCP [SLTOMA_MAX_NUM_FREE_PARAM]**	-	**reference:**	

description:

$P_VDITCP[n]

Free parameters for tool management in VDI interface

Index 1:	n: Index 1 - 3				
unit:	-				
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$P_ATPG [9]**		Current tool-related grinding data		**reference:**	
description:						
$P_ATPG[n]						
Current tool-related grinding data						
Index 1:	n: Parameter numbers 1 - 9					
unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**		0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

STRING	**$P_TOOLENV [1]**		Name of a tool environment		**reference:**	
description:						
$P_TOOLENV[i]						
Supplies the name of the tool environment stored under the (internal) index i. If i does not refer to a defined data block, a zero string is returned.						
If index i is invalid, i.e. less than 1 or greater than the maximum number of data blocks for tool environments ($MN_MM_NUM_TOOLENV), an alarm is generated.						
Index 1:	The maximum number of tool environments can be configured via the MD $MN_MM_NUM_TOOLENV.					
Index 3:	Max. string length					
unit:	-					
min.:		**max.:**		**std:**		""

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$P_TOOLENVN**	Number of tool environments available	**reference:**	

description:

$P_TOOLENVN

Specifies the number of defined data blocks for defining tool environments.

unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	

axis identifier:				**Valuation:**	channel-specific
block search	Not classified			**link**	No restrictions

DOUBLE	**$P_AP**	Angle with polar coordinates	**reference:**	

description:

$P_AP

Programmed angle with polar coordinates in degrees

unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	

axis identifier:				**Valuation:**	channel-specific
block search	Not classified			**link**	No restrictions

AXIS	**$P_AXN1**	Axis identifier for the abscissa	**reference:**	

description:

Variable $P_AXN1 supplies the current address of the geometry axis for the abscissa.

unit:	-					
min.:		**max.:**		**std:**	GEOAXISNUM	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	

axis identifier:				**Valuation:**	channel-specific
block search	Not classified			**link**	Not classified

AXIS	**$P_AXN2**			Axis identifier for the ordinate		**reference:**	
description:							
Variable $P_AXN2 supplies the current address of the geometry axis for the ordinate.							
unit:		-					
min.:			**max.:**		**std:**		GEOAXISNUM
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

AXIS	**$P_AXN3**			Axis identifier for the applicate		**reference:**	
description:							
Variable $P_AXN3 supplies the current address of the geometry axis for the applicate.							
unit:		-					
min.:			**max.:**		**std:**		GEOAXISNUM
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

AXIS	**$P_ACTGEOAX [3]**			Current geometry axis identifier		**reference:**	
description:							
Variable $P_ACTGEOAX[n] supplies the current geometry axis identifier depending on the plane. The geometry axis assignment corresponds to the programmed GEOAX(1,X,2,Y,3,Z) values. The assignment can also change on a Reset and on selection and deselection of transformations.							
Index 1:		Array index 1 - 3 for 1st - 3rd geometry axis					
unit:		-					
min.:			**max.:**		**std:**		GEOAXISNUM
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

INT	**$P_GG [61]**	Active G function	**reference:**	

description:

$P_GG[n]

Read active G function of G function group n The index of the G function is supplied as described in the Programming Guide Fundamentals, Section "List of G functions/preparatory functions".

(This also matches the index output at the PLC interface when configured accordingly)

Example:

;Check for G55

IF $P_GG[8] == 3 GOTOF LABEL_G55

Index 1:	n: Number of the G function group					
unit:	-					
min.:	0	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	

axis identifier:				**Valuation:**	channel-specific
block search	Not classified			**link**	Not classified

INT	**$P_EXTGG [31]**	Active G function with external language	**reference:**	

description:

$P_EXTGG[n]

Read active G function of G function group n of external language. The index of the G function is supplied as described in the Function Description "ISO Dialects" Section "G commands".

(This also matches the index output at the PLC interface when configured accordingly)

Example:

;Check for G55 in ISO Dialect T

IF $P_EXTGG[14] == 2 GOTOF LABEL_G55

Index 1:	n: Number of the G function group					
unit:	-					
min.:	0	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	

axis identifier:				**Valuation:**	channel-specific
block search	Not classified			**link**	Not classified

INT	**$A_GG [61]**	Active G function in synchronized action	**reference:**	

description:

$A_GG[n]

Read active G function of G function group n in synchronized action The index of the G function is supplied as described in the Programming Guide Fundamentals, Section "List of G functions/preparatory functions".

(This also matches the index output at the PLC interface when configured accordingly)

Example:

;Check for G55 in synchronized action

WHEN $A_GG[8] == 3 DO ...

Index 1:	n: Number of the G function group						
unit:	-						
min.:	0	**max.:**	2147483647	**std:**	0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	-	X	0	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

BOOL	**$P_SEARCH**	Search run active	**reference:**	

description:

$P_SEARCH

Returns TRUE (1) if block search is active

unit:	-						
min.:	FALSE	**max.:**	TRUE	**std:**	FALSE		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

BOOL	**$P_SEARCH1**	Search with calculation active	**reference:**	

description:

$P_SEARCH1

Returns TRUE (1) if block search with calculation is active.

unit:	-						
min.:	FALSE	**max.:**	TRUE	**std:**	FALSE		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	

write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

BOOL	**$P_SEARCH2**	Block search without calculation was active	**reference:**	

description:
$P_SEARCH2
Returns TRUE (1) if last selected search type was "block search without calculation".

unit:	-				
min.:	FALSE	**max.:**	TRUE	**std:**	FALSE

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$P_SEARCHL**	Last active search type	**reference:**	

description:
$P_SEARCHL
supplies the last selected search type:
(coding analogous to PI service _N_FINDBL)
0 : No search
1 : Search without calculation
2 : Search with calculation on contour
3 : Reserved
4 : Search with calculation at end of block
5 : Search in extended program test

unit:	-				
min.:	0	**max.:**	5	**std:**	0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

BOOL	**$P_SUBPAR [n]**	Parameter programmed	**reference:**	

description:
$P_SUBPAR[n]
Interrogate whether parameter n was actually programmed (TRUE) on subroutine
call with parameter transfer, or whether the system has applied a default
parameter (FALSE).

Index 1:	n: Parameter numbers 1 to n according to the definition in the PROC statement						
unit:	-						
min.:	FALSE	**max.:**	TRUE	**std:**	FALSE		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:				**Valuation:**	channel-specific		
block search	Not classified			**link**	Not classified		

BOOL	**$P_CTABDEF**	Curve table is defined	**reference:**	

description:
Variable $P_CTABDEF determines whether a curve table definition is active.

unit:	-						
min.:	FALSE	**max.:**	TRUE	**std:**	FALSE		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:				**Valuation:**	channel-specific		
block search	Not classified			**link**	Not classified		

BOOL	**$P_IPTRLOCK**	-	**reference:**	

description:
$P_IPTRLOCK
Status of disable for updating the interruption pointer (OPI block InterruptionSearch)
due to part program command IPTRLOCK/IPTRUNLOCK or machine data $MC_AUTO_IPTR_LOCK:
FALSE (0) -> interruption pointer is updated when interruption occurs
TRUE (1) -> the halt block is stored in the interruption pointer

unit:	-						
min.:	FALSE	**max.:**	TRUE	**std:**	FALSE		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	

write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

BOOL	**$P_DELAYFST**	-	**reference:**	

description:
$P_DELAYFST
Interrogation whether delay stop area is active or not depending on part program command DELAYFSTON/DELAYFSTOF.
Note:
Delay stop areas defined by G331/G332 can be interrogated only by a synchronized action due to the restriction to motion blocks and dwell times (see $AC_DELAYFST).
FALSE (0) -> Delay stop area is not active
TRUE (1) -> Delay stop area is active

unit:	-					
min.:	FALSE	**max.:**	TRUE	**std:**	FALSE	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

BOOL	**$AC_DELAYFST**	-	**reference:**	

description:
$AC_DELAYFST
Interrogation in synchronized actions whether delay stop area is active or not due to part program command DELAYFSTON/DELAYFSTOF or G331/G332.
Note:
If $AC_DELAYFST is used outside synchronized actions in the part program, then, analogous to $P_DELAYFST, the delay stop areas defined with G331/G332 cannot be interrogated owing to the restriction to motion blocks and dwell times (see $P_DELAYFST).
FALSE (0) -> Delay stop area is not active
TRUE (1) -> Delay stop area is active

unit:	-					
min.:	FALSE	**max.:**	TRUE	**std:**	FALSE	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	

write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$P_MC**			Modal subroutine call active		**reference:**	
description:							
$P_MC							
Status of modal subroutine call							
FALSE (0) -> no modal subroutine call							
TRUE (1) -> modal subroutine call active							
unit:	-						
min.:	FALSE	**max.:**	TRUE	**std:**	0		
Properties with regard to reading/writing:							

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$P_REPINF**			Repositioning possible		**reference:**	
description:							
$P_REPINF							
Status info for repositioning with REPOS command							
FALSE (0) -> Axis cannot be repositioned with REPOS command for following reasons							
- Call is not issued in an Asub							
- Call is issued by an Asub that has been started in the Reset state							
- Call is issued by an Asub that has been started in JOG mode							
TRUE (1) -> Axis can be repositioned with REPOS							
unit:	-						
min.:	FALSE	**max.:**	TRUE	**std:**	0		
Properties with regard to reading/writing:							

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

BOOL	**$P_SIM**			NCK simulation active		**reference:**	
description:							
The variable $P_SIM returns TRUE if the NCK specifically generated for simulation products is used. This simNCK is used in the products HMI Simulation, virtual NCK (VNCK) and SinuTrain.							
unit:	-						
min.:	FALSE	**max.:**	TRUE	**std:**	FALSE		

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

BOOL	**$P_DRYRUN**		Dry run feed selected		**reference:**	
description:						
$P_DRYRUN						
Returns TRUE (1) if dry run feed is selected, or else FALSE (0).						
unit:	-					
min.:	FALSE	**max.:**	TRUE	**std:**	FALSE	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$P_OFFN**		Programmed contour offset		**reference:**	
description:						
$P_OFFN						
Programmed contour offset						
unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$PI**		Circle constant		**reference:**	
description:						
Variable $PI determines the circle constant PI = 3.1415927.						
unit:	-					
min.:	3.1415927	**max.:**	3.1415927	**std:**	0.0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	

write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Independent				**link**	No restrictions	

INT	**$P_PROG_EVENT**	Event-driven program call active	**reference:**	

description:

System variable $P_PROG_EVENT can be used to query whether the program has been activated implicitly by an event configured with $MC_PROG_EVENT_MASK or $MN_SEARCH_RUN_MODE.

$P_PROG_EVENT supplies an integer value between 0 and 6 with the following meaning:

0:Explicit activation by NC Start or Asub Start via VDI or Asub interface

1: Implicit activation by "Part program start" event

2:Implicit activation by "Part program end" event

3:Implicit activation by "Operator panel reset" event

4:Implicit activation by "Boot" event

5:Implicit activation after output of last action block following block search

6:Implicit activation of /_N_CST_DIR/_N_SAFE_SPF by "Boot" event (Power-on Safety Event)

unit:	-						
min.:	0	**max.:**	6	**std:**	0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

STRING	**$P_PROGPATH**	Path of the current program	**reference:**	

description:

$P_PROGPATH

Supplies the path where the program currently being processed is stored in the file system.

Example:

Subprogram "/_N_WKS_DIR/_N_WELLE_DIR/_N_MYSUB_SPF" is running.

$P_PROGPATH returns the string "/_N_WKS_DIR/_N_WELLE_DIR/".

Index 3:	Max. string length						
unit:	-						
min.:		**max.:**		**std:**	""		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

STRING	**$P_PROG [18]**				Program name of a program level			**reference:**	
description: $P_PROG[n] Supplies the name of the program on program level n. Example: $P_PROG[0] Supplies the name of the program on program level 0 = main program name.									
Index 1:	n: Specifies the program level from which the program name is to be read. Numerical value: 0 to 11								
Index 3:	Max. string length								
unit:	-								
min.:			**max.:**			**std:**		""	
Properties with regard to reading/writing:									
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**	**OEM**		
read:	X	-	7		-	0	-		
write:	-	-	0		-	0	-		
axis identifier:						**Valuation:**	channel-specific		
block search	Not classified					**link**	Not classified		

INT	**$P_STACK**				Current program level			**reference:**	
description: $P_STACK Supplies the program level on which the current part program is running.									
unit:	-								
min.:	0		**max.:**		11	**std:**		0	
Properties with regard to reading/writing:									
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**	**OEM**		
read:	X	-	7		-	0	-		
write:	-	-	0		-	0	-		
axis identifier:						**Valuation:**	channel-specific		
block search	Not classified					**link**	Not classified		

INT	**$P_ISO_STACK**	Current program level in ISO mode	**reference:**	

description:

$P_ISO_STACK

The variable supplies the current program level in ISO mode. Unlike Siemens mode, not every subprogram or macro call changes the program level in ISO mode.

Subprogram/macro calls and their effect on $P_ISO_STACK:

M98 Pxx ,subprogram call$P_ISO_STACK remains the same

G65 Pxx ,non-modal macro$P_ISO_STACK is incremented

G66 Pxx ,modal macro$P_ISO_STACK is incremented

M macro substitution$P_ISO_STACK is incremented

M subprogram substitution$P_ISO_STACK remains the same

T substitution$P_ISO_STACK remains the same

G substitution$P_ISO_STACK is incremented

802S/C:Value range = [0,5]

unit:	-				
min.:	-2147483648	**max.:**	11	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	

axis identifier:			**Valuation:**	channel-specific	
block search	Not classified		**link**	Not classified	

STRING	**$P_PATH [18]**	Path of a program level	**reference:**	

description:

$P_PATH[n]

Supplies the path where the program being processed on program level n is stored in the file system.

Examples:

$P_PATH[0] supplies the directory of the main program, e.g. "/_N_WKS_DIR/_N_WELLE_WPD/".

$P_PATH[$P_STACK - 1] supplies the path of the calling program.

Index 1:	n: Defines the program level from which the program path is to be read. Numerical value: 0 to 11				
Index 3:	Max. string length				
unit:	-				
min.:		**max.:**		**std:**	""

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	

axis identifier:			**Valuation:**	channel-specific	
block search	Not classified		**link**	Not classified	

BOOL	**$P_ACTID [16]**			Modal synchronized action is programmed			**reference:**	
description:								
Variable $P_ACTID[n] determines whether the first 16 modal synchronized actions with ID n are programmed.								
Index 1:		Index 1 - 16 corresponds to the nth modal synchronized action.						
unit:		-						
min.:		FALSE	**max.:**	TRUE		**std:**		FALSE
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**		**OEM**	
read:	X	-	7	-	0		-	
write:	-	-	0	-	0		-	
axis identifier:					**Valuation:**		channel-specific	
block search		Not classified			**link**		Not classified	

INT	**$AC_STAT**			-			**reference:**	
description:								
$AC_STAT								
-1: Invalid								
0: Channel in Reset state								
1: Channel interrupted								
2: Channel active								
unit:		-						
min.:		-1	**max.:**	2		**std:**		0
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**		**OEM**	
read:	-	X	0	X	7		X	
write:	-	-	0	-	0		-	
axis identifier:					**Valuation:**		channel-specific	
block search		Not classified			**link**		Not classified	

INT	**$AC_PROG**			-			**reference:**	
description:								
$AC_PROG								
-1: Invalid								
0: Program in Reset state								
1: Program stopped								
2: Program active								
3: Program waiting								
4: Program interrupted								
unit:		-						
min.:		-1	**max.:**	4		**std:**		0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$AC_SYNA_MEM**		Free synchronized action elements		**reference:**	
description:						
Variable $AC_SYNA_MEM determines the number of free synchronized action elements. The maximum number of elements is configured by $MC_MM_NUM_SYNC_ELEMENTS.						
The value is read from the part program without a preprocessing stop.						
unit:	-					
min.:	0	**max.:**	2147483647	**std:**	0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$AC_IPO_BUF**		Fill level Ipo buffer		**reference:**	
description:						
Variable $AC_IPO_BUF determines the current fill level of the interpolator buffer.						
The value is read from the part program without a preprocessing stop.						
unit:	-					
min.:	0	**max.:**	2147483647	**std:**	0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$AC_BLOCKTYPE**	Block type	**reference:**	
description:				
Variable $AC_BLOCKTYPE determines the type of the current main run block.				
The following values are possible:				
0: Block is programmed block (main block).				
1: Block was generated by the system as an intermediate block.				
2: Block was generated by chamfers/rounding				
3: Smooth approach and retraction (SAR)				
4: Block was generated by tool offset				

5: Block was generated by smoothing
6: Block was generated by TLIFT (tangential follow-up)
7: Block was generated by path segmentation
8: Block was generated by compile cycles
9: Block was generated due to orientation changes on path-relative interpolation of tool orientation (ORIPATH/ORIROTC)
10: Block was generated by pole treatment of orientation transformations which is activated by the the machine data $MC_POLE_ORI_MODE

unit:	-					
min.:	0	**max.:**	9	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	-	X	0	X	7	-	
write:	-	-	0	-	0	-	

axis identifier:		**Valuation:**	channel-specific
block search	Not classified	**link**	Not classified

INT	**$AC_BLOCKTYPEINFO**	Block type info	**reference:**	

description:

System variable $AC_BLOCKTYPEINFO can be used to interrogate more
detailed information about variable $AC_BLOCKTYPE.
Depending on the value of system variable $AC_BLOCKTYPE, various values can be
returned:
1. General, internally generated block: $AC_BLOCKTYPE = 1
$AC_BLOCKTYPEINFO = 1000 and contains no further information.
2. Chamfer/rounding: $AC_BLOCKTYPE = 2
2001: Straight
2002: Circle
3. SAR: $AC_BLOCKTYPE = 3
3001: Approach with straight line
3002: Approach with quadrant
3003: Approach with semicircle
4. Tool compensation: $AC_BLOCKTYPE = 4
4001: Approach block after STOPRE
4002: Connection blocks if intersection point not found
4003: Point-type circle on inner corners (with TRACYL only)
4004: Bypass circle (or conical cut) at outer corners
4005: Approach blocks with offset suppression
4006: Approach blocks on repeated WRC activation
4007: Block split due to excessive curvature
4008: Compensation blocks with 3D face milling (tool vector || area vector)

5. Smoothing: $AC_BLOCKTYPE = 5
5001: Smoothing contour by means of G641
5002: Smoothing contour by means of G642
5003: Smoothing contour by means of G643
5004: Smoothing contour by means of G644
6. TLIFT: $AC_BLOCKTYPE = 6
6001: TLIFT block with linear movement of tangential axis and without lift motion.
6002: TLIFT block with nonlinear movement of tangential axis (polynomial)
and without lift movement.
6003: TLIFT block with lift motion, tangential axis motion and lift motion
start simultaneously.
6004: TLIFT block with lift motion, tangential axis starts first if specific lift
position is reached.
7. Path segmentation: $AC_BLOCKTYPE = 7
7001: Programmed path segmentation without active punching/nibbling
7002: Programmed path segmentation with active punching/nibbling
7003: Automatic, internally generated path segmentation
8. Compile cycles: $AC_BLOCKTYPE = 8
In this case, system variable $AC_BLOCKTYPEINFO contains the ID of the compile cycles
Application which created the block
9. Path-relative interpolation of tool orientation (ORIPATH/ORIROTC)
9000: interpolation of tool orientation (ORIPATH)
9001: interpolation of rotation of tool (ORIROTC)
10: Pole treatment for orientstion transformations
10000: Look ahead of position of pole axis for orientation transformations
10001 Inserted block for traversing the pole cone at orientation transformations:

unit:		-					
min.:		0	**max.:**	2147483647		**std:**	0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	-	X	0	X	7	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

INT	**$AC_SPLITBLOCK**	-	**reference:**	

description:
System variable $AC_SPLITBLOCK is capable of detecting all blocks generated
internally and programmed blocks which were truncated as a result.
It can return the following values:
= 0 : It is an unchanged programmed block (a block generated by the compressor
is viewed here as a programmed block).

<> 0: Block has been truncated or is an internally generated block, the variable can assume the following values (variable is bit-coded): = 1: It is an internally generated block or a truncated original block = 3: It is the last block in a chain of internally generated blocks or truncated original blocks							
unit:		-					
min.:		0	**max.:**	3	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	-	X	0	X	7	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

DOUBLE	**$AC_TANEB**	Tangent angle at block end point	**reference:**	
description: $AC_TANEB determines the angle between the path tangent at the end of the current block and the path tangent at the start of the next block. This variable should only be applied to programmed main blocks. $AC_BLOCKTYPE can be used to determine whether the current block is a main block.				

unit:		-					
min.:		-180.0	**max.:**	180.0	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	-	X	0	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

DOUBLE	**$AC_SYNC_ACT_LOAD**	Current runtime for synchronized actions	**reference:**	
description: Variable $AC_SYNC_ACT_LOAD supplies the current runtime for synchronized actions of the last interpolator cycle in the channel.				

unit:		-					
min.:		-1,8E308	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

DOUBLE	**$AC_SYNC_MAX_LOAD**			Longest runtime for synchronized actions			**reference:**	
description:								
Variable $AC_SYNC_MAX_LOAD supplies the longest runtime for synchronized actions of an interpolator cycle in the channel.								
unit:		-						
min.:		-1,8E308	**max.:**	1,8E308		**std:**		0.0
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**		**OEM**	
read:	X	X	7	X	7		X	
write:	X	X	7	-	0		X	
axis identifier:					**Valuation:**		channel-specific	
block search		Not classified			**link**		Not classified	

DOUBLE	**$AC_SYNC_AVERAGE_LOAD**			Average runtime for synchronized actions			**reference:**	
description:								
Variable $AC_SYNC_AVERAGE_LOAD supplies the average runtime per interpolator cycle for synchronized actions in the channel.								
unit:		-						
min.:		-1,8E308	**max.:**	1,8E308		**std:**		0.0
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**		**OEM**	
read:	X	X	7	X	7		X	
write:	X	X	7	-	0		X	
axis identifier:					**Valuation:**		channel-specific	
block search		Not classified			**link**		Not classified	

INT	**$AC_IW_STAT**			Position information for PTP			**reference:**	
description:								
Variable $AC_IW_STAT describes the position information of the articulated joints (transformation-specific) for cartesian PTP travel. The variable is relevant only for transformations which support PTP.								
unit:		-						
min.:		-2147483648	**max.:**	2147483647		**std:**		0
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**		**OEM**	
read:	runin stp	X	7	X	7		X	
write:	-	-	0	-	0		-	
axis identifier:					**Valuation:**		channel-specific	
block search		Not classified			**link**		Not classified	

INT	**$AC_IW_TU**			Position information of axes for PTP		**reference:**	
description:							
Variable $AC_IW_TU describes the position information of the axes (MCS) for cartesian PTP travel.							
The variable is relevant only for transformations which support PTP.							
unit:		-					
min.:		-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

INT	**$AC_TRANS_SYS**			Reference system for cart. manual trav. (trans.)		**reference:**	
description:							
$AC_TRANS_SYS							
Reference system for translation with cartesian manual travel							
0: Axis-spec. manual trav. active							
1: Cart. manual trav. in BCS							
2: Cart. manual trav. in WCS							
3: Cart. manual trav. in TCS							
Only appropriate in connection with transformations which support cart. manual travel.							
unit:		-					
min.:		0	**max.:**	3	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

INT	**$AC_JOG_COORD**			Coordinate system for manual travel		**reference:**	
description:							
Variable $AC_JOG_COORD is used to set the coordinate system frame for manual travel.							
The following values are possible:							
0: Manual travel in WCS							
1: Manual travel in SZS							
unit:		-					
min.:		0	**max.:**	1	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	

write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$AC_ROT_SYS**		Reference system for cart. manual trav. (ori.)		**reference:**	
description:						
$AC_ROT_SYS						
Reference system for orientation with cartesian manual travel						
0: Axis-spec. manual trav. active						
1: Cart. manual trav. in BCS						
2: Cart. manual trav. in PCS						
3: Cart. manual trav. in TCS						
Only appropriate in connection with transformations which support cart. manual travel.						
unit:	-					
min.:	0	**max.:**	3	**std:**		0
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$AC_MEA [2]**		Probe has switched		**reference:**	
description:						
$AC_MEA[n]						
Probe with number [n] has switched if TRUE (1)						
Index 1:	n: Number of the probe 1 - 2					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$AC_TRAFO**	Active transformation	**reference:**	
description:				
$AC_TRAFO				
Code number of active transformation				
according to machine data $MC_TRAFO_TYPE_n				
.				

Note special meaning in the case of parameterized persistent transformation (bit 1 of $MC_TRAFO_MODE_MASK set to 1): The parameters of the first chained transformation are returned in the case of TRACON. 0 is returned if only the persistent transformation is active.							
unit:		-					
min.:		-2147483648	**max.:**	2147483647		**std:**	0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

INT	**$P_TRAFO**	Programmed transformation	**reference:**	
description: $P_TRAFO Code number of programmed transformation according to machine data $MC_TRAFO_TYPE_n . Note special meaning in the case of parameterized persistent transformation (bit 1 of $MC_TRAFO_MODE_MASK set to 1): The first chained transformation is returned in the case of TRACON. 0 is returned if only the persistent transformation is active.				

unit:		-					
min.:		-2147483648	**max.:**	2147483647		**std:**	0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

DOUBLE	**$AC_TRAFO_PAR [n]**	Transformation selection parameters	**reference:**	
description: $AC_TRAFO_PAR[n] Selection parameters of active transformation . Please note special meaning when persistent transformation is configured (Bit 1 of $MC_TRAFO_MODE_MASK is set to 1): The parameters of the first chained transformation are returned in the case of TRACON. 0 is returned if only the persistent transformation is active.				

Index 1:		n: Number of the parameter				
unit:		-				
min.:	-1,8E308	**max.:**	1,8E308		**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$P_TRAFO_PAR [n]**	Progr. transformation selection parameters	**reference:**	

description:
$P_TRAFO_PAR[n]
Selection parameters of programmed transformation
.
Please note special meaning when persistent transformation is configured
(Bit 1 of $MC_TRAFO_MODE_MASK is set to 1):
The parameters of the first chained transformation are returned in the case of TRACON.
0 is returned if only the persistent transformation is active.

Index 1:	n: Number of the parameter				
unit:	-				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$AC_TRAFO_PARSET**	Transformation data set number	**reference:**	

description:
$AC_TRAFO_PARSET
Number of active transformation data block
Variable is '0' is no transformation is active
.
Please note special meaning when persistent transformation is configured
(Bit 1 of $MC_TRAFO_MODE_MASK is set to 1):
The number of the data set of the first chained transformation is returned in the case of TRACON.
is returned.
0 is returned if only the persistent transformation is active.

unit:	-				
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	

write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$P_TRAFO_PARSET**	Transformation data set number	**reference:**	

description:
$P_TRAFO_PARSET
Number of programmed transformation data block
Variable is '0' is no transformation is active
.
Please note special meaning when persistent transformation is configured
(Bit 1 of $MC_TRAFO_MODE_MASK is set to 1):
The number of the data set of the first chained transformation is returned in the case of TRACON.
is returned.
0 is returned if only the persistent transformation is active.

unit:	-						
min.:	-2147483648	**max.:**	2147483647	**std:**	0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$AC_LIFTFAST**	State of the liftfast	**reference:**	

description:
$AC_LIFTFAST
Information about execution of rapid lift.
0: Initial state.
1: Rapid lift has been executed.
The variable is set internally
to "1" by the NC at the beginning of the rapid lift process.
The variable must be reset to its initial state
($AC_LIFTFAST=0) by the evaluating program (if one is configured)
so that any subsequent rapid lift process can be detected again.

unit:	-						
min.:	-2147483648	**max.:**	1	**std:**	0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	runin stp	X	7	-	0	X	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$P_LIFTFAST**	Status of liftfast	**reference:**	

description:
$P_LIFTFAST
Information about execution of rapid lift.
0: Initial state.
1: Rapid lift has been executed.
The variable is set internally
to "1" by the NC at the beginning of the rapid lift process.
The variable must be reset to its initial state ($AC_LIFTFAST=0)
by the evaluating program (if one is configured) so that any subsequent
rapid lift process can be detected again.
The variable is reset by writing $AC_LIFTFAST!

unit:	-				
min.:	-2147483648	**max.:**	1	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	

axis identifier:				**Valuation:**	channel-specific	
block search	Not classified			**link**	Not classified	

INT	**$AC_ASUP**	-	**reference:**	

description:
$AC_ASUP
Code number for the reason for activating an ASUB. The reasons are bit-coded
and have the following meaning:
BIT0: Activation due to: user interrupt "ASUB with Blsync"
Activation by: VDI signal, digital-analog interface
Continued by: Freely selectable Reorg or Ret
BIT1: Activation due to: User interrupt "ASUB"
To continue the program with Repos, the position immediately prior
to the interrupt is stored.
Activation by: VDI signal, digital-analog interface
Continued by: Freely selectable
BIT2: Activation due to: user interrupt "ASUB from channel state Ready"
Activation by: VDI signal, digital-analog interface
Continued by: Freely selectable
BIT3: Activation due to: user interrupt "ASUB in a manual mode
and channel state not READY"
Activation by: VDI signal, digital-analog interface
Continued by: Freely selectable

BIT4: Activation due to: Activation due to: User interrupt "ASUB".
To continue the program with Repos, the current position at the moment
of interrupt is stored.
Activation by: VDI signal, digital-analog interface
Continued by: Freely selectable
BIT5: Activation due to: Cancellation of subroutine repeat
Activation by: VDI signal
Continued by: Execution of system ASUB REPOS
BIT6: Activation due to: Activation of decoding single block
Activation by: VDI signal (+OPI)
Continued by: Execution of system ASUB REPOS
BIT7: Activation due to: Activation of delete distance to go
Activation by: VDI signal
Continued by: Execution of system ASUB Ret
BIT8: Activation due to: Activation of axis synchronization
Activation by: VDI signal
Continued by: Execution of system ASUB REPOS
BIT9: Activation due to: Mode change
Activation by: VDI signal
Continued by: Execution of system ASUB REPOS or RET (see MD.)
BIT10: Activation due to: Program continuation under TeachIn or after TeachIn deactivation
Activation by: VDI signal
Continued by: Execution of system ASUB Ret
BIT11: Activation due to: Overstore selection
Activation by: Pi selection
Continued by: Execution of system ASUB REPOS
BIT12: Activation due to: Alarm with reaction 'offset block with Repos' (COMPBLOCKWITHREORG)
Activation by: Internal
Continued by: Execution of system ASUB REPOS
BIT13: Activation due to: Retraction with G33 and Stop
Activation by: Internal
Continued by: Execution of system ASUB Ret
BIT14: Activation due to: Activation of dry run feedrate
Activation by: VDI
Continued by: Execution of system ASUB REPOS
BIT15: Activation due to: Deactivation of dry run feedrate
Activation by: VDI
Continued by: Execution of system ASUB REPOS
BIT16: Activation due to: Activation of block suppression
Activation by: VDI
Continued by: Execution of system ASUB REPOS
BIT17: Activation due to: Deactivation of block suppression
Activation by: VDI
Continued by: Execution of system ASUB REPOS

BIT18: Activation due to: Activate machine data
Activation by: Pi
Continued by: Execution of system ASUB REPOS
BIT19: Activation due to: Activate tool offset
Activation by: Pi "_N_SETUDT"
Continued by: Execution of system ASUB REPOS
BIT20: Activation due to: System ASUB after search type SERUPRO has reached the search target.
Activation by: Pi "_N_FINDBL" Parameter == 5
Continued by: Execution of system ASUB REPOS
BIT21: Activation due to: Selection of external work offset
Activation by: VDI signal
Continued by: Execution of system ASUB REPOS

unit:		-					
min.:		-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

BOOL	**$P_ISTEST**	Program test active	**reference:**	

description:
$P_ISTEST
Returns TRUE (1) if program test is active.

unit:		-					
min.:		FALSE	**max.:**	TRUE	**std:**		FALSE
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

STRING	**$P_MMCA**	Task acknowledgement for MMC command	**reference:**	

description:
$P_MMCA
Task acknowledgement for MMC command

Index 3:		Max. string length					
unit:		-					
min.:			**max.:**		**std:**		""

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

BOOL	**$A_PROTO**	Activate logging function for 1st user	**reference:**	

description:

$A_PROTO

Activate / deactivate logging function for the first user. Corresponds to $A_PROTOC[0].

unit:	-				
min.:	FALSE	**max.:**	TRUE	**std:**	FALSE

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	runin stp	X	7	X	7	X	
axis identifier:					**Valuation:**	Cross-channel	
block search	Not classified				**link**	Not classified	

BOOL	**$A_PROTOC [10]**	Activate logging function for user	**reference:**	

description:

$A_PROTOC

Activate / deactivate logging function for a user. Corresponds to OPI variable protocUserActive.

Index 1:	Index of the user of the logging function.				
unit:	-				
min.:	FALSE	**max.:**	TRUE	**std:**	FALSE

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	runin stp	X	7	X	7	X	
axis identifier:					**Valuation:**	Cross-channel	
block search	Not classified				**link**	Not classified	

INT	**$A_PROT_LOCK [10]**	Disable/enable the logging function for a user	**reference:**	

description:

$A_PROT_LOCK

Disable / enable logging function temporarily for a user

Index 1:	0 - 10-1, USER				
unit:	-				
min.:	0	**max.:**	2	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	runin stp	X	7	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

DOUBLE	**$AC_FIFO1 [n]**	1st FIFO stack	**reference:**	

description:

Variable $AC_FIFO1[n] is a stack with first in first out characteristics. This stack memory can be used for cyclic measuring operations.

$MC_NUM_AC_FIFO is used to define the number of FIFO variables $AC_FIFO1 - $AC_FIFO10.

The elements of the stack memory are saved in R variables. The length of all FIFO variables is configured with $MC_LEN_AC_FIFO.

$MC_START_AC_FIFO is used to specify the number of the start R variable, from which the FIFO elements are stored.

R variables assigned to FIFO areas should not be written elsewhere.

The number of R variables must be set in machine data $MC_MM_NUM_R_PARAM such that all FIFO variables can be accommodated:

$MC_MM_NUM_R_PARAM = $MC_MM_START_FIFO + $MC_NUM_AC_FIFO * ($MC_LEN_AC_FIFO + 6)

The FIFO variable is an array variable.

Indices 0 - 5 have special meanings:

n = 0: When written with index 0, a new value is stored in the FIFO.

When read with index 0, the oldest element is read and removed from the FIFO.

n=1: Access to the first element read

n=2: Access to the second element read

n=3: Total of all FIFO elements if Bit0 in $MC_MM_MODE_FIFO is set.

n=4: Number of elements available in the FIFO

n=5: Current write index relative to the start of the FIFO

n=6: Oldest element

n=7: Second oldest etc.

Index 1:	The dimension is configured via $MC_LEN_AC_FIFO.				
unit:	-				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	X	X	7	-	0	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

DOUBLE	**$AC_FIFO2 [n]**	2. FIFO stack	**reference:**	

description:

Variable $AC_FIFO2[n] is a stack with first in first out characteristics. This stack memory can be used for cyclic measuring operations.

$MC_NUM_AC_FIFO is used to define the number of FIFO variables $AC_FIFO1 - $AC_FIFO10.

The elements of the stack memory are saved in R variables. The length of all FIFO variables is configured with $MC_LEN_AC_FIFO.

$MC_START_AC_FIFO is used to specify the number of the start R variable, from which the FIFO elements are stored.

R variables assigned to FIFO areas should not be written elsewhere.

The number of R variables must be set in machine data $MC_MM_NUM_R_PARAM such that all FIFO variables can be accommodated:

$MC_MM_NUM_R_PARAM = $MC_MM_START_FIFO + $MC_NUM_AC_FIFO * ($MC_LEN_AC_FIFO + 6)

The FIFO variable is an array variable.

Indices 0 - 5 have special meanings:

n = 0: When written with index 0, a new value is stored in the FIFO.

When read with index 0, the oldest element is read and removed from the FIFO.

n=1: Access to the first element read

n=2: Access to the second element read

n=3: Total of all FIFO elements if Bit0 in $MC_MM_MODE_FIFO is set.

n=4: Number of elements available in the FIFO

n=5: Current write index relative to the start of the FIFO

n=6: Oldest element

n=7: Second oldest etc.

Index 1:	The dimension is configured via $MC_LEN_AC_FIFO.					
unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**		0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	X	X	7	-	0	X	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$AC_FIFO3 [n]**	3. FIFO stack	**reference:**	

description:

Variable $AC_FIFO3[n] is a stack with first in first out characteristics. This stack memory can be used for cyclic measuring operations.

$MC_NUM_AC_FIFO is used to define the number of FIFO variables $AC_FIFO1 - $AC_FIFO10.

The elements of the stack memory are saved in R variables. The length of all FIFO variables is configured with $MC_LEN_AC_FIFO.

$MC_START_AC_FIFO is used to specify the number of the start R variable, from which the FIFO elements are stored.

R variables assigned to FIFO areas should not be written elsewhere.

The number of R variables must be set in machine data $MC_MM_NUM_R_PARAM such that all FIFO variables can be accommodated:

$MC_MM_NUM_R_PARAM = $MC_MM_START_FIFO + $MC_NUM_AC_FIFO * ($MC_LEN_AC_FIFO + 6)

The FIFO variable is an array variable.

Indices 0 - 5 have special meanings:

n = 0: When written with index 0, a new value is stored in the FIFO.

When read with index 0, the oldest element is read and removed from the FIFO.

n=1: Access to the first element read

n=2: Access to the second element read

n=3: Total of all FIFO elements if Bit0 in $MC_MM_MODE_FIFO is set.

n=4: Number of elements available in the FIFO

n=5: Current write index relative to the start of the FIFO

n=6: Oldest element

n=7: Second oldest etc.

Index 1:	The dimension is configured via $MC_LEN_AC_FIFO.						
unit:	-						
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	X	X	7	-	0	X	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$AC_FIFO4 [n]**	4. FIFO stack	**reference:**	

description:

Variable $AC_FIFO4[n] is a stack with first in first out characteristics. This stack memory can be used for cyclic measuring operations.

$MC_NUM_AC_FIFO is used to define the number of FIFO variables $AC_FIFO1 - $AC_FIFO10.

The elements of the stack memory are saved in R variables. The length of all FIFO variables is configured with $MC_LEN_AC_FIFO.

$MC_START_AC_FIFO is used to specify the number of the start R variable, from which the FIFO elements are stored.

R variables assigned to FIFO areas should not be written elsewhere.

The number of R variables must be set in machine data $MC_MM_NUM_R_PARAM such that all FIFO variables can be accommodated:

$MC_MM_NUM_R_PARAM = $MC_MM_START_FIFO + $MC_NUM_AC_FIFO * ($MC_LEN_AC_FIFO + 6)

The FIFO variable is an array variable.

Indices 0 - 5 have special meanings:

n = 0: When written with index 0, a new value is stored in the FIFO.

When read with index 0, the oldest element is read and removed from the FIFO.

n=1: Access to the first element read

n=2: Access to the second element read

n=3: Total of all FIFO elements if Bit0 in $MC_MM_MODE_FIFO is set.

n=4: Number of elements available in the FIFO n=5: Current write index relative to the start of the FIFO n=6: Oldest element n=7: Second oldest etc.							
Index 1:	The dimension is configured via $MC_LEN_AC_FIFO.						
unit:	-						
min.:	-1,8E308	**max.:**	1,8E308		**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	X	X	7	-	0	X	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$AC_FIFO5 [n]**	5. FIFO stack	**reference:**	

description:

Variable $AC_FIFO5[n] is a stack with first in first out characteristics. This stack memory can be used for cyclic measuring operations.

$MC_NUM_AC_FIFO is used to define the number of FIFO variables $AC_FIFO1 - $AC_FIFO10.

The elements of the stack memory are saved in R variables. The length of all FIFO variables is configured with $MC_LEN_AC_FIFO.

$MC_START_AC_FIFO is used to specify the number of the start R variable, from which the FIFO elements are stored.

R variables assigned to FIFO areas should not be written elsewhere.

The number of R variables must be set in machine data $MC_MM_NUM_R_PARAM such that all FIFO variables can be accommodated:

$MC_MM_NUM_R_PARAM = $MC_MM_START_FIFO + $MC_NUM_AC_FIFO * ($MC_LEN_AC_FIFO + 6)

The FIFO variable is an array variable.

Indices 0 - 5 have special meanings:

n = 0: When written with index 0, a new value is stored in the FIFO.

When read with index 0, the oldest element is read and removed from the FIFO.

n=1: Access to the first element read

n=2: Access to the second element read

n=3: Total of all FIFO elements if Bit0 in $MC_MM_MODE_FIFO is set.

n=4: Number of elements available in the FIFO

n=5: Current write index relative to the start of the FIFO

n=6: Oldest element

n=7: Second oldest etc.

Index 1:	The dimension is configured via $MC_LEN_AC_FIFO.						
unit:	-						
min.:	-1,8E308	**max.:**	1,8E308		**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	

write:	X	X	7	-	0	X	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$AC_FIFO6 [n]**	6. FIFO stack	**reference:**	

description:

Variable $AC_FIFO6[n] is a stack with first in first out characteristics. This stack memory can be used for cyclic measuring operations.

$MC_NUM_AC_FIFO is used to define the number of FIFO variables $AC_FIFO1 - $AC_FIFO10.

The elements of the stack memory are saved in R variables. The length of all FIFO variables is configured with $MC_LEN_AC_FIFO.

$MC_START_AC_FIFO is used to specify the number of the start R variable, from which the FIFO elements are stored.

R variables assigned to FIFO areas should not be written elsewhere.

The number of R variables must be set in machine data $MC_MM_NUM_R_PARAM such that all FIFO variables can be accommodated:

$MC_MM_NUM_R_PARAM = $MC_MM_START_FIFO + $MC_NUM_AC_FIFO * ($MC_LEN_AC_FIFO + 6)

The FIFO variable is an array variable.

Indices 0 - 5 have special meanings:

n = 0: When written with index 0, a new value is stored in the FIFO.

When read with index 0, the oldest element is read and removed from the FIFO.

n=1: Access to the first element read

n=2: Access to the second element read

n=3: Total of all FIFO elements if Bit0 in $MC_MM_MODE_FIFO is set.

n=4: Number of elements available in the FIFO

n=5: Current write index relative to the start of the FIFO

n=6: Oldest element

n=7: Second oldest etc.

Index 1:	The dimension is configured via $MC_LEN_AC_FIFO.				
unit:	-				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	X	X	7	-	0	X	

axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$AC_FIFO7 [n]**	7. FIFO stack	**reference:**	

description:

Variable $AC_FIFO7[n] is a stack with first in first out characteristics. This stack memory can be used for cyclic measuring operations.

$MC_NUM_AC_FIFO is used to define the number of FIFO variables $AC_FIFO1 - $AC_FIFO10.

The elements of the stack memory are saved in R variables. The length of all FIFO variables is configured with $MC_LEN_AC_FIFO.

$MC_START_AC_FIFO is used to specify the number of the start R variable, from which the FIFO elements are stored.

R variables assigned to FIFO areas should not be written elsewhere.The number of R variables must be set in machine data $MC_MM_NUM_R_PARAM such that all FIFO variables can be accommodated:

$MC_MM_NUM_R_PARAM = $MC_MM_START_FIFO + $MC_NUM_AC_FIFO * ($MC_LEN_AC_FIFO + 6)

The FIFO variable is an array variable.

Indices 0 - 5 have special meanings:

n = 0: When written with index 0, a new value is stored in the FIFO.

When read with index 0, the oldest element is read and removed from the FIFO.

n=1: Access to the first element read

n=2: Access to the second element read

n=3: Total of all FIFO elements if Bit0 in $MC_MM_MODE_FIFO is set.

n=4: Number of elements available in the FIFO

n=5: Current write index relative to the start of the FIFO

n=6: Oldest element

n=7: Second oldest etc.

Index 1:		The dimension is configured via $MC_LEN_AC_FIFO.					
unit:		-					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	X	X	7	-	0	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

DOUBLE	**$AC_FIFO8 [n]**	8. FIFO stack	**reference:**	

description:

Variable $AC_FIFO8[n] is a stack with first in first out characteristics. This stack memory can be used for cyclic measuring operations.

$MC_NUM_AC_FIFO is used to define the number of FIFO variables $AC_FIFO1 - $AC_FIFO10.

The elements of the stack memory are saved in R variables. The length of all FIFO variables is configured with $MC_LEN_AC_FIFO.

$MC_START_AC_FIFO is used to specify the number of the start R variable, from which the FIFO elements are stored.

R variables assigned to FIFO areas should not be written elsewhere.

The number of R variables must be set in machine data $MC_MM_NUM_R_PARAM such that all FIFO variables can be accommodated:

$MC_MM_NUM_R_PARAM = $MC_MM_START_FIFO + $MC_NUM_AC_FIFO * ($MC_LEN_AC_FIFO + 6)

The FIFO variable is an array variable.

Indices 0 - 5 have special meanings:

n = 0: When written with index 0, a new value is stored in the FIFO.

When read with index 0, the oldest element is read and removed from the FIFO.

n=1: Access to the first element read

n=2: Access to the second element read

n=3: Total of all FIFO elements if Bit0 in $MC_MM_MODE_FIFO is set.
n=4: Number of elements available in the FIFO
n=5: Current write index relative to the start of the FIFO
n=6: Oldest element
n=7: Second oldest etc.

Index 1:		The dimension is configured via $MC_LEN_AC_FIFO.					
unit:		-					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	X	X	7	-	0	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

DOUBLE	**$AC_FIFO9 [n]**	9. FIFO stack	**reference:**

description:

Variable $AC_FIFO9[n] is a stack with first in first out characteristics. This stack memory can be used for cyclic measuring operations.

$MC_NUM_AC_FIFO is used to define the number of FIFO variables $AC_FIFO1 - $AC_FIFO10.

The elements of the stack memory are saved in R variables. The length of all FIFO variables is configured with $MC_LEN_AC_FIFO.

$MC_START_AC_FIFO is used to specify the number of the start R variable, from which the FIFO elements are stored.

R variables assigned to FIFO areas should not be written elsewhere.

The number of R variables must be set in machine data $MC_MM_NUM_R_PARAM such that all FIFO variables can be accommodated:

$MC_MM_NUM_R_PARAM = $MC_MM_START_FIFO + $MC_NUM_AC_FIFO * ($MC_LEN_AC_FIFO + 6)

The FIFO variable is an array variable.

Indices 0 - 5 have special meanings:

n = 0: When written with index 0, a new value is stored in the FIFO.

When read with index 0, the oldest element is read and removed from the FIFO.

n=1: Access to the first element read

n=2: Access to the second element read

n=3: Total of all FIFO elements if Bit0 in $MC_MM_MODE_FIFO is set.

n=4: Number of elements available in the FIFO

n=5: Current write index relative to the start of the FIFO

n=6: Oldest element

n=7: Second oldest etc.

Index 1:		The dimension is configured via $MC_LEN_AC_FIFO.					
unit:		-					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	

write:	X	X	7	-	0	X	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$AC_FIFO10 [n]**	10. FIFO stack	**reference:**

description:

Variable $AC_FIFO10[n] is a stack with first in first out characteristics. This stack memory can be used for cyclic measuring operations.

$MC_NUM_AC_FIFO is used to define the number of FIFO variables $AC_FIFO1 - $AC_FIFO10.

The elements of the stack memory are saved in R variables. The length of all FIFO variables is configured with $MC_LEN_AC_FIFO.

$MC_START_AC_FIFO is used to specify the number of the start R variable, from which the FIFO elements are stored.

R variables assigned to FIFO areas should not be written elsewhere.

The number of R variables must be set in machine data $MC_MM_NUM_R_PARAM such that all FIFO variables can be accommodated:

$MC_MM_NUM_R_PARAM = $MC_MM_START_FIFO + $MC_NUM_AC_FIFO * ($MC_LEN_AC_FIFO + 6)

The FIFO variable is an array variable.

Indices 0 - 5 have special meanings:

n = 0: When written with index 0, a new value is stored in the FIFO.

When read with index 0, the oldest element is read and removed from the FIFO.

n=1: Access to the first element read

n=2: Access to the second element read

n=3: Total of all FIFO elements if Bit0 in $MC_MM_MODE_FIFO is set.

n=4: Number of elements available in the FIFO

n=5: Current write index relative to the start of the FIFO

n=6: Oldest element

n=7: Second oldest etc.

Index 1:	The dimension is configured via $MC_LEN_AC_FIFO.				
unit:	-				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	X	X	7	-	0	X	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

BOOL	**$A_IN [n]**	Digital input	**reference:**

description:

Variable $A_IN[n] is used to interrogate digital inputs.

Index 1:	The dimension is configured via $MN_FASTIO_DIG_NUM_INPUTS.				
unit:	-				
min.:	FALSE	**max.:**	TRUE	**std:**	FALSE

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

BOOL	**$A_OUT [n]**		Digital output		**reference:**	
description:						
Variable $A_OUT[n] is used to interrogate digital outputs.						
Index 1:	The dimension is configured via $MN_FASTIO_DIG_NUM_OUTPUTS.					
unit:	-					
min.:	FALSE	**max.:**	TRUE	**std:**	FALSE	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	X	X	7	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$A_INA [n]**		Analog input		**reference:**	
description:						
Variable $A_INA[n] is used to access the analog inputs.						
Index 1:	The dimension is configured via $MN_FASTIO_ANA_NUM_INPUTS.					
unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$A_OUTA [n]**		Analog output		**reference:**	
description:						
Variable $A_OUTA[n] is used to access the analog outputs. When written the value does not become operative until the next interpolator cycle and can then be read back.						
Index 1:	The dimension is configured via $MN_FASTIO_ANA_NUM_OUTPUTS.					
unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	

write:	X	X	7		X	7	X
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

BOOL	**$A_INCO [2]**	Comparator input	**reference:**	

description:

Variable $A_INCO[n] is used to access the comparator inputs.

Index 1:	nth comparator input.				
unit:	-				
min.:	FALSE	**max.:**	TRUE	**std:**	FALSE

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$A_DBB [1024]**	PLC data byte (unsigned)	**reference:**	

description:

Array variable $A_DBB[n] is used to read and write a data byte (8 bits) from PLC. The byte is unsigned and can be read in the range from 0 to 255 and written in the range from -128 to 255.

A memory area is reserved in the communications buffer of these modules (DPR) for high-speed data exchange between PLC and NC. The PLC uses function calls (FC) and the NCK uses $ variables to access this memory.

See also $A_DBSB[n].

Index 1:	n: Position offset within the I/O area 0 - ...				
unit:	-				
min.:	-128	**max.:**	255	**std:**	0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	Mrun syn	X	7	-	0	X	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$A_DBW [1024]**	PLC data word (unsigned)	**reference:**	

description:

Array variable $A_DBW[n] is used to read and write a data word (16 bits) from PLC. The byte is unsigned and can be read in the range from 0 to 65535 and written in the range from -32768 to 65535.

A memory area is reserved in the communications buffer of these modules (DPR) for high-speed data exchange between PLC and NC. The PLC uses function calls (FC) and the NCK uses $ variables to access this memory.

See also $A_DBSW[n].

Index 1:	n: Position offset within the I/O area 0 - ...				
unit:	-				
min.:	-32768	**max.:**	65535	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	Mrun syn	X	7	-	0	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

INT	**$A_DBD [1024]**		PLC data doubleword		**reference:**	
description:						
Array variable $A_DBD[n] is used to read and write a data doubleword (32 bits) from PLC.						
A memory area is reserved in the communications buffer of these modules (DPR) for high-speed data exchange between PLC and NC. The PLC uses function calls (FC) and the NCK uses $ variables to access this memory.						
Index 1:	n: Position offset within the I/O area 0 - ...					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**		0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	Mrun syn	X	7	-	0	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

DOUBLE	**$A_DBR [1024]**		PLC Real data (32 bits)		**reference:**	
description:						
Array variable $A_DBR[n] is used to read and write Real data (32 bits) from PLC.						
A memory area is reserved in the communications buffer of these modules (DPR) for high-speed data exchange between PLC and NC. The PLC uses function calls (FC) and the NCK uses $ variables to access this memory.						
Index 1:	n: Position offset within the I/O area 0 - ...					
unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**		0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	Mrun syn	X	7	-	0	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

INT	**$A_DLB [n]**	Link variable byte	**reference:**	

description:

Variable $A_DLB[n] enables reading and writing of a data byte (8 bits) which can be transmitted to other channels or NCUs across the NCU link.

$MC_MM_NUM_LINKVAR_ELEMENTS is used to define the number of elements available to the user for programming link variables ($A_DLx).

The negative value range of this variable applies to write operations only. The variable can thus store negative values. Only the corresponding positive value can be read back.

Index 1:	The dimension is configured via $MC_MM_SIZEOF_LINKVAR_DATA.						
unit:	-						
min.:	-128	**max.:**	255	**std:**	0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	Mrun syn	X	7	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$A_DLW [n]**	Link variable word	**reference:**	

description:

Variable $A_DLW[n] enables reading and writing of a data word (16 bits) which can be transmitted to other channels or NCUs across the NCU link.

$MC_MM_NUM_LINKVAR_ELEMENTS is used to define the number of elements available to the user for programming link variables ($A_DLx).

The negative value range of this variable applies to write operations only. The variable can thus store negative values. Only the corresponding positive value can be read back.

Index 1:	The dimension is configured via $MC_MM_SIZEOF_LINKVAR_DATA.						
unit:	-						
min.:	-32768	**max.:**	65535	**std:**	0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	Mrun syn	X	7	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$A_DLD [n]**	Integer link variable	**reference:**	

description:

Variable $A_DLD[n] enables reading and writing of a data doubleword (32 bits) which can be transmitted to other channels or NCUs across the NCU link.

$MC_MM_NUM_LINKVAR_ELEMENTS is used to define the number of elements available to the user for programming link variables ($A_DLx).

Index 1:	The dimension is configured via $MC_MM_SIZEOF_LINKVAR_DATA.
unit:	-

min.:		-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	Mrun syn	X	7	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

DOUBLE	**$A_DLR [n]**	Real link variable	**reference:**		
description:					
Variable $A_DLR[n] enables reading and writing of a Real value which can be transmitted to other channels or NCUs across the NCU link.					
$MC_MM_NUM_LINKVAR_ELEMENTS is used to define the number of elements available to the user for programming link variables ($A_DLx).					
Index 1:	The dimension is configured via $MC_MM_SIZEOF_LINKVAR_DATA.				
unit:	-				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	Mrun syn	X	7	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

INT	**$A_LINK_TRANS_RATE**	Link data transfer rate	**reference:**		
description:					
The variable $A_LINK_TRANS_RATE determines the number of link variables which can still be transferred by the NCU link communication in the current interpolation cycle.					
unit:	-				
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

INT	**$A_PBB_IN [32]**	PLC input byte	**reference:**		
description:					
Array variable $A_PBB_IN[n] is used to read and write a data byte (8 bits) from the PLC I/O.					
Index 1:	The dimension is configured via $MN_PLCIO_NUM_BYTES_IN.				
unit:	-				
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$A_PBW_IN [32]**		PLC input word		**reference:**	
description:						
Array variable $A_PBW_IN[n] is used to read and write a data word (16 bits) from the PLC I/O.						
Index 1:	The dimension is configured via $MN_PLCIO_NUM_BYTES_IN.					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$A_PBD_IN [32]**		PLC input doubleword		**reference:**	
description:						
Array variable $A_PBD_IN[n] is used to read a data doubleword (32 bits) from the PLC I/O.						
Index 1:	The dimension is configured via $MN_PLCIO_NUM_BYTES_IN.					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$A_PBR_IN [32]**		Real PLC input		**reference:**	
description:						
Array variable $A_PBR_IN[n] is used to read Real data (32 bits) from the PLC I/O.						
Index 1:	The dimension is configured via $MN_PLCIO_NUM_BYTES_IN.					
unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	

write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$A_PBB_OUT [32]**			PLC output byte		**reference:**	
description:							
Array variable $A_PBB_OUT[n] is used to write a data byte (8 bits) to the PLC I/O.							
Index 1:	The dimension is configured via $MN_PLCIO_NUM_BYTES_OUT.						
unit:	-						
min.:	-2147483648	**max.:**	2147483647	**std:**	0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	Mrun syn	X	7	-	0	X	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$A_PBW_OUT [32]**			PLC output word		**reference:**	
description:							
Array variable $A_PBW_OUT[n] is used to write a data word (16 bits) to the PLC I/O.							
Index 1:	The dimension is configured via $MN_PLCIO_NUM_BYTES_OUT.						
unit:	-						
min.:	-2147483648	**max.:**	2147483647	**std:**	0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	Mrun syn	X	7	-	0	X	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$A_PBD_OUT [32]**			PLC output doubleword		**reference:**	
description:							
Array variable $A_PBD_OUT[n] is used to write a data doubleword (32 bits) to the PLC I/O.							
Index 1:	The dimension is configured via $MN_PLCIO_NUM_BYTES_OUT.						
unit:	-						
min.:	-2147483648	**max.:**	2147483647	**std:**	0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	Mrun syn	X	7	-	0	X	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$A_PBR_OUT [32]**			Real PLC output			**reference:**	
description:								
Array variable $A_PBR_OUT[n] is used to write Real data (32 bits) to the PLC I/O.								
Index 1:		The dimension is configured via $MN_PLCIO_NUM_BYTES_OUT.						
unit:		-						
min.:		-1,8E308	**max.:**	1,8E308		**std:**		0.0
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**		
read:	runin stp	X	7	X	7	X		
write:	Mrun syn	X	7	-	0	X		
axis identifier:					**Valuation:**	channel-specific		
block search		Not classified			**link**	Not classified		

BOOL	**$C_IN [16]**			Signal from PLC to cycle			**reference:**	
description:								
$C_IN[n]								
Signal from the PLC to cycle								
Reserved for SIEMENS applications!								
16 input signals (i.e. 2 bytes) are available. Data transfer is cyclic.								
Index 1:		n: Number of the input 1 - ...						
unit:		-						
min.:		FALSE	**max.:**	TRUE		**std:**		FALSE
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**		
read:	runin stp	X	7	X	7	X		
write:	-	-	0	-	0	-		
axis identifier:					**Valuation:**	channel-specific		
block search		Not classified			**link**	Not classified		

BOOL	**$C_OUT [16]**			Signal from cycle to the PLC			**reference:**	
description:								
$C_OUT[n]								
Signal from cycle to the PLC								
Reserved for SIEMENS applications!								
16 output signals (i.e. 2 bytes) are available. Data transfer is cyclic.								
Index 1:		n: Number of the output 1 - ...						
unit:		-						
min.:		FALSE	**max.:**	TRUE		**std:**		FALSE
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**		
read:	runin stp	X	7	X	7	X		

write:	X	X	7		X	7	X	
axis identifier:						**Valuation:**	channel-specific	
block search		Not classified				**link**	Not classified	

INT	**$AC_TC_CMDT**			Trigger, tool management outputs a command		**reference:**	
description:							
$AC_TC_CMDT							
Trigger variable: $AC_TC_CMDT (CoMmadTrigger) assumes the value '1' for an interpolation							
cycle whenever a new command from the magazine management is output to the PLC.							
unit:		-					
min.:		-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

INT	**$AC_TC_ACKT**			Trigger, PLC acknowledges a tool management command		**reference:**	
description:							
$AC_TC_ACKT							
Trigger variable: $AC_TC_ACKT (ACKnowledgeTrigger) assumes the value '1' for an interpolation cycle whenever							
the PLC acknowledges a TM command.							
unit:		-					
min.:		-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

INT	**$AC_TC_CMDC**			Number of commands output by the tool management		**reference:**	
description:							
$AC_TC_CMDC							
Counter variable: $AC_TC_CMDC (CoMmandCounter) is incremented							
by 1 every time the TM sends a command to the PLC.							
unit:		-					
min.:		-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	

write:	runin stp	X	7	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

INT	**$AC_TC_ACKC**	Number of PLC acknowledgements to tool management commands	**reference:**	

description:
$AC_TC_ACKC
Counter variable: $AC_TC_CMDC (ACKnowledgeCounter) is incremented
by 1 every time the PLC acknowledges a command from the TM.

unit:		-					
min.:		-2147483648	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	runin stp	X	7	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

INT	**$AC_TC_FCT**	-	**reference:**	

description:
$AC_TC_FCT
Command number. This specifies the requested operation.
-1: No TM command is active at the instant the variable is read.

unit:		-					
min.:		-2147483648	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

INT	**$AC_TC_STATUS**	-	**reference:**	

description:
$AC_TC_STATUS
Current status of the command - to be read via $AC_TC_FCT.
-1: No TM command is active at the instant the variable is read.

unit:		-					
min.:		-2147483648	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	

write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$AC_TC_THNO**		-		**reference:**	
description:						
$AC_TC_THNO						
Number of the toolholder (specifically the spindle no.) to which the new						
tool is to be loaded.						
-1: No TM command is active at the instant the variable is read.						
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$AC_TC_TNO**		-		**reference:**	
description:						
$AC_TC_TNO						
NCK internal T number of the new (to be loaded) tool.						
0: There is no new tool.						
-1: No TM command is active at the instant the variable is read.						
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$AC_TC_MMYN**		-		**reference:**	
description:						
$AC_TC_MMYN						
Home magazine number of the new (to be loaded) tool.						
0: There is no new tool, or the new tool (if $AC_TC_TNO> 0) is not loaded (manual tool).						
-1: No TM command is active at the instant the variable is read.						
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**		0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$AC_TC_LMYN**	-	**reference:**	

description:
$AC_TC_LMYN
Home location number of the new (to be loaded) tool.
0: There is no new tool, or the new tool (if $AC_TC_TNO> 0) is not loaded (manual tool).
-1: No TM command is active at the instant the variable is read.

unit:	-				
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$AC_TC_MFN**	-	**reference:**	

description:
$AC_TC_MFN
Source magazine number of the new tool.
0: There is no new tool.
-1: No TM command is active at the instant the variable is read.

unit:	-				
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$AC_TC_LFN**	-	**reference:**	

description:
$AC_TC_LFN
Source location number of the new tool.
0: There is no new tool.
-1: No TM command is active at the instant the variable is read.

unit:	-				
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:

	PP	SA	PP/SA protection level	OPI	OPI protection level	OEM	
read:	runin stp	X	7	X	7	-	
write:	-	-	0	-	0	-	

axis identifier:		**Valuation:**	channel-specific
block search	Not classified	**link**	Not classified

INT	**$AC_TC_MTN**	-	**reference:**	

description:
$AC_TC_MTN
Target magazine number of the new tool.
0: There is no new tool.
-1: No TM command is active at the instant the variable is read.

unit:	-				
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:

	PP	SA	PP/SA protection level	OPI	OPI protection level	OEM	
read:	runin stp	X	7	X	7	-	
write:	-	-	0	-	0	-	

axis identifier:		**Valuation:**	channel-specific
block search	Not classified	**link**	Not classified

INT	**$AC_TC_LTN**	-	**reference:**	

description:
$AC_TC_LTN
Target location number of the new tool.
0: There is no new tool.
-1: No TM command is active at the instant the variable is read.

unit:	-				
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:

	PP	SA	PP/SA protection level	OPI	OPI protection level	OEM	
read:	runin stp	X	7	X	7	X	

write:	-	-	0		-	0	-
axis identifier:						**Valuation:**	channel-specific
block search	Not classified					**link**	Not classified

INT	**$AC_TC_MFO**	-	**reference:**	

description:
$AC_TC_MFO
Source magazine number of the old (to be replaced) tool.
0: There is no old tool.
-1: No TM command is active at the instant the variable is read.

unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$AC_TC_LFO**	-	**reference:**	

description:
$AC_TC_LFO
Source location number of the old (to be replaced) tool.
0: There is no old tool.
-1: No TM command is active at the instant the variable is read.

unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$AC_TC_MTO**	-	**reference:**	

description:
$AC_TC_MTO
Target magazine number of the old (to be replaced) tool.
0: There is no old tool.
-1: No TM command is active at the instant the variable is read.

unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$AC_TC_LTO**	-	**reference:**	
description:				
$AC_TC_LTO				
Target location number of the old (to be replaced) tool.				
0: There is no old tool.				
-1: No TM command is active at the instant the variable is read.				
unit:	-			
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$A_YEAR**	System time: year	**reference:**	
description:				
$A_YEAR				
System time year				
unit:	-			
min.:	0	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$A_MONTH**	System time: month	**reference:**	
description:				
$A_MONTH				
System time month				
unit:	-			
min.:	1	**max.:**	12	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$A_DAY**		System time: day		**reference:**	
description:						
$A_DAY						
System time day						
unit:	-					
min.:	1	**max.:**	31	**std:**	0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$A_HOUR**		System time: hour		**reference:**	
description:						
$A_HOUR						
System time hour						
unit:	-					
min.:	0	**max.:**	24	**std:**	0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$A_MINUTE**		System time: minute		**reference:**	
description:						
$A_MINUTE						
System time minute						
unit:	-					
min.:	0	**max.:**	60	**std:**	0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	

write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$A_SECOND**			System time: second		**reference:**	
description:							
$A_SECOND							
System time second							
unit:	-						
min.:	0	**max.:**	60	**std:**	0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$A_MSECOND**			System time: millisec.		**reference:**	
description:							
$A_MSECOND							
System time millisecond							
unit:	-						
min.:	0	**max.:**	1000	**std:**	0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$AC_TIME**			Time from block start		**reference:**	
description:							
Variable $AC_TIME determines the time from the block start in seconds.							
unit:	-						
min.:	0	**max.:**	1,8E308	**std:**	0.0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	-	X	0	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$AC_TIMES**	-	**reference:**	

description:

$AC_TIMES

Time from block start (REAL) in seconds (excluding times for internally generated intermediate blocks).

Each programmed block can be divided into a sequence of sub-blocks for sequential processing.

$AC_TIMES is set to zero o_n_l_y during the 1st cycle of the 1st block in the sequence. It is then incremented in seconds. The variable therefore allows time measurements to be taken over the whole block sequence.

The variable can be accessed only from synchronized actions.

unit:	-					
min.:	0	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	-	X	0	X	7	-	
write:	-	-	0	-	0	-	

axis identifier:				**Valuation:**	channel-specific	
block search	Not classified			**link**	Not classified	

DOUBLE	**$AC_TIMEC**	Interpolation cycles since block start	**reference:**	

description:

Variable $AC_TIMEC determines the number of interpolation cycles which have elapsed since the block start.

unit:	-					
min.:	0	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	-	X	0	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:				**Valuation:**	channel-specific	
block search	Not classified			**link**	Not classified	

DOUBLE	**$AC_TIMESC**	-	**reference:**	

description:

$AC_TIMESC

Time from block start (Real) in IPO cycles (excluding cycles for internally generated intermediate blocks).

Each programmed block can be divided into a sequence of sub-blocks for sequential processing.

$AC_TIMESC is set to zero o_n_l_y during the 1st cycle of the 1st block in the sequence. It is then incremented in IPO cycles. The variable therefore allows time measurements to be taken over the whole block sequence.

The variable can be accessed only from synchronized actions

unit:	-					
min.:	0.0	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	-	X	0	X	7	-	

write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$AC_TIMER [1]**		User timer		**reference:**	
description:						
Array variable $AC_TIMER[n] is an application-related timer. The time in seconds is counted in multiples of an interpolation cycle.						
The timer is started by assigning a value:						
$AC_TIMER[n]=<start value>						
The timers can be stopped by assigning a negative value:						
$AC_TIMER[n]=-1						
The current timer count can be read while the time variable is running or stopped. When the time variable is stopped by assigning -1, the last count value remains stored in the variable and can continue to be read.						
Index 1:	The dimension is defined via $MC_MM_NUM_AC_TIMER.					
unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	runin stp	X	7	-	0	X	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$AC_PRTIME_M**		Precalculated program run time (machining time)		**reference:**	
description:						
$AC_PRTIME_M "ProgramRunTIME-Main"						
Reading and setting (initialization) of the precalculated program runtime (main time)						
During the simulation, the anticipated processing time of the blocks in the part program is calculated by the NCK, and made available in this system variable and the OPI variable 'acPRTimeM'. This value is cleared by writing a value to the variable.						
unit:	-					
min.:	0	**max.:**	1,8E308	**std:**	0.0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$AC_PRTIME_A**	Precalculated program run time (idle time)	**reference:**	

description:

$AC_PRTIME_A "ProgramRunTIME-Auxilary"

Reading and setting (initialization) of the precalculated program run time (idle time)

During the simulation, the anticipated processing time (idle times) of the blocks in the part program is calculated by the NCK, and made available in this system variable and the OPI variable 'acPRTimeA'. This value is cleared by writing a value to the variable.

unit:	-					
min.:	0	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	

axis identifier:				**Valuation:**	channel-specific	
block search	Not classified			**link**	Not classified	

DOUBLE	**$AC_PRTIME_M_INC**	Increment ProgramRunTIME-Main	**reference:**	

description:

$AC_PRTIME_M_INC "ProgramRunTIME-Main-INCrement"

Incrementation of the precalculated program runtime (main time)

During the simulation, the anticipated processing time of the blocks in the part program is calculated by the NCK and stored in the OPI variable 'acPRTimeM'. Since certain times (e.g. PLC times) are not considered, the calculated program runtime can be corrected by setting this variable explicitly.

unit:	-					
min.:	0	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	-	-	0	-	0	-	
write:	X	-	7	-	0	-	

axis identifier:				**Valuation:**	channel-specific	
block search	Not classified			**link**	Not classified	

DOUBLE	**$AC_PRTIME_A_INC**	Increment ProgramRunTIME-Aux.	**reference:**	

description:

$AC_PRTIME_A_INC "ProgramRunTIME-Auxilary-INCrement"

Incrementation of accumulated program run time (idle time)

During the simulation, the anticipated processing time of the blocks in the part program can be calculated by the NCK and stored in OPI variable 'acPRTimeM'. Since certain times (e.g. PLC times) are not considered, the calculated program runtime can be corrected by setting this variable explicitly.

unit:	-					
min.:	0	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	

read:	-	-	0	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$AC_PATHN**	Normalized path parameter	**reference:**	

description:

Variable $AC_PATHN is a normalized path parameter whose value varies between 0 at the block start and 1 at the block end.

unit:	-				
min.:	0	**max.:**	1	**std:**	0.0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	-	X	0	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$AC_DTBW**	Distance from block start in WCS	**reference:**	

description:

Variable $AC_DTBW determines the geometric distance from the block start in the workpiece coordinate system.

The programmed position is used to calculate the distance. If the axis is a coupled axis, the position component derived from the axis coupling is not considered.

unit:	mm				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	-	X	0	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$AC_REPOS_PATH_MODE**	-	**reference:**	

description:

$AC_REPOS_PATH_MODE

Type of Repos mode

0 not defined.

1 == RMB Repos approach to start of interrupted block

2 == RMI Repos approach to interruption point in interrupted block

3 == RME Repos approach to end of interrupted block

4 == RMN Repos approach to next geometric point in interrupted block

The variable is defined if a REPOS command is currently being executed, or if

a new REPOS mode has been specified via the VDI.

unit:		-					
min.:		-2147483648	**max.:**	4	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Program sensitive			**link**	Not classified	

DOUBLE	**$AC_DTBB**	Distance from block start in BCS	**reference:**	

description:

Variable $AC_DTBB determines the geometric distance from the block start in the basic coordinate system.

The programmed position is used to calculate the distance. If the axis is a coupled axis, the position component derived from the axis coupling is not considered.

unit:		mm					
min.:		-1,8E308	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	-	X	0	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

DOUBLE	**$AC_DTEW**	Distance from block end in WCS	**reference:**	

description:

Variable $AC_DTEW determines the geometric distance from the block end in the workpiece coordinate system.

The programmed position is used to calculate the distance. If the axis is a coupled axis, the position component derived from the axis coupling is not considered.

unit:		mm					
min.:		-1,8E308	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	-	X	0	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

DOUBLE	**$AC_DTEB**	Distance from block end in BCS	**reference:**	

description:

Variable $AC_DTEB determines the geometric distance from the block end in the basic coordinate system.

The programmed position is used to calculate the distance. If the axis is a coupled axis, the position component derived from the axis coupling is not considered.

unit:	mm	

min.:		-1,8E308	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	-	X	0	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

DOUBLE	**$AC_PLTBB**			Path from block start in BCS		**reference:**	
description:							
Variable $AC_PLTBB determines the path from the block start in the basic coordinate system.							
unit:		mm					
min.:		-1,8E308	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	-	X	0	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

DOUBLE	**$AC_PLTEB**			Path to block end in BCS		**reference:**	
description:							
Variable $AC_PLTEB determines the path to the block end in the basic coordinate system.							
unit:		mm					
min.:		-1,8E308	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	-	X	0	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

DOUBLE	**$AC_DELT**			Path distance to go in WCS		**reference:**	
description:							
Variable $AC_DELT is used to read the stored path distance to go in the workpiece coordinate system after delete distance to go in motion-synchronous actions.							
unit:		mm					
min.:		-1,8E308	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	

write:	-	-	0		-	0	-
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

BOOL	**$P_APDV**	Position values for SAR are valid	**reference:**	

description:

$P_APDV

Returns True if the position values which can be read with $P_APR[X] or $P_AEP[X] (respectively starting point or contour point in the case of smooth approach and retraction) are valid.

unit:	-				
min.:	FALSE	**max.:**	TRUE	**std:**	FALSE

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$P_F**	Programmed path feed	**reference:**	

description:

Variable $P_F is used to read the last programmed path feed F.

unit:	mm/min				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$AC_F**	Active programmed path feed	**reference:**	

description:

Variable $AC_F is used to read the active programmed path feed F.

unit:	mm/min				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	-	X	0	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$AC_F_G0**			Max. rapid traverse in block			**reference:**	
description:								
Variable $AC_F_G0 returns the maximum rapid traverse velocity in the block.								
unit:		mm/min						
min.:		-1,8E308	**max.:**	1,8E308		**std:**		0.0
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**		
read:	-	X	0	X	7	X		
write:	-	-	0	-	0	-		
axis identifier:					**Valuation:**	channel-specific		
block search		Not classified			**link**	Not classified		

DOUBLE	**$AC_OVR**			Path override can be specified via synchronized action			**reference:**	
description:								
The variable $AC_OVR determines the path override specifiable via synchronized action. The path override must be set by assigning a value cyclically to $AC_OVR in each interpolation cycle. Otherwise $AC_OVR is reset to 100%. The total path override can be read via $AC_TOTAL_OVR. The total path override without the programmable override (e.g. OVR = 10) is limited to the maximum value defined by the machine data $MN_OVR_FACTOR_LIMIT_BIN or $MN_OVR_FACTOR_FEEDRATE[30]. Values less than 0 are not allowed.								
unit:		-						
min.:		-1,8E308	**max.:**	1,8E308		**std:**		0.0
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**		
read:	-	X	0	X	7	X		
write:	-	X	0	-	0	X		
axis identifier:					**Valuation:**	channel-specific		
block search		Not classified			**link**	Not classified		

DOUBLE	**$AC_PLC_OVR**			PLC override			**reference:**	
description:								
The variable $AC_PLC_OVR determines the path override defined by the PLC. This is the feedrate override that is set via the Machine Control Panel. The rapid traverse override (settable on the Machine Control Panel) is effective with G0 blocks. If the rapid traverse reduction has been activated via the operator interface, then, with G0 blocks, $SC_OVR_RAPID_FACTOR is also taken into account multiplicatively.								
unit:		-						
min.:		0	**max.:**	1,8E308		**std:**		0.0
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**		
read:	-	X	0	X	7	X		

write:	-	-	0		-	0	-
axis identifier:						**Valuation:**	channel-specific
block search	Not classified					**link**	Not classified

DOUBLE	**$AC_TOTAL_OVR**			Overall path override		**reference:**	
description:							
The variable $AC_TOTAL_OVR supplies the total path override. The value is calculated from the override from the PLC, the synchronized action override ($AC_OVR) and the programmable override (e.g. OVR = 10).							
$AC_TOTAL_OVR = $AC_PLC_OVR * $AC_OVR * OVR /10000.							
unit:		-					
min.:		0	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	-	X	0	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$AC_VC**			Additive path feed override		**reference:**	
description:							
$AC_VC							
Additive path feed override for synchronized actions							
The override value must be rewritten in every Ipo cycle or else a value of 0 is applied.							
The override value is ignored with an override of 0. Otherwise, the override value is applied independent of the override.							
The total feedrate cannot be made negative by an override value.							
An upper limit is applied to ensure that the maximum axis velocities and acceleration rates cannot be exceeded. The maximum feedrate is limited by $MN_OVR_FACTOR_LIMIT_BIN, $MN_OVR_FACTOR_FEEDRATE[30] (see machine data).							
The override value is not included in the calculation in the case of G0, G33, G331, G332 and G63.							
The variable can be accessed only from synchronized actions.							
unit:		Linear / angular speed					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	-	X	0	X	7	X	
write:	-	X	0	-	0	X	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$AC_PATHACC**	Path acceleration for real-time events	**reference:**	

description:

$AC_PATHACC

Defines an increased path acceleration for override changes and stop/start events.

$AC_PATHACC is taken into account only if the value is higher than the prepared acceleration limit.

A value of 0 deselects the function.

Values which cause machine axis acceleration rates twice the rate configured in $MA_MAX_AX_ACCEL[..] are limited internally.

unit:	m/s²				
min.:	0.	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	runin stp	X	7	-	0	X	

axis identifier:		**Valuation:**	channel-specific
block search	Not classified	**link**	Not classified

DOUBLE	**$AC_PATHJERK**	Path jerk for real-time events	**reference:**	

description:

$AC_PATHJERK

Defines an increased path jerk for override changes and stop/start events.

$AC_PATHJERK is taken into account only if the value is higher than the prepared jerk limit.

A value of 0 deselects the function.

unit:	m/s³				
min.:	0.	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	runin stp	X	7	-	0	X	

axis identifier:		**Valuation:**	channel-specific
block search	Not classified	**link**	Not classified

DOUBLE	**$AC_VACTB**	Path velocity of geometry axes	**reference:**	

description:

$AC_VACTB

Path velocity in the basic coordinate system.

The velocity is calculated from the velocities of the geometry axes - independent of FGROUP.

The variable can be accessed only from synchronized actions

unit:	Linear / angular speed				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	

read:	-	X	0	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$AC_VACTW**	WCS path velocity of geometry axes	**reference:**	

description:

$AC_VACTW

Path velocity in the workpiece coordinate system

The velocity is calculated from the velocities of the geometry axes - independent of FGROUP.

The variable can be accessed only from synchronized actions

unit:	Linear / angular speed				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	-	X	0	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$P_S [n]**	Programmed spindle speed	**reference:**	

description:

$P_S[n]

n: Number of spindle

Last programmed spindle speed

Index 1:	n: Spindle number 0 ... max. spindle number for the spindle numbers configured in the MD 35000 SPIND_ASSIGN_TO_MACHAX.				
unit:	rpm				
min.:	0	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:				SPIN	**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$AA_S [1]**	Current spindle speed	**reference:**	

description:

$AA_S[n]

n: Number of spindle

Actual spindle speed. The sign corresponds to the direction of rotation.

Index 1:	n: Spindle number 0 ... max. spindle number for the spindle numbers configured in the MD 35000 SPIND_ASSIGN_TO_MACHAX.

unit:		rpm					
min.:		0	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

DOUBLE	**$P_CONSTCUT_S [n]**	Programmed cutting rate	**reference:**

description:

$P_CONSTCUT_S[n]

n: Number of spindle

Last programmed constant cutting rate

Index 1:		n: Spindle number 0 ... max. spindle number for the spindle numbers configured in the MD 35000 SPIND_ASSIGN_TO_MACHAX.					
unit:		m/min					
min.:		0	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

DOUBLE	**$AC_CONSTCUT_S [n]**	Current constant cutting rate	**reference:**

description:

$AC_CONSTCUT_S[n]

n: Number of spindle

Current constant cutting rate.

Index 1:		n: Spindle number 0 ... max. spindle number for the spindle numbers configured in the MD 35000 SPIND_ASSIGN_TO_MACHAX.					
unit:		m/min					
min.:		0	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:				SPIN	**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

DOUBLE	**$P_SEARCH_S [n]**	Search run: speed, cutting rate	**reference:**	

description:

$P_SEARCH_S[n]

n: Number of spindle

Last programmed spindle speed collected during block search

or cutting rate

Index 1:	n: Spindle number 0 ... max. spindle number for the spindle numbers configured in the MD 35000 SPIND_ASSIGN_TO_MACHAX.					
unit:	rpm					
min.:	0	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	

axis identifier:				SPIN	**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

INT	**$P_SDIR [n]**	Programmed direction of spindle rotation	**reference:**	

description:

$P_SDIR[n]

n: Number of spindle

Programmed direction of spindle rotation in part program

3: CW spindle rotation, 4: CCW spindle rotation, 5: Spindle stop

Index 1:	n: Spindle number 0 ... max. spindle number for the spindle numbers configured in the MD 35000 SPIND_ASSIGN_TO_MACHAX.					
unit:	-					
min.:	3	**max.:**	5	**std:**	0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	

axis identifier:				SPIN	**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

INT	**$AC_SDIR [n]**	Current direction of spindle rotation within the meaning of M3/M4/M5	**reference:**	

description:

$AC_SDIR[n]

n: Number of spindle

Current direction of spindle rotation within the meaning of M3/M4/M5 in the part program, synchronized actions, PLC FC18, PLC DBB30.

3: CW spindle rotation, 4: CCW spindle rotation, 5: Spindle stop

Index 1:	n: Spindle number 0 ... max. spindle number for the spindle numbers configured in the MD 35000 SPIND_ASSIGN_TO_MACHAX.

unit:		-					
min.:		3	**max.:**	5	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:				SPIN	**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

INT	**$P_SEARCH_SDIR [n]**	Block search: programmed direction of spindle rotation in part program	**reference:**

description:

$P_SEARCH_SDIR[n]

n: Number of spindle

Last programmed direction of spindle rotation collected during block search

3: M3 CW spindle rotation

4: M4 CCW spindle rotation

5: M5 Spindle stop

-19: M19, SPOS, SPOSA spindle positioning, position and approach mode

is read from SEARCH variables

70: M70 Changeover to axis mode

-5: No direction of rotation programmed, not output.

Index 1:		n: Spindle number 0 ... max. spindle number for the spindle numbers configured in the MD 35000 SPIND_ASSIGN_TO_MACHAX.					
unit:		-					
min.:		3	**max.:**	70	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:				SPIN	**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

INT	**$P_SMODE [n]**	Spindle mode	**reference:**

description:

$P_SMODE[n]

n: Number of spindle

The spindle mode resulting from the last spindle programming action is returned.

0: No spindle programmed in channel, or spindle is active in another channel, or

is being used by the PLC (FC18) or synchronized actions.

1: Speed control mode

2: Positioning mode

3: Synchronous mode

4: Axis mode

Index 1:	n: Spindle number 0 ... max. spindle number for the spindle numbers configured in the MD 35000 SPIND_ASSIGN_TO_MACHAX.						
unit:	-						
min.:	0	**max.:**	4		**std:**	0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:				SPIN	**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$AC_SMODE [n]**	Current spindle mode	**reference:**	

description:

$AC_SMODE[n]

n: Number of spindle

Current spindle mode:

0: No spindle programmed in channel

1: Speed control mode

2: Positioning mode

3: Synchronous mode

4: Axis mode

Index 1:	n: Spindle number 0 ... max. spindle number for the spindle numbers configured in the MD 35000 SPIND_ASSIGN_TO_MACHAX.						
unit:	-						
min.:	0	**max.:**	4		**std:**	0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:				SPIN	**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$P_SGEAR [n]**	Spindle: set gear stage	**reference:**	

description:

$P_SGEAR[n]

n: Number of spindle

Spindle gear stage last programmed or requested by S programming in the case of M40

1: 1. Gear stage requested

....

5: 5. Gear stage requested

Index 1:	n: Spindle number 0 ... max. spindle number for the spindle numbers configured in the MD 35000 SPIND_ASSIGN_TO_MACHAX.
unit:	-

min.:		1	**max.:**	5	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

INT	**$AC_SGEAR [n]**	Active spindle gear stage	**reference:**		
description: $AC_SGEAR[n] n: Number of spindle Active spindle gear stage 1: 1. Gear stage is active .... 5: 5. Gear stage is active					
Index 1:	n: Spindle number 0 ... max. spindle number for the spindle numbers configured in the MD 35000 SPIND_ASSIGN_TO_MACHAX.				
unit:	-				

min.:		1	**max.:**	5	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

INT	**$P_SAUTOGEAR [n]**	Automatic gear stage change	**reference:**		
description: $P_SAUTOGEAR[n] n: Number of spindle Automatic gear stage change (M40) is programmed. 0: Gear stages are requested by M41..M45 1: Gear stage is calculated and requested according to programmed speed (S) (M40 automatic gear stage change is active)					
Index 1:	n: Spindle number 0 ... max. spindle number for the spindle numbers configured in the MD 35000 SPIND_ASSIGN_TO_MACHAX.				
unit:	-				

min.:		0	**max.:**	1	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	

write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$P_SEARCH_SGEAR [n]**	Search run: Gear stage M code	**reference:**	

description:

$P_SEARCH_SGEAR[n]

n: Number of spindle

Last programmed gear stage M function collected during block search

40: M40 automatic gear stage change

41: M41 1st gear stage requested

...

45: M45 5th gear stage requested

Index 1:	n: Spindle number 0 ... max. spindle number for the spindle numbers configured in the MD 35000 SPIND_ASSIGN_TO_MACHAX.				
unit:	-				
min.:	1	**max.:**	5	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$P_SEARCH_SPOS [n]**	Search run: Spindle position, path	**reference:**	

description:

$P_SEARCH_SPOS[n]

n: Number of spindle

Spindle position or traversing path last programmed via M19, SPOS or SPOSA and collected during block search.

Position: 0...359,999 if the value in MD 30330 MODULO_RANGE is 360.0 degrees

Path: -100000000 ... 100000000 degrees. The sign specifies the direction of travel.

Index 1:	n: Spindle number 0 ... max. spindle number for the spindle numbers configured in the MD 35000 SPIND_ASSIGN_TO_MACHAX.				
unit:	deg.				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$P_SEARCH_SPOSMODE [n]**		Search run: Position approach mode		**reference:**	
description: $P_SEARCH_SPOSMODE[n] n: Number of spindle Position approach mode last programmed via M19, SPOS or SPOSA and collected during block search. 0: DC 1: AC 2: IC 3: DC 4: ACP 5: ACN						
Index 1:	n: Spindle number 0 ... max. spindle number for the spindle numbers configured in the MD 35000 SPIND_ASSIGN_TO_MACHAX.					
unit:	-					
min.:	0	**max.:**	5	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$P_NUM_SPINDLES**		Number of spindles in channel		**reference:**	
description: $P_NUM_SPINDLES Calculates the maximum number of spindles in the channel 0: No spindle programmed in channel. 1..n: Number of spindles in channel.						
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$P_MSNUM**			Number of master spindle		**reference:**	
description:							
$P_MSNUM							
Returns the number of the master spindle.							
0: No spindle programmed in channel							
1..n: Number of master spindle							
unit:		-					
min.:		-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

INT	**$AC_MSNUM**			Number of master spindle		**reference:**	
description:							
$AC_MSNUM							
Returns the number of the current master spindle.							
0: No spindle configured							
1..n: Number of master spindle							
unit:		-					
min.:		-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

INT	**$P_MTHNUM**			-		**reference:**	
description:							
$P_MTHNUM - meaningful only when magazine management is active							
Returns the number of the master toolholder.							
0: No master toolholder configured							
1..n: Number of master toolholder							
unit:		-					
min.:		-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	

write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$AC_MTHNUM**	-	**reference:**	

description:
$AC_MTHNUM - meaningful only when magazine management is active
Returns the number of the current master toolholder:
0: No master toolholder configured
1..n: Number of master toolholder

unit:	-				
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

BOOL	**$P_GWPS [31]**	Constant grinding wheel peripheral speed active	**reference:**	

description:
$P_GWPS[n]
Constant grinding wheel surface speed ON if TRUE

Index 1:	n: Spindle number				
unit:	Linear / angular speed				
min.:	FALSE	**max.:**	TRUE	**std:**	FALSE

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$AC_FCT1LL**	Lower limit for 1st polynomial function	**reference:**	

description:
Variable $AC_FCT1LL is used to define the lower limit for the first polynomial function.
The polynomial function can also be defined by FCTDEF(polynomial no., lower limit, upper limit, a0, a1, a2, a3).

unit:	-				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	-	0	X	

write:	runin stp	X	7	-	0	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

DOUBLE	**$AC_FCT2LL**	Lower limit for 2nd polynomial function	**reference:**	

description:

Variable $AC_FCT2LL is used to define the lower limit for the second polynomial function.

The polynomial function can also be defined by FCTDEF(polynomial no., lower limit, upper limit, a0, a1, a2, a3).

unit:		-					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	-	0	X	
write:	runin stp	X	7	-	0	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

DOUBLE	**$AC_FCT3LL**	Lower limit for 3rd polynomial function	**reference:**	

description:

Variable $AC_FCT3LL is used to define the lower limit for the third polynomial function.

The polynomial function can also be defined by FCTDEF(polynomial no., lower limit, upper limit, a0, a1, a2, a3).

unit:		-					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	-	0	X	
write:	runin stp	X	7	-	0	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

DOUBLE	**$AC_FCT1UL**	Upper limit for 1st polynomial function	**reference:**	

description:

Variable $AC_FCT1UL is used to define the upper limit for the first polynomial function.

The polynomial function can also be defined by FCTDEF(polynomial no., lower limit, upper limit, a0, a1, a2, a3).

unit:		-					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	runin stp	X	7	-	0	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

DOUBLE	**$AC_FCT2UL**			Upper limit for 2nd polynomial function			**reference:**	
description:								
Variable $AC_FCT2UL is used to define the upper limit for the second polynomial function.								
The polynomial function can also be defined by FCTDEF(polynomial no., lower limit, upper limit, a0, a1, a2, a3).								
unit:		-						
min.:		-1,8E308	**max.:**	1,8E308		**std:**		0.0
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**		**OEM**	
read:	runin stp	X	7	X	7		X	
write:	runin stp	X	7	-	0		X	
axis identifier:					**Valuation:**		channel-specific	
block search		Not classified			**link**		Not classified	

DOUBLE	**$AC_FCT3UL**			Upper limit for 3rd polynomial function			**reference:**	
description:								
Variable $AC_FCT3UL is used to define the upper limit for the third polynomial function.								
The polynomial function can also be defined by FCTDEF(polynomial no., lower limit, upper limit, a0, a1, a2, a3).								
unit:		-						
min.:		-1,8E308	**max.:**	1,8E308		**std:**		0.0
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**		**OEM**	
read:	runin stp	X	7	X	7		X	
write:	runin stp	X	7	-	0		X	
axis identifier:					**Valuation:**		channel-specific	
block search		Not classified			**link**		Not classified	

DOUBLE	**$AC_FCT1C [4]**			Coefficients for 1st polynomial function			**reference:**	
description:								
Array variable $AC_FCT1C[n] is used to program polynomial coefficients a0 - a3 for the first polynomial function.								
The polynomial function can also be defined by FCTDEF(polynomial no., lower limit, upper limit, a0, a1, a2, a3).								
Index 1:		n: Degree of order of coefficient 0 - 3						
unit:		-						
min.:		-1,8E308	**max.:**	1,8E308		**std:**		0.0
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**		**OEM**	
read:	runin stp	X	7	-	0		X	
write:	runin stp	X	7	-	0		X	
axis identifier:					**Valuation:**		channel-specific	
block search		Not classified			**link**		Not classified	

DOUBLE	**$AC_FCT2C [4]**			Coefficients for 2nd polynomial function		**reference:**	
description:							
Array variable $AC_FCT2C[n] is used to program polynomial coefficients a0 - a3 for the second polynomial function.							
The polynomial function can also be defined by FCTDEF(polynomial no., lower limit, upper limit, a0, a1, a2, a3).							
Index 1:	n: Degree of order of coefficient 0 - 3						
unit:	-						
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	-	0	X	
write:	runin stp	X	7	-	0	X	
axis identifier:				**Valuation:**	channel-specific		
block search	Not classified			**link**	Not classified		

DOUBLE	**$AC_FCT3C [4]**			Coefficients for 3rd polynomial function		**reference:**	
description:							
Array variable $AC_FCT3C[n] is used to program polynomial coefficients a0 - a3 for the third polynomial function.							
The polynomial function can also be defined by FCTDEF(polynomial no., lower limit, upper limit, a0, a1, a2, a3).							
Index 1:	n: Degree of order of coefficient 0 - 3						
unit:	-						
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	-	0	X	
write:	runin stp	X	7	-	0	X	
axis identifier:				**Valuation:**	channel-specific		
block search	Not classified			**link**	Not classified		

DOUBLE	**$AC_FCTLL [n]**			Lower limit of polynomial functions		**reference:**	
description:							
Array variable $AC_FCTLL[n] is used to define the lower limit for the nth polynomial function.							
The polynomial function can also be defined by FCTDEF(polynomial no., lower limit, upper limit, a0, a1, a2, a3).							
Index 1:	The dimension is configured via $MC_MM_NUM_FCTDEF_ELEMENTS. n: Number of the polynomial						
unit:	-						
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	runin stp	X	7	-	0	X	
axis identifier:				**Valuation:**	channel-specific		
block search	Not classified			**link**	Not classified		

DOUBLE	**$AC_FCTUL [n]**	Upper limit of polynomial functions	**reference:**	

description:
Array variable $AC_FCTUL[n] is used to define the upper limit for the nth polynomial function.
The polynomial function can also be defined by FCTDEF(polynomial no., lower limit, upper limit, a0, a1, a2, a3).

Index 1:	The dimension is configured via $MC_MM_NUM_FCTDEF_ELEMENTS. n: Number of the polynomial					
unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	runin stp	X	7	-	0	X	

axis identifier:			**Valuation:**	channel-specific
block search	Not classified		**link**	Not classified

DOUBLE	**$AC_FCT0 [n]**	1st coefficient of polynomial functions	**reference:**	

description:
Array variable $AC_FCT0[n] is used to program the a0 coefficient for the nth polynomial function.
The polynomial function can also be defined by FCTDEF(polynomial no., lower limit, upper limit, a0, a1, a2, a3).

Index 1:	The dimension is configured via $MC_MM_NUM_FCTDEF_ELEMENTS. n: Number of the polynomial					
unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	runin stp	X	7	-	0	X	

axis identifier:			**Valuation:**	channel-specific
block search	Not classified		**link**	Not classified

DOUBLE	**$AC_FCT1 [n]**	2. coefficient of polynomial functions	**reference:**	

description:
Array variable $AC_FCT1[n] is used to program the a1 coefficient for the nth polynomial function.
The polynomial function can also be defined by FCTDEF(polynomial no., lower limit, upper limit, a0, a1, a2, a3).

Index 1:	The dimension is configured via $MC_MM_NUM_FCTDEF_ELEMENTS. n: Number of the polynomial					
unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	

write:	runin stp	X	7	-	0	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

DOUBLE	**$AC_FCT2 [n]**	3. coefficient of polynomial functions	**reference:**	

description:

Array variable $AC_FCT2[n] is used to program the a2 coefficient for the nth polynomial function.

The polynomial function can also be defined by FCTDEF(polynomial no., lower limit, upper limit, a0, a1, a2, a3).

Index 1:		The dimension is configured via $MC_MM_NUM_FCTDEF_ELEMENTS. n: Number of the polynomial					
unit:		-					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	runin stp	X	7	-	0	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

DOUBLE	**$AC_FCT3 [n]**	4. coefficient of polynomial functions	**reference:**	

description:

Array variable $AC_FCT3[n] is used to program the a3 coefficient for the nth polynomial function.

The polynomial function can also be defined by FCTDEF(polynomial no., lower limit, upper limit, a0, a1, a2, a3).

Index 1:		The dimension is configured via $MC_MM_NUM_FCTDEF_ELEMENTS. n: Number of the polynomial					
unit:		-					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	runin stp	X	7	-	0	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

INT	**$AC_ALARM_STAT**	Alarm responses	**reference:**	

description:

Variable $AC_ALARM_STAT returns selected alarm responses.

The following bits are possible:

0x04Channel status NOREADY

0x40Stop due to alarm

0x200Signal to PLC

0x11Axes in follow-up

unit:	-		

min.:		-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

BOOL	**$AN_ESR_TRIGGER**			ESR trigger		**reference:**	
description: $AN_ESR_TRIGGER = 1 Trigger "Extended stop and retract"							
unit:		-					
min.:		FALSE	**max.:**	TRUE	**std:**		FALSE
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	-	X	0	X	7	X	
write:	-	X	0	-	0	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

BOOL	**$AN_BUS_FAIL_TRIGGER**			Reserved for Siemens		**reference:**	
description: Reserved for Siemens							
unit:		-					
min.:		FALSE	**max.:**	TRUE	**std:**		FALSE
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	-	X	0	X	7	X	
write:	-	X	0	-	0	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

BOOL	**$AC_ESR_TRIGGER**			ESR trigger		**reference:**	
description: $AC_ESR_TRIGGER = 1 Trigger "numerically controlled ESR"							
unit:		-					
min.:		FALSE	**max.:**	TRUE	**std:**		FALSE
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	-	X	0	X	7	X	

write:	-	X	0	-	0	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

DOUBLE	**$AC_OPERATING_TIME**	Operating time of NC programs in AUTOMATIC mode	**reference:**	

description:

$AC_OPERATING_TIME measures the total operating time of all NC programs in AUTOMATIC mode between NC Start and end of program / NC Reset (in seconds).

The measurement can be activated with channel MD 27860 $MC_PROCESSTIMER_MODE:

Bit 0 = 1$AC_OPERATING_TIME measurement is active.

The following measurement conditions can be selected:

Bit 4 = 0No measurement when dry run feed is active

Bit 4 = 1Measurement even when dry run feed is active

Bit 5 = 0No measurement during program test

Bit 5 = 1Measurement even during program test

Bit 9 = 0 No measurement when override is 0%

Bit 9 = 1 Measurement even when override is 0%0

Use in NC program:

IF $AC_OPERATING_TIME < 12000 GOTOB STARTMARK

unit:		s					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	runin stp	X	7	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$AC_CYCLE_TIME**	Execution time of the selected NC program	**reference:**	

description:

$AC_CYCLE_TIME measures the operating time of the selected NC program between NC Start

and end of program/NC Reset (in seconds).

The timer is cleared at each program start.

The measurement can be activated using channel MD 27860 $MC_PROCESSTIMER_MODE:

Bit 1 = 1$AC_CYCLE_TIME measurement of current program runtime is active.

