



# SILCOPAC SPM

## Control Kit & Control Box



## SILCOPAC SPDM

### *CONTROL KIT & CONTROL BOX*

Code:	IMSPD0BK1
Revision:	0.7
SW Version:	0.2 NRG
Date:	Jan-08

For further information and comment, please contact us at:

[www.asnswerdrives.com](http://www.asnswerdrives.com)

Answer Drives S.r.l. thanks you for choosing a product of the SILCOPAC family and for any useful advice aimed at the improvement of this manual.

The Control Kit and Control Box are based on SPDM control and it is designed for the control thyristor AC/DC converters. They are used to revamp old thyristor AC/DC converter. The Control Kit includes loose parts only that must be mounted by the user according to this manual.

In the Control Box all the components are already mounted.

#### A) CONTROL KIT

The following Control Kit are available:

CODE	SAP
SPDMKITUGE	IT09 1000074196
SPDMKITUKE	IT09 1000074198
SPDMKITRGE	IT09 1000074197
SPDMKITRKE	IT09 1000074199
SPDMKITRWE	IT09 1000074200

#### IDENTIFICATION CODE

SPDM	KIT	X	X	E
	CONTROL KIT	QUADRANT OPERATION	SUPPLY VOLTAGE	SOFTWARE
		U = 2 quadrants R = 4 quadrants	G = 380-500 V K = 690 V W = 750 V	E = enhanced *

\* SW "E" includes Profibus DP SW. For the availability of the Profibus DP field bus the user must install SPPB2 kit (see options).

**NOTE:** The electronic boards power supply is 380-400V. A transformer/autotransformer must be used with other power supply voltage. The transformer is compulsory with power supply voltage > 500V

#### Kit composition

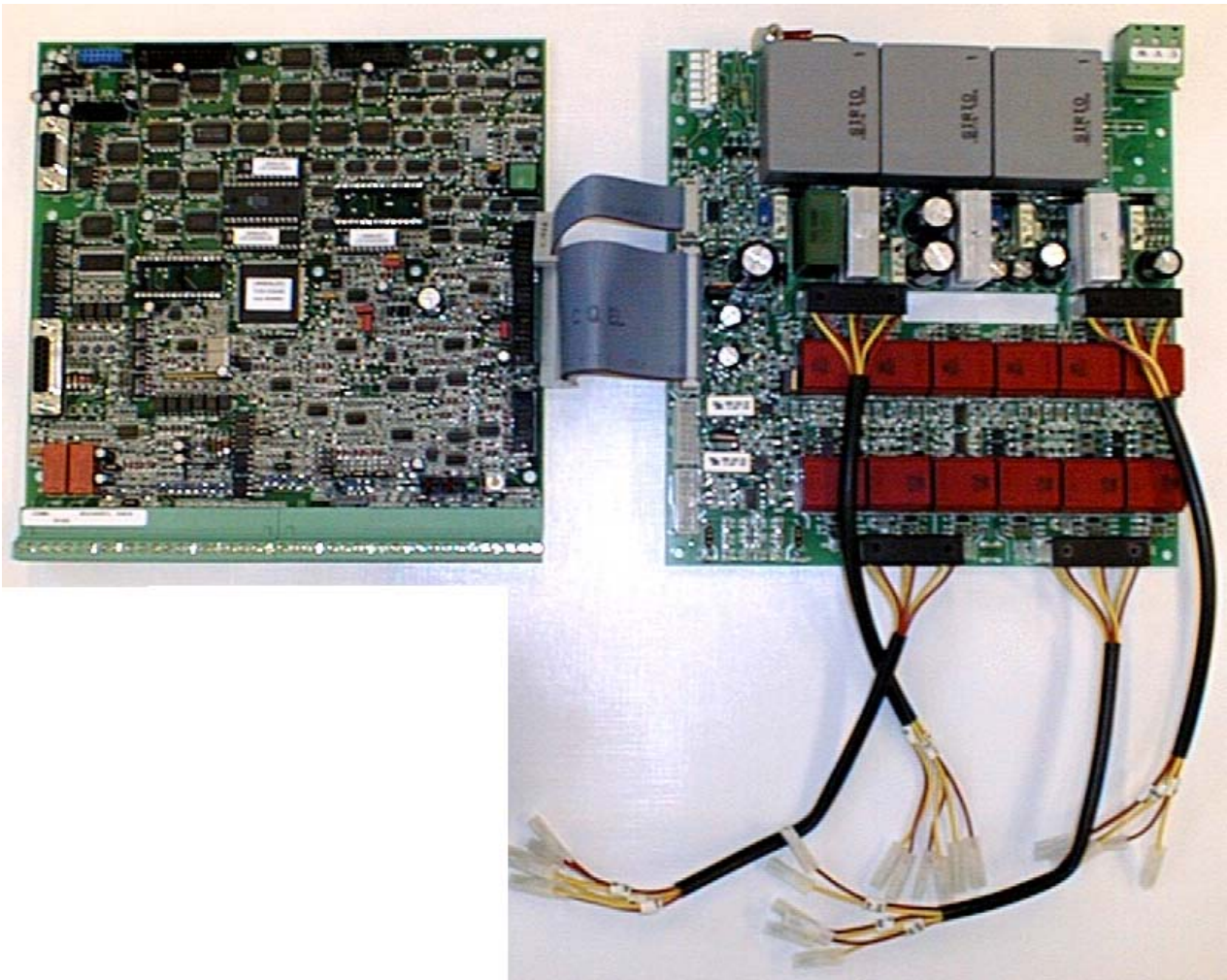
SAP CODE	Description	G IV Quadrant Quantity	G II Quadrant Quantity
ELC45244601	Control board "CONDBE"	1	1
ELC452441**	Four quadrant power board.380/500V BPR	1	
ELC452443**	Two quadrant power board.380/500V BPU		1
ELC409351	CONDBE boards holder	1	1
ELC20640504	Pulse cable	1	
ELC20640505	Pulse cable	1	
ELC20640506	Pulse cable	1	1
ELC20640507	Pulse cable	1	1
ELC22223301	Current transducer cable	1	1
ELC206271	Boards insulating block	3	3
ELC206323	Copper bar	1	1
1000001317	Packing case	1	1
ELC409352	Insulating Spacer M4X31 M/F	4	4
ELC40859707	Insulating Spacer M4&5X53 mm	4	4
ELC409203	Insulating Spacer M4 F/F 15 mm	3	3
ELC20625508	FLAT CABLE 40P-90mm	1	1
ELC20625501	FLAT CABLE 14P-90mm	1	1
ELC20464206	Nylon grommet nuts M4/FAST H= 15,9	4	4
ELC20571902	Nylon washer diameter = 4,3	2	2
ELC218258	Auto-thread screw. 2.9X16	2	2
ELC218224	Screw TC M4X8	2	2
ELC206274	Insulation holder shield bar	2	2
ELC218217	Steel screw TC M3X8	2	2
ELC20565801	Nylon grommet nuts M4	4	4
1000000615	CD AC&DC DRIVES Manuals Summa	1	1