The following measurement conditions can be selected:

Bit 4 = 0No measurement when dry run feed is active

Bit 4 = 1Measurement even when dry run feed is active

Bit 5 = 0No measurement during program test

Bit 5 = 1Measurement even during program test

Bit 6 = 0 Cleared even with start by ASUB and PROG_EVENTs

Bit 6 = 1 Not cleared with start by ASUB and PROG_EVENTs

Bit 8 = 0 Not cleared by a jump to program start with GOTOS

Bit 8 = 1 Cleared by a jump to program start with GOTOS Bit 9 = 0 No measurement when override is 0% Bit 9 = 1 Measurement even when override is 0% Use in NC program: IF $AC_CYCLE_TIME> 2400 GOTOF ALARM01							
unit:		s					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	runin stp	X	7	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$AC_CUTTING_TIME**		Machining time			**reference:**	
description: $AC_CUTTING_TIME is used to measure the machining time (in seconds). This time is defined as the operating time of the path axes (at least one is active) excluding periods when rapid traverse is active in all NC programs between NC Start and end of program / NC Reset optionally including/not including active tool. The measurement is also interrupted whenever a dwell time is active. The timer is automatically reset to zero each time the control boots with default values. The measurement can be activated using channel MD 27860 $MC_PROCESSTIMER_MODE: Bit 2 = 1$AC_CUTTING_TIME measurement is active. The following measurement conditions can be selected: Bit 4 = 0No measurement when dry run feed is active Bit 4 = 1Measurement even when dry run feed is active Bit 5 = 0No measurement during program test Bit 5 = 1Measurement even during program test Bit 7 = 0 Measurement only with active tool Bit 7 = 1 Measurement runs irrespective of the tool Use in NC program: IF $AC_CUTTING_TIME> 6000 GOTOF ACT_M06							
unit:		s					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	runin stp	X	7	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$AC_REQUIRED_PARTS**	Definition of the number of required workpieces	**reference:**	

description:

$AC_REQUIRED_PARTS can be used to define the number of workpieces
which, when reached, causes the number of actual workpieces $AC_ACTUAL_PARTS
to be reset (workpiece target).
Channel MD 27880 $MC_PART_COUNTER can be used to activate the
display alarm "workpiece target reached" and channel VDI signal "workpiece target reached":

Bit 0 = 1:$AC_REQUIRED_PARTS counter is active
Further meaning of bit 1 only when bit 0 = 1:
Bit 1 = 0: Alarm/VDI output when $AC_ACTUAL_PARTS matches $AC_REQUIRED_PARTS
Bit 1 = 1: Alarm/VDI output when $AC_SPECIAL_PARTS matches $AC_REQUIRED_PARTS
Use in NC program:
$AC_REQUIRED_PARTS = ACTUAL_LOS
e.g. for defining a batch size, a daily production output ...

unit:	-				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	runin stp	X	7	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$AC_TOTAL_PARTS**	Total number of all machined workpieces	**reference:**	

description:

The $AC_TOTAL_PARTS counter indicates the number of all workpieces machined since the start time.

The counter is incremented by 1 when the MC command defined in channel MD 27882$MC_PART_COUNTER_MCODE[0] is output to the PLC.

The counter is automatically reset only when the control boots with default values.

Channel MD 27880 $MC_PART_COUNTER can be used to activate the timer:

Bit 4 = 1: $AC_TOTAL_PARTS counter is active

Further meaning of bits 5-6 only when bit 4 = 1:

Bit 5 = 0: The $AC_TOTAL_PARTS counter is incremented by 1 on a VDI output of M02/M30

Bit 5 = 1: The $AC_TOTAL_PARTS counter is incremented by 1 when the M command from MD PART_COUNTER_MCODE[0] is output.

Bit 6 = 0:$AC_TOTAL_PARTS active even during program test/block search

Bit 6 = 1:No processing of $AC_TOTAL_PARTS during program test/block search

Use in NC program:

IF $AC_TOTAL_PARTS> SERVICE_COUNT GOTOF MARK_END

unit:	-				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	runin stp	X	7	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$AC_ACTUAL_PARTS**	Number of workpieces currently machined	**reference:**	

description:

The $AC_ACTUAL_PARTS counter records the number of all workpieces machined since the start time.

When the workpiece target is reached ($AC_REQUIRED_PARTS), the counter is automatically reset ($AC_REQUIRED_PARTS not equal to 0).

The counter is incremented by 1 when the MC command defined in channel MD 27882$MC_PART_COUNTER_MCODE[1] is output to the PLC.

The counter is automatically reset only when the control boots with default values.

Channel MD 27880 $MC_PART_COUNTER can be used to activate the timer:

Bit 4 = 1: $AC_TOTAL_PARTS counter is active

Further meaning of bits 5-6 only when bit 4 = 1:

Bit 5 = 0: The $AC_TOTAL_PARTS counter is incremented by 1 on a VDI output of M02/M30

Bit 5 = 1: The $AC_TOTAL_PARTS counter is incremented by 1 when the M command from MD PART_COUNTER_MCODE[0] is output.

Bit 6 = 0:$AC_TOTAL_PARTS active even during program test/block search

Bit 6 = 1:No processing of $AC_TOTAL_PARTS during program test/block search

Use in NC program:

IF $AC_ACTUAL_PARTS == 0 GOTOF NEW_RUN

unit:	-				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	runin stp	X	7	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$AC_SPECIAL_PARTS**	Number of workpieces counter by user	**reference:**	

description:

The $AC_SPECIAL_PARTS counter allows the user to apply his own strategy for counting workpieces.

Channel MD 27880 $MC_PART_COUNTER can be used to activate the timer:

Bit 12 = 1: $AC_SPECIAL_PARTS counter is active

Further meaning of bits 13-15 only when bit 12 = 1:

Bit 13 = 0: The $AC_SPECIAL_PARTS counter is incremented by 1 on a VDI output of M02/M30

Bit 13 = 1: The $AC_SPECIAL_PARTS counter is incremented by 1 when the M command from MD PART_COUNTER_MCODE[2] is output.

Bit 14 = 0: $AC_SPECIAL_PARTS active even during program test/block search Bit 14 = 1: No processing of $AC_SPECIAL_PARTS during program test/block search Use in NC program: $AC_SPECIAL_PARTS = R20							
unit:		-					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	runin stp	X	7	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

INT	**$AC_G0MODE**		Path traversal with G0			**reference:**	
description: $AC_G0MODE 0: G0 not active 1: G0 and linear interpolation active 2: G0 and non-linear interpolation active. The response of the path axes to G0 depends on machine data $MC_G0_LINEAR_MODE (Siemens mode) or $MC_EXTERN_G0_LINEAR_MODE (ISO mode): With linear interpolation, the path axes traverse together, With non-linear interpolation, the path axes are traversed as positioning axes.							
unit:		-					
min.:		0	**max.:**	2		**std:**	0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	-	X	0	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

INT	**$AC_MEAS_SEMA**		Semaphore to measurement interface			**reference:**	

description:
Variable for workpiece and tool measurement.
Variable $AA_MEAS_SEMA is used to synchronize measuring processes. The variable should be set to 1 before each assignment of the measurement interface and set to 0 when releasing it. Only one measurement interface is available for each channel and should be assigned only if the $AC_MEAS_SEMA contains the value 0.
Application:
if ($AC_MEAS_SEMA == 0)
  $AC_MEAS_SEMA = 1 ; Assign measurement interface
endif							

unit:		-					
min.:		0	**max.:**	1	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

INT	**$AC_MEAS_LATCH [4]**	Unlatch measuring points	**reference:**	

description:

Variable for workpiece and tool measurement.

Axial variable $AA_MEAS_LATCH[n] is used to unlatch all current axis positions with reference to a selected coordinate system. Variable $AC_MEAS_P1_COORD is used to select the coordinate system. $AC_MEAS_P4_COORD.

Application:

$AA_MEAS_LATCH[0] = 1 ; Unlatch 1st measuring point of all axes

$AA_MEAS_LATCH[1] = 1 ; Unlatch 2nd measuring point of all axes

$AA_MEAS_LATCH[2] = 1 ; Unlatch 3rd measuring point of all axes

$AA_MEAS_LATCH[3] = 1 ; Unlatch 4th measuring point of all axes

The unlatched measuring point is stored in $AA_MEAS_POINT1[ax].

Index 1:		0: 1st measuring point, .. , 3: 4th measuring point					
unit:		-					
min.:		0	**max.:**	1	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	runin stp	X	7	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

INT	**$AC_MEAS_P1_COORD**	Coordinate system 1st measuring point	**reference:**	

description:

Variable for workpiece and tool measurement.

Variable $AC_MEAS_P1_COORD is used to set the coordinate system frame for the 1st measuring point.

Application:

$AC_MEAS_P1_COORD = 0 ; WCS

$AC_MEAS_P1_COORD = 1 ; BCS

$AC_MEAS_P1_COORD = 2 ; MCS

$AC_MEAS_P1_COORD = 3 ; SZS

unit:		-					
min.:		0	**max.:**	3	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	

write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$AC_MEAS_P2_COORD**	Coordinate system 2nd measuring point	**reference:**	

description:

Variable for workpiece and tool measurement.

Variable $AC_MEAS_P2_COORD is used to set the coordinate system frame for the 2nd measuring point.

Application:

$AC_MEAS_P2_COORD = 0 ; WCS

$AC_MEAS_P2_COORD = 1 ; BCS

$AC_MEAS_P2_COORD = 2 ; MCS

$AC_MEAS_P2_COORD = 3 ; SZS

unit:	-				
min.:	0	**max.:**	3	**std:**	0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$AC_MEAS_P3_COORD**	Coordinate system 3rd measuring point	**reference:**	

description:

Variable for workpiece and tool measurement.

Variable $AC_MEAS_P3_COORD is used to set the coordinate system frame for the 3rd measuring point.

Application:

$AC_MEAS_P3_COORD = 0 ; WCS

$AC_MEAS_P3_COORD = 1 ; BCS

$AC_MEAS_P3_COORD = 2 ; MCS

$AC_MEAS_P3_COORD = 3 ; SZS

unit:	-				
min.:	0	**max.:**	3	**std:**	0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$AC_MEAS_P4_COORD**	Coordinate system 4th measuring point	**reference:**	

description:
Variable for workpiece and tool measurement.
Variable $AC_MEAS_P4_COORD is used to set the coordinate system frame for the 4th measuring point.
Application:
$AC_MEAS_P4_COORD = 0 ; WCS
$AC_MEAS_P4_COORD = 1 ; BCS
$AC_MEAS_P4_COORD = 2 ; MCS
$AC_MEAS_P4_COORD = 3 ; SZS

unit:	-					
min.:	0	**max.:**	3	**std:**	0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:			**Valuation:**	channel-specific	
block search	Not classified		**link**	Not classified	

INT	**$AC_MEAS_SET_COORD**	Coordinate system of position setpoint	**reference:**	

description:
Variable for workpiece and tool measurement.
Variable $AC_MEAS_SET_COORD is used to set the coordinate system for the position setpoint.
Application:
$AC_MEAS_SET_COORD = 0 ; WCS
$AC_MEAS_SET_COORD = 1 ; BCS
$AC_MEAS_SET_COORD = 2 ; MCS
$AC_MEAS_SET_COORD = 3 ; SZS

unit:	-					
min.:	0	**max.:**	3	**std:**	0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:			**Valuation:**	channel-specific	
block search	Not classified		**link**	Not classified	

DOUBLE	**$AC_MEAS_WP_SETANGLE**	Workpiece position angle setpoint	**reference:**	

description:
Variable for workpiece and tool measurement.
Axial variable $AA_MEAS_WP_SETANGLE is used to define an angle setpoint for the workpiece position.

unit:	deg.				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$AC_MEAS_CORNER_SETANGLE**	Cutting angle setpoint for workpiece corner	**reference:**	

description:

Variable for workpiece and tool measurement.

Variable $AA_MEAS_CORNER_SETANGLE is used to define an angle setpoint for the corner of a workpiece.

unit:	deg.				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$AC_MEAS_DIR_APPROACH**	Approach direction to workpiece	**reference:**	

description:

Variable for workpiece and tool measurement.

Variable $AA_MEAS_DIR_APPROACH is used to define the direction of approach to the workpiece.

The following values are possible:

0:+x

1:-x

2:+y

3:-y

4:+z

5:-z

unit:	-				
min.:	0	**max.:**	5	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$AC_MEAS_ACT_PLANE**	Working plane for workpiece	**reference:**	

description:

Variable for workpiece and tool measurement.

Variable $AC_MEAS_ACT_PLANE is used to define the working plane. The working plane is needed in order to define the tool orientation.

The following values are possible:

0: G17 working plane x/y infeed direction z

1: G18 working plane z/x infeed direction y

2: G19 working plane y/z infeed direction x

unit:	-				
min.:	0	**max.:**	2	**std:**	0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:					**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

INT	**$AC_MEAS_FINE_TRANS**	Fine offset	**reference:**	

description:

Variable for workpiece and tool measurement.

When measuring workpieces, translation offsets can be entered in the fine offset component of the selected frame. Variable $AC_MEAS_FINE_TRANS is used for this purpose.

The following values are possible:

0: Translation offset is entered in coarse offset

1: Translation offset is entered in fine offset

unit:	-				
min.:	0	**max.:**	1	**std:**	0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:					**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

INT	**$AC_MEAS_FRAME_SELECT**	Frame selection for workpiece measurement	**reference:**	

description:

Variable for workpiece and tool measurement.

Variable $AC_MEAS_FRAME_SELECT is used to select the frame in which the calculated frame is entered.

The following values are possible:

0:$P_SETFRAME

1:$P_PARTFRAME

2:$P_EXTFRAME

10..25:$P_CHBFRAME[0..15]
50..65:$P_NCBFRAME[0..15]
100..199:$P_IFRAME
500:$P_TOOLFRAME
501:$P_WPFRAME
502:$P_TRAFRAME
503:$P_PFRAME
504:$P_CYCFRAME
505: $P_RELFRAME (PCS)
506: $P_RELFRAME (ACS)
1010..1025: $P_CHBFRAME[0..15], when G500 is active
1050..1065: $P_NCBFRAME[0..15], when G500 is active
2000: $P_SETFR
2001:$P_PARTFR
2002:$P_EXTFR
2010..2025: $P_CHBFR[0..15]
2050..2065: $P_NCBFR[0..15]
2100..2199: $P_UIFR[0..99]
2500:$P_TOOLFR
2501:$P_WPFR
2502:$P_TRAFR
2504:$P_CYCFR
2505: $P_RELFR (PCS)
2506: $P_RELFR (ACS)
3010..3025: $P_CHBFR[0..15], when G500 is active
3050..3065: $P_NCBFR[0..15], when G500 is active

unit:	-					
min.:	0	**max.:**	3065	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:		**Valuation:**	channel-specific
block search	Not classified	**link**	Not classified

INT	**$AC_MEAS_CHSFR**	Frame selection for system frames	**reference:**	

description:

Variable for workpiece and tool measurement.

In order to convert a position from one coordinate system to another, $AC_MEAS_CHSFR can be used to define the composition of the desired frame chain. The value of the variable should be selected according to the system frame bitmask $MC_MM_SYSTEM_FRAME_MASK.

Application:

$AC_MEAS_CHSFR = 'B1001'

Only the system frames for preset actual value and TOROT are included in the calculation of the new overall frame.

unit:		-					
min.:		-2147483648	**max.:**	2147483647		**std:**	0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

INT	**$AC_MEAS_NCBFR**	Frame selection for global basic frames	**reference:**

description:

Variable for workpiece and tool measurement.

In order to convert a position from one coordinate system to another, $AC_MEAS_NCBFR can be used to define the composition of the desired frame chain. The value of the variable should be interpreted as a bitmask from 0x0 to 0xFFFF for the global basic frames (up to 16 frames in total).

Application:

$AC_MEAS_NCBFR = 'B11'

Only the first two global basic frames are included in the calculation of the new overall frame.

unit:		-					
min.:		0	**max.:**	0xFFFF		**std:**	0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

INT	**$AC_MEAS_CHBFR**	Frame selection for channel basic frames	**reference:**

description:

Variable for workpiece and tool measurement.

In order to convert a position from one coordinate system to another, $AC_MEAS_CHBFR can be used to define the composition of the desired frame chain. The value of the variable should be interpreted as a bitmask from 0x0 to 0xFFFF for the channel basic frames (up to 16 frames in total).

Application:

$AC_MEAS_CHBFR = 'B11'

Only the first two channel basic frames are included in the calculation of the new overall frame.

unit:		-					
min.:		0	**max.:**	0xFFFF		**std:**	0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

INT	**$AC_MEAS_UIFR**	Frame selection for settable frames	**reference:**	

description:

Variable for workpiece and tool measurement.

In order to convert a position from one coordinate system to another, $AC_MEAS_UIFR can be used to define the composition of the desired frame chain. The variable range for the settable frames is from 0 to 99 (up to 100 in total).

Application:

$AC_MEAS_UIFR = 1

The G54 frame is included in the calculation of the new overall frame.

unit:	-					
min.:	0	**max.:**	99	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:					**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

INT	**$AC_MEAS_PFRAME**	Frame selection for the prog. frame	**reference:**	

description:

Variable for workpiece and tool measurement.

In order to convert a position from one coordinate system to another, $AC_MEAS_PFRAME can be used to define the composition of the desired frame chain.

The following values are allowed:

$AC_MEAS_PFRAME = 1 ; Programmable frame is not included in calculation

$AC_MEAS_PFRAME = 0 ; Programmable frame is included in calculation

unit:	-					
min.:	0	**max.:**	1	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:					**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

INT	**$AC_MEAS_T_NUMBER**	Tool selection	**reference:**	

description:

Variable for workpiece and tool measurement.

Variable $AC_MEAS_T_NUMBER is used to select the tool for workpiece and tool measurement. The tool number of the active tool must match the selected tool. The active tool is included in the calculation when T0 is selected. If no tool is selected, the tool selected by $AC_MEAS_T_NUMBER is used in the calculation.

unit:	-					
min.:	0	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:						

	PP	SA	PP/SA protection level	OPI	OPI protection level	OEM	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$AC_MEAS_TOOL_MASK**	Tool position	**reference:**	

description:

Variable for workpiece and tool measurement.

Variable $AC_MEAS_TOOL_MASK specifies the tool position and considers the tool lengths for workpiece and tool measurement.

The following values are possible:

0x0:Default setting; all tool lengths are included

0x1:The radius of the tool is not included in the calculation

0x2:The tool is positioned in the x direction (G19)

0x4:The tool is positioned in the y direction (G18)

0x8:The tool is positioned in the z direction (G17)

0x10:The length of the tool is not included in the calculation.

0x20:The length of the active tool is included in the transformation of the coordinates of a position.

0x40:The tool is positioned in the x direction (G19)

0x80:The tool is positioned in the y direction (G18)

0x100:The tool is positioned in the z direction (G17)

0x200:Differences in the tool lengths are subtracted.

Whether or not the radius of a milling tool is included in the calculation is determined from the tool position and direction of approach. If the direction of approach is not specified explicitly, it is derived from the selected plane. The direction of approach is in -z for G17, -y for G18 and -x for G19.

unit:	-				
min.:	0	**max.:**	0x10	**std:**	0

Properties with regard to reading/writing:

	PP	SA	PP/SA protection level	OPI	OPI protection level	OEM	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$AC_MEAS_D_NUMBER**	Cutting edge selection	**reference:**	

description:

Variable for workpiece and tool measurement.

Variable $AC_MEAS_D_NUMBER is used to select the tool cutting edge for workpiece and tool measurement. The tool cutting edge number of the active tool must match the selected cutting edge. The active cutting edge is included in the calculation when D0 is selected. If no tool is selected, the cutting edge selected by $AC_MEAS_D_NUMBER is used in the calculation.

unit:	-				
min.:	0	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$AC_MEAS_TYPE**	Measurement type selection	**reference:**	

description:

Variable for workpiece and tool measurement.

Variable $AC_MEAS_TYPE is used to select the type of measurement.

The following values are possible:

0: Default setting
1: x edge
2: y edge
3: z edge
4: Corner 1
5: Corner 2
6: Corner 3
7: Corner 4
8: Hole
9: Shaft
10: Tool length
11: Tool diameter
12: Groove
13: Web
14: Preset actual value memory for geo and special axes
15: Preset actual value memory for special axes only
16: Inclined edge
17: Plane_Angles (2 solid angles in one plane)
18: Plane_Normal (3 solid angles in one plane with specified setpoint)
19: Dimension_1 (1-dimensional setpoint specification)
20: Dimension_2 (2-dimensional setpoint specification)
21: Dimension_3 (3-dimensional setpoint specification)
22: ToolMagnifier (ShopTurn: Measurement of tool lengths with magnifier)
23: ToolMarkedPos (ShopTurn: Measurement of a tool length with marked position)
24: Coordinate transformation of a position
25: Rectangle

unit:	-				
min.:	0	**max.:**	25	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	

write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$AC_MEAS_VALID**	Validity bits of measurement variables.	**reference:**

description:

Variable for workpiece and tool measurement.

Variable $AC_MEAS_VALID is used to define which system variables are valid for the current measurement. The value should be set to 0 before every measurement

The individual bits are set implicitly when the corresponding variables are written.

Bit 0: $AA_MEAS_POINT1[axis]
Bit 1: $AA_MEAS_POINT2[axis]
Bit 2:$AA_MEAS_POINT3[axis]
Bit 3: $AA_MEAS_POINT4[axis]
Bit 4: $AA_MEAS_SETPOINT[axis]
Bit 5: $AC_MEAS_WP_SETANGLE
Bit 6: $AC_MEAS_CORNER_SETANGLE
Bit 7: $AC_MEAS_T_NUMBER
Bit 8: $AC_MEAS_D_NUMBER
Bit 9: $AC_MEAS_DIR_APPROACH
Bit 10: $AC_MEAS_ACT_PLANE
Bit 11:$AC_MEAS_FRAME_SELECT
Bit 12: $AC_MEAS_TYPE
Bit 13: $AC_MEAS_FINE_TRANS
Bit 14: $AA_MEAS_SETANGLE[axis]
Bit 15: $AC_MEAS_SCALEUNIT
Bit 16: $AC_MEAS_TOOL_MASK
Bit 17: $AC_MEAS_P1_COORD
Bit 18: $AC_MEAS_P2_COORD
Bit 19: $AC_MEAS_P3_COORD
Bit 20: $AC_MEAS_P4_COORD
Bit 21: $AC_MEAS_SET_COORD
Bit 22: $AC_MEAS_CHSFR
Bit 23: $AC_MEAS_NCBFR
Bit 24: $AC_MEAS_CHBFR
Bit 25: $AC_MEAS_UIFR
Bit 26: $AC_MEAS_PFRAME

unit:	-				
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	

write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

FRAME	**$AC_MEAS_FRAME**			Result frame for workpiece measurement		**reference:**	
description:							
Variable for workpiece and tool measurement.							
Variable $AC_MEAS_FRAME is the result frame for workpiece measurement. This frame is calculated by the MEASURE() function or a PI service and is not part of the active frame chain. The calculated result frame can then be copied into the selected frame ($AC_MEAS_FRAME_SELECT) by the part program or a further PI service.							
unit:	-						
min.:		**max.:**			**std:**		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	-	0	-	
axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$AC_MEAS_WP_ANGLE**			Workpiece position angle		**reference:**	
description:							
Variable for workpiece and tool measurement.							
Variable $AC_MEAS_WP_ANGLE is the calculated workpiece position angle for workpiece measurement. The value specifies the relative position of the workpiece in the workpiece coordinate system (WCS).							
unit:	deg.						
min.:	-1,8E308	**max.:**		1,8E308	**std:**	0.0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$AC_MEAS_CORNER_ANGLE**			Angle of a corner		**reference:**	
description:							
Variable for workpiece and tool measurement.							
Variable $AC_MEAS_CORNER_ANGLE is the calculated cutting angle of the corner for workpiece measurement.							
unit:	deg.						
min.:	-1,8E308	**max.:**		1,8E308	**std:**	0.0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	

write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$AC_MEAS_DIAMETER**			Tool diameter		**reference:**	
description:							
Variable for workpiece and tool measurement.							
Variable $AC_MEAS_DIAMETER is the calculated diameter for tool measurement.							
unit:	mm						
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$AC_MEAS_TOOL_LENGTH**			Tool length		**reference:**	
description:							
Variable for workpiece and tool measurement.							
Variable $AC_MEAS_TOOL_LENGTH is the calculated tool length for tool measurement.							
unit:	mm						
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$AC_MEAS_RESULTS [10]**			Measurement results		**reference:**	
description:							
Variable for workpiece and tool measurement.							
Array variable $AC_MEAS_RESULTS[n] contains the calculation results. The measurement type ($AC_MEAS_TYPE) determines which elements of the array are written.							
Index 1:	Measurement results						
unit:	-						
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	

write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$AC_MEAS_SCALEUNIT**	Measurement unit	**reference:**	

description:

Variable for workpiece and tool measurement.

Variable $AC_MEAS_SCALEUNIT defines the unit of measurement according to the configuration for input and output values.

The following values are possible:

0: Unit of measurement as configured (default setting)

1: Unit of measurement with reference to active G code is INCH: G70/G700 METRIC: G71/G710

unit:	-					
min.:	0	**max.:**	1	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$P_CHANNO**	-	**reference:**	

description:

Interrogate current channel number.

unit:	-					
min.:	1	**max.:**	10	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$AC_SERUPRO**	-	**reference:**	

description:

$AC_SERUPRO

Interrogate whether search type Serupro is active. (Serupro: "Block search via program test")

Can be used in Synacts and the part program

$AC_SERUPRO == 0 Search type Serupro is not active

$AC_SERUPRO == 1 Search type Serupro is active

unit:	-					
min.:	0	**max.:**	1	**std:**	0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$AC_VACTBF**		Path velocity in the BCS		**reference:**	
description:						
$AC_VACTBF supplies the path velocity in the basic coordinate system. FGroup and FGREF are taken into account.						
unit:	Linear / angular speed					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	
Properties with regard to reading/writing:						
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**
read:	-	X	0	X	7	-
write:	-	-	0	-	0	-
axis identifier:					**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

DOUBLE	**$AC_VACTWF**		Path velocity in the WCS		**reference:**	
description:						
Path velocity in workpiece coordinate system. FGROUP and FGREF are taken into account.						
unit:	Linear / angular speed					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	
Properties with regard to reading/writing:						
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**
read:	-	X	0	-	0	-
write:	-	-	0	-	0	-
axis identifier:					**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

FRAME	**$P_CHBFR0**		Access to 1st channel basic frame		**reference:**	
description:						
Access to 1st channel basic frame. Corresponds to $P_CHBFR[0].						
unit:	-					
min.:		**max.:**		**std:**		
Properties with regard to reading/writing:						
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**
read:	X	-	7	-	0	-

write:	X	-	7		-	0	-
axis identifier:		GEO	CHAN	MACH		**Valuation:**	channel-specific
block search		Not classified				**link**	No restrictions

FRAME	**$P_CHBFR1**				Access to 2nd channel basic frame		**reference:**	
description:								
Access to 2nd channel basic frame. Corresponds to $P_CHBFR[1].								
unit:		-						
min.:				**max.:**			**std:**	
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7		-	0	-	
write:	X	-	7		-	0	-	
axis identifier:		GEO	CHAN	MACH		**Valuation:**	channel-specific	
block search		Not classified				**link**	No restrictions	

FRAME	**$P_CHBFR2**				Access to 3rd channel basic frame		**reference:**	
description:								
Access to 3rd channel basic frame. Corresponds to $P_CHBFR[2].								
unit:		-						
min.:				**max.:**			**std:**	
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7		-	0	-	
write:	X	-	7		-	0	-	
axis identifier:		GEO	CHAN	MACH		**Valuation:**	channel-specific	
block search		Not classified				**link**	No restrictions	

FRAME	**$P_CHBFR3**				Access to 4th channel basic frame		**reference:**	
description:								
Access to 4th channel basic frame. Corresponds to $P_CHBFR[3].								
unit:		-						
min.:				**max.:**			**std:**	
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7		-	0	-	
write:	X	-	7		-	0	-	
axis identifier:		GEO	CHAN	MACH		**Valuation:**	channel-specific	
block search		Not classified				**link**	No restrictions	

FRAME	**$P_CHBFR4**				Access to 5th channel basic frame			**reference:**	
description:									
Access to 5th channel basic frame. Corresponds to $P_CHBFR[4].									
unit:		-							
min.:				**max.:**			**std:**		
Properties with regard to reading/writing:									
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**		**OEM**	
read:	X	-	7		-	0		-	
write:	X	-	7		-	0		-	
axis identifier:		GEO	CHAN	MACH		**Valuation:**		channel-specific	
block search		Not classified				**link**		No restrictions	

FRAME	**$P_CHBFR5**				Access to 6th channel basic frame			**reference:**	
description:									
Access to 6th channel basic frame. Corresponds to $P_CHBFR[5].									
unit:		-							
min.:				**max.:**			**std:**		
Properties with regard to reading/writing:									
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**		**OEM**	
read:	X	-	7		-	0		-	
write:	X	-	7		-	0		-	
axis identifier:		GEO	CHAN	MACH		**Valuation:**		channel-specific	
block search		Not classified				**link**		No restrictions	

FRAME	**$P_CHBFR6**				Access to 7th channel basic frame			**reference:**	
description:									
Access to 7th channel basic frame. Corresponds to $P_CHBFR[6].									
unit:		-							
min.:				**max.:**			**std:**		
Properties with regard to reading/writing:									
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**		**OEM**	
read:	X	-	7		-	0		-	
write:	X	-	7		-	0		-	
axis identifier:		GEO	CHAN	MACH		**Valuation:**		channel-specific	
block search		Not classified				**link**		No restrictions	

FRAME	**$P_CHBFR7**				Access to 8th channel basic frame			**reference:**	
description:									
Access to 8th channel basic frame. Corresponds to $P_CHBFR[7].									
unit:		-							
min.:				**max.:**			**std:**		

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:		GEO	CHAN	MACH	**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

FRAME	**$P_CHBFR8**	Access to 9th channel basic frame	**reference:**	

description:
Access to 9th channel basic frame. Corresponds to $P_CHBFR[8].

unit:	-				
min.:		**max.:**		**std:**	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:		GEO	CHAN	MACH	**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

FRAME	**$P_CHBFR9**	Access to 10th channel basic frame	**reference:**	

description:
Access to 10th channel basic frame. Corresponds to $P_CHBFR[9].

unit:	-				
min.:		**max.:**		**std:**	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:		GEO	CHAN	MACH	**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

FRAME	**$P_CHBFR10**	Access to 11th channel basic frame	**reference:**	

description:
Access to 11th channel basic frame. Corresponds to $P_CHBFR[10].

unit:	-				
min.:		**max.:**		**std:**	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:		GEO	CHAN	MACH	**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

FRAME	**$P_CHBFR11**				Access to 12th channel basic frame		**reference:**	
description: Access to 12th channel basic frame. Corresponds to $P_CHBFR[11].								
unit:		-						
min.:			**max.:**			**std:**		
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7		-	0	-	
write:	X	-	7		-	0	-	
axis identifier:		GEO	CHAN	MACH		**Valuation:**	channel-specific	
block search		Not classified				**link**	No restrictions	

FRAME	**$P_CHBFR12**				Access to 13th channel basic frame		**reference:**	
description: Access to 13th channel basic frame. Corresponds to $P_CHBFR[12].								
unit:		-						
min.:			**max.:**			**std:**		
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7		-	0	-	
write:	X	-	7		-	0	-	
axis identifier:		GEO	CHAN	MACH		**Valuation:**	channel-specific	
block search		Not classified				**link**	No restrictions	

FRAME	**$P_CHBFR13**				Access to 14th channel basic frame		**reference:**	
description: Access to 14th channel basic frame. Corresponds to $P_CHBFR[13].								
unit:		-						
min.:			**max.:**			**std:**		
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7		-	0	-	
write:	X	-	7		-	0	-	
axis identifier:		GEO	CHAN	MACH		**Valuation:**	channel-specific	
block search		Not classified				**link**	No restrictions	

FRAME	**$P_CHBFR14**				Access to 15th channel basic frame		**reference:**	
description: Access to 15th channel basic frame. Corresponds to $P_CHBFR[14].								
unit:		-						
min.:			**max.:**			**std:**		

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:		GEO	CHAN	MACH	**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

FRAME	**$P_CHBFR15**	Access to 16th channel basic frame	**reference:**	

description:
Access to 16th channel basic frame. Corresponds to $P_CHBFR[15].

unit:	-				
min.:		**max.:**		**std:**	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:		GEO	CHAN	MACH	**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

FRAME	**$P_NCBFR0**	Access to 1st NCU-global basic frame	**reference:**	

description:
Access to 1st NCU-global basic frame. Corresponds to $P_NCBFR[0].

unit:	-				
min.:		**max.:**		**std:**	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:		GEO	CHAN	MACH	**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

FRAME	**$P_NCBFR1**	Access to 2nd NCU-global basic frame	**reference:**	

description:
Access to 2nd NCU-global basic frame. Corresponds to $P_NCBFR[1].

unit:	-				
min.:		**max.:**		**std:**	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:		GEO	CHAN	MACH	**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

FRAME	**$P_NCBFR2**				Access to 3rd NCU-global basic frame		**reference:**	
description:								
Access to 3rd NCU-global basic frame. Corresponds to $P_NCBFR[2].								
unit:		-						
min.:			**max.:**			**std:**		
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7		-	0	-	
write:	X	-	7		-	0	-	
axis identifier:		GEO	CHAN	MACH		**Valuation:**	channel-specific	
block search		Not classified				**link**	No restrictions	

FRAME	**$P_NCBFR3**				Access to 4th NCU-global basic frame		**reference:**	
description:								
Access to 4th NCU-global basic frame. Corresponds to $P_NCBFR[3].								
unit:		-						
min.:			**max.:**			**std:**		
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7		-	0	-	
write:	X	-	7		-	0	-	
axis identifier:		GEO	CHAN	MACH		**Valuation:**	channel-specific	
block search		Not classified				**link**	No restrictions	

FRAME	**$P_NCBFR4**				Access to 5th NCU-global basic frame		**reference:**	
description:								
Access to 5th NCU-global basic frame. Corresponds to $P_NCBFR[4].								
unit:		-						
min.:			**max.:**			**std:**		
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7		-	0	-	
write:	X	-	7		-	0	-	
axis identifier:		GEO	CHAN	MACH		**Valuation:**	channel-specific	
block search		Not classified				**link**	No restrictions	

FRAME	**$P_NCBFR5**				Access to 6th NCU-global basic frame		**reference:**	
description:								
Access to 6th NCU-global basic frame. Corresponds to $P_NCBFR[5].								
unit:		-						
min.:			**max.:**			**std:**		

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:		GEO	CHAN	MACH	**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

FRAME	**$P_NCBFR6**	Access to 7th NCU-global basic frame	**reference:**	

description:
Access to 7th NCU-global basic frame. Corresponds to $P_NCBFR[6].

unit:	-				
min.:		**max.:**		**std:**	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:		GEO	CHAN	MACH	**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

FRAME	**$P_NCBFR7**	Access to 8th NCU-global basic frame	**reference:**	

description:
Access to 8th NCU-global basic frame. Corresponds to $P_NCBFR[7].

unit:	-				
min.:		**max.:**		**std:**	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:		GEO	CHAN	MACH	**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

FRAME	**$P_NCBFR8**	Access to 9th NCU-global basic frame	**reference:**	

description:
Access to 9th NCU-global basic frame. Corresponds to $P_NCBFR[8].

unit:	-				
min.:		**max.:**		**std:**	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:		GEO	CHAN	MACH	**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

FRAME	**$P_NCBFR9**				Access to 10th NCU-global basic frame		**reference:**	
description:								
Access to 10th NCU-global basic frame. Corresponds to $P_NCBFR[9].								
unit:		-						
min.:			**max.:**			**std:**		
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7		-	0	-	
write:	X	-	7		-	0	-	
axis identifier:		GEO	CHAN	MACH		**Valuation:**	channel-specific	
block search		Not classified				**link**	No restrictions	

FRAME	**$P_NCBFR10**				Access to 11th NCU-global basic frame		**reference:**	
description:								
Access to 11th NCU-global basic frame. Corresponds to $P_NCBFR[10].								
unit:		-						
min.:			**max.:**			**std:**		
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7		-	0	-	
write:	X	-	7		-	0	-	
axis identifier:		GEO	CHAN	MACH		**Valuation:**	channel-specific	
block search		Not classified				**link**	No restrictions	

FRAME	**$P_NCBFR11**				Access to 12th NCU-global basic frame		**reference:**	
description:								
Access to 12th NCU-global basic frame. Corresponds to $P_NCBFR[11].								
unit:		-						
min.:			**max.:**			**std:**		
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7		-	0	-	
write:	X	-	7		-	0	-	
axis identifier:		GEO	CHAN	MACH		**Valuation:**	channel-specific	
block search		Not classified				**link**	No restrictions	

FRAME	**$P_NCBFR12**				Access to 13th NCU-global basic frame		**reference:**	
description:								
Access to 13th NCU-global basic frame. Corresponds to $P_NCBFR[12].								
unit:		-						
min.:			**max.:**			**std:**		

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:		GEO	CHAN	MACH	**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

FRAME	**$P_NCBFR13**	Access to 14th NCU-global basic frame	**reference:**	

description:
Access to 14th NCU-global basic frame. Corresponds to $P_NCBFR[13].

unit:	-				
min.:		**max.:**		**std:**	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:		GEO	CHAN	MACH	**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

FRAME	**$P_NCBFR14**	Access to 15th NCU-global basic frame	**reference:**	

description:
Access to 15th NCU-global basic frame. Corresponds to $P_NCBFR[14].

unit:	-				
min.:		**max.:**		**std:**	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:		GEO	CHAN	MACH	**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

FRAME	**$P_NCBFR15**	Access to 16th NCU-global basic frame	**reference:**	

description:
Access to 16th NCU-global basic frame. Corresponds to $P_NCBFR[15].

unit:	-				
min.:		**max.:**		**std:**	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:		GEO	CHAN	MACH	**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

FRAME	**$P_CHBFRAME0**				Access to 1st current channel basic frame		**reference:**	
description:								
Access to 1st current channel basic frame. Corresponds to $P_CHBFRAME[0].								
unit:		-						
min.:			**max.:**			**std:**		
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7		-	0	-	
write:	X	-	7		-	0	-	
axis identifier:		GEO	CHAN	MACH		**Valuation:**	channel-specific	
block search		Not classified				**link**	No restrictions	

FRAME	**$P_CHBFRAME1**				Access to 2nd current channel basic frame		**reference:**	
description:								
Access to 2nd current channel basic frame. Corresponds to $P_CHBFRAME[1].								
unit:		-						
min.:			**max.:**			**std:**		
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7		-	0	-	
write:	X	-	7		-	0	-	
axis identifier:		GEO	CHAN	MACH		**Valuation:**	channel-specific	
block search		Not classified				**link**	No restrictions	

FRAME	**$P_CHBFRAME2**				Access to 3rd current channel basic frame		**reference:**	
description:								
Access to 3rd current channel basic frame. Corresponds to $P_CHBFRAME[2].								
unit:		-						
min.:			**max.:**			**std:**		
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7		-	0	-	
write:	X	-	7		-	0	-	
axis identifier:		GEO	CHAN	MACH		**Valuation:**	channel-specific	
block search		Not classified				**link**	No restrictions	

FRAME	**$P_CHBFRAME3**				Access to 4th current channel basic frame		**reference:**	
description:								
Access to 4th current channel basic frame. Corresponds to $P_CHBFRAME[3].								
unit:		-						
min.:			**max.:**			**std:**		

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:		GEO	CHAN	MACH	**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

FRAME	**$P_CHBFRAME4**			Access to 5th current channel basic frame		**reference:**	
description:							
Access to 5th current channel basic frame. Corresponds to $P_CHBFRAME[4].							
unit:		-					
min.:			**max.:**		**std:**		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:		GEO	CHAN	MACH	**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

FRAME	**$P_CHBFRAME5**			Access to 6th current channel basic frame		**reference:**	
description:							
Access to 6th current channel basic frame. Corresponds to $P_CHBFRAME[5].							
unit:		-					
min.:			**max.:**		**std:**		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:		GEO	CHAN	MACH	**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

FRAME	**$P_CHBFRAME6**			Access to 7th current channel basic frame		**reference:**	
description:							
Access to 7th current channel basic frame. Corresponds to $P_CHBFRAME[6].							
unit:		-					
min.:			**max.:**		**std:**		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:		GEO	CHAN	MACH	**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

FRAME	**$P_CHBFRAME7**				Access to 8th current channel basic frame		**reference:**	
description:								
Access to 8th current channel basic frame. Corresponds to $P_CHBFRAME[7].								
unit:		-						
min.:			**max.:**			**std:**		
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7		-	0	-	
write:	X	-	7		-	0	-	
axis identifier:		GEO	CHAN	MACH		**Valuation:**	channel-specific	
block search		Not classified				**link**	No restrictions	

FRAME	**$P_CHBFRAME8**				Access to 9th current channel basic frame		**reference:**	
description:								
Access to 9th current channel basic frame. Corresponds to $P_CHBFRAME[8].								
unit:		-						
min.:			**max.:**			**std:**		
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7		-	0	-	
write:	X	-	7		-	0	-	
axis identifier:		GEO	CHAN	MACH		**Valuation:**	channel-specific	
block search		Not classified				**link**	No restrictions	

FRAME	**$P_CHBFRAME9**				Access to 10th current channel basic frame		**reference:**	
description:								
Access to 10th current channel basic frame. Corresponds to $P_CHBFRAME[9].								
unit:		-						
min.:			**max.:**			**std:**		
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7		-	0	-	
write:	X	-	7		-	0	-	
axis identifier:		GEO	CHAN	MACH		**Valuation:**	channel-specific	
block search		Not classified				**link**	No restrictions	

FRAME	**$P_CHBFRAME10**				Access to 11th current channel basic frame		**reference:**	
description:								
Access to 11th current channel basic frame. Corresponds to $P_CHBFRAME[10].								
unit:		-						
min.:			**max.:**			**std:**		

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:		GEO	CHAN	MACH	**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

FRAME	**$P_CHBFRAME11**	Access to 12th current channel basic frame	**reference:**	

description:
Access to 12th current channel basic frame. Corresponds to $P_CHBFRAME[11].

unit:	-				
min.:		**max.:**		**std:**	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:		GEO	CHAN	MACH	**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

FRAME	**$P_CHBFRAME12**	Access to 13th current channel basic frame	**reference:**	

description:
Access to 13th current channel basic frame. Corresponds to $P_CHBFRAME[12].

unit:	-				
min.:		**max.:**		**std:**	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:		GEO	CHAN	MACH	**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

FRAME	**$P_CHBFRAME13**	Access to 14th current channel basic frame	**reference:**	

description:
Access to 14th current channel basic frame. Corresponds to $P_CHBFRAME[13].

unit:	-				
min.:		**max.:**		**std:**	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:		GEO	CHAN	MACH	**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

FRAME	**$P_CHBFRAME14**				Access to 15th current channel basic frame		**reference:**	
description:								
Access to 15th current channel basic frame. Corresponds to $P_CHBFRAME[14].								
unit:		-						
min.:			**max.:**			**std:**		
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7		-	0	-	
write:	X	-	7		-	0	-	
axis identifier:		GEO	CHAN	MACH		**Valuation:**	channel-specific	
block search		Not classified				**link**	No restrictions	

FRAME	**$P_CHBFRAME15**				Access to 16th current channel basic frame		**reference:**	
description:								
Access to 16th current channel basic frame. Corresponds to $P_CHBFRAME[15].								
unit:		-						
min.:			**max.:**			**std:**		
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7		-	0	-	
write:	X	-	7		-	0	-	
axis identifier:		GEO	CHAN	MACH		**Valuation:**	channel-specific	
block search		Not classified				**link**	No restrictions	

FRAME	**$P_NCBFRAME0**				1. 1st current NCU-global basic frame		**reference:**	
description:								
Access to 1st current NCU-global basic frame. Corresponds to $P_NCBFRAME[0].								
unit:		-						
min.:			**max.:**			**std:**		
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7		-	0	-	
write:	X	-	7		-	0	-	
axis identifier:		GEO	CHAN	MACH		**Valuation:**	channel-specific	
block search		Not classified				**link**	No restrictions	

FRAME	**$P_NCBFRAME1**				2. 1st current NCU-global basic frame		**reference:**	
description:								
Access to 2nd current NCU-global basic frame. Corresponds to $P_NCBFRAME[1].								
unit:		-						
min.:			**max.:**			**std:**		

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:		GEO	CHAN	MACH	**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

FRAME	**$P_NCBFRAME2**	3. 1st current NCU-global basic frame	**reference:**	

description:
Access to 3rd current NCU-global basic frame. Corresponds to $P_NCBFRAME[2].

unit:	-				
min.:		**max.:**		**std:**	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:		GEO	CHAN	MACH	**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

FRAME	**$P_NCBFRAME3**	4. 1st current NCU-global basic frame	**reference:**	

description:
Access to 4th current NCU-global basic frame. Corresponds to $P_NCBFRAME[3].

unit:	-				
min.:		**max.:**		**std:**	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:		GEO	CHAN	MACH	**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

FRAME	**$P_NCBFRAME4**	5. 1st current NCU-global basic frame	**reference:**	

description:
Access to 5th current NCU-global basic frame. Corresponds to $P_NCBFRAME[4].

unit:	-				
min.:		**max.:**		**std:**	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:		GEO	CHAN	MACH	**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

FRAME	**$P_NCBFRAME5**				6. 1st current NCU-global basic frame		**reference:**	
description:								
Access to 6th current NCU-global basic frame. Corresponds to $P_NCBFRAME[5].								
unit:		-						
min.:			**max.:**			**std:**		
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7		-	0	-	
write:	X	-	7		-	0	-	
axis identifier:		GEO	CHAN	MACH		**Valuation:**	channel-specific	
block search		Not classified				**link**	No restrictions	

FRAME	**$P_NCBFRAME6**				7. 1st current NCU-global basic frame		**reference:**	
description:								
Access to 7th current NCU-global basic frame. Corresponds to $P_NCBFRAME[6].								
unit:		-						
min.:			**max.:**			**std:**		
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7		-	0	-	
write:	X	-	7		-	0	-	
axis identifier:		GEO	CHAN	MACH		**Valuation:**	channel-specific	
block search		Not classified				**link**	No restrictions	

FRAME	**$P_NCBFRAME7**				8. 1st current NCU-global basic frame		**reference:**	
description:								
Access to 8th current NCU-global basic frame. Corresponds to $P_NCBFRAME[7].								
unit:		-						
min.:			**max.:**			**std:**		
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7		-	0	-	
write:	X	-	7		-	0	-	
axis identifier:		GEO	CHAN	MACH		**Valuation:**	channel-specific	
block search		Not classified				**link**	No restrictions	

FRAME	**$P_NCBFRAME8**				9. 1st current NCU-global basic frame		**reference:**	
description:								
Access to 9th current NCU-global basic frame. Corresponds to $P_NCBFRAME[8].								
unit:		-						
min.:			**max.:**			**std:**		

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:		GEO	CHAN	MACH	**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

FRAME	**$P_NCBFRAME9**	10. 1st current NCU-global basic frame	**reference:**	

description:
Access to 10th current NCU-global basic frame. Corresponds to $P_NCBFRAME[9].

unit:	-				
min.:		**max.:**		**std:**	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:		GEO	CHAN	MACH	**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

FRAME	**$P_NCBFRAME10**	11. 1st current NCU-global basic frame	**reference:**	

description:
Access to 11th current NCU-global basic frame. Corresponds to $P_NCBFRAME[10].

unit:	-				
min.:		**max.:**		**std:**	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:		GEO	CHAN	MACH	**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

FRAME	**$P_NCBFRAME11**	12. 1st current NCU-global basic frame	**reference:**	

description:
Access to 12th current NCU-global basic frame. Corresponds to $P_NCBFRAME[11].

unit:	-				
min.:		**max.:**		**std:**	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:		GEO	CHAN	MACH	**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

FRAME	**$P_NCBFRAME12**				13. 1st current NCU-global basic frame			**reference:**	
description:									
Access to 13th current NCU-global basic frame. Corresponds to $P_NCBFRAME[12].									
unit:		-							
min.:				**max.:**			**std:**		
Properties with regard to reading/writing:									
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**		**OEM**	
read:	X	-	7		-	0		-	
write:	X	-	7		-	0		-	
axis identifier:		GEO	CHAN	MACH		**Valuation:**		channel-specific	
block search		Not classified				**link**		No restrictions	

FRAME	**$P_NCBFRAME13**				14. 1st current NCU-global basic frame			**reference:**	
description:									
Access to 14th current NCU-global basic frame. Corresponds to $P_NCBFRAME[13].									
unit:		-							
min.:				**max.:**			**std:**		
Properties with regard to reading/writing:									
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**		**OEM**	
read:	X	-	7		-	0		-	
write:	X	-	7		-	0		-	
axis identifier:		GEO	CHAN	MACH		**Valuation:**		channel-specific	
block search		Not classified				**link**		No restrictions	

FRAME	**$P_NCBFRAME14**				15. 1st current NCU-global basic frame			**reference:**	
description:									
Access to 15th current NCU-global basic frame. Corresponds to $P_NCBFRAME[14].									
unit:		-							
min.:				**max.:**			**std:**		
Properties with regard to reading/writing:									
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**		**OEM**	
read:	X	-	7		-	0		-	
write:	X	-	7		-	0		-	
axis identifier:		GEO	CHAN	MACH		**Valuation:**		channel-specific	
block search		Not classified				**link**		No restrictions	

FRAME	**$P_NCBFRAME15**				16. 1st current NCU-global basic frame			**reference:**	
description:									
16th current NCU-global basic frame Corresponds to $P_NCBFRAME[15].									
unit:		-							
min.:				**max.:**			**std:**		

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:		GEO	CHAN	MACH	**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

INT	**$P_TRAFO_CHAIN [4]**	Programmed chained transformation	**reference:**	

description:

$P_TRAFO_CHAIN[n]

Code numbers of chained transformations of programmed TRACON according to machine data $MC_TRAFO_TYPE_m.

.

Supplies the code number of the nth chained transformation of the programmed TRACON, starting with n=0.

$P_TRAFO_CHAIN[0] is the 1st chained transformation if a TRACON is programmed. If a TRACON command is not programmed, the code number of the programmed transformation is returned (e.g. 257 for TRANSMIT). If there is no transformation programmed, the value '0' is returned.

$P_TRAFO_CHAIN[1] is the 2nd chained transformation if a TRACON is programmed. Otherwise a '0' is returned.

The same applies accordingly for $P_TRAFO_CHAIN[2] and $P_TRAFO_CHAIN[3].

Index 1:	n: Index of the chained transformation.				
unit:	-				
min.:	0	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

INT	**$AC_TRAFO_CHAIN [4]**	Active chained transformation	**reference:**	

description:

$AC_TRAFO_CHAIN[n]

Code numbers of chained transformations of active TRACON according to machine data $MC_TRAFO_TYPE_m.

.

Supplies the code number of the nth chained transformation of the active TRACON, starting with n=0.

$AC_TRAFO_CHAIN[0] is the 1st chained transformation if a TRACON is programmed. If a TRACON command is not active, the code number of the programmed transformation is returned (e.g. 257 for TRANSMIT). If no transformation is active, the value '0' is returned.

$AC_TRAFO_CHAIN[1] is the 2nd chained transformation if a TRACON is active. Otherwise a '0' is returned.

The same applies accordingly for $AC_TRAFO_CHAIN[2] and $AC_TRAFO_CHAIN[3].

Index 1:	n: Index of the chained transformation.				
unit:	-				
min.:	0	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$AC_MEAS_INPUT [10]**	Measuring input parameter	**reference:**	

description:

Variable for workpiece and tool measurement.

Array variable $AC_MEAS_INPUT[n] is used to enter measuring input parameters for workpiece and tool measurement. The control effect of the parameters is documented in the measurement variants.

Index 1:	n=0..9: Measuring input parameters				
unit:	-				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$A_DBSB [1024]**	PLC data byte (signed)	**reference:**	

description:

Array variable $A_DBSB[n] is used to read and write a data byte (8 bits) from PLC. The byte is signed and can be read and written in the range from -128 to 127.

A memory area is reserved in the communications buffer of these modules (DPR) for high-speed data exchange between PLC and NC. The PLC uses function calls (FC) and the NCK uses $ variables to access this memory.

See also $A_DBB[n].

Index 1:	n: Position offset within the I/O area 0 - ...				
unit:	-				
min.:	-128	**max.:**	127	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	Mrun syn	X	7	-	0	X	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$A_DBSW [1024]**	PLC data word (signed)	**reference:**	

description:

Array variable $A_DBSW[n] is used to read and write a data word (16 bits) from PLC. The word is signed and can be read and written in the range from -32768 to 32767.

A memory area is reserved in the communications buffer of these modules (DPR) for high-speed data exchange between PLC and NC. The PLC uses function calls (FC) and the NCK uses $ variables to access this memory.

See also $A_DBW[n].

Index 1:	n: Position offset within the I/O area 0 - ...					
unit:	-					
min.:	-32768	**max.:**	32767	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	Mrun syn	X	7	-	0	X	

axis identifier:			**Valuation:**	channel-specific	
block search	Not classified		**link**	Not classified	

INT	**$P_SUB_AXFCT**	Substitution active	**reference:**	

description:

Returns a bitmask according to machine data $MA_AXIS_LANG_SUB_MASK. An enabled bit means that the substitution of the corresponding function is active:

Bit 0 = 1:Automatic gear stage change (M40)

and direct gear stage change (M41-M45)

Bit 1 = 1:Spindle positioning with SPOS/SPOSA/M19

unit:	-					
min.:	0	**max.:**	3	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	

axis identifier:			**Valuation:**	channel-specific	
block search	Program sensitive		**link**	No restrictions	

INT	**$P_SUB_GEAR**	Programmed gear stage	**reference:**	

description:

Returns the programmed or calculated gear stage in the substitution subprogram of an NC language substitution configured with $MA_AXIS_LANG_SUB_MASK. Outside the substitution subprogram, the variable returns the gear stage of the master spindle.

unit:	-					
min.:	41	**max.:**	45	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	

write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Program sensitive				**link**	No restrictions	

BOOL	**$P_SUB_AUTOGEAR**	Automatic gear stage change active	**reference:**	

description:

In the substitution subprogram of an NC language substitution configured with $MA_AXIS_LANG_SUB_MASK, this variable indicates whether an automatic gear stage change (M40) was active in the part program line which initiated the substitution process.

Outside the substitution process, the variable returns the current setting in the interpreter.

unit:	-				
min.:	FALSE	**max.:**	TRUE	**std:**	FALSE
Properties with regard to reading/writing:					

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Program sensitive				**link**	No restrictions	

AXIS	**$P_SUB_LA**	Leading spindle of active coupling	**reference:**	

description:

In the substitution subprogram of an NC language substitution configured with $MA_AXIS_LANG_SUB_MASK, this variable supplies the axis identifier of the leading spindle of the active coupling which initiated the substitution process.

Outside the substitution process, the variable aborts program execution and triggers an alarm.

unit:	-				
min.:		**max.:**		**std:**	GEOAXISNUM
Properties with regard to reading/writing:					

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Program sensitive				**link**	No restrictions	

AXIS	**$P_SUB_CA**	Following spindle of active coupling	**reference:**	

description:

In the substitution subprogram of an NC language substitution configured with $MA_AXIS_LANG_SUB_MASK, this variable supplies the axis identifier of the following spindle of the active coupling which initiated the substitution process.

Outside the substitution process, the variable aborts program execution and triggers an alarm.

unit:	-				
min.:		**max.:**		**std:**	GEOAXISNUM
Properties with regard to reading/writing:					

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	

write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Program sensitive				**link**	No restrictions	

STRING	**$P_BLOCKNO [18]**	Modal block number level-specific	**reference:**	

description:

$P_BLOCKNO[n]

Supplies the last programmed block number of program level n.

Example:

$P_BLOCKNO[0]

Supplies the modal block number of the program on program level 0 = main program name.

MD 10284 $MN_DISPLAY_FUNCTION_MASK Bit0 must be = 1.

Block numbers programmed during DISPLOF cannot be read with $P_BLOCKNO.

Index 1:	n: Specifies the program level from which the block number is to be read. Numerical value: 0 to 11						
Index 3:	Max. string length						
unit:	-						
min.:		**max.:**		**std:**	""		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$P_LINENO [18]**	Line number level-specific	**reference:**	

description:

$P_LINENO[n]

Supplies the last programmed line number of program level n.

Example:

$P_LINENO[0]

Supplies the line number of the program on program level 0 = main program level.

Index 1:	n: Specifies the program level from which the line number is to be read. Numerical value: 0 to 11						
unit:	-						
min.:	-2147483648	**max.:**	2147483647	**std:**	0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$AC_AUTO_JOG_STATE**	Status Jog in Auto	**reference:**	

description:

1: Automatic is selected, $MN_JOG_MODE_MASK is set and the mode group is "BAG-Reseted".
By actuating the +/- buttons or the handwheel, you can jog in Auto mode.

2: After a JOG movement has been performed, this mode group was switched by the system to JOG.
The VDI and OPI still display Automatic mode.

0: Other

Remark: This information covers the whole mode group and is available to each mode group channel via $AC_AUTO_JOG_STATE.

unit:	-				
min.:	0	**max.:**	2	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	-	X	0	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:				**Valuation:**	channel-specific
block search	Not classified			**link**	Not classified

DOUBLE	**$AC_FIFO [n,m]**	FIFO stack	**reference:**	

description:

Variable $AC_FIFO[n,m] access the n-th. first in first out stack. See also $AC_FIFO1 .. $AC_FIFO10.

$MC_NUM_AC_FIFO is used to define the range of n values and thus the number of FIFO Stacks $AC_FIFO1 - $AC_FIFO10.

The elements of the stack memory are saved in R variables. The length of all FIFO stacks is configured with $MC_LEN_AC_FIFO.

$MC_START_AC_FIFO is used to specify the number of the start R variable, from which the FIFO elements are stored.

R variables assigned to FIFO areas should not be written elsewhere.

The number of R variables must be set in machine data $MC_MM_NUM_R_PARAM such that all FIFO variables can be stored:

$MC_MM_NUM_R_PARAM = $MC_MM_START_FIFO + $MC_NUM_AC_FIFO * ($MC_LEN_AC_FIFO + 6)

The FIFO variable is an array variable.

Indices 0 - 5 have special meanings:

m = 0: When written with index 0, a new value is stored in the FIFO.

When read with index 0, the oldest element is read and removed from the FIFO.

m=1: Access to the first element read

m=2: Access to the last element read

m=3: Total of all FIFO elements if Bit0 in $MC_MM_MODE_FIFO is set.

m=4: Number of elements available in the FIFO

m=5: Current write index relative to the start of the FIFO

m=6: Oldest element

m=7: Second oldest etc.

Index 1:	The dimension is configured via $MC_NUM_AC_FIFO.
Index 2:	The dimension is configured via $MC_LEN_AC_FIFO.

unit:		-					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	X	X	7	-	0	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

INT	**$AC_AUXFU_M_VALUE [168]**	Value of active m-auxiliary function	**reference:**	

description:

The array variable $AC_AUXFU_M_VALUE[n] is used to read the value of the M auxiliary function that has been collected last for an auxiliary function group (search run) or output. Auxiliary functions are assigned to groups. The index corresponds to the group number decremented by one. The index 0 determines the value of the M auxiliary function output last for the 1st group. If an auxiliary function has not yet been output for the group specified, the variable returns the value -1. The relevant extension can be determined with the variable $AC_AUXFU_M_EXT[n]. The variable $AC_AUXFU_M_STATE[n] determines the current output status.

Index 1:		The index corresponds to the auxiliary function group number decremented by one.					
unit:		-					
min.:		-2147483648	**max.:**	2147483647		**std:**	0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

INT	**$AC_AUXFU_M_EXT [168]**	Extension of active m-auxiliary function	**reference:**	

description:

The array variable $AC_AUXFU_M_EXT[n] is used to read the extension of the M auxiliary function that has been collected last for an auxiliary function group (search run) or output. Auxiliary functions are assigned to groups. The index corresponds to the group number decremented by one. The index 0 determines the extension of the M auxiliary function output last for the 1st group. If an auxiliary function has not yet been output for the group specified, the variable returns the value -1. The relevant value of the auxiliary function can be determined with the variable $AC_AUXFU_M_VALUE[n]. The variable $AC_AUXFU_M_STATE[n] determines the current output status.

Index 1:		The index corresponds to the auxiliary function group number decremented by one.					
unit:		-					
min.:		-2147483648	**max.:**	2147483647		**std:**	0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

INT	**$AC_AUXFU_M_STATE [168]**	Output state of axtive m-auxiliary function	**reference:**	

description:

The array variable $AC_AUXFU_M_STATE[n] is used to read the output status of the M auxiliary function that has been collected last for an auxiliary function group (search run) or output. Auxiliary functions are assigned to groups. The index corresponds to the group number decremented by one. The index 0 determines the status of the M auxiliary function output last for the 1st group. If an auxiliary function has not yet been output for the group specified, the variable returns the value 0. If the value is greater than 0, the relevant auxiliary function value can be determined with the variable $AC_AUXFU_M_VALUE[n]. The variable $AC_AUXFU_M_EXT[n] determines the current extension of the auxiliary function.

The variable returns the following values:

0: Auxiliary function not available

1: M-auxiliary function collected via search run

2: M-auxiliary function output to the PLC

3: M-auxiliary function output to the PLC, transfer has been acknowledged.

4: M-auxiliary function managed by the PLC and integrated into the PLC.

5: M-auxiliary function managed by the PLC, function has been acknowledged.

Index 1:	The index corresponds to the auxiliary function group number decremented by one.				
unit:	-				
min.:	0	**max.:**	5	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:				**Valuation:**	channel-specific
block search	Not classified			**link**	Not classified

DOUBLE	**$P_THREAD_PITCH**	programmed thread pitch	**reference:**	

description:

$P_THREAD_PITCH provides the lead with G33, G34, G35, G331 and G332 programmed under the address I, J or K. Value 0 is supplied in the RESET state or if no lead has been programmed. With G33, G34 and G35 a positive value is always returned. With G331 and G332, the sign results from the spindle rotation direction: positive in clockwise direction (as with M3) or negative in counterclokckwise direction (as with M4).

In the following example, $P_THREAD_PITCH provides the value "1.5".

...

N11 M4 S500

N12 G33 Z10 K1.4

N13 G33 Z12 K1.5

N14 R1=$P_THREAD_PITCH ;R1=1.5

unit:	THREAD_PITCH				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	

write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$P_THREAD_PITCH_INC**	programmed thread pitch increment	**reference:**	

description:

$P_THREAD_PITCH_INC supplies the value programmed under the address F for the lead change (G34/G35). Value 0 is supplied in the RESET state or if no lead change has been programmed.

The returned value is positive in the case of G34 or negative in the case of G35.

Example:

M3 S400

G35 F2 Z10 K5

R1=$P_THREAD_PITCH_INC ;R1= -2

unit:		THREAD_PITCH_INCREMENT					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$AC_THREAD_PITCH**	programmed thread pitch	**reference:**	

description:

$AC_THREAD_PITCH provides the lead for G33, G34, G35, G331 and G332 programmed under address I, J or K. In the RESET state or if no lead has been programmed, the value 0 is given. With G33, G34 and G35, a positive value is always returned. With G331 and G332, the sign from the spindle rotating direction is as follows: positive for clockwise rotation (as with M3) or negative for counterclockwise rotation (as with M4).

In the following example, $AC_THREAD_PITCH provides the value "1.5" :

...

N11 M4 S500

N12 G33 Z10 K1.4

N13 G33 Z12 K1.5

N14 R1=$AC_THREAD_PITCH ;R1= 1.5

unit:		THREAD_PITCH					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$AC_THREAD_PITCH_INC**	current thread pitch increment	**reference:**	

description:

$AC_THREAD_PITCH_INC provides the value programmed under the address F for lead change (G34/G35). In the RESET state or if a change in lead has not been programmed, the value 0 is supplied.

The returned value is positive for G34 and negative for G35.

Example:

M3 S400

G34 F4 Z10 K2

R1=$P_THREAD_PITCH_INC ;R1= 4

unit:	THREAD_PITCH_INCREMENT				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:				**Valuation:**	channel-specific
block search	Not classified			**link**	Not classified

DOUBLE	**$AC_THREAD_PITCH_ACT**	current thread pitch just now	**reference:**	

description:

$AC_THREAD_PITCH_ACT provides the current value for the lead. This value is continuously updated in blocks with G34 or G35 according to the value programmed under F.

Only with thread blocks (G33, G34, G35, G331 and G332) a value unequal zero is supplied.

unit:	THREAD_PITCH				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:				**Valuation:**	channel-specific
block search	Not classified			**link**	Not classified

DOUBLE	**$P_TOOLROT [3]**	Programmed tool rotation direction	**reference:**	

description:

$P_TOOLROTn]

Programmed tool rotation vector

Normalized vector with length 1 and the components

(n = 1, 2, 3) in the range - 1, ..., 1.

1: x-component

2: y-component

3: z-component

If no tool is active, the following unit vector is returned, depending on the active plane: G17: (0, 1, 0) G18: (1, 0, 0) G19: (0, 0, 1)							
Index 1:	n: Components 1 - 3						
unit:	-						
min.:	-1.0	**max.:**	1.0	**std:**	0.0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$AC_TOOLR_ACT [3]**	Active tool rotation direction	**reference:**
description: $AC_TOOLR_ACT[n] Active command rotation vector Normalized vector with length 1 and the components (n = 1, 2, 3) in the range - 1, ..., 1. 1: x-component 2: y-component 3: z-component If no tool is active, the following unit vector is returned, depending on the active plane: G17: (0, 1, 0) G18: (1, 0, 0) G19: (0, 0, 1)			

Index 1:	n: Components 1 - 3						
unit:	-						
min.:	-1.0	**max.:**	1.0	**std:**	0.0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$AC_TOOLR_END [3]**	End rotation direction vector	**reference:**
description: $AC_TOOLR_END[n] End rotation vector of active block Normalized vector with length 1 and the components (n = 1, 2, 3) in the range - 1, ..., 1. 1: x-component			

2: y-component 3: z-component If no tool is active, the following unit vector is returned, depending on the active plane: G17: (0, 1, 0) G18: (1, 0, 0) G19: (0, 0, 1)							
Index 1:	n: Components 1 - 3						
unit:	-						
min.:	-1.0	**max.:**	1.0	**std:**	0.0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$AC_TOOLR_DIFF**	Remaining angle of the tool rotation direction	**reference:**	
description: $AC_TOOLR_DIFF Remaining angle of tool rotation in active block in degree in the range 0 ... 180 degree.				

unit:	deg.						
min.:	0.0	**max.:**	180.0	**std:**	0.0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$VC_TOOLR [3]**	Actual rotation direction vector	**reference:**	
description: $VC_TOOLR[n] Actual tool rotation Normalized vector with length 1 and the components (n = 1, 2, 3) in the range - 1, ..., 1. 1: x-component 2: y-component 3: z-component If no tool is active, the following unit vector is returned, depending on the active plane: G17: (0, 1, 0) G18: (1, 0, 0) G19: (0, 0, 1)				
Index 1:	n: Components 1 - 3			

unit:		-					
min.:		-1.0	**max.:**	1.0	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$VC_TOOLR_DIFF**	Angle between set and actual rotation	**reference:**	
description:				
$VC_TOOLR_DIFF				
Angle between command and actual tool rotation in degree in the range 0 ... 180 degree.				

unit:		deg.					
min.:		0.0	**max.:**	180.0	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

INT	**$VC_TOOLR_STAT**	Status of actual rotation direction vector	**reference:**	
description:				
$VC_TOOLR_STAT				
Status of calculation of actual tool rotation:				
0: MCS -> BCS Transformation in one ipo cycle				
-1: MCS -> BCS transformation not in one ipo cycle possible				

unit:		-					
min.:		-1	**max.:**	0	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

BOOL	**$P_SIMUL**	Simulation search run active	**reference:**	

description:

Value==TRUE

The part program is executed in the control under the Simulation search run mode.

The simulation search run is a search run (with calculation)

which is aborted with an

internal M30 once the end of the program has been reached.

The control is internally in search run mode, the variables $P_SEARCH,

$P_SERACH1, $P_SEARCH2 and $P_SERACHL are also correctly supplied.

Parts program adjustments can be made through variables

$P_SEARCH* or $P_SIMUL. $P_SIMUL is designed only for adjustments

restricted to the simulation search run.

Value==FALSE No simulation search run is active.

unit:	-					
min.:	FALSE	**max.:**	TRUE	**std:**	FALSE	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	

axis identifier:					**Valuation:**	channel-specific
block search	Current value				**link**	Not classified

INT	**$P_SUB_STAT**	state of substitution subroutine	**reference:**	

description:

A replacement of the tool programming has been configured (address D, DL, T or M function through which the tool change cycle is called up). $P_SUB_STAT now permits polling to see if the substitution process is active and if the process is executed at the start or the end of the block:

Value 0:Substitution subprogram not active

Value 1:Substitution subprogram active,

call-up at start of block

Value 2:Substitution subprogram active,

call-up at end of block

The system variable is influenced by machine data

$MN_T_NO_FCT_CYCLE_MODE bit1 and 2.

unit:	-					
min.:	0	**max.:**	2	**std:**	0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	

axis identifier:					**Valuation:**	channel-specific
block search	Program sensitive				**link**	No restrictions

INT	**$A_USEDND [128]**	Workpiece counts for cutting edges	**reference:**	

description:

$A_USEDND[toolHolder]

The number of cutting edges used in tool holder s, counted since the last setpiece command, including the currently active cutting edge.

toolHolder=1,...,maximum tool holder number

toolHolder=0 = The master tool holder is selected

Result = >0 = Number of cutting edges that have been used.

Result = 0 = There have been no cuts since the last setpiece command.

Result = -1 = Tool Management Tool Monitoring is not active.

Result = -2 = toolHolder is not the value of a defined tool holder.

Index 1:		toolHolder: Spindle number/tool holder number 1 - 128 0 = designates the master tool holder					
unit:		-					
min.:		0	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

INT	**$A_USEDT [128,1500]**	Workpiece counts for cutting edges	**reference:**	

description:

$A_USEDT[toolHolder, usedCuttingEdgeIndex]

T-Number for the i-th cutting edge used with tool holder s since the last setpiece command, including the currently active cutting edge.

toolHolder=1,...,maximum tool holder number

toolHolder=0 = The master tool holder is selected

Result = >0 = T-Number (can occur several times) (if different D-corrections of the tool were used).

Result = 0 = There have been no cuts since the last setpiece command.

Result = -1 = Tool Management Tool Monitoring is not active.

Result = -2 = toolHolder is not the value of a defined tool holder.

Index 1:		toolHolder: Spindle number/tool holder number 1 - 128 0 = designates the master tool holder					
Index 2:		usedCuttingEdgeIndex: index 1 - $A_USEDND[toolHolder]					
unit:		-					
min.:		0	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

INT	**$A_USEDD [128,1500]**	Workpiece counts for cutting edges	**reference:**	

description:

$A_USEDD[toolHolder, usedCuttingEdgeIndex]

D-Number for the i-th cutting edge used with tool holder s since the last setpiece command, including the currently active cutting edge.

toolHolder=1,...,maximum tool holder number

toolHolder=0 = The master tool holder is selected

Result = >0 = D-Number (can occur several times) (if different D-corrections of the tool were used).

Result = 0 = There have been no cuts since the last setpiece command.

Result = -1 = Tool Management Tool Monitoring is not active.

Result = -2 = toolHolder is not the value of a defined tool holder.

Index 1:	toolHolder: Spindle number/tool holder number 1 - 128 0 = designates the master tool holder				
Index 2:	usedCuttingEdgeIndex: index 1 - $A_USEDND[toolHolder]				
unit:	-				
min.:	0	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:			**Valuation:**	channel-specific	
block search	Not classified		**link**	Not classified	

INT	**$AC_AUXFU_M_TICK [168]**	Time stamp of active M auxiliary function	**reference:**	

description:

Field variable $AC_AUXFU_M_TICK[n] is used to read the time stamp of the M auxiliary function collected (search run) or output last for an auxiliary function group. Auxiliary functions are assigned to groups. The index corresponds to a group number decremented by one. Index 0 therefore determines the value of the M auxiliary function of the 1st group, which was output last. If no auxiliary function has been output for the specific group, the variable indicates value -1. The respective value can be determined using variable $AC_AUXFU_M_VALUE[n] and the respective extension using variable $AC_AUXFU_M_EXT[n]. Variable $AC_AUXFU_M_STATE[n] determines the current output state.

Index 1:	The index corresponds to the auxiliary function group number decremented by one.				
unit:	-				
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	-	0	X	
write:	-	-	0	-	0	-	

axis identifier:			**Valuation:**	channel-specific	
block search	Not classified		**link**	Not classified	

DOUBLE	**$AC_CONE_ANGLE**	Cone angle	**reference:**	

description:

$AC_CONE_ANGLE

Currently active cone angle for cone turning. The cone angle is set by default via the setting data $SC_CONE_ANGLE and is active in JOG mode only.

unit:	deg.					
min.:	-90	**max.:**	90	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	-	
write:	-	-	0	-	0	-	

axis identifier:				**Valuation:**	channel-specific
block search	Not classified			**link**	Not classified

BOOL	**$P_TECCYCLE**	Context query in technology cycles	**reference:**	

description:

To control the context-specific interpretation of program parts in technology cycles, preprocessing variable $P_TECCYCLE is available. Using this variable, programs can be subdivided into synchronized action program parts and preprocessing program parts.

Example:

```
if ($P_TECCYCLE == TRUE)
; Program sequence for a technology cycle in synchronized action
else
; Program sequence for parts program cycle
endif
```

unit:	-					
min.:	FALSE	**max.:**	TRUE	**std:**	FALSE	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	

axis identifier:				**Valuation:**	channel-specific
block search	Not classified			**link**	Not classified

BOOL	**$AC_WORKAREA_CS_PLUS_ENABLE [n]**	Active coord.-specific working area limitation, positive valid	**reference:**	

description:

TRUE: The limitation in the positive direction for the stated axis of the active coordinate system-specific working area limitation is valid. (See $AC_WORKAREA_CS_LIMIT_PLUS[ax])

Index 1:	Axis name of the working area limitation. Any axis names known in the channel are permitted as axis name.				
unit:	-				
min.:	FALSE	**max.:**	TRUE	**std:**	FALSE

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN / MACH		**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

BOOL	**$AC_WORKAREA_CS_MINUS_ENABLE [n]**	Active coord.-specific working area limitation, negative valid	**reference:**	

description:

TRUE: The limitation in the negative direction for the stated axis of the active coordinate system-specific working area limitation is valid. (See $AC_WORKAREA_CS_LIMIT_MINUS[ax])

Index 1:	Axis name of the working area limitation. Any axis names known in the channel are permitted as axis name.				
unit:	-				
min.:	FALSE	**max.:**	TRUE	**std:**	FALSE

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN / MACH		**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$AC_WORKAREA_CS_LIMIT_PLUS [n]**	Coordinate system-specific working area limitation positive	**reference:**	

description:

The limitation in the positive direction for the stated axis of the stated group of the coordinate system-specific working area limitation. This value is only evaluated if $AC_WORKAREA_CS_PLUS_ENABLE = TRUE.

Index 1:	Axis name of the working area limitation. Any axis names known in the channel are permitted as axis name.				
unit:	Linear / angular position				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN / MACH		**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$AC_WORKAREA_CS_LIMIT_MINUS [n]**	Coordinate system-specific working area limitation negative	**reference:**	

description:

The limitation in the negative direction for the stated axis of the stated group of the coordinate system-specific working area limitation. This value is only evaluated if $AC_WORKAREA_CS_MINUS_ENABLE = TRUE.

Index 1:	Axis name of the working area limitation. Any axis names known in the channel are permitted as axis name.					
unit:	Linear / angular position					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:	GEO	CHAN	MACH	**Valuation:**	channel-specific
block search	Not classified			**link**	No restrictions

INT	**$AC_WORKAREA_CS_COORD_SYSTEM**	Coordinate system applies to the active working area limitation	**reference:**	

description:

Coordinate system in which the active, coordinate-specific working area limitation applies.

The following values apply:

Working area limitation applies in the WCS

Working area limitation applies in the SZS

unit:	-					
min.:	0	**max.:**	2147483647	**std:**	0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:				**Valuation:**	channel-specific
block search	Not classified			**link**	No restrictions

INT	**$AC_WORKAREA_CS_GROUP**	Group no. of the active, coord.-specific working area limitation	**reference:**	

description:

Number of the active group of the coordinate system-specific working area limitation. The value is determined in the NC program by the G code WALCS0-WALCS10.

unit:	-					
min.:	0	**max.:**	2147483647	**std:**	0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	X	7	-	

axis identifier:				**Valuation:**	channel-specific
block search	Not classified			**link**	No restrictions

FRAME	**$P_ISO1FRAME**				Active system frame for ISO G51.1 mirroring		**reference:**	
description:								
Variable $P_ISO1FRAME is used to program the active system frame for ISO G51.1 mirroring.								
On a Reset, the activation of the system frame depends on the following machine data:								
Bit0 in $MC_RESET_MODE_MASK								
Bit7 in $MC_CHSFRAME_RESET_MASK								
unit:		-						
min.:			**max.:**			**std:**		
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7		X	7	-	
write:	X	-	7		-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific	
block search		Not classified				**link**	No restrictions	

FRAME	**$P_ISO2FRAME**				Active system frame for ISO G68 2DROT		**reference:**	
description:								
The variable $P_ISO2FRAME is used to program the active system frame for ISO G68 2DROT.								
On a Reset, the activation of the system frame depends on the following machine data:								
Bit0 in $MC_RESET_MODE_MASK								
Bit8 in $MC_CHSFRAME_RESET_MASK								
unit:		-						
min.:			**max.:**			**std:**		
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7		X	7	-	
write:	X	-	7		-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific	
block search		Not classified				**link**	No restrictions	

FRAME	**$P_ISO3FRAME**				Active system frame for ISO G68 3DROT		**reference:**	
description:								
The variable $P_ISO3FRAME is used to program the active system frame for ISO G68 3DROT.								
On a Reset, the activation of the system frame depends on the following machine data:								
Bit0 in $MC_RESET_MODE_MASK								
Bit9 in $MC_CHSFRAME_RESET_MASK								
unit:		-						
min.:			**max.:**			**std:**		
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7		X	7	-	

write:	X	-	7		-	0	-
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	No restrictions

FRAME	**$P_ISO4FRAME**				Active system frame for ISO G51 Scale	**reference:**	
description:							
The variable $P_ISO4FRAME is used to program the active system frame for ISO G51 Scale.							
On a Reset, the activation of the system frame depends on the following machine data:							
Bit0 in $MC_RESET_MODE_MASK							
Bit10 in $MC_CHSFRAME_RESET_MASK							
unit:		-					
min.:			**max.:**			**std:**	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**	**OEM**
read:	X	-	7		X	7	-
write:	X	-	7		-	0	-
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	No restrictions

FRAME	**$P_ACSFRAME**				Active frame between BCS and SZS	**reference:**	
description:							
The variable $P_ACSFRAME determines the active chained total frame between BCS and SZS.							
The following applies to $MC_FRAME_ACS_SET = 0:							
$P_ACSFRAME = $P_PARTFRAME : $P_SETFRAME : $P_EXTFRAME : $P_ISO1FRAME : $P_ISO2FRAME : $P_ISO3FRAME : $P_ACTBFRAME : $P_IFRAME : $P_TOOLFRAME : $P_WPFRAME							
The following applies to $MC_FRAME_ACS_SET = 1:							
$P_ACSFRAME = $P_PARTFRAME : $P_SETFRAME : $P_EXTFRAME : $P_ISO1FRAME : $P_ISO2FRAME : $P_ISO3FRAME : $P_ACTBFRAME : $P_IFRAME : $P_TOOLFRAME : $P_WPFRAME : $P_TRAFRAME : $P_PFRAME : $P_ISO4FRAME							
unit:		-					
min.:			**max.:**			**std:**	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**	**OEM**
read:	X	-	7		X	7	-
write:	-	-	0		-	0	-
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	No restrictions

BOOL	**$P_CUT_INV**	Invert direction of spindle rotation	**reference:**	

description:

$P_CUT_INV

This system variable is used to indicate whether or not the direction of spindle rotation has to be inverted for machining with the currently active tool.

The variable has the value TRUE if the four following conditions are fulfilled:

1. A turning tool is active (tool types 500 to 599).

2. The cutting edge influencing has been activated with the language command CUTMOD = 1 or CUTMOD =2.

3. A tool carrier with orientation capability is active.

4. The tool carrier with orientation capability rotates the tool so that the resulting normal of the tool cutting edge to the initial position is rotated more than 90 degrees (typically 180 degrees).

The content of the variable is FALSE if at least one of the four conditions has not been fulfilled.

unit:	-				
min.:	FALSE	**max.:**	TRUE	**std:**	FALSE

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	-	-	0	-	0	-	

axis identifier:				**Valuation:**	channel-specific
block search	Not classified			**link**	No restrictions

BOOL	**$AC_CUT_INV**	Invert direction of spindle rotation	**reference:**	

description:

This system variable $AC_CUT_INV is used to indicate whether or not the direction of spindle rotation has to be inverted for machining with the currently active tool.

The variable has the value TRUE if the four following conditions are fulfilled:

1. A turning tool is active (tool types 500 to 599).

2. The cutting edge influencing has been activated with the language command CUTMOD = 1 or CUTMOD =2.

3. A tool carrier with orientation capability is active.

4. The tool carrier with orientation capability rotates the tool so that the resulting normal of the tool cutting edge to the initial position is rotated more than 90 degrees (typically 180 degrees).

The content of the variable is FALSE if at least one of the four conditions has not been fulfilled.

unit:	-				
min.:	FALSE	**max.:**	TRUE	**std:**	FALSE

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:				**Valuation:**	channel-specific
block search	Not classified			**link**	No restrictions

INT	**$P_CUTMOD**	The last programmed value of CUTMOD	**reference:**	

description:

$P_CUTMOD

Reads the current valid value that was last programmed with the language command CUTMOD (number of the tool carrier for which the cutting edge data modification is to be activated).

If the last programmed value was CUTMOD = -2 (activation with the currently active tool carrier with orientation capability), $P_CUTMOD does not return the value -2 but the number of the active tool carrier with orientation capability at the time of programming.

unit:	-					
min.:	-2	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	-	-	0	-	0	-	

axis identifier:				**Valuation:**	channel-specific	
block search	Not classified			**link**	No restrictions	

INT	**$AC_CUTMOD**	The value of CUTMOD in the current block.	**reference:**	

description:

$AC_CUTMOD

Reads the currently valid value of the language command CUTMOD in the current block (number of the tool carrier for which the cutting edge data modification is to be activated).

unit:	-					
min.:	-2	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:				**Valuation:**	channel-specific	
block search	Not classified			**link**	No restrictions	

DOUBLE	**$P_CUTMOD_ANG**	Tool rotation angle in the active machining plane	**reference:**	

description:

The variable $P_CUTMOD_ANG reads the angle through which a tool has been rotated in the active machining plane, and on which the determination of modified cutting edge data with the functions CUTMOD and/or $SC_CUTDIRMOD is based.

unit:	deg.					
min.:	-360	**max.:**	360	**std:**	0.0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	-	-	0	-	0	-	

axis identifier:				**Valuation:**	channel-specific	
block search	Not classified			**link**	No restrictions	

DOUBLE	**$AC_CUTMOD_ANG**	Tool rotation angle in the active machining plane	**reference:**	

description:

The variable $AC_CUTMOD_ANG determines the angle through which a tool has been rotated in the active machining plane and on which the determination of modified cutting edge data for the functions CUTMOD and/or $SC_CUTDIRMOD is based.

unit:	deg.					
min.:	-360	**max.:**	360	**std:**		0.0
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:				**Valuation:**	channel-specific	
block search	Not classified			**link**	No restrictions	

BOOL	**$P_SUB_SPOS**	Language substitution for SPOS command active	**reference:**	

description:

Returns an NC language substitution TRUE (1) configured with $MA_AXIS_LANG_SUB_MASK bit1 = 1 in the substitution subprogram if the substitution was activated by the SPOS command.

unit:	-					
min.:	FALSE	**max.:**	TRUE	**std:**		FALSE
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	

axis identifier:				**Valuation:**	channel-specific	
block search	Program sensitive			**link**	No restrictions	

BOOL	**$P_SUB_SPOSA**	Language substitution for SPOSA command active	**reference:**	

description:

Returns an NC language substitution TRUE (1) configured with $MA_AXIS_LANG_SUB_MASK bit1 = 1 in the substitution subprogram if the substitution was activated by the SPOSA command.

unit:	-					
min.:	FALSE	**max.:**	TRUE	**std:**		FALSE
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	

axis identifier:				**Valuation:**	channel-specific	
block search	Program sensitive			**link**	No restrictions	

BOOL	**$P_SUB_M19**				Language substitution M19 active.			**reference:**	
description:									
Returns an NC language substitution TRUE (1) configured with $MA_AXIS_LANG_SUB_MASK bit1 = 1 in the substitution subprogram if the substitution was activated by M19.									
unit:		-							
min.:		FALSE		**max.:**	TRUE		**std:**	FALSE	
Properties with regard to reading/writing:									
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**	**OEM**		
read:	X	-	7		-	0	-		
write:	-	-	0		-	0	-		
axis identifier:						**Valuation:**	channel-specific		
block search		Program sensitive				**link**	No restrictions		

DOUBLE	**$P_SUB_SPOSIT**				SPOS/SPOSA position with language substitution			**reference:**	
description:									
Returns the programmed position of an NC language substitution configured with $MA_AXIS_LANG_SUB_MASK bit1 = 1 in the substitution subprogram. If the variable is called outside this substitution process, the program execution is canceled with alarm 14055.									
unit:		-							
min.:		-1,8E308		**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:									
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**	**OEM**		
read:	X	-	7		-	0	-		
write:	-	-	0		-	0	-		
axis identifier:						**Valuation:**	channel-specific		
block search		Program sensitive				**link**	No restrictions		

INT	**$P_SUB_SPOSMODE**				Position approach mode with language substitution			**reference:**	
description:									
The variable $P_SUB_SPOSMODE determines, with a language substitution: $MA_AXIS_LANG_SUB_MASK bit1 = 1 configured in the substitution subprogram, the position approach mode for the spindle position returned by $P_SUB_SPOSIT. 0: DC 1: AC 2: IC 3: DC 4: ACP 5: ACN If the variable is called outside this substitution process, the program execution is canceled with alarm 14055.									
unit:		-							
min.:		0		**max.:**	5		**std:**	0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Program sensitive				**link**	No restrictions	

INT	**$AC_SAFE_SYNA_MEM**	Free safety synchronized action elements	**reference:**	

description:

The variable $AC_SAFE_SYNA_MEM determines the number of free synchronized action elements for Safety Integrated. The maximum number of elements is configured by $MC_MM_NUM_SAFE_SYNC_ELEMENTS.

The value is read from the part program without a preprocessing stop.

unit:	-				
min.:	0	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$AC_ACT_PROG_NET_TIME**	Execution time of the selected NC program	**reference:**	

description:

The current net runtime of the current program in seconds, that means the time in which the program was stopped, is deducted. actProgNetTime is automatically reset to zero on part program start in automatic mode, channel status RESET.

actProgNetTime can be further manipulated with $AC_PROG_NET_TIME_TRIGGER.

unit:	s				
min.:	0	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Current value				**link**	No restrictions	

DOUBLE	**$AC_OLD_PROG_NET_TIME**	Runtime of the last NC program	**reference:**	

description:

oldProgNetTime is the net runtime of the just correctly ended program in seconds, that is the program was not canceled with RESET, but terminated normally with M30. If a new program is started, oldProgNetTime remains unaffected until M30 is reached again.

The implicit procedure of copying actProgNetTime to oldProgNetTime only takes place if progNetTimeTrigger is not written.

unit:	s				
min.:	0	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:				**Valuation:**	channel-specific
block search	Current value			**link**	No restrictions

INT	**$AC_PROG_NET_TIME_TRIGGER**	Trigger for runtime measurement	**reference:**	

description:

The variable serves for the selective measurement of program sections, that is the time measurement can be switched on and off again by the program.

1Starts the measurement and sets $AC_ACT_PROG_NET_TIME to zero

2Terminates the measurement and sets $AC_OLD_PROG_NET_TIME

Certain values of $AC_PROG_NET_TIME_TRIGGER are given a special function in order to fully exploit all trigger options:

0 Neutral status.

1Terminate

Terminates the measurement, and sets $AC_ACT_PROG_NET_TIME = $AC_OLD_PROG_NET_TIME. $AC_ACT_PROG_NET_TIME is set to zero, and then runs on again.

2Start

Starts the measurement, and sets $AC_ACT_PROG_NET_TIME to zero. $AC_OLD_PROG_NET_TIME remains unchanged.

3Stop

Stops the measurement. Does not change $AC_OLD_PROG_NET_TIME, and holds $AC_ACT_PROG_NET_TIME constant until resume.

4Resume

Resumption of the measurement, i.e a previously stopped measurement is resumed again. $AC_ACT_PROG_NET_TIME runs on. $AC_OLD_PROG_NET_TIME remains unchanged.

unit:	s				
min.:	0	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	runin stp	X	7	-	0	-	

axis identifier:				**Valuation:**	channel-specific
block search	Program sensitive			**link**	No restrictions

INT	**$AC_OLD_PROG_NET_TIME_COUNT**	Changes to oldProgNetTime	**reference:**	

description:

Is zero in the power ON status. oldProgNetTimeCount is always increased when the NCK has newly written oldProgNetTime. This enables the user to ensure that oldProgNetTime has been written, that is, if the user cancels the current program with reset, oldProgNetTime and oldProgNetTimeCount remain unchanged.

Note: Two programs running consecutively can have identical runtimes and be correctly terminated. The user can then only detect this by the changed oldProgNetTimeCount.

unit:	s				
min.:	0	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:		**Valuation:**	channel-specific
block search	Current value	**link**	No restrictions

INT	**$P_OPMODE**	Selected mode	**reference:**	

description:

The variable $P_OPMODE determines the mode selected via the PLC.

The variable returns the following values:

0: JOG (manual traverse)

1: MDA (Manual Data Automatic)

2: AUTOMATIC

unit:	-				
min.:	0	**max.:**	2	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	

axis identifier:		**Valuation:**	channel-specific
block search	Not classified	**link**	Not classified

DOUBLE	**$P_TOFF [n]**	Programmed tool length offset	**reference:**	

description:

$P_TOFF

Programmed tool length offset.

The variable returns the tool length offset which is assigned to the geometry axis defined as an index.

The system variable returns the offset values assigned to the tool length components irrespective of whether the offsets have been programmed with TOFFL or TOFF.

Index 1:	Tool length offset of the tool length component in direction of the respective geometry axis with non-rotated tool.				
unit:	mm				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:		GEO			**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

DOUBLE	**$AC_TOFFL [3]**	Programmed tool length offset	**reference:**	

description:

$AC_TOFFL

Programmed tool length offset.

The variable returns the offset assigned in $AC_TOFFL[1] to the tool length component L1. The same applies to indices 2 and 3.

$AC_TOFFL[0] accesses the offset of the length component L1 in the same way as $AC_TOFFL[1].

The system variable returns the offset values assigned to the tool length components irrespective of whether the offsets have been programmed with TOFFL or TOFF.

Index 1:	Tool length offset of tool length components L1 (indices 0 or 1), L2 (index 2), or L3 (index 3)				
unit:	mm				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

DOUBLE	**$P_TOFFL [3]**	Programmed tool length offset	**reference:**	

description:

$P_TOFFL

Programmed tool length offset.

The variable returns the offset assigned to the tool length component L1 in $P_TOFFL[1]. The same applies to indices 2 and 3.

$P_TOFFL[0] accesses the offset of the length component L1 in the same way as $P_TOFFL[1].

The system variable returns the offset values assigned to the tool length components irrespective of whether the offsets have been programmed with TOFFL or TOFF.

Index 1:	Tool length offset of tool length components L1 (indices 0 or 1), L2 (index 2), or L3 (index 3)				
unit:	mm				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

DOUBLE	**$AC_TOFF [n]**	Programmed tool length offset	**reference:**	

description:

$AC_TOFF

Programmed tool length offset.

The variable returns the tool length offset which is assigned to the geometry axis defined as an index.

The system variable returns the offset values assigned to the tool length components irrespective of whether the offsets have been programmed with TOFFL or TOFF.

Index 1:	Tool length offset of the tool length component in direction of the respective geometry axis with non-rotated tool.						
unit:	mm						
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	-	
write:	-	-	0	-	0	-	
axis identifier:	GEO				**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

BOOL	**$AC_JOG_CIRCLE_SELECTED**	JOG circles selected	**reference:**	

description:

TRUE: JOG in circles is selected.

The function is selected via the NC/PLC interface signal DB21-30 DBX30.6 (no tool change commands), and the selection is confirmed via DB21 Dbb377.6.

The maximum and minimum circles and the machining characteristics are defined by setting data:

- $SC_JOG_CIRCLE_CENTRE defines the center of the circle,
- $SC_JOG_CIRCLE_RADIUS the radius of the circle
- $SC_JOG_CIRCLE_MODE the machining characteristics
  (Traversing clockwise or anticlockwise on a circular path, internal or external machining;
  Limitation of the circle with or without taking the tool radius compensation into account).
- $SC_JOG_CIRCLE_START_ANGLE defines the starting angle
- $SC_JOG_CIRCLE_END_ANGLE defines the end angle

unit:	-						
min.:	FALSE	**max.:**	TRUE	**std:**	FALSE		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	-	X	0	X	7	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$P_TOFFR**	Programmed tool radius offset	**reference:**	

description:

$P_TOFFR

Programmed tool radius offset.

The variable returns the tool radius offset programmed with TOFFR.

unit:	mm				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**
read:	X	-	7	-	0	-
write:	-	-	0	-	0	-

axis identifier:				**Valuation:**	channel-specific
block search	Not classified			**link**	Not classified

DOUBLE	**$AC_TOFFR**	Programmed tool radius offset	**reference:**	

description:

$P_TOFFR

Programmed tool radius offset.

The variable returns the tool radius offset programmed with TOFFR.

unit:	mm				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**
read:	runin stp	X	7	X	7	-
write:	-	-	0	-	0	-

axis identifier:				**Valuation:**	channel-specific
block search	Not classified			**link**	Not classified

INT	**$AC_STOP_COND [10]**	Events for the machining stop	**reference:**	

description:

The field variable $AC_STOP_COND[n] determines the events that led to machining stopping in the channel. The events are coded as positive numerical values in the field elements (see user documentation for meanings). The field element with the field index 0 corresponds to the highest priority event, higher indexed elements return correspondingly lower priority events. If the nth field element returns the value 0, this means that there are no further stop events.

Index 1:	Maximum number of simultaneous stop conditions in a channel.				
unit:	-				
min.:	0	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**
read:	runin stp	X	7	X	7	X
write:	-	-	0	-	0	-

axis identifier:				**Valuation:**	channel-specific
block search	Not classified			**link**	Not classified

FRAME	**$P_RELFRAME**	Active system frame for relative coordinate systems	**reference:**	

description:

The variable $P_RELFRAME is used for programming the active system frame for relative coordinate systems.

The system frame is configured in the following machine data:

Bit 11 in $MC_MM_SYSTEM_FRAME_MASK

Bit 11 in $MC_MM_SYSTEM_DATAFRAME_MASK

Bit 11 in $MC_CHSFRAME_RESET_MASK

Bit 11 in $MC_CHSFRAME_RESET_CLEAR_MASK

Bit 11 in $MC_CHSFRAME_POWERON_MASK

unit:	-				
min.:		**max.:**		**std:**	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	-	0	-	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search	Not classified				**link**	No restrictions

BOOL	**$P_INCOAP_B [n]**	Parameters for COA application	**reference:**	

description:

Defining and return parameters of the COA application "Cutting generator".

Index 1:	The array size is variable and is defined during power up by the COA application. The system variable $P_INCOAP_SIZE[0] can be used to scan the available array size.
unit:	-

min.:	FALSE	**max.:**	TRUE	**std:**	FALSE

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:					**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

CHAR	**$P_INCOAP_C [n]**	Parameters for COA application	**reference:**	

description:

Defining and return parameters of the COA application "Cutting generator".

Index 1:	The array size is variable and is defined during power up by the COA application. The system variable $P_INCOAP_SIZE[1] can be used to scan the available array size.
unit:	-

min.:	0	**max.:**	255	**std:**	0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	

write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$P_INCOAP_I [n]**		Parameters for COA application		**reference:**	
description:						
Defining and return parameters of the COA application "Cutting generator".						
Index 1:	The array size is variable and is defined during power up by the COA application. The system variable $P_INCOAP_SIZE[2] can be used to scan the available array size.					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$P_INCOAP_R [n]**		Parameters for COA application		**reference:**	
description:						
Defining and return parameters of the COA application "Cutting generator".						
Index 1:	The array size is variable and is defined during power up by the COA application. The system variable $P_INCOAP_SIZE[3] can be used to scan the available array size.					
unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

STRING	**$P_INCOAP_S16 [n]**		Parameters for COA application		**reference:**	
description:						
Defining and return parameters of the COA application "Cutting generator".						
Index 1:	The array size is variable and is defined during power up by the COA application. The system variable $P_INCOAP_SIZE[4] can be used to scan the available array size.					
Index 3:	The string must be terminated with \0. The maximum string length is 16 bytes including the terminating null character.					
unit:	-					
min.:		**max.:**		**std:**	""	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	

write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

STRING	**$P_INCOAP_S32 [n]**			Parameters for COA application		**reference:**	
description:							
Defining and return parameters of the COA application "Cutting generator".							
Index 1:	The array size is variable and is defined during power up by the COA application. The system variable $P_INCOAP_SIZE[5] can be used to scan the available array size.						
Index 3:	The string must be terminated with \0. The maximum string length is 32 bytes including the terminating null character.						
unit:	-						
min.:		**max.:**		**std:**		""	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

STRING	**$P_INCOAP_S160 [n]**			Parameters for COA application		**reference:**	
description:							
Defining and return parameters of the COA application "Cutting generator".							
Index 1:	The array size is variable and is defined during power up by the COA application. The system variable $P_INCOAP_SIZE[6] can be used to scan the available array size.						
Index 3:	The string must be terminated with \0. The maximum string length is 160 bytes including the terminating null character.						
unit:	-						
min.:		**max.:**		**std:**		""	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$P_INCOAP_SIZE [n]**	Size of parameter fields for COA application	**reference:**	

description:

$P_INCOAP_SIZE[ ] returns the currently available array size of the defining and return parameter $P_INCOAP_<type> of the COA application "Cutting generator". The array size is variable, and is defined by the COA application during power-up.

The following assignments apply:

$P_INCOAP_SIZE[0] returns the array size of $P_INCOAP_B[ ]

$P_INCOAP_SIZE[1] returns the array size of $P_INCOAP_C[ ]

$P_INCOAP_SIZE[2] returns the array size of $P_INCOAP_I[ ]

$P_INCOAP_SIZE[3] returns the array size of $P_INCOAP_R[ ]

$P_INCOAP_SIZE[4] returns the array size of $P_INCOAP_S16[ ]

$P_INCOAP_SIZE[5] returns the array size of $P_INCOAP_S32[ ]

$P_INCOAP_SIZE[6] returns the array size of $P_INCOAP_S160[ ]

Index 1:	The following assignment applies: $P_INCOAP_SIZE[0] provides the array size of $P_INCOAP_B[ ] $P_INCOAP_SIZE[1] provides the array size of $P_INCOAP_C[ ] $P_INCOAP_SIZE[2] provides the array size of $P_INCOAP_I[ ] $P_INCOAP_SIZE[3] provides the array size of $P_INCOAP_R[ ] $P_INCOAP_SIZE[4] provides the array size of $P_INCOAP_S16[ ] $P_INCOAP_SIZE[5] provides the array size of $P_INCOAP_S32[ ] $P_INCOAP_SIZE[6] provides the array size of $P_INCOAP_S160[ ]				
unit:	-				
min.:	0	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	-	-	0	-	0	-	

axis identifier:				**Valuation:**	channel-specific
block search	Not classified			**link**	Not classified

DOUBLE	**$AC_SMAXVELO [n]**	Maximum possible spindle speed	**reference:**	

description:

$AC_SMAXVELO[n]

n: Number of the spindle

Maximum possible spindle speed

The variable returns the maximum possible spindle speed for the spindle mode. This is taken from the lowest value of the active speed limitations, and cannot be exceeded by speed programming or override > 100%.

A speed limitation is displayed by the VDI interface signal DB31..,DBX83.1 'Setpoint speed limited' and by $AC_SPIND_STATE, bit 10 (speed limitation active).

The cause of the speed limitation can also be determined with the system variable $AC_SMAXVELO_INFO.

In oscillation mode (gear stage change), the variable returns the value for the spindle mode (speed-control mode).

Index 1:	n: Spindle number 0 ... max. spindle number for the spindle numbers configured in the MD 35000 SPIND_ASSIGN_TO_MACHAX.				
unit:	rpm				
min.:	0	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	

write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	Cross-channel	
block search	Not classified				**link**	Not classified	

INT	**$AC_SMAXVELO_INFO [n]**	Identifier for the speed-limiting data	**reference:**	

description:

$AC_SMAXVELO_INFO[n]

n: Number of the spindle

Identifier (info) for the speed limiting data (machine/setting data, etc.).

The system variable is additional information to $AC_SMAXVELO, and returns the

definitive data as an identifier/index. The value read can be used to determine the

speed limiting data from the following table.

0 No limitation (SERUPRO)

1 Maximum speed (chuck speed) of the spindle MD 35100 SPIND_VELO_LIMIT

2 The speed is limited to the maximum speed in the current gear stage MD 35130 GEAR_STEP_MAX_VELO_LIMIT

3 The speed is limited by position control to 90% of the lowest value contained in MD 35100 and MD 35130 (SPCON, SPOS, possibly with COUPON,..)

4 The speed is limited by position control to MD 35135 GEAR_STEP_PC_MAX_VELO_LIMIT

5 The speed is limited to SD 43220 SPIND_MAX_VELO_G26 (G26 S.. or preset by HMI)

6 The speed is limited to MD 35160 SPIND_EXTERN_VELO_LIMIT because of set VDI interface signal DB31,...DBX3.6

7 The speed is limited to SD 43230 SPIND_MAX_VELO_LIMS with constant cutting speed (G96, G961, G962, G97, LIMS)

8 The speed is limited to safe speed (SS) by Safety Integrated

9 The speed is limited by preparation calculations

10 Limited to the maximum speed of the drive by drive parameter SINAMICS p1082

11 The speed is limited to MD 36300 ENC_FREQ_LIMIT at functions that require a functioning measuring system, for example, with position control and G95, G96, G97, G973, G33, G34, G35 for the master spindle. The limitation takes into account the encoder speed, the master spindle arrangement (direct/indirect), the master spindle limiting frequency and the current parameter set

12 The speed is limited by the axis mode. In the case of a synchronized spindle, axis mode is forced by the leading spindle.

13 The speed of the overlaid motion of the following spindle is limited to the dynamics remaining after the coupling. A larger motion component of the overlaid motion can be achieved by reducing the leading spindle speed, for example, by programming G26 S, VELOLIM for the leading spindle or VELOLIMA for the following spindle. The coupling factor has to be taken into account.

14 The speed of the leading spindle is limited by lack of dynamics of the following spindle or a high gear ratio

15 The speed of the master spindle is limited to MD 35550 DRILL_VELO_LIMIT when tapping with G331, G332.

16 The speed is limited by the programming of VELOLIM.

17 The speed is limited by tool parameter $TC_TP_MAX_VELO

18 Not used

19 Not used

20 The speed is limited by the NCU link.

21 The speed is limited by SD43235 SD_SPIND_USER_VELO_LIMIT, speed limited on the user side, e.g. by clamping device, chuck speed

22 The speed is limited by the programming of VELOLIMA

23 The speed is limited by the clamping state of the tool. If there is a Weiss spindle, the clamping state can be read from $VA_MOT_CLAMPING_STATE[axn].

In oscillation mode (gear stage mode), the variable returns the value for spindle mode (speed-control mode)

Index 1:	n: Spindle number 0 ... max. spindle number for the spindle numbers configured in the MD 35000 SPIND_ASSIGN_TO_MACHAX.						
unit:	-						
min.:	0	**max.:**	17		**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	Cross-channel	
block search	Not classified				**link**	Not classified	

DOUBLE	**$AC_SMINVELO [n]**	Minimum possible spindle speed	**reference:**	

description:

$AC_SMINVELO[n]

n: Number of the spindle

Minimum possible spindle speed

The variable returns the minimum possible spindle for open-loop speed control mode. This is formed from the highest speed increase, and cannot be undershot by speed programming or override < 100%

A speed increase is displayed by the VDI interface signal DB31..,DBX83.2 'Setpoint speed increased' and by $AC_SPIND_STATE, bit 11 (setpoint speed increased).

The cause of the increase in speed (machine or setting data, G code, VDI interface etc.) can also be determined with the system variable $AC_SMINVELO_INFO.

The increase in speed is effective only if the spindle is in open-loop speed control mode. The system variable always returns the definitive value for the open-loop speed control mode, even if the spindle is in positioning or axis mode.

Index 1:	n: Spindle number 0 ... max. spindle number for the spindle numbers configured in the MD 35000 SPIND_ASSIGN_TO_MACHAX.						
unit:	rpm						
min.:	0	**max.:**	1,8E308		**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	Cross-channel	
block search	Not classified				**link**	Not classified	

INT	**$AC_SMINVELO_INFO [n]**	Identifier for the speed-raising data	**reference:**	

description:

$AC_SMINVELO_INFO[n]

n: Number of the spindle

Identifier (info) for the speed-increasing data (machine/setting data etc.).

The system variable is additional information to $AC_SMINVELO, and returns the speed-increasing data as an identifier/ index for the speed control mode. The index can be used to determine the speed-increasing data from the following table.

0 Not used

1 Not used

2 Lower speed limit (minimum speed) of the current gear stage MD 35140 GEAR_STEP_MIN_VELO_LIMIT
3 Not used
4 Not used)
5 Lower speed limit (minimum speed) from SD 43210 SPIND_MIN_VELO_G25 (G25 S.. or preset by HMI)
In oscillation mode (gear stage change) and in axis mode, the variable returns values from the spindle mode.

Index 1:		n: Spindle number 0 ... max. spindle number for the spindle numbers configured in the MD 35000 SPIND_ASSIGN_TO_MACHAX.					
unit:		-					
min.:		0	**max.:**	5	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	Cross-channel	
block search		Not classified			**link**	Not classified	

DOUBLE	**$AC_SMAXACC [n]**	Effective acceleration of the spindle	**reference:**	

description:
$AC_SMAXACC[n]
n: Number of the spindle
Active acceleration of the spindle.
The variable returns the active acceleration of the spindle for the spindle mode.
$AC_SPIND_STATE, bit 14 (spindle accelerating) is set for the duration of the acceleration to the defined setpoint speed.
$AC_SPIND_STATE, bit 15 (spindle braking) is set for the duration of the braking to the defined setpoint speed.
The data defining the acceleration can be determined with the system variable $AC_SMAXACC_INFO.
In oscillation mode (gear stage change), the variable returns the value for the spindle mode (speed-control mode).

Index 1:		n: Spindle number 0 ... max. spindle number for the spindle numbers configured in the MD 35000 SPIND_ASSIGN_TO_MACHAX.					
unit:		rps²					
min.:		0	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	Cross-channel	
block search		Not classified			**link**	Not classified	

INT	**$AC_SMAXACC_INFO [n]**	Identifier for the active spindle acceleration data	**reference:**	

description:

$AC_SMAXACC_INFO[n]

n: Number of the spindle

Identifier (info) for the machine data of the currently active spindle acceleration.

The system variable is additional information to $AC_SMAXACC, and returns the definitive data as an identifier/index. The index can be used to determine the active acceleration data from the following table. The number range is the same as that in the system variable $AC_SMAXVELO_INFO:

0 No acceleration limitation (SERUPRO)

1 Not used

2 Acceleration in speed control mode without position control in the current gear stage MD 35200 GEAR_STEP_SPEEDCTRL_ACCEL

3 Not used

4 Acceleration in the current gear stage on account of position control MD 35210 GEAR_STEP_POSCTRL_ACCEL (SPCON, SPOS, possibly with COUPON,..)

5 Not used

6 Not used

7 Not used

8 Not used

9 Acceleration limited by the preparation calculations

10 Not used

11 Not used

12 Acceleration limited by axis mode. In the case of a synchronized spindle, axis mode is forced by the leading spindle.

13 Acceleration of the overlaid motion of the following spindle is limited to the dynamics remaining after the coupling.

14 Acceleration of the leading spindle is limited by lack of dynamics in the following spindle or a high gear ratio

15 Acceleration of the master spindle MD 35212 GEAR_STEP_POSCTRL_ACCEL2 while tapping with G331, G332 (only with corresponding configuration of the second data record)

16 Acceleration limited by programming of ACC or ACCFXS (synchronized action)

17 Acceleration limited by tool parameter $TC_TP_MAX_ACCEL

18 Not used

19 MD 32301 MA_JOG_MAX_ACCEL limits the acceleration in JOG mode.

20 Acceleration limited by NCU link.

21 Not used

22 Acceleration limited by programming of ACCLIMA

23 Not used

In oscillation mode (gear stage change), the variable returns the value for spindle mode (speed-control mode).

Index 1:	n: Spindle number 0 ... max. spindle number for the spindle numbers configured in the MD 35000 SPIND_ASSIGN_TO_MACHAX.				
unit:	-				
min.:	0	**max.:**	17	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	

write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	Cross-channel	
block search	Not classified				**link**	Not classified	

INT	**$AC_SPIND_STATE [n]**	Status of the spindle in speed control mode	**reference:**	

description:

$AC_SPIND_STATE[n]

n: Number of the spindle

The variable $AC_SPIND_STATE returns the selected states of the spindle. For positioning and axis mode, the variable $AA_INPOS_STATE[Sn] can also be read.

Bit 0: "Constant cutting speed active" (VDI interface signal DB31..,DBX84.0)

Bit 1: "GWPS active" (VDI interface signal DB31..,DBX84.1)

Bit 2: "CLGON active" (VDI interface signal DB31..,DBX84.2)

Bit 3: "Tapping without compensating chuck" (VDI interface signal DB31..,DBX84.3)

Bit 4: "Synchronous mode" (following spindle with synchronous spindle coupling) (VDI interface signal DB31..,DBX84.4)

Bit 5: "Positioning mode" (VDI interface signal DB31..,DBX84.5)

Bit 6: "Oscillation mode" (gear stage change) (VDI interface signal DB31..,DBX84.6)

Bit 7: "Open-loop speed control mode" (VDI interface signal DB31..,DBX84.7)

Bit 8: "Spindle programmed" (e.g. M3, M4 S.., FC18, ..) (VDI interface signal DB31..,DBX64.4/5 or 6/7)

Bit 9: "Speed limit exceeded" (VDI interface signal DB31..,DBX83.0)

Bit 10: "Setpoint speed limited" (VDI interface signal DB31..,DBX83.1) active if, as a result of programming or override, the speed would exceed the maximum possible speed ($AC_SMAXVELO)

Bit 11: "Setpoint speed increased" (VDI interface signal DB31..,DBX83.2) active when, as a result of programming or override, the speed would fall below the minimum possible speed (system variable $AC_SMINVELO)

Bit 12: "Spindle in setpoint range" (VDI interface signal DB31..,DBX83.5)

Bit 13: "Actual direction of rotation right" (VDI interface signal DB31..,DBX83.7)

Bit 14: "Spindle accelerates" is active as long as the spindle is accelerating to the defined setpoint speed on the setpoint side.

Bit 15: "Spindle brakes" is active as long as the spindle is braking to the defined setpoint speed or to a stop on the setpoint side.

Bit 16: "Spindle stationary" (VDI interface signal DB31..,DBX61.4)

Bit 17: "Tool with dynamic limitation active" (VDI interface signal DB31..,DBX85.0)

Bit 18: Reserved

Bit 19: "Spindle in position" (VDI interface signal DB31..,DBX85.5)

Bit 20: "Position control active" (VDI interface signal DB31..,DBX61.5)

Bit 21: "Referenced/synchronized 1" (VDI interface signal DB31..,DBX60.4)

Bit 22: "Referenced/synchronized 2" (VDI interface signal DB31..,DBX60.5)

Bit 23: The direction of rotation of the spindle is inverted due to the VDI interface signal "Invert M3/M4 " (DB31..,DBX17.6)

Index 1:	n: Spindle number 0 ... max. spindle number for the spindle numbers configured in the MD 35000 SPIND_ASSIGN_TO_MACHAX.				
unit:	-				
min.:	0	**max.:**	16777215	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	

write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	Cross-channel	
block search	Not classified				**link**	Not classified	

INT	**$P_ISO2_HNO [n]**		H number in ISO2 mode		**reference:**	
description:						
Contains the offset numbers of H selected for the 3 geometry dimensions.						
(Tool length offset) Indexing corresponding to						
$P_TOOLL[n].						
Value = -1: H99 is programmed, or it has been activated in Siemens mode D1.						
= -2: A D>2 has been programmed in Siemens mode						
= -3: It cannot be activated in ISO2 mode.						
Index 1:	Geometry index of the tool length compensation					
unit:	-					
min.:	-3	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$P_ISO2_DNO**		D number in ISO2 mode		**reference:**	
description:						
Contains the offset number D selected for the radius						
Value = -1: H99 is programmed, or it has been activated in Siemens mode D1.						
= -2: A D>2 has been programmed in Siemens mode						
= -3: It cannot be activated in ISO2 mode.						
unit:	-					
min.:	-3	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$P_ISO3_DNO**	D number in ISO3 mode	**reference:**	

description:
Contains the offset number of H selected for ISO3 mode
Value = -1: H99 is programmed, or it has been activated in Siemens mode D1.
= -2: A D>2 has been programmed in Siemens mode
= -3: It cannot be activated in ISO2 mode.

unit:	-					
min.:	-3	**max.:**	2147483647	**std:**	0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$AC_PREP_ACT_LOAD**	Current preprocessing runtime	**reference:**	

description:
The variable $AC_PREP_ACT_LOAD returns the current preprocessing runtime in the channel.

unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$AC_PREP_MAX_LOAD**	Longest preprocessing runtime	**reference:**	

description:
The variable $AC_PREP_MAX_LOAD returns the longest net preprocessing runtime in the channel.

unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	-	
write:	X	X	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$AC_PREP_MIN_LOAD**			Shortest preprocessing runtime			**reference:**	
description:								
The variable $AC_PREP_MIN_LOAD returns the shortest net preprocessing runtime in the channel.								
unit:		-						
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**		
read:	X	X	7	X	7	-		
write:	X	X	7	-	0	-		
axis identifier:					**Valuation:**	channel-specific		
block search		Not classified			**link**	Not classified		

DOUBLE	**$AC_PREP_ACT_LOAD_GROSS**			Current preprocessing runtime			**reference:**	
description:								
The variable $AC_PREP_ACT_LOAD_GROSS returns the current gross preprocessing runtime in the channel.								
unit:		-						
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**		
read:	X	X	7	X	7	-		
write:	-	-	0	-	0	-		
axis identifier:					**Valuation:**	channel-specific		
block search		Not classified			**link**	Not classified		

DOUBLE	**$AC_PREP_MAX_LOAD_GROSS**			Longest preprocessing runtime			**reference:**	
description:								
The variable $AC_PREP_MAX_LOAD_GROSS returns the longest gross preprocessing runtime in the channel.								
unit:		-						
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**		
read:	X	X	7	X	7	-		
write:	X	X	7	-	0	-		
axis identifier:					**Valuation:**	channel-specific		
block search		Not classified			**link**	Not classified		

DOUBLE	**$AC_PREP_MIN_LOAD_GROSS**			Shortest preprocessing runtime			**reference:**	
description:								
The variable $AC_PREP_MIN_LOAD_GROSS returns the shortest, gross preprocessing runtime in the channel.								
unit:		-						
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	-	
write:	X	X	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$AC_IPO_STATE**	Status identifier of active functions	**reference:**	

description:

$AC_IPO_STATE

The variable returns selected information about whether or not specific functions are active:

Bit 0: Free-form surfaces mode is active

Bit 1: Compressor active

Bit 2: Vector interpolation (e.g. large circle interpolation) is active for tool orientation

Note:

This variable can only be read in synchronized actions, and not directly in the part program.

unit:	-				
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	-	X	0	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	Cross-channel	
block search	Not classified				**link**	Not classified	

DOUBLE	**$AC_CTOL**	Active contour tolerance	**reference:**	

description:

$AC_CTOL defines the contour tolerance for compressors and smoothing with which the current main run block was prepared.

unit:	mm				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$AC_OTOL**			Active orientation tolerance		**reference:**	
description:							
$AC_OTOL defines the orientation tolerance for compressors and smoothing with which the current main run block was prepared.							
unit:		deg.					
min.:		-1,8E308	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

DOUBLE	**$P_CTOL**			Programmed contour tolerance		**reference:**	
description:							
$P_CTOL states the contour tolerance for compressors and smoothing programmed with CTOL in the part program. If no value is programmed, the variable returns -1.							
unit:		mm					
min.:		-1.0	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

DOUBLE	**$P_OTOL**			Programmed orientation tolerance		**reference:**	
description:							
$P_OTOL states the orientation tolerance for compressors and smoothing programmed with OTOL in the part program. If no value is programmed, the variable returns -1.							
unit:		deg.					
min.:		-1.0	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

INT	**$AC_FGROUP_MASK**	Bit-coded value of axes that contribute to the path velocity	**reference:**	

description:

The variable returns a bit-coded value of channel axes programmed with the FGROUP command that contribute to the path velocity.

unit:	-					
min.:	0	**max.:**	0xFFFF	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:				**Valuation:**	channel-specific	
block search	Not classified			**link**	Not classified	

INT	**$P_FGROUP_MASK**	Bit-coded mask of axes that contribute to the path velocity	**reference:**	

description:

The variable returns a bit-coded value from programmed channel axes that contribute to the path velocity via the FGROUP command.

unit:	-					
min.:	0	**max.:**	0xFFFF	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	

axis identifier:				**Valuation:**	channel-specific	
block search	Not classified			**link**	Not classified	

INT	**$AC_AUXFU_EXT [168]**	Extension of the active auxiliary function	**reference:**	

description:

The array variable $AC_AUXFU_EXT[n] is used to read the extension of the last auxiliary function collected for an auxiliary function group (search run) or output. Auxiliary functions are assigned to groups. The index corresponds to the group number decremented by one. The index 0 thus determines the extension of the last output auxiliary function of the 1st group. If an auxiliary function has not yet been output for the specified group, then the variable returns the value -1. The associated value of the auxiliary function can be determined by the variable $AC_AUXFU_VALUE[n]. The variable $AC_AUXFU_STATE[n] determines the current output status.

Index 1:	The index corresponds to the auxiliary function group number decremented by one.					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:				**Valuation:**	channel-specific	
block search	Not classified			**link**	Not classified	

INT	**$AC_AUXFU_STATE [168]**	Output status of the active auxiliary function	**reference:**	

description:

The array variable $AC_AUXFU_STATE[n] is used to read the output status of the last auxiliary function collected for an auxiliary function group (search run) or output. Auxiliary functions are assigned to groups. The index corresponds to the group number decremented by one. The index 0 thus determines the status of the last output auxiliary function of the 1st group. If an auxiliary function has not yet been output for the specifed group, then the variable returns the value 0. If the value is greater than zero, then the value of the associated auxiliary function can be determined by the variable $AC_AUXFU_VALUE[n]. The variable $AC_AUXFU_EXT[n] determines the current extension of the auxiliary function.

The variable returns the following values

0: Auxiliary function not available

1: Auxiliary function has been collected by means of a search run

2: Auxiliary function has been output to the PLC

3: Auxiliary function has been output to the PLC and the transport acknowledgement has been made.

4: Auxiliary function has been accepted is being managed by the PLC.

5: Auxiliary function is being managed by the PLC and the function acknowledgement has been made.

Index 1:	The index corresponds to the auxiliary function group number decremented by one.				
unit:	-				
min.:	0	**max.:**	5	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$AC_AUXFU_VALUE [168]**	Value of the active auxiliary function	**reference:**	

description:

The array variable $AC_AUXFU_VALUE[n] is used to read the value of the last auxiliary function collected for an auxiliary function group (search run) or output. Auxiliary functions are assigned to groups. The index corresponds to the group number decremented by one. The index 0 thus determines the value of the last output auxiliary function of the 1st group. If an auxiliary function has not yet been output for the specified group, then the variable returns the value -1. The associated extension can be determined by the variable $AC_AUXFU_EXT[n]. The variable $AC_AUXFU_STATE[n] determines the current output status.

Index 1:	The index corresponds to the auxiliary function group number decremented by one.				
unit:	-				
min.:	-2147483648	**max.:**	2147483647	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$AC_AUXFU_TICK [168,2]**	Output counter of the active auxiliary function	**reference:**	

description:

The array variable $AC_AUXFU_TICK[groupIndex, n] is used to read the three output counters of the last auxiliary function collected for an auxiliary function group (search run) or output.

The variable is changed each time an auxiliary function is changed.

n = 0: Output sequence counter (all outputs within one IPO cycle)

n = 1: Package counter within an output sequence in the interpolation cycle

n = 2: Auxiliary function counter within a package

An auxiliary function package consists of a maximum of 10 auxiliary functions. Two packages per channel can be executed in each IPO cycle during SERUPRO. An output sequence of up to 20 packages can be executed through all channels in one IPO cycle.

All the auxiliary functions collected in one IPO cycle have the same sequence counter.

All the auxiliary functions collected in one package (block or synact) have the same package counter.

The auxiliary function counter is incremented for each auxiliary function collected.

Index 1:	The index corresponds to the auxiliary function group number decremented by one.					
Index 2:	The index corresponds to the counter type: n=0: Sequence counter n=1: Package counter per sequence n=2: Auxiliary function counter per package					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:				**Valuation:**	channel-specific	
block search	Not classified			**link**	Not classified	

CHAR	**$AC_AUXFU_TYPE [168]**	Types of active auxiliary function	**reference:**	

description:

The array variable $AC_AUXFU_TYPE[n] is used to read the types M, H, S, T, D, F, L of the last auxiliary function collected for an auxiliary function group (search run) or output. Auxiliary functions are assigned to groups. The index corresponds to the group number decremented by one. The index 0 thus determines the types of the last output auxiliary function of the 1st group. If an auxiliary function has not yet been output for the specifed group, then the variable returns the value "". The associated value of the auxiliary function can be determined by the variable $AC_AUXFU_VALUE[n]. The variable $AC_AUXFU_STATE[n] determines the current output status.

Index 1:	The index corresponds to the auxiliary function group number decremented by one.					
unit:	-					
min.:	0	**max.:**	255	**std:**		0
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:				**Valuation:**	channel-specific	
block search	Not classified			**link**	Not classified	

INT	**$AC_AUXFU_PREDEF_INDEX [168]**	Predefined index of the active auxiliary function	**reference:**	

description:

The array variable $AC_AUXFU_PREDEF_INDEX[n] is used to read the predefined index of the last auxiliary function collected for an auxiliary function group (search run) or output. Auxiliary functions are assigned to groups. The array index corresponds to the group number decremented by one. The index 0 thus determines the predefined index of the last output auxiliary function of the 1st group. If an auxiliary function has not yet been output for the specifed group or if the auxiliary function is a user-defined auxiliary function, then the variable returns the value -1. The associated value of the auxiliary function can be determined by the variable $AC_AUXFU_VALUE[n]. The variable $AC_AUXFU_STATE[n] determines the current output status.

Index 1:	The index corresponds to the auxiliary function group number decremented by one.					
unit:	-					
min.:	-1	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:				**Valuation:**	channel-specific	
block search	Not classified			**link**	Not classified	

INT	**$AC_AUXFU_SPEC [168]**	Output specification of the active auxiliary function	**reference:**	

description:

The array variable $AC_AUXFU_SPEC[n] is used to read the output specification corresponding to $MC_AUXFU_PREDEF_SPEC[n], $MC_AUXFU_ASSIGN_SPEC[n] of the last auxiliary function collected for an auxiliary function group (search run) or output. Auxiliary functions are assigned to groups. The index corresponds to the group number decremented by one. The index 0 thus determines the specification of the last output auxiliary function of the 1st group. The associated value of the auxiliary function can be determined by the variable $AC_AUXFU_VALUE[n]. The variable $AC_AUXFU_STATE[n] determines the current output status.

The output specification is bit-coded:

Bit 0 = 1acknowledgment "normal" after an OB1 cycle

Bit 1 = 1acknowledgment "quick" with OB40

Bit 2 = 1No predefined auxiliary function

Bit 3 = 1No output to the PLC

Bit 4 = 1Spindle reaction after acknowledgement by the PLC

Bit 5 = 1Output before the motion

Bit 6 = 1Output during the motion

Bit 7 = 1Output at end of block

Bit 8 = 1No output after block search types 1, 2, 4

Bit 9 = 1Collection during block search type 5 (SERUPRO)

Bit10 = 1 No output during block search type 5 (SERUPRO)

Bit 11 = 1Cross-channel auxiliary function (SERUPRO)

Bit 12 = 1Output via synchronized action

Bit 13 = 1 Implicit auxiliary function

Bit 14 = 1 Active M01

Bit 15 = 1 No output during running-in test

Bit 16 = 1 Nibbling off Bit 17 = 1 Nibbling on Bit 18 = 1 Nibbling							
Index 1:	The index corresponds to the auxiliary function group number decremented by one.						
unit:	-						
min.:	-2147483648		**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

FRAME	**$P_TRAFRAME_P**			Frame of the workpiece component of an active orientation transformation		**reference:**	
description: This variable returns the frame, which describes the current rotation and offset of the workpiece part of an active kinematic orientation transformation. Here, workpiece part means the kinematic chain defined between machine zero and workpiece reference point.							
unit:	-						
min.:			**max.:**		**std:**		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

FRAME	**$P_TRAFRAME_T**			Frame of the workpiece component of an active orientation transformation		**reference:**	
description: This variable returns the frame, which describes the current rotation and offset of the tool part of an active kinematic orientation transformation. Here, tool part means the kinematic chain defined between machine zero and tool reference point.							
unit:	-						
min.:			**max.:**		**std:**		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$P_FZ**			Programmed tooth feed			**reference:**	
description:								
The variable $P_FZ is used to read the last programmed tooth feed FZ.								
unit:		mm/min						
min.:		-1,8E308	**max.:**	1,8E308		**std:**		0
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**		
read:	X	-	7	-	0	-		
write:	-	-	0	-	0	-		
axis identifier:					**Valuation:**	channel-specific		
block search		Not classified			**link**	Not classified		

DOUBLE	**$AC_FZ**			Active programmed tooth feed			**reference:**	
description:								
The variable $AC_FZ is used to read the active programmed tooth feed FZ.								
unit:		mm/min						
min.:		-1,8E308	**max.:**	1,8E308		**std:**		0
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**		
read:	runin stp	X	7	X	7	-		
write:	-	-	0	-	0	-		
axis identifier:					**Valuation:**	channel-specific		
block search		Not classified			**link**	Not classified		

INT	**$P_F_TYPE**			Types of programmed feed			**reference:**	
description:								
The variable $P_F_TYPE is used to read the type of the last programmed feed.								
unit:		-						
min.:		ICFEED_METRIC_TIME	**max.:**	ICFEED_INCH_TEETH		**std:**		0
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**		
read:	X	-	7	-	0	-		
write:	-	-	0	-	0	-		
axis identifier:					**Valuation:**	channel-specific		
block search		Not classified			**link**	Not classified		

INT	**$AC_F_TYPE**			Types of active programmed feed			**reference:**	
description:								
The variable $AC_F_TYPE is used to read the type of the active programmed feed.								
unit:		-						
min.:		0	**max.:**	31		**std:**		0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$P_SVC [1]**	Programmed cutting speed	**reference:**	

description:

The variable $P_SVC[n] is used to read the last programmed cutting speed SVC.

n: Number of the spindle

Index 1:	n: Spindle number 0 ... max. spindle number for the spindle numbers configured in the MD 35000 SPIND_ASSIGN_TO_MACHAX.				
unit:	mm/min				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$AC_SVC [1]**	Active programmed cutting speed	**reference:**	

description:

The variable $AC_SVC is used to read the active programmed cutting speed SVC.

n: Number of the spindle

Index 1:	n: Spindle number 0 ... max. spindle number for the spindle numbers configured in the MD 35000 SPIND_ASSIGN_TO_MACHAX.				
unit:	mm/min				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$P_S_TYPE [1]**	Type of spindle programming	**reference:**	

description:

The variable $P_S_TYPE is used to read the type of spindle programming.

0 Spindle not programmed
1 Spindle speed S in rpm
2 Cutting speed SVC in m/min or ft/min
3 Constant cutting speed S in m/min or ft/min
4 Constant grinding wheel peripheral speed S in m/s or ft/s

Index 1:	n: Spindle number 0 ... max. spindle number for the spindle numbers configured in the MD 35000 SPIND_ASSIGN_TO_MACHAX.					
unit:	-					
min.:	0	**max.:**	31	**std:**	0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	

axis identifier:			**Valuation:**	channel-specific	
block search	Not classified		**link**	Not classified	

INT	**$AC_S_TYPE [1]**	Types of active spindle programming	**reference:**	

description:

The variable $P_S_TYPE is used to read the active type of spindle programming.

0 Spindle not programmed
1 Spindle speed S in rpm
2 Cutting speed SVC in m/min or ft/min
3 Constant cutting speed S in m/min or ft/min
4 Constant grinding wheel peripheral speed S in m/s or ft/s

Index 1:	n: Spindle number 0 ... max. spindle number for the spindle numbers configured in the MD 35000 SPIND_ASSIGN_TO_MACHAX.					
unit:	-					
min.:	0	**max.:**	31	**std:**	0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	-	
write:	-	-	0	-	0	-	

axis identifier:			**Valuation:**	channel-specific	
block search	Not classified		**link**	Not classified	

INT	**$VC_SGEAR [n]**	Currently activated spindle gear stage	**reference:**	

description:

The variable $VC_SGEAR[spino] determines the currently activated spindle gear stage. $AC_SGEAR[spino] determines the set gear stage in the main run. In the case of the search run, the actual gear stage can vary from the set gear stage, as a gear stage change cannot take place during the search run. Using $VC_SGEAR[spino] and $AC_SGEAR[spino], it can be checked whether a gear stage change should take place following a search run.

The following values are possible:

1: 1. Gear stage is active

....

5: 5. Gear stage is active

Index 1:	0 ... max. spindle number SPIND_ASSIGN_TO_MACHAX.		for the spindle numbers configured in the MD 35000			
unit:	-					
min.:	1	**max.:**	5	**std:**	0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$P_ORI_POS [2,3]**	Positions of the orientation axes in the case of orientation programming	**reference:**	

description:

The positions of the rotary axes, which result from orientation programming.

In this case, the first index (0 or 1) refers to the solution, whereas the second index (0..2) refers to the orientation axis, see also $P_ORI_SOL and $P_ORI_STAT.

Index 1:	Index of the solution					
Index 2:	Index of the orientation axis					
unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$P_ORI_DIFF [2,3]**	Deviation of axis positions from theor. value in the case of orientation progr.	**reference:**	

description:

The difference between the exact positions of the orientation axes and those provided in $P_ORI_POS, which result from orientation programming.

The content may be unequal to zero only if the positions are gridded (Hirth tooth system), i.e if the system data $NT_HIRTH_INCR of the affected axis is unequal to zero and if this axis is a manual rotary axis.

In this case, the first index (0 or 1) refers to the solution, whereas the second index (0..2) refers to the orientation axis, see also $P_ORI_SOL.

Index 1:	Index of the solution				
Index 2:	Index of the orientation axis				
unit:	-				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	

axis identifier:				**Valuation:**	channel-specific	
block search	Not classified			**link**	No restrictions	

INT	**$P_ORI_SOL**	Number of solutions in the case of orientation programming	**reference:**	

description:

If the axis positions are calculated in the case of an orientation transformation with more than one orientation axis which results in a specified orientation, generally more than one solution is offered.

This system data contains the number of valid solutions along with additional status information.

The content of $P_ORI_SOL is coded as follows:

Negative values: General error states.

-1: No solutions have been calculated for the active transformation (missing call of ORISOL).

-2: No transformation is active or the active transformation is not an orientation transformation, which is able to return positions to a specified orientation programming.

Unit place: Number of mathematically possible solutions without considering axis limits and possible error conditions.

0: A solution does not exist, i.e. the required orientation cannot be set.

1: A solution exists.

2: Two solutions exist.

9: Numerous solutions exist, i.e. the position of at least one orientation axis is not specified. The unspecified axis can be determined from the hundreds place or from the system variable $P_ORI_STAT.

Ten's place: bit-coded display for damaged axis limits. The exact cause of the error can be determined from the system variable $P_ORI_STAT.

it 0 (value 10): at least one axis limit of the 1st orientation axis is damaged for at least one solution.

Bit 1 (value 20): at least one axis limit of the 2nd orientation axis is damaged for at least one solution.

Bit 2 (value 40): at least one axis limit of the 3rd orientation axis is damaged for at least one solution.

Hundreds place: Bit-coded display for non-defined axis positions (can only occur if numerous solutions are available, i.e. if the unit place is equal to 9).

Bit 0 (value 100): The position of the 1st orientation axis is not defined.

Bit 1 (value 200): The position of the 2nd orientation axis is not defined.

Bit 2 (Wert 400): The position of the 3rd orientation axis is not defined.

The identifiers 1st, 2nd and 3rd orientation axis refer to the definition of the axes in the transformer data $NT_ROT_AX_NAME.

unit:		-					
min.:		-2147483648	**max.:**	2147483647		**std:**	0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

INT	**$P_ORI_STAT [ORIDIM]**	Status of the orientation axes	**reference:**	

description:

The system variable contains the status of each orientation axis following the call of ORISOL.

The index n of $P_ORI_STAT[n] corresponds to the index of the affected orientation axis in the transformer data $NT_ROT_AX_NAME[n].

The content of $P_ORI_SOL is coded as follows:

Negative values: General error states.

-1: The status is not defined (missing call of ORISOL).

-2: No transformation is active or the active transformation is not an orientation transformation, which is able to return positions to a specified orientation programming.

-3: The axis is not contained in the active transformation.

Unit place: Bit-coded display for damaged axis limits of the first solution.

Bit 0 (value 1):The first solution damages the lower axis limit.

Bit 1 (value 2):The first solution damages the upper axis limit.

Ten's place: bit-coded display for damaged axis limits of the second solution.

Bit 0 (value 10):The second solution damages the lower axis limit.

Bit 1 (value 20):The second solution damages the upper axis limit.

Hundreds place: displays a non-defined axis position.

Bit 0 (value 100):The position of the orientation axis is not defined, i.e. the required orientation is achieved through any setting of the rotary axis (pole setting). This information is also contained the system variable $P_ORI_SOL.

Several fault codes, which display damage to the axis limits, can occur simultaneously. Since in the case of damage to an axis limit, a position within the permitted axis limits is aimed for through adding or subtracting multiples of 360 degrees, if this is not possible - it is not clearly defined, whether the lower or upper axis limit has been damaged.

If a solution is not available for the desired orientation ($P_ORI_SOL equals 0), the status of the orientation axes 0 is contained in the transformation.

Index 1:		--					
unit:		-					
min.:		-2147483648	**max.:**	2147483647		**std:**	0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	

write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$P_MTOOLN**		Number of defined Multitools		**reference:**	
description:						
$P_MTOOLN						
Number of defined Multitools, which are assigned to the channel						
OPI block type= MTV						
unit:	-					
min.:	-2	**max.:**	600	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$P_MTOOLMT [600]**		Multitool number		**reference:**	
description:						
$P_MTOOLMT[i]						
i-te Multitool number						
OPI block type= MTV						
Index 1:	i-th multitool, with i= 1,..., $P_MTOOLN					
unit:	-					
min.:	-2	**max.:**	600	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$P_MTOOLNT [32000]**		Number of tools in Multitool		**reference:**	
description:						
$P_MTOOLNT						
Number of tools in Multitool						
Index 1:	Number of the multitool; 1,..., 32000					
unit:	-					
min.:	-3	**max.:**	32	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	

write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$P_MTOOLT [32000,32]**			T number of the i-th tool in MT		**reference:**	
description:							
$P_MTOOLT							
T number of the i-th tool in Multitool							
Index 1:	Number of the multitool; 1,..., 32000						
Index 2:	i-th tool in the multitool, with i= 1,..., $P_MTOOLNT						
unit:	-						
min.:	-2	**max.:**	600	**std:**	0		
Properties with regard to reading/writing:							

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$A_MYMTN [32000]**			MT number of the proprietary multitool of a tool		**reference:**	
description:							
$A_MYMTN[t]							
MT number of the proprietary multitool of the tool with the T no. t.							
> 0 The tool with the T number t is a multitool with the MT number							
= 0 The tool with the T number t is not a multitool							
= -1 TMMG function inactive							
= -2 Multitool function inactive							
= -3 t is not WZ_T_Nr.							
Index 1:	t: T number 1 - 32000						
unit:	-						
min.:	-3	**max.:**	32000	**std:**	0		
Properties with regard to reading/writing:							

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$A_TOOLMTN [32000]**	-	**reference:**	
description:				
$A_TOOLMTN[t]				
Multitool number of tool t				
Index 1:	t: T number 1 - 32000			

unit:		-					
min.:		-3	**max.:**	32000	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

INT	**$A_MYMTLN [32000]**	-	**reference:**	

description:

$A_MYMTLN[t]

Number of the proprietary Multitool tool location with the T No. t.

Index 1:		t: T number 1 - 32000					
unit:		-					
min.:		-3	**max.:**	32000	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

INT	**$A_TOOLMTLN [32000]**	-	**reference:**	

description:

$A_TOOLMTLN[t]

Multitool location number of tool t

Index 1:		t: T number 1 - 32000					
unit:		-					
min.:		-3	**max.:**	32000	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

INT	**$AC_TC_TOOLIS**	Is a simple tool or a Multitool transported?	**reference:**	

description:
$AC_TC_TOOLIS
-1: At the time of reading, no tool command is active.
0: the transported tool is an individual tool.
1: the transported tool is an MT with a location number as distance coding.
2: the transported tool is an MT with length distance as distance coding.
3: the transported tool is an MT with angle distance as distance coding.

unit:	-				
min.:	-1	**max.:**	3	**std:**	-1

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:				**Valuation:**	channel-specific
block search	Not classified			**link**	Not classified

DOUBLE	**$AC_TC_MTDIST**	Distance between tool in Multitool and the reference point	**reference:**	

description:
$AC_TC_MTDIST
Distance between tool in Multitool and the reference point.
-1.0: At the time of reading, no tool management command is active.

unit:	-				
min.:	-1.0	**max.:**	1000.0	**std:**	0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:				**Valuation:**	channel-specific
block search	Not classified			**link**	Not classified

INT	**$AC_TC_MTNLOC**	Number of locations for tool change and tool transport contained in the MT	**reference:**	

description:
$AC_TC_MTNLOC
Number of locations for tool change and tool transport contained in the MT.
-1: At the time of reading, no tool management command is active.
0: The new tool of the command at the PLC is a single tool.
>=2: The new tool of the command at the PLC is an MT with the specified number of locations.

unit:	-				
min.:	-1	**max.:**	32	**std:**	-1

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$AC_TC_MTTN**		Number of the Multitool with the new tool		**reference:**	
description:						
$AC_TC_MTTN						
Number of the Multitool with the new tool						
-1: At the time of reading, no tool management command is active.						
0: The new tool of the command at the PLC is a single tool.						
>0: The new tool of the command at the PLC is an MT with this number.						
unit:	-					
min.:	-1	**max.:**	32000	**std:**	-1	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$AC_TC_MTLTN**		Number of the Multitool location with the new tool		**reference:**	
description:						
$AC_TC_MTLTN						
Number of the Multitool location with the new tool.						
-1: At the time of reading, no tool management command is active.						
0: The new tool of the command at the PLC is a single tool.						
>0: MT location number of the target location of the new tool.						
unit:	-					
min.:	-1	**max.:**	32000	**std:**	-1	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$AC_PRTIME_B**			calculated program runtime (block by block)			**reference:**	
description:								
$AC_PRTIME_B "ProgramRunTIME-Block"								
Reading the precalculated program runtime (block by block)								
During the simulation, the anticipated processing time of the blocks in the part program is calculated by the NCK and made available in this system variable and the OPI variable 'acPRTimeB'.								
unit:	-							
min.:	0		**max.:**	1,8E308		**std:**		0.0
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**		**OEM**	
read:	X	-	7	-	0		-	
write:	-	-	0	-	0		-	
axis identifier:					**Valuation:**		channel-specific	
block search	Not classified				**link**		Not classified	

DOUBLE	**$AC_STOLF**			Active G00 tolerance factor			**reference:**	
description:								
$AC_STOLF names the G00 tolerance factor for compressors and smoothing, which was used to prepare the current main run record.								
If a G00 toleranz factor is not programmed with STOLF = <...>, the value of machine data $MC_G0_TOLERANCE_FACTOR is read.								
If rapid traverse (G00) is not active, this variable will return the value 1.								
unit:	-							
min.:	-1,8E308		**max.:**	1,8E308		**std:**		0.0
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**		**OEM**	
read:	runin stp	X	7	X	7		X	
write:	-	-	0	-	0		-	
axis identifier:					**Valuation:**		channel-specific	
block search	Not classified				**link**		Not classified	

DOUBLE	**$P_STOLF**			Programmed G00 tolerance factor			**reference:**	
description:								
$P_STOLF names the G00 tolerance factor, which is programmed with STOLF in the part program for compressors and smoothing. If a value is not programmed, the variable returns the value of								
MD $MC_G0_TOLERANCE_FACTOR. If fast motion (G00) is not active, this variable returns the value 1.								
unit:	-							
min.:	-1,8E308		**max.:**	1,8E308		**std:**		0.0
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**		**OEM**	
read:	X	-	7	-	0		-	

write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$P_TMNOIS [32000]**		Actual number, T number, magazine number or MT number		**reference:**	
description:						
$P_TMNOIS[t]						
3 = Index is the number of a defined tool						
and the number of a defined magazine						
2 = Index is the number of a defined magazine						
1 = Index is the T number of a defined tool						
0 = Index is the MT number of a defined Multitool						
-3 = invalid index. Is neither the number of a tool nor the number of a Multitool.						
Index 1:	The T number or MT number of a defined tool or multitool.					
unit:	-					
min.:	-3	**max.:**	3	**std:**	-3	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$AC_BLOCK_PROGINFO**		Block information		**reference:**	
description:						
The variable $AC_BLOCK_PROGINFO returns information about the current main run block.						
The variable is bit-coded.						
Bit 0: Block is end of main program (M02, M17, M30 or RET(ASUP))						
Bit 1: Block is end of subprogram						
Bit 2: Block is last initializing block						
unit:	-					
min.:	0	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$P_WP_STAT**	Error status after calling the WORKPIECE process	**reference:**	

description:

Contains the error status of the last call of the WORKPIECE process

The variable is coded as follows:

0: No error occurred when the function was called.

1: There is no memory space available for creating a workpiece protection zone.

2: The name of the specified kinematic chain was not found.

3: The name of the specified kinematic chain link was not found.

4: An invalid frame name was specified (only the identifiers of programmable frames are allowed).

5: The specified protection zone type cannot be interpreted by the NCK.

6: Invalid name of the workpiece protection zone. Workpiece protection zones must start with __WORKP.

7: No protection zone definition with the specified name was found.

8: Reserved (error code not assigned).

9: Reserved (error code not assigned).

10: No protection zone type specified.

11: Less than three parameters were specified for the protection zone type "Box".

12: Less than two parameters were specified for the protection zone type "CYLINDER".

-

The error status is reset to 0 on Reset, but it is only changed when the WORKPIECE process is called again.

unit:	-				
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	-	-	0	-	0	-	

axis identifier:				**Valuation:**	channel-specific
block search	Not classified			**link**	Not classified

INT	**$P_FIX_STAT**	Error status after calling the Fixture procedure	**reference:**	

description:

Contains the error status of the last call of the FIXTURE process

The variable is coded as follows:

0: No error occurred when the function was called.

1: There is no memory space available for creating a workholder protection zone.

2: The name of the specified kinematic chain was not found.

3: The name of the specified kinematic chain link was not found.

4: An invalid frame name was specified (only the identifiers of programmable frames are allowed).

5: The specified protection zone type cannot be interpreted by the NCK.

6: Reserved (error code not assigned).

7: No protection zone definition with the specified name was found.

8: The name of the workholder protection zone was not specified.

9: Invalid name of workholder protection zone. Workholder protection zones must start with __FIXTURE.

10: No protection zone type specified.

11: Less than three parameters were specified for the protection zone type "Box".

12: Less than two parameters were specified for the protection zone type "CYLINDER".

-

The error status is reset to 0 on Reset, but it is only changed when the FIXTURE process is called again.

unit:		-					
min.:		-2147483648	**max.:**	2147483647		**std:**	0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

INT	**$PC_TRAFO_ROT_CHAIN_INDEX [2]**	Index of the i-th rotary axis in the kinematic chain	**reference:**	

description:

Supplies the position of a rotary axis (orientation axis) in the internal representation of a transformation.

The position of the orientation axis is defined as follows:

If one runs through the kinematic forces of an active transformation from the table to the tool, then the first orientation axis receives index 0, the second orientation axis index 1 etc.

It makes (presently) sense only to apply this system variable if an orientation transformation is active with specified kinematic chains. if this requirement is not met, the return value is -1.

Exampe:

$NT_ROT_AX_NAME[n, 0] = "ORI_TOOL"

$NT_ROT_AX_NAME[n, 1] = "ORI_PART"

$NT_ROT_AX_NAME[n, 2] = ""

If "ORI_TOOL" - as the name implies - rotates the tool and "ORI_PART" the workpiece, one receives the following values as a result from reading out $PC_TRAFO_ROT_CHAIN_INDEX:

_INDEX = $PC_TRAFO_ROT_CHAIN_INDEX[0] = 1 ; _INDEX = 1, since the first orientation axis is the second orientation axis in the kinematic chain.

_INDEX = $PC_TRAFO_ROT_CHAIN_INDEX[1] = 0 ; _INDEX = 0, since the second orientation axis is the first orientation axis in the kinematic chain.

_INDEX = $PC_TRAFO_ROT_CHAIN_INDEX[2] = -1 ; _INDEX = -1 since no third orientation axis is defined (5-axis transformation).

Index 1:		Array index i points to the corresponding entry in the system variable $NT_ROT_AX_NAME[n, i]					
unit:		-					
min.:		-2147483648	**max.:**	2147483647		**std:**	0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

AXIS	**$PC_TRAFO_ROT_CHAN_AX_IN [2]**	Channel axis of the n-th rotary axis of a transformer	**reference:**	

description:

Supplies the channel axis identifier of the i-th rotary axis (orientation axis) in the internal representation of a transformation.

The i-th orientation axis is defined as follows:

If one runs through the kinematic chain of an active transformation from workpiece to tool, the first orientation axis will receive index 0, the second orientation axis index 1 etc.

Index i can be determined with the help of system variable $PC_TRAFO_ROT_CHAIN_INDEX from the entry in system date $NT_ROT_AX_NAME[n, j].

Example

```
:
DEF AXIS B_AX_CHAN
DEF INT CHAIN_INDEX
.
.
$NT_ROT_AX_NAME[n, 0] = "ROT_TOOL_B"  ; refers e.g. to a kinematic chain element describing machine axis B11.
.
.
TRAFOON("ORI_TRAFO_TEST")                    ; activate orientation transformation
CHAIN_INDEX = $PC_TRAFO_ROT_CHAIN_INDEX[0]      ; supplies e.g. value 1 if B11 rotates the tool in a 5-axis transformation.
B_AX_CHAN = $PC_TRAFO_ROT_CHAN_AX[CHAIN_INDEX ]  ; detemine channel axis identifier of machine axis B11
G0 AX[B_AX_CHAN] = 45.                       ; traverse axis as a channel axis
```

It only makes sense (presently) to apply this system variable if the orientation transformation is active. If this requirement is not met, alarm 14782 will be output.

Index 1:	Array index i points to the position of the axis in the internal representation of a kinematic chain for describing a kinematic transformation.

unit:	-		
min.:	**max.:**	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	-	-	0	-	0	-	

axis identifier:				**Valuation:**	channel-specific
block search	Not classified			**link**	Not classified

AXIS	**$PC_TRAFO_ROT_CHAN_AX_EX [2]**	Channel axis of the n-th rotary axis of a transformer	**reference:**	

description:

Supplies the channel axis identifier of the rotary axis (orientation axis) defined in the transformation date $NT_ROT_AX_NAME[n, i] of the currently active transformation.

Is the currently active orientation transformation not defined with the help of kinematic chains, then the return value of this system variable is the same as with system variable $PC_TRAFO_ROT_CHAN_AX_IN.

This system variable can (presently) be applied only sensibly if the orientation transformation is active. If this requirement is not met, alarm 14782 will be output.

Index 1:	Array index i points to the index in the transformation data $NT_ROT_AX_NAME, which defines the rotary axis (orientation axis) of a kinematic transformation.

unit:		-					
min.:			**max.:**		**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

STRING	**$AC_TRAFO_TYPE_NAME**	Transformation type (string)	**reference:**	
description:				
Examples: "TRANSMIT" and "TRAORI_STAT"				

Index 3:		MAXSTRINGLEN					
unit:		-					
min.:			**max.:**		**std:**		""
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

STRING	**$PC_TRAFO_TYPE_NAME**	Transformation type (string)	**reference:**	
description:				
Examples: "TRANSMIT" and "TRAORI_STAT"				

Index 3:		MAXSTRINGLEN					
unit:		-					
min.:			**max.:**		**std:**		""
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

STRING	**$P_CUTMODK**	Last programmed value of CUTMODK	**reference:**	
description:				
$P_CUTMOD				
Reads the currently valid value which was last programmed with the language command CUTMODK (Name of the orientation transformation defined by kinematic chains for which the cutting edge data modification is to be activated).				

Index 3:		32 32					
unit:		-					
min.:			**max.:**		**std:**		0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

STRING	**$AC_CUTMODK**	Valid value of CUTMODK in current block	**reference:**	

description:

$AC_CUTMOD

Reads the currently valid value of the language command CUTMODK in the current block (name of the orientation transformation defined by kinematic chains, for which the cutting edge data modification is to be activated).

Index 3:					
unit:	-				
min.:		**max.:**		**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$AC_SIM_TIME_STEP**	Time step in the simulation	**reference:**	

description:

The variable $AC_SIM_TIME_STEP determines the current time interval in seconds during the simulation, A time interval corresponds to 1..n interpolation cycles in the real machining time. Each time interval in the simulation is executed in an interpolation cycle.

The value of the variable is greater than zero if bit 4 is set in $MN_PROG_TEST_MASK and the simulation is selected.

unit:	s				
min.:	0	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	-	X	0	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$AC_SIM_TIME_BLOCK**	Current real machining time of a block	**reference:**	

description:

The variable $AC_SIM_TIME_BLOCK determines the current real machining time of a block in seconds during the simulation. The real machining time of a block is the time that passes in the case of normal program execution, and not the time that passes during the simulation.

The value of the variable is greater than zero if bit 4 is set in $MN_PROG_TEST_MASK and the simulation has been selected.

unit:	s					
min.:	0	**max.:**	1,8E308	**std:**	0.0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	-	X	0	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:				**Valuation:**	channel-specific	
block search	Not classified			**link**	Not classified	

INT	**$P_SIM_MODE**	Simulation mode	**reference:**	

description:

The variable $P_SIM_MODE determines the simulation mode. The following values are possible:

0: No simulation active.

1: Simulation mode is active.

unit:	-					
min.:	0	**max.:**	1	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	

axis identifier:				**Valuation:**	channel-specific	
block search	Not classified			**link**	Not classified	

INT	**$AC_SIM_MODE**	Simulation mode	**reference:**	

description:

The variable $AC_SIM_MODE determines the simulation mode. The following values are possible:

0: No simulation active.

1: Simulation mode is active.

unit:	-					
min.:	0	**max.:**	1	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:				**Valuation:**	channel-specific	
block search	Not classified			**link**	Not classified	

DOUBLE	**$AC_COLLPOS**			Collision position in world coordinate system			**reference:**	
description:								
Point of contact of two collision bodies when a collision alarm occurs.								
unit:		Linear / angular position						
min.:		-1,8E308	**max.:**	1,8E308		**std:**		0
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**		**OEM**	
read:	X	X	7	X	7		X	
write:	-	-	0	-	0		-	
axis identifier:					**Valuation:**		Cross-channel	
block search		Not classified			**link**		Not classified	

1.5 Frames

FRAME	**$P_UIFR [n]**			Settable data management frames			**reference:**	
description:								
Array variable $P_UIFR[n] is used to program settable data management frames. G500, G54 .. G599 can be used to activate the corresponding data management frame. The data management frames are stored in SRAM and can be read in and out using the data backup feature.								
Index 1:		The number of settable frames is configured via $MC_MM_NUM_USER_FRAMES. 0: G500 1: G54 2: G55 3: G56 4: G57 5: G505 6: G506 .. 99: G599						
unit:		-						
min.:			**max.:**			**std:**		
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**		**OEM**	
read:	X	-	7	X	7		-	
write:	X	-	7	X	7		-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**		channel-specific
block search		Not classified				**link**		No restrictions

FRAME	**$P_CHBFR [n]**			Channel-specific basic frames in the data management system			**reference:**	
description:								
Array variable $P_CHBFR[n] is used to program channel-specific basic frames in the data management system. G500, G54 .. G599 can be used to activate the data management frames. All active basic frames are chained together to produce the overall basic frame $P_ACTBFRAME. The data management frames are stored in SRAM and can be read in and out using the data backup feature.								
Index 1:		The number of channel basic frames is configured via $MC_MM_NUM_BASE_FRAMES.						
unit:		-						
min.:			**max.:**			**std:**		
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**		**OEM**	
read:	X	-	7	X	7		-	

write:	X	-	7		X	7	-
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	No restrictions

FRAME	**$P_SETFR**				Data management frame for preset actual value memory		**reference:**	
description:								
Variable $P_SETFR is used to program the system frame in the data management system for preset actual value memory and scratching. This frame should only be manipulated and activated by the system function. The data management frames are stored in SRAM and can be read in and out using the data backup feature.								
On a Reset, the system frame can be cleared by configuring Bit 0 in $MC_CHSFRAME_RESET_CLEAR_MASK.								
unit:		-						
min.:			**max.:**			**std:**		
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7		X	7	-	
write:	X	-	7		X	7	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific	
block search		Not classified				**link**	No restrictions	

FRAME	**$P_EXTFR**				Data management frame for external frame		**reference:**	
description:								
Variable $P_EXTFR is used to program the system frame in the data management system for the external work offset. This frame is activated by the PLC. The data management frames are stored in SRAM and can be read in and out using the data backup feature.								
On a Reset, the system frame can be cleared by configuring Bit 1 in $MC_CHSFRAME_RESET_CLEAR_MASK.								
unit:		-						
min.:			**max.:**			**std:**		
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7		X	7	-	
write:	X	-	7		X	7	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific	
block search		Not classified				**link**	No restrictions	

FRAME	**$P_PARTFR**				Data management frame for TCARR and PAROT		**reference:**	
description:								
Variable $P_PARTFR is used to program the system frame in the data management system for TCARR and PAROT. This frame should only be manipulated and activated by the system function. The data management frames are stored in SRAM and can be read in and out using the data backup feature.								
unit:		-						
min.:			**max.:**			**std:**		
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7		X	7	-	

write:	X	-	7		X	7	-
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	No restrictions

FRAME	**$P_TOOLFR**			Data management frame for TOROT and TOFRAME		**reference:**	
description:							
Variable $P_TOOLFR is used to program the system frame in the data management system for TOROT and TOFRAME. This frame should only be manipulated and activated by the system function. The data management frames are stored in SRAM and can be read in and out using the data backup feature.							
unit:		-					
min.:			**max.:**			**std:**	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	No restrictions

FRAME	**$P_WPFR**			Data management frame for workpiece		**reference:**	
description:							
Variable $P_WPFR is used to program the system frame in the data management system for workpiece reference points. The data management frames are stored in SRAM and can be read in and out using the data backup feature.							
On a Reset, the system frame can be cleared by configuring Bit 4 in $MC_CHSFRAME_RESET_CLEAR_MASK.							
unit:		-					
min.:			**max.:**			**std:**	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	No restrictions

FRAME	**$P_CYCFR**			Data management frame for cycles		**reference:**	
description:							
Variable $P_CYCFR is used to program the system frame in the data management system for cycles. This frame should only be manipulated and activated by cycles. The data management frames are stored in SRAM and can be read in and out using the data backup feature.							
On a Reset, the system frame can be cleared by configuring Bit 5 in $MC_CHSFRAME_RESET_CLEAR_MASK.							
unit:		-					
min.:			**max.:**			**std:**	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	

write:	X	-	7		X	7	-
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	No restrictions

FRAME	**$P_TRAFR**	Data management frame for transformations	**reference:**	

description:

Variable $P_TRAFR is used to program the system frame in the data management system for transformations. This frame should only be manipulated and activated by the system function. The data management frames are stored in SRAM and can be read in and out using the data backup feature.

unit:		-					
min.:			**max.:**			**std:**	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**	**OEM**
read:	X	-	7		X	7	-
write:	X	-	7		X	7	-
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	No restrictions

FRAME	**$P_ISO1FR**	Data management frame for ISO G51.1 mirroring	**reference:**	

description:

Variable $P_ISO1FR is used to program the system frame in the data management for the ISO G code G51.1 mirroring.This frame should only be manipulated and activated via the system function. The data management frames are stored in SRAM and can be read in and out using the data backup feature.

On reset, the system frame can be deleted via the configuration of bit 0 in $MC_CHSFRAME_RESET_CLEAR_MASK.

unit:		-					
min.:			**max.:**			**std:**	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**	**OEM**
read:	X	-	7		X	7	-
write:	X	-	7		X	7	-
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	No restrictions

FRAME	**$P_ISO2FR**	Data management frame for ISO G68 2DROT	**reference:**	

description:

Variable $P_ISO2FR is used to program the system frame in the data management for the ISO G68 2DROT.This frame should only be manipulated and activated via the system function. The data management frames are stored in SRAM and can be read in and out using the data backup feature.

On reset, the system frame can be deleted via the configuration of bit 0 in $MC_CHSFRAME_RESET_CLEAR_MASK.

unit:		-					
min.:			**max.:**			**std:**	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**	**OEM**
read:	X	-	7		X	7	-

write:	X	-	7		X	7	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific	
block search		Not classified				**link**	No restrictions	

FRAME	**$P_ISO3FR**			Data management frame for ISO G68 3DROT		**reference:**	
description:							
Variable $P_ISO3FR is used to program the system frame in the data management for the ISO G68 3DROT.This frame should only be manipulated and activated via the system function. The data management frames are stored in SRAM and can be read in and out using the data backup feature.							
On reset, the system frame can be deleted via the configuration of bit 0 in $MC_CHSFRAME_RESET_CLEAR_MASK.							
unit:		-					
min.:			**max.:**			**std:**	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	No restrictions

FRAME	**$P_ISO4FR**			Data management frame for ISO G51 Scale		**reference:**	
description:							
Variable $P_ISO4FR is used to program the system frame in the data management for the ISO G code G51 Scale.This frame should only be manipulated and activated via the system function. The data management frames are stored in SRAM and can be read in and out using the data backup feature.							
On reset, the system frame can be deleted via the configuration of bit 0 in $MC_CHSFRAME_RESET_CLEAR_MASK.							
unit:		-					
min.:			**max.:**			**std:**	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	No restrictions

FRAME	**$P_RELFR**	Data management frame for relative coordinate systems	**reference:**	
description:				
The variable $P_RELFR is used for programming the system frame in the data management for relative coordinate systems. This frame should only be activated and manipulated via the system function. The data managment frames are stored in the SRAM, and can be read in and out via the data backup.				
The system frame is configured in the following machine data:				
Bit 11 in $MC_MM_SYSTEM_FRAME_MASK				
Bit 11 in $MC_MM_SYSTEM_DATAFRAME_MASK				
Bit 11 in $MC_CHSFRAME_RESET_MASK				

Bit 11 in $MC_CHSFRAME_RESET_CLEAR_MASK Bit 11 in $MC_CHSFRAME_POWERON_MASK							
unit:		-					
min.:			**max.:**		**std:**		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	No restrictions

FRAME	**$P_NCBFR [n]**	Global basic frames in the data management system	**reference:**	
description: Array variable $P_NCBFR[n] is used to program global basic frames in the data management system. G500, G54 .. G599 can be used to activate the data management frames. All active basic frames are chained together to produce the overall basic frame $P_ACTBFRAME. The data management frames are stored in SRAM and can be read in and out using the data backup feature.				

Index 1:		The number of NCU basic frames is configured via $MN_MM_NUM_GLOBAL_BASE_FRAMES.					
unit:		-					
min.:			**max.:**		**std:**		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	No restrictions

1.6 Tool carrier data

DOUBLE	**$TC_CARR1 [n]**	X component of offset vector l1	**reference:**	
description: $TC_CARR1[n] x component of offset vector l1 Attention! All system parameters beginning with '$TC_' are parameters belonging to the TOA area. The special characteristic of this area is that machine data 28085 = MM_LINK_TOA_UNIT can be set to allow different NCK channels to access these parameters. If this type of parameter setting has been selected by the NCK, you must be aware that changing these data can have a negative impact on other channels. Before you change any data settings, make sure that the changes will have only a local effect on the channel in which they are made.				

Index 1:	The max. number of tool carriers can be set via the machine data $MN_MM_NUM_TOOL_CARRIER. Default value = 0; i.e. NCK has no such data.	
unit:	mm	

min.:		-1,8E308	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_CARR2 [n]**			Y component of offset vector I1		**reference:**	
description:							
$TC_CARR2[n]							
Y component of offset vector I1							
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.						
unit:	mm						
min.:	-1,8E308		**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_CARR3 [n]**			Z component of offset vector I1		**reference:**	
description:							
$TC_CARR3[n]							
Z component of offset vector I1							
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.						
unit:	mm						
min.:	-1,8E308		**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_CARR4 [n]**	X component of offset vector l2	**reference:**	

description:

$TC_CARR4[n]

X component of offset vector l2

Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
unit:	mm					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:		**Valuation:**	channel-specific
block search	Not classified	**link**	No restrictions

DOUBLE	**$TC_CARR5 [n]**	Y component of offset vector l2	**reference:**	

description:

$TC_CARR5[n]

Y component of offset vector l2

Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
unit:	mm					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:		**Valuation:**	channel-specific
block search	Not classified	**link**	No restrictions

DOUBLE	**$TC_CARR6 [n]**	Z component of offset vector l2	**reference:**	

description:

$TC_CARR6[n]

Z component of offset vector l2

Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
unit:	mm					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	

write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_CARR7 [n]**			X component of rotary axis v1		**reference:**	
description:							
$TC_CARR7[n]							
X component of rotary axis v1							
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.						
unit:	-						
min.:	-1,8E308	**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_CARR8 [n]**			Y component of rotary axis v1		**reference:**	
description:							
$TC_CARR8[n]							
Y component of rotary axis v1							
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.						
unit:	-						
min.:	-1,8E308	**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_CARR9 [n]**			Z component of rotary axis v1		**reference:**	
description:							
$TC_CARR9[n]							
Z component of rotary axis v1							
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.						
unit:	-						
min.:	-1,8E308	**max.:**	1,8E308		**std:**	0.0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_CARR10 [n]**		X component of rotary axis V2		**reference:**	
description:						
$TC_CARR10[n]						
X component of rotary axis v2						
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**		0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_CARR11 [n]**		Y component of rotary axis v2		**reference:**	
description:						
$TC_CARR11[n]						
Y component of rotary axis v2						
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**		0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_CARR12 [n]**		Z component of rotary axis v2		**reference:**	
description:						
$TC_CARR12[n]						
Z component of rotary axis v2						

Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.						
unit:	-						
min.:	-1,8E308	**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_CARR13 [n]**	Angle of rotation alpha1 (in degrees)	**reference:**	

description:

$TC_CARR13[n]

Angle of rotation alpha1 (in degrees)

Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.						
unit:	-						
min.:	-1,8E308	**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_CARR14 [n]**	Angle of rotation alpha2 (in degrees)	**reference:**	

description:

$TC_CARR14[n]

Angle of rotation alpha2 (in degrees)

Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.						
unit:	-						
min.:	-1,8E308	**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_CARR15 [n]**			X component of offset vector l3			**reference:**	
description:								
$TC_CARR15[n]								
X component of offset vector l3								
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.							
unit:	mm							
min.:	-1,8E308		**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**		
read:	X	-	7	X	7	-		
write:	X	-	7	X	7	-		
axis identifier:					**Valuation:**	channel-specific		
block search	Not classified				**link**	No restrictions		

DOUBLE	**$TC_CARR16 [n]**			Y component of offset vector l3			**reference:**	
description:								
$TC_CARR16[n]								
Y component of offset vector l3								
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.							
unit:	mm							
min.:	-1,8E308		**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**		
read:	X	-	7	X	7	-		
write:	X	-	7	X	7	-		
axis identifier:					**Valuation:**	channel-specific		
block search	Not classified				**link**	No restrictions		

DOUBLE	**$TC_CARR17 [n]**			Z component of offset vector l3			**reference:**	
description:								
$TC_CARR17[n]								
Z component of offset vector l3								
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.							
unit:	mm							
min.:	-1,8E308		**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**		
read:	X	-	7	X	7	-		

write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_CARR18 [n]**			X component of offset vector l4		**reference:**	
description:							
$TC_CARR18[n]							
X component of offset vector l4							
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.						
unit:	mm						
min.:	-1,8E308	**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_CARR19 [n]**			Y component of offset vector l4		**reference:**	
description:							
$TC_CARR19[n]							
Y component of offset vector l4							
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.						
unit:	mm						
min.:	-1,8E308	**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_CARR20 [n]**			Z component of offset vector l4		**reference:**	
description:							
$TC_CARR20[n]							
Z component of offset vector l4							
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.						
unit:	mm						
min.:	-1,8E308	**max.:**	1,8E308		**std:**	0.0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

AXIS	**$TC_CARR21 [n]**	Axis identifier of 1st rotary axis	**reference:**	

description:

$TC_CARR21[n]

Axis identifier of 1st rotary axis

Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.			
unit:	-			
min.:		**max.:**	**std:**	GEOAXISNUM

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

AXIS	**$TC_CARR22 [n]**	Axis identifier of 2nd rotary axis	**reference:**	

description:

$TC_CARR22[n]

Axis identifier of 2nd rotary axis

Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.			
unit:	-			
min.:		**max.:**	**std:**	GEOAXISNUM

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

CHAR	**$TC_CARR23 [n]**	Kinematic type	**reference:**	

description:

$TC_CARR23[n]

Type of kinematics: P: Rotatable workpiece (Part)

M: Rotatable tool and rotatable workpiece (Mixed) T or any other character apart from P and M: Rotatable tool							
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = T; i.e. the tool carrier with orientable tool.						
unit:	-						
min.:	0	**max.:**	255		**std:**		'T'
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_CARR24 [n]**			Offset of 1st rotary axis in degrees		**reference:**	
description: $TC_CARR24[n] Offset of 1st rotary axis in degrees Specifies the angle in degrees of the 1st rotary axis at which the axis assumes its initial position.							
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.						
unit:	-						
min.:	-1,8E308	**max.:**	1,8E308		**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_CARR25 [n]**			Offset of 2nd rotary axis in degrees		**reference:**	
description: $TC_CARR25[n] Offset of 2nd rotary axis in degrees Specifies the angle in degrees of the 2nd rotary axis at which the axis assumes its initial position.							
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.						
unit:	-						
min.:	-1,8E308	**max.:**	1,8E308		**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_CARR26 [n]**	Offset of 1st rotary axis with Hirth teeth	**reference:**	

description:

$TC_CARR26[n]

Specifies the offset of the 1st rotary axis if its position is not continuously variable (Hirth tooth system).

This variable is evaluated only if $TC_CARR28 is set to a value other than zero.

For exact meanings, please refer to the description of $TC_CARR28

Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:				**Valuation:**	channel-specific
block search	Not classified			**link**	No restrictions

DOUBLE	**$TC_CARR27 [n]**	Offset of 2nd rotary axis with Hirth teeth	**reference:**	

description:

$TC_CARR27[n]

Specifies the offset of the 2nd rotary axis if its position is not continuously variable (Hirth tooth system).

This variable is evaluated only if $TC_CARR29 is set to a value other than zero.

For exact meanings, please refer to the description of $TC_CARR29

Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:				**Valuation:**	channel-specific
block search	Not classified			**link**	No restrictions

DOUBLE	**$TC_CARR28 [n]**	Minimum incremental step of 1st rotary axis	**reference:**	

description:

$TC_CARR28[n]

Specifies the size of the minimum increment (in degrees) by which the 1st rotary axis can change position (e.g. with Hirth tooth systems).

A programmed or calculated angle is rounded to the nearest value calculated from phi = s + n * d when n is an integer.

In this equation
s = $TC_CARR28
d = $TC_CARR26
If $TC_CARR28 equals zero, $TC_CARR26 and $TC_CARR28 are not used.
The settings in machine data
$MC_TOCARR_ROT_ANGLE_INCR[i] and $MC_TOCARR_ROT_ANGLE_OFFSET[i]
are applied instead.

Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.						
unit:	-						
min.:	-1,8E308	**max.:**	1,8E308		**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_CARR29 [n]**	Minimum incremental step of 2nd rotary axis	**reference:**	

description:
$TC_CARR29[n]
Specifies the size of the minimum increment (in degrees) by which the 2nd rotary axis can change position (e.g. with Hirth tooth systems).
A programmed or calculated angle is rounded to the nearest value
calculated from phi = s + n * d when n
is an integer.
In this equation
s = $TC_CARR29
d = $TC_CARR27
If $TC_CARR29 equals zero, $TC_CARR27 and $TC_CARR29 are not used.
The settings in machine data
$MC_TOCARR_ROT_ANGLE_INCR[i] and $MC_TOCARR_ROT_ANGLE_OFFSET[i]
are applied instead.

Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.						
unit:	-						
min.:	-1,8E308	**max.:**	1,8E308		**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_CARR30 [n]**	Minimum position of 1st rotary axis	**reference:**	

description:

$TC_CARR30[n]

Specifies the minimum position of the 1st rotary axis. For full description, see $TC_CARR32

Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:				**Valuation:**	channel-specific	
block search	Not classified			**link**	No restrictions	

DOUBLE	**$TC_CARR31 [n]**	Minimum position of 2nd rotary axis	**reference:**	

description:

$TC_CARR31[n]

Specifies the minimum position of the 2nd rotary axis. For full description, see $TC_CARR33

Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:				**Valuation:**	channel-specific	
block search	Not classified			**link**	No restrictions	

DOUBLE	**$TC_CARR32 [n]**	Maximum position of 1st rotary axis	**reference:**	

description:

$TC_CARR32[n]

Specifies the maximum position of the 1st rotary axis.

When the angle of the 1st rotary axis of an orientable tool carrier aligned according to a frame (TCOFR) is calculated, the only acceptable solutions are those which lie within the $TC_CARR30 to $TC_CARR32 range.

The same applies when the rotary angle is programmed absolutely (TCOABS).

The limits are not evaluated if both $TC_CARR30 and $TC_CARR32 equal zero.

Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_CARR33 [n]**	Maximum position of 2nd rotary axis	**reference:**	

description:

$TC_CARR33[n]

Specifies the maximum position of the 2nd rotary axis.

When the angle of the 2nd rotary axis of an orientable tool carrier aligned according to a frame (TCOFR) is calculated, the only acceptable solutions are those which lie within the $TC_CARR31 to $TC_CARR33 range.

The same applies when the rotary angle is programmed absolutely (TCOABS).

The limits are not evaluated if both $TC_CARR31 and $TC_CARR33 equal zero.

Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.				
unit:	-				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

STRING	**$TC_CARR34 [n]**	Freely usable string (tool carrier name)	**reference:**	

description:

$TC_CARR34[n]

Contains a freely definable string. This is provided as a free identifier for the orientable tool carrier.

However, it currently has no significance within the NCK, and is therefore not evaluated.

This identifier should not be used for other purposes as it may be used in a future upgrade to allow the activation of an orientable tool carrier via a name rather than a number.

Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.				
Index 3:	Max. string length				
unit:	-				
min.:		**max.:**		**std:**	""

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	

write:	X	-	7		X	7	-
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

STRING	**$TC_CARR35 [n]**			Freely available string (1st rotary axis name)		**reference:**	
description:							
$TC_CARR35[n]							
Contains a freely definable string. This is provided as a free identifier for the first rotary axis.							
Within the NCK, however, it has no significance at all and is therefore not evaluated.							
It can also be used for any other purpose.							
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.						
Index 3:	Max. string length						
unit:	-						
min.:		**max.:**			**std:**	""	
Properties with regard to reading/writing:							

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

STRING	**$TC_CARR36 [n]**			Freely available string (2nd rotary axis name)		**reference:**	
description:							
$TC_CARR36[n]							
Contains a freely definable string. This is provided as a free identifier for the second rotary axis.							
Within the NCK, however, it has no significance at all and is therefore not evaluated.							
It can also be used for any other purpose.							
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.						
Index 3:	Max. string length						
unit:	-						
min.:		**max.:**			**std:**	""	
Properties with regard to reading/writing:							

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_CARR37 [n]**			Freely available numeric identifier (tool carrier number)		**reference:**	
description:							
$TC_CARR37[n]							
Contains an integer number for identifying the toolholder.							
Within the NCK, however, it has no significance at all and is therefore not evaluated.							
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.						
unit:	-						
min.:	-2147483648	**max.:**	2147483647	**std:**	0		
Properties with regard to reading/writing:							

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:				**Valuation:**	channel-specific	
block search	Not classified			**link**	No restrictions	

DOUBLE	**$TC_CARR38 [n]**			Freely available position value (X position)		**reference:**	
description:							
$TC_CARR38[n]							
Contains a position (X component of retraction position)							
Within the NCK, however, it has no significance at all and is therefore not evaluated.							
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.						
unit:	mm						
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0		
Properties with regard to reading/writing:							

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:				**Valuation:**	channel-specific	
block search	Not classified			**link**	No restrictions	

DOUBLE	**$TC_CARR39 [n]**			Freely available position value (Y position)		**reference:**	
description:							
$TC_CARR39[n]							
Contains a position (Y component of retraction position)							
Within the NCK, however, it has no significance at all and is therefore not evaluated.							
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.						
unit:	mm						
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0		

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_CARR40 [n]**	Freely available position value (Z position)	**reference:**	

description:

$TC_CARR40[n]

Contains a position (Z component of retraction position)

Within the NCK, however, it has no significance at all and is therefore not evaluated.

Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.				
unit:	mm				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_CARR41 [n]**	Fine offset X of the offset vector l1	**reference:**	

description:

$TC_CARR41[n]

X component of fine offset of offset vector l1

Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.				
unit:	mm				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_CARR42 [n]**	Fine offset Y of the offset vector l1	**reference:**	

description:

$TC_CARR42[n]

Y component of fine offset of offset vector l1

Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.						
unit:	mm						
min.:	-1,8E308	**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_CARR43 [n]**	Fine offset Z of the offset vector l1	**reference:**	

description:

$TC_CARR43[n]

Z component of fine offset of offset vector l1

Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.						
unit:	mm						
min.:	-1,8E308	**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_CARR44 [n]**	Fine offset X of the offset vector l2	**reference:**	

description:

$TC_CARR44[n]

X component of fine offset of offset vector l2

Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.						
unit:	mm						
min.:	-1,8E308	**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_CARR45 [n]**	Fine offset Y of the offset vector l2	**reference:**	

description:

$TC_CARR45[n]

Y component of fine offset of offset vector l2

Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
unit:	mm					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:		**Valuation:**	channel-specific
block search	Not classified	**link**	No restrictions

DOUBLE	**$TC_CARR46 [n]**	Fine offset Z of the offset vector l2	**reference:**	

description:

$TC_CARR46[n]

Z component of fine offset of offset vector l2

Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
unit:	mm					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:		**Valuation:**	channel-specific
block search	Not classified	**link**	No restrictions

DOUBLE	**$TC_CARR55 [n]**	Fine offset X of the offset vector l3	**reference:**	

description:

$TC_CARR55[n]

X component of fine offset of offset vector l3

Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.					
unit:	mm					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	

write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_CARR56 [n]**			Fine offset Y of the offset vector l3		**reference:**	
description:							
$TC_CARR56[n]							
Y component of fine offset of offset vector l3							
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.						
unit:	mm						
min.:	-1,8E308	**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_CARR57 [n]**			Fine offset Z of the offset vector l3		**reference:**	
description:							
$TC_CARR57[n]							
Z component of fine offset of offset vector l3							
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.						
unit:	mm						
min.:	-1,8E308	**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_CARR58 [n]**			Fine offset X of the offset vector l4		**reference:**	
description:							
$TC_CARR58[n]							
X component of fine offset of offset vector l4							
Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.						
unit:	mm						
min.:	-1,8E308	**max.:**	1,8E308		**std:**	0.0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_CARR59 [n]**	Fine offset Y of the offset vector l4	**reference:**	

description:

$TC_CARR59[n]

Y component of fine offset of offset vector l4

Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.				
unit:	mm				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_CARR60 [n]**	Fine offset Z of the offset vector l4	**reference:**	

description:

$TC_CARR60[n]

Z component of fine offset of offset vector l4

Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.				
unit:	mm				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_CARR64 [n]**	Fine offset of 1st rotary axis v1	**reference:**	

description:

$TC_CARR64[n]

Fine offset of offset ($TC_CARR24) of 1st rotary axis in degrees

Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.						
unit:	-						
min.:	-1,8E308	**max.:**	1,8E308		**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_CARR65 [n]**	Fine offset of 2nd rotary axis v2	**reference:**
description:			
$TC_CARR65[n]			
Fine offset of offset ($TC_CARR25) of 2nd rotary axis in degrees			

Index 1:	The max. number of tool carriers can be set via the machine data. Default value = 0; i.e. NCK has no such data.						
unit:	-						
min.:	-1,8E308	**max.:**	1,8E308		**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

1.7 Channel-specific protect

BOOL	**$SC_PA_ACTIV_IMMED [n]**	Protection zone immediately active	**reference:**
description:			
$SC_PA_ACTIV_IMMED[n]			
Protection zone immediately active after boot			
TRUE: The protection zone is activated immediately the control has booted and the axes have been referenced			
FALSE: The protection zone is not immediately active			
Note: This variable can only be written as a system variable and is not affected by the NC commands between NPROTDEF(..) and EXECUTE(n).			
Note: This variable is not restored during REORG.			
Note: This variable is saved during data backup.			
Blocks: _N_NCK_PRO, _N_COMPLETE_PRO and _N_INITIAL_INI			

Index 1:	n: Number of the protection area The maximum dimension is defined via the MD $MC_MM_NUM_PROTECT_AREA_CHAN.	
unit:	-	

min.:		FALSE	**max.:**	TRUE	**std:**		FALSE
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

CHAR	**$SC_PA_T_W [n]**	Protection zone specific to workpiece/tool	**reference:**	

description:

$SC_PA_T_W[n]

Protection zone specific to workpiece/tool

0: Workpiece-specific protection zone

3: Tool-specific protection zone

Note: This variable is not restored during REORG.

Note: This variable is saved during data backup.

Blocks: _N_CHAx_PRO, _N_COMPLETE_PRO and _N_INITIAL_INI
CHAx: x=channel no.

Index 1:		n: Number of the protection area The maximum dimension is defined via the MD $MC_MM_NUM_PROTECT_AREA_CHAN.					
unit:		-					
min.:		0	**max.:**	3	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

INT	**$SC_PA_ORI [n]**	Orientation of protection zone	**reference:**	

description:

$SC_PA_ORI[n]

Orientation of protection zone

0: Polygon definition in the plane from the 1st and 2nd geo axes (G17)

1: Polygon definition in the plane from the 3rd and 1st geo axes (G18)

2: Polygon definition in the plane from the 2nd and 3rd geo axes (G19)

Note: This variable is not restored during REORG.

Note: This variable is saved during data backup.

Blocks: _N_CHAx_PRO, _N_COMPLETE_PRO and _N_INITIAL_INI
CHAx: x=channel no.

Index 1:	n: Number of the protection area The maximum dimension is defined via the MD $MC_MM_NUM_PROTECT_AREA_CHAN.					
unit:	-					
min.:	0	**max.:**	2	**std:**		0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$SC_PA_LIM_3DIM [n]**	Scope of application-limiting protection zone	**reference:**	

description:

$SC_PA_LIM_3DIM[n]

Identifier for limitation of protection zone in the axis perpendicular to the polygon definition

0: No limitation

1: Limitation in the positive direction

2: Limitation in the negative direction

3: Limitation in both directions

Note: This variable is not restored during REORG.

Note: This variable is saved during data backup.

Blocks: _N_CHAx_PRO, _N_COMPLETE_PRO and _N_INITIAL_INI

CHAx: x=channel no.

Index 1:	n: Number of the protection area The maximum dimension is defined via the MD $MC_MM_NUM_PROTECT_AREA_CHAN.				
unit:	-				
min.:	0	**max.:**	3	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$SC_PA_PLUS_LIM [n]**	Limitation of protection zone applicate plus	**reference:**	

description:

$SC_PA_PLUS_LIM[n]

Positive limitation of protection zones in the axis perpendicular to the polygon definition.

Effective only if $SC_PA_LIM_3DIM[n]=1 or = 3.

Note: This variable is not restored during REORG.

Note: This variable is saved during data backup.

Blocks: _N_CHAx_PRO, _N_COMPLETE_PRO and _N_INITIAL_INI

CHAx: x=channel no.

Index 1:	n: Number of the protection area The maximum dimension is defined via the MD $MC_MM_NUM_PROTECT_AREA_CHAN.				
unit:	mm				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$SC_PA_MINUS_LIM [n]**	Limitation of protection zone applicate minus	**reference:**	

description:

$SC_PA_MINUS_LIM[n]

Negative limitation of protection zone in minus direction in the axis perpendicular to the polygon definition

Effective only if $SC_PA_LIM_3DIM[n]=2 or = 3.

Note: This variable is not restored during REORG.

Note: This variable is saved during data backup.

Blocks: _N_CHAx_PRO, _N_COMPLETE_PRO and _N_INITIAL_INI

CHAx: x=channel no.

Index 1:	n: Number of the protection area The maximum dimension is defined via the MD $MC_MM_NUM_PROTECT_AREA_CHAN.				
unit:	mm				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$SC_PA_CONT_NUM [n]**	Number of valid contour elements	**reference:**	

description:

$SC_PA_CONT_NUM[n]

Number of valid contour elements

Protection zones need at least 2 contour elements for a complete description.

Note: This variable is not restored during REORG.

Note: This variable is saved during data backup.

Blocks: _N_CHAx_PRO, _N_COMPLETE_PRO and _N_INITIAL_INI

CHAx: x=channel no.

Index 1:	n: Number of the protection area The maximum dimension is defined via the MD $MC_MM_NUM_PROTECT_AREA_CHAN.				
unit:	-				
min.:	0	**max.:**	10	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	

read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$SC_PA_CONT_TYP [n,m]**	Type of the contour element	**reference:**	

description:

$SC_PA_CONT_TYP"[n,m]

Type (G1, G2, G3) of contour element

=0: Contour not defined

=1: Straight

=2: Circle element (clockwise)

=3: Circle element (counterclockwise)

The end point is determined by $SC_PA_CONT_ORD or $SC_PA_CONT_ABS. With contour types G2 and G3, $SC_PA_CENT_ORD or $SC_PA_CENT_ABS determines the center point of the circle element.

Note: This variable is not restored during REORG.

Note: This variable is saved during data backup.

Blocks: _N_CHAx_PRO, _N_COMPLETE_PRO and _N_INITIAL_INI

CHAx: x=channel no.

Index 1:	n: Number of the protection area The maximum dimension is defined via the MD $MC_MM_NUM_PROTECT_AREA_CHAN.				
Index 2:	m: Number of the contour element (0 - MAXNUM_CONTOURNO_PROTECTAREA)				
unit:	-				
min.:	0	**max.:**	3	**std:**	0

Properties with regard to reading/writing:

	PP	SA	PP/SA protection level	OPI	OPI protection level	OEM	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$SC_PA_CONT_ORD [n,m]**	End point of contour element (ordinate)	**reference:**	

description:

$SC_PA_CONT_ORD[n,m]

End point of contour element (ordinate)

See also description of $SC_PA_CONT_TYP

Note: This variable is not restored during REORG.

Note: This variable is saved during data backup.

Blocks: _N_CHAx_PRO, _N_COMPLETE_PRO and _N_INITIAL_INI

CHAx: x=channel no.

Index 1:	n: Number of the protection area The maximum dimension is defined via the MD $MC_MM_NUM_PROTECT_AREA_CHAN.		
Index 2:	m: Number of the contour element (0 - MAXNUM_CONTOURNO_PROTECTAREA)		
unit:	mm		

min.:		-1,8E308	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$SC_PA_CONT_ABS [n,m]**	End point of contour element (abscissa)	**reference:**	

description:

$SC_PA_CONT_ABS[n,m]

End point of contour element (abscissa)

See also description of $SC_PA_CONT_TYP

Note: This variable is not restored during REORG.

Note: This variable is saved during data backup.

Blocks: _N_CHAx_PRO, _N_COMPLETE_PRO and _N_INITIAL_INI

CHAx: x=channel no.

Index 1:		n: Number of the protection area The maximum dimension is defined via the MD $MC_MM_NUM_PROTECT_AREA_CHAN.					
Index 2:		m: Number of the contour element (0 - MAXNUM_CONTOURNO_PROTECTAREA)					
unit:		mm					
min.:		-1,8E308	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$SC_PA_CENT_ORD [n,m]**	Center point of contour element (ordinate)	**reference:**	

description:

$SC_PA_CENT_ORD[n,m]

Center point of contour element (ordinate)

Relevant only if $SC_PA_CONT_TYP[n,m] = 2 or = 3.

Note: This variable is not restored during REORG.

Note: This variable is saved during data backup.

Blocks: _N_CHAx_PRO, _N_COMPLETE_PRO and _N_INITIAL_INI

CHAx: x=channel no.

Index 1:		n: Number of the protection area The maximum dimension is defined via the MD $MC_MM_NUM_PROTECT_AREA_CHAN.					
Index 2:		m: Number of the contour element (0 - MAXNUM_CONTOURNO_PROTECTAREA)					
unit:		mm					
min.:		-1,8E308	**max.:**	1,8E308	**std:**		0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$SC_PA_CENT_ABS [n,m]**	Center point of contour element (abscissa)	**reference:**	

description:
$SC_PA_CENT_ABS[n,m]
Center point of contour element (abscissa)
Relevant only if $SC_PA_CONT_TYP[n,m] = 2 or = 3.
Note: This variable is not restored during REORG.
Note: This variable is saved during data backup.
Blocks: _N_CHAx_PRO, _N_COMPLETE_PRO and _N_INITIAL_INI
CHAx: x=channel no.

Index 1:	n: Number of the protection area The maximum dimension is defined via the MD $MC_MM_NUM_PROTECT_AREA_CHAN.				
Index 2:	m: Number of the contour element (0 - MAXNUM_CONTOURNO_PROTECTAREA)				
unit:	mm				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

1.8 Tool parameters

INT	**$TC_DP1 [32000,32000]**	-	**reference:**	

description:
$TC_DP1[t,d]
Tool type
When the 'flat D number management' function is active, the syntax is as follows:
$TC_DP1[d]

Index 1:	t: T number 1 - 32000				
Index 2:	d: Cutting edge number / D number 1 - 32000				
unit:	-				
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_DP2 [32000,32000]**	-	**reference:**	

description:

$TC_DP2[t,d]

Tool point direction

When the 'flat D number management' function is active, the syntax is as follows:

$TC_DP2[d]

Index 1:	t: T number 1 - 32000				
Index 2:	d: Cutting edge number / D number 1 - 32000				
unit:	-				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_DP3 [32000,32000]**	-	**reference:**	

description:

$TC_DP3[t,d]

Geometry - length 1

When the 'flat D number management' function is active, the syntax is as follows:

$TC_DP3[d]

Index 1:	t: T number 1 - 32000				
Index 2:	d: Cutting edge number / D number 1 - 32000				
unit:	mm				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_DP4 [32000,32000]**	-	**reference:**	

description:
$TC_DP4[t,d]
Geometry - length 2
When the 'flat D number management' function is active, the syntax is as follows:
$TC_DP4[d]

Index 1:	t: T number 1 - 32000					
Index 2:	d: Cutting edge number / D number 1 - 32000					
unit:	mm					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:					**Valuation:**	channel-specific
block search	Not classified				**link**	No restrictions

DOUBLE	**$TC_DP5 [32000,32000]**	-	**reference:**	

description:
$TC_DP5[t,d]
Geometry - length 3
When the 'flat D number management' function is active, the syntax is as follows:
$TC_DP5[d]

Index 1:	t: T number 1 - 32000					
Index 2:	d: Cutting edge number / D number 1 - 32000					
unit:	mm					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:					**Valuation:**	channel-specific
block search	Not classified				**link**	No restrictions

DOUBLE	**$TC_DP6 [32000,32000]**	-	**reference:**	

description:
$TC_DP6[t,d]
Geometry - radius
When the 'flat D number management' function is active, the syntax is as follows:
$TC_DP6[d]

Index 1:	t: T number 1 - 32000
Index 2:	d: Cutting edge number / D number 1 - 32000

unit:		mm					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$TC_DP7 [32000,32000]**	-	**reference:**	
description:				
$TC_DP7[t,d]				
Slotting saw: Corner radius				
When the 'flat D number management' function is active, the syntax is as follows:				
$TC_DP7[d]				

Index 1:		t: T number 1 - 32000					
Index 2:		d: Cutting edge number / D number 1 - 32000					
unit:		mm					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$TC_DP8 [32000,32000]**	-	**reference:**	
description:				
$TC_DP8[t,d]				
Slotting saw: Length				
When the 'flat D number management' function is active, the syntax is as follows:				
$TC_DP8[d]				

Index 1:		t: T number 1 - 32000					
Index 2:		d: Cutting edge number / D number 1 - 32000					
unit:		mm					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$TC_DP9 [32000,32000]**	-	**reference:**	

description:
$TC_DP9[t,d]
Reserved
When the 'flat D number management' function is active, the syntax is as follows:
$TC_DP9[d]

Index 1:	t: T number 1 - 32000					
Index 2:	d: Cutting edge number / D number 1 - 32000					
unit:	mm					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:					**Valuation:**	channel-specific
block search	Not classified				**link**	No restrictions

DOUBLE	**$TC_DP10 [32000,32000]**	-	**reference:**	

description:
$TC_DP10[t,d]
Angle between tool face and toroidal surface
When the 'flat D number management' function is active, the syntax is as follows:
$TC_DP10[d]

Index 1:	t: T number 1 - 32000					
Index 2:	d: Cutting edge number / D number 1 - 32000					
unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:					**Valuation:**	channel-specific
block search	Not classified				**link**	No restrictions

DOUBLE	**$TC_DP11 [32000,32000]**	-	**reference:**	

description:
$TC_DP11[t,d]
Angle between tool longitudinal axis and upper end of toroidal surface
When the 'flat D number management' function is active, the syntax is as follows:
$TC_DP11[d]

Index 1:	t: T number 1 - 32000
Index 2:	d: Cutting edge number / D number 1 - 32000

unit:		-					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$TC_DP12 [32000,32000]**		-			**reference:**	
description:							
$TC_DP12[t,d]							
Wear - length 1 - $TC_DP3							
When the 'flat D number management' function is active, the syntax is as follows:							
$TC_DP12[d]							
Index 1:		t: T number 1 - 32000					
Index 2:		d: Cutting edge number / D number 1 - 32000					
unit:		mm					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$TC_DP13 [32000,32000]**		-			**reference:**	
description:							
$TC_DP13[t,d]							
Wear - length 2 - $TC_DP4							
When the 'flat D number management' function is active, the syntax is as follows:							
$TC_DP13[d]							
Index 1:		t: T number 1 - 32000					
Index 2:		d: Cutting edge number / D number 1 - 32000					
unit:		mm					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$TC_DP14 [32000,32000]**	-	**reference:**	

description:
$TC_DP14[t,d]
Wear - length 3 - $TC_DP5
When the 'flat D number management' function is active, the syntax is as follows:
$TC_DP14[d]

Index 1:	t: T number 1 - 32000					
Index 2:	d: Cutting edge number / D number 1 - 32000					
unit:	mm					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:					**Valuation:**	channel-specific
block search	Not classified				**link**	No restrictions

DOUBLE	**$TC_DP15 [32000,32000]**	-	**reference:**	

description:
$TC_DP15[t,d]
Wear - radius - $TC_DP6
When the 'flat D number management' function is active, the syntax is as follows:
$TC_DP15[d]

Index 1:	t: T number 1 - 32000					
Index 2:	d: Cutting edge number / D number 1 - 32000					
unit:	mm					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:					**Valuation:**	channel-specific
block search	Not classified				**link**	No restrictions

DOUBLE	**$TC_DP16 [32000,32000]**	-	**reference:**	

description:
$TC_DP16[t,d]
Slotting saw: Wear - corner radius - $TC_DP7
When the 'flat D number management' function is active, the syntax is as follows:
$TC_DP16[d]

Index 1:	t: T number 1 - 32000
Index 2:	d: Cutting edge number / D number 1 - 32000

unit:		mm					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$TC_DP17 [32000,32000]**	-	**reference:**	
description:				
$TC_DP17[t,d]				
Slotting saw: Wear length - $TC_DP8				
When the 'flat D number management' function is active, the syntax is as follows:				
$TC_DP17[d]				

Index 1:		t: T number 1 - 32000					
Index 2:		d: Cutting edge number / D number 1 - 32000					
unit:		mm					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$TC_DP18 [32000,32000]**	-	**reference:**	
description:				
$TC_DP18[t,d]				
Wear - reserved - $TC_DP9				
When the 'flat D number management' function is active, the syntax is as follows:				
$TC_DP18[d]				

Index 1:		t: T number 1 - 32000					
Index 2:		d: Cutting edge number / D number 1 - 32000					
unit:		mm					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$TC_DP19 [32000,32000]**	-	**reference:**	

description:
$TC_DP19[t,d]
Wear - angle between tool face and toroidal surface - $TC_DP10
When the 'flat D number management' function is active, the syntax is as follows:
$TC_DP19[d]

Index 1:	t: T number 1 - 32000					
Index 2:	d: Cutting edge number / D number 1 - 32000					
unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:				**Valuation:**	channel-specific
block search	Not classified			**link**	No restrictions

DOUBLE	**$TC_DP20 [32000,32000]**	-	**reference:**	

description:
$TC_DP20[t,d]
Wear - angle between tool longitudinal axis and upper end of toroidal surface - $TC_DP11
When the 'flat D number management' function is active, the syntax is as follows:
$TC_DP20[d]

Index 1:	t: T number 1 - 32000					
Index 2:	d: Cutting edge number / D number 1 - 32000					
unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:				**Valuation:**	channel-specific
block search	Not classified			**link**	No restrictions

DOUBLE	**$TC_DP21 [32000,32000]**	-	**reference:**	

description:
$TC_DP21[t,d]
Basis - length 1
When the 'flat D number management' function is active, the syntax is as follows:
$TC_DP21[d]

Index 1:	t: T number 1 - 32000
Index 2:	d: Cutting edge number / D number 1 - 32000

unit:		mm					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$TC_DP22 [32000,32000]**	-	**reference:**	
description:				
$TC_DP22[t,d]				
Basis - length 2				
When the 'flat D number management' function is active, the syntax is as follows:				
$TC_DP22[d]				

Index 1:		t: T number 1 - 32000					
Index 2:		d: Cutting edge number / D number 1 - 32000					
unit:		mm					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$TC_DP23 [32000,32000]**	-	**reference:**	
description:				
$TC_DP23[t,d]				
Basis - length 3				
When the 'flat D number management' function is active, the syntax is as follows:				
$TC_DP23[d]				

Index 1:		t: T number 1 - 32000					
Index 2:		d: Cutting edge number / D number 1 - 32000					
unit:		mm					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$TC_DP24 [32000,32000]**	-	**reference:**	

description:
$TC_DP24[t,d]
Clearance angle
When the 'flat D number management' function is active, the syntax is as follows:
$TC_DP24[d]

Index 1:	t: T number 1 - 32000					
Index 2:	d: Cutting edge number / D number 1 - 32000					
unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:					**Valuation:**	channel-specific
block search	Not classified				**link**	No restrictions

DOUBLE	**$TC_DP25 [32000,32000]**	-	**reference:**	

description:
$TC_DP25[t,d]
Reserved
When the 'flat D number management' function is active, the syntax is as follows:
$TC_DP25[d]

Index 1:	t: T number 1 - 32000					
Index 2:	d: Cutting edge number / D number 1 - 32000					
unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:					**Valuation:**	channel-specific
block search	Not classified				**link**	No restrictions

INT	**$TC_DPCE [32000,32000]**	-	**reference:**	

description:
$TC_DPCE[t,d] = 'cutting edge number' of compensation data block t,d
When the 'flat D number management' function is active, the syntax is as follows:
$TC_DPCE[d]
CE stands for <C>utting<E>dge
Value range of legal 'cutting edge numbers':
1 up to value of machine data $MN_MM_MAX_CUTTING_EDGE_PERTOOL.

Index 1:	t: T number 1 - 32000						
Index 2:	d: Cutting edge number / D number 1 - 32000						
unit:	-						
min.:	-2147483648	**max.:**	2147483647	**std:**	0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_DPH [32000,32000]**	-	**reference:**	

description:

$TC_DPH[t,d] = 'H cutting edge number' of compensation data block t,d for Fanuc0 M

When the 'flat D number management' function is active, the syntax is as follows:

$TC_DPH[d]

An alarm is issued if this variable is used with the function "ISO2.1 mode" or "ISO3.1 mode" inactive.

Index 1:	t: T number 1 - 32000						
Index 2:	d: Cutting edge number / D number 1 - 32000						
unit:	-						
min.:	-2147483648	**max.:**	2147483647	**std:**	0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_DPV [32000,32000]**	-	**reference:**	

description:

$TC_DPV[t,d] = tool cutting edge orientation

When the 'flat D number management' function is active, the syntax is as follows:

$TC_DPV[d]

Index 1:	t: T number 1 - 32000						
Index 2:	d: Cutting edge number / D number 1 - 32000						
unit:	-						
min.:	-2147483648	**max.:**	2147483647	**std:**	0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_DPV3 [32000,32000]**	-	**reference:**	

description:
$TC_DPV3[t,d] = L1 component of tool cutting edge orientation
When the 'flat D number management' function is active, the syntax is as follows:
$TC_DPV3[d]

Index 1:	t: T number 1 - 32000				
Index 2:	d: Cutting edge number / D number 1 - 32000				
unit:	-				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:		**Valuation:**	channel-specific
block search	Not classified	**link**	No restrictions

DOUBLE	**$TC_DPV4 [32000,32000]**	-	**reference:**	

description:
$TC_DPV4[t,d] = L2 component of tool cutting edge orientation
When the 'flat D number management' function is active, the syntax is as follows:
$TC_DPV4[d]

Index 1:	t: T number 1 - 32000				
Index 2:	d: Cutting edge number / D number 1 - 32000				
unit:	-				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:		**Valuation:**	channel-specific
block search	Not classified	**link**	No restrictions

DOUBLE	**$TC_DPV5 [32000,32000]**	-	**reference:**	

description:
$TC_DPV5[t,d] = L3 component of tool cutting edge orientation
When the 'flat D number management' function is active, the syntax is as follows:
$TC_DPV5[d]

Index 1:	t: T number 1 - 32000				
Index 2:	d: Cutting edge number / D number 1 - 32000				
unit:	-				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_DPVN3 [32000,32000]**	L1 component of the orientation normal	**reference:**	

description:

$TC_DPVN3[t,d] = L1 component of the orientation normal of the tool cutting edge.