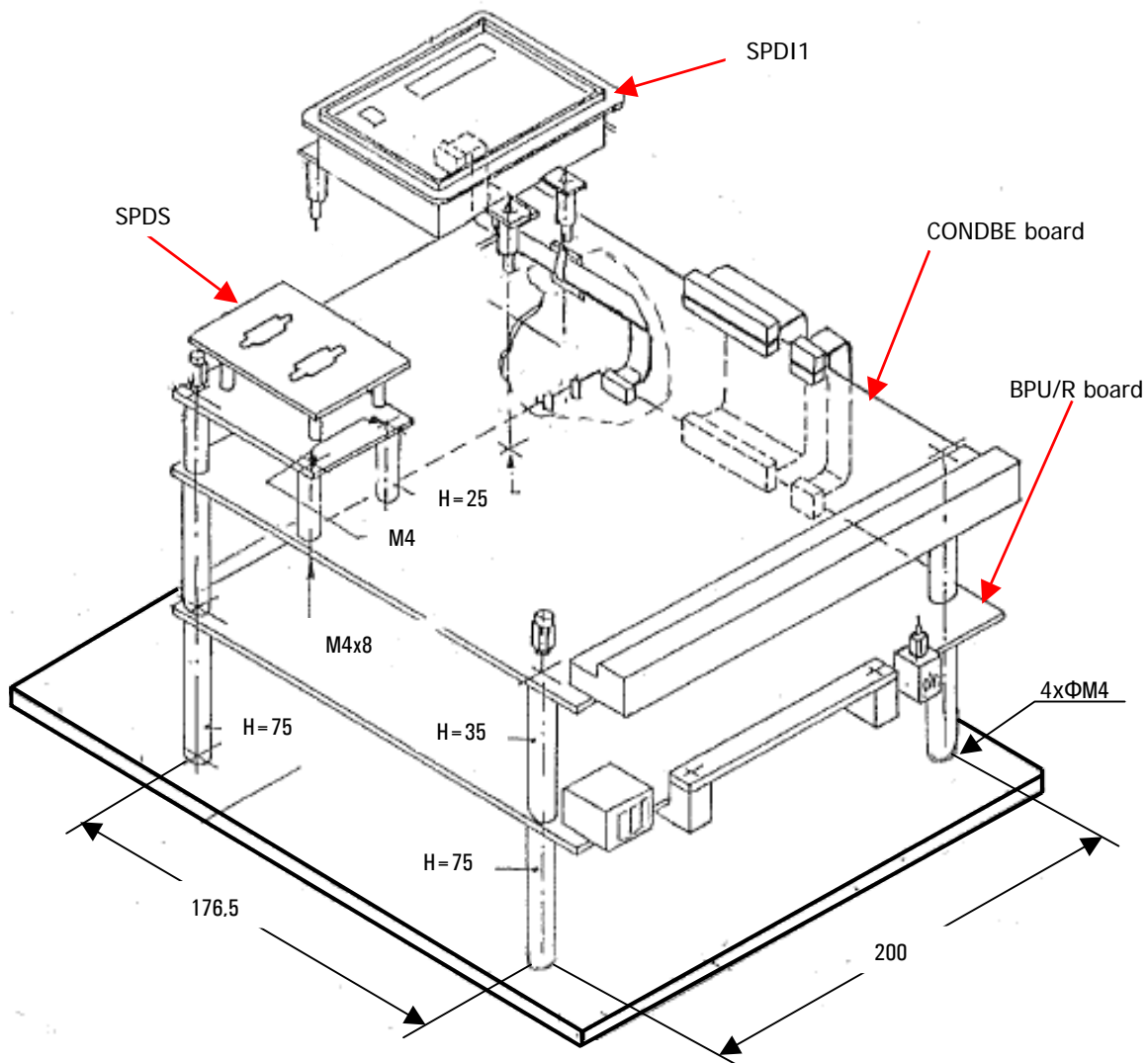
\*\* Power board changeable according voltage power supply (see next page).