If the function 'flat D-number management' is active, the syntax is as follows:

$TC_DPVN3[d]

Index 1:	t: T number 1 - 32000				
Index 2:	d: Cutting edge number / D number 1 - 32000				
unit:	-				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_DPVN4 [32000,32000]**	L2 component of the orientation normal	**reference:**	

description:

$TC_DPVN4[t,d] = L2 component of the orientation normal of the tool cutting edge.

If the function 'flat D-number management' is active, the syntax is as follows:

$TC_DPVN4[d]

Index 1:	t: T number 1 - 32000				
Index 2:	d: Cutting edge number / D number 1 - 32000				
unit:	-				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_DPVN5 [32000,32000]**			L3 component of the orientation normal			**reference:**	
description: $TC_DPVN5[t,d] = L3 component of the orientation normal of the tool cutting edge. If the function 'flat D-number management' is active, the syntax is as follows: $TC_DPVN5[d]								
Index 1:	t: T number 1 - 32000							
Index 2:	d: Cutting edge number / D number 1 - 32000							
unit:	-							
min.:	-1,8E308		**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**		**OEM**	
read:	X	-	7	X	7		-	
write:	X	-	7	X	7		-	
axis identifier:					**Valuation:**		channel-specific	
block search	Not classified				**link**		No restrictions	

INT	**$TC_DPNT [32000,32000]**			Number of teeth on this cutting edge			**reference:**	
description: $TC_DPNT[t,d] Number of teeth in the cutting edge with active function 'flat D number management' the syntax is as follows: $TC_DPNT[d]								
Index 1:	t: T number 1 - 32000							
Index 2:	d: Cutting edge number / D number 1 - 32000							
unit:	-							
min.:	-2147483648		**max.:**	2147483647		**std:**	0	
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**		**OEM**	
read:	X	-	7	X	7		-	
write:	X	-	7	X	7		-	
axis identifier:					**Valuation:**		channel-specific	
block search	Not classified				**link**		No restrictions	

1.9 Cutting edge data for OEM users

DOUBLE	**$TC_DPC1 [32000,32000]**	-	**reference:**	

description:
The type can be specified by machine data. DOUBLE is the default setting
$TC_DPC1[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_DPC1[d]

Index 1:	t: T number 1 - 32000					
Index 2:	d: Cutting edge number / D number 1 - 32000					
unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:				**Valuation:**	channel-specific	
block search	Not classified			**link**	No restrictions	

DOUBLE	**$TC_DPC2 [32000,32000]**	-	**reference:**	

description:
The type can be specified by machine data. DOUBLE is the default setting
$TC_DPC2[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_DPC2[d]

Index 1:	t: T number 1 - 32000					
Index 2:	d: Cutting edge number / D number 1 - 32000					
unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:				**Valuation:**	channel-specific	
block search	Not classified			**link**	No restrictions	

DOUBLE	**$TC_DPC3 [32000,32000]**	-	**reference:**	

description:
The type can be specified by machine data. DOUBLE is the default setting
$TC_DPC3[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_DPC3[d]

Index 1:	t: T number 1 - 32000

Index 2:	d: Cutting edge number / D number 1 - 32000					
unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:			**Valuation:**	channel-specific	
block search	Not classified		**link**	No restrictions	

DOUBLE	**$TC_DPC4 [32000,32000]**	-	**reference:**	

description:
The type can be specified by machine data. DOUBLE is the default setting
$TC_DPC4[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_DPC4[d]

Index 1:	t: T number 1 - 32000					
Index 2:	d: Cutting edge number / D number 1 - 32000					
unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:			**Valuation:**	channel-specific	
block search	Not classified		**link**	No restrictions	

DOUBLE	**$TC_DPC5 [32000,32000]**	-	**reference:**	

description:
The type can be specified by machine data. DOUBLE is the default setting
$TC_DPC5[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_DPC5[d]

Index 1:	t: T number 1 - 32000					
Index 2:	d: Cutting edge number / D number 1 - 32000					
unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:			**Valuation:**	channel-specific	
block search	Not classified		**link**	No restrictions	

DOUBLE	**$TC_DPC6 [32000,32000]**	-	**reference:**	

description:
The type can be specified by machine data. DOUBLE is the default setting
$TC_DPC6[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_DPC6[d]

Index 1:	t: T number 1 - 32000				
Index 2:	d: Cutting edge number / D number 1 - 32000				
unit:	-				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:		**Valuation:**	channel-specific
block search	Not classified	**link**	No restrictions

DOUBLE	**$TC_DPC7 [32000,32000]**	-	**reference:**	

description:
The type can be specified by machine data. DOUBLE is the default setting
$TC_DPC7[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_DPC7[d]

Index 1:	t: T number 1 - 32000				
Index 2:	d: Cutting edge number / D number 1 - 32000				
unit:	-				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:		**Valuation:**	channel-specific
block search	Not classified	**link**	No restrictions

DOUBLE	**$TC_DPC8 [32000,32000]**	-	**reference:**	

description:
The type can be specified by machine data. DOUBLE is the default setting
$TC_DPC8[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_DPC8[d]

Index 1:	t: T number 1 - 32000
Index 2:	d: Cutting edge number / D number 1 - 32000

unit:		-					
min.:		-1,8E308	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$TC_DPC9 [32000,32000]**	-	**reference:**
description:			
The type can be specified by machine data. DOUBLE is the default setting			
$TC_DPC9[t,d]			
When the 'flat D number management' function is active, the syntax is as follows:			
$TC_DPC9[d]			

Index 1:		t: T number 1 - 32000					
Index 2:		d: Cutting edge number / D number 1 - 32000					
unit:		-					
min.:		-1,8E308	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$TC_DPC10 [32000,32000]**	-	**reference:**
description:			
The type can be specified by machine data. DOUBLE is the default setting			
$TC_DPC10[t,d]			
When the 'flat D number management' function is active, the syntax is as follows:			
$TC_DPC10[d]			

Index 1:		t: T number 1 - 32000					
Index 2:		d: Cutting edge number / D number 1 - 32000					
unit:		-					
min.:		-1,8E308	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$TC_DPCS1 [32000,32000]**	-	**reference:**	

description:
The type can be specified by machine data. DOUBLE is the default setting
$TC_DPCS1[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_DPCS1[d]

Index 1:	t: T number 1 - 32000				
Index 2:	d: Cutting edge number / D number 1 - 32000				
unit:	-				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:		**Valuation:**	channel-specific
block search	Not classified	**link**	No restrictions

DOUBLE	**$TC_DPCS2 [32000,32000]**	-	**reference:**	

description:
The type can be specified by machine data. DOUBLE is the default setting
$TC_DPCS2[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_DPCS2[d]

Index 1:	t: T number 1 - 32000				
Index 2:	d: Cutting edge number / D number 1 - 32000				
unit:	-				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:		**Valuation:**	channel-specific
block search	Not classified	**link**	No restrictions

DOUBLE	**$TC_DPCS3 [32000,32000]**	-	**reference:**	

description:
The type can be specified by machine data. DOUBLE is the default setting
$TC_DPCS3[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_DPCS3[d]

Index 1:	t: T number 1 - 32000
Index 2:	d: Cutting edge number / D number 1 - 32000

unit:		-					
min.:		-1,8E308	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$TC_DPCS4 [32000,32000]**	-	**reference:**

description:
The type can be specified by machine data. DOUBLE is the default setting
$TC_DPCS4[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_DPCS4[d]

Index 1:		t: T number 1 - 32000					
Index 2:		d: Cutting edge number / D number 1 - 32000					
unit:		-					
min.:		-1,8E308	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$TC_DPCS5 [32000,32000]**	-	**reference:**

description:
The type can be specified by machine data. DOUBLE is the default setting
$TC_DPCS5[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_DPCS5[d]

Index 1:		t: T number 1 - 32000					
Index 2:		d: Cutting edge number / D number 1 - 32000					
unit:		-					
min.:		-1,8E308	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$TC_DPCS6 [32000,32000]**	-	**reference:**	

description:
The type can be specified by machine data. DOUBLE is the default setting
$TC_DPCS6[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_DPCS6[d]

Index 1:	t: T number 1 - 32000				
Index 2:	d: Cutting edge number / D number 1 - 32000				
unit:	-				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:		**Valuation:**	channel-specific
block search	Not classified	**link**	No restrictions

DOUBLE	**$TC_DPCS7 [32000,32000]**	-	**reference:**	

description:
The type can be specified by machine data. DOUBLE is the default setting
$TC_DPCS7[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_DPCS7[d]

Index 1:	t: T number 1 - 32000				
Index 2:	d: Cutting edge number / D number 1 - 32000				
unit:	-				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:		**Valuation:**	channel-specific
block search	Not classified	**link**	No restrictions

DOUBLE	**$TC_DPCS8 [32000,32000]**	-	**reference:**	

description:
The type can be specified by machine data. DOUBLE is the default setting
$TC_DPCS8[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_DPCS8[d]

Index 1:	t: T number 1 - 32000
Index 2:	d: Cutting edge number / D number 1 - 32000

unit:		-					
min.:		-1,8E308	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$TC_DPCS9 [32000,32000]**	-	**reference:**
description:			
The type can be specified by machine data. DOUBLE is the default setting			
$TC_DPCS9[t,d]			
When the 'flat D number management' function is active, the syntax is as follows:			
$TC_DPCS9[d]			

Index 1:		t: T number 1 - 32000					
Index 2:		d: Cutting edge number / D number 1 - 32000					
unit:		-					
min.:		-1,8E308	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$TC_DPCS10 [32000,32000]**	-	**reference:**
description:			
The type can be specified by machine data. DOUBLE is the default setting			
$TC_DPCS10[t,d]			
When the 'flat D number management' function is active, the syntax is as follows:			
$TC_DPCS10[d]			

Index 1:		t: T number 1 - 32000					
Index 2:		d: Cutting edge number / D number 1 - 32000					
unit:		-					
min.:		-1,8E308	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$TC_SCP13 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP3: $TC_SCP13[t,d] comparable to $TC_DP12[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_SCP13[d]

Index 1:	t: T number 1 - 32000					
Index 2:	d: Cutting edge number / D number 1 - 32000					
unit:	mm					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:				**Valuation:**	channel-specific	
block search	Not classified			**link**	No restrictions	

DOUBLE	**$TC_SCP14 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP4: $TC_SCP14[t,d] comparable to $TC_DP13[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_SCP14[d]

Index 1:	t: T number 1 - 32000					
Index 2:	d: Cutting edge number / D number 1 - 32000					
unit:	mm					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:				**Valuation:**	channel-specific	
block search	Not classified			**link**	No restrictions	

DOUBLE	**$TC_SCP15 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP5: $TC_SCP15[t,d] comparable to $TC_DP14[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_SCP15[d]

Index 1:	t: T number 1 - 32000					
Index 2:	d: Cutting edge number / D number 1 - 32000					
unit:	mm					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_SCP16 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP6: $TC_SCP16[t,d] comparable to $TC_DP15[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_SCP16[d]

Index 1:	t: T number 1 - 32000				
Index 2:	d: Cutting edge number / D number 1 - 32000				
unit:	mm				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_SCP17 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP7: $TC_SCP17[t,d] comparable to $TC_DP16[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_SCP17[d]

Index 1:	t: T number 1 - 32000				
Index 2:	d: Cutting edge number / D number 1 - 32000				
unit:	mm				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_SCP18 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP8: $TC_SCP18[t,d] comparable to $TC_DP17[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_SCP18[d]

Index 1:	t: T number 1 - 32000					
Index 2:	d: Cutting edge number / D number 1 - 32000					
unit:	mm					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:				**Valuation:**	channel-specific	
block search	Not classified			**link**	No restrictions	

DOUBLE	**$TC_SCP19 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP9: $TC_SCP19[t,d] comparable to $TC_DP18[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_SCP19[d]

Index 1:	t: T number 1 - 32000					
Index 2:	d: Cutting edge number / D number 1 - 32000					
unit:	mm					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:				**Valuation:**	channel-specific	
block search	Not classified			**link**	No restrictions	

DOUBLE	**$TC_SCP20 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP10: $TC_SCP20[t,d] comparable to $TC_DP19[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_SCP20[d]

Index 1:	t: T number 1 - 32000					
Index 2:	d: Cutting edge number / D number 1 - 32000					
unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_SCP21 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP11: $TC_SCP21[t,d] comparable to $TC_DP20[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_SCP21[d]

Index 1:	t: T number 1 - 32000				
Index 2:	d: Cutting edge number / D number 1 - 32000				
unit:	-				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_SCP23 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP3: $TC_SCP23[t,d] comparable to $TC_DP12[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_SCP23[d]

Index 1:	t: T number 1 - 32000				
Index 2:	d: Cutting edge number / D number 1 - 32000				
unit:	mm				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_SCP24 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP4: $TC_SCP24[t,d] comparable to $TC_DP13[t,d]
When the 'flat D number management' function is active, the syntax is as follows: $TC_SCP24[d]

Index 1:	t: T number 1 - 32000					
Index 2:	d: Cutting edge number / D number 1 - 32000					
unit:	mm					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:		**Valuation:**	channel-specific
block search	Not classified	**link**	No restrictions

DOUBLE	**$TC_SCP25 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP5: $TC_SCP25[t,d] comparable to $TC_DP14[t,d]
When the 'flat D number management' function is active, the syntax is as follows: $TC_SCP25[d]

Index 1:	t: T number 1 - 32000					
Index 2:	d: Cutting edge number / D number 1 - 32000					
unit:	mm					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:		**Valuation:**	channel-specific
block search	Not classified	**link**	No restrictions

DOUBLE	**$TC_SCP26 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP6: $TC_SCP26[t,d] comparable to $TC_DP15[t,d]
When the 'flat D number management' function is active, the syntax is as follows: $TC_SCP26[d]

Index 1:	t: T number 1 - 32000					
Index 2:	d: Cutting edge number / D number 1 - 32000					
unit:	mm					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	

write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_SCP27 [32000,32000]**		-		**reference:**	
description:						
Offset for $TC_DP7: $TC_SCP27[t,d] comparable to $TC_DP16[t,d]						
When the 'flat D number management' function is active, the syntax is as follows: $TC_SCP27[d]						
Index 1:	t: T number 1 - 32000					
Index 2:	d: Cutting edge number / D number 1 - 32000					
unit:	mm					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_SCP28 [32000,32000]**		-		**reference:**	
description:						
$TC_SCP28[t,d] comparable to $TC_DP17[t,d]						
When the 'flat D number management' function is active, the syntax is as follows: $TC_SCP28[d]						
Index 1:	t: T number 1 - 32000					
Index 2:	d: Cutting edge number / D number 1 - 32000					
unit:	mm					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_SCP29 [32000,32000]**		-		**reference:**	
description:						
Offset for $TC_DP9: $TC_SCP29[t,d] comparable to $TC_DP18[t,d]						
When the 'flat D number management' function is active, the syntax is as follows: $TC_SCP29[d]						
Index 1:	t: T number 1 - 32000					
Index 2:	d: Cutting edge number / D number 1 - 32000					
unit:	mm					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_SCP30 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP10: $TC_SCP30[t,d] comparable to $TC_DP19[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_SCP30[d]

Index 1:	t: T number 1 - 32000				
Index 2:	d: Cutting edge number / D number 1 - 32000				
unit:	-				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_SCP31 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP11: $TC_SCP31[t,d] comparable to $TC_DP20[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_SCP31[d]

Index 1:	t: T number 1 - 32000				
Index 2:	d: Cutting edge number / D number 1 - 32000				
unit:	-				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_SCP33 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP3: $TC_SCP33[t,d] comparable to $TC_DP12[t,d]
When the 'flat D number management' function is active, the syntax is as follows: $TC_SCP33[d]

Index 1:	t: T number 1 - 32000						
Index 2:	d: Cutting edge number / D number 1 - 32000						
unit:	mm						
min.:	-1,8E308	**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_SCP34 [32000,32000]**		-			**reference:**	
description:							
Offset for $TC_DP4: $TC_SCP34[t,d] comparable to $TC_DP13[t,d]							
When the 'flat D number management' function is active, the syntax is as follows: $TC_SCP34[d]							
Index 1:	t: T number 1 - 32000						
Index 2:	d: Cutting edge number / D number 1 - 32000						
unit:	mm						
min.:	-1,8E308	**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_SCP35 [32000,32000]**		-			**reference:**	
description:							
Offset for $TC_DP5: $TC_SCP35[t,d] comparable to $TC_DP14[t,d]							
When the 'flat D number management' function is active, the syntax is as follows: $TC_SCP35[d]							
Index 1:	t: T number 1 - 32000						
Index 2:	d: Cutting edge number / D number 1 - 32000						
unit:	mm						
min.:	-1,8E308	**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_SCP36 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP6: $TC_SCP36[t,d] comparable to $TC_DP15[t,d]
When the 'flat D number management' function is active, the syntax is as follows: $TC_SCP36[d]

Index 1:	t: T number 1 - 32000					
Index 2:	d: Cutting edge number / D number 1 - 32000					
unit:	mm					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:		**Valuation:**	channel-specific
block search	Not classified	**link**	No restrictions

DOUBLE	**$TC_SCP37 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP7: $TC_SCP37[t,d] comparable to $TC_DP16[t,d]
When the 'flat D number management' function is active, the syntax is as follows: $TC_SCP37[d]

Index 1:	t: T number 1 - 32000					
Index 2:	d: Cutting edge number / D number 1 - 32000					
unit:	mm					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:		**Valuation:**	channel-specific
block search	Not classified	**link**	No restrictions

DOUBLE	**$TC_SCP38 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP8: $TC_SCP38[t,d] comparable to $TC_DP17[t,d]
When the 'flat D number management' function is active, the syntax is as follows: $TC_SCP38[d]

Index 1:	t: T number 1 - 32000					
Index 2:	d: Cutting edge number / D number 1 - 32000					
unit:	mm					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:					**Valuation:**	channel-specific
block search	Not classified				**link**	No restrictions

DOUBLE	**$TC_SCP39 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP9: $TC_SCP39[t,d] comparable to $TC_DP18[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_SCP39[d]

Index 1:	t: T number 1 - 32000					
Index 2:	d: Cutting edge number / D number 1 - 32000					
unit:	mm					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:					**Valuation:**	channel-specific
block search	Not classified				**link**	No restrictions

DOUBLE	**$TC_SCP40 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP10: $TC_SCP40[t,d] comparable to $TC_DP19[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_SCP40[d]

Index 1:	t: T number 1 - 32000					
Index 2:	d: Cutting edge number / D number 1 - 32000					
unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:					**Valuation:**	channel-specific
block search	Not classified				**link**	No restrictions

DOUBLE	**$TC_SCP41 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP11: $TC_SCP41[t,d] comparable to $TC_DP20[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_SCP41[d]

Index 1:	t: T number 1 - 32000					
Index 2:	d: Cutting edge number / D number 1 - 32000					
unit:	-					

min.:		-1,8E308	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$TC_SCP43 [32000,32000]**	-	**reference:**
description:			
Offset for $TC_DP3: $TC_SCP43[t,d] comparable to $TC_DP12[t,d]			
When the 'flat D number management' function is active, the syntax is as follows:			
$TC_SCP43[d]			
Index 1:	t: T number 1 - 32000		
Index 2:	d: Cutting edge number / D number 1 - 32000		
unit:	mm		

min.:		-1,8E308	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$TC_SCP44 [32000,32000]**	-	**reference:**
description:			
Offset for $TC_DP4: $TC_SCP44[t,d] comparable to $TC_DP13[t,d]			
When the 'flat D number management' function is active, the syntax is as follows:			
$TC_SCP44[d]			
Index 1:	t: T number 1 - 32000		
Index 2:	d: Cutting edge number / D number 1 - 32000		
unit:	mm		

min.:		-1,8E308	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$TC_SCP45 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP5: $TC_SCP45[t,d] comparable to $TC_DP14[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_SCP45[d]

Index 1:	t: T number 1 - 32000				
Index 2:	d: Cutting edge number / D number 1 - 32000				
unit:	mm				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:		**Valuation:**	channel-specific
block search	Not classified	**link**	No restrictions

DOUBLE	**$TC_SCP46 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP6: $TC_SCP46[t,d] comparable to $TC_DP15[t,d]
When the 'flat D number management' function is active, the syntax is as follows: $TC_SCP46[d]

Index 1:	t: T number 1 - 32000				
Index 2:	d: Cutting edge number / D number 1 - 32000				
unit:	mm				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:		**Valuation:**	channel-specific
block search	Not classified	**link**	No restrictions

DOUBLE	**$TC_SCP47 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP7: $TC_SCP47[t,d] comparable to $TC_DP16[t,d]
When the 'flat D number management' function is active, the syntax is as follows: $TC_SCP47[d]

Index 1:	t: T number 1 - 32000				
Index 2:	d: Cutting edge number / D number 1 - 32000				
unit:	mm				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	

write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_SCP48 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP8: $TC_SCP48[t,d] comparable to $TC_DP17[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_SCP48[d]

Index 1:	t: T number 1 - 32000						
Index 2:	d: Cutting edge number / D number 1 - 32000						
unit:	mm						
min.:	-1,8E308	**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_SCP49 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP9: $TC_SCP49[t,d] comparable to $TC_DP18[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_SCP49[d]

Index 1:	t: T number 1 - 32000						
Index 2:	d: Cutting edge number / D number 1 - 32000						
unit:	mm						
min.:	-1,8E308	**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_SCP50 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP10: $TC_SCP50[t,d] comparable to $TC_DP19[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_SCP50[d]

Index 1:	t: T number 1 - 32000
Index 2:	d: Cutting edge number / D number 1 - 32000

unit:		-					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$TC_SCP51 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP11: $TC_SCP51[t,d] comparable to $TC_DP20[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_SCP51[d]

Index 1:		t: T number 1 - 32000					
Index 2:		d: Cutting edge number / D number 1 - 32000					
unit:		-					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$TC_SCP53 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP3: $TC_SCP53[t,d] comparable to $TC_DP12[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_SCP53[d]

Index 1:		t: T number 1 - 32000					
Index 2:		d: Cutting edge number / D number 1 - 32000					
unit:		mm					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$TC_SCP54 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP4: $TC_SCP54[t,d] comparable to $TC_DP13[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_SCP54[d]

Index 1:	t: T number 1 - 32000					
Index 2:	d: Cutting edge number / D number 1 - 32000					
unit:	mm					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:		**Valuation:**	channel-specific
block search	Not classified	**link**	No restrictions

DOUBLE	**$TC_SCP55 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP5: $TC_SCP55[t,d] comparable to $TC_DP14[t,d]
When the 'flat D number management' function is active, the syntax is as follows: $TC_SCP55[d]

Index 1:	t: T number 1 - 32000					
Index 2:	d: Cutting edge number / D number 1 - 32000					
unit:	mm					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:		**Valuation:**	channel-specific
block search	Not classified	**link**	No restrictions

DOUBLE	**$TC_SCP56 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP6: $TC_SCP56[t,d] comparable to $TC_DP15[t,d]
When the 'flat D number management' function is active, the syntax is as follows: $TC_SCP56[d]

Index 1:	t: T number 1 - 32000					
Index 2:	d: Cutting edge number / D number 1 - 32000					
unit:	mm					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	

write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_SCP57 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP7: $TC_SCP57[t,d] comparable to $TC_DP16[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_SCP57[d]

Index 1:	t: T number 1 - 32000						
Index 2:	d: Cutting edge number / D number 1 - 32000						
unit:	mm						
min.:	-1,8E308	**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_SCP58 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP8: $TC_SCP58[t,d] comparable to $TC_DP17[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_SCP58[d]

Index 1:	t: T number 1 - 32000						
Index 2:	d: Cutting edge number / D number 1 - 32000						
unit:	mm						
min.:	-1,8E308	**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_SCP59 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP9: $TC_SCP59[t,d] comparable to $TC_DP18[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_SCP59[d]

Index 1:	t: T number 1 - 32000
Index 2:	d: Cutting edge number / D number 1 - 32000

unit:		mm					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$TC_SCP60 [32000,32000]**	-	**reference:**	
description:				
Offset for $TC_DP10: $TC_SCP60[t,d] comparable to $TC_DP19[t,d]				
When the 'flat D number management' function is active, the syntax is as follows:				
$TC_SCP60[d]				

Index 1:		t: T number 1 - 32000					
Index 2:		d: Cutting edge number / D number 1 - 32000					
unit:		-					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$TC_SCP61 [32000,32000]**	-	**reference:**	
description:				
Offset for $TC_DP11: $TC_SCP61[t,d] comparable to $TC_DP20[t,d]				
When the 'flat D number management' function is active, the syntax is as follows:				
$TC_SCP61[d]				

Index 1:		t: T number 1 - 32000					
Index 2:		d: Cutting edge number / D number 1 - 32000					
unit:		-					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$TC_SCP63 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP3: $TC_SCP63[t,d] comparable to $TC_DP12[t,d]
When the 'flat D number management' function is active, the syntax is as follows: $TC_SCP63[d]

Index 1:	t: T number 1 - 32000						
Index 2:	d: Cutting edge number / D number 1 - 32000						
unit:	mm						
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_SCP64 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP4: $TC_SCP64[t,d] comparable to $TC_DP13[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_SCP64[d]

Index 1:	t: T number 1 - 32000						
Index 2:	d: Cutting edge number / D number 1 - 32000						
unit:	mm						
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_SCP65 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP5: $TC_SCP65[t,d] comparable to $TC_DP14[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_SCP65[d]

Index 1:	t: T number 1 - 32000						
Index 2:	d: Cutting edge number / D number 1 - 32000						
unit:	mm						
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	

read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_SCP66 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP6: $TC_SCP66[t,d] comparable to $TC_DP15[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_SCP66[d]

Index 1:	t: T number 1 - 32000						
Index 2:	d: Cutting edge number / D number 1 - 32000						
unit:	mm						
min.:	-1,8E308	**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_SCP67 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP7: $TC_SCP67[t,d] comparable to $TC_DP16[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_SCP67[d]

Index 1:	t: T number 1 - 32000						
Index 2:	d: Cutting edge number / D number 1 - 32000						
unit:	mm						
min.:	-1,8E308	**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_SCP68 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP8: $TC_SCP68[t,d] comparable to $TC_DP17[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_SCP68[d]

Index 1:	t: T number 1 - 32000

Index 2:	d: Cutting edge number / D number 1 - 32000						
unit:	mm						
min.:	-1,8E308	**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_SCP69 [32000,32000]**	-	**reference:**
description: Offset for $TC_DP9: $TC_SCP69[t,d] comparable to $TC_DP18[t,d] When the 'flat D number management' function is active, the syntax is as follows: $TC_SCP69[d]			

Index 1:	t: T number 1 - 32000						
Index 2:	d: Cutting edge number / D number 1 - 32000						
unit:	mm						
min.:	-1,8E308	**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_SCP70 [32000,32000]**	-	**reference:**
description: Offset for $TC_DP10: $TC_SCP70[t,d] comparable to $TC_DP19[t,d] When the 'flat D number management' function is active, the syntax is as follows: $TC_SCP70[d]			

Index 1:	t: T number 1 - 32000						
Index 2:	d: Cutting edge number / D number 1 - 32000						
unit:	-						
min.:	-1,8E308	**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_SCP71 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP11: $TC_SCP71[t,d] comparable to $TC_DP20[t,d]
When the 'flat D number management' function is active, the syntax is as follows: $TC_SCP71[d]

Index 1:	t: T number 1 - 32000					
Index 2:	d: Cutting edge number / D number 1 - 32000					
unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:		**Valuation:**	channel-specific
block search	Not classified	**link**	No restrictions

DOUBLE	**$TC_ECP13 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP3: $TC_ECP13[t,d] comparable to $TC_DP12[t,d]
When the 'flat D number management' function is active, the syntax is as follows: $TC_ECP13[d]

Index 1:	t: T number 1 - 32000					
Index 2:	d: Cutting edge number / D number 1 - 32000					
unit:	mm					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:		**Valuation:**	channel-specific
block search	Not classified	**link**	No restrictions

DOUBLE	**$TC_ECP14 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP4: $TC_ECP14[t,d] comparable to $TC_DP13[t,d]
When the 'flat D number management' function is active, the syntax is as follows: $TC_ECP14[d]

Index 1:	t: T number 1 - 32000					
Index 2:	d: Cutting edge number / D number 1 - 32000					
unit:	mm					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	

write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_ECP15 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP5: $TC_ECP15[t,d] comparable to $TC_DP14[t,d]
When the 'flat D number management' function is active, the syntax is as follows: $TC_ECP15[d]

Index 1:	t: T number 1 - 32000				
Index 2:	d: Cutting edge number / D number 1 - 32000				
unit:	mm				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_ECP16 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP6: $TC_ECP16[t,d] comparable to $TC_DP15[t,d]
When the 'flat D number management' function is active, the syntax is as follows: $TC_ECP16[d]

Index 1:	t: T number 1 - 32000				
Index 2:	d: Cutting edge number / D number 1 - 32000				
unit:	mm				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_ECP17 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP7: $TC_ECP17[t,d] comparable to $TC_DP16[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_ECP17[d]

Index 1:	t: T number 1 - 32000				
Index 2:	d: Cutting edge number / D number 1 - 32000				
unit:	mm				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_ECP18 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP8: $TC_ECP18[t,d] comparable to $TC_DP17[t,d]
When the 'flat D number management' function is active, the syntax is as follows: $TC_ECP18[d]

Index 1:	t: T number 1 - 32000				
Index 2:	d: Cutting edge number / D number 1 - 32000				
unit:	mm				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_ECP19 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP9: $TC_ECP19[t,d] comparable to $TC_DP18[t,d]
When the 'flat D number management' function is active, the syntax is as follows: $TC_ECP19[d]

Index 1:	t: T number 1 - 32000				
Index 2:	d: Cutting edge number / D number 1 - 32000				
unit:	mm				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_ECP20 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP10: $TC_ECP20[t,d] comparable to $TC_DP19[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_ECP20[d]

Index 1:	t: T number 1 - 32000

Index 2:		d: Cutting edge number / D number 1 - 32000					
unit:		-					
min.:		-1,8E308	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$TC_ECP21 [32000,32000]**	-	**reference:**
description:			
Offset for $TC_DP11: $TC_ECP21[t,d] comparable to $TC_DP20[t,d]			
When the 'flat D number management' function is active, the syntax is as follows:			
$TC_ECP21[d]			

Index 1:		t: T number 1 - 32000					
Index 2:		d: Cutting edge number / D number 1 - 32000					
unit:		-					
min.:		-1,8E308	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$TC_ECP23 [32000,32000]**	-	**reference:**
description:			
Offset for $TC_DP3: $TC_ECP23[t,d] comparable to $TC_DP12[t,d]			
When the 'flat D number management' function is active, the syntax is as follows:			
$TC_ECP23[d]			

Index 1:		t: T number 1 - 32000					
Index 2:		d: Cutting edge number / D number 1 - 32000					
unit:		mm					
min.:		-1,8E308	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$TC_ECP24 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP4: $TC_ECP24[t,d] comparable to $TC_DP13[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_ECP24[d]

Index 1:	t: T number 1 - 32000					
Index 2:	d: Cutting edge number / D number 1 - 32000					
unit:	mm					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:			**Valuation:**	channel-specific	
block search	Not classified		**link**	No restrictions	

DOUBLE	**$TC_ECP25 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP5: $TC_ECP25[t,d] comparable to $TC_DP14[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_ECP25[d]

Index 1:	t: T number 1 - 32000					
Index 2:	d: Cutting edge number / D number 1 - 32000					
unit:	mm					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:			**Valuation:**	channel-specific	
block search	Not classified		**link**	No restrictions	

DOUBLE	**$TC_ECP26 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP6: $TC_ECP26[t,d] comparable to $TC_DP15[t,d]
When the 'flat D number management' function is active, the syntax is as follows: $TC_ECP26[d]

Index 1:	t: T number 1 - 32000					
Index 2:	d: Cutting edge number / D number 1 - 32000					
unit:	mm					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	

read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_ECP27 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP7: $TC_ECP27[t,d] comparable to $TC_DP16[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_ECP27[d]

Index 1:	t: T number 1 - 32000				
Index 2:	d: Cutting edge number / D number 1 - 32000				
unit:	mm				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_ECP28 [32000,32000]**	-	**reference:**	

description:
$TC_ECP28[t,d] comparable to $TC_DP17[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_ECP28[d]

Index 1:	t: T number 1 - 32000				
Index 2:	d: Cutting edge number / D number 1 - 32000				
unit:	mm				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_ECP29 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP9: $TC_ECP29[t,d] comparable to $TC_DP18[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_ECP29[d]

Index 1:	t: T number 1 - 32000

Index 2:		d: Cutting edge number / D number 1 - 32000					
unit:		mm					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$TC_ECP30 [32000,32000]**	-	**reference:**
description:			
Offset for $TC_DP10: $TC_ECP30[t,d] comparable to $TC_DP19[t,d]			
When the 'flat D number management' function is active, the syntax is as follows:			
$TC_ECP30[d]			

Index 1:		t: T number 1 - 32000					
Index 2:		d: Cutting edge number / D number 1 - 32000					
unit:		-					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$TC_ECP31 [32000,32000]**	-	**reference:**
description:			
Offset for $TC_DP11: $TC_ECP31[t,d] comparable to $TC_DP20[t,d]			
When the 'flat D number management' function is active, the syntax is as follows:			
$TC_ECP31[d]			

Index 1:		t: T number 1 - 32000					
Index 2:		d: Cutting edge number / D number 1 - 32000					
unit:		-					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$TC_ECP33 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP3: $TC_ECP33[t,d] comparable to $TC_DP12[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_ECP33[d]

Index 1:	t: T number 1 - 32000					
Index 2:	d: Cutting edge number / D number 1 - 32000					
unit:	mm					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:		**Valuation:**	channel-specific
block search	Not classified	**link**	No restrictions

DOUBLE	**$TC_ECP34 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP4: $TC_ECP34[t,d] comparable to $TC_DP13[t,d]
When the 'flat D number management' function is active, the syntax is as follows: $TC_ECP34[d]

Index 1:	t: T number 1 - 32000					
Index 2:	d: Cutting edge number / D number 1 - 32000					
unit:	mm					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:		**Valuation:**	channel-specific
block search	Not classified	**link**	No restrictions

DOUBLE	**$TC_ECP35 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP5: $TC_ECP35[t,d] comparable to $TC_DP14[t,d]
When the 'flat D number management' function is active, the syntax is as follows: $TC_ECP35[d]

Index 1:	t: T number 1 - 32000					
Index 2:	d: Cutting edge number / D number 1 - 32000					
unit:	mm					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	

write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_ECP36 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP6: $TC_ECP36[t,d] comparable to $TC_DP15[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_ECP36[d]

Index 1:	t: T number 1 - 32000						
Index 2:	d: Cutting edge number / D number 1 - 32000						
unit:	mm						
min.:	-1,8E308	**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_ECP37 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP7: $TC_ECP37[t,d] comparable to $TC_DP16[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_ECP37[d]

Index 1:	t: T number 1 - 32000						
Index 2:	d: Cutting edge number / D number 1 - 32000						
unit:	mm						
min.:	-1,8E308	**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_ECP38 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP8: $TC_ECP38[t,d] comparable to $TC_DP17[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_ECP38[d]

Index 1:	t: T number 1 - 32000
Index 2:	d: Cutting edge number / D number 1 - 32000

unit:		mm					
min.:		-1,8E308	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$TC_ECP39 [32000,32000]**	-	**reference:**
description:			
Offset for $TC_DP9: $TC_ECP39[t,d] comparable to $TC_DP18[t,d]			
When the 'flat D number management' function is active, the syntax is as follows:			
$TC_ECP39[d]			
Index 1:	t: T number 1 - 32000		
Index 2:	d: Cutting edge number / D number 1 - 32000		

unit:		mm					
min.:		-1,8E308	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$TC_ECP40 [32000,32000]**	-	**reference:**
description:			
Offset for $TC_DP10: $TC_ECP40[t,d] comparable to $TC_DP19[t,d]			
When the 'flat D number management' function is active, the syntax is as follows:			
$TC_ECP40[d]			
Index 1:	t: T number 1 - 32000		
Index 2:	d: Cutting edge number / D number 1 - 32000		

unit:		-					
min.:		-1,8E308	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$TC_ECP41 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP11: $TC_ECP41[t,d] comparable to $TC_DP20[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_ECP41[d]

Index 1:	t: T number 1 - 32000					
Index 2:	d: Cutting edge number / D number 1 - 32000					
unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:		**Valuation:**	channel-specific
block search	Not classified	**link**	No restrictions

DOUBLE	**$TC_ECP43 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP3: $TC_ECP43[t,d] comparable to $TC_DP12[t,d]
When the 'flat D number management' function is active, the syntax is as follows: $TC_ECP43[d]

Index 1:	t: T number 1 - 32000					
Index 2:	d: Cutting edge number / D number 1 - 32000					
unit:	mm					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:		**Valuation:**	channel-specific
block search	Not classified	**link**	No restrictions

DOUBLE	**$TC_ECP44 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP4: $TC_ECP44[t,d] comparable to $TC_DP13[t,d]
When the 'flat D number management' function is active, the syntax is as follows: $TC_ECP44[d]

Index 1:	t: T number 1 - 32000					
Index 2:	d: Cutting edge number / D number 1 - 32000					
unit:	mm					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	

write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_ECP45 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP5: $TC_ECP45[t,d] comparable to $TC_DP14[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_ECP45[d]

Index 1:	t: T number 1 - 32000						
Index 2:	d: Cutting edge number / D number 1 - 32000						
unit:	mm						
min.:	-1,8E308	**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_ECP46 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP6: $TC_ECP46[t,d] comparable to $TC_DP15[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_ECP46[d]

Index 1:	t: T number 1 - 32000						
Index 2:	d: Cutting edge number / D number 1 - 32000						
unit:	mm						
min.:	-1,8E308	**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_ECP47 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP7: $TC_ECP47[t,d] comparable to $TC_DP16[t,d]
When the 'flat D number management' function is active, the syntax is as follows: $TC_ECP47[d]

Index 1:	t: T number 1 - 32000						
Index 2:	d: Cutting edge number / D number 1 - 32000						
unit:	mm						

min.:		-1,8E308	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$TC_ECP48 [32000,32000]**	-	**reference:**
description:			
Offset for $TC_DP8: $TC_ECP48[t,d] comparable to $TC_DP17[t,d]			
When the 'flat D number management' function is active, the syntax is as follows:			
$TC_ECP48[d]			
Index 1:	t: T number 1 - 32000		
Index 2:	d: Cutting edge number / D number 1 - 32000		
unit:	mm		

min.:		-1,8E308	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$TC_ECP49 [32000,32000]**	-	**reference:**
description:			
Offset for $TC_DP9: $TC_ECP49[t,d] comparable to $TC_DP18[t,d]			
When the 'flat D number management' function is active, the syntax is as follows:			
$TC_ECP49[d]			
Index 1:	t: T number 1 - 32000		
Index 2:	d: Cutting edge number / D number 1 - 32000		
unit:	mm		

min.:		-1,8E308	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$TC_ECP50 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP10: $TC_ECP50[t,d] comparable to $TC_DP19[t,d]
When the 'flat D number management' function is active, the syntax is as follows: $TC_ECP50[d]

Index 1:	t: T number 1 - 32000					
Index 2:	d: Cutting edge number / D number 1 - 32000					
unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:		**Valuation:**	channel-specific
block search	Not classified	**link**	No restrictions

DOUBLE	**$TC_ECP51 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP11: $TC_ECP51[t,d] comparable to $TC_DP20[t,d]
When the 'flat D number management' function is active, the syntax is as follows: $TC_ECP51[d]

Index 1:	t: T number 1 - 32000					
Index 2:	d: Cutting edge number / D number 1 - 32000					
unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:		**Valuation:**	channel-specific
block search	Not classified	**link**	No restrictions

DOUBLE	**$TC_ECP53 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP3: $TC_ECP53[t,d] comparable to $TC_DP12[t,d]
When the 'flat D number management' function is active, the syntax is as follows: $TC_ECP53[d]

Index 1:	t: T number 1 - 32000					
Index 2:	d: Cutting edge number / D number 1 - 32000					
unit:	mm					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	

write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_ECP54 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP4: $TC_ECP54[t,d] comparable to $TC_DP13[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_ECP54[d]

Index 1:	t: T number 1 - 32000						
Index 2:	d: Cutting edge number / D number 1 - 32000						
unit:	mm						
min.:	-1,8E308	**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_ECP55 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP5: $TC_ECP55[t,d] comparable to $TC_DP14[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_ECP55[d]

Index 1:	t: T number 1 - 32000						
Index 2:	d: Cutting edge number / D number 1 - 32000						
unit:	mm						
min.:	-1,8E308	**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_ECP56 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP6: $TC_ECP56[t,d] comparable to $TC_DP15[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_ECP56[d]

Index 1:	t: T number 1 - 32000
Index 2:	d: Cutting edge number / D number 1 - 32000

unit:		mm					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$TC_ECP57 [32000,32000]**	-	**reference:**
description:			
Offset for $TC_DP7: $TC_ECP57[t,d] comparable to $TC_DP16[t,d]			
When the 'flat D number management' function is active, the syntax is as follows:			
$TC_ECP57[d]			
Index 1:	t: T number 1 - 32000		
Index 2:	d: Cutting edge number / D number 1 - 32000		

unit:		mm					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$TC_ECP58 [32000,32000]**	-	**reference:**
description:			
Offset for $TC_DP8: $TC_ECP58[t,d] comparable to $TC_DP17[t,d]			
When the 'flat D number management' function is active, the syntax is as follows:			
$TC_ECP58[d]			
Index 1:	t: T number 1 - 32000		
Index 2:	d: Cutting edge number / D number 1 - 32000		

unit:		mm					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$TC_ECP59 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP9: $TC_ECP59[t,d] comparable to $TC_DP18[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_ECP59[d]

Index 1:	t: T number 1 - 32000					
Index 2:	d: Cutting edge number / D number 1 - 32000					
unit:	mm					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:		**Valuation:**	channel-specific
block search	Not classified	**link**	No restrictions

DOUBLE	**$TC_ECP60 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP10: $TC_ECP60[t,d] comparable to $TC_DP19[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_ECP60[d]

Index 1:	t: T number 1 - 32000					
Index 2:	d: Cutting edge number / D number 1 - 32000					
unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:		**Valuation:**	channel-specific
block search	Not classified	**link**	No restrictions

DOUBLE	**$TC_ECP61 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP11: $TC_ECP61[t,d] comparable to $TC_DP20[t,d]
When the 'flat D number management' function is active, the syntax is as follows: $TC_ECP61[d]

Index 1:	t: T number 1 - 32000					
Index 2:	d: Cutting edge number / D number 1 - 32000					
unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	

read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_ECP63 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP3: $TC_ECP63[t,d] comparable to $TC_DP12[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_ECP63[d]

Index 1:	t: T number 1 - 32000				
Index 2:	d: Cutting edge number / D number 1 - 32000				
unit:	mm				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_ECP64 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP4: $TC_ECP64[t,d] comparable to $TC_DP13[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_ECP64[d]

Index 1:	t: T number 1 - 32000				
Index 2:	d: Cutting edge number / D number 1 - 32000				
unit:	mm				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_ECP65 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP5: $TC_ECP65[t,d] comparable to $TC_DP14[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_ECP65[d]

Index 1:	t: T number 1 - 32000

Index 2:		d: Cutting edge number / D number 1 - 32000					
unit:		mm					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$TC_ECP66 [32000,32000]**	-	**reference:**
description:			
Offset for $TC_DP6: $TC_ECP66[t,d] comparable to $TC_DP15[t,d]			
When the 'flat D number management' function is active, the syntax is as follows:			
$TC_ECP66[d]			

Index 1:		t: T number 1 - 32000					
Index 2:		d: Cutting edge number / D number 1 - 32000					
unit:		mm					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$TC_ECP67 [32000,32000]**	-	**reference:**
description:			
Offset for $TC_DP7: $TC_ECP67[t,d] comparable to $TC_DP16[t,d]			
When the 'flat D number management' function is active, the syntax is as follows:			
$TC_ECP67[d]			

Index 1:		t: T number 1 - 32000					
Index 2:		d: Cutting edge number / D number 1 - 32000					
unit:		mm					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$TC_ECP68 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP8: $TC_ECP68[t,d] comparable to $TC_DP17[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_ECP68[d]

Index 1:	t: T number 1 - 32000				
Index 2:	d: Cutting edge number / D number 1 - 32000				
unit:	mm				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:				**Valuation:**	channel-specific
block search	Not classified			**link**	No restrictions

DOUBLE	**$TC_ECP69 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP9: $TC_ECP69[t,d] comparable to $TC_DP18[t,d]
When the 'flat D number management' function is active, the syntax is as follows:
$TC_ECP69[d]

Index 1:	t: T number 1 - 32000				
Index 2:	d: Cutting edge number / D number 1 - 32000				
unit:	mm				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:				**Valuation:**	channel-specific
block search	Not classified			**link**	No restrictions

DOUBLE	**$TC_ECP70 [32000,32000]**	-	**reference:**	

description:
Offset for $TC_DP10: $TC_ECP70[t,d] comparable to $TC_DP19[t,d]
When the 'flat D number management' function is active, the syntax is as follows: $TC_ECP70[d]

Index 1:	t: T number 1 - 32000				
Index 2:	d: Cutting edge number / D number 1 - 32000				
unit:	-				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	

read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_ECP71 [32000,32000]**	-	**reference:**	

description:

Offset for $TC_DP11: $TC_ECP71[t,d] comparable to $TC_DP20[t,d]

When the 'flat D number management' function is active, the syntax is as follows:

$TC_ECP71[d]

Index 1:	t: T number 1 - 32000						
Index 2:	d: Cutting edge number / D number 1 - 32000						
unit:	-						
min.:	-1,8E308	**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

1.10 Tool management monitoring data

DOUBLE	**$TC_MOP1 [32000,32000]**	-	**reference:**	

description:

$TC_MOP1[t,d]

Prewarning limit for downtime

Index 1:	t: T number 1 - 32000						
Index 2:	d: Cutting edge number / D number 1 - 32000						
unit:	-						
min.:	-1,8E308	**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_MOP2 [32000,32000]**	-	**reference:**	

description:
$TC_MOP2[t,d]
Residual tool life

Index 1:	t: T number 1 - 32000					
Index 2:	d: Cutting edge number / D number 1 - 32000					
unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:		**Valuation:**	channel-specific
block search	Not classified	**link**	No restrictions

INT	**$TC_MOP3 [32000,32000]**	-	**reference:**	

description:
$TC_MOP3[t,d]
Prewarning limit for workpiece count

Index 1:	t: T number 1 - 32000					
Index 2:	d: Cutting edge number / D number 1 - 32000					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:		**Valuation:**	channel-specific
block search	Not classified	**link**	No restrictions

INT	**$TC_MOP4 [32000,32000]**	-	**reference:**	

description:
$TC_MOP4[t,d]
Residual workpieces

Index 1:	t: T number 1 - 32000					
Index 2:	d: Cutting edge number / D number 1 - 32000					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	

write:	X	-	7		X	7	-
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_MOP5 [32000,32000]**	-	**reference:**	

description:
$TC_MOP5[t,d]
Prewarning limit for wear

Index 1:	t: T number 1 - 32000				
Index 2:	d: Cutting edge number / D number 1 - 32000				
unit:	mm				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_MOP6 [32000,32000]**	-	**reference:**	

description:
$TC_MOP6[t,d]
Residual wear

Index 1:	t: T number 1 - 32000				
Index 2:	d: Cutting edge number / D number 1 - 32000				
unit:	mm				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_MOP11 [32000,32000]**	-	**reference:**	

description:
$TC_MOP11[t,d]
Specified tool life

Index 1:	t: T number 1 - 32000				
Index 2:	d: Cutting edge number / D number 1 - 32000				
unit:	-				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MOP13 [32000,32000]**	-	**reference:**	
description: $TC_MOP13[t,d] Specified workpiece count				
Index 1:	t: T number 1 - 32000			
Index 2:	d: Cutting edge number / D number 1 - 32000			
unit:	-			
min.:	-2147483648	**max.:** 2147483647	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_MOP15 [32000,32000]**	-	**reference:**	
description: $TC_MOP15[t,d] Specified wear				
Index 1:	t: T number 1 - 32000			
Index 2:	d: Cutting edge number / D number 1 - 32000			
unit:	mm			
min.:	-1,8E308	**max.:** 1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

1.11 OEM user monitoring data

INT	**$TC_MOPC1 [32000,32000]**	-	**reference:**	

description:
The type can be specified by machine data. INT is the default setting
$TC_MOPC1[t,d]

Index 1:	t: T number 1 - 32000					
Index 2:	d: Cutting edge number / D number 1 - 32000					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:				**Valuation:**	channel-specific	
block search	Not classified			**link**	No restrictions	

INT	**$TC_MOPC2 [32000,32000]**	-	**reference:**	

description:
The type can be specified by machine data. INT is the default setting
$TC_MOPC2[t,d]

Index 1:	t: T number 1 - 32000					
Index 2:	d: Cutting edge number / D number 1 - 32000					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:				**Valuation:**	channel-specific	
block search	Not classified			**link**	No restrictions	

INT	**$TC_MOPC3 [32000,32000]**	-	**reference:**	

description:
The type can be specified by machine data. INT is the default setting
$TC_MOPC3[t,d]

Index 1:	t: T number 1 - 32000					
Index 2:	d: Cutting edge number / D number 1 - 32000					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	

write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MOPC4 [32000,32000]**	-	**reference:**	
description:				
The type can be specified by machine data. INT is the default setting				
$TC_MOPC4[t,d]				
Index 1:	t: T number 1 - 32000			
Index 2:	d: Cutting edge number / D number 1 - 32000			
unit:	-			
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MOPC5 [32000,32000]**	-	**reference:**	
description:				
The type can be specified by machine data. INT is the default setting				
$TC_MOPC5[t,d]				
Index 1:	t: T number 1 - 32000			
Index 2:	d: Cutting edge number / D number 1 - 32000			
unit:	-			
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MOPC6 [32000,32000]**	-	**reference:**	
description:				
The type can be specified by machine data. INT is the default setting				
$TC_MOPC6[t,d]				
Index 1:	t: T number 1 - 32000			
Index 2:	d: Cutting edge number / D number 1 - 32000			
unit:	-			
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MOPC7 [32000,32000]**	-	**reference:**	

description:
The type can be specified by machine data. INT is the default setting
$TC_MOPC7[t,d]

Index 1:	t: T number 1 - 32000				
Index 2:	d: Cutting edge number / D number 1 - 32000				
unit:	-				
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MOPC8 [32000,32000]**	-	**reference:**	

description:
The type can be specified by machine data. INT is the default setting
$TC_MOPC8[t,d]

Index 1:	t: T number 1 - 32000				
Index 2:	d: Cutting edge number / D number 1 - 32000				
unit:	-				
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MOPC9 [32000,32000]**	-	**reference:**	

description:
The type can be specified by machine data. INT is the default setting
$TC_MOPC9[t,d]

Index 1:	t: T number 1 - 32000
Index 2:	d: Cutting edge number / D number 1 - 32000

unit:		-					
min.:		-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

INT	**$TC_MOPC10 [32000,32000]**	-	**reference:**
description: The type can be specified by machine data. INT is the default setting $TC_MOPC10[t,d]			
Index 1:	t: T number 1 - 32000		
Index 2:	d: Cutting edge number / D number 1 - 32000		

unit:		-					
min.:		-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

INT	**$TC_MOPCS1 [32000,32000]**	-	**reference:**
description: The type can be specified by machine data. INT is the default setting $TC_MOPCS1[t,d]			
Index 1:	t: T number 1 - 32000		
Index 2:	d: Cutting edge number / D number 1 - 32000		

unit:		-					
min.:		-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

INT	**$TC_MOPCS2 [32000,32000]**	-	**reference:**
description: The type can be specified by machine data. INT is the default setting $TC_MOPCS2[t,d]			

Index 1:	t: T number 1 - 32000						
Index 2:	d: Cutting edge number / D number 1 - 32000						
unit:	-						
min.:	-2147483648	**max.:**	2147483647	**std:**	0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MOPCS3 [32000,32000]**	-	**reference:**	
description:				
The type can be specified by machine data. INT is the default setting				
$TC_MOPCS3[t,d]				

Index 1:	t: T number 1 - 32000						
Index 2:	d: Cutting edge number / D number 1 - 32000						
unit:	-						
min.:	-2147483648	**max.:**	2147483647	**std:**	0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MOPCS4 [32000,32000]**	-	**reference:**	
description:				
The type can be specified by machine data. INT is the default setting				
$TC_MOPCS4[t,d]				

Index 1:	t: T number 1 - 32000						
Index 2:	d: Cutting edge number / D number 1 - 32000						
unit:	-						
min.:	-2147483648	**max.:**	2147483647	**std:**	0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MOPCS5 [32000,32000]**	-	**reference:**	

description:
The type can be specified by machine data. INT is the default setting
$TC_MOPCS5[t,d]

Index 1:	t: T number 1 - 32000						
Index 2:	d: Cutting edge number / D number 1 - 32000						
unit:	-						
min.:	-2147483648	**max.:**	2147483647	**std:**		0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MOPCS6 [32000,32000]**	-	**reference:**	

description:
The type can be specified by machine data. INT is the default setting
$TC_MOPCS6[t,d]

Index 1:	t: T number 1 - 32000						
Index 2:	d: Cutting edge number / D number 1 - 32000						
unit:	-						
min.:	-2147483648	**max.:**	2147483647	**std:**		0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MOPCS7 [32000,32000]**	-	**reference:**	

description:
The type can be specified by machine data. INT is the default setting
$TC_MOPCS7[t,d]

Index 1:	t: T number 1 - 32000						
Index 2:	d: Cutting edge number / D number 1 - 32000						
unit:	-						
min.:	-2147483648	**max.:**	2147483647	**std:**		0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	

write:	X	-	7		X	7	-
axis identifier:						**Valuation:**	channel-specific
block search		Not classified				**link**	No restrictions

INT	**$TC_MOPCS8 [32000,32000]**	-	**reference:**	

description:
The type can be specified by machine data. INT is the default setting
$TC_MOPCS8[t,d]

Index 1:	t: T number 1 - 32000				
Index 2:	d: Cutting edge number / D number 1 - 32000				
unit:	-				
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

INT	**$TC_MOPCS9 [32000,32000]**	-	**reference:**	

description:
The type can be specified by machine data. INT is the default setting
$TC_MOPCS9[t,d]

Index 1:	t: T number 1 - 32000				
Index 2:	d: Cutting edge number / D number 1 - 32000				
unit:	-				
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

INT	**$TC_MOPCS10 [32000,32000]**	-	**reference:**	

description:
The type can be specified by machine data. INT is the default setting
$TC_MOPCS10[t,d]

Index 1:	t: T number 1 - 32000				
Index 2:	d: Cutting edge number / D number 1 - 32000				
unit:	-				
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

1.12 Tool-related data

STRING	**$TC_TP2 [32000]**	-	**reference:**	

description:
$TC_TP2[t]
Tool identifier

Index 1:	t: T number 1 - 32000				
Index 3:	Max. string length				
unit:	-				
min.:		**max.:**		**std:**	""

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_TP1 [32000]**	-	**reference:**	

description:
$TC_TP1[t]
Duplo number

Index 1:	t: T number 1 - 32000				
unit:	-				
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_TP3 [32000]**	-	**reference:**	

description:
$TC_TP3[t]
Size on left

Index 1:	t: T number 1 - 32000					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	1	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:				**Valuation:**	channel-specific	
block search	Not classified			**link**	No restrictions	

INT	**$TC_TP4 [32000]**	-	**reference:**	

description:
$TC_TP4[t]
Size on right

Index 1:	t: T number 1 - 32000					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	1	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:				**Valuation:**	channel-specific	
block search	Not classified			**link**	No restrictions	

INT	**$TC_TP5 [32000]**	-	**reference:**	

description:
$TC_TP5[t]
Size at top

Index 1:	t: T number 1 - 32000					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	1	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:				**Valuation:**	channel-specific	
block search	Not classified			**link**	No restrictions	

INT	**$TC_TP6 [32000]**	-	**reference:**	

description:
$TC_TP6[t]
Size at bottom

Index 1:	t: T number 1 - 32000					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	1	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:					**Valuation:**	channel-specific
block search	Not classified				**link**	No restrictions

INT	**$TC_TP7 [32000]**	-	**reference:**	

description:
$TC_TP7[t]
Magazine location type

Index 1:	t: T number 1 - 32000					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	9999	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:					**Valuation:**	channel-specific
block search	Not classified				**link**	No restrictions

INT	**$TC_TP8 [32000]**	-	**reference:**	

description:
$TC_TP8[t]
Status

Index 1:	t: T number 1 - 32000					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:					**Valuation:**	channel-specific
block search	Not classified				**link**	No restrictions

INT	**$TC_TP9 [32000]**	-	**reference:**	

description:
$TC_TP9[t]
Type of tool monitoring

Index 1:	t: T number 1 - 32000					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:				**Valuation:**	channel-specific	
block search	Not classified			**link**	No restrictions	

INT	**$TC_TP11 [32000]**	-	**reference:**	

description:
$TC_TP11[t]
Replacement-change strategy

Index 1:	t: T number 1 - 32000					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:				**Valuation:**	channel-specific	
block search	Not classified			**link**	No restrictions	

INT	**$TC_TP10 [32000]**	-	**reference:**	

description:
$TC_TP10[t]
Tool info

Index 1:	t: T number 1 - 32000					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:				**Valuation:**	channel-specific	
block search	Not classified			**link**	No restrictions	

STRING	**$TC_TP_PROTA [32000]**	Name for the protection zone	**reference:**	

description:

$TC_TP_PROTA[t]

Name of the 3-dimensional protection area for the tool, or the name of the file containing the description of the protection area for the tool.

Index 1:	t: T number 1 - 32000					
Index 3:	Maximum path length (160 characters)					
unit:	-					
min.:		**max.:**		**std:**	""	
Properties with regard to reading/writing:						
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**
read:	X	-	7	X	7	X
write:	X	-	7	X	7	X
axis identifier:				**Valuation:**	channel-specific	
block search	Not classified			**link**	No restrictions	

DOUBLE	**$TC_TP_MAX_VELO [32000]**	Maximum speed of the tool	**reference:**	

description:

$TC_TP_MAX_VELO[t]

Maximum speed of the tool when the value is >0. There is no monitoring if a speed limit has not been defined (=0).

Index 1:	t: T number 1 - 32000					
unit:	rpm					
min.:	0	**max.:**	1,8E308	**std:**	0.0	
Properties with regard to reading/writing:						
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**
read:	X	-	7	X	7	-
write:	X	-	4	X	7	-
axis identifier:				**Valuation:**	channel-specific	
block search	Not classified			**link**	No restrictions	

DOUBLE	**$TC_TP_MAX_ACC [32000]**	Maximum acceleration of the tool	**reference:**	

description:

$TC_TP_MAX_ACC[t]

Maximum acceleration of the tool when the value is >0. There is no monitoring if an acceleration limit has not been defined (=0).

Index 1:	t: T number 1 - 32000					
unit:	rps^2					
min.:	0	**max.:**	1,8E308	**std:**	0.0	
Properties with regard to reading/writing:						
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**
read:	X	-	7	X	7	-

write:	X	-	4	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_TPC1 [32000]**	-	**reference:**	

description:
The type can be specified by machine data. INT is the default setting
$TC_TPC1[t]

Index 1:	t: T number 1 - 32000					
unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_TPC2 [32000]**	-	**reference:**	

description:
The type can be specified by machine data. INT is the default setting
$TC_TPC2[t]

Index 1:	t: T number 1 - 32000					
unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_TPC3 [32000]**	-	**reference:**	

description:
The type can be specified by machine data. INT is the default setting
$TC_TPC3[t]

Index 1:	t: T number 1 - 32000					
unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	

write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_TPC4 [32000]**		-			**reference:**	
description:							
The type can be specified by machine data. INT is the default setting							
$TC_TPC4[t]							
Index 1:	t: T number 1 - 32000						
unit:	-						
min.:	-1,8E308	**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_TPC5 [32000]**		-			**reference:**	
description:							
The type can be specified by machine data. INT is the default setting							
$TC_TPC5[t]							
Index 1:	t: T number 1 - 32000						
unit:	-						
min.:	-1,8E308	**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_TPC6 [32000]**		-			**reference:**	
description:							
The type can be specified by machine data. INT is the default setting							
$TC_TPC6[t]							
Index 1:	t: T number 1 - 32000						
unit:	-						
min.:	-1,8E308	**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	

write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_TPC7 [32000]**	-	**reference:**	

description:
The type can be specified by machine data. INT is the default setting
$TC_TPC7[t]

Index 1:	t: T number 1 - 32000						
unit:	-						
min.:	-1,8E308	**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_TPC8 [32000]**	-	**reference:**	

description:
The type can be specified by machine data. INT is the default setting
$TC_TPC8[t]

Index 1:	t: T number 1 - 32000						
unit:	-						
min.:	-1,8E308	**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_TPC9 [32000]**	-	**reference:**	

description:
The type can be specified by machine data. INT is the default setting
$TC_TPC9[t]

Index 1:	t: T number 1 - 32000						
unit:	-						
min.:	-1,8E308	**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	

write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_TPC10 [32000]**		-			**reference:**	
description:							
The type can be specified by machine data. INT is the default setting							
$TC_TPC10[t]							
Index 1:	t: T number 1 - 32000						
unit:	-						
min.:	-1,8E308	**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_TPCS1 [32000]**		-			**reference:**	
description:							
The type can be specified by machine data. INT is the default setting							
$TC_TPCS1[t]							
Index 1:	t: T number 1 - 32000						
unit:	-						
min.:	-1,8E308	**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_TPCS2 [32000]**		-			**reference:**	
description:							
The type can be specified by machine data. INT is the default setting							
$TC_TPCS2[t]							
Index 1:	t: T number 1 - 32000						
unit:	-						
min.:	-1,8E308	**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	

write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_TPCS3 [32000]**	-	**reference:**	

description:
The type can be specified by machine data. INT is the default setting
$TC_TPCS3[t]

Index 1:	t: T number 1 - 32000						
unit:	-						
min.:	-1,8E308	**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_TPCS4 [32000]**	-	**reference:**	

description:
The type can be specified by machine data. INT is the default setting
$TC_TPCS4[t]

Index 1:	t: T number 1 - 32000						
unit:	-						
min.:	-1,8E308	**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_TPCS5 [32000]**	-	**reference:**	

description:
The type can be specified by machine data. INT is the default setting
$TC_TPCS5[t]

Index 1:	t: T number 1 - 32000						
unit:	-						
min.:	-1,8E308	**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	

write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_TPCS6 [32000]**	-	**reference:**	
description:				
The type can be specified by machine data. INT is the default setting				
$TC_TPCS6[t]				
Index 1:	t: T number 1 - 32000			
unit:	-			
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0
Properties with regard to reading/writing:					

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_TPCS7 [32000]**	-	**reference:**	
description:				
The type can be specified by machine data. INT is the default setting				
$TC_TPCS7[t]				
Index 1:	t: T number 1 - 32000			
unit:	-			
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0
Properties with regard to reading/writing:					

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_TPCS8 [32000]**	-	**reference:**	
description:				
The type can be specified by machine data. INT is the default setting				
$TC_TPCS8[t]				
Index 1:	t: T number 1 - 32000			
unit:	-			
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0
Properties with regard to reading/writing:					

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	

write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_TPCS9 [32000]**		-		**reference:**	
description:						
The type can be specified by machine data. INT is the default setting						
$TC_TPCS9[t]						
Index 1:	t: T number 1 - 32000					
unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_TPCS10 [32000]**		-		**reference:**	
description:						
The type can be specified by machine data. INT is the default setting						
$TC_TPCS10[t]						
Index 1:	t: T number 1 - 32000					
unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

1.13 Tool-related grinding data

INT	**$TC_TPG1 [32000]**		-		**reference:**	
description:						
$TC_TPG1[t]						
Spindle number						
Index 1:	t: T number 1 - 32000					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_TPG2 [32000]**		-		**reference:**	
description:						
$TC_TPG2[t]						
Chaining rule						
Index 1:	t: T number 1 - 32000					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_TPG3 [32000]**		-		**reference:**	
description:						
$TC_TPG3[t]						
Minimum grinding wheel radius						
Index 1:	t: T number 1 - 32000					
unit:	mm					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_TPG4 [32000]**		-		**reference:**	
description:						
$TC_TPG4[t]						
Minimum grinding wheel width						
Index 1:	t: T number 1 - 32000					
unit:	mm					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_TPG5 [32000]**	-	**reference:**	
description:				
$TC_TPG5[t]				
Current grinding wheel width				
Index 1:	t: T number 1 - 32000			
unit:	mm			
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_TPG6 [32000]**	-	**reference:**	
description:				
$TC_TPG6[t]				
Maximum speed				
Index 1:	t: T number 1 - 32000			
unit:	-			
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_TPG7 [32000]**	-	**reference:**	
description:				
$TC_TPG7[t]				
Max. peripheral speed				
Index 1:	t: T number 1 - 32000			
unit:	m/sec			
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_TPG8 [32000]**	-	**reference:**	
description:				
$TC_TPG8[t]				
Angle of inclined grinding wheel				
Index 1:	t: T number 1 - 32000			
unit:	-			
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_TPG9 [32000]**	-	**reference:**	
description:				
$TC_TPG9[t]				
Parameter no. f. radius calculation				
Index 1:	t: T number 1 - 32000			
unit:	-			
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

1.14 Magazine location data

BOOL	**$TC_MPP3 [32000,32000]**	-	**reference:**	

description:
$TC_MPP3[n,m]
Consider adjacent location On/Off

Index 1:	n: Physical magazine number						
Index 2:	m: Physical location number						
unit:	-						
min.:	FALSE		**max.:**	TRUE		**std:**	FALSE
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MPP1 [32000,32000]**	-	**reference:**	

description:
$TC_MPP1[n,m]
Location type

Index 1:	n: Physical magazine number						
Index 2:	m: Physical location number						
unit:	-						
min.:	-2147483648		**max.:**	2147483647		**std:**	0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MPP2 [32000,32000]**	-	**reference:**	

description:
$TC_MPP2[n,m]
Location type

Index 1:	n: Physical magazine number						
Index 2:	m: Physical location number						
unit:	-						
min.:	-2147483648		**max.:**	2147483647		**std:**	9999
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	

write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MPP6 [32000,32000]**		-		**reference:**	
description:						
$TC_MPP6[n,m]						
T no. of tool in this location						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MPP4 [32000,32000]**		-		**reference:**	
description:						
$TC_MPP4[n,m]						
Location state						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**		2
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MPP5 [32000,32000]**		-		**reference:**	
description:						
$TC_MPP5[n,m]						
Buffer magazine: Location type index						
Real magazines:Wear group number						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**		0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MPP7 [32000,32000]**	-	**reference:**	

description:
$TC_MPP7[n,m]
Adapter number of tool adapter in this location

Index 1:	n: Physical magazine number				
Index 2:	m: Physical location number				
unit:	-				
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MPP66 [32000,32000]**	-	**reference:**	

description:
$TC_MPP66[n,m]
T no. of tool stored in buffer
for which the location defined by n,m is reserved.
A write operation is meaningful only when a backup file is loaded to the NCK.
The name assignment is based on $TC_MPP6 - T no. of tool stored in the magazine location.

Index 1:	n: Physical magazine number				
Index 2:	m: Physical location number				
unit:	-				
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MPP_SP [32000,32000]**	Spindle number assigned to the tool holder	**reference:**	

description:

$TC_MPP_SP[n,m]

Only of significance if

- Working with tool holders ($MC_TOOLHOLDER_MANAGEMENT > 0)
- The magazine location "m" belongs to a buffer magazine "n"
- The magazine location describes a tool holder ($TC_MPP1[n,m]=2)

In this case, the system variable contains the spindle number whose speed is to be monitored for the maximum tool speed.

When not working with tool holders ($MC_TOOLHOLDER_MANAGEMENT = 0), the variable contains the value of the spindle index from $TC_MPP5.

This variable contains the value =0 if the magazine location "n,m" is not a buffer magazine location for a spindle or tool holder.

Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	-	0	-	

axis identifier:			**Valuation:**	channel-specific	
block search	Not classified		**link**	No restrictions	

1.15 Magazine location data for OEM users

INT	**$TC_MPPC1 [32000,32000]**	-	**reference:**	

description:

The type can be specified by machine data. INT is the default setting

$TC_MPPC1[n,m]

Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:			**Valuation:**	channel-specific	
block search	Not classified		**link**	No restrictions	

INT	**$TC_MPPC2 [32000,32000]**	-	**reference:**	

description:
The type can be specified by machine data. INT is the default setting
$TC_MPPC2[n,m]

Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:					**Valuation:**	channel-specific
block search	Not classified				**link**	No restrictions

INT	**$TC_MPPC3 [32000,32000]**	-	**reference:**	

description:
The type can be specified by machine data. INT is the default setting
$TC_MPPC3[n,m]

Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:					**Valuation:**	channel-specific
block search	Not classified				**link**	No restrictions

INT	**$TC_MPPC4 [32000,32000]**	-	**reference:**	

description:
The type can be specified by machine data. INT is the default setting
$TC_MPPC4[n,m]

Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	

write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MPPC5 [32000,32000]**		-		**reference:**	
description:						
The type can be specified by machine data. INT is the default setting						
$TC_MPPC5[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MPPC6 [32000,32000]**		-		**reference:**	
description:						
The type can be specified by machine data. INT is the default setting						
$TC_MPPC6[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MPPC7 [32000,32000]**		-		**reference:**	
description:						
The type can be specified by machine data. INT is the default setting						
$TC_MPPC7[n,m]						
Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MPPC8 [32000,32000]**	-	**reference:**	

description:
The type can be specified by machine data. INT is the default setting
$TC_MPPC8[n,m]

Index 1:	n: Physical magazine number				
Index 2:	m: Physical location number				
unit:	-				
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MPPC9 [32000,32000]**	-	**reference:**	

description:
The type can be specified by machine data. INT is the default setting
$TC_MPPC9[n,m]

Index 1:	n: Physical magazine number				
Index 2:	m: Physical location number				
unit:	-				
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MPPC10 [32000,32000]**	-	**reference:**	

description:
The type can be specified by machine data. INT is the default setting
$TC_MPPC10[n,m]

Index 1:	n: Physical magazine number
Index 2:	m: Physical location number

unit:		-					
min.:		-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

INT	**$TC_MPPCS1 [32000,32000]**	-	**reference:**
description: The type can be specified by machine data. INT is the default setting $TC_MPPCS1[n,m]			
Index 1:	n: Physical magazine number		
Index 2:	m: Physical location number		

unit:		-					
min.:		-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

INT	**$TC_MPPCS2 [32000,32000]**	-	**reference:**
description: The type can be specified by machine data. INT is the default setting $TC_MPPCS2[n,m]			
Index 1:	n: Physical magazine number		
Index 2:	m: Physical location number		

unit:		-					
min.:		-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

INT	**$TC_MPPCS3 [32000,32000]**	-	**reference:**	

description:
The type can be specified by machine data. INT is the default setting
$TC_MPPCS3[n,m]

Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:		**Valuation:**	channel-specific
block search	Not classified	**link**	No restrictions

INT	**$TC_MPPCS4 [32000,32000]**	-	**reference:**	

description:
The type can be specified by machine data. INT is the default setting
$TC_MPPCS4[n,m]

Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:		**Valuation:**	channel-specific
block search	Not classified	**link**	No restrictions

INT	**$TC_MPPCS5 [32000,32000]**	-	**reference:**	

description:
The type can be specified by machine data. INT is the default setting
$TC_MPPCS5[n,m]

Index 1:	n: Physical magazine number					
Index 2:	m: Physical location number					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	

write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MPPCS6 [32000,32000]**	-	**reference:**	

description:
The type can be specified by machine data. INT is the default setting
$TC_MPPCS6[n,m]

Index 1:	n: Physical magazine number						
Index 2:	m: Physical location number						
unit:	-						
min.:	-2147483648	**max.:**	2147483647	**std:**	0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MPPCS7 [32000,32000]**	-	**reference:**	

description:
The type can be specified by machine data. INT is the default setting
$TC_MPPCS7[n,m]

Index 1:	n: Physical magazine number						
Index 2:	m: Physical location number						
unit:	-						
min.:	-2147483648	**max.:**	2147483647	**std:**	0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MPPCS8 [32000,32000]**	-	**reference:**	

description:
The type can be specified by machine data. INT is the default setting
$TC_MPPCS8[n,m]

Index 1:	n: Physical magazine number				
Index 2:	m: Physical location number				
unit:	-				
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MPPCS9 [32000,32000]**	-	**reference:**	

description:
The type can be specified by machine data. INT is the default setting
$TC_MPPCS9[n,m]

Index 1:	n: Physical magazine number				
Index 2:	m: Physical location number				
unit:	-				
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MPPCS10 [32000,32000]**	-	**reference:**	

description:
The type can be specified by machine data. INT is the default setting
$TC_MPPCS10[n,m]

Index 1:	n: Physical magazine number				
Index 2:	m: Physical location number				
unit:	-				
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MDP1 [32000,32000]**	-	**reference:**	

description:
$TC_MDP1[n,m]
Distance to tool change point betw. magazine n and location m of 1st internal magazine
internal mag. 1 distance parameter

Index 1:		n: Physical magazine number					
Index 2:		m: Physical location number					
unit:		-					
min.:		-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

INT	**$TC_MDP2 [32000,32000]**	-	**reference:**	
description: $TC_MDP2[n,m] Distance to tool change point betw. magazine n and location m of 2nd internal magazine internal mag. 2 distance parameter				

Index 1:		n: Physical magazine number					
Index 2:		m: Physical location number					
unit:		-					
min.:		-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

INT	**$TC_MLSR [32000,32000]**	-	**reference:**	
description: $TC_MLSR[n,m]=0 Assignment of buffer location n to buffer location m m must identify a location of type 'Spindle'. n must identify a location which is not a 'Spindle' type location. In this way it is possible, for example, to define which grippers, spindles, etc. are assigned. The default parameter setting is 0. The write operation defines a relationship, the read operation checks whether a particular relationship exists. If it does not exist, the read operation generates an alarm. define links of grippers,... to spindles.				

Index 1:	m: Physical magazine location number of location type not equal to SPINDLE
Index 2:	m: Physical magazine location number of location type equal to SPINDLE

unit:		-					
min.:		-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

INT	**$TC_MPTH [32,32]**	-	**reference:**	
description:				
$TC_MPTH[n,m]				
Magazine location type hierarchy				
mag.location (place)types hierarchy parameter				
Index 1:	n: Hierarchy 0 - SLMAXHIERARCHYNUMBER-1			
Index 2:	m: Location type 0 - SLMAXHIERARCHYENTRIES - 1			

unit:		-					
min.:		-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

1.16 Magazine description data for tool management

STRING	**$TC_MAP2 [32000]**	-	**reference:**	
description:				
$TC_MAP2[n]				
Identifier of magazine				
Index 1:	n: Magazine number 1 - ..			
Index 3:	Max. string length			

unit:		-					
min.:			**max.:**		**std:**		""
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

INT	**$TC_MAP1 [32000]**	-	**reference:**	

description:
$TC_MAP1[n]
Type of magazine

Index 1:	n: Magazine number 1 - ..					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	-	0	-	

axis identifier:					**Valuation:**	channel-specific
block search	Not classified				**link**	No restrictions

INT	**$TC_MAP3 [32000]**	-	**reference:**	

description:
$TC_MAP3[n]
Status of magazine

Index 1:	n: Magazine number 1 - ..					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	2	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:					**Valuation:**	channel-specific
block search	Not classified				**link**	No restrictions

INT	**$TC_MAP4 [32000]**	-	**reference:**	

description:
$TC_MAP4[n]
Chaining to next magazine

Index 1:	n: Magazine number 1 - ..					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	-1	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	-	0	-	

axis identifier:					**Valuation:**	channel-specific
block search	Not classified				**link**	No restrictions

INT	**$TC_MAP5 [32000]**	-	**reference:**	

description:
$TC_MAP5[n]
Chaining to previous magazine

Index 1:	n: Magazine number 1 - ..					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	-1	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	-	0	-	

axis identifier:					**Valuation:**	channel-specific
block search	Not classified				**link**	No restrictions

INT	**$TC_MAP6 [32000]**	-	**reference:**	

description:
$TC_MAP6[n]
Number of lines

Index 1:	n: Magazine number 1 - ..					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	1	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	-	0	-	

axis identifier:					**Valuation:**	channel-specific
block search	Not classified				**link**	No restrictions

INT	**$TC_MAP7 [32000]**	-	**reference:**	

description:
$TC_MAP7[n]
Number of columns

Index 1:	n: Magazine number 1 - ..					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	-	0	-	

axis identifier:					**Valuation:**	channel-specific
block search	Not classified				**link**	No restrictions

INT	**$TC_MAP8 [32000]**	-	**reference:**	

description:
$TC_MAP8[n]
Current magazine position in relation to tool change position

Index 1:	n: Magazine number 1 - ..				
unit:	-				
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:				**Valuation:**	channel-specific
block search	Not classified			**link**	No restrictions

INT	**$TC_MAP9 [32000]**	-	**reference:**	

description:
$TC_MAP9[n]
Current wear group number

Index 1:	n: Magazine number 1 - ..				
unit:	-				
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:				**Valuation:**	channel-specific
block search	Not classified			**link**	No restrictions

INT	**$TC_MAP10 [32000]**	-	**reference:**	

description:
$TC_MAP10[n]
Current search strategies of magazine.
- Tool search strategy
- Empty location search strategy
The NCK enters the value of $TC_MAMP2 per default.

Index 1:	n: Magazine number 1 - ..				
unit:	-				
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	

write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

1.17 Magazine description data for OEM user tool management

INT	**$TC_MAPC1 [32000]**	-	**reference:**	

description:
The type can be specified by machine data. INT is the default setting
$TC_MAPC1[n]

Index 1:	n: Magazine number 1 - ..						
unit:	-						
min.:	-2147483648	**max.:**	2147483647	**std:**	0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MAPC2 [32000]**	-	**reference:**	

description:
The type can be specified by machine data. INT is the default setting
$TC_MAPC2[n]

Index 1:	n: Magazine number 1 - ..						
unit:	-						
min.:	-2147483648	**max.:**	2147483647	**std:**	0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MAPC3 [32000]**	-	**reference:**	

description:
The type can be specified by machine data. INT is the default setting
$TC_MAPC3[n]

Index 1:	n: Magazine number 1 - ..				
unit:	-				
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MAPC4 [32000]**	-	**reference:**	
description:				
The type can be specified by machine data. INT is the default setting				
$TC_MAPC4[n]				
Index 1:	n: Magazine number 1 - ..			
unit:	-			
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MAPC5 [32000]**	-	**reference:**	
description:				
The type can be specified by machine data. INT is the default setting				
$TC_MAPC5[n]				
Index 1:	n: Magazine number 1 - ..			
unit:	-			
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MAPC6 [32000]**	-	**reference:**	
description:				
The type can be specified by machine data. INT is the default setting $TC_MAPC6[n]				
Index 1:	n: Magazine number 1 - ..			
unit:	-			
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	

read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MAPC7 [32000]**	-	**reference:**	

description:
The type can be specified by machine data. INT is the default setting
$TC_MAPC7[n]

Index 1:	n: Magazine number 1 - ..						
unit:	-						
min.:	-2147483648	**max.:**	2147483647	**std:**	0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MAPC8 [32000]**	-	**reference:**	

description:
The type can be specified by machine data. INT is the default setting
$TC_MAPC8[n]

Index 1:	n: Magazine number 1 - ..						
unit:	-						
min.:	-2147483648	**max.:**	2147483647	**std:**	0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MAPC9 [32000]**	-	**reference:**	

description:
The type can be specified by machine data. INT is the default setting
$TC_MAPC9[n]

Index 1:	n: Magazine number 1 - ..						
unit:	-						
min.:	-2147483648	**max.:**	2147483647	**std:**	0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	

write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MAPC10 [32000]**		-		**reference:**	
description:						
The type can be specified by machine data. INT is the default setting						
$TC_MAPC10[n]						
Index 1:	n: Magazine number 1 - ..					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MAPCS1 [32000]**		-		**reference:**	
description:						
The type can be specified by machine data. INT is the default setting						
$TC_MAPCS1[n]						
Index 1:	n: Magazine number 1 - ..					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MAPCS2 [32000]**		-		**reference:**	
description:						
The type can be specified by machine data. INT is the default setting						
$TC_MAPCS2[n]						
Index 1:	n: Magazine number 1 - ..					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	

write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MAPCS3 [32000]**	-	**reference:**	

description:
The type can be specified by machine data. INT is the default setting
$TC_MAPCS3[n]

Index 1:	n: Magazine number 1 - ..						
unit:	-						
min.:	-2147483648	**max.:**	2147483647	**std:**	0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MAPCS4 [32000]**	-	**reference:**	

description:
The type can be specified by machine data. INT is the default setting
$TC_MAPCS4[n]

Index 1:	n: Magazine number 1 - ..						
unit:	-						
min.:	-2147483648	**max.:**	2147483647	**std:**	0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MAPCS5 [32000]**	-	**reference:**	

description:
The type can be specified by machine data. INT is the default setting
$TC_MAPCS5[n]

Index 1:	n: Magazine number 1 - ..						
unit:	-						
min.:	-2147483648	**max.:**	2147483647	**std:**	0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	

write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MAPCS6 [32000]**		-		**reference:**	
description:						
The type can be specified by machine data. INT is the default setting						
$TC_MAPCS6[n]						
Index 1:	n: Magazine number 1 - ..					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MAPCS7 [32000]**		-		**reference:**	
description:						
The type can be specified by machine data. INT is the default setting						
$TC_MAPCS7[n]						
Index 1:	n: Magazine number 1 - ..					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MAPCS8 [32000]**		-		**reference:**	
description:						
The type can be specified by machine data. INT is the default setting						
$TC_MAPCS8[n]						
Index 1:	n: Magazine number 1 - ..					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	

write:	X	-	7		X	7	-
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MAPCS9 [32000]**		-		**reference:**	
description:						
The type can be specified by machine data. INT is the default setting						
$TC_MAPCS9[n]						
Index 1:	n: Magazine number 1 - ..					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MAPCS10 [32000]**		-		**reference:**	
description:						
The type can be specified by machine data. INT is the default setting						
$TC_MAPCS10[n]						
Index 1:	n: Magazine number 1 - ..					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

1.18 Magazine block parameters

STRING	**$TC_MAMP1 [-1]**	-	**reference:**	

description:
$TC_MAMP1 Identifier of magazine block

Index 1:	Scalable variable						
Index 3:	Max. string length						
unit:	-						
min.:		**max.:**		**std:**		"n"	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MAMP2 [-1]**	-	**reference:**	

description:
$TC_MAMP2 Type of tool search

Index 1:	Scalable variable						
unit:	-						
min.:	-2147483648	**max.:**	2147483647	**std:**		0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MAMP3 [-1]**	-	**reference:**	

description:
$TC_MAMP3 Handling of tools in wear groups

Index 1:	Scalable variable						
unit:	-						
min.:	-2147483648	**max.:**	2147483647	**std:**		0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

1.19 Adapter data

INT	**$TC_ADPTT [32000]**	-	**reference:**	

description:
$TC_ADPTT[a]
Adapter transformation number

Index 1:	a: Adapter number 1 - 32000					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:				**Valuation:**	channel-specific	
block search	Not classified			**link**	No restrictions	

DOUBLE	**$TC_ADPT1 [32000]**	-	**reference:**	

description:
$TC_ADPT1[a]
Adapter geometry: Length 1

Index 1:	a: Adapter number 1 - 32000					
unit:	mm					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:				**Valuation:**	channel-specific	
block search	Not classified			**link**	No restrictions	

DOUBLE	**$TC_ADPT2 [32000]**	-	**reference:**	

description:
$TC_ADPT2[a]
Adapter geometry: Length 2

Index 1:	a: Adapter number 1 - 32000					
unit:	mm					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:				**Valuation:**	channel-specific	
block search	Not classified			**link**	No restrictions	

DOUBLE	**$TC_ADPT3 [32000]**	-	**reference:**	

description:
$TC_ADPT3[a]
Adapter geometry: Length 3

Index 1:	a: Adapter number 1 - 32000					
unit:	mm					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:				**Valuation:**	channel-specific	
block search	Not classified			**link**	No restrictions	

1.20 MultiTool data

INT	**$TC_MTPN [32000]**	-	**reference:**	

description:
$TC_MTPN[n]
Number loc.

Index 1:	n: Multitool number					
unit:	-					
min.:	0	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:				**Valuation:**	channel-specific	
block search	Not classified			**link**	No restrictions	

STRING	**$TC_MTP2 [32000]**	-	**reference:**	

description:
$TC_MAP2[n]
Identifier of Multitool

Index 1:	n: Multitool number					
Index 3:	Max. string length					
unit:	-					
min.:		**max.:**		**std:**	""	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	

read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MTP3 [32000]**		-		**reference:**	
description:						
$TC_MTP3[n]						
Size to the left						
Index 1:	n: Multitool number					
unit:	-					
min.:	1	**max.:**	7	**std:**	1	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MTP4 [32000]**		-		**reference:**	
description:						
$TC_MTP4[n]						
Size to the right						
Index 1:	n: Multitool number					
unit:	-					
min.:	1	**max.:**	7	**std:**	1	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MTP5 [32000]**		-		**reference:**	
description:						
$TC_MTP5[n]						
Upward size						
Index 1:	n: Multitool number					
unit:	-					
min.:	1	**max.:**	7	**std:**	1	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	

write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MTP6 [32000]**			-		**reference:**	
description:							
$TC_MTP6[n]							
Downward size							
Index 1:	n: Multitool number						
unit:	-						
min.:	1	**max.:**	7		**std:**	1	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MTP7 [32000]**			-		**reference:**	
description:							
$TC_MTP7[n]							
Multitool location type							
Index 1:	n: Multitool number						
unit:	-						
min.:	-2147483648	**max.:**	2147483647		**std:**	9999	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MTP8 [32000]**			-		**reference:**	
description:							
$TC_MTP8[n]							
State							
Index 1:	n: Multitool number						
unit:	-						
min.:	-2147483648	**max.:**	2147483647		**std:**	0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	

write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MTP_POS [32000]**	-	**reference:**	

description:
$TC_MTP_POS[n]
Position

Index 1:	n: Multitool number						
unit:	-						
min.:	0	**max.:**	2147483647	**std:**	0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MTP_KD [32000]**	Type of distance coding	**reference:**	

description:
$TC_MTP_KD[n]
Type of distance coding

Index 1:	n: Multitool number						
unit:	-						
min.:	1	**max.:**	3	**std:**	1		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

STRING	**$TC_MTP_PROTA [32000]**	Name for the protection zone	**reference:**	

description:
$TC_MTP_PROTA[n]
Name of the 3-dimensional protection area for the Multitool, or the name of the file, which contains the description of the protection area for the Multitool.

Index 1:	n: Multitool number						
Index 3:	Max. string length						
unit:	-						
min.:		**max.:**		**std:**	""		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	

read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MTPC1 [32000]**	-	**reference:**	

description:
The type can be specified by the machine data. Default setting is INT
$TC_MTPC1[n]

Index 1:	n: Multitool number						
unit:	-						
min.:	-2147483648	**max.:**	2147483647	**std:**		0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MTPC2 [32000]**	-	**reference:**	

description:
The type can be specified by the machine data. Default setting is INT
$TC_MTPC2[n]

Index 1:	n: Multitool number						
unit:	-						
min.:	-2147483648	**max.:**	2147483647	**std:**		0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MTPC3 [32000]**	-	**reference:**	

description:
The type can be specified by the machine data. Default setting is INT
$TC_MTPC3[n]

Index 1:	n: Multitool number						
unit:	-						
min.:	-2147483648	**max.:**	2147483647	**std:**		0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	

write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MTPC4 [32000]**	-	**reference:**	

description:
The type can be specified by the machine data. Default setting is INT
$TC_MTPC4[n]

Index 1:	n: Multitool number						
unit:	-						
min.:	-2147483648	**max.:**	2147483647	**std:**	0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MTPC5 [32000]**	-	**reference:**	

description:
The type can be specified by the machine data. Default setting is INT
$TC_MTPC5[n]

Index 1:	n: Multitool number						
unit:	-						
min.:	-2147483648	**max.:**	2147483647	**std:**	0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MTPC6 [32000]**	-	**reference:**	

description:
The type can be specified by the machine data. Default setting is INT
$TC_MTPC6[n]

Index 1:	n: Multitool number						
unit:	-						
min.:	-2147483648	**max.:**	2147483647	**std:**	0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	

write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MTPC7 [32000]**			-		**reference:**	
description:							
The type can be specified by the machine data. Default setting is INT							
$TC_MTPC7[n]							
Index 1:	n: Multitool number						
unit:	-						
min.:	-2147483648	**max.:**	2147483647	**std:**		0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MTPC8 [32000]**			-		**reference:**	
description:							
The type can be specified by the machine data. Default setting is INT							
$TC_MTPC8[n]							
Index 1:	n: Multitool number						
unit:	-						
min.:	-2147483648	**max.:**	2147483647	**std:**		0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MTPC9 [32000]**			-		**reference:**	
description:							
The type can be specified by the machine data. Default setting is INT							
$TC_MTPC9[n]							
Index 1:	n: Multitool number						
unit:	-						
min.:	-2147483648	**max.:**	2147483647	**std:**		0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	

write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MTPC10 [32000]**	-	**reference:**	

description:
The type can be specified by the machine data. Default setting is INT
$TC_MTPC10[n]

Index 1:	n: Multitool number					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MTPCS1 [32000]**	-	**reference:**	

description:
The type can be specified by the machine data. Default setting is INT
$TC_MTPCS1[n]

Index 1:	n: Multitool number					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MTPCS2 [32000]**	-	**reference:**	

description:
The type can be specified by the machine data. Default setting is INT
$TC_MTPCS2[n]

Index 1:	n: Multitool number					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	

write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MTPCS3 [32000]**		-		**reference:**	
description:						
The type can be specified by the machine data. Default setting is INT						
$TC_MTPCS3[n]						
Index 1:	n: Multitool number					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MTPCS4 [32000]**		-		**reference:**	
description:						
The type can be specified by the machine data. Default setting is INT						
$TC_MTPCS4[n]						
Index 1:	n: Multitool number					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MTPCS5 [32000]**		-		**reference:**	
description:						
The type can be specified by the machine data. Default setting is INT						
$TC_MTPCS5[n]						
Index 1:	n: Multitool number					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	

write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MTPCS6 [32000]**		-		**reference:**	
description:						
The type can be specified by the machine data. Default setting is INT						
$TC_MTPCS6[n]						
Index 1:	n: Multitool number					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MTPCS7 [32000]**		-		**reference:**	
description:						
The type can be specified by the machine data. Default setting is INT						
$TC_MTPCS7[n]						
Index 1:	n: Multitool number					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MTPCS8 [32000]**		-		**reference:**	
description:						
The type can be specified by the machine data. Default setting is INT						
$TC_MTPCS8[n]						
Index 1:	n: Multitool number					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	

write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MTPCS9 [32000]**		-		**reference:**	
description:						
The type can be specified by the machine data. Default setting is INT						
$TC_MTPCS9[n]						
Index 1:	n: Multitool number					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MTPCS10 [32000]**		-		**reference:**	
description:						
The type can be specified by the machine data. Default setting is INT						
$TC_MTPCS10[n]						
Index 1:	n: Multitool number					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MTPP2 [32000,32]**		-		**reference:**	
description:						
$TC_MTPP2[n,m]						
Multitool location type						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
unit:	-					
min.:	0	**max.:**	32000	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	

write:	X	-	7		X	7	-
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MTPP4 [32000,32]**		-		**reference:**	
description:						
$TC_MTPP4[n,m]						
Multitool location state						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
unit:	-					
min.:	0	**max.:**	3	**std:**	2	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MTPP6 [32000,32]**		-		**reference:**	
description:						
$TC_MTPP6[n,m]						
T No. of the tool on this Multitool location						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
unit:	-					
min.:	0	**max.:**	32000	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MTPP7 [32000,32]**		-		**reference:**	
description:						
$TC_MTPP7[n,m]						
Adapter number of the tool adapter on this Multitool location						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
unit:	-					
min.:	0	**max.:**	32000	**std:**	0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_MTPPL [32000,32]**	-	**reference:**	

description:
$TC_MTPPL[n,m]
Distance from reference location, length

Index 1:	n: Multitool number				
Index 2:	m: Multitool location number				
unit:	mm				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_MTPPA [32000,32]**	-	**reference:**	

description:
$TC_MTPPA[n,m]
Distance from reference location, angle

Index 1:	n: Multitool number				
Index 2:	m: Multitool location number				
unit:	deg.				
min.:	0.0	**max.:**	360.0	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MTPPC1 [32000,32]**	-	**reference:**	

description:
The type can be specified by the machine data. Default setting is INT
$TC_MTPPC1[n,m]

Index 1:	n: Multitool number
Index 2:	m: Multitool location number

unit:		-					
min.:		-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

INT	**$TC_MTPPC2 [32000,32]**	-	**reference:**
description:			
The type can be specified by the machine data. Default setting is INT			
$TC_MTPPC2[n,m]			

Index 1:		n: Multitool number					
Index 2:		m: Multitool location number					
unit:		-					
min.:		-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

INT	**$TC_MTPPC3 [32000,32]**	-	**reference:**
description:			
The type can be specified by the machine data. Default setting is INT			
$TC_MTPPC3[n,m]			

Index 1:		n: Multitool number					
Index 2:		m: Multitool location number					
unit:		-					
min.:		-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

INT	**$TC_MTPPC4 [32000,32]**	-	**reference:**	

description:
The type can be specified by the machine data. Default setting is INT
$TC_MTPPC4[n,m]

Index 1:	n: Multitool number						
Index 2:	m: Multitool location number						
unit:	-						
min.:	-2147483648	**max.:**	2147483647	**std:**	0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MTPPC5 [32000,32]**	-	**reference:**	

description:
The type can be specified by the machine data. Default setting is INT
$TC_MTPPC5[n,m]

Index 1:	n: Multitool number						
Index 2:	m: Multitool location number						
unit:	-						
min.:	-2147483648	**max.:**	2147483647	**std:**	0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MTPPC6 [32000,32]**	-	**reference:**	

description:
The type can be specified by the machine data. Default setting is INT
$TC_MTPPC6[n,m]

Index 1:	n: Multitool number						
Index 2:	m: Multitool location number						
unit:	-						
min.:	-2147483648	**max.:**	2147483647	**std:**	0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	

write:	X	-	7		X	7	-
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MTPPC7 [32000,32]**		-		**reference:**	
description:						
The type can be specified by the machine data. Default setting is INT						
$TC_MTPPC7[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MTPPC8 [32000,32]**		-		**reference:**	
description:						
The type can be specified by the machine data. Default setting is INT						
$TC_MTPPC8[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MTPPC9 [32000,32]**		-		**reference:**	
description:						
The type can be specified by the machine data. Default setting is INT						
$TC_MTPPC9[n,m]						
Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MTPPC10 [32000,32]**	-	**reference:**	

description:
The type can be specified by the machine data. Default setting is INT
$TC_MTPPC10[n,m]

Index 1:	n: Multitool number				
Index 2:	m: Multitool location number				
unit:	-				
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MTPPCS1 [32000,32]**	-	**reference:**	

description:
The type can be specified by the machine data. Default setting is INT
$TC_MTPPCS1[n,m]

Index 1:	n: Multitool number				
Index 2:	m: Multitool location number				
unit:	-				
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_MTPPCS2 [32000,32]**	-	**reference:**	

description:
The type can be specified by the machine data. Default setting is INT
$TC_MTPPCS2[n,m]

Index 1:	n: Multitool number
Index 2:	m: Multitool location number

unit:		-					
min.:		-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

INT	**$TC_MTPPCS3 [32000,32]**	-	**reference:**

description:
The type can be specified by the machine data. Default setting is INT
$TC_MTPPCS3[n,m]

Index 1:		n: Multitool number					
Index 2:		m: Multitool location number					
unit:		-					
min.:		-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

INT	**$TC_MTPPCS4 [32000,32]**	-	**reference:**

description:
The type can be specified by the machine data. Default setting is INT
$TC_MTPPCS4[n,m]

Index 1:		n: Multitool number					
Index 2:		m: Multitool location number					
unit:		-					
min.:		-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

INT	**$TC_MTPPCS5 [32000,32]**	-	**reference:**

description:
The type can be specified by the machine data. Default setting is INT
$TC_MTPPCS5[n,m]

Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:				**Valuation:**	channel-specific
block search	Not classified			**link**	No restrictions

INT	**$TC_MTPPCS6 [32000,32]**	-	**reference:**	

description:
The type can be specified by the machine data. Default setting is INT
$TC_MTPPCS6[n,m]

Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:				**Valuation:**	channel-specific
block search	Not classified			**link**	No restrictions

INT	**$TC_MTPPCS7 [32000,32]**	-	**reference:**	

description:
The type can be specified by the machine data. Default setting is INT
$TC_MTPPCS7[n,m]

Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:				**Valuation:**	channel-specific
block search	Not classified			**link**	No restrictions

INT	**$TC_MTPPCS8 [32000,32]**	-	**reference:**	

description:
The type can be specified by the machine data. Default setting is INT
$TC_MTPPCS8[n,m]

Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:				**Valuation:**	channel-specific	
block search	Not classified			**link**	No restrictions	

INT	**$TC_MTPPCS9 [32000,32]**	-	**reference:**	

description:
The type can be specified by the machine data. Default setting is INT
$TC_MTPPCS9[n,m]

Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:				**Valuation:**	channel-specific	
block search	Not classified			**link**	No restrictions	

INT	**$TC_MTPPCS10 [32000,32]**	-	**reference:**	

description:
The type can be specified by the machine data. Default setting is INT
$TC_MTPPCS10[n,m]

Index 1:	n: Multitool number					
Index 2:	m: Multitool location number					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	

write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

1.21 Measuring system compensation values

DOUBLE	**$AA_ENC_COMP [n,m]**		EEC table: Compensation value		**reference:**	
description:						
$AA_ENC_COMP[n,m,a]						
Compensation values						
a: Machine axes						
Index 1:	n: Encoder no. 0-1					
Index 2:	m: Point no. 0 - <MD value>					
Index 3:	Maximum number of axes in the system					
unit:	Linear / angular position					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:			MACH		**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$AA_ENC_COMP_STEP [n,31]**		EEC table: Distance between interpolation points		**reference:**	
description:						
$AA_ENC_COMP_STEP[n,a]						
Increment						
a: Machine axes						
Index 1:	n: Encoder no. 0-1					
Index 2:	Axis index					
unit:	Linear / angular position					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:			MACH		**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$AA_ENC_COMP_MIN [n,31]**	EEC table: Starting position	**reference:**	

description:
$AA_ENC_COMP_MIN[n,a]
Start position of compensation
a: Machine axes

Index 1:	n: Encoder no. 0-1					
Index 2:	Axis index					
unit:	Linear / angular position					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	

axis identifier:		MACH		**Valuation:**	channel-specific
block search	Not classified			**link**	No restrictions

DOUBLE	**$AA_ENC_COMP_MAX [n,31]**	EEC table: End position	**reference:**	

description:
$AA_ENC_COMP_MAX[n,a]
End position of compensation
a: Machine axes

Index 1:	n: Encoder no. 0-1					
Index 2:	Axis index					
unit:	Linear / angular position					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	

axis identifier:		MACH		**Valuation:**	channel-specific
block search	Not classified			**link**	No restrictions

BOOL	**$AA_ENC_COMP_IS_MODULO [n,31]**	EEC table: Modulo functionality	**reference:**	

description:
$AA_ENC_COMP_IS_MODULO[n,a]
Compensation is modulo
a: Machine axes

Index 1:	n: Encoder no. 0-1				
Index 2:	Axis index				
unit:	-				
min.:	FALSE	**max.:**	TRUE	**std:**	FALSE

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:			MACH		**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

1.22 Quadrant error compensation

DOUBLE	**$AA_QEC [n,m]**	QEC compensation value	**reference:**	
description: $AA_QEC[n,m,a] Result of learning process a: Machine axes				
Index 1:	n: 0			
Index 2:	m: No. of the point: 0 - $MA_MM_QEC_MAX_POINTS			
Index 3:	Axis index			
unit:	-			
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:			MACH		**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$AA_QEC_COARSE_STEPS [n,31]**	QEC coarse quantizing	**reference:**	
description: $AA_QEC_COARSE_STEPS[n,a] Compensation values: Rough quantization of characteristic a: Machine axes				
Index 1:	n: 0			
Index 2:	Axis index			
unit:	-			
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:			MACH		**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$AA_QEC_FINE_STEPS [n,31]**	QEC fine quantizing	**reference:**	

description:
$AA_QEC_FINE_STEPS[n,a]
Fine quantization of characteristic
a: Machine axes

Index 1:	n: 0					
Index 2:	Axis index					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	

axis identifier:			MACH		**Valuation:**	channel-specific
block search	Not classified				**link**	No restrictions

DOUBLE	**$AA_QEC_ACCEL_1 [n,31]**	QEC acceleration limit range 1	**reference:**	

description:
$AA_QEC_ACCEL_1[n,a]
Acceleration at 1st knee point according to definition [mm/s2 or inch/s2 or degree/s2]
a: Machine axes

Index 1:	n: 0					
Index 2:	Axis index					
unit:	Linear / angular position					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	

axis identifier:			MACH		**Valuation:**	channel-specific
block search	Not classified				**link**	No restrictions

DOUBLE	**$AA_QEC_ACCEL_2 [n,31]**	QEC acceleration limit range 2	**reference:**	

description:
$AA_QEC_ACCEL_2[n,a]
Acceleration at 2nd knee point according to definition [mm/s2 or inch/s2 or degree/s2]
a: Machine axes

Index 1:	n: 0					
Index 2:	Axis index					
unit:	Linear / angular position					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:			MACH		**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$AA_QEC_ACCEL_3 [n,31]**	QEC acceleration limit range 3	**reference:**	

description:
$AA_QEC_ACCEL_3[n,a]
Acceleration at 3rd knee point according to definition [mm/s2 or inch/s2 or degree/s2]
a: Machine axes

Index 1:	n: 0				
Index 2:	Axis index				
unit:	Linear / angular position				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:			MACH		**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$AA_QEC_MEAS_TIME_1 [n,31]**	QEC measuring time range 1	**reference:**	

description:
$AA_QEC_MEAS_TIME_1[n,a]
Measuring time for range $AA_QEC_ACCEL_1
a: Machine axes

Index 1:	n: 0				
Index 2:	Axis index				
unit:	s				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:			MACH		**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$AA_QEC_MEAS_TIME_2 [n,31]**	QEC measuring time range 2	**reference:**	

description:
$AA_QEC_MEAS_TIME_2[n,a]
Measuring time for range $AA_QEC_ACCEL_2
a: Machine axes

Index 1:	n: 0					
Index 2:	Axis index					
unit:	s					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	

axis identifier:		MACH		**Valuation:**	channel-specific
block search	Not classified			**link**	No restrictions

DOUBLE	**$AA_QEC_MEAS_TIME_3 [n,31]**	QEC measuring time range 3	**reference:**	

description:
$AA_QEC_MEAS_TIME_3[n,a]
Measuring time for range $AA_QEC_ACCEL_3
a: Machine axes

Index 1:	n: 0					
Index 2:	Axis index					
unit:	s					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	

axis identifier:		MACH		**Valuation:**	channel-specific
block search	Not classified			**link**	No restrictions

DOUBLE	**$AA_QEC_TIME_1 [n,31]**	QEC decay time 1	**reference:**	

description:
$AA_QEC_TIME_1[n,a]
1. Filtering time for feedforward element
a: Machine axes

Index 1:	n: 0				
Index 2:	Axis index				
unit:	s				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:			MACH		**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$AA_QEC_TIME_2 [n,31]**	QEC decay time 2	**reference:**	

description:
$AA_QEC_TIME_2[n,a]
2. Filtering time for feedforward element
a: Machine axes

Index 1:	n: 0				
Index 2:	Axis index				
unit:	s				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:			MACH		**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$AA_QEC_LEARNING_RATE [n,31]**	QEC learning rate	**reference:**	

description:
$AA_QEC_LEARNING_RATE[n,a]
Learning rate for network
a: Machine axes

Index 1:	n: 0				
Index 2:	Axis index				
unit:	-				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:			MACH		**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

BOOL	**$AA_QEC_DIRECTIONAL [n,31]**			QEC direction-dependence			**reference:**	
description: $AA_QEC_DIRECTIONAL[n,a] TRUE: Direction-dependent compensation FALSE: No direction-dependent compensation a: Machine axes								
Index 1:	n: 0							
Index 2:	Axis index							
unit:	-							
min.:	FALSE		**max.:**	TRUE		**std:**	FALSE	
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**		
read:	X	-	7	-	0	-		
write:	X	-	7	-	0	-		
axis identifier:			MACH		**Valuation:**	channel-specific		
block search	Not classified				**link**	No restrictions		

1.23 Interpolatory compensation

DOUBLE	**$AN_CEC [n,m]**			CEC table: Compensation value			**reference:**	
description: $AN_CEC[n,m] Compensation value								
Index 1:	n: No. of compensation table 0 - (maximum value can be set via MD)							
Index 2:	n: No. of support point 0 - (maximum value can be set via MD)							
unit:	-							
min.:	-1,8E308		**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**		
read:	X	-	7	-	0	-		
write:	X	-	7	-	0	-		
axis identifier:					**Valuation:**	channel-specific		
block search	Not classified				**link**	No restrictions		

INT	**$AN_CEC_INPUT_NCU [n]**	CEC table: Basic axis on NCU	**reference:**	
description: $AN_CEC_INPUT_NCU[n]: NCU on which the basic axis is calculated				
Index 1:	n: No. of compensation table 0 - (maximum value can be set via MD)			
unit:	-			

min.:		-2147483648		**max.:**	2147483647	**std:**	0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

AXIS	**$AN_CEC_INPUT_AXIS [n]**			CEC table: Basic axis		**reference:**	
description: $AN_CEC_INPUT_AXIS[n]: Name of axis whose setpoint is used as the compensation table input							
Index 1:		n: No. of compensation table 0 - (maximum value can be set via MD)					
unit:		-					
min.:			**max.:**		**std:**	GEOAXISNUM	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

INT	**$AN_CEC_OUTPUT_NCU [n]**			CEC table: Compensation axis on NCU		**reference:**	
description: $AN_CEC_OUTPUT_NCU[n]: NCU on which the compensation axis is calculated							
Index 1:		n: No. of compensation table 0 - (maximum value can be set via MD)					
unit:		-					
min.:		-2147483648	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

AXIS	**$AN_CEC_OUTPUT_AXIS [n]**			CEC table: Compensation axis		**reference:**	
description: $AN_CEC_OUTPUT_AXIS[n]: Name of axis to which the output of the compensation table is applied							
Index 1:		n: No. of compensation table 0 - (maximum value can be set via MD)					
unit:		-					
min.:			**max.:**		**std:**	GEOAXISNUM	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$AN_CEC_STEP [n]**	CEC table: Distance between interpolation points	**reference:**	

description:
$AN_CEC_STEP[n]
Distance of offset values

Index 1:	n: No. of compensation table 0 - (maximum value can be set via MD)				
unit:	-				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$AN_CEC_MIN [n]**	CEC table: Starting position	**reference:**	

description:
AN_CEC_MIN[n]
Start position of compensation table

Index 1:	n: No. of compensation table 0 - (maximum value can be set via MD)				
unit:	-				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$AN_CEC_MAX [n]**	CEC table: End position	**reference:**	

description:
AN_CEC_MAX[n]
End position of compensation table

Index 1:	n: No. of compensation table 0 - (maximum value can be set via MD)				
unit:	-				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0
Properties with regard to reading/writing:					

	PP	SA	PP/SA protection level	OPI	OPI protection level	OEM	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$AN_CEC_DIRECTION [n]**	CEC table: Direction-dependence	**reference:**	

description:
$AN_CEC_DIRECTION[n]
Activates direction-dependent action of compensation table
0: both traversing directions of the basic axis
1: positive traversing direction of the basic axis
-1: negative traversing direction of the basic axis

Index 1:	n: No. of compensation table 0 - (maximum value can be set via MD)				
unit:	-				
min.:	-1	**max.:**	1	**std:**	0

Properties with regard to reading/writing:

	PP	SA	PP/SA protection level	OPI	OPI protection level	OEM	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$AN_CEC_MULT_BY_TABLE [n]**	CEC table: Multiplication	**reference:**	

description:
$AN_CEC_MULT_BY_TABLE[n]
Number of table whose output value is to be multiplied by the output
value of the compensation table

Index 1:	n: No. of compensation table 0 - (maximum value can be set via MD)				
unit:	-				
min.:	0	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:

	PP	SA	PP/SA protection level	OPI	OPI protection level	OEM	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

BOOL	**$AN_CEC_IS_MODULO [n]**	CEC table: Modulo functionality	**reference:**	

description:
$AN_CEC_IS_MODULO[n]
TRUE: Cyclical repetition of compensation table
FALSE: No cyclical repetition of compensation table

Index 1:	n: No. of compensation table 0 - (maximum value can be set via MD)						
unit:	-						
min.:	FALSE	**max.:**	TRUE		**std:**	FALSE	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

1.24 NCK-specific protection areas

BOOL	**$SN_PA_ACTIV_IMMED [n]**	Protection zone immediately active	**reference:**	

description:
$SN_PA_ACTIV_IMMED[n]
Protection zone immediately active after boot
TRUE: The protection zone is activated immediately
the control has booted and the axes have been referenced
FALSE: The protection zone is not immediately active
Note: This variable can only be written as a system variable and is not affected by
the NC commands between NPROTDEF(..) and EXECUTE(n).
Note: This variable is not restored during REORG.
Note: This variable is saved during data backup.
Blocks: _N_NCK_PRO, _N_COMPLETE_PRO and _N_INITIAL_INI

Index 1:	n: Number of the protection area The maximum dimension is defined via the $MN_MM_NUM_PROTECT_AREA_NCK.						
unit:	-						
min.:	FALSE	**max.:**	TRUE		**std:**	FALSE	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

CHAR	**$SN_PA_T_W [n]**	Protection zone specific to workpiece/tool	**reference:**	

description:
$SN_PA_T_W[n]
Protection zone specific to workpiece/tool
0: Workpiece-specific protection zone
3: Tool-specific protection zone
Note: This variable is not restored during REORG.
Note: This variable is saved during data backup.
Blocks: _N_NCK_PRO, _N_COMPLETE_PRO and _N_INITIAL_INI

Index 1:	n: Number of the protection area The maximum dimension is defined via the $MN_MM_NUM_PROTECT_AREA_NCK.				
unit:	-				
min.:	0	**max.:**	3	**std:**	0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:			**Valuation:**	channel-specific	
block search	Not classified		**link**	No restrictions	

INT	**$SN_PA_ORI [n]**	Orientation of protection zone	**reference:**	

description:
$SN_PA_ORI[n]
Orientation of protection zone
0: Polygon definition in the plane from the 1st and 2nd geo axes (G17)
1: Polygon definition in the plane from the 3rd and 1st geo axes (G18)
2: Polygon definition in the plane from the 2nd and 3rd geo axes (G19)
Note: This variable is not restored during REORG.
Note: This variable is saved during data backup.
Blocks: _N_NCK_PRO, _N_COMPLETE_PRO and _N_INITIAL_INI

Index 1:	n: Number of the protection area The maximum dimension is defined via the $MN_MM_NUM_PROTECT_AREA_NCK.				
unit:	-				
min.:	0	**max.:**	2	**std:**	0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:			**Valuation:**	channel-specific	
block search	Not classified		**link**	No restrictions	

INT	**$SN_PA_LIM_3DIM [n]**	Scope of application-limiting protection zone	**reference:**	

description:
$SN_PA_LIM_3DIM[n]
Identifier for limitation of protection zone in the axis
perpendicular to the polygon definition
0: No limitation
1: Limitation in the positive direction
2: Limitation in the negative direction
3: Limitation in both directions
Note: This variable is not restored during REORG.
Note: This variable is saved during data backup.
Blocks: _N_NCK_PRO, _N_COMPLETE_PRO and _N_INITIAL_INI

Index 1:	n: Number of the protection area The maximum dimension is defined via the $MN_MM_NUM_PROTECT_AREA_NCK.					
unit:	-					
min.:	0	**max.:**	3	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:			**Valuation:**	channel-specific	
block search	Not classified		**link**	No restrictions	

DOUBLE	**$SN_PA_PLUS_LIM [n]**	Limitation of protection zone applicate plus	**reference:**	

description:
$SN_PA_PLUS_LIM[n]
Positive limitation of protection zones in the axis
perpendicular to the polygon definition
Effective only if $SN_PA_LIM_3DIM[n]=1 or = 3.
Note: This variable is not restored during REORG.
Note: This variable is saved during data backup.
Blocks: _N_NCK_PRO, _N_COMPLETE_PRO and _N_INITIAL_INI

Index 1:	n: Number of the protection area The maximum dimension is defined via the $MN_MM_NUM_PROTECT_AREA_NCK.					
unit:	mm					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:			**Valuation:**	channel-specific	
block search	Not classified		**link**	No restrictions	

DOUBLE	**$SN_PA_MINUS_LIM [n]**	Limitation of protection zone applicate minus	**reference:**	

description:
$SN_PA_MINUS_LIM[n]
Negative limitation of protection zone in minus direction in the axis
perpendicular to the polygon definition
Effective only if $SN_PA_LIM_3DIM[n]=2 or = 3.
Note: This variable is not restored during REORG.
Note: This variable is saved during data backup.
Blocks: _N_NCK_PRO, _N_COMPLETE_PRO and _N_INITIAL_INI

Index 1:	n: Number of the protection area The maximum dimension is defined via the $MN_MM_NUM_PROTECT_AREA_NCK.					
unit:	mm					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:			**Valuation:**	channel-specific	
block search	Not classified		**link**	No restrictions	

INT	**$SN_PA_CONT_NUM [n]**	Number of valid contour elements	**reference:**	

description:
$SN_PA_CONT_NUM[n]
Number of valid contour elements
Protection zones need at least 2 contour elements for a complete description.
Note: This variable is not restored during REORG.
Note: This variable is saved during data backup.
Blocks: _N_NCK_PRO, _N_COMPLETE_PRO and _N_INITIAL_INI

Index 1:	n: Number of the protection area The maximum dimension is defined via the $MN_MM_NUM_PROTECT_AREA_NCK.					
unit:	-					
min.:	0	**max.:**	10	**std:**	0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:			**Valuation:**	channel-specific	
block search	Not classified		**link**	No restrictions	

INT	**$SN_PA_CONT_TYP [n,m]**	Type of the contour element	**reference:**	

description:

$SN_PA_CONT_TYP[n,m]

Type (G1, G2, G3) of contour element

=0: Contour not defined

=1: Straight

=2: Circle element (clockwise)

=3: Circle element (counterclockwise)

The end point is determined by $SN_PA_CONT_ORD or $SN_PA_CONT_ABS. With contour types G2 and G3, $SN_PA_CENT_ORD or $SN_PA_CENT_ABS determines the center point of the circle element.

Note: This variable is not restored during REORG.

Note: This variable is saved during data backup.

Blocks: _N_NCK_PRO, _N_COMPLETE_PRO and _N_INITIAL_INI

Index 1:	n: Number of the protection area The maximum dimension is defined via the $MN_MM_NUM_PROTECT_AREA_NCK.					
Index 2:	m: Number of the contour element (0 - MAXNUM_CONTOURNO_PROTECTAREA)					
unit:	-					
min.:	0	**max.:**	3	**std:**	0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:		**Valuation:**	channel-specific
block search	Not classified	**link**	No restrictions

DOUBLE	**$SN_PA_CONT_ORD [n,m]**	End point of contour element (ordinate)	**reference:**	

description:

$SN_PA_CONT_ORD[n,m]

End point of contour element (ordinate)

See also description of $SN_PA_CONT_TYP

Note: This variable is not restored during REORG.

Note: This variable is saved during data backup.

Blocks: _N_NCK_PRO, _N_COMPLETE_PRO and _N_INITIAL_INI

Index 1:	n: Number of the protection area The maximum dimension is defined via the $MN_MM_NUM_PROTECT_AREA_NCK.					
Index 2:	m: Number of the contour element (0 - MAXNUM_CONTOURNO_PROTECTAREA)					
unit:	mm					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	

write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$SN_PA_CONT_ABS [n,m]**	End point of contour element (abscissa)	**reference:**	

description:

$SN_PA_CONT_ABS[n,m]

End point of contour element (abscissa)

See also description of $SN_PA_CONT_TYP

Note: This variable is not restored during REORG.

Note: This variable is saved during data backup.

Blocks: _N_NCK_PRO, _N_COMPLETE_PRO and _N_INITIAL_INI

Index 1:	n: Number of the protection area The maximum dimension is defined via the $MN_MM_NUM_PROTECT_AREA_NCK.				
Index 2:	m: Number of the contour element (0 - MAXNUM_CONTOURNO_PROTECTAREA)				
unit:	mm				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$SN_PA_CENT_ORD [n,m]**	Center point of contour element (ordinate)	**reference:**	

description:

$SN_PA_CENT_ORD[n,m]

Center point of contour element (ordinate)

Relevant only if $SN_PA_CONT_TYP[n,m] = 2 or = 3.

Note: This variable is not restored during REORG.

Note: This variable is saved during data backup.

Blocks: _N_NCK_PRO, _N_COMPLETE_PRO and _N_INITIAL_INI

Index 1:	n: Number of the protection area The maximum dimension is defined via the $MN_MM_NUM_PROTECT_AREA_NCK.				
Index 2:	m: Number of the contour element (0 - MAXNUM_CONTOURNO_PROTECTAREA)				
unit:	mm				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$SN_PA_CENT_ABS [n,m]**	Center point of contour element (abscissa)	**reference:**	

description:
$SN_PA_CENT_ABS[n,m]
Center point of contour element (abscissa)
Relevant only if $SN_PA_CONT_TYP[n,m] = 2 or = 3.
Note: This variable is not restored during REORG.
Note: This variable is saved during data backup.
Blocks: _N_NCK_PRO, _N_COMPLETE_PRO and _N_INITIAL_INI

Index 1:	n: Number of the protection area The maximum dimension is defined via the $MN_MM_NUM_PROTECT_AREA_NCK.				
Index 2:	m: Number of the contour element (0 - MAXNUM_CONTOURNO_PROTECTAREA)				
unit:	mm				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:				**Valuation:**	channel-specific
block search	Not classified			**link**	No restrictions

1.25 Cycle parameterization

DOUBLE	**$C_A**	ISO cycle parameter for address A	**reference:**	

description:
$C_A
Value of programmed address A in ISO2/3 mode for cycle parameterization

unit:	-				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	

axis identifier:				**Valuation:**	channel-specific
block search	Not classified			**link**	No restrictions

DOUBLE	**$C_B**	ISO cycle parameter for address B	**reference:**	

description:
$C_B
Value of programmed address B in ISO2/3 mode for cycle parameterization

unit:	-				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$C_C**		ISO cycle parameter for address C		**reference:**	
description:						
$C_C						
Value of programmed address C in ISO2/3 mode for cycle parameterization						
unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$C_D**		ISO cycle parameter for address D		**reference:**	
description:						
$C_D						
Value of programmed address D in ISO2/3 mode for cycle parameterization						
unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$C_E**		ISO cycle parameter for address E		**reference:**	
description:						
$C_E						
Value of programmed address E in ISO2/3 mode for cycle parameterization						
unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	

write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$C_F**			ISO cycle parameter for address F		**reference:**	
description:							
$C_F							
Value of programmed address F in ISO2/3 mode for cycle parameterization							
unit:	-						
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0		
Properties with regard to reading/writing:							

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$C_G**			ISO cycle parameter for address G		**reference:**	
description:							
$C_G							
Value of programmed address G in ISO2/3 mode for cycle parameterization							
unit:	-						
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0		
Properties with regard to reading/writing:							

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$C_H**			ISO cycle parameter for address H		**reference:**	
description:							
$C_H							
Value of programmed address H in ISO2/3 mode for cycle parameterization							
unit:	-						
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0		
Properties with regard to reading/writing:							

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$C_I [10]**			ISO cycle parameter for address I		**reference:**	
description:							
$C_I[]							
Value of programmed address I in ISO2/3 mode for cycle parameterization and macro programming with G65/G66.							
Index 1:	Up to 10 entries are possible for macro programming with G65/G66 in the block with address I. The values are located in the array in the sequence they were programmed.						
unit:	-						
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0		
Properties with regard to reading/writing:							

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	

axis identifier:				**Valuation:**	channel-specific	
block search	Not classified			**link**	No restrictions	

DOUBLE	**$C_J [10]**			ISO cycle parameter for address J		**reference:**	
description:							
$C_J[]							
Value of programmed address J in ISO2/3 mode for cycle parameterization and macro programming with G65/G66.							
Index 1:	Up to 10 entries are possible for macro programming with G65/G66 in the block with address J. The values are located in the array in the sequence they were programmed.						
unit:	-						
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0		
Properties with regard to reading/writing:							

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	

axis identifier:				**Valuation:**	channel-specific	
block search	Not classified			**link**	No restrictions	

DOUBLE	**$C_K [10]**			ISO cycle parameter for address K		**reference:**	
description:							
$C_K[]							
Value of programmed address K in ISO2/3 mode for cycle parameterization and macro programming with G65/G66.							
Index 1:	Up to 10 entries are possible for macro programming with G65/G66 in the block with address K. The values are located in the array in the sequence they were programmed.						
unit:	-						
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0		
Properties with regard to reading/writing:							

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	

axis identifier:					**Valuation:**	channel-specific
block search	Not classified				**link**	No restrictions

DOUBLE	**$C_L**			ISO cycle parameter for address L		**reference:**	
description:							
$C_L							
Value of programmed address L in ISO2/3 mode for cycle parameterization							
unit:	-						
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$C_M**			ISO cycle parameter for address M		**reference:**	
description:							
$C_M							
Value of programmed address M in ISO2/3 mode for cycle parameterization							
unit:	-						
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$C_N**			ISO cycle parameter for address N		**reference:**	
description:							
$C_N							
Value of programmed address N in ISO2/3 mode for cycle parameterization							
unit:	-						
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$C_O**			ISO cycle parameter for address O			**reference:**	
description: $C_O Value of programmed address O in ISO2/3 mode for cycle parameterization								
unit:		-						
min.:		-1,8E308	**max.:**	1,8E308		**std:**		0.0
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**		**OEM**	
read:	X	-	7	-	0		-	
write:	X	-	7	-	0		-	
axis identifier:					**Valuation:**		channel-specific	
block search		Not classified			**link**		No restrictions	

DOUBLE	**$C_P**			ISO cycle parameter for address P			**reference:**	
description: $C_P Value of programmed address P in ISO2/3 mode for cycle parameterization								
unit:		-						
min.:		-1,8E308	**max.:**	1,8E308		**std:**		0.0
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**		**OEM**	
read:	X	-	7	-	0		-	
write:	X	-	7	-	0		-	
axis identifier:					**Valuation:**		channel-specific	
block search		Not classified			**link**		No restrictions	

DOUBLE	**$C_Q**			ISO cycle parameter for address Q			**reference:**	
description: $C_Q Value of programmed address Q in ISO2/3 mode for cycle parameterization								
unit:		-						
min.:		-1,8E308	**max.:**	1,8E308		**std:**		0.0
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**		**OEM**	
read:	X	-	7	-	0		-	
write:	X	-	7	-	0		-	
axis identifier:					**Valuation:**		channel-specific	
block search		Not classified			**link**		No restrictions	

DOUBLE	**$C_R**			ISO cycle parameter for address R			**reference:**	
description:								
$C_R								
Value of programmed address R in ISO2/3 mode for cycle parameterization								
unit:		-						
min.:		-1,8E308	**max.:**	1,8E308		**std:**		0.0
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**		
read:	X	-	7	-	0	-		
write:	X	-	7	-	0	-		
axis identifier:					**Valuation:**	channel-specific		
block search		Not classified			**link**	No restrictions		

DOUBLE	**$C_S**			ISO cycle parameter for address S			**reference:**	
description:								
$C_S								
Value of programmed address S in ISO2/3 mode for cycle parameterization								
unit:		-						
min.:		-1,8E308	**max.:**	1,8E308		**std:**		0.0
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**		
read:	X	-	7	-	0	-		
write:	X	-	7	-	0	-		
axis identifier:					**Valuation:**	channel-specific		
block search		Not classified			**link**	No restrictions		

DOUBLE	**$C_T**			Cycle parameter for address T			**reference:**	
description:								
$C_T								
Value of programmed address T for cycle parameterization (ISO2/3 mode) and T function substitution (ISO2/3 and standard modes)								
unit:		-						
min.:		-1,8E308	**max.:**	1,8E308		**std:**		0.0
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**		
read:	X	-	7	-	0	-		
write:	X	-	7	-	0	-		
axis identifier:					**Valuation:**	channel-specific		
block search		Not classified			**link**	No restrictions		

DOUBLE	**$C_U**			ISO cycle parameter for address U			**reference:**	
description: $C_U Value of programmed address U in ISO2/3 mode for cycle parameterization								
unit:		-						
min.:		-1,8E308	**max.:**	1,8E308		**std:**		0.0
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**		**OEM**	
read:	X	-	7	-	0		-	
write:	X	-	7	-	0		-	
axis identifier:					**Valuation:**		channel-specific	
block search		Not classified			**link**		No restrictions	

DOUBLE	**$C_V**			ISO cycle parameter for address V			**reference:**	
description: $C_V Value of programmed address V in ISO2/3 mode for cycle parameterization								
unit:		-						
min.:		-1,8E308	**max.:**	1,8E308		**std:**		0.0
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**		**OEM**	
read:	X	-	7	-	0		-	
write:	X	-	7	-	0		-	
axis identifier:					**Valuation:**		channel-specific	
block search		Not classified			**link**		No restrictions	

DOUBLE	**$C_W**			ISO cycle parameter for address W			**reference:**	
description: $C_W Value of programmed address W in ISO2/3 mode for cycle parameterization								
unit:		-						
min.:		-1,8E308	**max.:**	1,8E308		**std:**		0.0
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**		**OEM**	
read:	X	-	7	-	0		-	
write:	X	-	7	-	0		-	
axis identifier:					**Valuation:**		channel-specific	
block search		Not classified			**link**		No restrictions	

DOUBLE	**$C_X**			ISO cycle parameter for address X			**reference:**	
description:								
$C_X								
Value of programmed address X in ISO2/3 mode for cycle parameterization								
unit:		-						
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**		
read:	X	-	7	-	0	-		
write:	X	-	7	-	0	-		
axis identifier:					**Valuation:**	channel-specific		
block search		Not classified			**link**	No restrictions		

DOUBLE	**$C_Y**			ISO cycle parameter for address Y			**reference:**	
description:								
$C_Y								
Value of programmed address Y in ISO2/3 mode for cycle parameterization								
unit:		-						
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**		
read:	X	-	7	-	0	-		
write:	X	-	7	-	0	-		
axis identifier:					**Valuation:**	channel-specific		
block search		Not classified			**link**	No restrictions		

DOUBLE	**$C_Z**			ISO cycle parameter for address Z			**reference:**	
description:								
$C_Z								
Value of programmed address Z in ISO2/3 mode for cycle parameterization								
unit:		-						
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**		
read:	X	-	7	-	0	-		
write:	X	-	7	-	0	-		
axis identifier:					**Valuation:**	channel-specific		
block search		Not classified			**link**	No restrictions		

DOUBLE	**$C_DL**			ISO parameter for address DL		**reference:**	
description:							
Value of programmed address DL (additive tool offset) in the case of a subprogram call by M/T function substitution							
unit:		-					
min.:		-1,8E308	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$C_PI**			ISO cycle parameter for address P		**reference:**	
description:							
Program number of interrupt routine programmed with M96 Pxx in ISO2/3 mode							
unit:		-					
min.:		-1,8E308	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

STRING	**$C_TS**			Tool identifier for T function substitution		**reference:**	
description:							
Returns the string of the programmed tool identifier when the T function or TCA command are replaced. Tool identifiers can only be programmed with tool management active or with tool monitoring without magazine management.							
Index 3:		Maximum string length					
unit:		-					
min.:			**max.:**		**std:**		""
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

INT	**$C_A_PROG**	ISO cycle parameter for address A	**reference:**	

description:
$C_A_PROG
Address A is programmed in a block with cycle call
0 = Not programmed
1 = Programmed
3 = Programmed incrementally
Bit 0 is set if the address is programmed absolutely or incrementally.
Bit 1 is set in addition if the address is programmed incrementally.

unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	

axis identifier:			**Valuation:**	channel-specific	
block search	Not classified		**link**	No restrictions	

INT	**$C_B_PROG**	ISO cycle parameter for address B	**reference:**	

description:
$C_B_PROG
Address B is programmed in a block with cycle call
0 = Not programmed
1 = Programmed
3 = Programmed incrementally
Bit 0 is set if the address is programmed absolutely or incrementally.
Bit 1 is set in addition if the address is programmed incrementally.

unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	

axis identifier:			**Valuation:**	channel-specific	
block search	Not classified		**link**	No restrictions	

INT	**$C_C_PROG**	ISO cycle parameter for address C	**reference:**	

description:
$C_C_PROG
Address C is programmed in a block with cycle call
0 = Not programmed
1 = Programmed

3 = Programmed incrementally Bit 0 is set if the address is programmed absolutely or incrementally. Bit 1 is set in addition if the address is programmed incrementally.							
unit:		-					
min.:		-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

INT	**$C_D_PROG**			ISO cycle parameter for address D		**reference:**	
description: $C_D_PROG Address D is programmed in a block with cycle call 0 = Not programmed 1 = Programmed 3 = Programmed incrementally Bit 0 is set if the address is programmed absolutely or incrementally. Bit 1 is set in addition if the address is programmed incrementally.							
unit:		-					
min.:		-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

INT	**$C_E_PROG**			ISO cycle parameter for address E		**reference:**	
description: $C_E_PROG Address E is programmed in a block with cycle call 0 = Not programmed 1 = Programmed 3 = Programmed incrementally Bit 0 is set if the address is programmed absolutely or incrementally. Bit 1 is set in addition if the address is programmed incrementally.							
unit:		-					
min.:		-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	

read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$C_F_PROG**	ISO cycle parameter for address F	**reference:**	

description:

$C_F_PROG

Address F is programmed in a block with cycle call

0 = Not programmed

1 = Programmed

3 = Programmed incrementally

Bit 0 is set if the address is programmed absolutely or incrementally.

Bit 1 is set in addition if the address is programmed incrementally.

unit:	-						
min.:	-2147483648	**max.:**	2147483647	**std:**	0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$C_G_PROG**	ISO cycle parameter for address G	**reference:**	

description:

$C_G_PROG

G function for cycle call is programmed in this block

0 = Not programmed

1 = Programmed

3 = Programmed incrementally

Bit 0 is set if the address is programmed absolutely or incrementally.

Bit 1 is set in addition if the address is programmed incrementally.

unit:	-						
min.:	-2147483648	**max.:**	2147483647	**std:**	0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$C_H_PROG**	ISO cycle parameter for address H	**reference:**	

description:
$C_H_PROG
Address H is programmed in a block with cycle call
0 = Not programmed
1 = Programmed
3 = Programmed incrementally
Bit 0 is set if the address is programmed absolutely or incrementally.
Bit 1 is set in addition if the address is programmed incrementally.

unit:	-				
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	

axis identifier:				**Valuation:**	channel-specific
block search	Not classified			**link**	No restrictions

INT	**$C_I_PROG**	ISO cycle parameter for address I	**reference:**	

description:
$C_I_PROG
Address I is programmed in a block with cycle macro call
0 = Not programmed
1 = Programmed
3 = Programmed incrementally
Bit 0 is set if the address is programmed absolutely or incrementally.
Bit 1 is set in addition if the address is programmed incrementally.

unit:	-				
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	

axis identifier:				**Valuation:**	channel-specific
block search	Not classified			**link**	No restrictions

INT	**$C_J_PROG**	ISO cycle parameter for address J	**reference:**	

description:
$C_J_PROG
Address J is programmed in a block with cycle macro call
0 = Not programmed
1 = Programmed

3 = Programmed incrementally Bit 0 is set if the address is programmed absolutely or incrementally. Bit 1 is set in addition if the address is programmed incrementally.							
unit:		-					
min.:		-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

INT	**$C_K_PROG**			ISO cycle parameter for address K		**reference:**	
description: $C_K_PROG Address K is programmed in a block with cycle macro call 0 = Not programmed 1 = Programmed 3 = Programmed incrementally Bit 0 is set if the address is programmed absolutely or incrementally. Bit 1 is set in addition if the address is programmed incrementally.							
unit:		-					
min.:		-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

INT	**$C_L_PROG**			ISO cycle parameter for address L		**reference:**	
description: $C_L_PROG Address L is programmed in a block with cycle call 0 = Not programmed 1 = Programmed 3 = Programmed incrementally Bit 0 is set if the address is programmed absolutely or incrementally. Bit 1 is set in addition if the address is programmed incrementally.							
unit:		-					
min.:		-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	

read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$C_M_PROG**	ISO cycle parameter for address M	**reference:**	

description:
$C_M_PROG
Address M is programmed in a block with cycle call
0 = Not programmed
1 = Programmed
3 = Programmed incrementally
Bit 0 is set if the address is programmed absolutely or incrementally.
Bit 1 is set in addition if the address is programmed incrementally.

unit:	-			
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$C_N_PROG**	ISO cycle parameter for address N	**reference:**	

description:
$C_N_PROG
Address N is programmed in a block with cycle call
0 = Not programmed
1 = Programmed
3 = Programmed incrementally
Bit 0 is set if the address is programmed absolutely or incrementally.
Bit 1 is set in addition if the address is programmed incrementally.

unit:	-			
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$C_O_PROG**	ISO cycle parameter for address O	**reference:**	

description:
$C_O_PROG
Address O is programmed in a block with cycle call
0 = Not programmed
1 = Programmed
3 = Programmed incrementally
Bit 0 is set if the address is programmed absolutely or incrementally.
Bit 1 is set in addition if the address is programmed incrementally.

unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	

axis identifier:			**Valuation:**	channel-specific	
block search	Not classified		**link**	No restrictions	

INT	**$C_P_PROG**	ISO cycle parameter for address P	**reference:**	

description:
$C_P_PROG
Address P is programmed in a block with cycle call
0 = Not programmed
1 = Programmed
3 = Programmed incrementally
Bit 0 is set if the address is programmed absolutely or incrementally.
Bit 1 is set in addition if the address is programmed incrementally.

unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	

axis identifier:			**Valuation:**	channel-specific	
block search	Not classified		**link**	No restrictions	

INT	**$C_Q_PROG**	ISO cycle parameter for address Q	**reference:**	

description:
$C_Q_PROG
Address Q is programmed in a block with cycle call
0 = Not programmed
1 = Programmed

3 = Programmed incrementally Bit 0 is set if the address is programmed absolutely or incrementally. Bit 1 is set in addition if the address is programmed incrementally.							
unit:		-					
min.:		-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

INT	**$C_R_PROG**			ISO cycle parameter for address R		**reference:**	
description: $C_R_PROG Address R is programmed in a block with cycle call 0 = Not programmed 1 = Programmed 3 = Programmed incrementally Bit 0 is set if the address is programmed absolutely or incrementally. Bit 1 is set in addition if the address is programmed incrementally.							
unit:		-					
min.:		-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

INT	**$C_S_PROG**			ISO cycle parameter for address S		**reference:**	
description: $C_S_PROG Address S is programmed in a block with cycle call 0 = Not programmed 1 = Programmed 3 = Programmed incrementally Bit 0 is set if the address is programmed absolutely or incrementally. Bit 1 is set in addition if the address is programmed incrementally.							
unit:		-					
min.:		-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	

read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$C_T_PROG**	ISO cycle parameter for address T	**reference:**	

description:

$C_T_PROG

Address T is programmed in a block with cycle call or T function substitution

0 = Not programmed

1 = Programmed

3 = Programmed incrementally

Bit 0 is set if the address is programmed absolutely or incrementally.

Bit 1 is set in addition if the address is programmed incrementally.

unit:	-				
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$C_U_PROG**	ISO cycle parameter for address U	**reference:**	

description:

$C_U_PROG

Address U is programmed in the current block

0 = Not programmed

1 = Programmed

3 = Programmed incrementally

Bit 0 is set if the address is programmed absolutely or incrementally.

Bit 1 is set in addition if the address is programmed incrementally.

unit:	-				
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$C_V_PROG**	ISO cycle parameter for address V	**reference:**	

description:
$C_V_PROG
Address V is programmed in a block with cycle call
0 = Not programmed
1 = Programmed
3 = Programmed incrementally
Bit 0 is set if the address is programmed absolutely or incrementally.
Bit 1 is set in addition if the address is programmed incrementally.

unit:	-				
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	

axis identifier:				**Valuation:**	channel-specific
block search	Not classified			**link**	No restrictions

INT	**$C_W_PROG**	ISO cycle parameter for address W	**reference:**	

description:
$C_W_PROG
Address W is programmed in a block with cycle call
0 = Not programmed
1 = Programmed
3 = Programmed incrementally
Bit 0 is set if the address is programmed absolutely or incrementally.
Bit 1 is set in addition if the address is programmed incrementally.

unit:	-				
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	

axis identifier:				**Valuation:**	channel-specific
block search	Not classified			**link**	No restrictions

INT	**$C_X_PROG**	ISO cycle parameter for address X	**reference:**	

description:
$C_X_PROG
Address X is programmed in a block with cycle call
0 = Not programmed
1 = Programmed

3 = Programmed incrementally Bit 0 is set if the address is programmed absolutely or incrementally. Bit 1 is set in addition if the address is programmed incrementally.							
unit:		-					
min.:		-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

INT	**$C_Y_PROG**			ISO cycle parameter for address Y		**reference:**	
description: $C_Y_PROG Address Y is programmed in a block with cycle call 0 = Not programmed 1 = Programmed 3 = Programmed incrementally Bit 0 is set if the address is programmed absolutely or incrementally. Bit 1 is set in addition if the address is programmed incrementally.							
unit:		-					
min.:		-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

INT	**$C_Z_PROG**			ISO cycle parameter for address Z		**reference:**	
description: $C_Z_PROG Address Z is programmed in a block with cycle call 0 = Not programmed 1 = Programmed 3 = Programmed incrementally Bit 0 is set if the address is programmed absolutely or incrementally. Bit 1 is set in addition if the address is programmed incrementally.							
unit:		-					
min.:		-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	

read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$C_PI_PROG**			ISO cycle parameter for address P		**reference:**	
description:							
0 = Not programmed							
1 = M96 Pxx interrupt routine programmed							
unit:	-						
min.:	-2147483648	**max.:**	2147483647	**std:**	0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$C_G60_PROG**			ISO cycle parameters programmed for G60 in block		**reference:**	
description:							
0 = not programmed							
1 = G60 is programmed in the cycle call block							
unit:	-						
min.:	-2147483648	**max.:**	2147483647	**std:**	0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$C_DL_PROG**			ISO cycle parameter for address DL		**reference:**	
description:							
Interrogation as to whether address DL (additive tool offset) has been							
programmed for a subprogram call per M/T function substitution.							
0 = Not programmed							
1 = An additive tool offset has been programmed under address DL.							
unit:	-						
min.:	-2147483648	**max.:**	2147483647	**std:**	0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	

write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$C_TS_PROG**	Parameter for T function replacement	**reference:**	

description:

Query whether a tool identifier was programmed when the T function or TCA command

were replaced.

0 = Not programmed

1 = Programmed

Tool identifiers can only be programmed with tool management active or with tool monitoring without magazine management.

unit:	-				
min.:	0	**max.:**	1	**std:**	0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$C_ALL_PROG**	Bit pattern specifying which addresses are programmed	**reference:**	

description:

$C_ALL_PROG

Bit pattern of all programmed addresses in a block with cycle call

Bit0 = Address "A" .... Bit25 = Address "Z"

Bit = 1 -> Address programmed

Bit = 0 -> Address not programmed

unit:	-				
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$C_INC_PROG**	Bit pattern specifying whether addresses are programmed incr.	**reference:**	

escription:

$C_INC_PROG

Bit pattern of all incrementally programmed addresses in a block with cycle call

Bit0 = Address "A" .... Bit25 = Address "Z"

dBit = 1 -> Address incrementally programmed Bit = 0 -> Address absolutely programmed							
unit:		-					
min.:		-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

INT	**$C_TYP_PROG**			Bit pattern specifying whether addresses are progr. as INT/REAL		**reference:**	
description: $C_TYP_PROG Bit pattern of all addresses programmed with value INT or REAL Bit0 = Address "A" .... Bit25 = Address "Z" Bit = 1 -> Address programmed with real value Bit = 0 -> Address programmed with int value							
unit:		-					
min.:		-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

INT	**$C_I_NUM**			Number of "I" addresses programmed in block		**reference:**	
description: $C_I_NUM The number of "I" addresses programmed in the block is stored in $C_I_NUM. This value is always 1 for cycle programming if bit 0 is set in $C_I_PROG. In the case of macro programming with G65/G66, this variable contains the number of "I" addresses programmed in the block (max. 10).							
unit:		-					
min.:		-2147483648	**max.:**	10	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

INT	**$C_J_NUM**	Number of "J" addresses programmed in block	**reference:**	

description:

$C_J_NUM

The number of "J" addresses programmed in the block is stored in $C_J_NUM.

This value is always 1 for cycle programming if bit 0 is set in

$C_J_PROG.

In the case of macro programming with G65/G66, this variable contains the number of

"J" addresses programmed in the block (max. 10).

unit:	-				
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	

axis identifier:				**Valuation:**	channel-specific
block search	Not classified			**link**	No restrictions

INT	**$C_K_NUM**	Number of "K" addresses programmed in block	**reference:**	

description:

$C_K_NUM

The number of "K" addresses programmed in the block is stored in $C_K_NUM.

This value is always 1 for cycle programming if bit 0 is set in

$C_K_PROG.

In the case of macro programming with G65/G66, this variable contains the number of

"K" addresses programmed in the block (max. 10).

unit:	-				
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	

axis identifier:				**Valuation:**	channel-specific
block search	Not classified			**link**	No restrictions

INT	**$C_I_ORDER [10]**	Block number of address I for IJK blocks	**reference:**	

description:

$C_I_ORDER[]

Number of I J K block in which I has been programmed

Up to 10 entries with address I can be made in the block for macro programming with G65/G66. This allows the sequence of IJK blocks to be evaluated

The association between IJK blocks is always noted.

Index 1:	Up to 10 entries are possible for macro programming with G65/G66 in the block with address I. The sequence of IJK can thus be evaluated. It is always detected which IJKs belong together.

unit:		-					
min.:		-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

INT	**$C_J_ORDER [10]**	Block number of address J for IJK blocks	**reference:**

description:

$C_J_ORDER[]

Number of IJK block in which J has been programmed.

Up to 10 entries with address J can be made in the block for macro programming with G65/G66. This allows the sequence of IJK blocks to be evaluated

The association between IJK blocks is always noted.

Index 1:		Up to 10 entries are possible for macro programming with G65/G66 in the block with address J. The sequence of IJK can thus be evaluated. It is always detected which IJKs belong together.					
unit:		-					
min.:		-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

INT	**$C_K_ORDER [10]**	Block number of address K for IJK blocks	**reference:**

description:

$C_K_ORDER[]

Number of IJK block in which K has been programmed.

Up to 10 entries with address K can be made in the block for macro programming with G65/G66. This allows the sequence of IJK blocks to be evaluated

The association between IJK blocks is always noted.

Index 1:		Up to 10 entries are possible for macro programming with G65/G66 in the block with address K. The sequence of IJK can thus be evaluated. It is always detected which IJKs belong together.					
unit:		-					
min.:		-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

INT	**$C_ME**			Address extension for subprogram calls via M function		**reference:**	
description:							
$C_ME							
Address extension for address M for subprogram call per M function							
unit:		-					
min.:		-2147483648	**max.:**	2147483647		**std:**	0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

INT	**$C_TE**			Address extension for subprogram calls via T function		**reference:**	
description:							
$C_TE							
Address extension for address T for subprogram call per M function							
unit:		-					
min.:		-2147483648	**max.:**	2147483647		**std:**	0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$C_MACPAR [33]**			Auxiliary variable for implementing # macros		**reference:**	
description:							
$MAC_PAR[n]							
Macro variable in Iso2/3 mode programmed in the original program with #<number>							
Index 1:		The max. number of ISO macro parameters is 33					
unit:		-					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$C_AUX_VALUE [1]**	Parameter for auxiliary function replacement.	**reference:**	

description:

Parameter for auxiliary function replacement. It contains the value of the auxiliary function that is to be replaced. Currently, only M functions can be replaced by appropriate configuration of $MN_M_NO_FCT_CYCLE.

Index 1:	Max. number of replaced auxiliary functions. Currently, only one auxiliary function can be replaced.				
unit:	-				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	

axis identifier:				**Valuation:**	channel-specific
block search	Not classified			**link**	No restrictions

INT	**$C_AUX_EXT [1]**	Parameter for auxiliary function replacement.	**reference:**	

description:

Parameter for auxiliary function replacement. It contains the address extension of the auxiliary function that is to be replaced. Currently, only M functions can be replaced by appropriate configuration of $MN_M_NO_FCT_CYCLE.

Index 1:	Max. number of replaced auxiliary functions. Currently, only one auxiliary function can be replaced.				
unit:	-				
min.:	0	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	

axis identifier:				**Valuation:**	channel-specific
block search	Not classified			**link**	No restrictions

BOOL	**$C_AUX_IS_QUICK [1]**	Parameter for auxiliary function replacement.	**reference:**	

description:

Parameter for auxiliary function replacement. It contains the information whether the auxiliary function that is to be replaced is to be output with a fast (TRUE) or normal (FALSE) acknowledgment. Currently, only M functions can be replaced by appropriate configuration of $MN_M_NO_FCT_CYCLE.

Index 1:	Max. number of replaced auxiliary functions. Currently, only one auxiliary function can be replaced.				
unit:	-				
min.:	FALSE	**max.:**	TRUE	**std:**	FALSE

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	

write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$C_T_VALUE**		Cycle parameter for address T		**reference:**	
description:						
$C_T_VALUE						
Value of the programmed, non-split address T for						
T function replacement and M function replacement (ISO3 mode).						
unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

BOOL	**$C_TCA**		Parameter for replacing the TCA command		**reference:**	
description:						
Query whether the replacement of the TCA command is active.						
FALSE = TCA replacement not active						
TRUE = TCA replacement active						
unit:	-					
min.:	FALSE	**max.:**	TRUE	**std:**	FALSE	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

BOOL	**$C_DUPLO_PROG**		Parameter for replacing the TCA command		**reference:**	
description:						
Query whether a duplo number was programmed when the TCA command was replaced.						
FALSE = duplo number was not programmed						
TRUE = duplo number was programmed						
unit:	-					
min.:	FALSE	**max.:**	TRUE	**std:**	FALSE	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	

write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$C_DUPLO**			Parameter for replacing the TCA command		**reference:**	
description:							
Returns the value of the programmed duplo number when the TCA command is replaced.							
unit:	-						
min.:	-2147483648	**max.:**	2147483647	**std:**	0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

BOOL	**$C_THNO_PROG**			Parameter for replacing the TCA command		**reference:**	
description:							
Query whether a toolholder or spindle number was programmed when the TCA command was replaced. FALSE = toolholder or spindle number was not programmed TRUE = toolholder or spindle number was programmed							
unit:	-						
min.:	FALSE	**max.:**	TRUE	**std:**	FALSE		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$C_THNO**			Parameter for replacing the TCA command		**reference:**	
description:							
Returns the value of the programmed toolholder or spindle number when the TCA command is replaced.							
unit:	-						
min.:	-2147483648	**max.:**	2147483647	**std:**	0.0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$C_ISOPRINT**			Status ISOOPEN, ISOPRINT, ISOCLOSE		**reference:**	
description:							
$C_ISOPRINT							
Status variable for ISOOPEN, ISOPRINT, ISOCLOSE.							
unit:		-					
min.:		-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

1.26 System data

DOUBLE	**$AN_SETUP_TIME**			Time since booting with default values		**reference:**	
description:							
The $AN_SETUP_TIME timer counts the time elapsed since the control last booted with default values (in minutes).							
The timer is automatically reset each time the control boots with default data.							
Use in NC program:							
IF $AN_SETUP_TIME> 60000 GOTOF MARK01							
unit:		s					
min.:		-1,8E308	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	runin stp	X	7	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Current value			**link**	No restrictions	

DOUBLE	**$AN_POWERON_TIME**			Time since control last booted		**reference:**	
description:							
The $AN_POWERON_TIME timer counts the time elapsed since the control last booted (in minutes).							
The timer is automatically reset each time the control boots.							
Use in NC program:							
IF $AN_POWERON_TIME == 480 GOTOF MARK02							
unit:		s					
min.:		-1,8E308	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	

read:	runin stp	X	7	X	7	X	
write:	runin stp	X	7	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Current value			**link**	No restrictions	

DOUBLE	**$AN_NCK_VERSION**	NCK version	**reference:**	

description:

NCK version

NCK version: only the integer places in the floating-point number are evaluated, the decimal places can contain identifiers for intermediate versions used by the development department. The integer places contain the official software version identifier of the NCK: For example, the value for NCK version 20.00.00 is variable 200000.0

compare OPI N/Y nckVersion

unit:		-					
min.:		0.0	**max.:**	1,8E308	**std:**	0.0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Independent			**link**	No restrictions	

BOOL	**$AN_IPO_LOAD_LIMIT**	IPO utilization limit reached	**reference:**	

description:

Variable $AN_IPO_LOAD_LIMIT returns TRUE when the interpolator load limit is reached. Machine data $MN_IPO_MAX_LOAD is used to specify the gross interpolator operating time (in % of the interpolation cycle) at which variable $AN_IPO_LOAD_LIMIT is set to TRUE. If the value falls below the limit again, the variable is reset to FALSE.

unit:		-					
min.:		FALSE	**max.:**	TRUE	**std:**	FALSE	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	-	0	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

DOUBLE	**$AN_IPO_ACT_LOAD**	Current IPO runtime	**reference:**	

description:

$AN_IPO_ACT_LOAD supplies the current interpolator runtime including the runtime of the synchronized actions in all channels.

unit:	-				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$AN_IPO_MAX_LOAD**	Maximum IPO runtime	**reference:**	

description:

$AN_IPO_MAX_LOAD supplies the longest interpolator runtime of one interpolation cycle (including the runtime of the synchronized actions).

unit:	-				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	X	X	7	-	0	X	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$AN_IPO_MIN_LOAD**	Shortest IPO runtime	**reference:**	

description:

$AN_IPO_MIN_LOAD supplies the shortest interpolator runtime including the runtime of the synchronized actions per interpolation cycle in all channels.

unit:	-				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	X	X	7	-	0	X	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$AN_IPO_LOAD_PERCENT**	Ratio of current IPO runtime to IPO cycle	**reference:**	

description:

$AN_IPO_LOAD_PERCENT supplies the current interpolator load percentage across all channels. Is calculated from the ratio of the interpolator runtime across all channels in the last interpolation cycle to the interpolation cycle.

unit:	-				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	

write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$AN_SYNC_ACT_LOAD**			Current runtime for synchronized actions		**reference:**	
description:							
$AN_SYNC_ACT_LOAD supplies the current runtime for synchronized actions of the last interpolation cycle across all channels.							
unit:	-						
min.:	-1,8E308		**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$AN_SYNC_MAX_LOAD**			Longest runtime for synchronized actions		**reference:**	
description:							
$AN_SYNC_MAX_LOAD supplies the longest runtime for synchronized actions of one interpolation cycle across all channels.							
unit:	-						
min.:	-1,8E308		**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	X	X	7	-	0	X	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$AN_SYNC_TO_IPO**			Synact / IPO computing time percentage		**reference:**	
description:							
$AN_SYNC_TO_IPO supplies the percentage proportion of the synchronized action runtime measured against the overall interpolation runtime of the last interpolation cycle across all channels.							
unit:	-						
min.:	-1,8E308		**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$AN_SERVO_ACT_LOAD**			Current runtime of position controller			**reference:**	
description:								
$AN_SERVO_ACT_LOAD supplies the current runtime of the position controller.								
unit:		-						
min.:		-1,8E308	**max.:**	1,8E308		**std:**		0.0
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**		**OEM**	
read:	X	X	7	X	7		X	
write:	-	-	0	-	0		-	
axis identifier:					**Valuation:**		channel-specific	
block search		Not classified			**link**		Not classified	

DOUBLE	**$AN_SERVO_MAX_LOAD**			Longest runtime of position controller			**reference:**	
description:								
$AN_SERVO_MAX_LOAD supplies the longest runtime of the position controller.								
unit:		-						
min.:		-1,8E308	**max.:**	1,8E308		**std:**		0.0
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**		**OEM**	
read:	X	X	7	X	7		X	
write:	X	X	7	-	0		X	
axis identifier:					**Valuation:**		channel-specific	
block search		Not classified			**link**		Not classified	

DOUBLE	**$AN_SERVO_MIN_LOAD**			Shortest runtime of position controller			**reference:**	
description:								
$AN_SERVO_MIN_LOAD supplies the shortest runtime of the position controller.								
unit:		-						
min.:		-1,8E308	**max.:**	1,8E308		**std:**		0.0
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**		**OEM**	
read:	X	X	7	-	0		X	
write:	X	X	7	X	7		X	
axis identifier:					**Valuation:**		channel-specific	
block search		Not classified			**link**		Not classified	

DOUBLE	**$AN_REBOOT_DELAY_TIME**	Time until reboot	**reference:**	

description:

A value higher than zero indicates that the NCK has received the "NCK Reset" signal from the HMI and displays the time period (in seconds) programmed on the NCK for rebooting (Power Off followed by Power ON).

The user can thus identify a reboot operation in a synchronized action

and prepare his application accordingly.

$AN_REBOOT_DELAY_TIME is 0.0 provided that no "NCK Reset" has been received.

Example:

A synchronized action reacts to the variable and switches the

axes to "Safe standstill" in a Safety Integrated application.

Comments:

- See also: $MN_REBOOT_DELAY_TIME
- The "NCK Reset" is implemented on the OPI by means of PI "_N_IBN_SS".

unit:	s				
min.:	0.0	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	-	X	0	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:				**Valuation:**	Cross-channel
block search	Independent			**link**	No restrictions

DOUBLE	**$AN_TIMER [n]**	System variable for global NCK time measurement	**reference:**	

description:

$AN_TIMER[n]

Timer unit in seconds

The time is counted in multiples of an interpolation cycle.

The timers are started by $AN_TIMER[n]=<start value>.

The timers are stopped by $AN_TIMER[n]=-1.

When a timer is stopped, the last current time value is stored.

Index 1:	The dimension is defined via the MD $MN_MM_NUM_AN_TIMER.				
unit:	-				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	runin stp	X	7	-	0	X	

axis identifier:				**Valuation:**	Cross-channel
block search	Not classified			**link**	Not classified

INT	**$A_PROBE [2]**	Probe status	**reference:**	

description:
$A_PROBE[1]: Status of first probe
$A_PROBE[2]: Status of second probe
0 => not deflected
1 => deflected

Index 1:	n: Number of the probe				
unit:	-				
min.:	0	**max.:**	1	**std:**	0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:				**Valuation:**	channel-specific
block search	Not classified			**link**	Not classified

DOUBLE	**$AN_PERSDIAG [4,46]**	Diagnostics data for data persistence	**reference:**	

description:
Diagnostics data for data persistence (frequency, time required); e.g. CompactFlash Card
The time values indicate how long it took to achieve data persistence from the viewpoint of the NC software
The following values can be read:
Index1Meaning
0Always sums on all sub-functions
1Sub-function 'Passive file system'
2Sub-function 'Active file system'
3Sub-function 'Machine data'
Index2Meaning
0Number of all synchronous write operations
1Number of failed synchronous write operations (system deficiency)
2Summated time of all synchronous write operations in seconds
3Minimum time required for a synchronous write operation in seconds
4Average time (averaged across all synchronous write operations) in seconds
5Maximum time required for a synchronous write operation in seconds
6Number of overflows of the preprocessing PowerFail buffer since NCK start
7Number of overflows of the tool change PowerFail buffer since NCK start
8Number of overflows of the synchronized action PowerFail buffer since NCK start
9Overflow of the preprocessing PowerFail buffer pending at the time of PowerFail /PowerOff
10Overflow of the tool change PowerFail buffer pending at the time of PowerFail /PowerOff
11Overflow of the synchronized action PowerFail buffer pending at the time of PowerFail /PowerOff
12Number of data entries in the preprocessing PowerFail buffer since NCK start
13Number of data entries in the tool change PowerFail buffer in IPO since NCK start
14Number of data entries in the synchronized action PowerFail buffer in IPO since NCK start

Index2 values = 6 to 14 only defined for index1 = 2 = active file system 20 Number of all asynchronous write operations 21 Number of failed asynchronous write operations (system deficiency) 22 Summated time of all asynchronous write operations in seconds 23 Minimum time required for an asynchronous write operation in seconds 24 Average time (averaged across all asynchronous write operations) in seconds 25 Maximum time required for an asynchronous write operation in seconds 26-39 Reserved (access triggers alarm "incorrect index") 26-39 Reserved (access triggers alarm "incorrect index") 40 Number of data backup operations in which an asynchronous data backup operation was still active when it was called. 41 Reserved 42 Summated time that was waited after a collision for the end of the previous asynchronous data backup operation 43 Minimum time that was waited after a collision for the end of the previous asynchronous data backup operation 44 Average time that was waited after a collision for the end of the previous asynchronous data backup operation 45 Maximum time that was waited after a collision for the end of the previous asynchronous data backup operation Application in NC program: IF $AN_PERSDIAG[0, 1] > 0 GOTOF check card	
Index 1:	Addressing of the different functionalities. Meaning of index 0Respective sums across all subfunctions 1Subfunction 'Passive file system' 2Subfunction 'Active file system' 3 Subfunction 'Machine data'
Index 2:	Addressing of the different information Meaning of index 0Number of all synchronous write operations 1Number of failed synchronous write operations (system error) 2Total time required for all asynchronous write operations in seconds 3Minimum time required for an asynchronous write operation in seconds 4Average time (determined based on all asynchronous write operations) in seconds 5Maximum time required for an asynchronous write operation in seconds 6For index1=2: Number of power failure buffer overflows during prerun (value > 0 indicates that the buffer is too small -> increase size of $MN_MM_ACTFILESYS_LOG_FILE_MEM[0] if possible) 7For index1=2: Number of power failure buffer overflows for the tool change data changes (value > 0 indicates that the buffer is too small -> increase size of $MN_MM_ACTFILESYS_LOG_FILE_MEM[1] if possible) 8For index1=2: Number of power failure buffer overflows for changes to persistent data in synchronized actions (value > 0 indicates that the buffer is too small -> increase size of $MN_MM_ACTFILESYS_LOG_FILE_MEM[2] if possible) 9For index1=2: Value=1: At the time of power failure/power off, there was an upcoming overflow of the power failure buffer during prerun. The last data change prior to the power failure/power off is lost! 10For index1=2: Value=1: At the time of power failure/power off, there was an upcoming overflow of the power failure buffer for the tool change data changes. The last tool/magazine data change prior to the power failure/power off is lost! 11For index1=2: Value=1: At the time of power failure/power off, there was an upcoming overflow of the power failure buffer for changes to persistent data in synchronized actions. The last data change prior to the power failure/power off is lost! 20 Number of all asynchronous write operations 21 Number of failed asynchronous write operations (system error) 22 Total time required for all asynchronous write operations in seconds 23 Minimum time required for an asynchronous write operation in seconds 24 Average time (determined based on all asynchronous write operations) in seconds 25 Maximum time required for an asynchronous write operation in seconds 26-39 Reserved (access triggers alarm "Wrong index") 40 Number of data backup operations during which asynchronous data backup operations where still active when they were called. 41 Reserved 42 Total time waited for the end of the previous asynchronous data backup operation after a collision 43 Minimum time waited for the end of the previous asynchronous data backup operation after a collision 44 Average time waited for the end of the previous asynchronous data backup operation after a collision 45 Maximum time waited for the end of the previous asynchronous data backup operation after a collision

unit:		s					
min.:		0	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	X	X	2	X	2	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Current value			**link**	No restrictions	

INT	**$AN_VMODEL_STATUS**	System variable for status of VRML model	**reference:**	

description:

TO DO!

unit:		-					
min.:		-2147483648	**max.:**	2147483647		**std:**	0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	runin stp	X	3	X	3	X	
axis identifier:					**Valuation:**	Cross-channel	
block search		Not classified			**link**	Not classified	

INT	**$A_DPSB_IN [16,128]**	PROFIBUS/PROFINET input byte (signed)	**reference:**	

description:

The field variable $A_DPSB_IN[n,m] is used to read a data byte (8 bits) from PROFIBUS/PROFINET IO.

n:= Index for the input data area

m:= Byte Index for the data

The value is shown as signed.

The data area to be read can become invalid during power up or even during operation as connected devices may not yet have been detected or are already no longer connected to the PROFIBUS/PROFINET. In this case, the old value or initial value 0 is always read.

Whether a data area is valid can be queried with the variables $A_DP_IN_STATE[n] or $A_DP_IN_VALID.

Index 1:		Input data area					
Index 2:		Byte offset within the input data area					
unit:		-					
min.:		-128	**max.:**	127		**std:**	0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	Cross-channel	
block search		Not classified			**link**	Not classified	

INT	**$A_DPB_IN [16,128]**	PROFIBUS/PROFINET input byte (unsigned)	**reference:**	

description:

The field variable $A_DPB_IN[n,m] is used to read a data byte (8 bits) from PROFIBUS/PROFINET IO.

n:= Index for the input data area

m:= Byte Index for the data

The value is shown as unsigned.

The data area to be read can become invalid during power up or even during operation as connected devices may not yet have been detected or are already no longer connected to the PROFIBUS/PROFINET. In this case, the old value or initial value 0 is always read.

Whether a data area is valid can be queried with the variables $A_DP_IN_STATE[n] or $A_DP_IN_VALID.

Index 1:	Input data area				
Index 2:	Byte offset within the input data area				
unit:	-				
min.:	0	**max.:**	255	**std:**	0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:		**Valuation:**	Cross-channel	
block search	Not classified	**link**	Not classified	

INT	**$A_DP_IN_VALID**	PROFIBUS/PROFINET valid input data areas	**reference:**	

description:

The variable $A_DP_IN_VALID is used to read all valid input data areas of the PROFIBUS/PROFINET IO. The value is coded as a bit array. The assignment of the bits corresponds to the indices of the input data areas. The input data area is invalid if the input data area could not be logged on during power on or the communications with the PROFIBUS/PROFINET has been interrupted during normal operation. The status of an input data area can be queried with the variable $A_DP_IN_STATE[n].

unit:	-				
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:		**Valuation:**	Cross-channel	
block search	Not classified	**link**	Not classified	

INT	**$A_DP_IN_STATE [16]**	PROFIBUS/PROFINET status of input data area	**reference:**	

description:

The variable $A_DP_IN_STATE[n] is used to read the status of the input data area.

n:= Index for the input data area

The following states can be read:

0: Data area has not been configured

1: Data area could not be activated yet
2: Data area is available
3: Data area is currently not available
Whether an input data area is available can be queried with the variable $A_DP_IN_VALID.

Index 1:		Input data area					
unit:		-					
min.:		0	**max.:**	3		**std:**	0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	Cross-channel	
block search		Not classified			**link**	Not classified	

INT	**$A_DP_OUT_STATE [16]**	PROFIBUS/PROFINET status of output data area	**reference:**	

description:

The variable $A_DP_OUT_STATE[n] is used to read the status of the output data area.
n:= Index for the output data area
The following states can be read:
0: Data area has not been configured
1: Data area could not be activated yet
2: Data area is available
3: Data area is currently not available
Whether a data area is available can be queried with the variable $A_DP_OUT_VALID.

Index 1:		Output data area					
unit:		-					
min.:		0	**max.:**	3		**std:**	0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	Cross-channel	
block search		Not classified			**link**	Not classified	

INT	**$A_DP_OUT_VALID**	PROFIBUS/PROFINET valid output data areas	**reference:**	

description:

The variable $A_DP_OUT_VALID_IN is used to read all valid output data areas of the PROFIBUS/PROFINET IO.

The value is coded as a bit array. The assignment of the bits corresponds to the indices of the output data areas. The output data area is invalid if the output data area could not be logged on during power up or the communications with the PROFIBUS/PROFINET has been interrupted during normal operation. The status of an output data area can be queried with the variable $A_DP_OUT_STATE[n].

unit:	-				
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	Cross-channel	
block search	Not classified				**link**	Not classified	

INT	**$A_DP_IN_CONF**		PROFIBUS/PROFINET configured input data areas		**reference:**	
description:						
The variable $A_DP_IN_CONF is used to read all configured input data areas of the PROFIBUS/PROFINET IO. The value is coded as a bit field. The assignment of the bits corresponds to the indices of the input data areas. A configured input data area is present if a logical starting address has been entered in an input data area via machine data $MN_DPIO_LOGIC_ADDRESS_IN. The status of an input data area can be queried with the variable $A_DP_IN_STATE[n].						
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	Cross-channel	
block search	Not classified				**link**	Not classified	

INT	**$A_DP_OUT_CONF**		PROFIBUS/PROFINET configured output data areas		**reference:**	
description:						
The variable $A_DP_OUT_CONF is used to read all configured output data areas of the PROFIBUS/PROFINET IO. The value is coded as a bit field. The assignment of the bits corresponds to the indices of the output data areas. A configured data area is present if a logical starting address has been entered in an output data area via machine data $MN_DPIO_LOGIC_ADDRESS_OUT. The status of an output data area can be queried with the variable $A_DP_OUT_STATE[n].						
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	Cross-channel	
block search	Not classified				**link**	Not classified	

INT	**$A_DP_IN_LENGTH [16]**	PROFIBUS/PROFINET length of input data area	**reference:**	
description:				
The variable $A_DP_IN_LENGTH[n] is used to read the length of the input data area. n:= Index for the input data area Whether an input data area is available can be queried with the variables $A_DP_IN_VALID and $A_DP_IN_STATE[n].				
Index 1:	Input data area			

unit:		-					
min.:		0	**max.:**	2147483647		**std:**	0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	Cross-channel	
block search		Not classified			**link**	Not classified	

INT	**$A_DP_OUT_LENGTH [16]**	PROFIBUS/PROFINET length of output data area	**reference:**	

description:

The variable $A_DP_OUT_LENGTH[n] is used to read the length of the output data area.

n:= Index for the output data area

Whether an output data area is available can be queried with the variables $A_DP_OUT_VALID and $A_DP_OUT_STATE[n].

Index 1:		Output data area					
unit:		-					
min.:		0	**max.:**	2147483647		**std:**	0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	Cross-channel	
block search		Not classified			**link**	Not classified	

INT	**$A_DPW_IN [16,128]**	PROFIBUS/PROFINET input word (unsigned)	**reference:**	

description:

The field variable $A_DPW_IN[n,m] is used to read a data word (16 bits) from PROFIBUS/PROFINET IO.

n:= Index for the input data area

m:= Byte Index for the data

The value is shown as unsigned.

The data area to be read can become invalid during power up or even during operation as connected devices may not yet have been detected or are already no longer connected to the PROFIBUS/PROFINET. In this case, the old value or initial value 0 is always read.

Whether a data area is valid can be queried with the variables $A_DP_IN_STATE[n] or $A_DP_IN_VALID.

Index 1:		Input data area					
Index 2:		Byte offset within the input data area					
unit:		-					
min.:		0	**max.:**	65535		**std:**	0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:					**Valuation:**	Cross-channel
block search	Not classified				**link**	Not classified

DOUBLE	**$A_DPR_OUT [16,128]**			PROFIBUS/PROFINET output data (4 bytes)	**reference:**	

description:

The field variable $A_DPR_OUT[n,m] is used to write output data (32 bits REAL) to PROFIBUS/PROFINET IO.

n:= Index for the output data area

m:= Byte Index for the data

The value is compressed to 4 bytes IEEE (real).

The data area to be written can become invalid during power up or even during operation as connected devices may not yet have been detected or are already no longer connected to the PROFIBUS/PROFINET. In this case the transfer of the value cannot be guaranteed.

Whether a data area is valid can be queried with the variables $A_DP_OUT_STATE[n] or $A_DP_OUT_VALID.

Index 1:	Output data area					
Index 2:	Byte offset within the output data area					
unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	runin stp	X	7	-	0	X	

axis identifier:					**Valuation:**	Cross-channel
block search	Not classified				**link**	Not classified

INT	**$A_DPB_OUT [16,128]**		PROFIBUS/PROFINET output byte (unsigned)	**reference:**	

description:

The field variable $A_DPB_OUT[n,m] is used to write a data byte (8 bits) to PROFIBUS/PROFINET IO.

n:= Index for the output data area

m:= Byte Index for the data

The value is shown as unsigned.

The data area to be written can become invalid during power up or even during operation as connected devices may not yet have been detected or are already no longer connected to the PROFIBUS/PROFINET. In this case the transfer of the value cannot be guaranteed.

Whether a data area is valid can be queried with the variables $A_DP_OUT_STATE[n] or $A_DP_OUT_VALID.

Index 1:	Input data area					
Index 2:	Byte offset within the input data area					
unit:	-					
min.:	0	**max.:**	255	**std:**	0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	runin stp	X	7	-	0	X	

axis identifier:					**Valuation:**	Cross-channel
block search	Not classified				**link**	Not classified

INT	**$A_DPW_OUT [16,128]**	PROFIBUS/PROFINET output word (unsigned)	**reference:**	

description:

The field variable $A_DPW_OUT[n,m] is used to write a data word (16 bits) to PROFIBUS/PROFINET IO.

n:= Index for the output data area

m:= Byte Index for the data

The value is shown as unsigned.

The data area to be written can become invalid during power up or even during operation as connected devices may not yet have been detected or are already no longer connected to the PROFIBUS/PROFINET. In this case the transfer of the value cannot be guaranteed.

Whether a data area is valid can be queried with the variables $A_DP_OUT_STATE[n] or $A_DP_OUT_VALID.

Index 1:	Input data area					
Index 2:	Byte offset within the input data area					
unit:	-					
min.:	0	**max.:**	65535	**std:**	0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	runin stp	X	7	-	0	X	

axis identifier:		**Valuation:**	Cross-channel	
block search	Not classified	**link**	Not classified	

DOUBLE	**$A_DPR_IN [16,128]**	PROFIBUS/PROFINET input data (4 bytes)	**reference:**	

description:

The field variable $A_DPR_IN[n,m] is used to read input data (32 bits REAL) from PROFIBUS/PROFINET IO.

n:= Index for the input data area

m:= Byte Index for the data

The value is expanded to 8 bytes IEEE (double).

The data area to be read can become invalid during power up or even during operation as connected devices may not yet have been detected or are already no longer connected to the PROFIBUS/PROFINET. In this case, the old value or initial value 0.0 is always read.

Whether a data area is valid can be queried with the variables $A_DP_IN_STATE[n] or $A_DP_IN_VALID.

Index 1:	Input data area					
Index 2:	Byte offset within the input data area					
unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:		**Valuation:**	Cross-channel	
block search	Not classified	**link**	Not classified	

INT	**$A_DPSW_IN [16,128]**	PROFIBUS/PROFINET input word (signed)	**reference:**	

description:

The field variable $A_DPSW_IN[n,m] is used to read a data word (16 bits) from PROFIBUS/PROFINET IO.

n:= Index for the input data area

m:= Byte Index for the data

The value is shown as signed.

The data area to be read can become invalid during power up or even during operation as connected devices may not yet have been detected or are already no longer connected to the PROFIBUS/PROFINET. In this case, the old value or initial value 0 is always read.

Whether a data area is valid can be queried with the variables $A_DP_IN_STATE[n] or $A_DP_IN_VALID.

Index 1:	Input data area					
Index 2:	Byte offset within the input data area					
unit:	-					
min.:	-32768	**max.:**	32767	**std:**		0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:				**Valuation:**	Cross-channel	
block search	Not classified			**link**	Not classified	

INT	**$A_DPSD_IN [16,128]**	PROFIBUS/PROFINET input data double word DBD (signed)	**reference:**	

description:

The field variable $A_DPSD_IN[n,m] is used to read a data double word (32 bits) from PROFIBUS/PROFINET IO.

n:= Index for the input data area

m:= Byte Index for the data

The value is shown as signed.

The data area to be read can become invalid during power up or even during operation as connected devices may not yet have been detected or are already no longer connected to the PROFIBUS/PROFINET. In this case, the old value or initial value 0 is always read.

Whether a data area is valid can be queried with the variables $A_DP_IN_STATE[n] or $A_DP_IN_VALID.

Index 1:	Input data area					
Index 2:	Byte offset within the input data area					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**		0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:				**Valuation:**	Cross-channel	
block search	Not classified			**link**	Not classified	

INT	**$A_DPSB_OUT [16,128]**	PROFIBUS/PROFINET output byte (signed)	**reference:**	

description:

The field variable $A_DPSB_IN[n,m] is used to write a data byte (8 bits) to PROFIBUS/PROFINET IO.

n:= Index for the output data area

m:= Byte Index for the data

The value is shown as signed.

The data area to be written can become invalid during power up or even during operation as connected devices may not yet have been detected or are already no longer connected to the PROFIBUS/PROFINET. In this case the transfer of the value cannot be guaranteed.

Whether a data area is valid can be queried with the variables $A_DP_OUT_STATE[n] or $A_DP_OUT_VALID.

Index 1:	Output data area					
Index 2:	Byte offset within the output data area					
unit:	-					
min.:	-128	**max.:**	127	**std:**	0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	runin stp	X	7	-	0	X	

axis identifier:				**Valuation:**	Cross-channel	
block search	Not classified			**link**	Not classified	

INT	**$A_DPSW_OUT [16,128]**	PROFIBUS/PROFINET output word (signed)	**reference:**	

description:

The field variable $A_DPSW_IN[n,m] is used to write a data word (16 bits) to PROFIBUS/PROFINET IO.

n:= Index for the output data area

m:= Byte Index for the data

The value is shown as signed.

The data area to be written can become invalid during power up or even during operation as connected devices may not yet have been detected or are already no longer connected to the PROFIBUS/PROFINET. In this case the transfer of the value cannot be guaranteed.

Whether a data area is valid can be queried with the variables $A_DP_OUT_STATE[n] or $A_DP_OUT_VALID.

Index 1:	Output data area					
Index 2:	Byte offset within the output data area					
unit:	-					
min.:	-32768	**max.:**	32767	**std:**	0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	runin stp	X	7	-	0	X	

axis identifier:				**Valuation:**	Cross-channel	
block search	Not classified			**link**	Not classified	

INT	**$A_DPSD_OUT [16,128]**	PROFIBUS/PROFINET output data double word (signed)	**reference:**	

description:

The field variable $A_DPSD_OUT[n,m] is used to write a data double word (32 bits) to PROFIBUS/PROFINET IO.

n:= Index for the output data area

m:= Byte Index for the data

The value is shown as signed.

The data area to be written can become invalid during power up or even during operation as connected devices may not yet have been detected or are already no longer connected to the PROFIBUS/PROFINET. In this case the transfer of the value cannot be guaranteed.

Whether a data area is valid can be queried with the variables $A_DP_OUT_STATE[n] or $A_DP_OUT_VALID.

Index 1:	Output data area				
Index 2:	Byte offset within the output data area				
unit:	-				
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:

	PP	SA	PP/SA protection level	OPI	OPI protection level	OEM	
read:	runin stp	X	7	X	7	X	
write:	runin stp	X	7	-	0	X	

axis identifier:			**Valuation:**	Cross-channel	
block search	Not classified		**link**	Not classified	

DOUBLE	**$AN_COLL_MEM_AVAILABLE**	Memory available for collision monitoring in KB	**reference:**	

description:

Collision calculation requires internal memory. The amount required is either calculated automatically from the number of available protection areas, protection area elements, facets and the number of machine axes, or it can be explicitly defined by machine data $MN_MM_MAXNUM_3D_COLLISION.

The size of the reserved memory area can be read in kbytes with the system variable $AN_COLL_MEM_AVAILABLE.

unit:	-				
min.:	0	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:

	PP	SA	PP/SA protection level	OPI	OPI protection level	OEM	
read:	X	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:			**Valuation:**	channel-specific	
block search	Not classified		**link**	No restrictions	

DOUBLE	**$AN_COLL_MEM_USE_MIN**	Minimum memory requirement for collision monitoring	**reference:**	

description:

Collision calculation requires internal memory. The amount required is either calculated automatically from the number of available protection areas, protection area elements, facets and the number of machine axes, or it can be explicitly defined by machine data $MN_MM_MAXNUM_3D_COLLISION.

The size of the reserved memory area can be read in kbytes with the system variable $AN_COLL_MEM_AVAILABLE.

The system variable $AN_COLL_MEM_USE_MIN returns the minimum memory space required for collision calculation as a percentage of the reserved memory area.

It can be reset by writing it to the value 0. Each attempt to write a value other than 0 is rejected with an error message.

unit:	-				
min.:	0	**max.:**	100.	**std:**	0.0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	X	X	7	X	7	X	

axis identifier:				**Valuation:**	channel-specific
block search	Not classified			**link**	No restrictions

DOUBLE	**$AN_COLL_MEM_USE_MAX**	Maximum memory requirement for collision monitoring in percent	**reference:**	

description:

Collision calculation requires internal memory. The amount required is either calculated automatically from the number of available protection areas, protection area elements, facets and the number of machine axes, or it can be explicitly defined by machine data $MN_MM_MAXNUM_3D_COLLISION.

The size of the reserved memory area can be read in kbytes with the system variable $AN_COLL_MEM_AVAILABLE.

The system variable $AN_COLL_MEM_USE_MAX returns the minimum memory space required for collision calculation as a percentage of the reserved memory area.

It can be reset by writing it to the value 0. Each attempt to write a value other than 0 is rejected with an error message.

unit:	-				
min.:	0	**max.:**	100	**std:**	0.0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	X	X	7	X	7	X	

axis identifier:				**Valuation:**	channel-specific
block search	Not classified			**link**	No restrictions

DOUBLE	**$AN_COLL_MEM_USE_ACT**	Current memory requirement for collision monitoring	**reference:**	

description:

Collision calculation requires internal memory. The amount required is either calculated automatically from the number of available protection areas, protection area elements, facets and the number of machine axes, or it can be explicitly defined by machine data $MN_MM_MAXNUM_3D_COLLISION.

The size of the reserved memory area can be read in kbytes with the system variable $AN_COLL_MEM_AVAILABLE.

The system variable $AN_COLL_MEM_USE_ACT returns the memory space currently required for collision calculation (that is for the last calculation) as a percentage of the reserved memory area.

It can be reset by writing it to the value 0. Each attempt to write a value other than 0 is rejected with an error message.

unit:	-				
min.:	0	**max.:**	100.	**std:**	0.0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	X	X	7	X	7	X	

axis identifier:				**Valuation:**	channel-specific
block search	Not classified			**link**	No restrictions

BOOL	**$AN_COLL_STATE [n]**	Activation status of a protection area for collision avoidance	**reference:**	

description:

The system variable indicates if a protection area can currently be part of collision monitoring.

However, the following requirements must be met first:

1. The activation status of the protection area is active ("A") or the activation status is PLC-controlled ("P") and the interface bit assigned to the protection area is set.

2. The protection area group ("Machine", "TOOL" etc.) has been activated in the current operating mode via the associated interface bit.

A protection area for which this system variable gives the value TRUE only then enters real collision monitoring when it is part of at least one collision pair ($NP_COLL_PAIR). The other partner must also be an active protection area.

Index 1:	Index of the protection area whose status is to be read.				
unit:	-				
min.:	FALSE	**max.:**	TRUE	**std:**	FALSE

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	-	
write:	-	-	0	-	0	-	

axis identifier:				**Valuation:**	channel-specific
block search	Not classified			**link**	No restrictions

BOOL	**$AN_COLL_IPO_ACTIVE**	Status of main run monitoring of collision avoidance	**reference:**	

description:

The system variable indicates if the main run monitoring of the collision avoidance is active.

unit:	-				
min.:	FALSE	**max.:**	TRUE	**std:**	FALSE

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

BOOL	**$AN_COLL_IPO_LIMIT**	Speed reduced by collision monitoring in the main run	**reference:**	

description:

The system variable indicates if the main run monitoring of the collision avoidance leads to a velocity reduction.

unit:	-				
min.:	FALSE	**max.:**	TRUE	**std:**	FALSE

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$AN_COLL_LOAD [2]**	CPU time required for collision avoidance functions in ms	**reference:**	

description:

Gives the required calculation time in ms - required for certain operations in connection with collision avoidance. The operation is defined by index i.

i = 0: Time requirement for last call of PROTA

i = 1: Time requirement for last call of collision avoidance during preprocessing

i = 2: Time requirement for last call of the calculation of free space (real-time monitoring)

The variables can be reset by describing with value 0. Every write attempt with a value other than 0 is refused with an error message.

Index 1:	Choice of functions				
unit:	s				
min.:	0	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	X	X	7	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$AN_PREP_ACT_LOAD**	Current preprocessing runtime	**reference:**	

description:

$AN_PREP_ACT_LOAD returns the current net preprocessing runtime across all channels.

unit:	-				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$AN_PREP_MAX_LOAD**		Longest preprocessing runtime		**reference:**	
description:						
$AN_PREP_MAX_LOAD returns the longest net preprocessing runtime across all channels.						
unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	-	
write:	X	X	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$AN_PREP_MIN_LOAD**		Shortest preprocessing runtime		**reference:**	
description:						
$AN_PREP_MIN_LOAD returns the shortest net preprocessing runtime across all channels.						
unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	-	
write:	X	X	7	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$AN_PREP_ACT_LOAD_GROSS**		Current preprocessing runtime		**reference:**	
description:						
$AN_PREP_ACT_LOAD_GROSS returns the current gross preprocessing runtime across all channels.						
unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$AN_PREP_MAX_LOAD_GROSS**	Longest preprocessing runtime	**reference:**	

description:

$AN_PREP_MAX_LOAD_GROSS returns the longest gross preprocessing runtime across all channels.

unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	-	
write:	X	X	7	-	0	-	

axis identifier:				**Valuation:**	channel-specific
block search	Not classified			**link**	Not classified

DOUBLE	**$AN_PREP_MIN_LOAD_GROSS**	Shortest preprocessing runtime	**reference:**	

description:

$AN_PREP_MIN_LOAD_GROSS returns the shortest gross preprocessing runtime across all channels.

unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	-	
write:	X	X	7	-	0	-	

axis identifier:				**Valuation:**	channel-specific
block search	Not classified			**link**	Not classified

INT	**$AN_AUXFU_LIST_GROUPINDEX [1679]**	Global list of auxiliary functions - group index	**reference:**	

description:

The array variable $AN_AUXFU_LIST_GROUPINDEX[n] is used to read the group index of the auxiliary function collected in the channel. The variable is only valid in conjunction with search run type 5 (SERUPRO). After the search target has been found, the auxiliary functions collected in groups in the individual channels in accordance with $AC_AUXFU_TICK[n] are entered in the cross-channel list with channel number $AN_AUXFU_LIST_CHANNO[n] and group index. The auxiliary functions collected in the channel can be accessed by the group index.

Index 1:	Index = 0 .. 1679					
unit:	-					
min.:	-1	**max.:**	MD_MAXNUM_AUXFU_GROUPS - 1	**std:**	0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	runin stp	X	3	X	3	X	

axis identifier:				**Valuation:**	channel-specific
block search	Not classified			**link**	Not classified

INT	**$AN_AUXFU_LIST_CHANNO [1679]**	Global list of auxiliary functions - channel number	**reference:**	

description:

The array variable $AN_AUXFU_LIST_CHANNO[n] is used to read the channel number of the auxiliary function collected in the channel. The variable is only valid in conjunction with search run type 5 (SERUPRO). After the search target has been found, the auxiliary functions collected in groups in the individual channels in accordance with $AC_AUXFU_TICK[n] are entered in the cross-channel list with channel number and group index $AN_AUXFU_LIST_GROUPINDEX[n].

Index 1:		Index = 0 .. 1679					
unit:		-					
min.:		-1	**max.:**	10	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	runin stp	X	3	X	3	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

INT	**$AN_AUXFU_LIST_ENDINDEX**	Last valid index of the global auxiliary function list	**reference:**	

description:

The variable $AN_AUXFU_LIST_ENDINDEX determines the last valid index for the global auxiliary function list.

unit:		-					
min.:		-1	**max.:**	1679	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

INT	**$AN_AXCTSWE [31]**	Axis container rotation slot enabled	**reference:**	

description:

Is the rotation enabled for a slot of an axis container?

Bit mask, each bit corresponds to a slot, e.g. 0x5 corresponds to the slots 1 and 3.

Bit == 1: the slot of an axis container is enabled for rotation.

Bit == 0: the slot of an axis container is not enabled for rotation.

Example: Axis container with 4 slots: whenever ($AN_AXCTSWE[ct1] and 'Hffff') == 'Hfff5' do DO M99.

As soon as a slot has been enabled for the axis container rotation, bit == 1 is recorded for unused slots. In the example 'Hfff0'.

If the slots of an axis container are distributed over several NCUs, the current status of the slots is only displayed on the other NCUs if all slots for the axis container rotation have been enabled on the other NCU. In the case of a direct axis container rotation (AXCTSED), nothing is displayed.

Notice: The most significant bit is not a sign bit, but stands for the 32nd slot of an axis container. Therefore do not query variables with >0 but to != 0 in order to establish whether a slot has actually been enabled for rotation.

The axis container name or axis name of an axis in the axis container can be specified as an index.

Index 1:		Maximum axis number					
unit:		-					
min.:		0	**max.:**	0xffffffff		**std:**	0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	No restrictions

INT	**$AN_LAI_AX_IS_AXCTAX**	Bit mask shows whether an LAI axis is an axis in an axis container	**refere nce:**	

description:

Bit mask shows whether an axis in the logical NCK machine axis image (machine data 10002 $MN_AXCONF_LOGIC_MACHAX_TAB) is an axis in an axis container (machine data 1270x/1271x $MN_AXCT_AXCONF_ASSIGN_TABi).

unit:		-					
min.:		0	**max.:**	0x7fffffff		**std:**	0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

INT	**$AN_LAI_AX_IS_LINKAX**	Bit mask shows whether an LAI axis is a link axis.	**refere nce:**	

description:

Bit mask shows whether an axis in the logical NCK machine axis image (machine data 10002 $MN_AXCONF_LOGIC_MACHAX_TAB) is a link axis (axis physicially connected to another NCU).

unit:		-					
min.:		0	**max.:**	0x7fffffff		**std:**	0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

INT	**$AN_LAI_AX_IS_LEADLINKAX**	Bit mask shows whether an LAI axis is a leading link axis.	**refere nce:**	

description:

Bit mask shows whether an axis in the logical NCK machine axis image (machine data 10002 $MN_AXCONF_LOGIC_MACHAX_TAB) is a leading link axis, i.e. several NCUs refer to the same machine axis through MD10002 $MN_AXCONF_LOGIC_MACHAX_TAB and the axial MD30554 $MA_AXCONF_ASSIGN_MASTER_NCU is used to establish which NCU is the master NCU, which creates the setpoint values for the position controller following booting.

unit:		-					
min.:		0	**max.:**	0x7fffffff	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not for lead link axes	

INT	**$AN_LAI_AX_TO_MACHAX [31]**	Assignment of the physical axis to an LAI axis.	**reference:**	

description:

The NCU and machine axis are recorded for an LAI axis, this illustrates the physical image of the axis. In this case, the NCU Id is reported from the 10000 location, e.g. 20005: NCU 2 axis 5. Without NCU link, i.e. if there is only one NCU, then only the number of the machine axis is reported. In this case, the NCU Id equals zero. If the LAI axis is not used, 0 is returned.

Index 1:		Maximum axis number in the logical machine axis image					
unit:		-					
min.:		0	**max.:**	0x7fffffff	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

INT	**$AN_LAI_AX_TO_IPO_NC_CHANAX [31]**	Assignment of an LAI axis to the interpolator (NCU or channel, channel axis).	**reference:**	

description:

If the LAI axis is currently interpolated on this NCU, the channel and the channel axis number are reported in such a way, which defines the interpolator of the axis. In this case, the channel is recorded from the hundred place and the channel axis number is recorded from the unit place, e.g. 1005 - channel 10 channel axis 5. These values are always lower than 10000.

If the LAI axis is currently interpolated on another NCU, the NCU Identifier of the interpolating NCU and the global axis number of the machine axis is recorded. In this case, the NCU is recorded from the 10000 place, e.g. 20203: NCU 2 and the global axis number is 203. This global axis number can be used to determine the interpolating channel and the channel axis number on the other NCU with NCU Id 2, with $AN_IPO_CHANAX[203].

If the LAI axis is not used, 0 is returned.

Index 1:		Maximum axis number in the logical machine axis image.					
unit:		-					
min.:		0	**max.:**	0x7fffffff	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

INT	**$AN_IPO_CHANAX [n]**	Assignment of the global axis to the interpolator (channel, channel axis).	**reference:**	

description:

For a global axis number, such as the one reported by $VA_IPO_NC_CHANAX, the channel and channel axis number are reported, which define the writing interpolator of the axis. In this case, the channel is reported from the hundred place and the channel axis number from the unit place e.g. 1005 – channel 10 channel axis 5.

If the axis is not used on this NCU with the specified global axis number, 0 is returned.

Index 1:	Global axis number to be provided by $VA_IPO_NC_CHANAX.						
unit:	-						
min.:	0	**max.:**	0x7fffffff		**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$AN_LANGUAGE_ON_HMI**	Currently set language on HMI	**reference:**	

description:

The variable $AN_LANGUAGE_ON_HMI determines the language currently set on the HMI. The variable can only be written on the HMI.

Application in the NC program:

IF $AN_LANGUAGE_ON_HMI == 3 GOTOF ENGLISH

The possible values are described in the Appendix to the Programming Guide

unit:	-						
min.:	0	**max.:**	255		**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	X	7	-	
axis identifier:					**Valuation:**	Cross-channel	
block search	Not classified				**link**	Not classified	

INT	**$AN_SLTRACE**	Trigger variable for the log function	**reference:**	

description:

This variable is reserved for the applications SinuTrace and Operate-Trace.

It serves as a trigger variable for the log function.

The variable has the following values:

0: Inactive

1: Start logging requested

2: Stop logging requested

The value is usually set by the part program, the reset through the application via OPI.

unit:	-				
min.:	0	**max.:**	2	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	runin stp	X	7	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

BOOL	**$AN_EXPORT_RESTRICTED**	Export restriction	**reference:**	

description:

Export restriction

Identification of the software subject to export restriction according to BAfA and ECC

Compare OPI N/Y exportRestricted

unit:	-				
min.:	FALSE	**max.:**	TRUE	**std:**	TRUE

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Independent			**link**	No restrictions	

INT	**$AN_LINK_CONN_SND [16]**	Number of link variable changes per cycle	**reference:**	

description:

Number of link variable changes per cycle from the current to the specified NCU number.

The index NCU No of the variable $AN_LINK_CONN_SDN[NCU-No] currently varies from 1 to 16. The variable returns the number of bytes from the current NCU Act to the NCU No reserved for replacing any non-cyclic messages. Depending on the utilization of this transmission capacity, SIEMENS can provide new SDB blocks for the CBE-30 which reduce the total transmission capacity from NCU Act to NCU No This makes the link faster and the servo cycle shorter. Note: If NCU Act == NCU No the variable returns "0".

Index 1:	Currently, the index can have a value between 1 and 16.				
unit:	-				
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

INT	**$AN_LINK_CONN_RCV [16]**	Number of link variable changes per cycle	**reference:**	

description:

Number of link variable changes per cycle from the current to the specified NCU number.

The variable $AN_LINK_CONN_RCV[NCU-No] defines the reserved transmission capacity for non-cyclic messages from NCU No to NCU Act in bytes. Systems without an NCU link return the value 0.

Index 1:		Currently, the index can have a value between 1 and 16.					
unit:		-					
min.:		-2147483648	**max.:**	2147483647		**std:**	0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

INT	**$AN_LINK_CONN_SIZE_LINKVAR**	Gross number of bytes required for a link variable	**reference:**	

description:

Gross number of bytes required for a link variable that is to be transferred into every PTP relationship

The assignment of a link variable (e.g. $a_dlb[9] = 1) does not utilize the non-cyclic link connections with a message of length $AN_LINK_CONN_SIZE_LINKVAR. It is irrelevant if a double-link var. or a byte-link var. is described. The customer can thus estimate the maximum number of transferable link vars. per IPO cycle ($ AN_LINK_CONN_SND[NCU-No] / $AN_LINK_CONN_SIZE_LINKVAR= number of link var. changes per IPO cycle from NCU Act to NCU No).

unit:		-					
min.:		-2147483648	**max.:**	2147483647		**std:**	0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

INT	**$AN_LINK_TRANS_RATE_LAST**	Number of link variables that were still available in last interpolation cycle	**reference:**	

description:

Number of link variables which could have been transferred in the previous interpolation cycle. The value of $AN_LINK_TRANS_RATE_LAST is constant in the current interpolation cycle.

unit:		-					
min.:		0	**max.:**	65536		**std:**	0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

INT	**$AN_LINK_TRANS_RATE_LAST_SUM [16]**	Unused link variables in the stated transmission direction	**reference:**	

description:

Number of unused link variables in the previous interpolation cycle in the stated transmission direction.

The index NCU no. of the variable $AN_LINK_TRANS_RATE_LAST_SUM[NCU-No] defines the transmission direction, and nowadays ranges from 1 to 16. The variable returns the number of user link variables ($A_DLx) for the stated NCU which could have been used in the previous interpolation cycle in this transmission direction.

Index 1:	Currently, the index can have a value between 1 and 16.					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:					**Valuation:**	channel-specific
block search	Not classified				**link**	No restrictions

INT	**$A_PROBE_LIMITED [2]**	Measuring velocity exceeded.	**reference:**	

description:

$A_PROBE_LIMITED contains the accumulated number of DP communication cycles in which at least one limitation was active.

An increasing value indicates that the frequency of the probe signals must be reduced (e.g. by reducing the speed of the gearwheel that is to be measured).

Index 1:	n: Number of the probe					
unit:	-					
min.:	0	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	runin stp	X	7	X	7	X	

axis identifier:					**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

INT	**$AN_SIM_CHAN_MASK**	Bit mask of channels that are synchronized in the simulation	**reference:**	

description:

The channels that are to be synchronized during the simulation can be specified by the bitcoded variable $AN_SIM_CHAN_MASK. The variable is defaulted with the bit mask across all configured channels.

The synchronized multichannel simulation is configured via bit 4 in $MN_PROG_TEST_MASK.

Application in the NC program:

$AN_SIM_CHAN_MASK = 'B101' ; channel 1 and channel 3 are synchronized in the simulation.

unit:	-					
min.:	0	**max.:**	2147483647	**std:**		0.0
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	

read:	runin stp	X	7	X	7	X	
write:	runin stp	X	7	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Current value			**link**	No restrictions	

INT	**$AN_SIM_MAX_IPOSTEP**	Maximum simulation step in real-time interpolation cycles	**reference:**	

description:

The maximum simulation increment can be read and written in real-time interpolation cycle via variable $AN_SIM_MAX_IPOSTEP. An event is output to the HMI interface after each increment. This enables the number of interpolation points to be set. If a value of 0 is specified, the system determines the maximum possible increment.

The variable is only valid in conjunction with the synchronized simulation (see bit 4 $MN_PROG_TEST_MASK).

Application in the NC program:

$AN_SIM_MAX_IPOSTEP = 10 ; One interpolation cycle in the simulation corresponds to a maximum of 10 real-time interpolation cycles.

unit:		-					
min.:		0	**max.:**	2147483647	**std:**	0.0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	runin stp	X	7	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Current value			**link**	No restrictions	

INT	**$AN_ACTIVATE_COLL_CHECK [2]**	Status of the field ActivateCollCheck at the PLC->NCK interface.	**reference:**	

description:

Status of the field activateCollCheck at the interface PLC->NCK (DB10.DBX234.0 - DB10.DBX241.7).

The data are made available in groups of 4 bytes, i.e. with index 0 you receive the first 4 bytes (DB10.DBX234.0 - DB10.DBX237.7), with index 1 the second 4 bytes (DB10.DBX238.0 - DB10.DBX241.7)

Index 1:		The index designates the group of 4 bytes which is to be output at the PLC interface.					
unit:		-					
min.:		-2147483648	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	Cross-channel	
block search		Not classified			**link**	Not classified	

INT	**$AN_COLL_CHECK_OFF**	Status of the byte DeactivateCollCheckGroups at the PLC->NCK interface.	**reference:**	

description:

Status of the byte DeactivateCollCheckGroups on the interface PLC->NCK (DB10.DBB58) for the operating-mode-dependant suppression of the collision avoidance for groups of protection areas.

unit:	-	

min.:		-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	Cross-channel	
block search	Not classified				**link**	Not classified	

STRING	**$NP_T_NAME [n]**	Name of an internally generated tool protection area element.	**reference:**		
description:					
Name of an internally generated tool protection area element.					
Index 1:	The maximum number of tool protection areas is set by the MD $MN_MM_MAXNUM_3D_T_PROT_ELEM.				
Index 3:	Max. string length				
unit:	-				
min.:		**max.:**		**std:**	""

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

STRING	**$NP_T_TYPE [n]**	Type of internally generated tool protection area element	**reference:**		
description:					
Type of internally generated tool protection area element. The following types are possible:					
FRAME: An element of this type does not contain a body, but only defines a frame, which is effective for the subsequent protection area definitions.					
1. BOX (L, W, H): Paraxial cuboid symmetrical in relation to the zero point, with the dimensions L in the X direction, W in the Y direction and H in the Z direction, this means that the corners of the cuboid are located at (+/-L/2, +/-W/2, +/-H/2).					
2. SPHERE (R): Sphere centered on the zero point with the radius R.					
3. CYLINDER (H, R): Cylinder with radius R and height H, longitudinal axis parallel to the Z axis. The center point of the cylinder lies at the zero point, that is the two limiting circular surfaces are parallel to the X-Y plane, and are located at +/-H/2.					
4. FILE: Grid consisting of triangular areas in STL format.					
Index 1:	The maximum number of tool protection areas is set by the MD $MN_MM_MAXNUM_3D_T_PROT_ELEM.				
Index 3:	Max. string length				
unit:	-				
min.:		**max.:**		**std:**	""

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	

write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

STRING	**$NP_T_FILENAME [n]**	File name of a tool protection area element of the type "FILE".	**reference:**	

description:

This parameter contains the name of the file containing the description of the tool protection area element if this element is the type "FILE".