BPU/BPR power board.

SAP CODE	K		W	
	II Quadrant	IV Quadrant	II Quadrant	IV Quadrant
ELC452444	1			
ELC452444		1		
1000002327			1	
ELC452150				1

The following picture shows the connection between control and power boards and the cable for the thyristors gate connections



**Assembled Kit example**

See SILCOPAC D *HARDWARE AND SOFTWARE MANUAL* for data and programming.

## B) CONTROL BOX

### IDENTIFICATION CODE

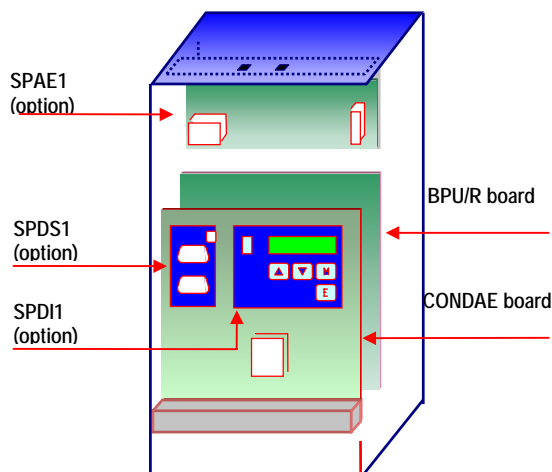
SPDM	BXC	X	X	E		
	CONTROL BOX	QUADRANT OPERATION	SUPPLY VOLTAGE	SOFTWARE	BRIDGES	CT
		U = 2 quadrants R = 4 quadrants	G = 380-500 V K = 690 V W = 750 V	E = enhanced L = Ward Leonard	blank = 1 bridge 2 = 2 parallel bridges	blank = 2CT A = 3CT

\* SW "E" includes Profibus DP SW - For the availability of the Profibus field bus the user must install the SPPB2 kit (see options).