Index 1:	The maximum number of tool protection areas is set by the MD $MN_MM_MAXNUM_3D_T_PROT_ELEM.						
Index 3:	Max. string length						
unit:	-						
min.:		**max.:**			**std:**	""	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$NP_T_PARA [n,3]**	Parameters for describing the type	**reference:**	

description:

Parameters describing the tool protection area element. A maximum of 3 parameters are required for the types described in $NP_T_TYPE.

Index 1:	The maximum number of tool protection areas is set by the MD $MN_MM_MAXNUM_3D_T_PROT_ELEM.						
Index 2:	The maximum number of parameters is 3.						
unit:	mm						
min.:	-1,8E308	**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$NP_T_OFF [n,GEODIM]**	Offset component	**reference:**	

description:

Component i (0<=i<=2) of the offset vector of the tool protection area element n.

Index 1:	The maximum number of tool protection areas is set by the MD $MN_MM_MAXNUM_3D_T_PROT_ELEM.						
Index 2:	The 2nd index i designates the coordinate axis (0 <= i <= 2).						
unit:	mm						
min.:	-1,8E308	**max.:**	1,8E308		**std:**	0.0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$NP_T_DIR [n,GEODIM]**	Direction of rotary axis	**reference:**	

description:
Components of the rotary axis for a coordinate rotation of the tool protection area element n.

Index 1:	The maximum number of tool protection areas is set by the MD $MN_MM_MAXNUM_3D_T_PROT_ELEM.				
Index 2:	The 2nd index i designates the coordinate axis (0 <= i <= 2).				
unit:	-				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$NP_T_ANG [n]**	Angle of a coordinate rotation in the tool protection area element n.	**reference:**	

description:
Angle (in degrees) of a coordinate rotation in the tool protection area element n.

Index 1:	The maximum number of tool protection areas is set by the MD $MN_MM_MAXNUM_3D_T_PROT_ELEM.				
unit:	deg.				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

1.27 Axial system variables

DOUBLE	**$P_EP [31]**	Programmed end position	**reference:**	

description:

$P_EP[X]

System variable $P_EP supplies the current WCS setpoint position in the interpreter. The numerical value is not necessarily identical to the value programmed in the part program. The two values differ in the following

situations:

- with incremental programming

- when the WCS is changed by a frame or tool selection

If an ASUB is started after a block search with calculation, the positions in the interpreter are synchronized with this operation. $P_EP then supplies

the actual standstill positions of the axes in the Asub. The collected search position can be interrogated via system variable $AC_RETPOINT.

Index 1:	Maximum axis number					
unit:	Linear / angular position					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

DOUBLE	**$P_EPM [31]**	Programmed MCS target position	**reference:**	

description:

Axial variable $P_EPM[ax] determines the current programmed MCS target position in the preprocessor for the specified axis (see also $P_EP).

Index 1:	Maximum axis number					
unit:	Linear / angular position					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

DOUBLE	**$P_APR [31]**	Axis position in the starting point with SAR in the WCS	**reference:**	

description:

$P_APR[X]

Position of axis in workpiece coordinate system at starting point

of approach movement on smooth approach to the contour

Index 1:		Maximum axis number					
unit:		Linear / angular position					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

DOUBLE	**$P_AEP [31]**			1st contour point with SAR in the WCS		**reference:**	
description: $P_AEP[X] Approach point: First contour point in workpiece coordinate system on smooth approach to contour							
Index 1:		Maximum axis number					
unit:		Linear / angular position					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

DOUBLE	**$P_POLF [31]**			Programmed retraction position of the axis		**reference:**	
description: $P_POLF[X] supplies the programmed retraction position of the axis X: Axis							
Index 1:		Maximum axis number					
unit:		Linear / angular position					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

INT	**$P_POLF_VALID [31]**	Status of the value of $P_POLF	**reference:**	

description:

$P_POLF_VALID[X]

Supplies the status of $P_POLF[X]

X: Axis

Return values:

0: No retraction programmed

1: Retraction programmed Position programmed

2: Retraction programmed as distance

Index 1:	Maximum axis number					
unit:	-					
min.:	0	**max.:**	2	**std:**	0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

DOUBLE	**$AA_IW [31]**	Current WCS setpoint of an axis	**reference:**	

description:

Axial variable $AA_IW[ax] determines the current setpoint in the workpiece coordinate system (WCS) for the specified axis. The setpoint is equivalent to the interpolator output value for the current interpolation cycle. The WCS value contains no axial offset components (DRF, AA_OFF, ext. work offset, etc.).

Index 1:	Maximum axis number					
unit:	Linear / angular position					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

BOOL	**$AA_REPOS_DELAY [31]**	-	**reference:**	

description:

$AA_REPOS_DELAY[X]

TRUE: Repos suppression is currently active for this axis.

FALSE: otherwise

Index 1:	Maximum axis number					
unit:	-					
min.:	TRUE	**max.:**	FALSE	**std:**	FALSE	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN MACH	SPIN	**Valuation:**	channel-specific	
block search		Program sensitive			**link**	Not for lead link axes	

DOUBLE	**$AA_IEN [31]**		Current SZS setpoint of an axis		**reference:**	
description:						
Axial variable $AA_IEN[ax] determines the current setpoint in the settable zero coordinate system (SZS) for the specified axis. See also $AA_IW[ax]. The SZS value contains no axial offset components (DRF, AA_OFF, ext. work offset, etc.).						
Index 1:	Maximum axis number					
unit:	Linear / angular position					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN MACH	SPIN	**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

DOUBLE	**$AA_IBN [31]**		Current BZS setpoint of an axis		**reference:**	
description:						
Axial variable $AA_IBN[ax] determines the current setpoint in the basic zero coordinate system (BZS) for the specified axis. See also $AA_IW[ax]. The BZS value contains no axial offset components (DRF, $AA_OFF, ext. work offset, etc.).						
Index 1:	Maximum axis number					
unit:	Linear / angular position					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN MACH	SPIN	**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

DOUBLE	**$AA_IB [31]**		Current BCS setpoint of an axis		**reference:**	
description:						
Axial variable $AA_IB[ax] determines the current setpoint in the basic coordinate system (BCS) for the specified axis. See also $AA_IW[ax]. The BCS value contains no axial offset components (DRF, $AA_OFF, ext. work offset, etc.).						
Index 1:	Maximum axis number					
unit:	Linear / angular position					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN MACH	SPIN	**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

DOUBLE	**$AA_ENC_AMPL [n,31]**	Gain factor for closed-loop amplitude control	**reference:**	

description:

Available only for SIMODRIVE 611D:

$AA_ENC_AMPL[n,ax] supplies the percentage gain factor of the amplitude control for diagnostic and monitoring purposes. The standard encoder voltage is 1V = 100%, the gain can fluctuate between 0.5V and 1.3V schwanken.

The meaning of the indices are as follows:

n: Encoder number

ax: Machine axis

Index 1:	n: Encoder number				
Index 2:	Maximum axis number				
unit:	-				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	-	X	0	-	0	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN MACH		**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$AA_IM [31]**	Current MCS setpoint of an axis	**reference:**	

description:

Axial variable $AA_IM[ax] determines the current setpoint in the machine coordinate system (MCS) for the specified axis. See also $AA_IW[ax]. The MCS value contains all axial offset components (DRF, $AA_OFF, ext. work offset, etc.).

Index 1:	Maximum axis number				
unit:	Linear / angular position				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN MACH	SPIN	**Valuation:**	channel-specific	
block search		Program sensitive			**link**	Not classified	

INT	**$AA_ACT_INDEX_AX_POS_NO [31]**	Current indexing position	**reference:**	

description:
$AA_ACT_INDEX_AX_POS_NO[X]
0: Not an indexing axis, no indexing position is thus available.
> 0: Number of last reached or last crossed indexing position

Index 1:	Maximum axis number						
unit:	-						
min.:	-2147483648	**max.:**	2147483647	**std:**	0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$AA_PROG_INDEX_AX_POS_NO [31]**	Programmed indexing position	**reference:**	

description:
$AA_PROG_INDEX_AX_POS_NO[X]
0: Not an indexing axis, no indexing position is thus available or
the indexing axis is not currently approaching an indexing position
> 0: Number of programmed indexing position

Index 1:	Maximum axis number						
unit:	-						
min.:	-2147483648	**max.:**	2147483647	**std:**	0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

BOOL	**$AA_ENC_ACTIVE [31]**	Measuring system is active	**reference:**	

description:
Axial variable $AA_ENC_ACTIVE[ax] determines whether the active measuring system is operating below the encoder limit frequency.

Index 1:	Maximum axis number						
unit:	-						
min.:	FALSE	**max.:**	TRUE	**std:**	FALSE		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	

write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

BOOL	**$AA_ENC1_ACTIVE [31]**	1. Measuring system is active	**reference:**	

description:

Axial variable $AA_ENC1_ACTIVE[ax] determines whether the first measuring system is operating below the encoder limit frequency.

Index 1:		Maximum axis number					
unit:		-					
min.:		FALSE	**max.:**	TRUE		**std:**	FALSE
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	-	0	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

BOOL	**$AA_ENC2_ACTIVE [31]**	2. Measuring system is active	**reference:**	

description:

Axial variable $AA_ENC2_ACTIVE[ax] determines whether the second measuring system is operating below the encoder limit frequency.

Index 1:		Maximum axis number					
unit:		-					
min.:		FALSE	**max.:**	TRUE		**std:**	FALSE
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	-	0	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

DOUBLE	**$VA_IM [31]**	Current MCS actual value of an axis	**reference:**	

description:

Axial variable $VA_IM[ax] determines the encoder actual value (measured by active measuring system) in the machine coordinate system (MCS). All actual value compensations are corrected (leadscrew error compensation, backlash compensation, quadrant error compensation).

When a spindle or axis disable is active, this variable returns the current setpoint by definition. If it is preferred to return the actual value in this situation, BIT3 in $MA_MISC_FUNCTION_MASK must be set.

Index 1:		Maximum axis number					
unit:		Linear / angular position					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	

read:	runin stp	X	7		X	7	X	
write:	-	-	0		-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific	
block search		Not classified				**link**	Not classified	

DOUBLE	**$VA_IM1 [31]**			Current MCS actual value of an axis		**reference:**	
description:							
Axial variable $VA_IM1[ax] determines the encoder actual value (measured by encoder 1) in the machine coordinate system (MCS). All actual value compensations are corrected (leadscrew error compensation, backlash compensation, quadrant error compensation).							
When a spindle or axis disable is active, this variable returns the current setpoint by definition. If it is preferred to return the actual value in this situation, BIT3 in $MA_MISC_FUNCTION_MASK must be set.							
Index 1:		Maximum axis number					
unit:		Linear / angular position					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							

	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7		X	7	X	
write:	-	-	0		-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific	
block search		Not classified				**link**	Not classified	

DOUBLE	**$VA_IM2 [31]**			Current MCS actual value of an axis		**reference:**	
description:							
Axial variable $VA_IM2[ax] determines the encoder actual value (measured by encoder 2) in the machine coordinate system (MCS). All actual value compensations are corrected (leadscrew error compensation, backlash compensation, quadrant error compensation).							
When a spindle or axis disable is active, this variable returns the current setpoint by definition. If it is preferred to return the actual value in this situation, BIT3 in $MA_MISC_FUNCTION_MASK must be set.							
Index 1:		Maximum axis number					
unit:		Linear / angular position					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							

	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7		X	7	X	
write:	-	-	0		-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific	
block search		Not classified				**link**	Not classified	

DOUBLE	**$VA_LAG_ERROR [31]**	Axis following error	**reference:**	
description:				
Variable $VA_LAG_ERROR[X] supplies the contour-related following error, i.e. position setpoint after fine interpolator actual position value.				
Index 1:	Maximum axis number			

unit:		-					
min.:		-1,8E308	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	-	X	0	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:			CHAN MACH		**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

DOUBLE	**$AA_MW [31]**	Measured probe position (WCS)	**reference:**	

description:

$AA_MW[X]

Probe measured value in workpiece coordinate system

Index 1:		Maximum axis number					
unit:		Linear / angular position					
min.:		-1,8E308	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	runin stp	X	7	X	7	X	
axis identifier:		GEO	CHAN MACH	SPIN	**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

DOUBLE	**$AA_MM [31]**	Measured probe position (MCS)	**reference:**	

description:

$AA_MM[X]

Probe measured value in machine coordinate system

Index 1:		Maximum axis number					
unit:		Linear / angular position					
min.:		-1,8E308	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	runin stp	X	7	X	7	X	
axis identifier:		GEO	CHAN MACH	SPIN	**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

DOUBLE	**$AA_MW1 [31]**	Probe position trigger 1 (WCS)	**reference:**	

description:

$AA_MW1[X]

Measurement result axial measurement

Trigger event 1 in WCS

Index 1:	Maximum axis number

unit:		Linear / angular position					
min.:		-1,8E308	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	runin stp	X	7	X	7	X	
axis identifier:		GEO	CHAN / MACH	SPIN	**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

DOUBLE	**$AA_MW2 [31]**	Probe position trigger 2 (WCS)	**reference:**	

description:
$AA_MW2[X]
Measurement result axial measurement
Trigger event 2 in WCS

Index 1:		Maximum axis number					
unit:		Linear / angular position					
min.:		-1,8E308	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	runin stp	X	7	X	7	X	
axis identifier:		GEO	CHAN / MACH	SPIN	**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

DOUBLE	**$AA_MW3 [31]**	Probe position trigger 3 (WCS)	**reference:**	

description:
$AA_MW3[X]
Measurement result axial measurement
Trigger event 3 in WCS

Index 1:		Maximum axis number					
unit:		Linear / angular position					
min.:		-1,8E308	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	runin stp	X	7	X	7	X	
axis identifier:		GEO	CHAN / MACH	SPIN	**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

DOUBLE	**$AA_MW4 [31]**			Probe position trigger 4 (WCS)			**reference:**	
description:								
$AA_MW4[X]								
Measurement result axial measurement								
Trigger event 4 in WCS								
Index 1:		Maximum axis number						
unit:		Linear / angular position						
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**		
read:	runin stp	X	7	X	7	X		
write:	runin stp	X	7	X	7	X		
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific	
block search		Not classified				**link**	Not classified	

DOUBLE	**$AA_MM1 [31]**			Probe position trigger 1 (MCS)			**reference:**	
description:								
$AA_MM1[X]								
Measurement result axial measurement								
Trigger event 1 in MCS								
Index 1:		Maximum axis number						
unit:		Linear / angular position						
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**		
read:	runin stp	X	7	X	7	X		
write:	runin stp	X	7	X	7	X		
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific	
block search		Not classified				**link**	Not classified	

DOUBLE	**$AA_MM2 [31]**			Probe position trigger 2 (MCS)			**reference:**	
description:								
$AA_MM2[X]								
Measurement result axial measurement								
Trigger event 2 in MCS								
Index 1:		Maximum axis number						
unit:		Linear / angular position						
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**		
read:	runin stp	X	7	X	7	X		

write:	runin stp	X	7		X	7	X	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific	
block search		Not classified				**link**	Not classified	

DOUBLE	**$AA_MM3 [31]**			Probe position trigger 3 (MCS)		**reference:**	
description:							
$AA_MM3[X]							
Measurement result axial measurement							
Trigger event 3 in MCS							
Index 1:	Maximum axis number						
unit:	Linear / angular position						
min.:	-1,8E308	**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:							

	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7		X	7	X	
write:	runin stp	X	7		X	7	X	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific	
block search		Not classified				**link**	Not classified	

DOUBLE	**$AA_MM4 [31]**			Probe position trigger 4 (MCS)		**reference:**	
description:							
$AA_MM4[X]							
Measurement result axial measurement							
Trigger event 4 in MCS							
Index 1:	Maximum axis number						
unit:	Linear / angular position						
min.:	-1,8E308	**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:							

	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7		X	7	X	
write:	runin stp	X	7		X	7	X	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific	
block search		Not classified				**link**	Not classified	

BOOL	**$AA_MEAACT [31]**			Axial measurement active		**reference:**	
description:							
$AA_MEAACT[X]							
Value is exactly then TRUE if							
axial measurement active for X							
Corresponds with NC/PLC interface signal DB31, ... DBX62.3 (measurement active)							
Index 1:	Maximum axis number						
unit:	-						
min.:	FALSE	**max.:**	TRUE		**std:**	FALSE	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	-	0	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

DOUBLE	**$AC_DRF [31]**		Handwheel override of an axis		**reference:**	
description:						
Axial variable $AC_DRF[ax] determines the axial override value caused by the handwheel (DRF offset).						
Index 1:	Maximum axis number					
unit:	Linear / angular position					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

DOUBLE	**$AC_PRESET [31]**		PRESET value of an axis		**reference:**	
description:						
Axial variable $AC_PRESET[ax] determines the last defined PRESET value.						
Index 1:	Maximum axis number					
unit:	Linear / angular position					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	X	7	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

DOUBLE	**$AA_ETRANS [31]**		External zero offset		**reference:**	
description:						
Axial variable $AA_ETRANS[ax] is used to enter an external work offset which can be activated by the PLC. After activation by the PLC, the offset value is traversed as an axial override in the next block.						
If Bit 1 is set in $MC_MM_SYSTEM_FRAME_MASK, an active movement is stopped immediately, on activation by the PLC, the preprocessor is reorganized, and the system frame is initialized with the axis value of $AA_ETRANS[ax] and is activated. The offset is traversed before resuming the interrupted movement. The external work offset has an absolute effect on the translation of the current system frame. Multiple activation is thus not additive; only the coarse component of the translation (not the fine offset) is overwritten with the value from $AA_ETRANS[ax].							
Index 1:	Maximum axis number						
unit:	Linear / angular position						

min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0
Properties with regard to reading/writing:					

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

INT	**$AA_MEAS_P1_VALID [31]**	Unlatch 1st measuring point of an axis	**reference:**	

description:

Variable for workpiece and tool measurement.

Axial variable $AA_MEAS_P1_VALID[ax] is used to unlatch the current axis position with reference to a selected coordinate system. Variable $AC_MEAS_P1_COORD is used to select the coordinate system.

Application:

$AA_MEAS_P1_VALID[ax] = 0 ; 1st measuring point of axis is invalid

$AA_MEAS_P1_VALID[ax] = 1 ; Determining 1st measuring point of axis

The unlatched measuring point is stored in $AA_MEAS_POINT1[ax].

Index 1:	Maximum axis number				
unit:	-				
min.:	0	**max.:**	1	**std:**	0
Properties with regard to reading/writing:					

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	runin stp	X	7	X	7	X	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

INT	**$AA_MEAS_P2_VALID [31]**	Unlatch 2nd measuring point of an axis	**reference:**	

description:

Variable for workpiece and tool measurement.

Axial variable $AA_MEAS_P2_VALID[ax] is used to unlatch the current axis position with reference to a selected coordinate system. Variable $AC_MEAS_P2_COORD is used to select the coordinate system.

Application:

$AA_MEAS_P2_VALID[ax] = 0 ; 2nd measuring point of axis is invalid

$AA_MEAS_P2_VALID[ax] = 1 ; Determining 2nd measuring point of axis

The unlatched measuring point is stored in $AA_MEAS_POINT2[ax].

Index 1:	Maximum axis number				
unit:	-				
min.:	0	**max.:**	1	**std:**	0
Properties with regard to reading/writing:					

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	

write:	runin stp	X	7		X	7	X	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific	
block search		Not classified				**link**	Not classified	

INT	**$AA_MEAS_P3_VALID [31]**	Unlatch 3rd measuring point of an axis	**reference:**	

description:

Variable for workpiece and tool measurement.

Axial variable $AA_MEAS_P3_VALID[ax] is used to unlatch the current axis position with reference to a selected coordinate system. Variable $AC_MEAS_P3_COORD is used to select the coordinate system.

Application:

$AA_MEAS_P3_VALID[ax] = 0 ; 3rd measuring point of axis is invalid

$AA_MEAS_P3_VALID[ax] = 1 ; Determining 3rd measuring point of axis

The unlatched measuring point is stored in $AA_MEAS_POINT3[ax].

Index 1:		Maximum axis number						
unit:		-						
min.:		0		**max.:**	1		**std:**	0
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7		X	7	X	
write:	runin stp	X	7		X	7	X	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific	
block search		Not classified				**link**	Not classified	

INT	**$AA_MEAS_P4_VALID [31]**	Unlatch 4th measuring point of an axis	**reference:**	

description:

Variable for workpiece and tool measurement.

Axial variable $AA_MEAS_P4_VALID[ax] is used to unlatch the current axis position with reference to a selected coordinate system. Variable $AC_MEAS_P4_COORD is used to select the coordinate system.

Application:

$AA_MEAS_P4_VALID[ax] = 0 ; 4th measuring point of axis is invalid

$AA_MEAS_P4_VALID[ax] = 1 ; Determining 4th measuring point of axis

The unlatched measuring point is stored in $AA_MEAS_POINT4[ax].

Index 1:		Maximum axis number						
unit:		-						
min.:		0		**max.:**	1		**std:**	0
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7		X	7	X	
write:	runin stp	X	7		X	7	X	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific	
block search		Not classified				**link**	Not classified	

DOUBLE	**$AA_MEAS_POINT1 [31]**	1. measuring point	**reference:**	

description:

Variable for workpiece and tool measurement.

Axial variable $AA_MEAS_POINT1[ax] is used to write the 1st measuring point for workpiece and tool measurement. The measuring point can be either written directly or unlatched with variables $AC_MEAS_LATCH[0], $AA_MEAS_P1_VALID[ax].

Application:

$AA_MEAS_POINT1[x] = $AA_IW[x]

$AA_MEAS_POINT1[y] = $AA_IW[y]

$AA_MEAS_POINT1[z] = $AA_IW[z]

Index 1:	Maximum axis number					
unit:	Linear / angular position					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

DOUBLE	**$AA_MEAS_POINT2 [31]**	2. measuring point	**reference:**	

description:

Variable for workpiece and tool measurement.

Axial variable $AA_MEAS_POINT2[ax] is used to write the 2nd measuring point for workpiece and tool measurement. The measuring point can be either written directly or unlatched with variables $AC_MEAS_LATCH[1], $AA_MEAS_P2_VALID[ax].

Application:

$AA_MEAS_POINT2[x] = $AA_IW[x]

$AA_MEAS_POINT2[y] = $AA_IW[y]

$AA_MEAS_POINT2[z] = $AA_IW[z]

Index 1:	Maximum axis number					
unit:	Linear / angular position					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

DOUBLE	**$AA_MEAS_POINT3 [31]**	3. measuring point	**reference:**	

description:

Variable for workpiece and tool measurement.

Axial variable $AA_MEAS_POINT3[ax] is used to write the 3rd measuring point for workpiece and tool measurement. The measuring point can be either written directly or unlatched with variables $AC_MEAS_LATCH[2], $AA_MEAS_P3_VALID[ax].

Application:

$AA_MEAS_POINT3[x] = $AA_IW[x]

$AA_MEAS_POINT3[y] = $AA_IW[y]

$AA_MEAS_POINT3[z] = $AA_IW[z]

Index 1:	Maximum axis number					
unit:	Linear / angular position					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

DOUBLE	**$AA_MEAS_POINT4 [31]**	4. measuring point	**reference:**	

description:

Variable for workpiece and tool measurement.

Axial variable $AA_MEAS_POINT4[ax] is used to write the 4th measuring point for workpiece and tool measurement. The measuring point can be either written directly or unlatched with variables $AC_MEAS_LATCH[3], $AA_MEAS_P4_VALID[ax].

Application:

$AA_MEAS_POINT4[x] = $AA_IW[x]

$AA_MEAS_POINT4[y] = $AA_IW[y]

$AA_MEAS_POINT4[z] = $AA_IW[z]

Index 1:	Maximum axis number					
unit:	Linear / angular position					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

INT	**$AA_MEAS_SP_VALID [31]**	Validity of position setpoint	**reference:**	

description:

Variable for workpiece and tool measurement.

Axial variable $AA_MEAS_SP_VALID[ax] is used to set the defined setpoint of an axis to valid or invalid.

Application:

$AA_MEAS_SP_VALID[ax] = 0 ; Position setpoint of axis is invalid

$AA_MEAS_SP_VALID[ax] = 1 ; Position setpoint of axis is valid

The position setpoint is stored in $AA_MEAS_SETPOINT[ax]

Index 1:	Maximum axis number					
unit:	-					
min.:	0	**max.:**	1	**std:**	0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

DOUBLE	**$AA_MEAS_SETPOINT [31]**	Position setpoint of an axis	**reference:**	

description:

Variable for workpiece and tool measurement.

Axial variable $AA_MEAS_SETPOINT[ax] is used to define a position setpoint for an axis. This position setpoint is considered when calculating the workpiece position or the tool length.

Application:

$AA_MEAS_SETPOINT[x] = 0.0

$AA_MEAS_SETPOINT[y] = 0.0

$AA_MEAS_SETPOINT[z] = 0.0

Index 1:	Maximum axis number					
unit:	Linear / angular position					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

DOUBLE	**$AA_MEAS_SETANGLE [31]**	Angle setpoint of an axis	**reference:**	

description:

Variable for workpiece and tool measurement.

Axial variable $AA_MEAS_SETANGLE[ax] is used to define an angle setpoint for an axis. This angle setpoint is considered when calculating the workpiece position or the tool length.

Application:

$AA_MEAS_SETANGLE[x] = 0.0

$AA_MEAS_SETANGLE[y] = 0.0

$AA_MEAS_SETANGLE[z] = 0.0

Index 1:	Maximum axis number					
unit:	Linear / angular position					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

DOUBLE	**$AA_OFF [31]**	Overlaid movement of an axis	**reference:**	

description:

Axial variable $AA_OFF[ax] is used to overlay a movement for the programmed axis. The behavior of the overlaid movement can be configured with $MA_AA_OFF_MODE.

Index 1:	Maximum axis number					
unit:	Linear / angular position					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	-	X	0	X	7	X	
write:	-	X	0	X	7	X	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

INT	**$AA_OFF_LIMIT [31]**	Limit value reached for axis offset	**reference:**	

description:

Axial variable $AA_OFF_LIMIT[ax] is used to interrogate a limit value for the axis offset $AA_OFF[ax].

The following values are possible:

0:Limit value not reached

1:Limit value reached in positive axis direction

-1:Limit value reached in negative axis direction

Index 1:	Maximum axis number					
unit:	-					
min.:	-1	**max.:**	1	**std:**	0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN MACH	SPIN	**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

DOUBLE	**$AA_OFF_VAL [31]**	Integrated path of axis offset	**reference:**	

description:

Axial variable $AA_OFF_VAL[ax] determines the integrated value of the overlaid movement for an axis.

An overlaid movement can be canceled again by means of the

negative value of this variable.

e.g. $AA_OFF[axis] = -$AA_OFF_VAL[axis]

Index 1:	Maximum axis number				
unit:	-				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN MACH	SPIN	**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

DOUBLE	**$AC_RETPOINT [31]**	Repositioning point in Asub	**reference:**	

description:

$AC_RETPOINT[X]

$AC_RETPOINT[] supplies the WCS position of an axis at which an ASUB has been started. The axis can then be repositioned at this point in the Asub.

If an Asub is started immediately after a block search with calculation, $AC_RETPOINT then supplies the collected search position.

For a modulo axis $AC_RETPOINT[] supplies the position as modulo converted.

System variable $AC_RPVALID[] can be used to check whether $AC_RETPOINT[] is supplying a valid repositioning point within the current program context (see documentation for $AC_RPVALID[]).

Note about application in synchronized actions:

The points generated by REPOS are supplied while the REPOS approach blocks are being processed. The current parameter settings for the REPOS operation (approach to interruption point, block start point, etc.) defined by G codes RMI, RMB, RME, RMN or VDI signal are also taken into account.

Index 1:	Maximum axis number				
unit:	Linear / angular position				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	

write:	-	-	0		-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific	
block search		Not classified				**link**	Not classified	

DOUBLE	**$AA_TOFF [31]**	Offset in tool direction	**reference:**

description:

Variable $AA_TOFF[geo axis] is used to overlay a movement in the corresponding tool direction. The behavior of the overlaid movement can be configured with $MC_TOFF_MODE.

Activation in the part program is performed using the TOFFON instruction.

The TOFFOF instruction can be used to reset the offset values.

The velocity for the offset can be defined with MD 21194 TOFF_VELO; the acceleration can be defined with MD21196 TOFF_ACCEL.

The variable is only appropriate in conjunction with an active orientation transformation or an active toolholder.

Index 1:		Maximum axis number					
unit:		mm					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	runin stp	X	7	X	7	X	
axis identifier:		GEO			**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

DOUBLE	**$AA_TOFF_VAL [31]**	Integrated value of offset in TCS	**reference:**

description:

Variable $AA_TOFF_VAL[geo axis] determines the integrated value of the overlaid movement in the corresponding tool direction.

The variable is only appropriate in conjunction with an active orientation transformation or an active toolholder.

Index 1:		Maximum axis number					
unit:		mm					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO			**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

INT	**$AA_TOFF_LIMIT [31]**	Limit value for offset in TCS reached	**reference:**	

description:

Axial variable $AA_TOFF_LIMIT[ax] is used to interrogate a limit value for the offset in the tool direction (TCS) via $AA_TOFF[geo axis].

The following values are possible:

0: Limit value not reached

1: Limit value reached in positive axis direction

-1: Limit value reached in negative axis direction

The limit values can be defined with SD 42970 TOFF_LIMIT.

The variable is only appropriate in conjunction with an active orientation transformation or an active toolholder.

Index 1:	Maximum axis number				
unit:	-				
min.:	-1	**max.:**	1	**std:**	0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:	GEO				**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

DOUBLE	**$AA_TOFF_PREP_DIFF [31]**	Difference value of main run/preprocessing run in TCS	**reference:**	

description:

Variable $AA_TOFF_PREP_DIFF[geo axis] determines the difference value of the overlaid movement in the corresponding tool direction between the main run and preprocessing run.

The variable is only appropriate in conjunction with an active orientation transformation or an active toolholder.

Index 1:	Maximum axis number				
unit:	mm				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:	GEO				**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

DOUBLE	**$AA_SOFTENDP [31]**	Software limit position, positive direction	**reference:**	

description:

$AA_SOFTENDP[X]

Current software limit position, positive direction

Index 1:	Maximum axis number				
unit:	Linear / angular position				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

DOUBLE	**$AA_SOFTENDN [31]**	Software limit position, negative direction	**reference:**	

description:

$AA_SOFTENDN[X]

Software limit position, negative direction

Index 1:	Maximum axis number				
unit:	Linear / angular position				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

DOUBLE	**$AA_DTBW [31]**	Distance from block start in WCS	**reference:**	

description:

Axial variable $AA_DTBW[ax] determines the axial distance from the start of the block in the workpiece coordinate system for positioning and synchronized axes. The programmed position is the only factor used to calculate the distance. If the axis is a coupled axis, the position component derived from the axis coupling is not considered.

Index 1:	Maximum axis number				
unit:	Linear / angular position				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	-	X	0	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

DOUBLE	**$AA_DTBB [31]**	Distance from block start in BCS	**reference:**	

description:

Axial variable $AA_DTBB[ax] determines the axial distance from the start of the block in the basic coordinate system for positioning and synchronized axes. The programmed position is the only factor used to calculate the distance. If the axis is a coupled axis, the position component derived from the axis coupling is not considered.

Index 1:	Maximum axis number				
unit:	Linear / angular position				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	-	X	0	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN MACH	SPIN	**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

DOUBLE	**$AA_DTEW [31]**	Distance from block end in WCS	**reference:**	

description:

Axial variable $AA_DTEW[ax] determines the axial distance to the end of the block in the workpiece coordinate system for positioning and synchronized axes. The programmed position is the only factor used to calculate the distance. If the axis is a coupled axis, the position component derived from the axis coupling is not considered.

Index 1:	Maximum axis number				
unit:	Linear / angular position				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	-	X	0	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN MACH	SPIN	**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

DOUBLE	**$AA_DTEB [31]**	Distance from block end in BCS	**reference:**	

description:

Axial variable $AA_DTEB[ax] determines the axial distance to the end of the block in the basic coordinate system for positioning and synchronized axes.

The programmed position is the only factor used to calculate the distance. If the axis is a coupled axis, the position component derived from the axis coupling is not considered.

Index 1:	Maximum axis number				
unit:	Linear / angular position				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	-	X	0	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN MACH	SPIN	**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

DOUBLE	**$AA_DTEPW [31]**	Distance to go of a reciprocating axis in WCS	**reference:**	

description:

Axial variable $AA_DTEPW[ax] determines the axial distance to go for the infeed reciprocation in the workpiece coordinate system.

Index 1:	Maximum axis number
unit:	Linear / angular position

min.:		-1,8E308		**max.:**	1,8E308	**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	-	X	0	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN MACH	SPIN	**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

DOUBLE	**$AA_DTEPB [31]**	Distance to go of a reciprocating axis in BCS	**reference:**	

description:

Axial variable $AA_DTEPB[ax] determines the axial distance to go for the infeed reciprocation in the basic coordinate system.

Index 1:		Maximum axis number					
unit:		Linear / angular position					
min.:		-1,8E308		**max.:**	1,8E308	**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	-	X	0	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN MACH	SPIN	**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

DOUBLE	**$AA_OSCILL_REVERSE_POS1 [31]**	Reciprocation reversal position 1	**reference:**	

description:

$AA_OSCILL_REVERSE_POS1[X]

Supplies current reversal position 1 for reciprocation.

In synchronized actions, the value of setting data $SA_OSCILL_REVERSE_POS1

is evaluated online.

The variable can be accessed only from synchronized actions.

Index 1:		Maximum axis number					
unit:		Linear / angular position					
min.:		-1,8E308		**max.:**	1,8E308	**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	-	X	0	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN MACH		**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

DOUBLE	**$AA_OSCILL_REVERSE_POS2 [31]**	Reciprocation reversal position 2	**reference:**	

description:
$AA_OSCILL_REVERSE_POS2[X]
Supplies current reversal position 2 for reciprocation.
In synchronized actions, the value of setting data $SA_OSCILL_REVERSE_POS2
is evaluated online.
The variable can be accessed only from synchronized actions.

Index 1:	Maximum axis number					
unit:	Linear / angular position					
min.:	-1,8E308	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	-	X	0	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:	GEO	CHAN	MACH		**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

DOUBLE	**$AA_DELT [31]**	Stored axial distance to go after DDTG	**reference:**	

description:
$AA_DELT[X]
Stored axial distance to go in workpiece coordinate system after axial delete distance to go by a motion-synchronous action.

Index 1:	Maximum axis number					
unit:	Linear / angular position					
min.:	-1,8E308	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$P_FA [31]**	Programmed axial feedrate	**reference:**	

description:
$P_FA[X]
Last programmed axial feedrate

Index 1:	Maximum axis number					
unit:	Linear / angular speed					
min.:	-1,8E308	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	

write:	-	-	0		-	0	-
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

DOUBLE	**$AA_OVR [31]**	Axial override	**reference:**	

description:

$AA_OVR[<axis>]

Axial override for motion-synchronous actions.

Multiplicative override component, applied in addition to operator override,

programmed override and transformational override.

The value is limited to max. 200%. If a value of < 0.0 is entered,

it is assumed to be 0 and alarm 14756 is output.

$AA_OVR[<axis>] must be rewritten in every Ipo cycle or else a value of 100% is applied.

Variable $AA_OVR[<spindle>] alters the spindle override.

The variable can be accessed only from motion-synchronous actions.

Index 1:		Maximum axis number					
unit:		-					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	-	X	0	X	7	X	
write:	-	X	0	-	0	X	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

DOUBLE	**$AA_PLC_OVR [31]**	Axial override from PLC	**reference:**	

description:

$AA_PLC_OVR[ax] supplies the axial override defined by the PLC.

Index 1:		Maximum axis number					
unit:		-					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	-	X	0	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:			CHAN			**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

DOUBLE	**$AA_TOTAL_OVR [31]**	Overall axial override	**reference:**	

description:

$AA_TOTAL_OVR[ax] supplies the overall axial override (PLC_OVR*NC_OVR).

Index 1:	Maximum axis number	
unit:	-	

min.:		-1,8E308		**max.:**	1,8E308	**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	-	X	0	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:			CHAN		**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

DOUBLE	**$AA_VC [31]**	Additive axial feedrate override	**reference:**

description:

$AA_VC[X]

Additive axial feedrate override for motion-synchronous actions.

The override value must be rewritten in every Ipo cycle or else a value of 0 is applied.

A setting of 0 makes the override inoperative and is not applied to the override value.

The total feedrate cannot be made negative by an override value.

An upper limit is applied to ensure that the maximum axis velocities and acceleration rates cannot be exceeded.

The calculation of other feed components is not affected by $AA_VC.

The override values defined by machine data: $MN_OVR_FACTOR_LIMIT_BIN, $MN_OVR_FACTOR_FEEDRATE[30], $MN_OVR_FACTOR_AX_SPEED[30] and $MN_OVR_FACTOR_SPIND_SPEED cannot

be exceeded. The additive feedrate override is limited such that the resultant feedrate does not exceed the maximum override

value of the programmed feedrate.

The variable can be accessed only from synchronized actions.

Index 1:		Maximum axis number					
unit:		Linear / angular speed					
min.:		-1,8E308		**max.:**	1,8E308	**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	-	X	0	X	7	X	
write:	-	X	0	-	0	X	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

DOUBLE	**$AA_VACTB [31]**	Axis velocity in the BCS	**reference:**

description:

Axial variable $AA_VACTB[ax] determines the axis velocity in the basic coordinate system.

Index 1:		Maximum axis number					
unit:		Linear / angular speed					
min.:		-1,8E308		**max.:**	1,8E308	**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	-	X	0	X	7	X	

write:	-	-	0		-	0	-
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

DOUBLE	**$AA_VACTW [31]**			Axis velocity in the WCS		**reference:**	
description:							
Axial variable $AA_VACTW[ax] determines the axis velocity in the workpiece coordinate system.							
Index 1:		Maximum axis number					
unit:		Linear / angular speed					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	-	X	0	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

DOUBLE	**$AA_VACTM [31]**			Axis velocity in the MCS		**reference:**	
description:							
Axial variable $AA_VACTM[ax] determines the axis velocity on the setpoint side in the machine coordinate system. The variable also returns valid values for replacement and PLC axes.							
Index 1:		Maximum axis number					
unit:		Linear / angular speed					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	-	X	0	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

DOUBLE	**$VA_VACTM [31]**			Axis velocity actual value in the MCS		**reference:**	
description:							
Axial variable $VA_VACTM[ax] determines the axis velocity actual value in the machine coordinate system. The variable supplies an undefined value if the encoder limit frequency is exceeded. When a spindle/axis disable is active, this variable returns the current velocity setpoint. If it is preferred to return the actual velocity in this situation, BIT3 in $MA_MISC_FUNCTION_MASK must be set.							
Index 1:		Maximum axis number					
unit:		Linear / angular speed					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	-	X	0	X	7	X	

write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

DOUBLE	**$AA_LOAD [31]**		Drive load		**reference:**	
description:						
$AA_LOAD[X]						
Drive utilization in %						
Only available for SIMODRIVE 611D and PROFIdrive drives.						
On the PROFIdrive, the value must be explicitly provided by the drive, and transmitted through the bus by variable telegram configuration.						
Index 1:	Maximum axis number					
unit:	-					
min.:	-100	**max.:**	100	**std:**	0.0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search	Current value				**link**	Not classified

DOUBLE	**$VA_LOAD [31]**		Drive load		**reference:**	
description:						
$VA_LOAD[X]						
Drive load in %						
Available only for SIMODRIVE 611D and PROFIdrive drives.						
On the PROFIdrive, the value must be explicitly provided by the drive, and transmitted through the bus by variable telegram configuration.						
Index 1:	Maximum axis number					
unit:	-					
min.:	-100	**max.:**	100	**std:**	0.0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	-	
write:	-	-	0	-	0	-	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search	Current value				**link**	Not classified

DOUBLE	**$AA_TORQUE [31]**	Drive torque setpoint	**reference:**	

description:

$AA_TORQUE[X]

Drive torque setpoint in Nm

or actual force in N (only for SIMODRIVE 611D HLA)

Available only for SIMODRIVE 611D and PROFIdrive drives.

On the PROFIdrive, the value must be explicitly provided by the drive, and transmitted through the bus by variable m,essage frame configuration.

Index 1:		Maximum axis number					
unit:		-					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Current value				**link**	Not classified

DOUBLE	**$VA_TORQUE [31]**	Drive torque setpoint	**reference:**	

description:

$VA_TORQUE[X]

Drive torque setpoint in Nm

or actual force in N (only for SIMODRIVE 611D HLA)

Available only for SIMODRIVE 611D and PROFIdrive drives.

On the PROFIdrive, the value must be explicitly provided by the drive, and transmitted through the bus by variable telegram configuration.

Index 1:		Maximum axis number					
unit:		-					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Current value				**link**	Not classified

DOUBLE	**$AA_POWER [31]**			Drive active power			**reference:**	
description:								
$AA_POWER[x]								
Drive active power in W								
Available only for SIMODRIVE 611D and PROFIdrive drives.								
On the PROFIdrive, the value must be explicitly provided by the drive, and transmitted through the bus by variable telegram configuration.								
Index 1:	Maximum axis number							
unit:	-							
min.:	-1,8E308		**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**		**OEM**	
read:	runin stp	X	7	X	7		X	
write:	-	-	0	-	0		-	
axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**		channel-specific	
block search	Current value				**link**		Not classified	

DOUBLE	**$VA_POWER [31]**			Drive active power			**reference:**	
description:								
$VA_POWER[x]								
Drive active power in W								
Available only for SIMODRIVE 611D and PROFIdrive drives.								
On the PROFIdrive, the value must be explicitly provided by the drive, and transmitted through the bus by variable telegram configuration.								
Index 1:	Maximum axis number							
unit:	-							
min.:	-1,8E308		**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**		**OEM**	
read:	runin stp	X	7	X	7		-	
write:	-	-	0	-	0		-	
axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**		channel-specific	
block search	Current value				**link**		Not classified	

DOUBLE	**$AA_CURR [31]**			Drive actual current			**reference:**	
description:								
$AA_CURR[X]								
Actual current of axis or spindle in A								
Available only for SIMODRIVE 611D and PROFIdrive drives.								
On the PROFIdrive, the value must be explicitly provided by the drive, and transmitted through the bus by variable telegram configuration.								
Index 1:	Maximum axis number							
unit:	-							

min.:		-1,8E308		**max.:**	1,8E308	**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN MACH	SPIN	**Valuation:**	channel-specific	
block search		Current value			**link**	Not classified	

DOUBLE	**$VA_CURR [31]**	Drive actual current	**reference:**	

description:

$VA_CURR[X]

Actual current of axis or spindle in A

Only available for SIMODRIVE 611D and PROFIdrive drives.

On the PROFIdrive, the value must be explicitly provided by the drive, and transmitted through the bus by variable telegram configuration.

Index 1:		Maximum axis number					
unit:		-					
min.:		-1,8E308		**max.:**	1,8E308	**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	-	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN MACH	SPIN	**Valuation:**	channel-specific	
block search		Current value			**link**	Not classified	

DOUBLE	**$VA_DIST_TORQUE [31]**	Disturbing torque	**reference:**	

description:

$VA_DIST_TORQUE[X]

Normalized disturbing torque (disturbing torque/max. motor torque) = output signal of disturbance monitor in the drive - only available on PROFIdrive drives with telegram 203

Index 1:		Maximum axis number					
unit:		-					
min.:		-100		**max.:**	100	**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN MACH	SPIN	**Valuation:**	channel-specific	
block search		Current value			**link**	Not classified	

DOUBLE	**$VA_VALVELIFT [31]**				Hydraulic valve lift			**reference:**	
description: $VA_VALVELIFT[X] Actual valve lift in mm (for SIMODRIVE611D hydraulic module only)									
Index 1:		Maximum axis number							
unit:		-							
min.:		-1,8E308		**max.:**	1,8E308		**std:**		0.0
Properties with regard to reading/writing:									
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**		**OEM**	
read:	runin stp	X	7		-	0		X	
write:	-	-	0		-	0		-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**		channel-specific	
block search		Current value				**link**		Not classified	

DOUBLE	**$VA_PRESSURE_A [31]**				Pressure at the A end of the hydraulic cylinder			**reference:**	
description: $VA_PRESSURE_A[X] Pressure at A end of cylinder in bar (for SIMODRIVE611D hydraulic module only)									
Index 1:		Maximum axis number							
unit:		-							
min.:		-1,8E308		**max.:**	1,8E308		**std:**		0.0
Properties with regard to reading/writing:									
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**		**OEM**	
read:	runin stp	X	7		X	7		X	
write:	-	-	0		-	0		-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**		channel-specific	
block search		Current value				**link**		Not classified	

DOUBLE	**$VA_PRESSURE_B [31]**				Pressure at the B end of the hydraulic cylinder			**reference:**	
description: $VA_PRESSURE_B[X] Pressure at B end of cylinder in bar (for SIMODRIVE611D hydraulic module only)									
Index 1:		Maximum axis number							
unit:		-							
min.:		-1,8E308		**max.:**	1,8E308		**std:**		0.0
Properties with regard to reading/writing:									
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**		**OEM**	
read:	runin stp	X	7		-	0		X	
write:	-	-	0		-	0		-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**		channel-specific	
block search		Current value				**link**		Not classified	

INT	**$VA_DP_ACT_TEL [20,31]**	PROFIBUS/PROFINET actual telegram from drive to NC	**reference:**	

description:

$VA_DP_ACT_TEL[b,a]

b: Word index (16-bit access) in the PROFIBUS/PROFINET telegram

a: Machine axis

Actual value telegram contents - only available for PROFIBUS/PROFINET.

For details, please see telegram configuration in PROFIdrive or drive documentation

Index 1:	b: Word index in the PROFIBUS/PROFINET actual value frame						
Index 2:	Maximum axis number						
unit:	-						
min.:	-2147483648	**max.:**	65535	**std:**	0		
Properties with regard to reading/writing:							

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

INT	**$AA_STAT [31]**	Axis status	**reference:**	

description:

The axial variable $AA_STAT[<axis>] determines the axis status. The status "Exact stop fine" is derived from the servo status. See also $AA_INPOS_STAT[<axis>]. The following values are possible:

0: No axis status available

1: Traversing movement pending

2: Axis has reached IPO end

3: Axis in position (exact stop coarse)

4: Axis in position (exact stop fine)

Note:

With a position default setting for an axis / spindle, the variable can still indicate the statuses 'Exact stop coarse / fine' during block change although the axis / spindle is starting to traverse.

Remedy: Also query $AC_TIMEC.

Index 1:	Maximum axis number					
unit:	-					
min.:	0	**max.:**	4	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	Cross-channel
block search	Not classified				**link**	Not classified

INT	**$AA_SNGLAX_STAT [31]**			Status of single axis			**reference:**	
description: $AA_SNGLAX_STAT[X] Axis status: 0: Axis is not a single axis 1: Single axis in Reset 2: Single axis has ended 3: Single axis is interrupted 4: Single axis is active 5: Single axis alarm is active								
Index 1:	Maximum axis number							
unit:	-							
min.:	0		**max.:**	4		**std:**		0
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7		X	7	X	
write:	-	-	0		-	0	-	
axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**		channel-specific	
block search	Not classified				**link**		Not classified	

INT	**$AA_REF [31]**			Axis is homed			**reference:**	
description: $AA_REF[X] Axis status: 0: Axis is not homed 1: Axis is homed								
Index 1:	Maximum axis number							
unit:	-							
min.:	0		**max.:**	1		**std:**		0
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7		X	7	X	
write:	-	-	0		-	0	-	
axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**		Cross-channel	
block search	Not classified				**link**		Not classified	

INT	**$AA_TYP [31]**	Axis type	**reference:**	

description:
$AA_TYP[<axis>]
Axis type:
0: Axis in another channel
1: Program axis of own channel
2: Neutral axis
3: PLC axis
4: Oscillating axis
5: Neutral axis which is currently executing a JOG or homing motion
6: Following axis coupled via master value
7: Coupled motion following axis
8: Command axis
9: CompileCycles axis
10: Coupled slave axis (master-slave function)
11: Program axis which is currently executing a JOG or homing motion

Index 1:	Maximum axis number					
unit:	-					
min.:	0	**max.:**	11	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

INT	**$AA_MASL_STAT [31]**	Master-slave coupling status	**reference:**	

description:
The current status of a master-slave coupling.
Val. 0: Axis is not a slave axis or no coupling is active.
Value> 0: Coupling is active, the relevant machine axis number of the
master axis is supplied.
$AA_MASL_STAT[X]

Index 1:	Maximum axis number					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

INT	**$P_SEARCH_MASLC [31]**			Master-slave coupling status changed			**reference:**	
description: $P_SEARCH_MASLC[axis identifier] The current status of a master-slave coupling has been changed during a block search.								
Index 1:	Maximum axis number							
unit:	-							
min.:	0		**max.:**	1		**std:**		0
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7		-	0	-	
write:	-	-	0		-	0	-	
axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**		channel-specific	
block search	Not classified				**link**		Not classified	

DOUBLE	**$P_SEARCH_MASLD [31]**			Master-slave position offset			**reference:**	
description: $P_SEARCH_MASLD[axis identifier] Positional offset between master and slave axes calculated during block search as coupling was closed.								
Index 1:	Maximum axis number							
unit:	Linear / angular position							
min.:	-1,8E308		**max.:**	1,8E308		**std:**		0.0
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7		-	0	-	
write:	-	-	0		-	0	-	
axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**		channel-specific	
block search	Not classified				**link**		Not classified	

INT	**$AA_FXS [31]**	Status Desired state of "Travel to fixed stop"	**reference:**	
description: $AA_FXS[X] Status desired state "Travel to fixed stop" 0: Axis not at limit stop 1: Fixed stop has been successfully approached 2: Approach to fixed stop has failed 3: Selection of travel to fixed stop active 4: Fixed stop has been detected 5: Deselection of travel to fixed stop active				
Index 1:	Maximum axis number			
unit:	-			

min.:		0	**max.:**	5	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	runin stp	X	7	X	7	X	
axis identifier:		GEO	CHAN MACH	SPIN	**Valuation:**	channel-specific	
block search		Program sensitive			**link**	Not classified	

INT	**$VA_FXS [31]**	Actual status of "Travel to fixed stop"	**reference:**

description:

$VA_FXS[X]

Status actual state "Travel to fixed stop"

0: Axis not at limit stop

1: Fixed stop has been successfully approached

2: Approach to fixed stop has failed

3: Selection of travel to fixed stop active

4: Fixed stop has been detected

5: Deselection of travel to fixed stop active

Index 1:		Maximum axis number					
unit:		-					
min.:		0	**max.:**	5	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN MACH	SPIN	**Valuation:**	channel-specific	
block search		Current value			**link**	Not classified	

INT	**$VA_FXS_INFO [31]**	Additional information with "Travel to fixed stop"	**reference:**

description:

$VA_FXS_INFO[X]

Additional information with "Travel to fixed stop" if $VA_FXS[]=2

0: No additional information available

1: No approach movement programmed

2: Programmed end position reached, motion completed

3: Abort by NC RESET (key reset)

4: Axis has exited fixed stop window

5: Torque reduction rejected by drive

6: PLC has cancelled enables

Index 1:	Maximum axis number					
unit:	-					
min.:	0	**max.:**	6	**std:**		0
Properties with regard to reading/writing:						

	PP	SA	PP/SA protection level		OPI	OPI protection level	OEM	
read:	runin stp	X	7		X	7	-	
write:	-	-	0		-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific	
block search		Not classified				**link**	Not classified	

INT	**$VA_TORQUE_AT_LIMIT [31]**	Status "Torque limit reached"	**reference:**	

description:
$VA_TORQUE_AT_LIMIT[X]
"Torque limit reached" status
0: Torque limit not yet reached
1: Torque limit reached
In digital SIMODRIVE611D systems, the drive returns a status signal indicating
whether the programmed torque limit has been reached.

Index 1:	Maximum axis number				
unit:	-				
min.:	0	**max.:**	1	**std:**	0

Properties with regard to reading/writing:

	PP	SA	PP/SA protection level		OPI	OPI protection level	OEM	
read:	runin stp	X	7		X	7	X	
write:	-	-	0		-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific	
block search		Not classified				**link**	Not classified	

INT	**$AA_FOC [31]**	Status Desired state of "ForceControl"	**reference:**	

description:
$AA_FOC[X]
Status desired state "ForceControl"
0: ForceControl not active
1: ForceControl active modally
2: ForceControl active non-modally

Index 1:	Maximum axis number				
unit:	-				
min.:	0	**max.:**	2	**std:**	0

Properties with regard to reading/writing:

	PP	SA	PP/SA protection level		OPI	OPI protection level	OEM	
read:	runin stp	X	7		X	7	X	
write:	runin stp	X	7		X	7	X	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific	
block search		Not classified				**link**	Not classified	

INT	**$VA_FOC [31]**	Actual status of "ForceControl"	**reference:**	

description:

$VA_FOC[X]

Status actual state "ForceControl"

0: ForceControl not active

1: ForceControl active modally

2: ForceControl active non-modally

Index 1:	Maximum axis number				
unit:	-				
min.:	0	**max.:**	2	**std:**	0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

INT	**$AA_COUP_ACT [31]**	Coupling type of a following axis/spindle	**reference:**	

description:

$AA_COUP_ACT[C]

C: following axis C or S2: following spindle 2

It is possible to determine whether an axis / spindle is being used by a coupling. The coupling type is returned when the coupling is active. The system variable must be read out for the following axis / spindle.

Values:

0: Axis / spindle is not coupled with a leading spindle / leading axis

1,2,3: Axis is tangentially tracked (TANG)

4: Synchronous spindle coupling (COUP)

8: Axis is in coupled-motion (TRAIL)

16: Following axis in master value coupling (LEAD)

32: Following axis for electronic gear (ELG)

64: Axis is active in a gantry grouping

128,256,384: Axis is tangentially tracked (TANG with optimization)

512: Following axis of the generic coupling (CP)

If the axis / spindle is a following axis / spindle in several couplings, the sum is returned as the value.

Index 1:	Maximum axis number				
unit:	-				
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	Cross-channel
block search	Not classified				**link**	Not classified

DOUBLE	**$AA_EG_SYNFA [31]**			Synchronization of the slave axis			**reference:**	
description:								
$AA_EG_SYNFA[a]								
a: Following axis								
Synchronous position of following axis								
Index 1:		Maximum axis number						
unit:		Linear / angular position						
min.:		-1,8E308	**max.:**	1,8E308		**std:**		0.0
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**		**OEM**	
read:	runin stp	X	7	X	7		X	
write:	-	-	0	-	0		-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**		channel-specific
block search		Not classified				**link**		Not classified

STRING	**$P_EG_BC [31]**			Block change criterion with active coupling			**reference:**	
description:								
$P_EG_BC[a]								
Block change criterion for EGONSYN, EGON, WAITC.								
Index 1:		Maximum axis number						
Index 3:		Max. string length						
unit:		-						
min.:			**max.:**			**std:**		""
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**		**OEM**	
read:	X	-	7	-	0		-	
write:	-	-	0	-	0		-	
axis identifier:		GEO	CHAN		SPIN	**Valuation:**		channel-specific
block search		Not classified				**link**		Not classified

INT	**$AA_EG_NUM_LA [31]**			Number of defined master axes			**reference:**	
description:								
$AA_EG_NUM_LA[a]								
a: Following axis								
Number of leading axes specified with EGDEF								
Index 1:		Maximum axis number						
unit:		-						
min.:		-2147483648	**max.:**	2147483647		**std:**		0
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**		**OEM**	
read:	runin stp	X	7	X	7		X	

write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

DOUBLE	**$VA_EG_SYNCDIFF [31]**			Synchronism difference		**reference:**	
description:							
$VA_EG_SYNCDIFF[a]							
a: Following axis							
Synchronism deviation							
Index 1:		Maximum axis number					
unit:		Linear / angular position					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

DOUBLE	**$VA_EG_SYNCDIFF_S [31]**			Synchronous run difference with sign		**reference:**	
description:							
$VA_EG_SYNCDIFF_S[a]							
a: Following axis							
Signed synchronism deviation							
Index 1:		Maximum axis number					
unit:		Linear / angular position					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

AXIS	**$AA_EG_AX [31,31]**		Leading axis identifier	**reference:**	
description:					
$AA_EG_AX[n,a]					
n: Index for leading axis					
a: Following axis					
Identifier for the nth leading axis					
Index 1:		n: Index for leading axis (nth leading axis)			
Index 2:		Maximum axis number			
unit:		-			

min.:			**max.:**			**std:**	GEOAXISNUM
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

DOUBLE	**$AA_LEAD_SP [31]**			Simulated lead value - position		**reference:**	
description: $AA_LEAD_SP[LW] Simulated master value position							
Index 1:		Maximum axis number					
unit:		Linear / angular position					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	runin stp	X	7	-	0	X	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

DOUBLE	**$AA_LEAD_SV [31]**			Simulated lead value - velocity		**reference:**	
description: $AA_LEAD_SV[LW] Simulated master value velocity							
Index 1:		Maximum axis number					
unit:		Linear / angular speed					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	runin stp	X	7	-	0	X	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

DOUBLE	**$AA_LEAD_P_TURN [31]**	Modulo compensation of the lead value	**reference:**	

description:

$AA_LEAD_P_TURN[LW]

Current master value positional component lost as a result of modulo reduction.

The actual master value position (used internally by the control)

is $AA_LEAD_P[LW] + $AA_LEAD_P_TURN[LW]

If LW is a modulo axis, $AA_LEAD_P_TURN is an

integral multiple of $MA_MODULO_RANGE.

If LW is not a modulo axis, $AA_LEAD_P_TURN is always 0.

Example_1:

$MA_MODULO_RANGE[LW]=360

$AA_LEAD_P[LW] =290

$AA_LEAD_P_TURN[LW] =720

The actual master value position (used internally by the control) is 1010.

Example_2:

$MA_MODULO_RANGE[LW]=360

$AA_LEAD_P[LW] =290

$AA_LEAD_P_TURN[LW] =-360

The actual master value position (used internally by the control) is -70.

Index 1:	Maximum axis number					
unit:	Linear / angular position					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	-	0	X	
write:	-	-	0	-	0	-	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

DOUBLE	**$AA_LEAD_P [31]**	Current lead value position	**reference:**	

description:

$AA_LEAD_P[LW]

Current master value position (modulo-reduced)

If LW is a modulo axis, the following always applies:

0 <= $AA_LEAD_P[LW] <= $MA_MODULO_RANGE[LW]

Index 1:	Maximum axis number					
unit:	Linear / angular position					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	

write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

DOUBLE	**$AA_LEAD_V [31]**		Current lead value - velocity		**reference:**	
description:						
$AA_LEAD_V[LW]						
Current master value velocity						
Index 1:	Maximum axis number					
unit:	Linear / angular speed					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

INT	**$AA_SYNC [31]**		Coupling status of the following axis		**reference:**	
description:						
$AA_SYNC[FA]						
Coupling status of following axis						
0 => No synchronism						
1 => Coarse synchronism						
2 => Fine synchronism						
3 => Coarse and fine synchronism						
Index 1:	Maximum axis number					
unit:	-					
min.:	0	**max.:**	3	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

INT	**$AA_IN_SYNC [31]**		Synchronization status of the following axis		**reference:**	
description:						
$AA_IN_SYNC[FA]						
Synchronization status of the following axis with master value coupling, ELG and generic coupling						
1 => Synchronization in progress, i.e. following axis is being synchronized						
Index 1:	Maximum axis number					
unit:	-					

min.:		0	**max.:**	1	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	-	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

DOUBLE	**$P_COUP_OFFS [31]**	Programmed position offset	**reference:**	

description:

$P_COUP_OFFS[S2]

S2: spindle 2 or C: axis C

Programmed position offset from synchronous spindle (following spindle) to leading spindle

Index 1:		Maximum axis number					
unit:		Linear / angular position					
min.:		-1,8E308	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

DOUBLE	**$AA_COUP_OFFS [31]**	Position offset on setpoint side	**reference:**	

description:

$AA_COUP_OFFS[S2]

S2: spindle 2 or C: axis C

Position offset from synchronous spindle (following spindle) to leading spindle on setpoint side

Index 1:		Maximum axis number					
unit:		Linear / angular position					
min.:		-1,8E308	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

DOUBLE	**$VA_COUP_OFFS [31]**				Position offset on actual value side			**reference:**	
description: $VA_COUP_OFFS[S2] S2: spindle 2 or C: axis C Position offset from synchronous spindle (following spindle) to leading spindle on actual value side									
Index 1:		Maximum axis number							
unit:		Linear / angular position							
min.:		-1,8E308		**max.:**	1,8E308		**std:**		0.0
Properties with regard to reading/writing:									
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**		**OEM**	
read:	runin stp	X	7		X	7		X	
write:	-	-	0		-	0		-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**		channel-specific	
block search		Not classified				**link**		Not classified	

BOOL	**$AA_SCTRACE [31]**				IPO trigger for servo trace			**reference:**	
description: $AA_SCTRACE[X] = 1 Write: Activate IPO trigger for servo trace 0: No action !0: Activate trigger Read: Always 0 because trigger cannot be read back									
Index 1:		Maximum axis number							
unit:		-							
min.:		FALSE		**max.:**	TRUE		**std:**		FALSE
Properties with regard to reading/writing:									
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**		**OEM**	
read:	runin stp	X	7		-	0		X	
write:	runin stp	X	7		-	0		X	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**		channel-specific	
block search		Not classified				**link**		Not classified	

BOOL	**$VA_DPE [31]**				Power enable for machine axis			**reference:**	
description: $VA_DPE[X1] Status of power enable for a machine axis (status of the axial pulse enable). For SIMODRIVE 611D: The status is supplied directly from the drive. For PROFIdrive drives with a telegram type greater than 100: The status comes directly from the drive (message word, bit5) For other PROFIdrive drives: The status is modeled from further drive status signals (identical to $VA_SCE, see there)									
Index 1:		Maximum axis number							
unit:		-							

min.:	FALSE	**max.:**	TRUE	**std:**	FALSE
Properties with regard to reading/writing:					

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

DOUBLE	**$AA_ACC [31]**	Current axial acceleration value	**reference:**	

description:

$AA_ACC

Current acceleration value of axis with single-axis interpolation.

$AA_ACC = $MA_MAX_AX_ACCEL * progr. acceleration override.

Index 1:	Maximum axis number				
unit:	Linear / angular acceleration				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0
Properties with regard to reading/writing:					

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

INT	**$AA_ACC_PERCENT [31]**	Current acceleration value percentage	**reference:**	

description:

Variable $AA_ACC_PERCENT supplies the current acceleration value of the axis for single-axis interpolation in percent.

Index 1:	Maximum axis number				
unit:	-				
min.:	-2147483648	**max.:**	2147483647	**std:**	0
Properties with regard to reading/writing:					

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

INT	**$PA_ACCLIMA [31]**	Acceleration correction in the run-in	**reference:**	

description:

$PA_ACCLIMA

Acceleration override set with ACCLIMA in preprocessing run

Index 1:	Maximum axis number				
unit:	-				
min.:	1	**max.:**	200	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

INT	**$PA_VELOLIMA [31]**			Velocity correction in the run-in		**reference:**	
description:							
$PA_VELOLIMA							
Velocity override set with VELOLIMA in preprocessing run							
Index 1:		Maximum axis number					
unit:		-					
min.:		1	**max.:**	200	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

INT	**$PA_JERKLIMA [31]**			Jerk correction in the run-in		**reference:**	
description:							
$PA_JERKLIMA							
Jerk override set with JERKLIMA in preprocessing run							
Index 1:		Maximum axis number					
unit:		-					
min.:		1	**max.:**	200	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

INT	**$AA_ACCLIMA [31]**			Acceleration compensation		**reference:**	
description:							
$AA_ACCLIMA Acceleration override set with ACCLIMA in main run							
Index 1:		Maximum axis number					
unit:		-					
min.:		1	**max.:**	200	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	

read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

INT	**$AA_VELOLIMA [31]**			Velocity correction		**reference:**	
description:							
$AA_VELOLIMA							
Velocity override set with VELOLIMA in main run							
Index 1:		Maximum axis number					
unit:		-					
min.:		1	**max.:**	200	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

INT	**$AA_JERKLIMA [31]**			Jerk override		**reference:**	
description:							
$AA_JERKLIMA							
Jerk override set with JERKLIMA in main run							
Index 1:		Maximum axis number					
unit:		-					
min.:		1	**max.:**	200	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

INT	**$AA_MOTEND [31]**	Current axial end of motion criterion	**reference:**	
description:				
$AA_MOTEND				
Current end of motion criterion with single-axis interpolation				
1 = End of motion with exact stop FINE				
2 = End of motion with exact stop COARSE				
3 = End of motion at end of interpolation				
4 = Block change in braking ramp of axis motion				
5 = Block change in braking ramp of axis motion with tolerance window for setpoint				
6 = Block change in braking ramp of axis motion with tolerance window for actual value				

Index 1:		Maximum axis number					
unit:		-					
min.:		1	**max.:**	6	**std:**	0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

INT	**$AA_SCPAR [31]**			Setpoint parameter set		**reference:**	
description:							
$AA_SCPAR							
Current setpoint parameter set							
Index 1:		Maximum axis number					
unit:		-					
min.:		-2147483648	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

INT	**$AA_ESR_STAT [31]**			ESR status of an axis		**reference:**	
description:							
$AA_ESR_STAT[X]							
Status of "Extended stop and retract", bit-coded:							
BIT0: Generator mode is activated							
BIT1: Retraction is activated							
BIT2: Extended stop is activated							
BIT3: DC-link undervoltage							
BIT4: Generator minimum speed							
Index 1:		Maximum axis number					
unit:		-					
min.:		0	**max.:**	15	**std:**	0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

BOOL	**$AA_ESR_ENABLE [31]**	ESR enable	**reference:**	

description:
$AA_ESR_ENABLE[X] = 1
Enabling of "Extended stop and retract"

Index 1:	Maximum axis number					
unit:	-					
min.:	FALSE	**max.:**	TRUE	**std:**	FALSE	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	runin stp	X	7	-	0	X	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

BOOL	**$AA_ESR_TRIGGER [31]**	Triggers a single-axis ESR	**reference:**	

description:
$AA_ESR_TRIGGER[X] = 1
Activation of "NC-controlled ESR" for PLC-controlled axis (= single axis)
X: PLC-controlled axis

Index 1:	Maximum axis number					
unit:	-					
min.:	FALSE	**max.:**	TRUE	**std:**	FALSE	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	-	X	0	X	7	X	
write:	-	X	0	-	0	X	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

DOUBLE	**$AA_POLFA [31]**	Programmed retraction position for single axis	**reference:**	

description:
$AA_POLFA[X]
X: PLC-controlled axis (= single axis)
Supplies the programmed retraction position of the PLC-controlled axis

Index 1:	Maximum axis number					
unit:	Linear / angular position					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	

write:	-	-	0		-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific	
block search		Not classified				**link**	Not classified	

INT	**$AA_POLFA_VALID [31]**		Status of the value of $AA_POLFA		**reference:**	
description:						
$AA_POLFA_VALID[X]						
Supplies the current status of $AA_POLFA[X]						
X: PLC-controlled axis (= single axis)						
Return values:						
0: Retraction not programmed						
1: Retraction programmed as position						
2: Retraction programmed as distance						
Index 1:	Maximum axis number					
unit:	-					
min.:	0	**max.:**	2	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7		X	7	X	
write:	-	-	0		-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific	
block search		Not classified				**link**	Not classified	

INT	**$AA_ALARM_STAT [31]**		Display if alarms are present		**reference:**	
description:						
$AA_ALARM_STAT						
Displays whether there are alarms present for a PLC-controlled axis.						
The coded, associated alarm responses can be used as a source for the "Extended stop and retract".						
The data is bit-coded so that, if necessary, individual states can also be						
masked or evaluated separately (bits not listed below supply a value of 0)						
Bit2 = 1: NOREADY (active rapid deceleration + cancellation of servo enable)						
Bit6 = 1: STOPBYALARM (ramp stop of all channel axes)						
Bit9 = 1: SETVDI (VDI interface signal alarm is set)						
Bit13 = 1: FOLLOWUPBYALARM (follow-up)						
Index 1:	Maximum axis number					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7		X	7	X	
write:	-	-	0		-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific	
block search		Not classified				**link**	Not classified	

BOOL	**$AN_AXCTSWA [31]**	Axis container rotation	**reference:**	

description:
Is axis container rotation active ?
Example: EVERY $AN_AXCTSWA[n] == TRUE DO M99
Read:
TRUE: An axis container rotation is currently being executed on the
axis container with axis container name n
FALSE: Axis container rotation is not active.
The axis container name or the axis name of an axis in the axis container can be specified as the index.

Index 1:	Maximum axis number				
unit:	-				
min.:	FALSE	**max.:**	TRUE	**std:**	FALSE

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

INT	**$AN_AXCTAS [31]**	Axis container current rotation	**reference:**	

description:
Axis container current rotation:
The number of slots by which the axis container is currently being rotated
is specified for the axis container with axis container name n.
The value ranges from 0 to the maximum number of occupied slots in the axis container -1.
The axis container name or the axis name of an axis in the axis container can be specified as the index.

Index 1:	Maximum axis number				
unit:	-				
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

BOOL	**$AC_AXCTSWA [31]**			Channel enable for axis container rotation			**reference:**	
description: Enables axis container rotation in the channel. TRUE: The channel has axis container rotation enabled for the axis container name n, and this rotation has not yet finished. FALSE: The axis container rotation has finished.The axis container name or the axis name of an axis in the axis container can be specified as the index.								
Index 1:		Maximum axis number						
unit:		-						
min.:		FALSE	**max.:**	TRUE		**std:**		FALSE
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7		X	7	X	
write:	-	-	0		-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific	
block search		Not classified				**link**	Not classified	

INT	**$VA_POSCTRL_MODE [31]**			Position controller mode			**reference:**	
description: $VA_POSCTRL_MODE[X] Position controller mode: 0 = Closed-loop position control 1 = Closed-loop speed control 2 = Stop 3 = Park 4 = Follow-up								
Index 1:		Maximum axis number						
unit:		-						
min.:		0	**max.:**	4		**std:**		0
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7		X	7	X	
write:	-	-	0		-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific	
block search		Current value				**link**	Not classified	

BOOL	**$VA_SCE [31]**	Status of speed controller enable	**reference:**	

description:
$VA_SCE[X1]
Status of speed controller enable
For SIMODRIVE 611D: The status is supplied directly from the drive.
For SINAMICS drives with a telegram type greater than 100: The status comes directly from the drive (message word, bit11)
For other PROFIdrive drives: The status is modeled from further drive status signals (including status word1, bit2)

Index 1:	Maximum axis number						
unit:	-						
min.:	FALSE		**max.:**	TRUE		**std:**	FALSE
Properties with regard to reading/writing:							

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

DOUBLE	**$AA_TRAVEL_DIST [31]**	Total traverse path	**reference:**	

description:
Total traversing distance of axis in MCS in mm or degrees. The total
traversing distance of the axis since the SRAM contents were last erased is added.

Index 1:	Maximum axis number						
unit:	Linear / angular position						
min.:	0.0		**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search	Program sensitive				**link**	Not classified

DOUBLE	**$AA_TRAVEL_TIME [31]**	Total traversing time of axis	**reference:**	

description:
Total traversing time of axis in MCS in seconds. The total traversing time of the
axis since the SRAM contents were last erased is added.

Index 1:	Maximum axis number						
unit:	s						
min.:	0.0		**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	

write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Program sensitive				**link**	Not classified

DOUBLE	**$AA_TRAVEL_COUNT [31]**			Number of traversing operations		**reference:**	
description:							
Number of traversing operations of axis in MCS. The total number of							
traversing operations since the SRAM contents were last erased is stored.							
Index 1:		Maximum axis number					
unit:		-					
min.:		0.0	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Program sensitive				**link**	Not classified

DOUBLE	**$AA_TRAVEL_DIST_HS [31]**			Total traversing distance at high velocity		**reference:**	
description:							
Total traversing distance of axis in MCS in mm or degrees at high velocity, i.e.							
at a velocity of >= 80% of the maximum axis velocity. This value is							
stored in the SRAM.							
Index 1:		Maximum axis number					
unit:		Linear / angular position					
min.:		0.0	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Program sensitive				**link**	Not classified

DOUBLE	**$AA_TRAVEL_TIME_HS [31]**			Total traversing time of axis at high velocity		**reference:**	
description:							
Total traversing time of axis in seconds at high velocity in MCS, i.e.							
at a velocity of >= 80% of the maximum axis velocity. This value							
is stored in the SRAM.							
Index 1:		Maximum axis number					
unit:		s					
min.:		0.0	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	

read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Program sensitive				**link**	Not classified

DOUBLE	**$AA_TRAVEL_COUNT_HS [31]**	No. of traversing operations at high velocity	**reference:**	

description:

Number of traversing operations of axis in MCS at high velocity, i.e. at a velocity of >= 80% of the maximum axis velocity. This value is stored in the SRAM.

Index 1:	Maximum axis number					
unit:	-					
min.:	0.0	**max.:**	1,8E308	**std:**	0.0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Program sensitive				**link**	Not classified

DOUBLE	**$AA_JERK_TOT [31]**	Total axial jerk	**reference:**	

description:

Total axial jerk in m/s^3. The total jerk applied to the axis is added up and stored in the SRAM.

Index 1:	Maximum axis number					
unit:	Linear / angular jerk					
min.:	0.0	**max.:**	1,8E308	**std:**	0.0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Program sensitive				**link**	Not classified

DOUBLE	**$AA_JERK_TIME [31]**	Total traversing time of axis with jerk	**reference:**	

description:

Total traversing time of axis in seconds in MCS with jerk. The total time period for which the axis traverses with jerk is added up and stored in the SRAM.

Index 1:	Maximum axis number					
unit:	s					
min.:	0.0	**max.:**	1,8E308	**std:**	0.0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	

write:	-	-	0		-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific	
block search		Program sensitive				**link**	Not classified	

DOUBLE	**$AA_JERK_COUNT [31]**			Number of traversing operations with jerk		**reference:**	
description:							
Number of traversing operations executed by axis in MCS with jerk. This value is stored in the SRAM.							
Index 1:		Maximum axis number					
unit:		-					
min.:		0.0	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN MACH	SPIN	**Valuation:**	channel-specific	
block search		Program sensitive			**link**	Not classified	

BOOL	**$AC_RPVALID [31]**			Repos position valid		**reference:**	
description:							
$AC_RPVALID[X]							
$AC_RPVALID[axis identifier] returns TRUE if a valid Repos position, which can be interrogated with $AC_RETPOINT[axis identifier], is available for this axis.							
Valid Repos positions are generally available while system and user Asubs are being processed. However, this is not the case in the following situations:							
- The Asub activates a modified radius when tool radius compensation is active. $AC_RPVALID then returns FALSE for geometry axes while the Asub is running. The newly calculated Repos positions only become available with the approach blocks generated by the REPOS command.							
- The end position of the axis was last specified by the main run (FC18, synchronized actions, reciprocation, transfer from another channel after axis replacement).							
Index 1:		Maximum axis number					
unit:		-					
min.:		FALSE	**max.:**	TRUE	**std:**		FALSE
Properties with regard to reading/writing:							

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN MACH	SPIN	**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

DOUBLE	**$VA_SYNCDIFF [31]**	Synchronism deviation between actual values	**reference:**	

description:

$VA_SYNCDIFF[FA]

FA: Following axis/following spindle

Deviation in synchronism between actual values for LEAD, TRAIL, ELG and COUP.

The deviation in synchronism between actual values is the deviation in distance between the servo actual position of the following axis/following spindle and a point calculated (according to the coupling rule) from the servo actual position of the leading axis/leading spindle.

$VA_SYNCDIFF[FA] = $VA_IM[FA] - K($VA_IM[LA])

K: Coupling rule

LA: Leading axis/leading spindle

Index 1:	Maximum axis number					
unit:	Linear / angular position					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

DOUBLE	**$AA_SYNCDIFF [31]**	Synchronism deviation between setpoints	**reference:**	

description:

$AA_SYNCDIFF[FA]

FA: Following axis/following spindle

Deviation in synchronism between setpoints for LEAD, TRAIL, ELG and COUP.

The deviation in synchronism between setpoints is the deviation in distance between the setpoint position of the following axis/following spindle and a point calculated (according to the coupling rule) from the setpoint position of the leading axis/leading spindle.

$AA_SYNCDIFF[FA] = $AA_IM[FA] - K($AA_IM[LA])

K: Coupling rule

LA: Leading axis/leading spindle

Index 1:	Maximum axis number					
unit:	Linear / angular position					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

INT	**$VA_SYNCDIFF_STAT [31]**				Status of synchronism deviation between actual values			**reference:**	
description: VA_SYNCDIFF_STAT[FA] FA: Following axis/following spindle Status of synchronism deviation between actual values: -4: Reserved -3: No valid value in $VA_SYNCDIFF, tangential control (not TANG(... "P")) -2: No valid value in $VA_SYNCDIFF, master value coupling and simulated MV -1: No valid value in $VA_SYNCDIFF 0: No valid value in $VA_SYNCDIFF, coupling not active 1: Valid value in $VA_SYNCDIFF									
Index 1:		Maximum axis number							
unit:		-							
min.:		-4		**max.:**	1		**std:**		0
Properties with regard to reading/writing:									
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**		**OEM**	
read:	runin stp	X	7		X	7		X	
write:	-	-	0		-	0		-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**		channel-specific	
block search		Not classified				**link**		Not classified	

INT	**$AA_SYNCDIFF_STAT [31]**				Status synchron. dev. between setpoints			**reference:**	
description: $AA_SYNCDIFF_STAT[FA] FA: Following axis/following spindle Status of synchronism deviation between setpoints: -4: No valid value in $AA_SYNCDIFF, coupled motion from part program -3: Reserved -2: Reserved -1: No valid value in $AA_SYNCDIFF 0: No valid value in $AA_SYNCDIFF, coupling not active 1: Valid value in $AA_SYNCDIFF									
Index 1:		Maximum axis number							
unit:		-							
min.:		-4		**max.:**	1		**std:**		0
Properties with regard to reading/writing:									
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**		**OEM**	
read:	runin stp	X	7		X	7		X	
write:	-	-	0		-	0		-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**		channel-specific	
block search		Not classified				**link**		Not classified	

DOUBLE	**$AA_OSCILL_BREAK_POS1 [31]**	Reciprocation interruption position 1	**reference:**	

description:

$AA_OSCILL_BREAK_POS1[<axis>]

The current approach to reversal position 1 is finished at this position or the last approach to reversal position 1 was finished at this position (reversal position 2 currently being approached).

$AA_OSCILL_BREAK_POS1[<axis>] is not equal to $AA_OSCILL_REVERSE_POS1[<axis>] if the reciprocation motion was interrupted by an external signal (PLC).

The variable can be accessed only from synchronized actions.

Index 1:	Maximum axis number					
unit:	Linear / angular position					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	-	X	0	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:	GEO	CHAN	MACH		**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

DOUBLE	**$AA_OSCILL_BREAK_POS2 [31]**	Reciprocation interruption position 2	**reference:**	

description:

$AA_OSCILL_BREAK_POS2[<axis>]

The current approach to reversal position 2 is finished at this position or the last approach to reversal position 2 was finished at this position (reversal position 1 currently being approached).

$AA_OSCILL_BREAK_POS2[<axis>] is not equal to $AA_OSCILL_REVERSE_POS2[<axis>] if the reciprocation motion was interrupted by an external signal (PLC).

The variable can be accessed only from synchronized actions.

Index 1:	Maximum axis number					
unit:	Linear / angular position					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	-	X	0	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:	GEO	CHAN	MACH		**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

DOUBLE	**$AA_BCS_OFFSET [31]**	Total axis offsets	**reference:**	

description:

Axial variable $AA_BCS_OFFSET[ax] is used to determine the total axis offsets for an axis. The total consists of the handwheel (DRF) offset, the overlaid movement ($AA_OFF[ax]) and the external work offset. This offset is included in the BCS. The MCS is displaced in relation to the BCS according to the offset.

Index 1:	Maximum axis number

unit:		-					
min.:		-1,8E308	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN MACH	SPIN	**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

INT	**$AA_CHANNO [31]**	Axis in the channel	**reference:**

description:

This variable returns the number of the channel in which the axis is being interpolated.

If value 0 is output, the axis could not be assigned to a channel.

Index 1:		Maximum axis number					
unit:		-					
min.:		0	**max.:**	10	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN MACH	SPIN	**Valuation:**	Cross-channel	
block search		Not classified			**link**	Not classified	

DOUBLE	**$AA_IW_CORR [31]**	Actual PCS-Position of one axis incl. overlay rates	**reference:**

description:

The axial variable $AA_IW_CORR[ax] determines the actual setpoint value of the workpiece coordinate system (WCS) for the respective axis. The setpoint value corresponds to the initial value of the interpolator for the actual interpolation cycle. As opposed to $AA_IW, this value contains the axial overlay shares (DRF, AA_OFF, external WO, retraction etc.).

Index 1:		Maximum axis number					
unit:		Linear / angular position					
min.:		-1,8E308	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN MACH	SPIN	**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

DOUBLE	**$AA_IEN_CORR [31]**	Actual FCS-Position of one axis incl. overlay rates	**reference:**

description:

The axial variable $AA_IEN_CORR[ax] calculates the actual interpolator position of the adjustable coordinate system (ACS) for the specified axis. See also $AA_IW_CORR[ax]. The ACS-Value contains any axial overlay rate (DRF, AA_OFF, external Frame, etc.).

Index 1:	Maximum axis number

unit:		Linear / angular position					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

DOUBLE	**$AA_IBN_CORR [31]**	Actual FCS-Position of one axis incl. overlay rates	**reference:**

description:

The axial variable $AA_IBN_CORR[ax] calculates the actual interpolator position of the foot coordinate system (FCS) for the specified axis. See also $AA_IW_CORR[ax]. The FCS-Value contains any axial overlay rate (DRF, $AA_OFF, external Frame, etc.).

Index 1:		Maximum axis number					
unit:		Linear / angular position					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

DOUBLE	**$AA_IB_CORR [31]**	Actual BCS-Position of one axis incl. overlay rates	**reference:**

description:

The axial variable $AA_IB_CORR[ax] calculates the actual interpolator position of the base coordinate system (BCS) for the specified axis. See also $AA_IW_CORR[ax]. The BCS-Value contains any axial overlay rate (DRF, $AA_OFF, external Frame, etc.).

Index 1:		Maximum axis number					
unit:		Linear / angular position					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

INT	**$AA_TYPE [31]**	Axis type	**reference:**	

description:

$AA_TYPE[<axis>]

Axis type:

0: Type is not ascertainable

1: NC-Program axis

2: Neutral axis

3: PLC axis

4: Oscillating axis

5: Neutral axis which is currently executing a JOG or homing motion

6: Following axis coupled via master value

7: Coupled motion following axis

8: Command axis

9: CompileCycles axis

10: Coupled slave axis (master-slave function)

11: Program axis which is currently executing a JOG or homing motion

Index 1:	Maximum axis number				
unit:	-				
min.:	0	**max.:**	11	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	-	0	X	
write:	-	-	0	-	0	-	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	Cross-channel
block search	Not classified				**link**	Not classified

DOUBLE	**$AA_DTSW [31]**	Distance from start of motion in PCS	**reference:**	

description:

Axial variable $AA_DTSW[ax] determines the axial distance (with algebraic sign) from the start of motion in the workpiece coordinate system for positioning and synchronized axes. The programmed position is the only factor used to calculate the distance. If the axis is a coupled axis, the position component derived from the axis coupling is not considered.

Index 1:	Maximum axis number				
unit:	Linear / angular position				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	-	X	0	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

DOUBLE	**$AA_DTSB [31]**	Distance from start of motion in BCS	**reference:**	

description:

Axial variable $AA_DTSB[ax] determines the axial distance (with algebraic sign) from the start of motion in the basic coordinate system for positioning and synchronized axes. The programmed position is the only factor used to calculate the distance. If the axis is a coupled axis, the position component derived from the axis coupling is not considered.

Index 1:		Maximum axis number					
unit:		Linear / angular position					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	-	X	0	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

DOUBLE	**$AA_COUP_CORR [31]**	Generic coupling: Compensation value for 'Correct synchronism difference'	**reference:**	

description:

The variable $AA_COUP_CORR[Sn] with spindle Sn (n: spindle number), example S2: spindle 2 or C: axis C

serves to execute the "Correct synchronism error" functionality, and provides the compensation value for the position offset for generic couplings with CPFRS="MCS" (or CPSETTYPE="COUP").

For the duration (MD 30455 MISC_FUNCTION_MASK, bit 7) of the activation of the NC/PLC interface signal DB31, ... DBX31.6 (Correct synchronism error) for the following spindle in active coupling, the actual values of this spindle are compared with the setpoint values. The difference is the compensation value that can be read with the system variables $AA_COUP_CORR.

If the compensation value is known, this value can also be written directly into the system variable. The NC/PLC interface signal DB31, ... DBX31.6 (Correct synchronism error) should not be set in this case. The variable becomes effective only if a CP coupling has been activated for the spindle with CPSETTYPE="COUP" or CPFRS="MCS". If the axis is not a configured spindle, the writing is ignored.

In the coupling module, the variable $AA_COUP_CORR is considered, and it corrects the setpoint values.

The compensation value is automatically deleted for reference point approach and zero mark synchronization of spindles. The system variable then returns the value 'zero'.

Depending on the application, the compensation value can also be deleted at an earlier point in time by writing the value '0' to the variables.

Index 1:		Axis/spindle identifier					
unit:		Linear / angular position					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	runin stp	X	7	-	0	X	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	Cross-channel
block search		Not classified				**link**	No restrictions

INT	**$AA_AXCHANGE_TYP [31]**	axchange axistype	**reference:**	

description:
$AA_AXCHANGE_TYP[<axis>]
Type of axis with regard to axis replacement
0: Axis assigned to NC program
1: Axis assigned to PLC, or active as command or reciprocating axis
2: Other channel has right to interpolate
3: Neutral axis
4: Neutral axis controlled by PLC
5: Other channel has right to interpolate, axis requested for NC program
6: Other channel has right to interpolate, axis requested as neutral axis
7: Axis is PLC axis or active as command or reciprocating axis, axis requested for NC program
8: Axis is PLC axis or active as command or reciprocating axis, axis requested as neutral axis.
9: Firmly assigned PLC axis, in neutral axis status
10: Firmly assigned PLC axis, controlled by the PLC, in neutral axis status

Index 1:	Maximum axis number					
unit:	-					
min.:	0	**max.:**	10	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	-	X	0	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

INT	**$AA_AXCHANGE_STAT [31]**	axchange axis state	**reference:**	

description:
$AA_AXCHANGE_STAT[<Axis>]
Axis status regarding axis interchange:
0: Axis can be interchanged
1: Axis is assigned to the channel, but can become the PLC, command or reciprocating axis
2: Axis cannot be interchanged

Index 1:	Maximum axis number					
unit:	-					
min.:	0	**max.:**	2	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	-	X	0	-	0	X	
write:	-	-	0	-	0	-	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

INT	**$AA_INPOS_STAT [31]**	State of the programmed position	**reference:**	

description:

The variable $AA_INPOS_STAT[<axis>] returns the status of a programmed axis position. The indexing position is used for indexing axes. In the case of spindles, $AA_INPOS_STAT refers to the spindle position of SPOS/SPOSA/M19. In speed control mode M3/M4/M5/SPCOF and after M70 value 0 is always read.

$AA_INPOS_STAT always refers to the programmed position. The programmed position cannot be reached if end positions change during interpolation (delete distance-to-go, NC Stop, REPOS). At zero speed, the variable then gives the value 0.

Axis positions can be programmed through the part program, synchonized actions, FC18 or as indexing positions.

The variable returns the following values:

0: No status available (axis / spindle outside the programmed position)

1: Awaiting traversing movement

2: Position reached via setpoint

3: Position reached via 'Exact stop coarse'

4: Position reached via 'Exact stop fine'

Note 1: The status referring to the programmed position is independent of the operating mode (AUTOMATIC, JOG, MDI, ...)

Note 2: If additional position components (e.g. following axis couplings, corrections, compensations etc.) are inserted, then the programmed position is no longer identical with the machine axis position. During the period of additional traversings, exact stop signals are deleted, and the status can fall to the value 1.

Note 3: When approaching a position with tight exact stop limits, overshooting can cause the status to drop briefly again in relation to the dynamics of an axis / spindle.

Note 4: Function-dependent, the signals 'Spindle in position' and 'Indexing axis in position' are output on the axial VDI interface.

Note 5: When determining the status of a path axis with G643/G644/G645, the variable $AA_INPOS_STAT can remain at the value '1' on account of smoothing behavior during the path motion. Remedy: Use variable $AA_STAT (however the variable $AA_STAT does not check whether a programmed position has been reached).

Index 1:	Maximum axis number					
unit:	-					
min.:	0	**max.:**	4	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	Cross-channel
block search	Not classified				**link**	Not classified

INT	**$VA_ENC_ZERO_MON_ERR_CNT [n,31]**	Zero mark monitoring error counter	**reference:**	

description:

Incremental and distance-coded measuring systems:

$VA_ENC_ZERO_MON_ERR_CNT[n,ax] contains the current number of detected zero mark errors.

Absolute measuring systems ($MA_ENC_TYPE=4):

NCK.71 and higher: $VA_ENC_ZERO_MON_ERR_CNT[n,ax] contains the current number of detected limit violations by the comparison between the absolute and incremental encoder tracks (limit values see MDs $MA_ENC_ABS_ZEROMON_WARNING

and $MA_ENC_ABS_ZEROMON_INITIAL)

NCK.64 and higher: $VA_ENC_ZERO_MON_ERR_CNT[n,ax] contains the current number of deviations in 1/2 coarse increments between the absolute and incremental encoder tracks.

NCK.73 and higher: PROFIBUS drives of the type SIMODRIVE 611U do not support dynamic monitoring of the above-mentioned limit values. For this reason, with NCK.73 and higher, monitoring is only active if the axis is stationary. With versions lower than NCK.73, monitoring must be disabled for this drive type.

$VA_ENC_ZERO_MON_ERR_CNT[n,ax] is initialized to 0 during power ON.

It is not reset by RESET.

The indices mean:

n: Number of encoder

ax: Machine axis

(See also $MA_ENC_ZERO_MONITORING and alarm 25020)

Index 1:	n: Encoder number						
Index 2:	Maximum axis number						
unit:	-						
min.:	0		**max.:**	2147483647		**std:**	0
Properties with regard to reading/writing:							

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

INT	**$VA_ABSOLUTE_ENC_ERR_CNT [n,31]**	Error counter for absolute encoder	**reference:**	

description:

Absolute measuring systems ($MA_ENC_TYPE=4), only for SIMODRIVE 611D:

This counter is incremented if any new errors have been recognized during transmission of absolute values. This can be used to observe the transmission of absolute values.

Other systems/drives:

Variable returns 0.

$VA_ABSOLUTE_ENC_ERR_CNT[n,ax] is initialized to 0 during Power ON. RESET does not cause a reset.

The indices mean:

n: Number of encoder

ax: Machine axis

Index 1:	n: Encoder number
Index 2:	Maximum axis number

unit:		-					
min.:		0	**max.:**	2147483647		**std:**	0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

INT	**$VA_ABSOLUTE_ENC_STATE [n,31]**	Absolute encoder interface status	**refere nce:**	

description:

Absolute measuring systems ($MA_ENC_TYPE=4), only for SIMODRIVE 611D:

The axial variable $VA_ABSOLUTE_ENC_STATE[n,ax] determines the last occurrence of an error state of the absolute encoder interface.

The indices mean:

n: Number of encoder

ax: Machine axis

Details:

Bit 0 Interface active

Bit 1 Error during parity check

Bit 2 Error bit Alarm

Bit 3 Error bit CRC error

Bit 4 Start bit for EnDat transmission missing

(see also Description of Functions 'Measuring System Monitoring'

Other systems/drives:

Variable returns 0.

Index 1:		n: Encoder number					
Index 2:		Maximum axis number					
unit:		-					
min.:		0	**max.:**	31		**std:**	0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

INT	**$P_DIAM_STAT [31]**	Status of the diameter programming in the preprocessing	**reference:**	

description:

The system variable $P_DIAM_STAT[AX] returns the programmed status of the diameter programming in the channel.

The programmed status of the diameter programming is bit-coded:

BIT0 = 0: Diameter programming not active

BIT0 = 1: Diameter programming active

Note : The following bits only have a meaning that can be evaluated if BIT0 = 1:

BIT1 = 0: Channel-specific diameter programming active

BIT1 = 1: Axis-specific diameter programming active

BIT2 = 0: Absolute and incremental dimensions in the diameter

BIT2 = 1: Absolute dimension in the diameter, incremental dimension in the radius

BIT3 = 0: DIAMCYCOF not active

BIT3 = 1: DIAMCYCOF active

Index 1:	Maximum axis number						
unit:	-						
min.:	0	**max.:**	15	**std:**	0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$AA_DIAM_STAT [31]**	Status of the diameter programming in the main run	**reference:**	

description:

The system variable $AA_DIAM_STAT[AX] returns the active main run status of the diameter programming in the channel.

The active status of the diameter programming is bit-coded:

BIT0 = 0: Diameter programming not active

BIT0 = 1: Diameter programming active

Note : The following bits only have a meaning that can be evaluated if BIT0 = 1:

BIT1 = 0: Channel-specific diameter programming active

BIT1 = 1: Axis-specific diameter programming active

BIT2 = 0: Absolute and incremental dimensions in the diameter

BIT2 = 1: Absolute dimension in the diameter, incremental dimension in the radius

BIT3 = 0: DIAMCYCOF not active

BIT3 = 1: DIAMCYCOF active

Index 1:	Maximum axis number						
unit:	-						
min.:	0	**max.:**	15	**std:**	0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	-	

write:	-	-	0		-	0	-
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	Cross-channel
block search		Not classified				**link**	Not classified

INT	**$P_SCC_STAT [31]**	Status of the G96/G961/G962 assignment in the preprocessing	**reference:**

description:

The system variable $P_SCC_STAT[AX] returns the preprocessing status of the G96/G961/G962 assignment in the channel, this has been configured or programmed by SCC[AX] .

The status of the G96/G961/G962 assignment is bit-coded:

BIT0 = 0: Axis is not assigned to G96/G961/G962

BIT0 = 1: Axis is assigned to G96/G961/G962

Index 1:		Maximum axis number					
unit:		-					
min.:		0		**max.:**	15	**std:**	0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**	**OEM**
read:	X	-	7		-	0	-
write:	-	-	0		-	0	-
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

INT	**$AA_SCC_STAT [31]**	Status of the G96/G961/G962 assignment in the main run	**reference:**

description:

The system variable $AA_SCC_STAT[AX] returns the main run status of the G96/G961/G962 assignment in the channel, this has been configured or programmed by SCC[AX].

The status of the G96/G961/G962 assignment is bit-coded:

BIT0 = 0: Axis is not assigned to G96/G961/G962

BIT0 = 1: Axis is assigned to G96/G961/G962

Index 1:		Maximum axis number					
unit:		-					
min.:		0		**max.:**	15	**std:**	0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**	**OEM**
read:	runin stp	X	7		X	7	-
write:	-	-	0		-	0	-
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	Cross-channel
block search		Not classified				**link**	Not classified

INT	**$AA_CPNACTFA [31]**	Number of active following axes/spindles	**reference:**

description:

The system variable $AA_CPNACTFA[AX1 returns the number of active following axes/spindles which have the axis AX1 defined as a leading axis/spindle.

Index 1:		Axis/spindle identifier					
unit:		-					
min.:		0	**max.:**	2147483647		**std:**	0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	Cross-channel
block search		Not classified				**link**	Not classified

DOUBLE	**$AA_CPFCMDPT [31]**	Axis setpoint position across all coupling components	**reference:**

description:

The system variable $AA_CPFCMDPT[AX1] returns the coupling component of the axis setpoint position. This component is the sum of all dependent components of the axis position of all leading axes/spindles of the following axis/spindle

Index 1:		Axis/spindle identifier					
unit:		Linear / angular position					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	Cross-channel
block search		Not classified				**link**	Not classified

DOUBLE	**$AA_CPFCMDVT [31]**	Axis setpoint velocity across all coupling components	**reference:**

description:

The system variable $AA_CPFCMDVT[AX1] returns the coupling component of the axis setpoint velocity. This component is the sum of all dependent components of the axis velocity of all leading axes/spindles of the following axis/spindle

Index 1:		Axis/spindle identifier					
unit:		Linear / angular speed					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	Cross-channel
block search		Not classified				**link**	Not classified

DOUBLE	**$AA_CPFREQV [31]**	Required velocity of the coupling	**reference:**

description:

The system variable $AA_CPFREQV[AX1] returns the velocity required by the leading axes/spindles as a percentage of the maximum possible velocity of the following axes/spindle.

Index 1:		Axis/spindle identifier					
unit:		-					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	Cross-channel
block search		Not classified				**link**	Not classified

INT	**$AA_CPNDEFLA [31]**	Number of defined master axes	**reference:**

description:

The system variable $AA_CPNDEFLA[AX1] returns the number of leading axes/spindles defined for the following axis/spindle AX1.

Index 1:		Axis/spindle identifier					
unit:		-					
min.:		0	**max.:**	2147483647		**std:**	0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	Cross-channel
block search		Not classified				**link**	Not classified

INT	**$AA_CPNACTLA [31]**	Number of active leading axes	**reference:**

description:

The system variable $AA_CPNDEFLA[AX1] returns the number of leading axes/spindles active for the following axis/spindle AX1.

Index 1:		Axis/spindle identifier					
unit:		-					
min.:		0	**max.:**	2147483647		**std:**	0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	Cross-channel
block search		Not classified				**link**	Not classified

DOUBLE	**$AA_CPFACCT [31]**	Axis setpoint acceleration across all coupling components	**reference:**

description:

The system variable $AA_CPFACCT[AX1] returns the coupling component of the axis setpoint acceleration. This component is the sum of all dependent components of the axis acceleration of all leading axes/spindles of the following axis/spindle

Index 1:		Axis/spindle identifier					
unit:		Linear / angular acceleration					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	Cross-channel
block search		Not classified				**link**	Not classified

STRING	**$AA_CPFRS [31]**			Reference system of the coupling		**reference:**	
description:							
The system variable returns the reference system of the coupling for the following axis/spindle							
"BCS" = basic coordinate system							
"MCS" = machine coordinate system							
Index 1:		Axis/spindle identifier					
Index 3:		Max. string length					
unit:		-					
min.:			**max.:**			**std:**	""
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	Cross-channel
block search		Not classified				**link**	Not classified

STRING	**$AA_CPFMSON [31]**			Synchronization mode when the coupling is switched on		**reference:**	
description:							
The system variable $AA_CPFMSON[AX1] returns the synchronization mode of the following axis/spindle AX1 when the coupling is switched on.							
The synchronization mode determines the synchronization response when the coupling is switched on.							
See the Generic Coupling documentation for further details.							
Index 1:		Axis/spindle identifier					
Index 3:		Max. string length					
unit:		-					
min.:			**max.:**			**std:**	""
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	Cross-channel
block search		Not classified				**link**	Not classified

STRING	**$AA_CPFMON [31]**	Response of the following axis when the coupling is switched on	**reference:**	

description:

The system variable returns the response of the following axis/spindle when the coupling is switched on

"STOP" - Following axis/spindle is stopped

"CONT" - Active motion of the following axis/spindle is accepted as the starting motion

"ADD" - Active motion is retained as overlaid motion

See the Generic Coupling documentation for further details.

Index 1:	Axis/spindle identifier						
Index 3:	Max. string length						
unit:	-						
min.:		**max.:**			**std:**		""
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	Cross-channel	
block search	Not classified				**link**	Not classified	

STRING	**$AA_CPFMOF [31]**	Response of the following axis when the coupling is switched off	**reference:**	

description:

The system variable returns the response of the following axis/spindle when the coupling is switched off

"STOP" - Following axis/spindle is stopped

"CONT" - Active motion of the following axis/spindle is retained

See the Generic Coupling documentation for further details.

Index 1:	Axis/spindle identifier						
Index 3:	Max. string length						
unit:	-						
min.:		**max.:**			**std:**		""
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	Cross-channel	
block search	Not classified				**link**	Not classified	

STRING	**$AA_CPMRESET [31]**	Status of the coupling after reset	**reference:**	

description:

The system variable $AA_CPMRESET[AX1] returns the status of the coupling for the following axis/spindle after reset or program end

"NONE" - Current status is retained

"ON" - Coupling is activated

"OFF" - Coupling is deactivated

"DEL" - Coupling is deactivated and deleted

See the Generic Coupling documentation for further details.

Index 1:	Axis/spindle identifier						
Index 3:	Max. string length						
unit:	-						
min.:		**max.:**		**std:**	""		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	Cross-channel	
block search	Not classified				**link**	Not classified	

STRING	**$AA_CPMSTART [31]**	Status of the coupling after program start	**reference:**	

description:

The system variable $AA_CPMSTART[AX1] returns the status of the coupling for the following axis/spindle AX1 after program start

"NONE" - Current status is retained

"ON" - Coupling is activated

"OFF" - Coupling is deactivated

"DEL" - Coupling is deactivated and deleted

See the Generic Coupling documentation for further details.

Index 1:	Axis/spindle identifier						
Index 3:	Max. string length						
unit:	-						
min.:		**max.:**		**std:**	""		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	Cross-channel	
block search	Not classified				**link**	Not classified	

STRING	**$AA_CPMSTARTPRT [31]**	Status of the coupling after SERUPRO start	**reference:**	

description:

The system variable $AA_CPMSTART[AX1] returns the status of the coupling for the following axis/spindle AX1 after SERUPRO start

"NONE" - Current status is retained

"ON" - Coupling is activated

"OFF" - Coupling is deactivated

"DEL" - Coupling is deactivated and deleted

See the Generic Coupling documentation for further details.

Index 1:	Axis/spindle identifier					
Index 3:	Max. string length					
unit:	-					
min.:		**max.:**		**std:**		""
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	Cross-channel
block search	Not classified				**link**	Not classified

STRING	**$AA_CPSETTYPE [31]**	Default coupling type	**reference:**	

description:

The system variable $AA_CPSETTYPE[AX1] returns the default coupling type for the following axis/spindle AX1 .

See the Generic Coupling documentation for further details.

"NONE"

"TRAIL"

"LEAD"

"EG"

"COUP"

Index 1:	Axis/spindle identifier					
Index 3:	Max. string length					
unit:	-					
min.:		**max.:**		**std:**		""
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	Cross-channel
block search	Not classified				**link**	Not classified

STRING	**$AA_CPBC [31]**	Block change criterion	**reference:**	

description:

The system variable $AA_CPBC[AX1] returns the active block change criterion when the coupling of the following axis/ spindle AX1 is switched on.

"NONE" = Block change takes place irrespective of the coupling state

"FINE" = Block change does not take place until synchronism "fine" is reached

"COARSE" = Block change does not take place until synchronism "coarse" is reached

"IPOSTOP" = Block change does not take place until setpoint synchronism is reached

Index 1:	Axis/spindle identifier						
Index 3:	Max. string length						
unit:	-						
min.:		**max.:**		**std:**	""		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	Cross-channel	
block search	Not classified				**link**	Not classified	

INT	**$AA_CPFACT [31]**	Active coupling types of a following axis/ spindle	**reference:**	

description:

The active coupling types for the axis/spindle AX1 are returned as bit-codes

0 = No active coupling

Bit 0,1 = TANG

Bit 2 = 1 ('H04') COUP

Bit 3 = 1 ('H08') TRAIL

Bit 4 = 1 ('H10') LEAD

Bit 5 = 1 ('H20') EG

Bit 6 = 1 ('H40') GANTRY

Bit 7,8 = 1 (H180) TANG with option P

Bit 9 = 1 ('H200') CP, generic coupling

Index 1:	Axis/spindle identifier						
unit:	-						
min.:	-2147483648	**max.:**	2147483647	**std:**	0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	Cross-channel	
block search	Not classified				**link**	Not classified	

AXIS	**$AA_CPDEFLA [31,n]**			Specifies the nth defined leading axis/spindle		**reference:**	
description:							
The channel identifier of the nth defined leading axis/spindle is returned for the axis/spindle AX1							
If the specified coupling is not defined, then NO_AXIS is returned							
Index 1:		Axis/spindle identifier of the following axis/spindle					
Index 2:		Index of the leading axis/spindle					
unit:		-					
min.:			**max.:**		**std:**		GEOAXISNUM
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	Cross-channel
block search		Not classified				**link**	Not classified

AXIS	**$AA_CPACTLA [31,n]**			Specifies the nth active leading axis/spindle		**reference:**	
description:							
The channel identifier of the nth active leading axis/spindle is returned for the axis/spindle AX1							
If the specified coupling is not active, then NO_AXIS is returned							
Index 1:		Axis/spindle identifier of the following axis/spindle					
Index 2:		Index of the leading axis/spindle					
unit:		-					
min.:			**max.:**		**std:**		GEOAXISNUM
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	Cross-channel
block search		Not classified				**link**	Not classified

AXIS	**$AA_CPACTFA [31,n]**			Specifies the nth active following axis/spindle		**reference:**	
description:							
The channel identifier of the nth active following axis/spindle is returned for the axis/spindle AX1							
If the specified coupling is not active, then NO_AXIS is returned							
Index 1:		Axis/spindle identifier of the leading axis/spindle					
Index 2:		Index of the following axis/spindle					
unit:		-					
min.:			**max.:**		**std:**		GEOAXISNUM
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	

write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	Cross-channel
block search		Not classified				**link**	Not classified

INT	**$PA_CPFACT [31]**	Coupling type of a following axis/spindle	**reference:**	

description:

$PA_CPFACT[AX1]

It is possible to determine whether the axis / spindle AX1 is being used by a coupling. The coupling type is returned when the coupling is active. The system variable must be read out for the following axis / spindle.

Bit0, Bit1 tangential following active, TANG

Bit2 = 1 ('H04') Synchronous spindle active, COUP

Bit3 = 1 ('H08') Coupled motion active, TRAIL

Bit4 = 1 ('H10') Master value coupling active, LEAD

Bit5 = 1 ('H20') Electronic gear active, EG

Bit6 = 1 ('H40') Gantry grouping active, GANTRY

Bit7, Bit8 Tangential following active, TANG (with optimization)

Bit9 = 1 ('H200') Generic coupling active, CP

Index 1:		Axis/spindle identifier					
unit:		-					
min.:		-2147483648	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

INT	**$PA_CPFPOSSTAT [31]**	Validity of the synchronized position and stop position	**reference:**	

description:

$PA_CPFPOSSTAT[AX1]

The validity of the synchronized position (Bit0) and the stop position (Bit1) can be read for the axis / spindle AX1 if the coupling is active.

Bit0 = 1 ('H01') Synchronized position is valid

Bit1 = 1 ('H02') Stop position is valid

Index 1:		Axis/spindle identifier					
unit:		-					
min.:		-1,8E308	**max.:**	1,8E308	**std:**	0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

STRING	**$PA_CPSETTYPE [31]**	Default coupling type	**reference:**	

description:
Returns the default coupling type for the axis/spindle AX1.
$PA_CPSETTYPE[AX1]
"NONE"
"TRAIL"
"LEAD"
"EG"
"COUP"

Index 1:	Axis/spindle identifier					
Index 3:	Max. string length					
unit:	-					
min.:		**max.:**		**std:**		""

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

INT	**$PA_CPNACTFA [31]**	Number of active following axes/spindles	**reference:**	

description:
Returns the number of active following axes/spindles for the axis/spindle AX1.

Index 1:	Axis/spindle identifier					
unit:	-					
min.:	0	**max.:**	2147483647	**std:**		0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

INT	**$PA_CPNDEFLA [31]**	Number of defined leading axes/spindles	**reference:**	

description:
Returns the number of defined leading axes/spindles for the axis/spindle AX1.

Index 1:	Axis/spindle identifier					
unit:	-					
min.:	0	**max.:**	2147483647	**std:**		0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	

write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

INT	**$PA_CPNACTLA [31]**			Number of active leading axes/spindles		**reference:**	
description:							
Returns the number of active leading axes/spindles for the axis/spindle AX1.							
Index 1:		Axis/spindle identifier					
unit:		-					
min.:		0	**max.:**	2147483647		**std:**	0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

STRING	**$PA_CPFRS [31]**			Coordinate reference		**reference:**	
description:							
The coordinate reference of the defined axis/spindle coupling is returned for the axis/spindle AX1 "NONE" = No coupling active "BCS" = Basic coordinate system "MCS" = Machine (coordinate system)							
Index 1:		Axis/spindle identifier					
Index 3:		Max. string length					
unit:		-					
min.:			**max.:**			**std:**	""
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

STRING	**$PA_CPFMSON [31]**			Synchronization response at switch on		**reference:**	
description:							
The synchronization mode for the axis/spindle AX1 is returned when the coupling is switched on. See the Generic Coupling documentation for further details.							
Index 1:		Axis/spindle identifier					
Index 3:		Max. string length					
unit:		-					
min.:			**max.:**			**std:**	""

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

STRING	**$PA_CPFMON [31]**	Response of the following axis when the coupling is switched on	**reference:**	

description:

The system variable returns the response of the following axis/spindle when the coupling is switched on

"STOP" - Following axis/spindle is stopped

"CONT" - Active motion of the following axis/spindle is accepted as the starting motion

"ADD" - Active motion of the following axis/spindle is retained as overlaid motion

See the Generic Coupling documentation for further details.

Index 1:	Axis/spindle identifier				
Index 3:	Max. string length				
unit:	-				
min.:		**max.:**		**std:**	""

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

STRING	**$PA_CPFMOF [31]**	Response of the following axis when the coupling is switched off	**reference:**	

description:

The system variable returns the response of the following axis/spindle when the coupling is switched off

"STOP" - Following axis/spindle is stopped

"CONT" - Active motion of the following axis/spindle is retained

See the Generic Coupling documentation for further details.

Index 1:	Axis/spindle identifier				
Index 3:	Max. string length				
unit:	-				
min.:		**max.:**		**std:**	""

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

STRING	**$PA_CPMRESET [31]**	Status of the coupling after reset	**reference:**	

description:

The system variable $PA_CPMRESET[AX1] returns the status of the coupling for the following axis/spindle after reset or program end

"NONE" - Current status is retained

"ON" - Coupling is activated

"OFF" - Coupling is deactivated

"DEL" - Coupling is deactivated and deleted

See the Generic Coupling documentation for further details.

Index 1:	Axis/spindle identifier					
Index 3:	Max. string length					
unit:	-					
min.:		**max.:**		**std:**	""	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

STRING	**$PA_CPMSTART [31]**	Status of the coupling after program start	**reference:**	

description:

The system variable $PA_CPMSTART[AX1] returns the status of the coupling for the following axis/spindle AX1 after program start

"NONE" - Current status is retained

"ON" - Coupling is activated

"OFF" - Coupling is deactivated

"DEL" - Coupling is deactivated and deleted

See the Generic Coupling documentation for further details.

Index 1:	Axis/spindle identifier					
Index 3:	Max. string length					
unit:	-					
min.:		**max.:**		**std:**	""	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

STRING	**$PA_CPBC [31]**	Block change criterion	**reference:**	

description:

The system variable $PA_CPBC[AX1] returns the active block change criterion when the coupling of the following axis/spindle AX1 is switched on.

"NONE" = Block change takes place irrespective of the coupling state

"FINE" = Block change does not take place until synchronism "fine" is reached

"COARSE" = Block change does not take place until synchronism "coarse" is reached

"IPOSTOP" = Block change does not take place until setpoint synchronism is reached

Index 1:	Axis/spindle identifier						
Index 3:	Max. string length						
unit:	-						
min.:		**max.:**			**std:**	""	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

AXIS	**$PA_CPDEFLA [31,n]**	Specifies the nth defined leading axis/spindle	**reference:**	

description:

The channel identifier of the nth defined leading axis/spindle is returned for the axis/spindle AX1

If the specified coupling is not defined, then NO_AXIS is returned

Index 1:	Axis identifier for following axis/spindle						
Index 2:	Index of the leading axis/spindle						
unit:	-						
min.:		**max.:**			**std:**	GEOAXISNUM	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

AXIS	**$PA_CPACTLA [31,n]**	Specifies the nth active leading axis/spindle	**reference:**	

description:

The channel identifier of the nth active leading axis/spindle is returned for the axis/spindle AX1

If the specified coupling is not active, then NO_AXIS is returned

Index 1:	Axis/spindle identifier of the following axis/spindle				
Index 2:	Index of the leading axis/spindle				
unit:	-				
min.:		**max.:**		**std:**	GEOAXISNUM

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN MACH	SPIN	**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

AXIS	**$PA_CPACTFA [31,n]**		Specifies the nth active following axis/spindle	**reference:**	
description:					
The channel identifier of the nth active following axis/spindle is returned for the axis/spindle AX1					
If the specified coupling is not active, then NO_AXIS is returned					
Index 1:	Axis/spindle identifier of the leading axis/spindle				
Index 2:	Index of the following axis/spindle				
unit:	-				
min.:		**max.:**		**std:**	GEOAXISNUM

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN MACH	SPIN	**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

INT	**$AA_DEPAXO [31]**		Dependence on other axes	**reference:**	
description:					
The variable $AA_DEPAXO[AX] returns an axis code for the stated axis AX, which contains all machine axes with a mechanical dependence on the stated axis.					
A dependency is produced by:					
Active coupling modules, the following axis is dependent on the leading axis					
Active transformations, output axes of the transformation are dependent on the input axes of the transformation					
Closed gantry groupings, the slave axes are dependent on the master axis					
The given axis itself is also returned in the axis code					
The axis code indicates how the machine data $MC_AXCONF_MACHAX_USED refers not directly to the machine axes but to the logical NCK machine axis image ($MN_AXCONF_LOGIC_MACHAX_TAB).					
Bit 0 = 0There is no dependence on the logical machine axis AX1					
Bit 0 = 1 There is a dependence on the logical machine axis AX1					
Bit 1 = 0There is no dependence on the logical machine axis AX2					
Bit 1 = 1 There is a dependence on the logical machine axis AX2 and so on.					
Index 1:	Maximum axis number				
unit:	-				
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	

write:	-	-	0		-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	Cross-channel	
block search		Not classified				**link**	Not classified	

INT	**$AA_FIX_POINT_SELECTED [31]**			Selected fixed point		**reference:**	
description:							
$AA_FIX_POINT_SELECTED[<Axis>]							
0: No fixed point selected							
> 0: Number of the selected fixed point							
Via the NC/PLC interface signal DB31, ... DBX13.0 - .2 (Activate fixed point approach in JOG) you can activate the fixed point approach in the operating mode JOG.							
Bits 0-2 indicate the number of the fixed point to be approached.							
Activation is confirmed via the NC/PLC interface signal DB31, ... DBX75.0 - .2 (Fixed point approach in JOG active). The bits indicate the number of the fixed point being approached.							
Index 1:		Axis					
unit:		-					
min.:		0	**max.:**	4		**std:**	0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

INT	**$AA_ON_FIX_POINT [31]**			Number of the fixed point at which the axis is currently located		**reference:**	
description:							
$AA_ON_FIX_POINT[<Axis>]							
0: Axis is not at a fixed point							
> 0: Number of the fixed point at which the axis currently stands (the fixed point position is the current position).							
This is independent of the way this position was reached.							
Index 1:		Axis					
unit:		-					
min.:		0	**max.:**	4		**std:**	0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

DOUBLE	**$VA_ENC1_COMP_VAL [31]**			EEC compensation value encoder 1			**reference:**	
description:								
The axial variable $VA_ENC1_COMP_VAL[ax] determines the current compensation value of the measuring system error compensation (encoder 1) in the machine coordinate system (MCS).								
Index 1:		Maximum axis number						
unit:		Linear / angular position						
min.:		-1,8E308	**max.:**	1,8E308		**std:**		0.0
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**		**OEM**	
read:	runin stp	X	7	X	7		X	
write:	-	-	0	-	0		-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**		channel-specific
block search		Not classified				**link**		Not classified

DOUBLE	**$VA_ENC2_COMP_VAL [31]**			EEC compensation value encoder 2			**reference:**	
description:								
The axial variable $VA_ENC2_COMP_VAL[ax] determines the current compensation value of the measuring system error compensation (encoder 2) in the machine coordinate system (MCS).								
Index 1:		Maximum axis number						
unit:		Linear / angular position						
min.:		-1,8E308	**max.:**	1,8E308		**std:**		0.0
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**		**OEM**	
read:	runin stp	X	7	X	7		X	
write:	-	-	0	-	0		-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**		channel-specific
block search		Not classified				**link**		Not classified

DOUBLE	**$VA_CEC_COMP_VAL [31]**			CEC compensation value			**reference:**	
description:								
The axial variable $VA_CEC_COMP_VAL[ax] determines the current compensation value of the sag compensation in the machine coordinate system (MCS).								
Index 1:		Maximum axis number						
unit:		Linear / angular position						
min.:		-1,8E308	**max.:**	1,8E308		**std:**		0.0
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**		**OEM**	
read:	runin stp	X	7	X	7		X	
write:	-	-	0	-	0		-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**		channel-specific
block search		Not classified				**link**		Not classified

DOUBLE	**$VA_TEMP_COMP_VAL [31]**	TEMP compensation value	**reference:**	

description:

The axial variable $VA_TEMP_COMP_VAL[ax] determines the current compensation value of the temperature compensation in the machine coordinate system (MCS).

Index 1:		Maximum axis number					
unit:		Linear / angular position					
min.:		-1,8E308	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

DOUBLE	**$AA_DTBREB [31]**	Total deceleration path in the BCS	**reference:**	

description:

$AA_DTBREB[ax]

Total deceleration path of the axis ax in the BCS. The value is the estimated deceleration path of the axis to standstill

Index 1:		Axis/spindle identifier					
unit:		Linear / angular position					
min.:		-1,8E308	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH		**Valuation:**	Cross-channel
block search		Not classified				**link**	Not classified

DOUBLE	**$AA_DTBREB_CMD [31]**	Command component of the total deceleration path in the BCS	**reference:**	

description:

$AA_DTBREB_CMD[ax]

Command component of the total deceleration path of the axis ax in the BCS. The value is the estimated deceleration path of the axis to standstill

Index 1:		Axis/spindle identifier					
unit:		Linear / angular position					
min.:		-1,8E308	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH		**Valuation:**	Cross-channel
block search		Not classified				**link**	Not classified

DOUBLE	**$AA_DTBREB_CORR [31]**			Correction component of the total deceleration path in the BCS		**reference:**	
description:							
$AA_DTBREB_CORR[ax]							
Correction component of the total deceleration path of the axis ax in the BCS. The value is the estimated deceleration path of the axis to standstill							
Index 1:	Axis/spindle identifier						
unit:	Linear / angular position						
min.:	-1,8E308	**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:							

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:	GEO	CHAN	MACH		**Valuation:**	Cross-channel
block search	Not classified				**link**	Not classified

DOUBLE	**$AA_DTBREB_DEP [31]**			Coupling component of the total deceleration path in the BCS		**reference:**	
description:							
$AA_DTBREB_DEP[ax]							
Coupling component of the total deceleration path of the axis ax in the BCS. The value is the estimated deceleration path of the axis to standstill							
Index 1:	Axis/spindle identifier						
unit:	Linear / angular position						
min.:	-1,8E308	**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:							

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:	GEO	CHAN	MACH		**Valuation:**	Cross-channel
block search	Not classified				**link**	Not classified

DOUBLE	**$AA_DTBREM [31]**			Total deceleration path in the Machine		**reference:**	
description:							
$AA_DTBREM[ax]							
Total deceleration path of the axis ax in the Machine. The value is the estimated deceleration path of the axis to standstill							
Index 1:	Axis/spindle identifier						
unit:	Linear / angular position						
min.:	-1,8E308	**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:							

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:	GEO	CHAN	MACH		**Valuation:**	Cross-channel
block search	Not classified				**link**	Not classified

DOUBLE	**$AA_DTBREM_CMD [31]**				Command component of the total deceleration path in the Machine		**reference:**	
description:								
$AA_DTBREM_CMD[ax]								
Command component of the total deceleration path of the axis ax in the Machine. The value is the estimated deceleration path of the axis to standstill								
Index 1:		Axis/spindle identifier						
unit:		Linear / angular position						
min.:		-1,8E308		**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7		X	7	X	
write:	-	-	0		-	0	-	
axis identifier:		GEO	CHAN	MACH		**Valuation:**	Cross-channel	
block search		Not classified				**link**	Not classified	

DOUBLE	**$AA_DTBREM_CORR [31]**				Correction component of the total deceleration path in the Machine		**reference:**	
description:								
$AA_DTBREM_CORR[ax]								
Correction component of the total deceleration path of the axis ax in the Machine. The value is the estimated deceleration path of the axis to standstill								
Index 1:		Axis/spindle identifier						
unit:		Linear / angular position						
min.:		-1,8E308		**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7		X	7	X	
write:	-	-	0		-	0	-	
axis identifier:		GEO	CHAN	MACH		**Valuation:**	Cross-channel	
block search		Not classified				**link**	Not classified	

DOUBLE	**$AA_DTBREM_DEP [31]**				Coupling component of the total deceleration path in the Machine		**reference:**	
description:								
$AA_DTBREM_DEP[ax]								
Coupling component of the total deceleration path of the axis ax in the Machine. The value is the estimated deceleration path of the axis to standstill								
Index 1:		Axis/spindle identifier						
unit:		Linear / angular position						
min.:		-1,8E308		**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7		X	7	X	

write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	**Valuation:**	Cross-channel	
block search		Not classified			**link**	Not classified	

INT	**$AA_BRAKE_CONDB [31]**	Context-sensitive conditions for interpolator stop in the BCS	**reference:**	

description:

The axial variable $AA_BRAKE_CONDB[ax] indicates the braking requests (conditions) pending on the axis / spindle to the interpolator stop. A braking request consists of a collision direction referring to a coordinate axis in the BCS, and a braking priority referring to the machining level. If the axis / spindle receives an up to date braking request due to these conditions, bit 0 is set in $AA_BRAKE_STATE[X] (in the next IPO cycle).

Bits 0 to 3 show the highest braking priority in positive direction:

0: No pending braking request

1: Priority 1 includes all positioning actions (G0, POS, SPOS)

2: Priority 2 includes DYNNORM and all movements of priority 1

3: Priority 3 includes DYNPOS and all movements of priorities 1 to 2

4: Priority 4 includes DYNROUGH and all movements of priorities 1 to 3

5: Priority 5 includes DYNSEMIFIN and all movements of priorities 1 to 4

6: Priority 6 includes all movements (incl. DYNFINISH)

7: Priority 7 includes all movements. The request was triggered by the NC/PLC interface signal DB31, ... DBX4.3 (Feed stop / spindle stop). Brakes are always applied independent of the movement direction.

13: Priority 13 includes all movements. Axially, braking is executed using the Emergency Stop braking ramp.

In bits 16 to 19 the highest braking priority is shown in negative direction:

0 to 13: Same significance as with bits 0 to 3

All other bits are not set.

When displaying the value of the variables in hexadecimal format, the fifth digit from the right indicates the braking priority in negative direction and the digit on the right the braking priority in positive direction.

Index 1:		Axis identifier					
unit:		-					
min.:		0	**max.:**	0xD000D	**std:**	0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	-	X	0	X	7	X	
write:	-	X	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

INT	**$AA_BRAKE_STATE [31]**	Current braking status	**reference:**	

description:

$AA_BRAKE_STATE[X]

signals back to axis / spindle if braking has been initiated due to request by $AA_BRAKE_CONDB[X] or NC/PLC interface signal DB31, ... DBX4.3 (Feed stop / spindle stop).

Bit 0 = 1: Current braking request due to context-sensitive interpolator stop or NC/PLC interface signal DB31, ... DBX4.3 (Feed stop / spindle stop) ($AA_BRAKE_CONDB[X])

Index 1:	Axis identifier	
unit:	-	

min.:		0	**max.:**	0x1	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	-	X	0	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN MACH	SPIN	**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

INT	**$AA_BRAKE_CONDM [31]**	Context-sensitive conditions for interpolator stop in the MCS	**reference:**	

description:

The axial variable $AA_BRAKE_CONDM[ax] indicates the braking requests (conditions) pending on the axis / spindle to the interpolator stop. A braking request consists of a collision direction referring to a coordinate axis in the Machine, and a braking priority referring to the machining level.

Bits 0 to 3 show the highest braking priority in positive direction:

0: No pending braking request

1: Priority 1 includes all positioning actions (G0, POS, SPOS)

2: Priority 2 includes DYNNORM and all movements of priority 1

3: Priority 3 includes DYNPOS and all movements of priorities 1 to 2

4: Priority 4 includes DYNROUGH and all movements of priorities 1 to 3

5: Priority 5 includes DYNSEMIFIN and all movements of priorities 1 to 4

6: Priority 6 includes all movements (incl. DYNFINISH)

7: Priority 7 includes all movements. The request was triggered by the NC/PLC interface signal DB31, ... DBX4.3 (Feed stop / spindle stop). Brakes are always applied independent of the movement direction.

13: Priority 13 includes all movements. Axially, braking is executed using the Emergency Stop braking ramp.

In bits 16 to 19 the highest braking priority is shown in negative direction:

0 to 13: Same significance as with bits 0 to 3

All other bits are not set.

When displaying the value of the variables in hexadecimal format, the fifth digit from the right indicates the braking priority in negative direction and the digit on the right the braking priority in positive direction.

Index 1:		Axis identifier					
unit:		-					
min.:		0	**max.:**	0xD000D	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	-	X	0	X	7	X	
write:	-	X	0	-	0	-	
axis identifier:		GEO	CHAN MACH	SPIN	**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

BOOL	**$AA_JOG_POS_SELECTED [31]**	JOG to position	**reference:**	

description:

$AA_JOG_POS_SELECTED[<Axis>]

FALSE: JOG to position inactive.

TRUE: JOG to position active.

Via the NC/PLC interface signal DB31, ... DBX13.3 (Activate approaching position in JOG) jogging to position in the oprating mode JOG is activated.

Activation is confirmed via the NC/PLC interface signal DB31, ... DBX75.6 (Approaching position in JOG active).

Index 1:	Axis						
unit:	-						
min.:	FALSE	**max.:**	TRUE	**std:**	FALSE		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	-	X	0	X	7	-	
write:	-	-	0	-	0	-	
axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

BOOL	**$AA_JOG_POS_ACT [31]**	JOG to position: Position reached	**reference:**	

description:

The variable $AA_JOG_POS_ACT[<Axis>] has the following values:

FALSE:Position not reached by JOG to position.

TRUEPosition reached by JOG to position.

Via the PLC signal DB31, ... DBX13.3 (Activate approaching position in JOG) jogging to position in the operating mode JOG is activated.

Activation via the NC/PLC interface signal DB31, ... DBX75.6 DB31, ... DBX75.6 and the system variable $AA_JOG_POS_SELECTED[<Axis>] is confirmed.

The position reached via the NC/PLC interface signal DB31, ... DBX75.7 (Position approached in JOG reached) is reported.

The position reached was defined by the setting data $SA_JOG_POSITION{<Axis>].

Index 1:	Axis						
unit:	-						
min.:	FALSE	**max.:**	TRUE	**std:**	FALSE		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	-	X	0	X	7	-	
write:	-	-	0	-	0	-	
axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$AA_PCS_REL [31]**	Current relative WCS setpoint value of an axis	**reference:**	

description:

The axial variable $AA_PCS_REL[ax] determines the current relative setpoint value in the workpiece coordinate system (WCS) for the corresponding axis. The setpoint value corresponds to $AA_IW[ax], which is transformed by the current relative system frame $P_RELFRAME. The axial positions lie in the relative WCS coordinate system.

Index 1:	Maximum axis number						
unit:	Linear / angular position						
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$AA_ACS_REL [31]**	Current SZS setpoint value of an axis	**reference:**	

description:

The axial variable $AA_ACS_REL[ax] determines the current relative setpoint value in the settable zero point coordinate system (SZS) for the corresponding axis. The setpoint value corresponds to $AA_IEN[ax], which is transformed by the current relative system frame $P_RELFRAME. The axial positions lie in the relative SZS coordinate system.

Index 1:	Maximum axis number						
unit:	Linear / angular position						
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$AA_EG_TYPE [31,31]**	Type of coupling	**reference:**	

description:

$AA_EG_TYPE[a,b]

a: Following axis

b: Leading axis

Type of coupling for leading axis b

-1: no coupling defined

0: Actual value coupling

1: Setpoint value coupling

Index 1:	Maximum axis number				
Index 2:	Maximum axis number				
unit:	-				
min.:	0	**max.:**	1	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN MACH	SPIN	**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

DOUBLE	**$AA_EG_NUMERA [31,31]**		Numerator of the coupling factor		**reference:**	
description:						
$AA_EG_NUMERA[a,b]						
a: Following axis						
b: Leading axis						
Numerator of coupling factor for leading axis b						
Index 1:	Maximum axis number					
Index 2:	Maximum axis number					
unit:	Linear / angular position					
min.:	-1,8E308	**max.:**	1,8E308	**std:**		0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN MACH	SPIN	**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

DOUBLE	**$AA_EG_DENOM [31,31]**		Denominator of the coupling factor		**reference:**	
description:						
$AA_EG_DENOM[a,b]						
a: Following axis						
b: Leading axis						
Denominator of coupling factor for leading axis b						
Index 1:	Maximum axis number					
Index 2:	Maximum axis number					
unit:	Linear / angular position					
min.:	-1,8E308	**max.:**	1,8E308	**std:**		0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN MACH	SPIN	**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

DOUBLE	**$AA_EG_SYN [31,31]**	Synchronization of the master axis	**reference:**	

description:

$AA_EG_SYN[a,b]

a: Following axis

b: Leading axis

Synchronous position of leading axis b

Index 1:	Maximum axis number					
Index 2:	Maximum axis number					
unit:	Linear / angular position					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

BOOL	**$AA_EG_ACTIVE [31,31]**	Coupling is active for the master axis	**reference:**	

description:

$AA_EG_ACTIVE[a,b]

a: Following axis

b: Leading axis

Coupling for leading axis b is active, i.e. switched on

Index 1:	Maximum axis number					
Index 2:	Maximum axis number					
unit:	-					
min.:	FALSE	**max.:**	TRUE	**std:**	FALSE	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

DOUBLE	**$AA_CPLCMDP [31,31]**	Axis position component of the leading axis/ spindle	**reference:**	

description:

$AA_CPLCMDP[FAx,LAx]

Position component of the axis position of the following axis/spindle FAx caused by an active coupling to the leading axis/ spindle LAx

Index 1:	Axis identifier for following axis		
Index 2:	Axis identifier for leading axis		
unit:	Linear / angular position		

min.:		-1,8E308		**max.:**	1,8E308	**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN MACH	SPIN	**Valuation:**	Cross-channel	
block search		Not classified			**link**	Not classified	

DOUBLE	**$AA_CPLCMDV [31,31]**			Velocity component of the leading axis/ spindle		**reference:**	
description:							
$AA_CPLCMDV[FAx,LAx]							
Velocity component of the total velocity of the following axis/spindle FAx caused by an active coupling to the leading axis/ spindle LAx							
Index 1:		Axis identifier for following axis					
Index 2:		Axis identifier for leading axis					
unit:		Linear / angular speed					
min.:		-1,8E308	**max.:**	1,8E308	**std:**	0.0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN MACH	SPIN	**Valuation:**	Cross-channel	
block search		Not classified			**link**	Not classified	

INT	**$AA_CPLTYPE [31,31]**			Type of coupling		**reference:**	
description:							
$AA_CPLTYPE[FAx, LAx]							
The active coupling types are returned as bit-codes for the axis/spindle of the following axis/spindle FAx to the leading axis/ spindle LAx							
Bit 0,1 = TANG							
Bit 2 = 1 ('H04') COUP							
Bit 3 = 1 ('H08') TRAIL							
Bit 4 = 1 ('H10') LEAD							
Bit 5 = 1 ('H20') EG							
Bit 6 = 1 ('H40') GANTRY							
Bit 7,8 = 1 (H180) TANG with option P							
Bit 9 = 1 ('H200') CP, generic coupling							
Index 1:		Axis identifier for following axis					
Index 2:		Axis identifier for leading axis					
unit:		-					
min.:		0	**max.:**	512	**std:**	0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	

write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	Cross-channel
block search		Not classified				**link**	Not classified

DOUBLE	**$AA_CPLACC [31,31]**			Acceleration component of the leading axis/ spindle		**refere nce:**	
description:							
$AA_CPLACC[FAx,LAx]							
Acceleration component of the total acceleration of the following axis/spindle FAx caused by an active coupling to the leading axis/spindle LAx							
Index 1:		Axis identifier for following axis					
Index 2:		Axis identifier for leading axis					
unit:		Linear / angular acceleration					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	Cross-channel
block search		Not classified				**link**	Not classified

STRING	**$AA_CPLSTATE [MAXNUM_AXES_IN_SYSTEM,31,32]**			Status of the coupling		**refere nce:**	
description:							
$AA_CPLSTATE[FAx, LAx]							
Status of the coupling between the following axis/spindle FAx and the leading axis/spindle LAx							
"NONE" = No coupling defined							
"DEF" = Coupling defined, not activated							
"ON" = Coupling is active							
"OFF" = Coupling deactivated							
Index 1:		Axis/spindle identifier					
Index 2:		Axis/spindle identifier					
Index 3:		Max. string length					
unit:		-					
min.:			**max.:**			**std:**	""
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	Cross-channel
block search		Not classified				**link**	Not classified

DOUBLE	**$AA_CPLNUM [31,31]**				Numerator of the coupling factor			**reference:**	
description:									
$AA_CPLNUM[FAx, LAx]									
Numerator of the link factor between the following axis/spindle FAx and the leading axis/spindle LAx									
Index 1:		Axis/spindle identifier for following axis							
Index 2:		Axis/spindle identifier for leading axis							
unit:		-							
min.:		-1,8E308		**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:									
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**	**OEM**		
read:	runin stp	X	7		X	7	X		
write:	-	-	0		-	0	-		
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	Cross-channel		
block search		Not classified				**link**	Not classified		

DOUBLE	**$AA_CPLDEN [31,31]**				Denominator of the coupling factor			**reference:**	
description:									
$AA_CPLDEN[FAx, LAx]									
Denominator of the coupling factor between the following axis/spindle FAx and the leading axis/spindle LAx									
Index 1:		Axis/spindle identifier for following axis							
Index 2:		Axis/spindle identifier for leading axis							
unit:		-							
min.:		-1,8E308		**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:									
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**	**OEM**		
read:	runin stp	X	7		X	7	X		
write:	-	-	0		-	0	-		
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	Cross-channel		
block search		Not classified				**link**	Not classified		

INT	**$AA_CPLCTID [31,31]**				Curve tables ID of the coupling			**reference:**	
description:									
$AA_CPLCTID[FAx, LAx]									
Table number of the active curve table between the following axis/spindle FAx and the leading axis/spindle LAx									
Index 1:		Axis/spindle identifier for following axis/spindle							
Index 2:		Axis/spindle identifier for leading axis/spindle							
unit:		-							
min.:		-2147483648		**max.:**	2147483647		**std:**	0	
Properties with regard to reading/writing:									
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**	**OEM**		
read:	runin stp	X	7		X	7	X		

write:	-	-	0		-	0	-
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	Cross-channel
block search		Not classified				**link**	Not classified

STRING	**$AA_CPLSETVAL [MAXNUM_AXES_IN_SYSTEM,31,32]**	Coupling reference of the leading axis	**reference:**

description:

$AA_CPLSETVAL[FAx, LAx]

Coupling reference of the leading axis/spindle LAx to the following axis/spindle FAx

"ACTPOS" = Actual position

"CMDPOS" = Setpoint position

"CMDVEL" = Setpoint velocity

Index 1:		Axis/spindle identifier					
Index 2:		Axis/spindle identifier					
Index 3:		Max. string length					
unit:		-					
min.:			**max.:**			**std:**	""
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	Cross-channel
block search		Not classified				**link**	Not classified

INT	**$PA_CPLTYPE [31,31]**	Type of coupling	**reference:**

description:

$PA_CPLTYPE[FAx, LAx]

The active coupling types are returned as bit-codes for the axis/spindle of the following axis/spindle FAx for the leading axis/spindle LAx

Bit 0,1 = TANG

Bit 2 = 1 ('H04') COUP

Bit 3 = 1 ('H08') TRAIL

Bit 4 = 1 ('H10') LEAD

Bit 5 = 1 ('H20') EG

Bit 6 = 1 ('H40') GANTRY

Bit 7,8 = 1 (H180) TANG with option P

Bit 9 = 1 ('H200') CP, generic coupling

Index 1:		Axis/spindle identifier for following axis/spindle					
Index 2:		Axis/spindle identifier for leading axis/spindle					
unit:		-					
min.:		0	**max.:**	512		**std:**	0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	

write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

STRING	**$PA_CPLSTATE [MAXNUM_AXES_IN_SYSTEM,31,]**	Status of the coupling	**reference:**	

description:

$PA_CPLSTATE[FAx, LAx]

Status of the coupling between the following axis/spindle FAx and the leading axis/spindle LAx

"NONE" = No coupling defined

"DEF" = Coupling defined, not activated

"ON" = Coupling is active

"OFF" = Coupling deactivated

Index 1:		Axis/spindle identifier					
Index 2:		Axis/spindle identifier					
Index 3:		Max. string length					
unit:		-					
min.:			**max.:**			**std:**	""
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

DOUBLE	**$PA_CPLNUM [31,31]**	Numerator of the coupling factor	**reference:**	

description:

$PA_CPLNUM[FAx, LAx]

Numerator of the coupling factor between the following axis/spindle FAx and the leading axis/spindle LAx

Index 1:		Axis/spindle identifier for following axis					
Index 2:		Axis/spindle identifier for leading axis					
unit:		-					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

DOUBLE	**$PA_CPLDEN [31,31]**			Denominator of the coupling factor		**reference:**	
description:							
$PA_CPLDEN[FAx, LAx]							
Denominator of the coupling factor between the following axis/spindle FAx and the leading axis/spindle LAx							
Index 1:	Axis/spindle identifier for following axis						
Index 2:	Axis/spindle identifier for leading axis						
unit:	-						
min.:	-1,8E308		**max.:**	1,8E308	**std:**	0.0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$PA_CPLCTID [31,31]**			Curve tables ID of the coupling		**reference:**	
description:							
$PA_CPLCTID[FAx, LAx]							
Table number of the active curve table between the following axis/spindle FAx and the leading axis/spindle LAx							
Index 1:	Axis/spindle identifier for following axis/spindle						
Index 2:	Axis/spindle identifier for leading axis/spindle						
unit:	-						
min.:	-2147483648		**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

STRING	**$PA_CPLSETVAL [MAXNUM_AXES_IN_SYSTEM,31,]**			Coupling reference of the leading axis		**reference:**	
description:							
$PA_CPLSETVAL[FAx, LAx]							
Coupling reference of the leading axis/spindle LAx to the following axis/spindle FAx							
"ACTPOS" = Actual position							
"CMDPOS" = Setpoint position							
"CMDVEL" = Setpoint velocity							
Index 1:	Axis/spindle identifier for following axis/spindle						
Index 2:	Axis/spindle identifier for leading axis/spindle						
Index 3:	Max. string length						
unit:	-						
min.:			**max.:**		**std:**	""	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN MACH	SPIN	**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

INT	**$VA_ENC_ZERO_MON_ACCESS_CNT [n,31]**	Updating counter of valid zero monitoring accesses	**reference:**	

description:

Incremental and distance-coded measuring systems, only for SIMODRIVE 611D:

This variable requires a great deal of computing time with this type of encoder, it is only supplied if bit_0 = 1 is set in $MA_ENC_ZERO_MONITORING_SYSVAR_CTRL.

After the initialization phase, the system variable is incremented after every minute if one or more zero marks have been detected during this time. During the initialization phase, it is incremented at each detected, protected zero mark.

See also $MA_ENC_ZEROMON_SYSVAR_CTRL

Absolute measuring systems ($MA_ENC_TYPE=4), only for SIMODRIVE 611D:

This counter is incremented upon each successful NC access to a valid EnDat absolute value.

Other drives or deactivated:

Variable returns 0.

$VA_ENC_ZERO_MON_ACCESS_CNT[n,ax] is initialized to 0 at power ON. It is not reset by RESET.

The indices mean:

n: Number of encoder

ax: Machine axis

Index 1:	n: Encoder number				
Index 2:	Axis identifier				
unit:	-				
min.:	0	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN MACH	SPIN	**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

INT	**$VA_ABSOLUTE_ENC_ZERO_MON_MAX [n,31]**	Maximum of $VA_ENC_ZERO_MON_ACT	**reference:**	

description:

Absolute measuring systems ($MA_ENC_TYPE=4), only for SIMODRIVE 611D:

This system variable contains the maximum value of $VA_ENC_ZERO_MON_ACT since the encoder was switched on.

Other systems/drives:

Variable returns 0.

$VA_ABSOLUTE_ENC_ZERO_MON_MAX[n,ax] is initialized to 0 at power ON and encoder selection. RESET does not cause a reset.

The indices mean: n: Number of encoder ax: Machine axis							
Index 1:	n: Encoder number						
Index 2:	Axis identifier						
unit:	-						
min.:	0	**max.:**	2147483647	**std:**	0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$VA_ABSOLUTE_ENC_DELTA_INIT [n,31]**	Initial difference with absolute encoder	**reference:**	

description:

Only with absolute encoders:

This value includes the initial difference value between

the last absolute position buffered in the SRAM and the current absolute position (in the format internal increment - see machine data $MN_INT_PER_MM and $MN_INT_PER_DEG). The value is updated at power ON, warm restart, park deselection and return below the encoder limit frequency.

Other encoders:

Variable returns 0.

$VA_ABSOLUTE_ENC_DELTA_INIT[n,ax] is recalculated during power ON. RESET does not cause a reset.

Meaning of the indices:

n: Encoder number

ax: Machine axis

Index 1:	n: Encoder number						
Index 2:	Axis identifier						
unit:	-						
min.:	0	**max.:**	31	**std:**	0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$VA_ENC_ZERO_MON_ACT [n,31]**	Current internal zero monitoring values	**reference:**	

description:

Incremental and distance-coded measuring systems, only for SIMODRIVE 611D:

This system variable contains the current hardware counter value of the last zero mark passed.

Absolute measuring systems ($MA_ENC_TYPE=4), only for SIMODRIVE 611D:

This system variable contains the current difference (amount) between the control position and the newly formed absolute position in the format 1/4 coarse encoder increments.

Other drives:

Variable returns 0.

$VA_ENC_ZERO_MON_ACT[n,ax] is initialized to 0 at power ON. RESET does not cause a reset.

The indices mean:

n: Number of encoder

ax: Machine axis

Index 1:	n: Encoder number						
Index 2:	Axis identifier						
unit:	-						
min.:	0	**max.:**	31	**std:**	0		

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

INT	**$VA_ENC_ZERO_MON_INIT [n,31]**	Initialization values of hardware counter during zero monitoring	**reference:**	

description:

Incremental and distance-coded measuring systems, only for SIMODRIVE 611D:

This system variable contains the initial hardware counter value with which all further hardware counter values of the zero marks are compared.

Other systems/drives:

Variable returns 0.

$VA_ENC_ZERO_MON_INIT[n,ax] is initialized to 0 at power ON and encoder selection. RESET does not cause a reset.

The indices mean:

n: Number of encoder

ax: Machine axis

Index 1:	n: Encoder number						
Index 2:	Axis identifier						
unit:	-						
min.:	0	**max.:**	2147483647	**std:**	0		

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	

write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

DOUBLE	**$AA_COUP_CORR_DIST [31]**	Generic coupling: Distance to go from $AA_COUP_CORR	**reference:**	

description:

$AA_COUP_CORR_DIST[Sn]

with spindle Sn (n: spindle number), example S2: spindle 2 or C: axis C

The variable serves to display the distance to go of $AA_COUP_CORR (compensation value for the position offset with generic couplings) for the "Correct synchronism error" function.

Index 1:	Axis/spindle identifier					
unit:	Linear / angular position					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	Cross-channel
block search	Not classified				**link**	No restrictions

DOUBLE	**$AA_CPLINTR [31,31]**	Offset value for the input value of the coupling	**reference:**	

description:

$AA_CPLINTR[FAx, LAx]

Offset value for the input value of the leading axis/spindle LAx of the coupling to the following axis/spindle FAx

Index 1:	Axis identifier for following axis					
Index 2:	Axis identifier for leading axis					
unit:	Linear / angular position					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	Cross-channel
block search	Not classified				**link**	Not classified

DOUBLE	**$AA_CPLINSC [31,31]**	Scaling factor for the input value of the coupling	**reference:**	

description:

$AA_CPLINSC[FAx, LAx]

Scaling factor for the input value of the leading axis/spindle LAx of the active coupling to the following axis/spindle FAx

Index 1:	Axis identifier for following axis					
Index 2:	Axis identifier for leading axis					
unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN MACH	SPIN	**Valuation:**	Cross-channel	
block search		Not classified			**link**	Not classified	

DOUBLE	**$AA_CPLOUTTR [31,31]**		Offset value for the output value of the coupling		**reference:**	
description:						
$AA_CPLOUTTR[FAx, LAx]						
Offset value for the output value of the leading axis/spindle LAx of the active coupling to the following axis/spindle FAx						
Index 1:	Axis identifier for following axis					
Index 2:	Axis identifier for leading axis					
unit:	Linear / angular position					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN MACH	SPIN	**Valuation:**	Cross-channel	
block search		Not classified			**link**	Not classified	

DOUBLE	**$AA_CPLOUTSC [31,31]**		Scaling factor for the output value of the coupling		**reference:**	
description:						
$AA_CPLOUTSC[FAx, LAx]						
Scaling factor for the output value of the leading axis/spindle LAx of the active coupling to the following axis/spindle FAx						
Index 1:	Axis identifier for following axis					
Index 2:	Axis identifier for leading axis					
unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN MACH	SPIN	**Valuation:**	Cross-channel	
block search		Not classified			**link**	Not classified	

DOUBLE	**$PA_CPLINTR [31,31]**	Offset value for the input value of the coupling	**reference:**	
description:				
$PA_CPLINTR[FAx, LAx]				
Offset value for the input value of the leading axis/spindle LAx of the coupling to the following axis/spindle FAx				
Index 1:	Axis identifier for following axis			
Index 2:	Axis identifier for leading axis			

unit:		Linear / angular position					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

DOUBLE	**$PA_CPLINSC [31,31]**	Scaling factor for the input value of the coupling	**reference:**

description:

$PA_CPLINSC[FAx, LAx]

Scaling factor for the input value of the leading axis/spindle LAx of the active coupling to the following axis/spindle FAx

Index 1:		Axis identifier for following axis					
Index 2:		Axis identifier for leading axis					
unit:		-					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

DOUBLE	**$PA_CPLOUTTR [31,31]**	Offset value for the output value of the coupling	**reference:**

description:

$PA_CPLOUTTR[FAx, LAx]

Offset value for the output value of the leading axis/spindle LAx of the active coupling to the following axis/spindle FAx

Index 1:		Axis identifier for following axis					
Index 2:		Axis identifier for leading axis					
unit:		Linear / angular position					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

DOUBLE	**$PA_CPLOUTSC [31,31]**				Scaling factor for the output value of the coupling			**reference:**	
description: $PA_CPLOUTSC[FAx, LAx] Scaling factor for the output value of the leading axis/spindle LAx of the active coupling to the following axis/spindle FAx									
Index 1:		Axis identifier for following axis							
Index 2:		Axis identifier for leading axis							
unit:		-							
min.:		-1,8E308		**max.:**	1,8E308		**std:**		0.0
Properties with regard to reading/writing:									
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**		**OEM**	
read:	X	-	7		-	0		-	
write:	-	-	0		-	0		-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**		channel-specific	
block search		Not classified				**link**		Not classified	

DOUBLE	**$AA_CPSYNCOP [31]**				Threshold value for position synchronization coarse			**reference:**	
description: $AA_CPSYNCOP[AX1] Threshold value for position synchronization coarse of the following axis/spindle AX1									
Index 1:		Axis/spindle identifier							
unit:		Linear / angular position							
min.:		-1,8E308		**max.:**	1,8E308		**std:**		0.0
Properties with regard to reading/writing:									
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**		**OEM**	
read:	runin stp	X	7		X	7		X	
write:	-	-	0		-	0		-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**		Cross-channel	
block search		Not classified				**link**		Not classified	

DOUBLE	**$AA_CPSYNFIP [31]**				Threshold value for position synchronization fine			**reference:**	
description: $AA_CPSYNFIP[AX1] Threshold value for position synchronization fine of the following axis/spindle AX1									
Index 1:		Axis/spindle identifier							
unit:		Linear / angular position							
min.:		-1,8E308		**max.:**	1,8E308		**std:**		0.0
Properties with regard to reading/writing:									
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**		**OEM**	
read:	runin stp	X	7		X	7		X	
write:	-	-	0		-	0		-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**		Cross-channel	
block search		Not classified				**link**		Not classified	

DOUBLE	**$AA_CPSYNCOV [31]**					Threshold value for velocity synchronization coarse		**reference:**	
description:									
$AA_CPSYNCOV[AX1]									
Threshold value for velocity synchronization coarse of the following axis/spindle AX1									
Index 1:		Axis/spindle identifier							
unit:		Linear / angular speed							
min.:		-1,8E308		**max.:**		1,8E308		**std:**	0.0
Properties with regard to reading/writing:									
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**		**OEM**	
read:	runin stp	X	7		X	7		X	
write:	-	-	0		-	0		-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**		Cross-channel	
block search		Not classified				**link**		Not classified	

DOUBLE	**$AA_CPSYNFIV [31]**					Threshold value for velocity synchronization fine		**reference:**	
description:									
$AA_CPSYNFIV[AX1]									
Threshold value for velocity synchronization fine of the following axis/spindle AX1									
Index 1:		Axis/spindle identifier							
unit:		Linear / angular speed							
min.:		-1,8E308		**max.:**		1,8E308		**std:**	0.0
Properties with regard to reading/writing:									
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**		**OEM**	
read:	runin stp	X	7		X	7		X	
write:	-	-	0		-	0		-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**		Cross-channel	
block search		Not classified				**link**		Not classified	

DOUBLE	**$PA_CPSYNCOP [31]**					Threshold value for position synchronization coarse		**reference:**	
description:									
$PA_CPSYNCOP[AX1]									
Threshold value for position synchronization coarse of the following axis/spindle AX1									
Index 1:		Axis/spindle identifier							
unit:		Linear / angular position							
min.:		-1,8E308		**max.:**		1,8E308		**std:**	0.0
Properties with regard to reading/writing:									
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**		**OEM**	
read:	X	-	7		-	0		-	
write:	-	-	0		-	0		-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**		channel-specific	
block search		Not classified				**link**		Not classified	

DOUBLE	**$PA_CPSYNFIP [31]**				Threshold value for position synchronization fine			**reference:**	
description:									
$PA_CPSYNFIP[AX1]									
Threshold value for position synchronization fine of the following axis/spindle AX1									
Index 1:		Axis/spindle identifier							
unit:		Linear / angular position							
min.:		-1,8E308		**max.:**	1,8E308		**std:**		0.0
Properties with regard to reading/writing:									
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**		**OEM**	
read:	X	-	7		-	0		-	
write:	-	-	0		-	0		-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**		channel-specific	
block search		Not classified				**link**		Not classified	

DOUBLE	**$PA_CPSYNCOV [31]**				Threshold value for velocity synchronization coarse			**reference:**	
description:									
$PA_CPSYNCOV[AX1]									
Threshold value for velocity synchronization coarse of the following axis/spindle AX1									
Index 1:		Axis/spindle identifier							
unit:		Linear / angular speed							
min.:		-1,8E308		**max.:**	1,8E308		**std:**		0.0
Properties with regard to reading/writing:									
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**		**OEM**	
read:	X	-	7		-	0		-	
write:	-	-	0		-	0		-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**		channel-specific	
block search		Not classified				**link**		Not classified	

DOUBLE	**$PA_CPSYNFIV [31]**				Threshold value for velocity synchronization fine			**reference:**	
description:									
$PA_CPSYNFIV[AX1]									
Threshold value for velocity synchronization fine of the following axis/spindle AX1									
Index 1:		Axis/spindle identifier							
unit:		Linear / angular speed							
min.:		-1,8E308		**max.:**	1,8E308		**std:**		0.0
Properties with regard to reading/writing:									
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**		**OEM**	
read:	X	-	7		-	0		-	
write:	-	-	0		-	0		-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**		channel-specific	
block search		Not classified				**link**		Not classified	

DOUBLE	**$AA_ITR [31,4]**	Current setpoint value at the output of the nth transformation	**reference:**	

description:

The axial variable $AA_ITR[ax] determines the current setpoint value of an axis at the output of the nth chained transformation.

The following applies to the data of the transformation layer:

Transformation layer 0: The positions correspond to the BCS positions, that means $AA_ITR[x, 0] corresponds to $AA_IB[x]

Transformation layer 1: Position setpoint of the axis at the output of the 1st transformation.

Transformation layer 2: Position setpoint of the axis at the output of the 2nd transformation.

Transformation layer 3: Position setpoint of the axis at the output of the 3rd transformation.

Transformation layer 4: Position setpoint of the axis at the output of the 4th transformation, that means $AA_ITR[x, 4] corresponds to $AA_IM[x]

If the transformation chain does not consist of 4 single transformations, then the highest layers return the same setpoint values.

Index 1:	Geometry axis identifier, channel axis identifier or machine axis identifier						
Index 2:	n: Number of the transformation level 0..4						
unit:	Linear / angular position						
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$AA_IBC [31]**	Current setpoint value of a cartesian axis	**reference:**	

description:

The axial variable $AA_IBC[ax] determines the position setpoint of a cartesian axis lying between BCS and MCS. "Cartesian" means that the axis is a linear axis which lies plane-parallel to a coordinate axis in a clockwise coordinate system.

This value is returned if a geometry axis is still cartesian at the output of the nth transformation.

The axis identifier used must represent a geometry axis in the BCS, otherwise the variable returns the value 0.

Index 1:	Geometry axis identifier, channel axis identifier or machine axis identifier						
unit:	Linear / angular position						
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$VA_IW [31]**	Current actual WCS value of an axis	**reference:**	

description:

The variable $VA_IW[ax] determines the encoder position of an axis retransformed into the WCS. The WCS value contains all axial override components (DRF, AA_OFF, ext. zero offset etc.) and offset values (CEC etc.). For performance reasons, the positions are only calculated once in each IPO cycle. The variable does not change its value when it is read within an IPO cycle, although the actual value could have changed.

When transformations are active, it must be noted that the transformation of the actual values into the BCS can be very time-consuming in the IPO cycle. An adequately long IPO cycle must be set in this case.

Index 1:	Maximum axis number						
unit:	Linear / angular position						
min.:	-1,8E308	**max.:**	1,8E308		**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$VA_IB [31]**	Current BCS encoder position of an axis	**reference:**	

description:

The variable $VA_IB[ax] determines the encoder position of an axis retransformed into the BCS. The BCS value contains all axial override components (DRF, AA_OFF, ext. zero offset etc.) and offset values (CEC etc.). For performance reasons, the positions are calculated only once in each IPO cycle. The variable does not change its value when it is read within an IPO cycle, although the actual value could have changed.

When transformations are active, it must be noted that the transformation of the actual values into the BCS can be very time-consuming in the IPO cycle. An adequately long IPO cycle must be set in this case.

Index 1:	Maximum axis number						
unit:	Linear / angular position						
min.:	-1,8E308	**max.:**	1,8E308		**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$VA_IBC [31]**	Current cartesian BCS encoder position of an axis	**reference:**	

description:

The variable $VA_IBC[<Geo-Axis>] determines the encoder position of a cartesian axis lying between the BCS and MCS. "Cartesian" means that the axis is a linear axis which lies plane-parallel to a coordinate axis in a clockwise coordinate system. The axis identifier used can be a geometry, channel or machine axis identifier. This identifier must represent a geometry axis in the BCS, otherwise the variable returns the value 0.0. For performance reasons, the positions are calculated only once in each IPO cycle. The variable does not change its value when it is read within an IPO cycle, although the actual value could have changed.

When transformations are active, it must be noted that the transformation of the actual values into the BCS can be very time-consuming in the IPO cycle. An adequately long IPO cycle must be set in this case.							
Index 1:	Maximum axis number						
unit:	Linear / angular position						
min.:	-1,8E308	**max.:**	1,8E308		**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$VA_ITR [31,4]**	Current actual value at the output of the nth transformation	**reference:**	

description:

The axial variable $VA_ITR[ax, n] determines the current encoder position of an axis at the output of the nth chained transformation.

The following applies to the data of the transformation layer:

Transformation layer 0: The positions correspond to the BCS positions, that means $VA_ITR[x, 0] corresponds to $VA_IB[x]

Transformation layer 1: Position setpoint of the axis at the output of the 1st transformation.

Transformation layer 2: Position setpoint of the axis at the output of the 2nd transformation.

Transformation layer 3: Position setpoint of the axis at the output of the 3rd transformation.

Transformation layer 4: Position setpoint of the axis at the output of the 4th transformation, that means $VA_ITR[x, 4] corresponds to $VA_IM[x]

If the transformation chain does not consist of 4 single transformations, then the highest layers return the same setpoint values.

When transformations are active, it must be noted that the transformation of the actual values into the BCS can be very time-consuming in the IPO cycle. An adequately long IPO cycle must be set in this case.

Index 1:	Geometry axis identifier, channel axis identifier or machine axis identifier						
Index 2:	n: Number of the transformation level 0..4						
unit:	Linear / angular position						
min.:	-1,8E308	**max.:**	1,8E308		**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

DOUBLE	**$AA_ATOL [31]**	Active axis tolerance	**reference:**	

description:

$AA_ATOL defines the axis tolerance for compressors and smoothing that was active during the preparation of the current main run block.

Index 1:	Maximum axis number	
unit:	Linear / angular position	

min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0
Properties with regard to reading/writing:					

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:	GEO	CHAN	MACH		**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

DOUBLE	**$PA_ATOL [31]**	Programmed axis tolerance	**reference:**	

description:

$PA_ATOL states the axis tolerance for compressors and smoothing programmed in the part program. If no value is programmed, the variable returns -1.

Index 1:	Maximum axis number				
unit:	Linear / angular position				
min.:	-1.0	**max.:**	1,8E308	**std:**	0.0
Properties with regard to reading/writing:					

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	

axis identifier:	GEO	CHAN	MACH		**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

DOUBLE	**$AA_FGREF [31]**	Active radius for rotary axis path	**reference:**	

description:

$AA_FGREF defines the radius with which a rotary axis contributes to the path distance. The default value is 180mm/PI = 57.296mm. This corresponds to 1mm per degree.

Index 1:	Maximum axis number				
unit:	mm				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0
Properties with regard to reading/writing:					

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:	GEO	CHAN	MACH		**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

BOOL	**$AA_FGROUP [31]**	Effect of an axis on the path velocity	**reference:**	

description:

If the path of an axis has an effect on the path velocity in the current main run block (FGROUP), then the variable returns TRUE, otherwise FALSE.

Index 1:	Maximum axis number				
unit:	-				
min.:	FALSE	**max.:**	TRUE	**std:**	FALSE

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

BOOL	**$PA_FGROUP [31]**	Effect of an axis on the path velocity	**reference:**	

description:

If the path of an axis has an effect on the path velocity (FGROUP), then the variable returns TRUE, otherwise FALSE.

Index 1:	Maximum axis number				
unit:	-				
min.:	FALSE	**max.:**	TRUE	**std:**	FALSE

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

DOUBLE	**$PA_FGREF [31]**	Factor for rotary axis path	**reference:**	

description:

$PA_FGREF defines the radius with which a rotary axis contributes to the path distance in the part program The default value is 180mm/PI = 57.296mm. This corresponds to 1mm per degree.

Index 1:	Maximum axis number				
unit:	mm				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

INT	**$AA_CPMVDI [31]**	Responses of the coupling module to VDI signals	**reference:**	

description:

The variable $AA_CPMVDI[AX] returns a bit-coded value for the stated axis/spindle with active coupling that indicates the response of the coupling module to specific VDI signals.

The response is determined by the CP keyword CPMVDI.

Bit 0 Reserved

Bit 1 Reserved

Bit 2 Reserved

description:

The variable $AA_CPMVDI[AX] returns a bit-coded value for the stated axis/spindle with active coupling that indicates the response of the coupling module to specific VDI signals.

The response is determined by the CP keyword CPMVDI.

Bit 0 Reserved

Bit 1 Reserved

Bit 2 Reserved

Bit 3 = 0 DBaxis.DBX1.3, axis/spindle disable is not active for the following axis

The status of the leading axis is active

Bit 3 = 1 DBaxis.DBX1.3, axis/spindle disable is active for the following axis

Bit 4 = 0 Dependent position components of the leading axes/spindles are active

irrespective of the status of the axis/spindle disable of the particular leading axis/spindle

Bit 4 = 1 Dependent position components of the leading axes/spindles are only active

if the status of the axis/spindle disable of the leading axis/spindle corresponds to the

status of the axis/spindle disable of the following axis/spindle.

Bit 5 = 0 VDI signal DB21.DBX25.7 and/or DB21.DBX1.7, program test is not

active for the following axis. The status of the leading axis is active.

Bit 5 = 1 VDI sgnal DB21.DBX25.7 and/or DDB21.DBX1.7, program test is active

for the following axis.

Bit 6 = 0 Dependent position components of the leading axis/spindles are active

irrespective of the status of the axis/spindle disable of the particular leading axis/spindle

Bit 6 = 1 Dependent position components of the leading axis/spindles are only active

if the status of the axis/spindle disable of the leading axis/spindle corresponds

to the status of the axis/spindle disable of the following axis/spindle.

Bit 7 - 31 Reserved

Index 1:		Maximum axis number					
unit:		-					
min.:		-2147483648	**max.:**	2147483647		**std:**	0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	Cross-channel
block search		Not classified				**link**	Not classified

INT	**$AA_AX_DISABLE_SRC [31]**	Source of the axis/spindle disable	**reference:**

description:

$AA_AX_DISABLE_SRC

Bit mask that returns the source of a active axis/spindle disable.

The data is bit-coded so that individual states can be masked or evaluated separately.

Bit0 = 1: Resulting state from all sources: axis/spindle disable active.

Bit1 = 1: Axial signal axis/spindle disable triggered by PLC is active.

Bit2 = 1: Channel-specific program test is active.

Bit3 = 1: Axiale suppression of the programm test triggered by PLC is active.

Bit4 = 1: Axial signal program test (power save mode) is active.							
Bit5 = 1: Serupro is active.							
Bit6 = 1: Link object overall state axis/spindle disable is active.							
Bit7 = 1: Link object overall state real traversing is active.							
Index 1:	Maximum axis number						
unit:	-						
min.:	0	**max.:**	7	**std:**	0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

BOOL	**$AA_AX_DISABLE [31]**			Status of the axis/spindle disable		**reference:**	
description:							
$AA_AX_DISABLE							
0: Axis/spindle disable is inactive.							
1: Axis/spindle disable is active.							
Index 1:	Maximum axis number						
unit:	-						
min.:	FALSE	**max.:**	TRUE	**std:**	FALSE		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$AA_MASL_DEF [31]**			Coupling definition of master slave		**reference:**	
description:							
The current status of a master-slave coupling.							
Val. 0: Axis is not a slave axis or no coupling is active.							
Value> 0: Coupling is active, the relevant machine axis number of the							
master axis is supplied.							
$AA_MASL_STAT[X]							
Index 1:	Maximum axis number						
unit:	-						
min.:	-2147483648	**max.:**	2147483647	**std:**	0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	

write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

INT	**$AA_MACHAX [31]**		Assignment of the physical axis		**reference:**	

description:

The NCU and machine axis are recorded for one axis, this represents the physical image of the axis. For this purpose, the NCU ID is recorded from the 10000 place, e.g. 20005: NCU 2 axis 5. Without NCU link, i.e. if there is only one NCU, only the number of the machine axis is recorded. In this case, the NCU ID is equal to zero.

If the machine axis identifier is used, the machine axis on this NCU must be assigned to at least one channel, otherwise alarm 17040 channel %1: block %2 impermissible axis index is reported.

Index 1:	Maximum axis number					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**		0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	Cross-channel
block search	Not classified				**link**	No restrictions

INT	**$AA_IPO_NC_CHANAX [31]**		Assignment to NC, channel and channel number of the interpolator.		**reference:**	

description:

If the axis is currently interpolated on this NCU , the channel and channel axis number are recorded in such a way that they define the interpolator of the axis. In this case, the channel is recorded from the hundredth place and the channel axis nummer from the units position, e.g. 1005 - channel 10 channel axis 5. These values are always lower than 10000.

If the axis is currently interpolated on another NCU, the NCU identifier of the interpolating NCU and the global axis number of the machine axis are recorded. In this case, the NCU is recorded from the 10000 position, e.g. 20203: NCU 2 and the global axis number is 203. This global axis number can then be used to determine the interpolating channel and channel axis number on the other NCU, with NCU ID 2, with $AN_IPO_CHANAX[203].

If the machine axis identifier is used, the machine axis on this NCU must be assigned to at least one channel, otherwise alarm 17040 channel %1: set %2 impermissable axis index is reported.

Index 1:	Maximum axis number					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**		0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	Cross-channel
block search	Not classified				**link**	No restrictions

INT	**$VA_IPO_NC_CHANAX [31]**	Assignment of machine axis to NC or channel and chnl. axis of the interpolator.	**reference:**	

description:

If the machine axis is currently interpolated on this NCU , the channel and channel axis number are recorded in such a way that they define the interpolator of the axis. In this case, the channel is recorded from the hundredth place and the channel axis number from the unit place, e.g. 1005 - channel 10 channel axis 5. These values are always lower than 10000.

If the machine axis is currently interpolated on another NCU, the NCU identifier of the interpolating NCU and the global axis number of the machine axis are recorded. In this case, the NCU is recorded from the 10000 place, e.g. 20103: NCU 2 and the global axis number is 103. These global axis numbers can then be used to determine the interpolating channel and channel axis number on the other NCU, with NCU ID 2, with $AN_IPO_CHANAX[103].

If a machine axis is not used , the Alarm 17040 channel %1: block %2 impermissible axis index is reported.

Index 1:	Maximum axis number					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:			MACH		**Valuation:**	channel-specific
block search	Not classified				**link**	No restrictions

INT	**$VA_MOT_SENSOR_CONF [31]**	Configuration of motor sensors	**reference:**	

description:

The variable $VA_MOT_SENSOR_CONF[axn] can query the configuration of the motor sensors. The variable is bit-coded, and has the following meanings:

Bit0 = 1: Sensors present

Bit1 = 1: Sensor S1 present. Analog measured value for position of the draw-bar

Bit2 = 0:

Bit3 = 0:

Bit4 = 1: Sensor S4 present. Digital value for the piston end position.

Bit5 = 1: Sensor S5 present. Digital value for the angular position of the shaft.

Bit10 = 1: Status value is formed, speed limitations p5043 active.

Index 1:	Maximum axis number					
unit:	-					
min.:	0	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

INT	**$VA_MOT_CLAMPING_STATE [31]**	State of the clamping system	**reference:**	

description:

The variable $VA_MOT_CLAMPING_STATE[axn] determines the clamping state on the basis of the position of the draw-bar (value of S1). A maximum speed is assigned to each state. These are stored in the drive parameters p5043[0..6]. The followng values are possible:

0: Sensor not present

1: Initial state, speed limit 0 rpm

2: Alarm, speed limit 0 rpm

3: Tool released / ejected, for speed limit see drive parameter p5043[0]

4: Clamping (by spring force), for speed limit see drive parameter p5043[1]

5: Releasing (by compressed air), for speed limit see drive parameter p5043[2]

6: Releasing (by compressed air), for speed limit see drive parameter p5043[3]

7: Clamped with tool, for speed limit see drive parameter p5043[4]

8: Clamped with tool, for speed limit see drive parameter p5043[4]

9: Contnued clamping (by spring force), for speed limit see drive parameter p5043[5]

10: Clamped without tool, for speed limit see drive parameter p5043[6]

11: Alarm, speed limit 0 rpm

Index 1:	Maximum axis number				
unit:	-				
min.:	0	**max.:**	11	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

INT	**$VA_MOT_SENSOR_ANA [31]**	Analog sensor on the motor	**reference:**	

description:

The variable $VA_MOT_SENSOR_ANA[axn] determines the analog measured value of the sensor S1. At a resoluton of 1mV, the analog value 0 - 10 V is mapped to a maximum of +10000 increments.

Index 1:	Maximum axis number				
unit:	-				
min.:	0	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

INT	**$VA_MOT_SENSOR_DIGI [31]**	Digital sensors on the motor	**reference:**	

description:

The variable $VA_MOT_SENSOR_DIGI[axn] determines the states of the digital sensors S4 and S5. The variable is bit-coded, and has the following meanings:

Bit0 = 0:

Bit1 = 0:

Bit2 = 0:

Bit3 = 0:

Bit4 = 1: Sensor S4 piston end position

Bit5 = 1: Sensor S5 angular position of shaft

Index 1:	Maximum axis number					
unit:	-					
min.:	0	**max.:**	2147483647	**std:**	0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search	Not classified				**link**	Not classified

INT	**$VA_CPSYNC2 [31]**	Status synchronism(2) of the foll. axis / spindle	**reference:**	

description:

$VA_CPSYNC2[FA]

Second synchronism monitoring of the following axis/spindle

0: Monitoring inactive

Bit 0 = 1: Monitoring 'Synchronism(2) coarse' active

Bit 1 = 1: Synchronism(2) coarse present

Bit 2 = 1: Monitoring 'Synchronism(2) fine' active

Bit 3 = 1: Synchronism(2) fine present

Index 1:	Maximum axis number					
unit:	-					
min.:	0	**max.:**	15	**std:**	0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	Cross-channel
block search	Not classified				**link**	Not classified

DOUBLE	**$AA_CPSYNCOP2 [31]**	Threshold value second synchr. monitoring coarse	**reference:**	

description:

$AA_CPSYNCOP2[FA] Second synchronism monitoring of the following axis/spindle: threshold value coarse

Index 1:		Axis/spindle identifier					
unit:		Linear / angular position					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	Cross-channel
block search		Not classified				**link**	Not classified

DOUBLE	**$AA_CPSYNFIP2 [31]**			Threshold value second synchr. monitoring fine		**reference:**	
description:							
$AA_CPSYNFIP2[FA] Second synchronism monitoring of the following axis/spindle: threshold value fine							
Index 1:		Axis/spindle identifier					
unit:		Linear / angular position					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	Cross-channel
block search		Not classified				**link**	Not classified

INT	**$AA_POSRES [31]**			Axis position is restored		**reference:**	
description:							
$AA_POSRES[X] Axis status: 0: Axis position is not restored 1: Axis position is restored							
Index 1:		Maximum axis number					
unit:		-					
min.:		0	**max.:**	1		**std:**	0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	Cross-channel
block search		Not classified				**link**	Not classified

INT	**$AA_CPMALARM [31]**	Behavior of coupling module re handling of alarms	**reference:**	

description:

With an active coupling, the variable $AA_CPMALARM[AX] returns a bitcoded value for the specified axis/spindle which specifies the behavior of the coupling module in relation to the "Alarmhandlich".

The behavior is defined by the CP keyword CPMALARM. The default values are derived from

MD11410 $MN_SUPPRESS_ALARM_MASK and MD11415 $MN_SUPPRESS_ALARM_MASK_2

The alarms which are suppressed are determined by the individual bits.

Bit set: The corresponding alarm (warning) is NOT triggered.

Bit 0: Alarm 16772 "Channel %1 block %2 axis %3 is a following axis, coupling is opened"

Bit 1: Alarm 16773 "Channel %1 axis %3 is a following axis. The axis/spindle disables of the leading axes are different"

Bit 2: Alarm 16774 "Channel %1 axis %2 Synchronization interrupted"

Bit 3: Alarm 22012 "Channel %1 block %2. Leading axis %3 is in simulation mode"

Bit 4: Alarm 22013 "Channel %1 block %2. Following axis %3 is in simulation mode"

Bit 5: Alarm 22014 "Channel %1 block %2. There is a big difference in the dynamics of leading axis %3 and following axis %4"

Bit 6: Alarm 22015 "Channel %1 block %2 Following spindle %3 - no dynamic for additional motion"

Bit 7: Alarm 22016 "Channel %1 block %2 Following spindle %3 in the range of reduced acceleration capacity"

Bit 8: Alarm 22025 "Channel %1 block %2 Following axis/spindle %3 synchronism (2): fine tolerance exceeded"

Bit 9: Alarm 22026 "Channel %1 block %2 Following axis/spindle %3 synchronism (2): coarse tolerance exceeded"

Bit 10 - 31 Reserved

Index 1:	Maximum axis number					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**		0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:	GEO	CHAN	MACH	SPIN	**Valuation:**	Cross-channel
block search	Not classified				**link**	Not classified

DOUBLE	**$AA_COLLPOS [31]**	Collision position	**reference:**	

description:

$AA_COLLPOS[AX1] Position of the 1st axis in the event of an impending collision.

Index 1:	Axis identifier					
unit:	Linear / angular position					
min.:	-1,8E308	**max.:**	1,8E308	**std:**		0.0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:	GEO	CHAN	MACH		**Valuation:**	Cross-channel
block search	Not classified				**link**	Not classified

1.28 Safety Integrated

INT	**$A_STOPESI**			Stop E active			**reference:**	
description:								
$A_STOPESI								
Current Safety Integrated Stop E for any axis:								
Val. 0: No Stop E								
Value not 0: For one of the axes, a Stop E is currently active								
unit:		-						
min.:		-2147483648	**max.:**	2147483647		**std:**	0	
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**		**OEM**	
read:	runin stp	X	7	X	7		X	
write:	-	-	0	-	0		-	
axis identifier:					**Valuation:**		channel-specific	
block search		Not classified			**link**		Not classified	

BOOL	**$A_INSE [SF_MAXNUM_DIG_EXT_INBITS]**			External NCK SPL input signal			**reference:**	
description:								
$A_INSE[n]								
n = bit number (1...192)								
External NCK SPL input signal								
NCK SPL interface for SPL control signal I/O interface logic								
Index 1:		n: Number of the input 1 - ...						
unit:		-						
min.:		FALSE	**max.:**	TRUE		**std:**	FALSE	
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**		**OEM**	
read:	runin stp	X	7	X	7		X	
write:	-	-	0	-	0		-	
axis identifier:					**Valuation:**		channel-specific	
block search		Not classified			**link**		Not classified	

INT	**$A_INSED [SF_MAXNUM_DIG_EXT_INWORDS]**			External NCK SPL input signals (32-bit)			**reference:**	
description:								
$A_INSED[n]								
n = doubleword number (1...6)								
External NCK SPL input signals (32-bit)								
NCK SPL interface for SPL control signal I/O interface logic								
Index 1:		n: Number of the input word 1 - ...						
unit:		-						
min.:		-2147483648	**max.:**	2147483647		**std:**	0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

BOOL	**$A_INSEP [SF_MAXNUM_DIG_EXT_INBITS]**	External PLC SPL input signal	**reference:**	

description:

$A_INSEP[n]

n = bit number (1...192)

Image of an external PLC SPL input signal

PLC SPL interface for SPL control signal I/O interface logic

Readable only during the SPL start-up phase

Index 1:	n: Number of the input 1 - ...				
unit:	-				
min.:	FALSE	**max.:**	TRUE	**std:**	FALSE

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$A_INSEPD [SF_MAXNUM_DIG_EXT_INWORDS]**	External PLC SPL input signals (32-bit)	**reference:**	

description:

$A_INSEPD[n]

n = doubleword number (1...6)

Image of external PLC SPL input signals (32-bit)

PLC SPL interface for SPL control signal I/O interface logic

Readable only during the SPL start-up phase

Index 1:	n: Number of the input word 0 - ...				
unit:	-				
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

BOOL	**$A_OUTSE [SF_MAXNUM_DIG_EXT_OUTBITS]**	External NCK SPL output signal	**reference:**	

description:
$A_OUTSE[n]
n = bit number (1...192)
External NCK SPL output signal
NCK SPL interface for SPL status signal I/O interface logic
Can be written only from SPL (SAFE.SPF program)

Index 1:	n: Number of the output 1 - ...						
unit:	-						
min.:	FALSE	**max.:**	TRUE	**std:**	FALSE		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	runin stp	X	7	-	0	X	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$A_OUTSED [SF_MAXNUM_DIG_EXT_OUTWORDS]**	External NCK SPL output signals (32-bit)	**reference:**	

description:
$A_OUTSED[n]
n = doubleword number (1...6)
External NCK SPL output signals (32-bit)
NCK SPL interface for SPL status signal I/O interface logic
Can be written only from SPL (SAFE.SPF program)

Index 1:	n: Number of the output word 1 - ...						
unit:	-						
min.:	-2147483648	**max.:**	2147483647	**std:**	0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	runin stp	X	7	-	0	X	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

BOOL	**$A_OUTSEP [SF_MAXNUM_DIG_EXT_OUTBITS]**	External PLC SPL output signal	**reference:**	

description:
$A_OUTSEP[n]
n = bit number (1...192)
Image of an external PLC SPL output signal
PLC SPL interface for SPL status signal I/O interface logic
Readable only during the SPL start-up phase

Index 1:	n: Number of the output 1 - ...

unit:		-					
min.:		FALSE	**max.:**	TRUE		**std:**	FALSE
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

INT	**$A_OUTSEPD [SF_MAXNUM_DIG_EXT_OUTWORDS]**			External PLC SPL output signals (32-bit)		**reference:**	
description:							
$A_OUTSEPD[n]							
n = doubleword number (1...6)							
Image of external PLC SPL output signals (32-bit)							
PLC SPL interface for SPL status signal I/O interface logic							
Readable only during the SPL start-up phase							
Index 1:		n: Number of the output word 0 - ...					
unit:		-					
min.:		-2147483648	**max.:**	2147483647		**std:**	0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

BOOL	**$A_INSI [SF_MAXNUM_DIG_INT_INBITS]**			Internal NCK SPL input signal		**reference:**	
description:							
$A_INSI[n]							
n = bit number (1...192)							
Internal NCK SPL input signal							
Interface to the status signals of the axial NCK monitoring channels							
Index 1:		n: Number of the input 1 - ...					
unit:		-					
min.:		FALSE	**max.:**	TRUE		**std:**	FALSE
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

INT	**$A_INSID [SF_MAXNUM_DIG_INT_INWORDS]**	Internal NCK SPL input signals (32-bit)	**reference:**	

description:
$A_INSID[n]
n = doubleword number (1...6)
Internal NCK SPL input signals (32-bit)
Interface to the status signals of the axial NCK monitoring channels

Index 1:	n: Number of the input word 1 - ...					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:			**Valuation:**	channel-specific	
block search	Not classified		**link**	Not classified	

BOOL	**$A_INSIP [SF_MAXNUM_DIG_INT_INBITS]**	Internal PLC SPL input signal	**reference:**	

description:
$A_INSIP[n]
n = bit number (1...192)
Image of an internal PLC SPL input signal
Interface to the status signals of the axial drive monitoring channels
Readable only during the SPL start-up phase

Index 1:	n: Number of the input 1 - ...					
unit:	-					
min.:	FALSE	**max.:**	TRUE	**std:**	FALSE	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:			**Valuation:**	channel-specific	
block search	Not classified		**link**	Not classified	

INT	**$A_INSIPD [SF_MAXNUM_DIG_INT_INWORDS]**	Internal PLC SPL input signals (32-bit)	**reference:**	

description:
$A_INSIPD[n]
n = doubleword number (1...6)
Image of internal PLC SPL input signals (32-bit)
Interface to the status signals of the axial drive monitoring channels
Readable only during the SPL start-up phase

Index 1:	n: Number of the input word 1 - ...	
unit:	-	

min.:		-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

BOOL	**$A_OUTSI [SF_MAXNUM_DIG_INT_OUTBITS]**	Internal NCK SPL output signal	**reference:**	

description:

$A_OUTSI[n]

n = bit number (1...192)

Internal NCK SPL output signal

Interface to the control signals of the axial NCK monitoring channels

Can be written only from SPL (SAFE.SPF program)

Index 1:		n: Number of the output 1 - ...					
unit:		-					
min.:		FALSE	**max.:**	TRUE	**std:**		FALSE
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	runin stp	X	7	-	0	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

INT	**$A_OUTSID [SF_MAXNUM_DIG_INT_OUTWORDS]**	Internal NCK SPL output signals (32-bit)	**reference:**	

description:

$A_OUTSID[n]

n = doubleword number (1...6)

Internal NCK SPL output signals (32-bit)

Interface to the control signals of the axial NCK monitoring channels

Can be written only from SPL (SAFE.SPF program)

Index 1:		n: Number of the output word 1 - ...					
unit:		-					
min.:		-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	runin stp	X	7	-	0	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

BOOL	**$A_OUTSIP [SF_MAXNUM_DIG_INT_OUTBITS]**	Internal PLC SPL output signal	**reference:**	

description:
$A_OUTSIP[n]
n = bit number (1...192)
Image of an internal PLC SPL output signal
Interface to the control signals of the axial drive monitoring channels
Readable only during the SPL start-up phase

Index 1:	n: Number of the output 1 - ...					
unit:	-					
min.:	FALSE	**max.:**	TRUE	**std:**	FALSE	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$A_OUTSIPD [SF_MAXNUM_DIG_INT_OUTWORDS]**	Internal PLC SPL output signals (32-bit)	**reference:**	

description:
$A_OUTSIPD[n]
n = doubleword number (1...6)
Image of internal PLC SPL output signals (32-bit)
Interface to the control signals of the axial drive monitoring channels
Readable only during the SPL start-up phase

Index 1:	n: Number of the output word 1 - ...					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

BOOL	**$A_MARKERSI [SF_MAXNUM_MARKER]**	NCK SPL flags	**reference:**	

description:
$A_MARKERSI[n]
n = bit number (1...192)
NCK SPL flags
Can be written only from SPL (SAFE.SPF program)

Index 1:	n: Number of the bit memory 1 - ...		
unit:	-		

min.:		FALSE	**max.:**	TRUE	**std:**		FALSE
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	runin stp	X	7	-	0	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

INT	**$A_MARKERSID [SF_MAXNUM_MARKER_WORDS]**			NCK SPL flag word		**reference:**	
description:							
$A_MARKERSID[n]							
n = doubleword number (1...6)							
NCK SPL flag word (32-bit)							
Can be written only from SPL (SAFE.SPF program)							
Index 1:		n: Number of the bit memory word 1 - ...					
unit:		-					
min.:		-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	runin stp	X	7	-	0	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

BOOL	**$A_MARKERSIP [SF_MAXNUM_MARKER]**			PLC SPL flags		**reference:**	
description:							
$A_MARKERSIP[n]							
n = bit number (1...192)							
Image of a PLC SPL flag							
Readable only during the SPL start-up phase							
Index 1:		n: Number of the bit memory 1 - ...					
unit:		-					
min.:		FALSE	**max.:**	TRUE	**std:**		FALSE
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

INT	**$A_MARKERSIPD [SF_MAXNUM_MARKER_WORDS]**			PLC SPL flag word				**reference:**	
description:									
$A_MARKERSIPD[n]									
n = doubleword number (1...6)									
Image of a PLC SPL flag word (32-bit)									
Readable only during the SPL start-up phase									
Index 1:		n: Number of the bit memory word 1 - ...							
unit:		-							
min.:		-2147483648	**max.:**	2147483647		**std:**		0	
Properties with regard to reading/writing:									
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**		**OEM**	
read:	runin stp	X	7		X	7		X	
write:	-	-	0		-	0		-	
axis identifier:						**Valuation:**		channel-specific	
block search		Not classified				**link**		Not classified	

DOUBLE	**$A_TIMERSI [SF_MAXNUM_TIMER]**			SPL timers				**reference:**	
description:									
$A_TIMERSI[n]									
n=timer number (1...16)									
SPL timers									
Unit in seconds									
The time is counted internally in multiples of the interpolation cycle.									
Incrementation of the time variable is started by value assignment									
$A_TIMERSI[n]=<start value>									
Incrementation of a time variable is stopped through assignment of a negative value									
$A_TIMERSI[n]=-1									
The current timer count can be read while the time variable is running or stopped. When the time variable is stopped by assigning -1, the last count value remains stored in the variable and can continue to be read.									
The timers are not stopped by a channel/mode group reset.									
Index 1:		n: Number of the timer 1 - ...							
unit:		-							
min.:		-1,8E308	**max.:**	1,8E308		**std:**		0.0	
Properties with regard to reading/writing:									
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**		**OEM**	
read:	runin stp	X	7		X	7		X	
write:	runin stp	X	7		-	0		X	
axis identifier:						**Valuation:**		channel-specific	
block search		Not classified				**link**		Not classified	

INT	**$A_STATSID**	SPL status signals	**reference:**	

description:

$A_STATSID

Status of data cross-check between NCK and PLC (SPL DCC).

If the value does not equal zero, an error has occurred in the SPL DCC.

Meaning

Bit 0 ... 23 = 1: DCC error in input/output signals or flags

Bit 24,25 = 0: Not assigned

Bit 26 = 1: Error in PROFIsafe communication

Bit 27 = 1: DCC error in static data

Bit 28 = 1: DCC error "SPL protection status" ($MN_PREVENT_SYNACT_LOCK status not equal to DB18.DBX36.0 (SPL READY))

Bit 29 = 1: Time error during communications between NCK and PLC (all external NCK SPL outputs are set to zero in 5 seconds, and the PLC switches to Stop)

Bit 30 = 1: Stop signaled from PLC to NCK

unit:	-				
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:				**Valuation:**	channel-specific
block search	Not classified			**link**	Not classified

BOOL	**$A_CMDSI [SF_MAXNUM_CMD_MARKER]**	SPL DCC control signals	**reference:**	

description:

$A_CMDSI[n]

n = bit number (1..0.16)

Control word for data cross-check between NCK and PLC (SPL DCC).

n = 1: Increase time for signal change monitoring to 10 s.

Can be written only from SPL (SAFE.SPF program)

Index 1:	n: Number of the control signal for data cross-check SPL				
unit:	-				
min.:	FALSE	**max.:**	TRUE	**std:**	FALSE

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	runin stp	X	7	-	0	X	

axis identifier:				**Valuation:**	channel-specific
block search	Not classified			**link**	Not classified

INT	**$A_LEVELSID**	SPL DCC level	**reference:**	

description:

$A_LEVELSID

Displays the fill level for signal change monitoring during data cross-check between NCK and PLC SPL (SPL DCC).

Specifies the number of signals currently tagged for cross-checking.

The value is already zero if an SPL signal has different levels on the NCK and PLC but the allowed discrepancy time for the signals (2 sec) has not yet expired.

unit:	-						
min.:	-2147483648	**max.:**	2147483647	**std:**	0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

INT	**$A_XFAULTSI**	DCC status	**reference:**	

description:

$A_XFAULTSI

Information on Stop F for a safety axis:

Bit 0 = 1:An actual value error has been detected by the data cross-check between NCK and SIMODRIVE 611D for any safety axis.

Bit 1 = 1:Any error on any axis has been detected by the data cross-check between NCK and SIMODRIVE 611D, and the waiting time before triggering Stop B on that axis is running or has expired ($MA_SAFE_STOP_SWITCH_TIME_F).

unit:	-						
min.:	0	**max.:**	3	**std:**	0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

BOOL	**$A_PLCSIIN [SF_MAXNUM_PLCIN_MARKER]**	SPL signal from PLC to NCK	**reference:**	

description:

$A_PLCSIIN[n]

n = bit number (1...96)

Single-channel signals from PLC SPL (DB18) to NCK SPL.

Application:

$A_MARKERSI[1] = $A_PLCSIIN[1] ; Signal from PLC-SPL

Index 1:	n: Number of the signal 1 - ... from PLC to NCK				
unit:	-				
min.:	FALSE	**max.:**	TRUE	**std:**	FALSE

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

BOOL	**$A_PLCSIOUT [SF_MAXNUM_PLCOUT_MARKER]**	SPL signal from NCK to PLC	**reference:**	

description:

$A_PLCSIOUT[n]

n = bit number (1...96)

Single-channel signals from NCK SPL to PLC SPL (DB18).

Application:

$A_PLCSIOUT[1] = $A_MARKERSI[1] ; Signal to PLC-SPL

Can be written only from SPL (SAFE.SPF program)

Index 1:	n: Number of the signal 1 - ... from NCK to PLC				
unit:	-				
min.:	FALSE	**max.:**	TRUE	**std:**	FALSE

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	runin stp	X	7	-	0	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

INT	**$A_FSDP_ERR_REAC [SF_MAXNUM_FSENDDP_DRIVER]**	Response to communications error F_SENDDP	**reference:**	

description:

$A_FSDP_ERR_REAC[n]

n = F_SENDDP relationship (1,2,3)

The system variable sets the response to the occurrence of a communications error. The response to a communications error caused by a fault in the communication path or by the intentional switching off one of the system components can be specifically defined according to the current dependency of the two system components involved in the F_DP communication relationship.

0 = Alarm 27350 + stop D/E

1 = Alarm 27350

2 = Alarm 27351 (display only, self-clearing)

3 = No alarm displayed

Index 1:	n: Number of F_SENDDP relation				
unit:	-				
min.:	0	**max.:**	3	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	

write:	runin stp	X	7	-	0	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

BOOL	**$A_FSDP_ERROR [SF_MAXNUM_FSENDDP_DRIVER]**	Communications error F_SENDDP	**reference:**	

description:

$A_FSDP_ERROR[n]

n = F_SENDDP relationship (1,2,3)

The system variable indicates whether there is a communications error. The cause of the error determined by F_SENDDP is contained in the diagnostic data $A_FSDP_DIAG.

TRUE = Communications error

FALSE = Normal operation

Index 1:		n: Number of F_SENDDP relation					
unit:		-					
min.:		FALSE	**max.:**	TRUE	**std:**		FALSE
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

BOOL	**$A_FSDP_SUBS_ON [SF_MAXNUM_FSENDDP_DRIVER]**	Substitute values active in receiver	**reference:**	

description:

$A_FSDP_SUBS_ON[[n]

n = F_SENDDP relationship (1,2,3)

The system variable states whether substitution values at the F_RECVDP (receiver) are output to the application.

TRUE = Output of substitution values

FALSE = Output of process values

Index 1:		n: Number of F_SENDDP relation					
unit:		-					
min.:		FALSE	**max.:**	TRUE	**std:**		FALSE
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

INT	**$A_FSDP_DIAG [SF_MAXNUM_FSENDDP_DRIVER]**	Cause of the communications error F_SENDDP	**reference:**	

description:

$A_FSDP_DIAG[n]

n = F_SENDDP relationship (1,2,3)

The system variable indicates the cause of the communication (bit 4 - 5) or system (bit 13 - 15) error determined by F_SENDDP.

Bits 0 - 3: Reserved

Bit 4: 1 = Timeout detected

Bit 5: 1 = Sequence number error detected

Bit 6: 1 = CRC error detected

Bits 7 - 12: Reserved

Bit 13: 1 = Discrepancies in the F telegram data (TelegramDiscrepancy)

Bit 14: 1 = Sign-of-life monitoring (LifeSign)

Bit 15: 1 = Asynchronous error state (StateFault)

Index 1:	n: Number of F_SENDDP relation				
unit:	-				
min.:	0	**max.:**	0x8070	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:				**Valuation:**	channel-specific
block search	Not classified			**link**	Not classified

INT	**$A_FRDP_SUBS [SF_MAXNUM_FRECVDP_DRIVER]**	Substitute value F_RECVDP	**reference:**	

description:

$A_FRDP_SUBS[n]

n = F_RECVDP relationship (1,2,3)

The system variable defines the substitution values output to the SPL in the following states:

- Start of cyclic communication
- Communications error

Index 1:	n: Number of F_RECVDP relation				
unit:	-				
min.:	0	**max.:**	0xFFFF	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	runin stp	X	7	-	0	X	

axis identifier:				**Valuation:**	channel-specific
block search	Not classified			**link**	Not classified

INT	**$A_FRDP_ERR_REAC [SF_MAXNUM_FRECVDP_DRIVER]**	Response to communications error F_RECVDP	**reference:**	

description:

$A_FRDP_ERR_REAC[n]

n = F_RECVDP relationship (1,2,3)

The system variable sets the response to the occurrence of a communications error. The response to a communications error caused by a fault in the communication path or by the intentional switching off one of the system components can be specifically defined according to the current dependency of the two system components involved in the F_DP communication relationship.

0 = Alarm 27350 + stop D/E

1 = Alarm 27350

2 = Alarm 27351 (display only, self-clearing)

3 = No alarm displayed

Index 1:	n: Number of F_RECVDP relation					
unit:	-					
min.:	0	**max.:**	3	**std:**	0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	runin stp	X	7	-	0	X	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

BOOL	**$A_FRDP_ERROR [SF_MAXNUM_FRECVDP_DRIVER]**	communications error F_RECVDP	**reference:**	

description:

$A_FRDP_ERROR[n]

n = F_RECVDP relationship (1,2,3)

The system variable indicates whether there is a communications error. The cause of the error determined by F_RECVDP is contained in the diagnostic data $A_FRDP_DIAG.

TRUE = communications error

FALSE = Normal operation

Index 1:	n: Number of F_RECVDP relation					
unit:	-					
min.:	FALSE	**max.:**	TRUE	**std:**	FALSE	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	Not classified	

BOOL	**$A_FRDP_SUBS_ON [SF_MAXNUM_FSENDDP_DRIVER]**	Substitute values active	**reference:**	

description:

$A_FRDP_SUBS_ON[[n]

n = F_RECVDP relationship (1,2,3)

The system variable states whether substitution values are output to the application.

TRUE = Output of substitution values

FALSE = Output of process values

Index 1:	n: Number of F_RECVDP relation					
unit:	-					
min.:	FALSE	**max.:**	TRUE	**std:**	FALSE	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:		**Valuation:**	channel-specific
block search	Not classified	**link**	Not classified

BOOL	**$A_FRDP_ACK_REQ [SF_MAXNUM_FSENDDP_DRIVER]**	User acknowledgement requested	**reference:**	

description:

$A_FRDP_ACK_REQ[[n]

n = F_RECVDP relationship (1,2,3)

The system variable indicates that, after a communications error F telegrams are again being exchanged cyclically without error, and that user acknowledgement via interface signal DB18.FRDP_ACK_REI or channel_1 reset is still required to acknowledge the error and output the process values.

Index 1:	n: Number of F_RECVDP relation					
unit:	-					
min.:	FALSE	**max.:**	TRUE	**std:**	FALSE	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	

axis identifier:		**Valuation:**	channel-specific
block search	Not classified	**link**	Not classified

INT	**$A_FRDP_DIAG [SF_MAXNUM_FRECVDP_DRIVER]**	Cause of the communications error F_RECVDP	**reference:**	

description:

$A_FRDP_DIAG[n]

n = F_RECVDP relationship (1,2,3)

The system variable indicates the cause of the communication (bit 4 - 5) or system (bit 13 - 15) error determined by F_RECVDP.

Bits 0 - 3: Reserved

Bit 4: 1 = Timeout detected

Bit 5: 1 = Sequence number error detected							
Bit 6: 1 = CRC error detected							
Bits 7 - 12: Reserved							
Bit 13: 1 = Discrepancies in the F telegram data (TelegramDiscrepancy)							
Bit 14: 1 = Sign-of-life monitoring (LifeSign)							
Bit 15: 1 = Asynchronous error state (StateFault)							
Index 1:		n: Number of F_RECVDP relation					
unit:		-					
min.:		0	**max.:**	0x8070	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

BOOL	**$A_FRDP_SENDMODE [SF_MAXNUM_FRECVDP_DRIVER]**	Safety mode inactive in the communication partner	**reference:**	
description:				
$A_FRDP_SENDMODE[n]				
n = F_RECVDP relationship (1,2,3)				
The system variable shows the current mode of the F-CPU of the F_SENDDP communication partner:				
TRUE = The F-CPU is in deactivated safety mode				
FALSE = The F-CPU is in safety mode				

Index 1:		n: Number of F_RECVDP relation					
unit:		-					
min.:		FALSE	**max.:**	TRUE	**std:**		FALSE
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

DOUBLE	**$VA_IS [31]**	Safe actual position NCK	**reference:**	
description:				
$VA_IS[X]				
X = axis identifier				
Safe actual position for NCK monitoring channel				

Index 1:		Axis index					
unit:		Linear / angular position					
min.:		-1,8E308	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	

read:	runin stp	X	7		X	7	X	
write:	-	-	0		-	0	-	
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific	
block search		Not classified				**link**	Not classified	

INT	**$VA_STOPSI [31]**	Stop by Safety Integrated	**reference:**	

description:

$VA_STOPSI[X]

X = axis identifier

Current Safety Integrated Stop for the relevant axis

Value Meaning

-1 No Stop

0 Stop A

1 Stop B

2 Stop C

3 Stop D

4 Stop E

5 Stop F

10 Test Stop NC

11 Test ext. pulse suppression

Index 1:	Axis index						
unit:	-						
min.:	-1	**max.:**	11	**std:**	0		
Properties with regard to reading/writing:							

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	runin stp	X	7	X	7	X	
write:	-	-	0	-	0	-	
axis identifier:		GEO	CHAN	MACH	**Valuation:**	channel-specific	
block search		Not classified			**link**	Not classified	

INT	**$VA_XFAULTSI [31]**	Stop F by data cross-check error active	**reference:**	

description:

$VA_XFAULTSI[X]

X = axis identifier

Information about Safety Integrated Stop F for this axis:

Bit 0 set: An actual value error has been detected by the data cross-check between NCK and SIMODRIVE 611D.

Bit 1 set: Any error has been detected by the data cross-check between NCK and SIMODRIVE 611D, and the waiting time before triggering Stop B ($MA_SAFE_STOP_SWITCH_TIME_F) is running or has expired.

Index 1:	Axis index						
unit:	-						
min.:	0	**max.:**	3	**std:**	0		
Properties with regard to reading/writing:							

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	

write:	-	-	0		-	0	-
axis identifier:		GEO	CHAN	MACH	SPIN	**Valuation:**	channel-specific
block search		Not classified				**link**	Not classified

1.29 User-specific system variables

DOUBLE	**SYG_RM [n]**	Synact Real parameters for GUD2 block	**reference:**	

description:

SYG_RM[n] Synact Real parameters in GUD2 block.

A protection level can be assigned to the parameters with REDEF.

In order to create the parameters, at least four

GUD blocks must be activated with MD $MN_MM_NUM_GUD_MODULES.

Index 1:	The max. number of SynactGUD Real is defined by the machine data ($MN_MM_NUM_SYNACT_GUD_REAL[1])				
unit:	-				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	X	X	7	X	7	X	

axis identifier:				**Valuation:**	channel-specific
block search	Program sensitive			**link**	No restrictions

INT	**SYG_IM [n]**	Synact Integer parameters for GUD2 block	**reference:**	

description:

SYG_IM[n] Synact Integer parameters in GUD2 block.

A protection level can be assigned to the parameters with REDEF.

In order to create the parameters, at least four

GUD blocks must be activated with MD $MN_MM_NUM_GUD_MODULES.

Index 1:	The max. number of SynactGUD Integer is defined by the machine data ($MN_MM_NUM_SYNACT_GUD_INT[1])				
unit:	-				
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	X	X	7	X	7	X	

axis identifier:				**Valuation:**	channel-specific
block search	Program sensitive			**link**	No restrictions

BOOL	**SYG_BM [n]**	Synact Boolean parameters for GUD2 block	**reference:**	

description:

SYG_BM[n] Synact Boolean parameters in GUD2 block.

A protection level can be assigned to the parameters with REDEF.

In order to create the parameters, at least four

GUD blocks must be activated with MD $MN_MM_NUM_GUD_MODULES.

Index 1:	The max. number of SynactGUD Boolean is defined by the machine data ($MN_MM_NUM_SYNACT_GUD_BOOL[1])				
unit:	-				
min.:	FALSE	**max.:**	TRUE	**std:**	FALSE

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	X	X	7	X	7	X	

axis identifier:					**Valuation:**	channel-specific
block search	Program sensitive				**link**	No restrictions

AXIS	**SYG_AM [n]**	Synact Axis parameters for GUD2 block	**reference:**	

description:

SYG_AM[n] Synact axis parameters in GUD2 block.

A protection level can be assigned to the parameters with REDEF.

In order to create the parameters, at least four

GUD blocks must be activated with MD $MN_MM_NUM_GUD_MODULES.

Index 1:	The max. number of SynactGUD Axis is defined by the machine data ($MN_MM_NUM_SYNACT_GUD_AXIS[1])				
unit:	-				
min.:		**max.:**		**std:**	NOAXISNUM

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	X	X	7	X	7	X	

axis identifier:					**Valuation:**	channel-specific
block search	Program sensitive				**link**	No restrictions

CHAR	**SYG_CM [n]**	Synact char parameters for GUD2 block	**reference:**	

description:

SYG_CM[n] Synact char parameters in GUD2 block.

A protection level can be assigned to the parameters with REDEF.

In order to create the parameters, at least four GUD blocks must be activated with MD $MN_MM_NUM_GUD_MODULES.

Index 1:	The max. number of SynactGUD Char is defined by the machine data ($MN_MM_NUM_SYNACT_GUD_CHAR[1])				
unit:	-				
min.:	0	**max.:**	255	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	X	X	7	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search	Program sensitive				**link**	No restrictions	

STRING	**SYG_SM [n]**	Synact string parameters for GUD2 block	**reference:**	

description:

SYG_SM[n] Synact parameter string in GUD2 block. The maximum string length has been limited to 31 characters.

A protection level can be assigned to the parameters with REDEF.

In order to create the parameters, at least four

GUD blocks must be activated with MD $MN_MM_NUM_GUD_MODULES.

Index 1:	The max. number of SynactGUD String is defined by the machine data ($MN_MM_NUM_SYNACT_GUD_STRING[1])			
Index 3:	31 characters and end-of-string character			
unit:	-			
min.:		**max.:**	**std:**	""

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	X	X	7	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search	Program sensitive				**link**	No restrictions	

DOUBLE	**SYG_RU [n]**	Synact Real parameters for UGUD block	**reference:**	

description:

SYG_RU[n] Synact Real parameters in UGUD block.

A protection level can be assigned to the parameters with REDEF.

In order to create the parameters, at least three

GUD blocks must be activated with MD $MN_MM_NUM_GUD_MODULES.

Index 1:	The max. number of SynactGUD Real is defined by the machine data ($MN_MM_NUM_SYNACT_GUD_REAL[2])			
unit:	-			
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	X	X	7	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search	Program sensitive				**link**	No restrictions	

INT	**SYG_IU [n]**			Synact Integer parameters for UGUD block		**reference:**	
description:							
SYG_IU[n] Synact Integer parameters in UGUD block.							
A protection level can be assigned to the parameters with REDEF.							
In order to create the parameters, at least three							
GUD blocks must be activated with MD $MN_MM_NUM_GUD_MODULES.							
Index 1:	The max. number of SynactGUD Integer is defined by the machine data ($MN_MM_NUM_SYNACT_GUD_INT[2])						
unit:	-						
min.:	-2147483648		**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	X	X	7	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search	Program sensitive				**link**	No restrictions	

BOOL	**SYG_BU [n]**			Synact Boolean parameters for UGUD block		**reference:**	
description:							
SYG_BU[n] Synact Boolean parameters in UGUD block.							
A protection level can be assigned to the parameters with REDEF.							
In order to create the parameters, at least three							
GUD blocks must be activated with MD $MN_MM_NUM_GUD_MODULES.							
Index 1:	The max. number of SynactGUD Boolean is defined by the machine data ($MN_MM_NUM_SYNACT_GUD_BOOL[2])						
unit:	-						
min.:	FALSE		**max.:**	TRUE	**std:**		FALSE
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	X	X	7	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search	Program sensitive				**link**	No restrictions	

AXIS	**SYG_AU [n]**	Synact Axis parameters for UGUD block	**reference:**	
description:				
SYG_AU[n] Synact Axis parameters in UGUD block.				
A protection level can be assigned to the parameters with REDEF.				
In order to create the parameters, at least three				
GUD blocks must be activated with MD $MN_MM_NUM_GUD_MODULES.				
Index 1:	The max. number of SynactGUD Axis is defined by the machine data ($MN_MM_NUM_SYNACT_GUD_AXIS[2])			
unit:	-			

min.:			**max.:**		**std:**		NOAXISNUM
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	X	X	7	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search	Program sensitive				**link**	No restrictions	

CHAR	**SYG_CU [n]**	Synact char parameters for UGUD block	**reference:**	
description:				
SYG_CU[n] Synact char parameters in UGUD block.				
A protection level can be assigned to the parameters with REDEF.				
In order to create the parameters, at least three				
GUD blocks must be activated with MD $MN_MM_NUM_GUD_MODULES.				
Index 1:	The max. number of SynactGUD Char is defined by the machine data ($MN_MM_NUM_SYNACT_GUD_CHAR[2])			
unit:	-			
min.:	0	**max.:**	255	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	X	X	7	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search	Program sensitive				**link**	No restrictions	

STRING	**SYG_SU [n]**	Synact string parameters for UGUD block	**reference:**	
description:				
SYG_SU[n] Synact parameter string in UGUD block. The maximum string length has been limited to 31 characters.				
A protection level can be assigned to the parameters with REDEF.				
In order to create the parameters, at least three				
GUD blocks must be activated with MD $MN_MM_NUM_GUD_MODULES.				
Index 1:	The max. number of SynactGUD String is defined by the machine data ($MN_MM_NUM_SYNACT_GUD_STRING[2])			
Index 3:	31 characters and end-of-string character			
unit:	-			
min.:		**max.:**		**std:**	""

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	X	X	7	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search	Program sensitive				**link**	No restrictions	

DOUBLE	**SYG_R4 [n]**	Synact Real parameters for GUD4 block	**reference:**	

description:

SYG_R4[n] Synact Real parameters in GUD4 block.

A protection level can be assigned to the parameters with REDEF.

In order to create the parameters, at least four

GUD blocks must be activated with MD $MN_MM_NUM_GUD_MODULES.

Index 1:	The max. number of SynactGUD Real is defined by the machine data ($MN_MM_NUM_SYNACT_GUD_REAL[3])					
unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	SA	PP/SA protection level	OPI	OPI protection level	OEM	
read:	X	X	7	X	7	X	
write:	X	X	7	X	7	X	

axis identifier:					**Valuation:**	channel-specific
block search	Program sensitive				**link**	No restrictions

INT	**SYG_I4 [n]**	Synact Integer parameters for GUD4 block	**reference:**	

description:

SYG_I4[n] Synact Integer parameters in GUD4 block.

A protection level can be assigned to the parameters with REDEF.

In order to create the parameters, at least four

GUD blocks must be activated with MD $MN_MM_NUM_GUD_MODULES.

Index 1:	The max. number of SynactGUD Integer is defined by the machine data ($MN_MM_NUM_SYNACT_GUD_INT[3])					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	

Properties with regard to reading/writing:

	PP	SA	PP/SA protection level	OPI	OPI protection level	OEM	
read:	X	X	7	X	7	X	
write:	X	X	7	X	7	X	

axis identifier:					**Valuation:**	channel-specific
block search	Program sensitive				**link**	No restrictions

BOOL	**SYG_B4 [n]**	Synact Boolean parameters for GUD4 block	**reference:**	

description:

SYG_B4[n] Synact Boolean parameters in GUD4 block.

A protection level can be assigned to the parameters with REDEF.

In order to create the parameters, at least four

GUD blocks must be activated with MD $MN_MM_NUM_GUD_MODULES.

Index 1:	The max. number of SynactGUD Boolean is defined by the machine data ($MN_MM_NUM_SYNACT_GUD_BOOL[3])
unit:	-

min.:		FALSE		**max.:**	TRUE	**std:**	FALSE
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	X	X	7	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Program sensitive			**link**	No restrictions	

AXIS	**SYG_A4 [n]**	Synact Axis parameters for GUD4 block	**reference:**
description:			
SYG_A4[n] Synact Real parameters in GUD4 block.			
A protection level can be assigned to the parameters with REDEF.			
In order to create the parameters, at least four			
GUD blocks must be activated with MD $MN_MM_NUM_GUD_MODULES.			

Index 1:		The max. number of SynactGUD Axis is defined by the machine data ($MN_MM_NUM_SYNACT_GUD_AXIS[3])					
unit:		-					
min.:				**max.:**		**std:**	NOAXISNUM
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	X	X	7	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Program sensitive			**link**	No restrictions	

CHAR	**SYG_C4 [n]**	Synact Char parameters for GUD4 block	**reference:**
description:			
SYG_C4[n] Synact Char parameters in GUD4 block.			
A protection level can be assigned to the parameters with REDEF.			
In order to create the parameters, at least four			
GUD blocks must be activated with MD $MN_MM_NUM_GUD_MODULES.			

Index 1:		The max. number of SynactGUD Char is defined by the machine data ($MN_MM_NUM_SYNACT_GUD_CHAR[3])					
unit:		-					
min.:		0		**max.:**	255	**std:**	0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	X	X	7	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Program sensitive			**link**	No restrictions	

STRING	**SYG_S4 [n]**	Synact String parameters for GUD4 block	**reference:**	

description:

SYG_S4[n] Synact parameter string in GUD4 block. The maximum string length has been limited to 31 characters.

A protection level can be assigned to the parameters with REDEF.

In order to create the parameters, at least four

GUD blocks must be activated with MD $MN_MM_NUM_GUD_MODULES.

Index 1:	The max. number of SynactGUD String is defined by the machine data ($MN_MM_NUM_SYNACT_GUD_STRING[3])					
Index 3:	31 characters and end-of-string character					
unit:	-					
min.:		**max.:**		**std:**		""

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	X	X	7	X	7	X	

axis identifier:				**Valuation:**	channel-specific	
block search	Program sensitive			**link**	No restrictions	

DOUBLE	**SYG_R5 [n]**	Synact Real parameters for GUD5 block	**reference:**	

description:

SYG_R5[n] Synact Real parameters in GUD5 block.

A protection level can be assigned to the parameters with REDEF.

In order to create the parameters, at least five

GUD blocks must be activated with MD $MN_MM_NUM_GUD_MODULES.

Index 1:	The max. number of SynactGUD Real is defined by the machine data ($MN_MM_NUM_SYNACT_GUD_REAL[4])					
unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**		0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	X	X	7	X	7	X	

axis identifier:				**Valuation:**	channel-specific	
block search	Program sensitive			**link**	No restrictions	

INT	**SYG_I5 [n]**	Synact Integer parameters for GUD5 block	**reference:**	

description:

SYG_I5[n] Synact Integer parameters in GUD5 block.

A protection level can be assigned to the parameters with REDEF.

In order to create the parameters, at least five

GUD blocks must be activated with MD $MN_MM_NUM_GUD_MODULES.

Index 1:	The max. number of SynactGUD Integer is defined by the machine data ($MN_MM_NUM_SYNACT_GUD_INT[4])

unit:		-					
min.:		-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	X	X	7	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Program sensitive			**link**	No restrictions	

BOOL	**SYG_B5 [n]**			Synact Boolean parameters for GUD5 block		**reference:**	
description:							
SYG_B5[n] Synact Boolean parameters in GUD5 block.							
A protection level can be assigned to the parameters with REDEF.							
In order to create the parameters, at least five							
GUD blocks must be activated with MD $MN_MM_NUM_GUD_MODULES.							
Index 1:		The max. number of SynactGUD Boolean is defined by the machine data ($MN_MM_NUM_SYNACT_GUD_BOOL[4])					
unit:		-					
min.:		FALSE	**max.:**	TRUE	**std:**		FALSE
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	X	X	7	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Program sensitive			**link**	No restrictions	

AXIS	**SYG_A5 [n]**			Synact Axis parameters for GUD5 block		**reference:**	
description:							
SYG_A5[n] Synact Axis parameters in GUD5 block.							
A protection level can be assigned to the parameters with REDEF.							
In order to create the parameters, at least five							
GUD blocks must be activated with MD $MN_MM_NUM_GUD_MODULES.							
Index 1:		The max. number of SynactGUD Axis is defined by the machine data ($MN_MM_NUM_SYNACT_GUD_AXIS[4])					
unit:		-					
min.:			**max.:**		**std:**		NOAXISNUM
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	X	X	7	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Program sensitive			**link**	No restrictions	

CHAR	**SYG_C5 [n]**	Synact Char parameters for GUD5 block	**reference:**	

description:

SYG_C5[n] Synact Char parameters in GUD5 block.

A protection level can be assigned to the parameters with REDEF.

In order to create the parameters, at least five

GUD blocks must be activated with MD $MN_MM_NUM_GUD_MODULES.

Index 1:	The max. number of SynactGUD Char is defined by the machine data ($MN_MM_NUM_SYNACT_GUD_CHAR[4])					
unit:	-					
min.:	0	**max.:**	255	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	X	X	7	X	7	X	

axis identifier:					**Valuation:**	channel-specific
block search	Program sensitive				**link**	No restrictions

STRING	**SYG_S5 [n]**	Synact String parameters for GUD5 block	**reference:**	

description:

SYG_S5[n] Synact parameter string in GUD5 block. The maximum string length has been limited to 31 characters.

A protection level can be assigned to the parameters with REDEF.

In order to create the parameters, at least five

GUD blocks must be activated with MD $MN_MM_NUM_GUD_MODULES.

Index 1:	The max. number of SynactGUD String is defined by the machine data ($MN_MM_NUM_SYNACT_GUD_STRING[4])					
Index 3:	31 characters and end-of-string character					
unit:	-					
min.:		**max.:**		**std:**	""	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	X	X	7	X	7	X	

axis identifier:					**Valuation:**	channel-specific
block search	Program sensitive				**link**	No restrictions

DOUBLE	**SYG_R6 [n]**	Synact Real parameters for GUD6 block	**reference:**	

description:

SYG_R6[n] Synact Real parameters in GUD6 block.

A protection level can be assigned to the parameters with REDEF.

In order to create the parameters, at least six

GUD blocks must be activated with MD $MN_MM_NUM_GUD_MODULES.

Index 1:	The max. number of SynactGUD Real is defined by the machine data ($MN_MM_NUM_SYNACT_GUD_REAL[5])

unit:		-					
min.:		-1,8E308	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	X	X	7	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Program sensitive			**link**	No restrictions	

INT	**SYG_I6 [n]**	Synact Integer parameters for GUD6 block	**reference:**	

description:

SYG_I6[n] Synact Integer parameters in GUD6 block.

A protection level can be assigned to the parameters with REDEF.

In order to create the parameters, at least six

GUD blocks must be activated with MD $MN_MM_NUM_GUD_MODULES.

Index 1:		The max. number of SynactGUD Integer is defined by the machine data ($MN_MM_NUM_SYNACT_GUD_INT[5])					
unit:		-					
min.:		-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	X	X	7	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Program sensitive			**link**	No restrictions	

BOOL	**SYG_B6 [n]**	Synact Boolean parameters for GUD6 block	**reference:**	

description:

SYG_B6[n] Synact Boolean parameters in GUD6 block.

A protection level can be assigned to the parameters with REDEF.

In order to create the parameters, at least six

GUD blocks must be activated with MD $MN_MM_NUM_GUD_MODULES.

Index 1:		The max. number of SynactGUD Boolean is defined by the machine data ($MN_MM_NUM_SYNACT_GUD_BOOL[5])					
unit:		-					
min.:		FALSE	**max.:**	TRUE	**std:**		FALSE
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	X	X	7	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Program sensitive			**link**	No restrictions	

AXIS	**SYG_A6 [n]**	Synact Axis parameters for GUD6 block	**reference:**	

description:

SYG_A6[n] Synact Axis parameters in GUD6 block.

A protection level can be assigned to the parameters with REDEF.

In order to create the parameters, at least six

GUD blocks must be activated with MD $MN_MM_NUM_GUD_MODULES.

Index 1:	The max. number of SynactGUD Axis is defined by the machine data ($MN_MM_NUM_SYNACT_GUD_AXIS[5])					
unit:	-					
min.:		**max.:**		**std:**	NOAXISNUM	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	X	X	7	X	7	X	

axis identifier:					**Valuation:**	channel-specific
block search	Program sensitive				**link**	No restrictions

CHAR	**SYG_C6 [n]**	Synact Char parameters for GUD6 block	**reference:**	

description:

SYG_C6[n] Synact Char parameters in GUD6 block.

A protection level can be assigned to the parameters with REDEF.

In order to create the parameters, at least six

GUD blocks must be activated with MD $MN_MM_NUM_GUD_MODULES.

Index 1:	The max. number of SynactGUD Char is defined by the machine data ($MN_MM_NUM_SYNACT_GUD_CHAR[5])					
unit:	-					
min.:	0	**max.:**	255	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	X	X	7	X	7	X	

axis identifier:					**Valuation:**	channel-specific
block search	Program sensitive				**link**	No restrictions

STRING	**SYG_S6 [n]**	Synact String parameters for GUD6 block	**reference:**	

description:

SYG_S6[n] Synact parameter string in GUD6 block. The maximum string length has been limited to 31 characters.

A protection level can be assigned to the parameters with REDEF.

In order to create the parameters, at least six

GUD blocks must be activated with MD $MN_MM_NUM_GUD_MODULES.

Index 1:	The max. number of SynactGUD String is defined by the machine data ($MN_MM_NUM_SYNACT_GUD_STRING[5])
Index 3:	31 characters and end-of-string character

unit:		-					
min.:			**max.:**		**std:**		""
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	X	X	7	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Program sensitive			**link**	No restrictions	

DOUBLE	**SYG_R7 [n]**	Synact Real parameters for GUD7 block	**reference:**	

description:

SYG_R7[n] Synact Real parameters in GUD7 block.

A protection level can be assigned to the parameters with REDEF.

In order to create the parameters, at least seven

GUD blocks must be activated with MD $MN_MM_NUM_GUD_MODULES.

Index 1:		The max. number of SynactGUD Real is defined by the machine data ($MN_MM_NUM_SYNACT_GUD_REAL[6])					
unit:		-					
min.:		-1,8E308	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	X	X	7	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Program sensitive			**link**	No restrictions	

INT	**SYG_I7 [n]**	Synact Integer parameters for GUD7 block	**reference:**	

description:

SYG_I7[n] Synact Integer parameters in GUD7 block.

A protection level can be assigned to the parameters with REDEF.

In order to create the parameters, at least seven

GUD blocks must be activated with MD $MN_MM_NUM_GUD_MODULES.

Index 1:		The max. number of SynactGUD Integer is defined by the machine data ($MN_MM_NUM_SYNACT_GUD_INT[6])					
unit:		-					
min.:		-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	X	X	7	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Program sensitive			**link**	No restrictions	

BOOL	**SYG_B7 [n]**	Synact Boolean parameters for GUD7 block	**reference:**	

description:

SYG_B7[n] Synact Boolean parameters in GUD7 block.

A protection level can be assigned to the parameters with REDEF.

In order to create the parameters, at least seven

GUD blocks must be activated with MD $MN_MM_NUM_GUD_MODULES.

Index 1:	The max. number of SynactGUD Boolean is defined by the machine data ($MN_MM_NUM_SYNACT_GUD_BOOL[6])				
unit:	-				
min.:	FALSE	**max.:**	TRUE	**std:**	FALSE

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	X	X	7	X	7	X	

axis identifier:				**Valuation:**	channel-specific
block search	Program sensitive			**link**	No restrictions

AXIS	**SYG_A7 [n]**	Synact Axis parameters for GUD7 block	**reference:**	

description:

SYG_A7[n] Synact Axis parameters in GUD7 block.

A protection level can be assigned to the parameters with REDEF.

In order to create the parameters, at least seven

GUD blocks must be activated with MD $MN_MM_NUM_GUD_MODULES.

Index 1:	The max. number of SynactGUD Axis is defined by the machine data ($MN_MM_NUM_SYNACT_GUD_AXIS[6])				
unit:	-				
min.:		**max.:**		**std:**	NOAXISNUM

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	X	X	7	X	7	X	

axis identifier:				**Valuation:**	channel-specific
block search	Program sensitive			**link**	No restrictions

CHAR	**SYG_C7 [n]**	Synact Char parameters for GUD7 block	**reference:**	

description:

SYG_C7[n] Synact Char parameters in GUD7 block.

A protection level can be assigned to the parameters with REDEF.

In order to create the parameters, at least seven

GUD blocks must be activated with MD $MN_MM_NUM_GUD_MODULES.

Index 1:	The max. number of SynactGUD Char is defined by the machine data ($MN_MM_NUM_SYNACT_GUD_CHAR[6])
unit:	-

min.:	0	**max.:**	255	**std:**	0
Properties with regard to reading/writing:					

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	X	X	7	X	7	X	

axis identifier:		**Valuation:**	channel-specific
block search	Program sensitive	**link**	No restrictions

STRING	**SYG_S7 [n]**	Synact String parameters for GUD7 block	**reference:**	

description:

SYG_S7[n] Synact parameter string in GUD7 block. The maximum string length has been limited to 31 characters.

A protection level can be assigned to the parameters with REDEF.

In order to create the parameters, at least seven

GUD blocks must be activated with MD $MN_MM_NUM_GUD_MODULES.

Index 1:	The max. number of SynactGUD String is defined by the machine data ($MN_MM_NUM_SYNACT_GUD_STRING[6])
Index 3:	31 characters and end-of-string character
unit:	-

min.:		**max.:**		**std:**	""
Properties with regard to reading/writing:					

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	X	X	7	X	7	X	

axis identifier:		**Valuation:**	channel-specific
block search	Program sensitive	**link**	No restrictions

DOUBLE	**SYG_R8 [n]**	Synact Real parameters for GUD8 block	**reference:**	

description:

SYG_R8[n] Synact Real parameters in GUD8 block.

A protection level can be assigned to the parameters with REDEF.

In order to create the parameters, at least eight

GUD blocks must be activated with MD $MN_MM_NUM_GUD_MODULES.

Index 1:	The max. number of SynactGUD Real is defined by the machine data ($MN_MM_NUM_SYNACT_GUD_REAL[7])
unit:	-

min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0
Properties with regard to reading/writing:					

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	X	X	7	X	7	X	

axis identifier:		**Valuation:**	channel-specific
block search	Program sensitive	**link**	No restrictions

INT	**SYG_I8 [n]**	Synact Integer parameters for GUD8 block	**reference:**	

description:

SYG_I8[n] Synact Integer parameters in GUD8 block.

A protection level can be assigned to the parameters with REDEF.

In order to create the parameters, at least eight

GUD blocks must be activated with MD $MN_MM_NUM_GUD_MODULES.

Index 1:	The max. number of SynactGUD Integer is defined by the machine data ($MN_MM_NUM_SYNACT_GUD_INT[7])				
unit:	-				
min.:	-2147483648	**max.:**	2147483647	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	X	X	7	X	7	X	

axis identifier:				**Valuation:**	channel-specific
block search	Program sensitive			**link**	No restrictions

BOOL	**SYG_B8 [n]**	Synact Boolean parameters for GUD8 block	**reference:**	

description:

SYG_B8[n] Synact Boolean parameters in GUD8 block.

A protection level can be assigned to the parameters with REDEF.

In order to create the parameters, at least eight

GUD blocks must be activated with MD $MN_MM_NUM_GUD_MODULES.

Index 1:	The max. number of SynactGUD Integer is defined by the machine data ($MN_MM_NUM_SYNACT_GUD_BOOL[7])				
unit:	-				
min.:	FALSE	**max.:**	TRUE	**std:**	FALSE

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	X	X	7	X	7	X	

axis identifier:				**Valuation:**	channel-specific
block search	Program sensitive			**link**	No restrictions

AXIS	**SYG_A8 [n]**	Synact Axis parameters for GUD8 block	**reference:**	

description:

SYG_A8[n] Synact Axis parameters in GUD8 block.

A protection level can be assigned to the parameters with REDEF.

In order to create the parameters, at least eight

GUD blocks must be activated with MD $MN_MM_NUM_GUD_MODULES.

Index 1:	The max. number of SynactGUD Axis is defined by the machine data ($MN_MM_NUM_SYNACT_GUD_AXIS[7])
unit:	-

min.:			**max.:**		**std:**		NOAXISNUM
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	X	X	7	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search	Program sensitive				**link**	No restrictions	

CHAR	**SYG_C8 [n]**	Synact Char parameters for GUD8 block	**reference:**	
description:				
SYG_C8[n] Synact Char parameters in GUD8 block.				
A protection level can be assigned to the parameters with REDEF.				
In order to create the parameters, at least eight				
GUD blocks must be activated with MD $MN_MM_NUM_GUD_MODULES.				
Index 1:	The max. number of SynactGUD Char is defined by the machine data ($MN_MM_NUM_SYNACT_GUD_CHAR[7])			
unit:	-			
min.:	0	**max.:** 255	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	X	X	7	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search	Program sensitive				**link**	No restrictions	

STRING	**SYG_S8 [n]**	Synact String parameters for GUD8 block	**reference:**	
description:				
SYG_S8[n] Synact parameter string in GUD8 block. The maximum string length has been limited to 31 characters.				
A protection level can be assigned to the parameters with REDEF.				
In order to create the parameters, at least eight				
GUD blocks must be activated with MD $MN_MM_NUM_GUD_MODULES.				
Index 1:	The max. number of SynactGUD String is defined by the machine data ($MN_MM_NUM_SYNACT_GUD_STRING[7])			
Index 3:	31 characters and end-of-string character			
unit:	-			
min.:		**max.:**	**std:**	""

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	X	X	7	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search	Program sensitive				**link**	No restrictions	

DOUBLE	**SYG_R9 [n]**	Synact Real parameters for GUD9 block	**reference:**	

description:

SYG_R9[n] Synact Real parameters in GUD9 block.

A protection level can be assigned to the parameters with REDEF.

In order to create the parameters, at least nine

GUD blocks must be activated with MD $MN_MM_NUM_GUD_MODULES.

Index 1:	The max. number of SynactGUD Real is defined by the machine data ($MN_MM_NUM_SYNACT_GUD_REAL[8])					
unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	
Properties with regard to reading/writing:						

	PP	SA	PP/SA protection level	OPI	OPI protection level	OEM	
read:	X	X	7	X	7	X	
write:	X	X	7	X	7	X	

axis identifier:					**Valuation:**	channel-specific
block search	Program sensitive				**link**	No restrictions

INT	**SYG_I9 [n]**	Synact Integer parameters for GUD9 block	**reference:**	

description:

SYG_I9[n] Synact Integer parameters in GUD9 block.

A protection level can be assigned to the parameters with REDEF.

In order to create the parameters, at least nine

GUD blocks must be activated with MD $MN_MM_NUM_GUD_MODULES.

Index 1:	The max. number of SynactGUD Integer is defined by the machine data ($MN_MM_NUM_SYNACT_GUD_INT[8])					
unit:	-					
min.:	-2147483648	**max.:**	2147483647	**std:**	0	
Properties with regard to reading/writing:						

	PP	SA	PP/SA protection level	OPI	OPI protection level	OEM	
read:	X	X	7	X	7	X	
write:	X	X	7	X	7	X	

axis identifier:					**Valuation:**	channel-specific
block search	Program sensitive				**link**	No restrictions

BOOL	**SYG_B9 [n]**	Synact Boolean parameters for GUD9 block	**reference:**	

description:

SYG_B9[n] Synact Boolean parameters in GUD9 block.

A protection level can be assigned to the parameters with REDEF.

In order to create the parameters, at least nine

GUD blocks must be activated with MD $MN_MM_NUM_GUD_MODULES.

Index 1:	The max. number of SynactGUD Boolean is defined by the machine data ($MN_MM_NUM_SYNACT_GUD_BOOL[8])		
unit:	-		

min.:		FALSE	**max.:**	TRUE	**std:**		FALSE
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	X	X	7	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Program sensitive			**link**	No restrictions	

AXIS	**SYG_A9 [n]**			Synact Axis parameters for GUD9 block		**reference:**	
description:							
SYG_A9[n] Synact Axis parameters in GUD9 block.							
A protection level can be assigned to the parameters with REDEF.							
In order to create the parameters, at least nine							
GUD blocks must be activated with MD $MN_MM_NUM_GUD_MODULES.							
Index 1:		The max. number of SynactGUD Axis is defined by the machine data ($MN_MM_NUM_SYNACT_GUD_AXIS[8])					
unit:		-					
min.:			**max.:**		**std:**		NOAXISNUM
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	X	X	7	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Program sensitive			**link**	No restrictions	

CHAR	**SYG_C9 [n]**			Synact Char parameters for GUD9 block		**reference:**	
description:							
SYG_C9[n] Synact Char parameters in GUD9 block.							
A protection level can be assigned to the parameters with REDEF.							
In order to create the parameters, at least nine							
GUD blocks must be activated with MD $MN_MM_NUM_GUD_MODULES.							
Index 1:		The max. number of SynactGUD Char is defined by the machine data ($MN_MM_NUM_SYNACT_GUD_CHAR[8])					
unit:		-					
min.:		0	**max.:**	255	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	X	X	7	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Program sensitive			**link**	No restrictions	

STRING	**SYG_S9 [n]**	Synact String parameters for GUD9 block	**reference:**	

description:

SYG_S9[n] Synact parameter string in GUD9 block. The maximum string length has been limited to 31 characters.

A protection level can be assigned to the parameters with REDEF.

In order to create the parameters, at least nine

GUD blocks must be activated with MD $MN_MM_NUM_GUD_MODULES.

Index 1:	The max. number of SynactGUD String is defined by the machine data ($MN_MM_NUM_SYNACT_GUD_STRING[8])					
Index 3:	31 characters and end-of-string character					
unit:	-					
min.:		**max.:**		**std:**		""

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	X	X	7	X	7	X	

axis identifier:				**Valuation:**	channel-specific	
block search	Program sensitive			**link**	No restrictions	

DOUBLE	**SYG_RS [n]**	Synact Real parameters for SGUD block	**reference:**	

description:

SYG_RS[n] Synchronization Real parameters in SGUD block.

A protection level can be assigned to the parameters with REDEF.

In order to create the parameters, at least one

GUD block must be activated with MD $MN_MM_NUM_GUD_MODULES.

Index 1:	The max. number of SynactGUD Real is defined by the machine data ($MN_MM_NUM_SYNACT_GUD_REAL[0])					
unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**		0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	X	X	7	X	7	X	

axis identifier:				**Valuation:**	channel-specific	
block search	Program sensitive			**link**	No restrictions	

INT	**SYG_IS [n]**	Synact Integer parameters for SGUD block	**reference:**	

description:

SYG_IS[n] Synact Integer parameters in SGUD block.

A protection level can be assigned to the parameters with REDEF.

In order to create the parameters, at least one

GUD block must be activated with MD $MN_MM_NUM_GUD_MODULES.

Index 1:	The max. number of SynactGUD Integer is defined by the machine data ($MN_MM_NUM_SYNACT_GUD_INT[0])

unit:		-					
min.:		-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	X	X	7	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Program sensitive			**link**	No restrictions	

BOOL	**SYG_BS [n]**			Synact Boolean parameters for SGUD block		**reference:**	
description:							
SYG_BS[n] Synact Boolean parameters in SGUD block.							
A protection level can be assigned to the parameters with REDEF.							
In order to create the parameters, at least one							
GUD block must be activated with MD $MN_MM_NUM_GUD_MODULES.							
Index 1:		The max. number of SynactGUD Boolean is defined by the machine data ($MN_MM_NUM_SYNACT_GUD_BOOL[0])					
unit:		-					
min.:		FALSE	**max.:**	TRUE	**std:**		FALSE
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	X	X	7	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Program sensitive			**link**	No restrictions	

AXIS	**SYG_AS [n]**			Synact axis parameters for SGUD block		**reference:**	
description:							
SYG_AS[n] Synchronization axis parameters in SGUD block.							
A protection level can be assigned to the parameters with REDEF.							
In order to create the parameters, at least one							
GUD block must be activated with MD $MN_MM_NUM_GUD_MODULES.							
Index 1:		The max. number of SynactGUD Axis is defined by the machine data ($MN_MM_NUM_SYNACT_GUD_AXIS[0])					
unit:		-					
min.:			**max.:**		**std:**		NOAXISNUM
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	X	X	7	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Program sensitive			**link**	No restrictions	

CHAR	**SYG_CS [n]**	Synact char parameters for SGUD block	**reference:**	

description:

SYG_CS[n] Synchronization Char parameters in SGUD block.

A protection level can be assigned to the parameters with REDEF.

In order to create the parameters, at least one

GUD block must be activated with MD $MN_MM_NUM_GUD_MODULES.

Index 1:	The max. number of SynactGUD Char is defined by the machine data ($MN_MM_NUM_SYNACT_GUD_CHAR[0])					
unit:	-					
min.:	0	**max.:**	255	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	X	X	7	X	7	X	

axis identifier:					**Valuation:**	channel-specific
block search	Program sensitive				**link**	No restrictions

STRING	**SYG_SS [n]**	Synact string parameters for SGUD block	**reference:**	

description:

SYG_SS[n] Synchronized action parameter string in SGUD block. The maximum string length has been limited to 31 characters.

A protection level can be assigned to the parameters with REDEF.

In order to create the parameters, at least one

GUD block must be activated with MD $MN_MM_NUM_GUD_MODULES.

Index 1:	The max. number of SynactGUD String is defined by the machine data ($MN_MM_NUM_SYNACT_GUD_STRING[0])					
Index 3:	31 characters and end-of-string character					
unit:	-					
min.:		**max.:**		**std:**	""	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	X	
write:	X	X	7	X	7	X	

axis identifier:					**Valuation:**	channel-specific
block search	Program sensitive				**link**	No restrictions

1.30 Kinematic chain

STRING	**$NK_CHAIN_NAME [n]**			Name of the kinematic chain		**reference:**	
description:							
Name of the nth kinematic chain. The maximum possible number of kinematic chains is set by MD $MN_MM_MAXNUM_KIN_CHAINS.							
Index 1:	The maximum number of kinematic chains is set by the MD $MN_MM_MAXNUM_KIN_CHAINS.						
Index 3:	Max. string length						
unit:	-						
min.:		**max.:**		**std:**		""	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	X	
write:	X	-	1	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

STRING	**$NK_1ST_ELEM [n]**			Name of next chain element		**reference:**	
description:							
Name of first chain link of a kinematic chain							
Index 1:	The maximum number of kinematic chains is set by the MD $MN_MM_MAXNUM_KIN_CHAINS.						
Index 3:	Max. string length						
unit:	-						
min.:		**max.:**		**std:**		""	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	X	
write:	X	-	1	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

STRING	**$NK_NAME [n]**			Name of chain element		**reference:**	
description:							
Name of the nth element of a kinematic chain. The maximum possible number of chain elements is set in MD $MN_MM_MAXNUM_KIN_CHAIN_ELEMENTS.							
Index 1:	The maximum number of kinematic chains is set by the MD $MN_MM_MAXNUM_KIN_CHAIN_ELEM.						
Index 3:	Max. string length						
unit:	-						
min.:		**max.:**		**std:**		""	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	X	

write:	X	-	1	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

STRING	**$NK_NEXT [n]**		Name of next chain element		**reference:**	
description:						
Name of next chain element. An empty string "" means the end of the chain.						
Index 1:	The maximum number of kinematic chains is set by the MD $MN_MM_MAXNUM_KIN_CHAIN_ELEM.					
Index 3:	Max. string length					
unit:	-					
min.:		**max.:**		**std:**	""	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	X	
write:	X	-	1	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

STRING	**$NK_NEXTP [n]**		Name of a further next chain element		**reference:**	
description:						
Name of a further next chain element. This is needed for chain branches which occur in the case of parallel kinematic sequences. An empty string "" means that no further chain element exists.						
Index 1:	The maximum number of kinematic chains is set by the MD $MN_MM_MAXNUM_KIN_CHAIN_ELEM.					
Index 3:	Max. string length					
unit:	-					
min.:		**max.:**		**std:**	""	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	X	
write:	X	-	1	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

STRING	**$NK_TYPE [n]**	Type of chain link	**reference:**	

description:
Type of chain link
The following types are permitted (No distinction is made between upper and lower case letters):
"FRAME"
"AXIS_LIN"
"AXIS_ROT"
"AXIS_ROT_MAN"
"ROT_CONST"
"OEM_FRAME"

Index 1:	The maximum number of kinematic chains is set by the MD $MN_MM_MAXNUM_KIN_CHAIN_ELEM.						
Index 3:	Max. string length						
unit:	-						
min.:		**max.:**		**std:**	""		
Properties with regard to reading/writing:							

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	X	
write:	X	-	1	X	7	X	

axis identifier:			**Valuation:**	channel-specific	
block search	Not classified		**link**	No restrictions	

DOUBLE	**$NK_OFF_DIR [n,3]**	Offset or directional vector	**reference:**	

description:
Describes the 3 components of the offset vector of a constant chain link or the direction of the axis of a variable chain link.
If the vector describes a direction, the value of the vector must not equal 0. Otherwise not relevant.

Index 1:	The maximum number of kinematic chains is set by the MD $MN_MM_MAXNUM_KIN_CHAIN_ELEM.						
Index 2:	Index of the 3 components (0 <= i <= 2).						
unit:	mm						
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0		
Properties with regard to reading/writing:							

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	X	
write:	X	-	1	X	7	X	

axis identifier:			**Valuation:**	channel-specific	
block search	Not classified		**link**	No restrictions	

DOUBLE	**$NK_OFF_DIR_FINE [n,3]**	Fine offset of the offset vector	**reference:**	

description:
Describes the 3 components of the correction vector for the offset vector $NK_OFF_DIR in a constant chain link.
This variable is not evaluated if the chain link describes an axis.

Index 1:	The maximum number of kinematic chains is set by the MD $MN_MM_MAXNUM_KIN_CHAIN_ELEM.						
Index 2:	Index of the 3 components (0 <= i <= 2).						
unit:	mm						
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	X	
write:	X	-	3	X	7	X	
axis identifier:				**Valuation:**	channel-specific		
block search	Not classified			**link**	No restrictions		

DOUBLE	**$NK_OFF_DIR_FINE_LIM [n]**	Input limit for fine compensation of the offset vector	**reference:**		
description:					
Maximum input value for the variables $NK_OFF_DIR_FINE.					
Index 1:	The maximum number of kinematic chains is set by the MD $MN_MM_MAXNUM_KIN_CHAIN_ELEM.				
unit:	mm				
min.:	0.0	**max.:**	1,8E308	**std:**	0.0
Properties with regard to reading/writing:					

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	X	
write:	X	-	1	X	7	X	
axis identifier:				**Valuation:**	channel-specific		
block search	Not classified			**link**	No restrictions		

STRING	**$NK_AXIS [n]**	Axis name, frame name	**reference:**		
description:					
Name of axis or frame. The content of this component is not evaluated for the element types "OFFSET" and "ROT_CONST" ($NK_TYPE). For all other element types, it must be ensured that a corresponding element (axis, frame) with the specified name exists. No distinction is made between upper and lower case letters.					
Index 1:	The maximum number of kinematic chains is set by the MD $MN_MM_MAXNUM_KIN_CHAIN_ELEM.				
Index 3:	Max. string length				
unit:	-				
min.:		**max.:**		**std:**	""
Properties with regard to reading/writing:					

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	X	
write:	X	-	1	X	7	X	
axis identifier:				**Valuation:**	channel-specific		
block search	Not classified			**link**	No restrictions		

DOUBLE	**$NK_A_OFF [n]**	Axis offset	**reference:**	

description:

Is relevant only if the chain link describes an axis. In this case, this element indicates the position of the axis in the zero point.

In the case of linear axes, this value is redundant as it can also be replaced by a changed offset of the previous link.

Index 1:	The maximum number of kinematic chains is set by the MD $MN_MM_MAXNUM_KIN_CHAIN_ELEM.					
unit:	mm					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	X	
write:	X	-	1	X	7	X	

axis identifier:					**Valuation:**	channel-specific
block search	Not classified				**link**	No restrictions

DOUBLE	**$NK_A_OFF_FINE [n]**	Fine offest of the axis offset	**reference:**	

description:

Is only significant if the chain link describes an axis. In this case, this element contains a correction value for the variable $NK_A_OFF[n].

Index 1:	The maximum number of kinematic chains is set by the MD $MN_MM_MAXNUM_KIN_CHAIN_ELEM.					
unit:	mm					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	X	
write:	X	-	3	X	7	X	

axis identifier:					**Valuation:**	channel-specific
block search	Not classified				**link**	No restrictions

DOUBLE	**$NK_A_OFF_FINE_LIM [n]**	Input limit for fine compensation of the axis offset	**reference:**	

description:

Maximum input value for the variables $NK_A_OFF_FINE.

Index 1:	The maximum number of kinematic chains is set by the MD $MN_MM_MAXNUM_KIN_CHAIN_ELEM.					
unit:	mm					
min.:	0.0	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	X	
write:	X	-	1	X	7	X	

axis identifier:					**Valuation:**	channel-specific
block search	Not classified				**link**	No restrictions

1.31 Orientation transformation

STRING	**$NT_NAME [n]**			Name of the transformation data set			**reference:**	
description:								
Name of the transformation data set n.								
Index 1:		The maximum number of transformation datasets is set by the MD $MM_NUM_TRAFO_DATA_SETS.						
Index 3:		Max. string length						
unit:		-						
min.:			**max.:**			**std:**		""
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**		
read:	X	-	7	X	7	-		
write:	X	-	1	X	1	-		
axis identifier:					**Valuation:**	channel-specific		
block search		Not classified			**link**	No restrictions		

STRING	**$NT_TRAFO_TYPE [n]**			Transformation type			**reference:**	
description:								
The same type of transformation applies as for the transformation data set.								
Only certain reserved key words are permitted for the content of this system data.								
The valid key words are currently:								
- TRAORI for dynamic orientation transformations								
- TRAORI_STAT for static orientation transformations								
Index 1:		The maximum number of transformation datasets is set by the MD $MM_NUM_TRAFO_DATA_SETS.						
Index 3:		Max. string length						
unit:		-						
min.:			**max.:**			**std:**		""
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**		
read:	X	-	7	X	7	-		
write:	X	-	1	X	1	-		
axis identifier:					**Valuation:**	channel-specific		
block search		Not classified			**link**	No restrictions		

STRING	**$NT_T_CHAIN_NAME [n]**		Name of the kin. chain to the tool	**reference:**	
description:					
Name of the kinematic chain ($NK_CHAIN_NAME) of the transformer data set n, which leads from the machine zero to the tool.					
Index 1:	The maximum number of transformation datasets is set by the MD $MM_NUM_TRAFO_DATA_SETS.				
Index 3:	Max. string length				

unit:		-					
min.:			**max.:**		**std:**		""
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	1	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

STRING	**$NT_T_CHAIN_LAST_ELEM [n]**	Last elem. of the kin. chain to the tool	**reference:**	

description:

Name of an element indicated in the $NT_T_CHAIN_NAME[n,] chain. This chain element indicates the last link of a substring. $NT_T_CHAIN_LAST_ELEM[n] can remain empty. This has the same meaning, as it refers to the last link of the chain.

Index 1:		The maximum number of transformation datasets is set by the MD $MM_NUM_TRAFO_DATA_SETS.					
Index 3:		Max. string length					
unit:		-					
min.:			**max.:**		**std:**		""
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	1	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

STRING	**$NT_P_CHAIN_NAME [n]**	Name of the kin. chain to the workpiece	**reference:**	

description:

Name of the kinematic chain ($NK_CHAIN_NAME) of the transformer data set n, which leads from the machine zero to the workpiece.

Index 1:		The maximum number of transformation datasets is set by the MD $MM_NUM_TRAFO_DATA_SETS.					
Index 3:		Max. string length					
unit:		-					
min.:			**max.:**		**std:**		""
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	1	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

STRING	**$NT_P_CHAIN_LAST_ELEM [n]**	Last element of the kin. chain to the workpiece	**reference:**	

description:

Name of an element indicated in the $NT_P_CHAIN_NAME[n,] chain. This chain element indicates the last link of a substring. $NT_P_CHAIN_LAST_ELEM[n] can remain empty. This has the same meaning, as it refers to the last link of the chain.

Index 1:	The maximum number of transformation datasets is set by the MD $MM_NUM_TRAFO_DATA_SETS.						
Index 3:	Max. string length						
unit:	-						
min.:		**max.:**			**std:**		""
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	1	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

STRING	**$NT_T_REF_ELEM [n]**	Reference point for tool length calculation	**reference:**	

description:

This system variable refers to the reference point for the tool length calculation (tool reference point). The tool reference point is the starting point of the described kinematic element.

The tool reference point defines the point in the kinematic chain, where tool wear components can be included, their orientation can be rotated in comparison with basic length components, see the description of the G codes in Group 56 (inclusion of the tool wear).

If the system variable is not empty, it must contain the name of a chain element, which is the core element of the current chain to the tool.

Index 1:	The maximum number of transformation datasets is set by the MD $MM_NUM_TRAFO_DATA_SETS.						
Index 3:	Max. string length						
unit:	-						
min.:		**max.:**			**std:**		""
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	1	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

STRING	**$NT_GEO_AX_NAME [INTERNAL,GEO-DIM,32]**	Names of the linear axes	**reference:**	

description:

This system data refers to a maximum of 3 machine axes. It contains the names of the chain links ($NK_NAME), which define the axes, which must execute the compensation motions, which result from a kinematic transformation. These axes can be both linear axes (e.g. for all orientation transformations) and rotary axes (e.g. the rotary axis for TRANSMIT).

The sequence of these axes defines the assignment of the geometrical axes to the channel axes in accordance with the machine data $MC_AXCONF_GEO_AX_ASSIGN_TAB. Example: The system data $NT_GEO_AX_NAME[n,1] refers to a chain link which contains the rotary machine axis C1. In the current channel, C1 would be the 7th axis. In the case of an active transformation, this entry has the same meaning as the entry $MC_AXCONF_GEOAX_ASSIGN_TAB[1] = 7 for a deactivated transformation.							
Index 1:	The maximum number of transformation datasets is set by the MD $MM_NUM_TRAFO_DATA_SETS.						
Index 2:	Index of the linear axis						
Index 3:	Max. string length						
unit:	-						
min.:		**max.:**		**std:**		""	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	1	-	0	-	
axis identifier:				**Valuation:**		channel-specific	
block search	Not classified			**link**		No restrictions	

STRING	**$NT_ROT_AX_NAME [INTERNAL,ORIDIM,32]**	Names of the rotary axes	**reference:**	
description: This system data refers to a maximum of 3 axes used for setting the orientation. It contains the names of the chain links ($NK_NAME), which define the machine axes (rotary axes), which must execute the orientation motions, which result from a kinematic transformation. The sequence in which the maximum of three rotary axes are contained in this system data is insignificant for machine kinematics, as this is derived from the structure of the kinematic chains. It does, however, define the sequence which also refers to rotary axes (e.g. the Hirth parameters) and the access to the rotary axes.				

Index 1:	The maximum number of transformation datasets is set by the MD $MM_NUM_TRAFO_DATA_SETS.						
Index 2:	Index of the rotary axis						
Index 3:	Max. string length						
unit:	-						
min.:		**max.:**		**std:**		""	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	1	-	0	-	
axis identifier:				**Valuation:**		channel-specific	
block search	Not classified			**link**		No restrictions	

DOUBLE	**$NT_ROT_AX_POS [n,3]**	Position of a manual rotary axis	**reference:**	
description: This system variable is of significance only if the rotary axis, which refers to ($NT_ROT_AX_NAME), is a manual rotary axis. In this case, the rotary axis position is the result of the total of these system variables and the system variables $NK_A_OFF and $NK_A_OFF_FINE of the affected kinematic chain element.				

Index 1:	The maximum number of transformation datasets is set by the MD $MM_NUM_TRAFO_DATA_SETS.
Index 2:	Index of the position component

unit:		mm					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0 0.0 0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	1	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$NT_HIRTH_OFF [n,ORIDIM]**	Offset of the Hirth tooth system	**reference:**	

description:

Offset of the Hirth tooth system.

A Hirth tooth system is activated for a rotary axis if the associated system data $NT_HIRT_INC[n, i] does not contain a value of 0.

At a specified setpoint position PHIset of a rotary axis, the currently set angle results in

PHIact = $NT_HIRTH_OFF[n, i] + k * $NT_HIRTH_INC

whereby k is an integer and is selected in such a way that the difference between PHIact and PHIset is minimized.

Index 1:		The maximum number of transformation datasets is set by the MD $MM_NUM_TRAFO_DATA_SETS.					
Index 2:		Index of the rotary axis					
unit:		deg.					
min.:		-1,8E308	**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	1	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$NT_HIRTH_INC [n,ORIDIM]**	Increment of the Hirth tooth system	**reference:**	

description:

Increment of the Hirth tooth system.

A Hirth tooth system is activated for a rotary axis if this system data does not contain a value of 0.

At a specified setpoint position PHIset of a rotary axis, the currently set angle results in

PHIact = $NT_HIRTH_OFF[n, i] + k * $NT_HIRTH_INC

whereby k is an integer and is selected in such a way that the difference between PHIact and PHIset is minimized.

Index 1:		The maximum number of transformation datasets is set by the MD $MM_NUM_TRAFO_DATA_SETS.					
Index 2:		Index of the rotary axis					
unit:		deg.					
min.:		0.0	**max.:**	1,8E308		**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	1	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$NT_ROT_AX_MIN [n,ORIDIM]**	Minimum position of a rotary axis	**reference:**	

description:

This system variable is evaluated only if $NT_ROT_AX_MIN[n, i] and $NT_ROT_AX_MAX[n,i] are not set to zero.

In this case, it indicates the minimum permitted position of the rotary axis, which is referred to with $NT_ROT_AX_NAME[n, i].

Index 1:	The maximum number of transformation datasets is set by the MD $MM_NUM_TRAFO_DATA_SETS.				
Index 2:	Index of the rotary axis				
unit:	deg.				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	1	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$NT_ROT_AX_MAX [n,ORIDIM]**	Maximum position of a rotary axis	**reference:**	

description:

Maximum position of a rotary axis.

This system variable is evaluated only if $NT_ROT_AX_MIN[n, i] and $NT_ROT_AX_MAX[n,i] are not set to zero.

In this case, it indicates the maximum permitted position of the rotary axis, which is referred to with $NT_ROT_AX_NAME[n, i].

Index 1:	The maximum number of transformation datasets is set by the MD $MM_NUM_TRAFO_DATA_SETS.				
Index 2:	Index of the rotary axis				
unit:	deg.				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	1	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$NT_BASE_ORIENT [n,GEODIM]**	Vector of the tool base orientation for orientation transformations	**reference:**	

description:

Indicates the vector of the tool orientation in the general orientation transformation.

The vector becomes effective only if the tool orientation is not indicated when the transformation is called up or read from a programmed tool.

The vector can equal any amount, but this must not be equal to zero.

Index 1:	The maximum number of transformation datasets is set by the MD $MM_NUM_TRAFO_DATA_SETS.				
Index 2:	Index of the vector component				
unit:	-				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0 0.0 1.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	1	-	0	-	

axis identifier:				**Valuation:**	channel-specific
block search	Not classified			**link**	No restrictions

DOUBLE	**$NT_BASE_ORIENT_NORMAL [n,GEODIM]**	Norm. vector for orientation transformers with 3 orientation degs. of freedom	**reference:**	

description:

Indicates a vector that is perpendicular to the tool orientation ($NT_BASE_ORIENT) in the case of orientation transformations with 3 degrees of freedom.

The vector becomes effective only if the tool orientation is not indicated when the transformation is called up or read from a programmed tool.

The vector can equal any amount, but this must not be equal to zero.

If $NT_BASE_ORIENT_NORMAL and $NT_BASE_ORIENT are neither orthogonal nor parallel, the two vectors are orthogonalized by modifying the normal vector. The normal vector is now in the plane, which is defined by both vectors and rotated in such a way that the two vectors are positioned orthogonally.

The two named vectors must not be parallel.

Index 1:	The maximum number of transformation datasets is set by the MD $MM_NUM_TRAFO_DATA_SETS.				
Index 2:	Index of the vector component				
unit:	-				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0 1.0 0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	1	-	0	-	

axis identifier:				**Valuation:**	channel-specific
block search	Not classified			**link**	No restrictions

DOUBLE	**$NT_POLE_LIMIT [n]**	End angle toler. with interpol. through pole for 5/6-axis transf.	**reference:**	

description:

This MD designates an end angle tolerance for the fifth axis of the first 5-axis transformation with the following properties:

With the interpolation through the pole point, only the 2nd rotary axis moves, the 2nd rotary axis retains its starting position. If a motion is programmed that does not run exactly through the pole point but is to run near the pole within the area given by MD: TRAFO5_NON_POLE_LIMIT then there is a deviation from the defined path, as the interpolation runs exactly through the pole point. This results in a deviation in the position of the end point of the fourth axis (the polar axis) from the programmed value.

This MD defines the angle by which the polar axis may deviate from the programmed value with 5-axis transformation when switching from the programmed interpolation to the interpolation through the pole point.

An error message (alarm 14112) is output if there is a greater deviation and the interpolation is not executed.

Not relevant:

If the "5-Axis Transformation" option is not installed.

Also irrelevant with programming in the machine coordinate system ORIMKS.

Related to:

MD: TRAFO5_NON_POLE_LIMIT_n

Index 1:	The maximum number of transformation datasets is set by the MD $MM_NUM_TRAFO_DATA_SETS.					
unit:	deg.					
min.:	0.0	**max.:**	45.0	**std:**		2.0
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	1	-	0	-	

axis identifier:					**Valuation:**	channel-specific
block search	Not classified				**link**	No restrictions

DOUBLE	**$NT_POLE_TOL [n]**	End angle tolerance for pole interpolation	**reference:**	

description:

End angle tolerance for interpolation through the pole for the 1st 5/6-axis transformation.

This MD is evaluated only by the generic 5/6-axis

transformation.

If the end orientation lies within the pole cone and within the tolerance cone specified by means of this MD, the pole axis does not move and retains its start position. The other rotary axis, however, moves to the programmed angle.

This results in a deviation of the end orientation from the programmed orientation.

The maximum active value of this MD is the value of MD TRAFO5_POLE_LIMIT_1, which is used to define the pole cone.

Index 1:	The maximum number of transformation datasets is set by the MD $MM_NUM_TRAFO_DATA_SETS.					
unit:	deg.					
min.:	0.0	**max.:**	45.0	**std:**		1.0
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	

write:	X	-	1	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

CHAR	**$NT_ROT_OFFSET_FROM_FRAME [n]**	Transfer rotary axis offset from the work offset when selecting the transformer	**reference:**	

description:

For orientation transformations:

If the content of this data is not equal to zero, the programmable offset for orientation axes is automatically accepted from the work offset active for the orientation axes on switch-on of an orientation transformation.

For Transmit:

0:Axial offset of the rotary axis is not considered.

1:Axial offset of the rotary axis is considered.

2:Axial offset of the rotary axis is considered until SZS.

SZS frames include transformed rotations around the rotary axis.

Index 1:	The maximum number of transformation datasets is set by the MD $MM_NUM_TRAFO_DATA_SETS.						
unit:	-						
min.:	0	**max.:**	2	**std:**	false		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	1	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

BOOL	**$NT_IGNORE_TOOL_ORIENT [n]**	Read out tool orientation from $NT_BASE_ORIENT	**reference:**	

description:

Each tool has a defined tool orientation, which is normally used in the case of orientation programming to form the basis of calculating motions or the end points of the orientation axes. If this system data is set, the $NT_BASE_ORIENT / $NT_BASE_ORIENT_NORMAL orientation contained in the system data is used in place of the tool orientation, even in the case of an active tool.

Index 1:	The maximum number of transformation datasets is set by the MD $MM_NUM_TRAFO_DATA_SETS.						
unit:	-						
min.:	FALSE	**max.:**	TRUE	**std:**	false		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	1	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

BOOL	**$NT_TRAFO_INCLUDES_TOOL [n]**	Tool handling with active transformation	**reference:**	

description:

This system variable indicates whether the tool for an active transformation is handled internally or externally.

It is only evaluated for certain transformations.

The prerequisite for an evaluation is that the orientation of the tool in relation to the basic coordinate system cannot be modified by the transformation. In the case of standard transformations, this condition is only met for the "inclined axis transformation".

If this system variable is set, the basic coordinate system (BCS) refers to the tool reference point even in the case of an active transformation, in all other cases it refers to the tool center point (TCP).

The operation of protection zones and working area limitations varies accordingly.

Index 1:	The maximum number of transformation datasets is set by the MD $MM_NUM_TRAFO_DATA_SETS.						
unit:	-						
min.:	FALSE	**max.:**	TRUE	**std:**	TRUE		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	1	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$NT_AUX_POS [n,3]**	Auxiliary position	**reference:**	

description:

This system variable contains a position vector for use by measuring cycles.

It does not have any meaning within NCK.

Index 1:	The maximum number of transformation datasets is set by the MD $MM_NUM_TRAFO_DATA_SETS.						
Index 2:	Index of the position component						
unit:	mm						
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0 0.0 0.0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	1	-	0	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$NT_IDENT [n,3]**			Identifier				**reference:**	
description:									
These system variables contain a numerical ID for identifying a transformation data set for use by measuring cycles.									
They do not have any meaning within NCK.									
Index 1:		The maximum number of transformation datasets is set by the MD $MM_NUM_TRAFO_DATA_SETS.							
Index 2:		Index of the variable $NT_IDENT							
unit:		-							
min.:		-2147483648		**max.:**	2147483647		**std:**	0	
Properties with regard to reading/writing:									
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**		**OEM**	
read:	X	-	7		X	7		-	
write:	X	-	1		-	0		-	
axis identifier:						**Valuation:**		channel-specific	
block search		Not classified				**link**		No restrictions	

STRING	**$NT_CORR_ELEM [INTERNAL,4,32]**			Names of correction elements				**reference:**	
description:									
This system date refers to a maximum of 4 constant chain elements ($NK_NAME) provided for the input of correction values (linear offsets) as defined in measuring cycles, for example. It is (for the time being) only of significance in connection with orientation transformations.									
In the kinematic chain, there must also be an orientation axis between two of these elements. This means that only with 6-axes transformations all 4 chain elements may be assigned whereas with 5-axes transformations for example, this system date may only have three entries at maximum.									
Index 1:		The maximum number of transformation datasets is set by the MD $MM_NUM_TRAFO_DATA_SETS.							
Index 2:		Position in the kinematic chain							
Index 3:		Max. string length							
unit:		-							
min.:				**max.:**			**std:**	""	
Properties with regard to reading/writing:									
	PP	**SA**	**PP/SA protection level**		**OPI**	**OPI protection level**		**OEM**	
read:	X	-	7		X	7		-	
write:	X	-	1		-	0		-	
axis identifier:						**Valuation:**		channel-specific	
block search		Not classified				**link**		No restrictions	

1.32 Protection area elements

STRING	**$NP_PROT_NAME [n]**	Name of protection area	**reference:**	
description:				
Name of protection area n.				
Index 1:	The maximum number of protection areas is set by the MD $MN_MM_MAXNUM_3D_PROT_AREAS.			
Index 3:	Max. string length			
unit:	-			
min.:	**max.:**		**std:**	""
Properties with regard to reading/writing:				

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	X	
write:	X	-	1	X	7	X	

axis identifier:					**Valuation:**	channel-specific
block search	Not classified				**link**	No restrictions

STRING	**$NP_CHAIN_NAME [n]**	Assignment to a kin. chain	**reference:**	
description:				
The point in a kinematic chain to which the current protection area has been assigned, is defined by the two variables $NP_CHAIN_NAME and $NP_CHAIN_ELEM.				
If only $NP_CHAIN_NAME is indicated, the protection area is assigned to the beginning of the indicated chain.				
Index 1:	The maximum number of protection areas is set by the MD $MN_MM_MAXNUM_3D_PROT_AREAS.			
Index 3:	Max. string length			
unit:	-			
min.:	**max.:**		**std:**	""
Properties with regard to reading/writing:				

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	X	
write:	X	-	1	X	7	X	

axis identifier:					**Valuation:**	channel-specific
block search	Not classified				**link**	No restrictions

STRING	**$NP_CHAIN_ELEM [n]**	Assignment to a kin. chain	**reference:**	
description:				
See description of $NP_CHAIN_NAME[n]				
Index 1:	The maximum number of protection areas is set by the MD $MN_MM_MAXNUM_3D_PROT_AREAS.			
Index 3:	Max. string length			
unit:	-			
min.:	**max.:**		**std:**	""
Properties with regard to reading/writing:				

	PP	SA	PP/SA protection level	OPI	OPI protection level	OEM	
read:	X	-	7	X	7	X	
write:	X	-	1	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

STRING	**$NP_PROT_TYPE [n]**	Type of protection area	**reference:**	

description:

Type of protection area. The following values are permitted:

"MACHINE"

"TOOL"

"WORKPIECE"

"FIXTURE"

Index 1:	The maximum number of protection areas is set by the MD $MN_MM_MAXNUM_3D_PROT_AREAS.				
Index 3:	Max. string length				
unit:	-				
min.:		**max.:**		**std:**	""

Properties with regard to reading/writing:

	PP	SA	PP/SA protection level	OPI	OPI protection level	OEM	
read:	X	-	7	X	7	X	
write:	X	-	1	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

STRING	**$NP_1ST_PROT [n]**	Name of first element of a protection area	**reference:**	

description:

Name of first element of a protection area.

Index 1:	The maximum number of protection areas is set by the MD $MN_MM_MAXNUM_3D_PROT_AREAS.				
Index 3:	Max. string length				
unit:	-				
min.:		**max.:**		**std:**	""

Properties with regard to reading/writing:

	PP	SA	PP/SA protection level	OPI	OPI protection level	OEM	
read:	X	-	7	X	7	X	
write:	X	-	1	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$NP_PROT_COLOR [n]**	Color of the protection area.	**reference:**	

description:

Data for visualizing a protection area element.

The 3 low-value bytes contain the color information in RGB format, the highest byte contains the information for the alpha channel (transparency).

This data is only active for a protection area element that is part of the protection area for which this data is defined if a separate color parameter has not been defined for it (see system data $NP_COLOR), this means that the color definition for a protection area element has priority over the color definition of a protection area.

The default value is 0 (black, transparent).

Index 1:	The maximum number of protection areas is set by the MD $MN_MM_MAXNUM_3D_PROT_AREAS.					
unit:	-					
min.:	0	**max.:**	UINT_MAX	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	X	
write:	X	-	1	X	7	X	

axis identifier:					**Valuation:**	channel-specific
block search	Not classified				**link**	No restrictions

INT	**$NP_PROT_D_LEVEL [n]**	Detailing level of a protection area	**reference:**	

description:

Data for visualizing a protection area.

This data contains an integer value which defines when the relevant protection area is to be displayed in the successive generations of the display.

This data is only active for a protection area element that is part of the protection area for which this data is defined if a separate D-level parameter has not been defined for it (see system data $NP_D_LEVEL), this means that the D-level definition for a protection area element has priority over the D-level definition of a protection area.

The default value is 0.

Index 1:	The maximum number of protection areas is set by the MD $MN_MM_MAXNUM_3D_PROT_AREAS.					
unit:	-					
min.:	0	**max.:**	UINT_MAX	**std:**	0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	X	
write:	X	-	1	X	7	X	

axis identifier:					**Valuation:**	channel-specific
block search	Not classified				**link**	No restrictions

INT	**$NP_BIT_NO [n]**	No. of interface bit for switchover activated / preactivated	**reference:**	

description:

64 bits are defined in the PLC interface through which protection areas can be activated once they have been preactivated with the command PROTA(1(,.,.,.)). The entry indicates which bit has been assigned to this protection area. The default value is -1, i.e. no interface bit has been assigned to this protection area.

Index 1:	The maximum number of protection areas is set by the MD $MN_MM_MAXNUM_3D_PROT_AREAS.					
unit:	-					
min.:	-1	**max.:**	63	**std:**		-1
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	X	
write:	X	-	1	X	7	X	

axis identifier:					**Valuation:**	channel-specific
block search	Not classified				**link**	No restrictions

CHAR	**$NP_INIT_STAT [n]**	Default activation status of a protection area	**reference:**	

description:

Activation status of the protection area at first selection without indication of an activation status.

This status is activated for defined protection areas also during runup of the control.

The permitted values are:

Activated ('A' or 'a'),

Inactivated ('I' or 'i'),

Preactivated ('P' or 'p').

Default value is 'I'.

Index 1:	The maximum number of protection areas is set by the MD $MN_MM_MAXNUM_3D_PROT_AREAS.					
unit:	-					
min.:	0	**max.:**	255	**std:**		'I'
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	X	
write:	X	-	1	X	7	X	

axis identifier:					**Valuation:**	channel-specific
block search	Not classified				**link**	No restrictions

INT	**$NP_INDEX [n,3]**	Index for tool identifier	**reference:**	

description:

This component is evaluated only if $NP_PROT_TYPE[n] contains an automatically generated protection area named ("TOOL").

The indices then define the exact type of the automatically generated protection area.

Index 1:	The maximum number of protection areas is set by the MD $MN_MM_MAXNUM_3D_PROT_AREAS.

Index 2:		Number of the index (0 <= i <= 2)					
unit:		-					
min.:		-2147483648	**max.:**	2147483647	**std:**		0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	X	
write:	X	-	1	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

STRING	**$NP_NAME [n]**	Name of protection zone element	**reference:**		
description:					
Name of protection zone element.					
Index 1:	The maximum number of items in protection areas is set by the MD $MN_MM_MAXNUM_3D_PROT_AREA_ELEM.				
Index 3:	Max. string length				
unit:	-				
min.:		**max.:**		**std:**	""

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	X	
write:	X	-	1	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

STRING	**$NP_NEXT [n]**	Name of next protection zone element	**reference:**		
description:					
Name of next protection zone element.					
Index 1:	The maximum number of items in protection areas is set by the MD $MN_MM_MAXNUM_3D_PROT_AREA_ELEM.				
Index 3:	Max. string length				
unit:	-				
min.:		**max.:**		**std:**	""

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	X	
write:	X	-	1	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

STRING	**$NP_NEXTP [n]**	Name of the next parallel protection area element	**reference:**	

description:

Name of another protection area element ("parallel" to $NP_NEXT) that follows the current protection area element.

Index 1:	The maximum number of items in protection areas is set by the MD $MN_MM_MAXNUM_3D_PROT_AREA_ELEM.					
Index 3:	Max. string length					
unit:	-					
min.:		**max.:**		**std:**		""
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	X	
write:	X	-	1	X	7	X	

axis identifier:				**Valuation:**	channel-specific	
block search	Not classified			**link**	No restrictions	

STRING	**$NP_ADD [n]**	Name of an additive protection zone	**reference:**	

description:

Name of protection element to be added to the current protection zone.

Index 1:	The maximum number of items in protection areas is set by the MD $MN_MM_MAXNUM_3D_PROT_AREA_ELEM.					
Index 3:	Max. string length					
unit:	-					
min.:		**max.:**		**std:**		""
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	X	
write:	X	-	1	X	7	X	

axis identifier:				**Valuation:**	channel-specific	
block search	Not classified			**link**	No restrictions	

INT	**$NP_COLOR [n]**	Color of the protection area element.	**reference:**	

description:

Data for visualizing a protection area element.

For the coding, see the system variable $NP_PROT_COLOR.

If the content of this data is 0, then the color is not defined. In this case, the protection area element is given the color defined for the protection area in which it is contained.

The default value is 0 (color not defined).

Index 1:	The maximum number of protection areas is set by the MD $MN_MM_MAXNUM_3D_PROT_AREAS.					
unit:	-					
min.:	0	**max.:**	UINT_MAX	**std:**		0
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	

read:	X	-	7	X	7	X	
write:	X	-	1	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$NP_D_LEVEL [n]**	Detailing level of a protection area element	**reference:**	

description:

Data for visualizing a protection area element.

If the content of this data is 0, then the detailing level is not defined. In this case, the protection area element is given the detailing level defined for the protection area in which it is contained.

The default value is 0.

Index 1:	The maximum number of protection areas is set by the MD $MN_MM_MAXNUM_3D_PROT_AREAS.				
unit:	-				
min.:	0	**max.:**	UINT_MAX	**std:**	0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	X	
write:	X	-	1	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

CHAR	**$NP_USAGE [n]**	Intended use of the protection area.	**reference:**	

description:

This system variable defines whether the protection area element is to be visualized ('V'), is to be included in the protection area monitoring ('C'), or both ('A').

No distinction is made between upper and lower case letters.

The default value is 'A'.

Index 1:	The maximum number of protection areas is set by the MD $MN_MM_MAXNUM_3D_PROT_AREAS.				
unit:	-				
min.:	0	**max.:**	255	**std:**	'A'

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	X	
write:	X	-	1	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

STRING	**$NP_TYPE [n]**	Type of protection area element	**reference:**	

description:

Type of protection area element. The following types are possible:

FRAME: An element of this type does not contain a body, it only defines a frame, which is active for the subsequent protection area definitions.

1. BOX (L, W, H): Axis-parallel cuboid, symmetrically arranged around the zero point, with the dimensions L in the X direction, W in the Y direction and H in the Z direction, i.e. the corners of the cuboid are located at (+/-L/2, +/-W/2, +/-H/2).

2. SPHERE (R): Sphere centered in the zero point with radius R.

3. CYLINDER (H, R): Cylinder with radius R and height H, longitudinal axis parallel to Z axis. The center point of the cylinder lies at the zero point, i.e. the two limiting circular areas are parallel to the X-Y plane and are located at +/-H/2.

4. FILE: Grid of triangular areas in STL format.

Index 1:	The maximum number of items in protection areas is set by the MD $MN_MM_MAXNUM_3D_PROT_AREA_ELEM.					
Index 3:	Max. string length					
unit:	-					
min.:		**max.:**		**std:**	""	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	X	
write:	X	-	1	X	7	X	

axis identifier:			**Valuation:**	channel-specific	
block search	Not classified		**link**	No restrictions	

STRING	**$NP_FILENAME [n]**	File name of a protection area element of the type "FILE"	**reference:**	

description:

This parameter is evaluated only if the protection area element is the type "File" ($NP_TYPE[..] = "FILE"). In which case, it defines the name of the file containing the description of the protection area element.

Index 1:	The maximum number of items in protection areas is set by the MD $MN_MM_MAXNUM_3D_PROT_AREA_ELEM.					
Index 3:	Max. string length					
unit:	-					
min.:		**max.:**		**std:**	""	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	X	
write:	X	-	1	X	7	X	

axis identifier:			**Valuation:**	channel-specific	
block search	Not classified		**link**	No restrictions	

DOUBLE	**$NP_PARA [n,3]**	Parameters for describing the type	**reference:**	

description:

Parameters for describing the protection area element. A maximum of 3 parameters are required for the types described under $NP_TYPE.

Index 1:	The maximum number of items in protection areas is set by the MD $MN_MM_MAXNUM_3D_PROT_AREA_ELEM.					
Index 2:	The maximum number of parameters is 3.					
unit:	mm					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	X	
write:	X	-	1	X	7	X	

axis identifier:		**Valuation:**	channel-specific
block search	Not classified	**link**	No restrictions

DOUBLE	**$NP_OFF [n,GEODIM]**	Offset component	**reference:**	

description:

Component i (0<=i<=2) of the offset vector of protection zone element n.

Index 1:	The maximum number of items in protection areas is set by the MD $MN_MM_MAXNUM_3D_PROT_AREA_ELEM.					
Index 2:	The 2nd index i designates the coordinate axis (0 <= i <= 2).					
unit:	mm					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	X	
write:	X	-	1	X	7	X	

axis identifier:		**Valuation:**	channel-specific
block search	Not classified	**link**	No restrictions

DOUBLE	**$NP_DIR [n,GEODIM]**	Direction of rotary axis	**reference:**	

description:

Components of the rotary axis for a coordinate rotation of the protection area element n.

Index 1:	The maximum number of items in protection areas is set by the MD $MN_MM_MAXNUM_3D_PROT_AREA_ELEM.					
Index 2:	The 2nd index designates the vector component i (0 <= i <= 2).					
unit:	-					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	X	

write:	X	-	1	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$NP_ANG [n]**			Angle of a coordinate rotation in the protection area element n.		**reference:**	
description:							
Angle (in degrees) of a coordinate rotation in protection area element n							
Index 1:	The maximum number of items in protection areas is set by the MD $MN_MM_MAXNUM_3D_PROT_AREA_ELEM.						
unit:	deg.						
min.:	-1,8E308		**max.:**	1,8E308		**std:**	0.0
Properties with regard to reading/writing:							

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	X	
write:	X	-	1	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

STRING	**$NP_COLL_PAIR [INTERNAL,2,32]**			Protection area pairs		**reference:**	
description:							
Contains the names of two protection areas that can be monitored to prevent them colliding with each other.							
Index 1:	The maximum number of protection area pairs is derived from the MD $MN_MM_MAXNUM_3D_PROT_AREAS.						
Index 2:	The two protection areas form a pair which can be monitored for collision						
Index 3:	Max. string length						
unit:	-						
min.:			**max.:**			**std:**	""
Properties with regard to reading/writing:							

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	X	
write:	X	-	1	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$NP_SAFETY_DIST [n]**			Safety distance of a pair of protection areas		**reference:**	
description:							
Safety distance of a pair of protection areas. If the content of this data is 0.0, the global safety distance contained in $MN_COLLISION_SAFETY_DIST is effective.							
Index 1:	The maximum number of protection area pairs is derived from the MD $MN_MM_MAXNUM_3D_PROT_AREAS.						
unit:	mm						
min.:	0.0		**max.:**	FLT_MAX		**std:**	0.0
Properties with regard to reading/writing:							

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	

read:	X	-	7	X	7	X	
write:	X	-	1	X	7	X	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

1.33 Coordinate system-specific working area limitation

INT	**$P_WORKAREA_CS_COORD_SYSTEM [n]**	Coordinate system to which the working area limitation applies	**reference:**	

description:

Coordinate system in which the group is to apply.

The following values apply:

Working area limitation in the WCS

Working area limitation in the SZS

Index 1:	Group of the coordinate system-specific working area limitation. The maximum value is determined by the MD $MC_MM_NUM_WORKAREA_CS_GROUPS.						
unit:	-						
min.:	-2147483648	**max.:**	2147483647	**std:**	0		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	-	0	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

BOOL	**$P_WORKAREA_CS_PLUS_ENABLE [n,m]**	Coordinate system-specific working area limitation plus valid	**reference:**	

description:

TRUE: The coordinate system-specific working area limitation in the plus direction is valid for the stated axis of the stated group. (See $P_WORKAREA_CS_LIMIT_PLUS[groupNo, ax])

Index 1:	Group of the coordinate system-specific working area limitation. The maximum value is determined by the MD $MC_MM_NUM_WORKAREA_CS_GROUPS.						
Index 2:	Axis name of the working area limitation. Any axis names known in the channel are permitted as axis name.						
unit:	-						
min.:	FALSE	**max.:**	TRUE	**std:**	FALSE		
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:	GEO	CHAN	MACH		**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

BOOL	**$P_WORKAREA_CS_MINUS_ENABLE [n,m]**	Coordinate system-specific working area limitation minus valid	**reference:**	

description:

TRUE: The coordinate system-specific working area limitation in the minus direction is valid for the stated axis of the stated group. (See $P_WORKAREA_CS_LIMIT_MINUS[groupNo, ax])

Index 1:	Group of the coordinate system-specific working area limitation. The maximum value is determined by the MD $MC_MM_NUM_WORKAREA_CS_GROUPS.				
Index 2:	Axis name of the working area limitation. Any axis names known in the channel are permitted as axis name.				
unit:	-				
min.:	FALSE	**max.:**	TRUE	**std:**	FALSE

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:	GEO	CHAN	MACH	**Valuation:**	channel-specific
block search	Not classified			**link**	No restrictions

DOUBLE	**$P_WORKAREA_CS_LIMIT_PLUS [n,m]**	Coordinate system-specific working area limitation positive	**reference:**	

description:

The coordinate system-specific working area limitation in the plus direction for the stated axis of the stated group. This value is evaluated only if $P_WORKAREA_CS_PLUS_ENABLE = TRUE.

Index 1:	Group of the coordinate system-specific working area limitation. The maximum value is determined by the MD $MC_MM_NUM_WORKAREA_CS_GROUPS.				
Index 2:	Axis name of the working area limitation. Any axis names known in the channel are permitted as axis name.				
unit:	Linear / angular position				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:	GEO	CHAN	MACH	**Valuation:**	channel-specific
block search	Not classified			**link**	No restrictions

DOUBLE	**$P_WORKAREA_CS_LIMIT_MINUS [n,m]**	Coordinate system-specific working area limitation negative	**reference:**	

description:

The coordinate system-specific working area limitation in the minus direction for the stated axis of the stated group. This value is evaluated only if $P_WORKAREA_CS_MINUS_ENABLE = TRUE.

Index 1:	Group of the coordinate system-specific working area limitation. The maximum value is determined by the MD $MC_MM_NUM_WORKAREA_CS_GROUPS.				
Index 2:	Axis name of the working area limitation. Any axis names known in the channel are permitted as axis name.				
unit:	Linear / angular position				
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:		GEO	CHAN	MACH	**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

1.34 ePS Network Services

DOUBLE	**$EPS_R [n]**	ePS parameter of type REAL	**reference:**	
description:				
Reserved for internal use only (ePS).				
Index 1:	The max. number of ePS parameters of the type REAL is determined by the machine data $MN_MM_EPSPARAM_DIMENSION			
unit:	-			
min.:	-1,8E308	**max.:** 1,8E308	**std:**	0.0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	-	
write:	X	X	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Program sensitive			**link**	No restrictions	

INT	**$EPS_I [n]**	ePS parameter of type INT	**reference:**	
description:				
Reserved for internal use only (ePS).				
Index 1:	The max. number of ePS parameters of the type INT is determined by the machine data $MN_MM_EPSPARAM_DIMENSION			
unit:	-			
min.:	-2147483648	**max.:** 2147483647	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	-	
write:	X	X	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Program sensitive			**link**	No restrictions	

BOOL	**$EPS_B [n]**	ePS parameter of type BOOL	**reference:**	
description:				
Reserved for internal use only (ePS).				
Index 1:	The max. number of ePS parameters of the type BOOL is determined by the machine data $MN_MM_EPSPARAM_DIMENSION			

unit:		-					
min.:		FALSE	**max.:**	TRUE		**std:**	FALSE
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	-	
write:	X	X	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Program sensitive			**link**	No restrictions	

AXIS	**$EPS_A [n]**	ePS parameter of type AXIS	**reference:**	
description:				
Reserved for internal use only (ePS).				
Index 1:	The max. number of ePS parameters of the type AXIS is determined by the machine data $MN_MM_EPSPARAM_DIMENSION			
unit:	-			
min.:		**max.:**		**std:**	GEOAXISNUM

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	-	
write:	X	X	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Program sensitive			**link**	No restrictions	

CHAR	**$EPS_C [n]**	ePS parameter of type CHAR	**reference:**	
description:				
Reserved for internal use only (ePS).				
Index 1:	The max. number of ePS parameters of the type CHAR is determined by the machine data $MN_MM_EPSPARAM_DIMENSION			
unit:	-			
min.:	0	**max.:**	255	**std:**	0

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	-	
write:	X	X	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Program sensitive			**link**	No restrictions	

STRING	**$EPS_S [n]**	ePS parameter of type STRING	**reference:**	
description:				
Reserved for internal use only (ePS).				
Index 1:	The max. number of ePS parameters of the type STRING is determined by the machine data $MN_MM_EPSPARAM_DIMENSION			
Index 3:	31 characters plus string end character			

unit:		-					
min.:			**max.:**		**std:**		""
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	X	7	X	7	-	
write:	X	X	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Program sensitive			**link**	No restrictions	

1.35 Tool data ISO dialect milling

DOUBLE	**$TC_ISO_H [n]**	ISO2 tool length offset	**reference:**	

description:

$TC_ISO_H[n]

Correction value memory for the geometry of the tool length compensation in ISO2 mode.

Is available only if ISO2 mode is active.

Index 1:		n: Compensation number of the ISO tool compensation parameter					
unit:		mm					
min.:		-1,8E308	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$TC_ISO_HW [n]**	ISO2 tool length wear	**reference:**	

description:

$TC_ISO_HW[n]

Correction value memory for the wear of the tool length compensation in ISO2 mode.

Is available only if ISO2 mode is active.

Index 1:		n: Compensation number of the ISO tool compensation parameter					
unit:		mm					
min.:		-1,8E308	**max.:**	1,8E308	**std:**		0.0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

DOUBLE	**$TC_ISO_D [n]**	ISO2 tool radius offset	**reference:**	

description:
$TC_ISO_D[n]
Correction value memory for the geometry of the tool radius in ISO2 mode.
Is available only if ISO2 mode is active.

Index 1:	n: Compensation number of the ISO tool compensation parameter					
unit:	mm					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:				**Valuation:**	channel-specific
block search	Not classified			**link**	No restrictions

DOUBLE	**$TC_ISO_DW [n]**	ISO2 tool radius wear	**reference:**	

description:
$TC_ISO_DW[n]
Correction value memory for the wear of the tool radius in ISO2 mode.
Is available only if ISO2 mode is active.

Index 1:	n: Compensation number of the ISO tool compensation parameter					
unit:	mm					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	
Properties with regard to reading/writing:						

	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	

axis identifier:				**Valuation:**	channel-specific
block search	Not classified			**link**	No restrictions

1.36 Tool data ISO dialect turning

DOUBLE	**$TC_ISO_L1 [n]**			ISO3 tool length 1 offset			**reference:**	
description:								
$TC_ISO_L1[n]								
Correction value memory for the geometry of tool length 1 in ISO3 mode.								
Is available only if ISO3 mode is active.								
Index 1:	n: Compensation number of the ISO tool compensation parameter							
unit:	mm							
min.:	-1,8E308		**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**		
read:	X	-	7	X	7	-		
write:	X	-	7	X	7	-		
axis identifier:					**Valuation:**	channel-specific		
block search	Not classified				**link**	No restrictions		

DOUBLE	**$TC_ISO_L1W [n]**			ISO3 tool length 1 wear			**reference:**	
description:								
$TC_ISO_L1W[n]								
Correction value memory for the wear of tool length 1 in ISO3 mode.								
Is available only if ISO3 mode is active.								
Index 1:	n: Compensation number of the ISO tool compensation parameter							
unit:	mm							
min.:	-1,8E308		**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**		
read:	X	-	7	X	7	-		
write:	X	-	7	X	7	-		
axis identifier:					**Valuation:**	channel-specific		
block search	Not classified				**link**	No restrictions		

DOUBLE	**$TC_ISO_L2 [n]**			ISO3 tool length 2 offset			**reference:**	
description:								
$TC_ISO_L2[n]								
Correction value memory for the geometry of tool length 2 in ISO3 mode.								
Is available only if ISO3 mode is active.								
Index 1:	n: Compensation number of the ISO tool compensation parameter							
unit:	mm							
min.:	-1,8E308		**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:								
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**		
read:	X	-	7	X	7	-		

write:	X	-	7		X	7	-
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_ISO_L2W [n]**			ISO3 tool length 2 wear		**reference:**	
description:							
$TC_ISO_L2W[n]							
Correction value memory for the wear of tool length 2 in ISO3 mode.							
Is available only if ISO3 mode is active.							
Index 1:	n: Compensation number of the ISO tool compensation parameter						
unit:	mm						
min.:	-1,8E308	**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_ISO_L3 [n]**			ISO3 tool length 3 offset		**reference:**	
description:							
$TC_ISO_L3[n]							
Correction value memory for the geometry of tool length 3 in ISO3 mode.							
Is available only if ISO3 mode is active.							
Index 1:	n: Compensation number of the ISO tool compensation parameter						
unit:	mm						
min.:	-1,8E308	**max.:**	1,8E308		**std:**	0.0	
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_ISO_L3W [n]**			ISO3 tool length 3 wear		**reference:**	
description:							
$TC_ISO_L3W[n]							
Correction value memory for the wear of tool length 3 in ISO3 mode.							
Is available only if ISO3 mode is active.							
Index 1:	n: Compensation number of the ISO tool compensation parameter						
unit:	mm						
min.:	-1,8E308	**max.:**	1,8E308		**std:**	0.0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_ISO_R [n]**		ISO3 tool radius compensation		**reference:**	
description:						
$TC_ISO_R[n]						
Correction value memory for the geometry of the tool radius in ISO3 mode.						
Is available only if ISO3 mode is active.						
Index 1:	n: Compensation number of the ISO tool compensation parameter					
unit:	mm					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

DOUBLE	**$TC_ISO_RW [n]**		ISO3 tool radius wear		**reference:**	
description:						
$TC_ISO_RW[n]						
Correction value memory for the wear of the tool radius in ISO3 mode.						
Is available only if ISO3 mode is active.						
Index 1:	n: Compensation number of the ISO tool compensation parameter					
unit:	mm					
min.:	-1,8E308	**max.:**	1,8E308	**std:**	0.0	

Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search	Not classified				**link**	No restrictions	

INT	**$TC_ISO_Q [n]**		ISO3 cutting edge position		**reference:**	
description:						
$TC_ISO_Q[n]						
Cutting edge position in ISO3 mode.						
Is available only if ISO3 mode is active.						
Index 1:	n: Compensation number of the ISO tool compensation parameter					

unit:		-					
min.:		-2147483648	**max.:**	2147483647		**std:**	0
Properties with regard to reading/writing:							
	PP	**SA**	**PP/SA protection level**	**OPI**	**OPI protection level**	**OEM**	
read:	X	-	7	X	7	-	
write:	X	-	7	X	7	-	
axis identifier:					**Valuation:**	channel-specific	
block search		Not classified			**link**	No restrictions	

Appendix A

A

A.1 List of abbreviations

Abbreviation	Source of abbreviation	Meaning
ADI4	Analog Drive Interface for 4 axes	
AC	Adaptive Control	
ALM	Active Line Module	Infeed module for drives
AS	Automation System	
ASCII	American Standard Code for Information Interchange	American coding standard for the exchange of information
ASIC	Application Specific Integrated Circuit	User switching circuit
ASUB	Asynchronous subprogram	
AUTO		Operating mode "Automatic"
AUXFU	Auxiliary Function:	Auxiliary functions
STL	Statement List	
BA	Operating mode	
Mode group	Mode group	
BERO	Proximity limit switch with feedback oscillator	
BI	Binector Input	
HHU	Handheld unit	
BICO	Binector Connector	Interconnection technology for the drive
BIN	Binary files	Binary files
BIOS	Basic Input Output System	
BCS	Basic Coordinate System	
BO	Binector Output	
OPI	Operator Panel Interface	
CAD	Computer Aided Design	
CAM	Computer-Aided Manufacturing	
CC	Compile Cycle	Compile cycles
CI	Connector Input	
CF Card	Compact Flash Card	
CNC	Computerized Numerical Control	Computer-Supported Numerical Control
CO	Connector Output	
COM board	Communication Board	
CP	Communications Processor	
CPU	Central Processing Unit	Central processing unit
CR	Carriage Return	
CRC	Cyclic Redundancy Check	Checksum test
CRT	Cathode Ray Tube	picture tube

Abbreviation	Source of abbreviation	Meaning
CSB	Central Service Board	PLC module
CTS	Clear To Send	Signal from serial data interfaces
CUTCOM	Cutter radius compensation	Tool radius compensation
DB	Data block	Data block in the PLC
DBB	Data-block byte	Data block byte in the PLC
DBW	Data-block word	Data block byte in the PLC
DBX	Data-block bit	Data block bit in the PLC
DDE	Dynamic Data Exchange	Dynamic Data Exchange
DDS		Drive data set
DIN	Deutsche Industrie Norm (German Industry Standard)	
DIR	Directory	Directory
DLL	Dynamic Link Library	
DO	Drive Object	Drive object
DPM	Dual-Port Memory	
DRAM	Dynamic Random Access Memory	Dynamic memory block
DRF	Differential Resolver Function	Differential resolver function (handwheel)
DRIVE-CLiQ	Drive Component Link with IQ	
DRY	DRY run	DRY run feedrate
DSB	Decoding Single Block	Decoding single block
DSC	Dynamic Servo Control / Dynamic Stiffness Control	
DSR	Data Send Ready	Signals that data is ready to be sent from the serial data interfaces
DW	Data word	
DWORD	Double Word (currently 32 bits)	
E	Input	
I/O	Input/Output	
ENC	Encoder	Actual value encoder
EPROM	Erasable Programmable Read Only Memory	Erasable, electronically programmable read-only memory
ePS Network Services		Services for Internet-based remote machine maintenance
EQN		Designation for an absolute encoder with 2048 sine signals per revolution
ESR	Extended stop and retract	
ETC	ETC key	Expansion of the softkey bar in the same menu
FB	Function block	
FBS	Slimline screen	
FC	Function call	Function block in the PLC
FEPROM	Flash EPROM	Read and write memory
FIFO	First In - First Out	Method of storing and retrieving data in a memory

Abbreviation	Source of abbreviation	Meaning
FIPO	Fine InterPOlator	
FM	Function Module	
FM-NC	Function Module Numerical Control	Numerical Control
FPU	Floating-point unit	Floating Point Unit
FRA	Frame block	
FRAME	Data set	Coordinate conversion with the components work offset, rotation, scaling, mirroring
CRC	Cutter radius compensation	
FST	Feed Stop	Feed stop
CSF	Function plan (PLC programming method)	
FW	Firmware	
GC	Global control	PROFIBUS: Broadcast telegram
GD	Global data	
GEO	Geometry, e.g. geometry axis	
BP	Basic program	
GS	Gear stage	
GUD	Global User Data	Global user data
HD	Hard Disk	Hard disk
HEX	Abbreviation for hexadecimal number	
AuxF	Auxiliary function	
HMI	Human Machine Interface	SINUMERIK user interface
MSD	Main Spindle Drive	
HT	Handheld Terminal	Handheld unit
HW	Hardware	
IBN	Startup	
IF	Drive module pulse enable	
IK (GD)	Implicit communication (global data)	
IKA	Interpolative Compensation	Interpolatory compensation
IM	Interface module	Interconnection module
INC	Increment	Increment
INI	Initializing Data	Initializing data
IGBT	Insulated Gate Bipolar Transistor	
IPO	Interpolator	
ISO	International Standardization Organization	International Standards Organization
JOG	"Jogging" operating mode	
COR	Coordinate rotation	
KDV	Crosswise data comparison	Crosswise data comparison between the NCK and PLC
K_V	Servo-gain factor	Gain factor of control loop
LAD	Ladder diagram	PLC programming method
LCD	Liquid Crystal Display	Liquid crystal display

Abbreviation	Source of abbreviation	Meaning
LED	Light Emitting Diode	Light Emitting Diode
LF	Line Feed	
PMS		
LSB	Least Significant Bit	Least significant bit
LUD	Local User Data	User data
MAC	Media Access Control	
MAIN	Main program	Main program (OB1, PLC)
MB	Megabyte	
MCI	Motion Control Interface	
MCIS	Motion Control Information System	
MCP	Machine control panel	Machine control panel
MD	Machine data	
MDI	"Manual Data Automatic" operating mode	Manual input
MCS	Machine coordinate system	
MLFB	Machine-readable product code	
MMC	Man Machine Communication	Synonym for HMI
MPF	Main Program File	Main program (NC part program)
MPI	Multi-Point Interface	Multiport Interface
MCP	Machine control panel	
NC	Numerical Control	Numerical Control
NCK	Numerical Control Kernel	Numerical control kernel
NCU	Numerical Control Unit	Hardware unit of the NCK
IS	Interfaces	Interface signal
WO	Zero offset	
NX	Numerical Extension	Axis expansion board
OB	Organization block in the PLC	
OEM	Original Equipment Manufacturer	
OP	Operator panel	Operator panel
OPI	Operator Panel Interface	Interface for connection to the operator panel
OSI	Open Systems Interconnection	Standard for computer communications
OPT	Options	Options
PIQ	Process Image Output	
PII	Process Image Input	
P bus	Peripheral Bus	
PC	Personal Computer	
PCMCIA	Personal Computer Memory Card International Association	Standard for plug-in memory cards
PCU	Programmable Control Unit	
PI	Program Instance	
PG	Programming device	
PLC	Programmable logic controller	Programmable Logic Controller

Abbreviation	Source of abbreviation	Meaning
PN	PROFINET	
PO	POWER ON	
POU	Program Organization Unit	Unit in the PLC user program
PPU	Panel Processing Unit	Panel-based control
PTP	Point-to-point	Point-to-Point
PZD	Process data for drives	
QEC	Quadrant Error Compensation	Quadrant error compensation
QEC	Quadrant error compensation	
RAM	Random Access Memory	Program memory that can be read and written to
REF POINT		Function "Reference point approach" in JOG mode
REPOS		Function "Repositioning" in JOG mode
RPA	R parameter Active	Memory area on the NCK for R parameter numbers
RPY	Roll Pitch Yaw	Rotation type of a coordinate system
RTC	Real Time Clock	Real-time clock
RTS	Request To Send	RTS, control signal of serial data interfaces
SBL	Single Block	Single block
SBR	Subroutine	Subroutine (PLC)
SD	Setting Data	
SDB	System Data Block	
SEA	Setting Data Active	Identifier (file type) for setting data
SERUPRO	SEarch RUn by PROgram test	Search run by program test
SFC	System Function Call	
SGE	Safety-related input	
SGA	Safety-related output	
SH	Safe standstill	
SK	Softkey	
SKP	Skip	Skip block
SLM	Smart Line Module	
SM	Stepper Motor	
SPF	Subprogram file	Subprogram (NC)
SPL	Safe programmable logic	
PLC	Programmable Logic Controller	
SRAM	Static Random Access Memory	Static memory block
TNRC	Tool Nose Radius Compensation	
LEC	Leadscrew error compensation	
SSI	Serial Synchronous Interface	Synchronous serial interface
STW	Control word	
GWPS	Grinding Wheel Peripheral Speed	
SW	Software	
SYF	System Files	System files

Abbreviation	Source of abbreviation	Meaning
SYNACT	SYNACT synchronized action	Synchronized Action
TB	Terminal Board (SINAMICS)	
TEA	Testing Data Active	Identifier for machine data
TCP	Tool Center Point	Tool tip
TCU	Thin Client Unit	
TEA	Testing Data Active	Identifier for machine data
TM	Terminal Module (SINAMICS)	
TO	Tool offset	Tool offset
TOA	Tool Offset Active	Identifier (file type) for tool offsets
TRANSMIT	Transform Milling Into Turning	Coordinate conversion on turning machine for milling operations
TTL	Transistor-transistor logic	Interface type
UFR	User frame	Zero offset
SR	Subroutine	
USB	Universal Serial Bus	
UPS	Uninterruptible Power Supply	
VDI		Internal communication interface between NCK and PLC
FDD	Feed Drive	
VPM	Voltage Protection Module	
VSM	Voltage Sensing Module	
WAB		Function "Smooth Approach and Retraction"
Work	Workpiece coordinate system	
T	Tool	
TLC	Tool length compensation	
WPD	Workpiece Directory	Workpiece directory
T	Tool	
TM	Tool management	
TC	Tool change	
ZOA	Work Offset Active	Identifier (file type) for zero offset data
SW	Status word (of drive)	

A.2 Documentation overview

SINUMERIK 840D sl documentation overview

General documentation

Sales brochure

Catalog NC 62

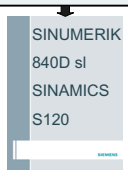
Catalog PM 21 SIMOTION, SINAMICS S120 and motors for production machines

User documentation

Operating Manual
– Universal
– Turning
– Milling

Programming manual
– Fundamentals
– Job planning
– Measuring cycles

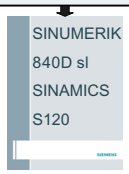
Programming manual
– ISO turning
– ISO milling



Diagnostics manual

Manufacturer/service documentation

Device manual
– NCU
– operator components and networking



System manual
Guidelines for the machine configuration

System manual
Ctrl Energy

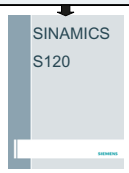
Commissioning manual
– CNC: NCK, PLC, Drive
– Base software and operating software

List manual
– Machine data
– Interface signals
– Variables

Manufacturer/service documentation

Function manual
– Basic functions
– Extended functions
– Special functions
– Synchronous actions
– ISO dialects

Function manual
Tool management



Function manual
Drive functions

Function manual
Safety Integrated

Configuration manual
EMC Design Guidelines

Info/training

Training documents
– Simple milling with ShopMill
– Simple turning with ShopTurn

Manuals
Tool and mold making

Electronic documentation

DOConCD

My Documentation Manager

Industry Mall