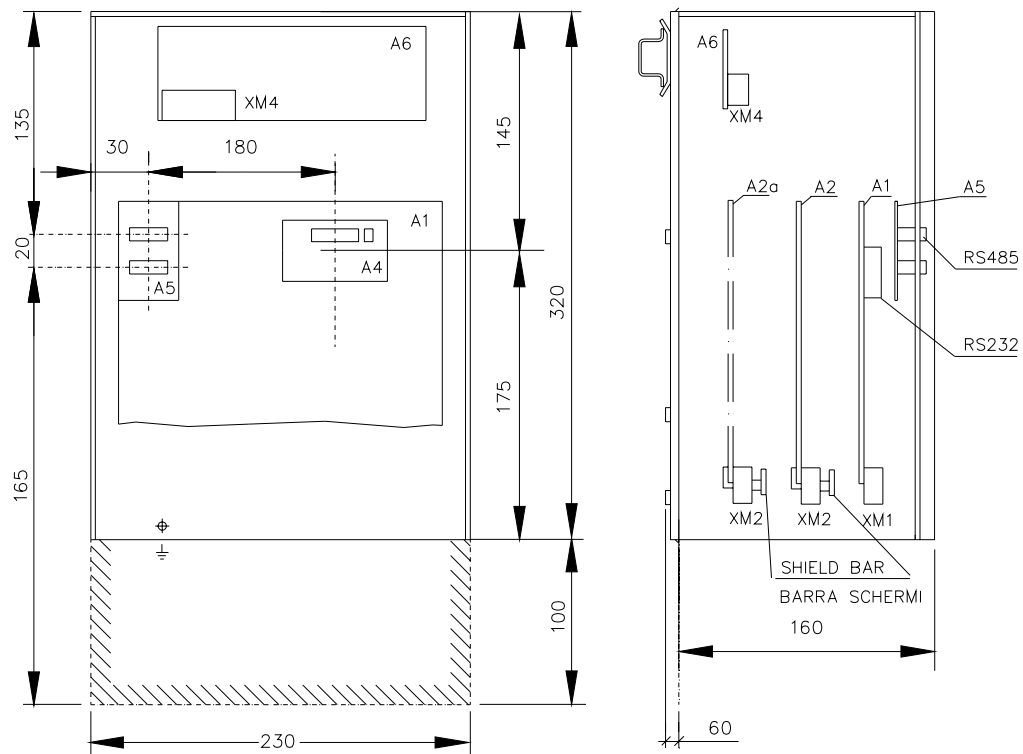
\*\*CT = CURRENT TRANSDUCER (PARALLEL VERSION - DRIVE SLAVE ONLY)

**NOTE:** The power supply of electronic boards is always 380-400V. A transformer/autotransformer must be used with an other power supply.  
The transformer is compulsory with power supply voltage > 500V

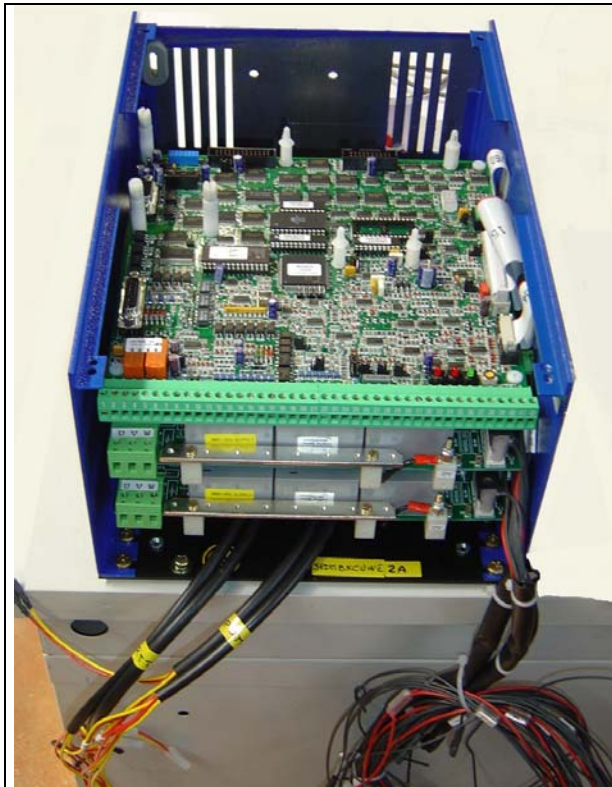
The following Control Box are available:



Identification Code	SAP Code	Power Supply	Quadrants
<b>SINGLE BRIDGE</b>			
SPDMBXCUGE		380-500V	2q
SPDMBXRGE	1000019888	380-500V	4q
SPDMBXCUIKE	1000029697	525-690V	2q
SPDMBXRCKE		525-690V	4q
SPDMBXCUIWE		700-850V	2q
SPDMBXRCKWE	1000012259	700-850V	4q
<b>PARALLEL BRIDGES</b>			
SPDMBXRCKGE2A	1000058194	500V	4q
SPDMBXCUIKE2A	1000029698	525-690V	2q
SPDMBXRCKE2A	1000058192	525-690V	4q
SPDMBXCUIWE2A	1000012260	700-850V	2q
SPDMBXRCKWE2A	1000012261	700-850V	4q

**Dimensions****SPDM BXCRWE**





SPDMBXCUWE2A without cover



SPDMBXCUWE2A with cover

For data and programming and for Parallel Bridges see SILCOPAC D *HARDWARE AND SOFTWARE MANUAL*.



### C) Control Kit and Control Box composition

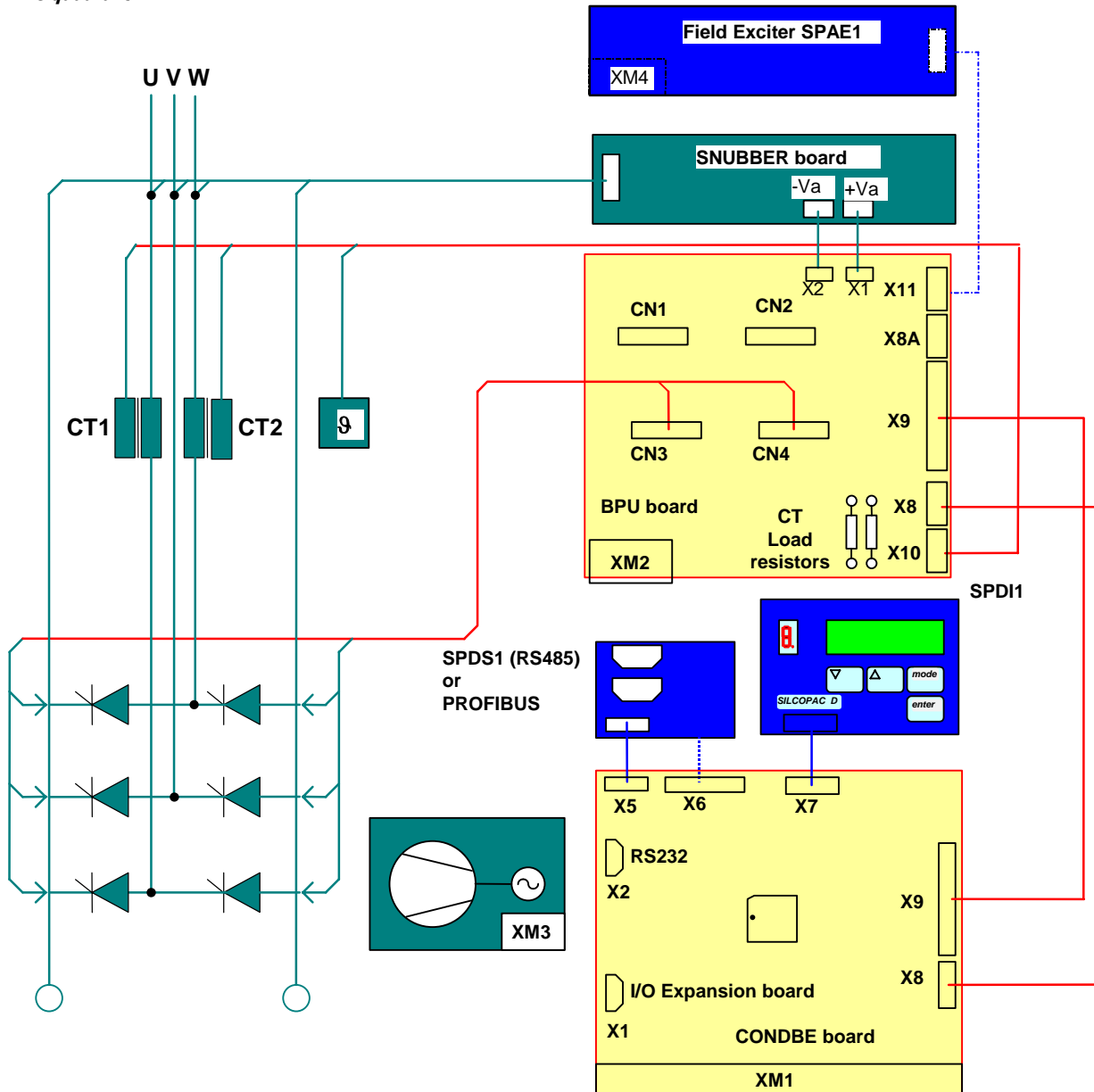
Note:

*The red components are included in the KIT*

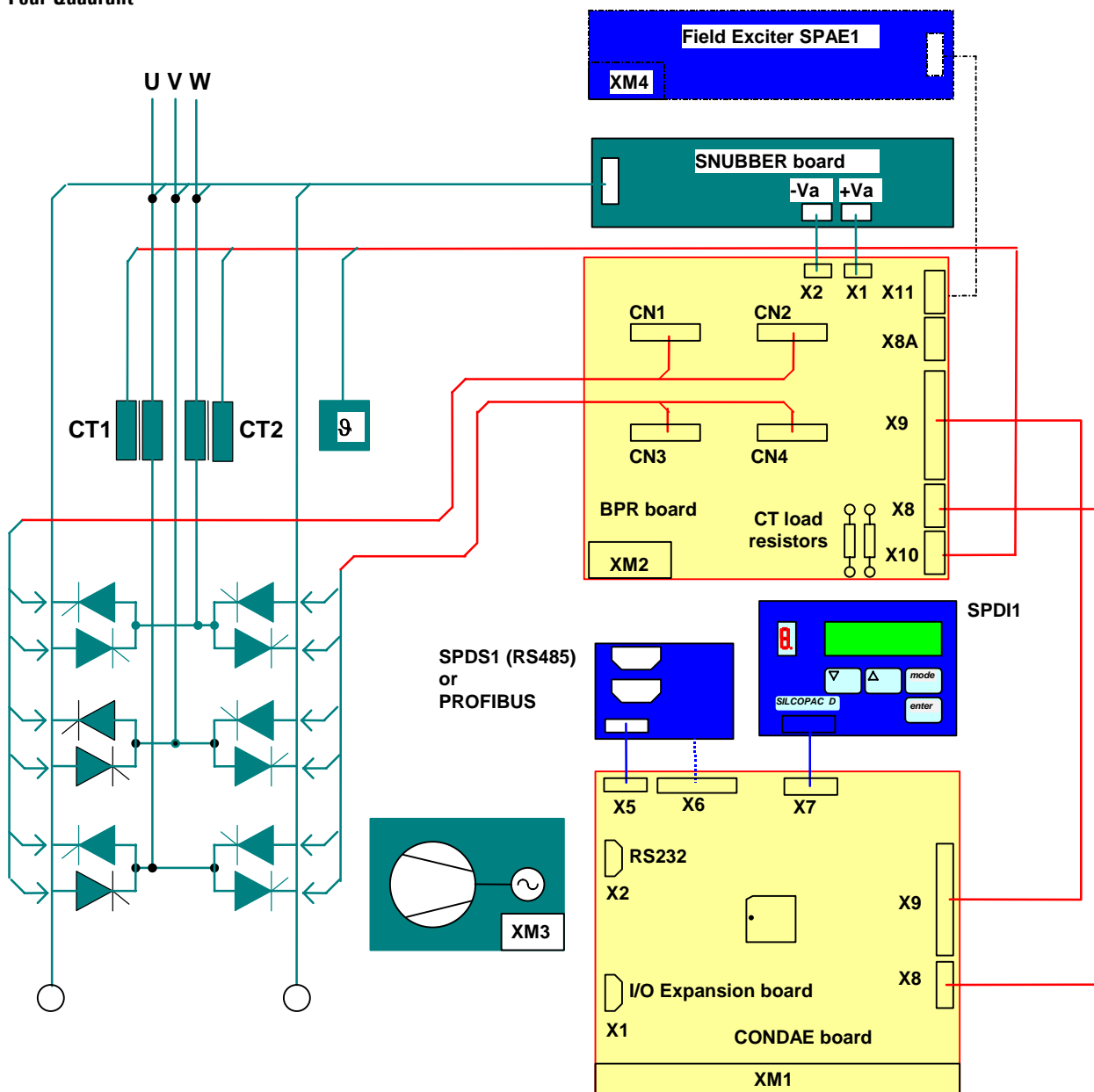
*The green components are of third parts manufactures*

*The bleu components are options*

Two quadrant



## Four Quadrant



**D Connections between control BOX and thyristor bridge**

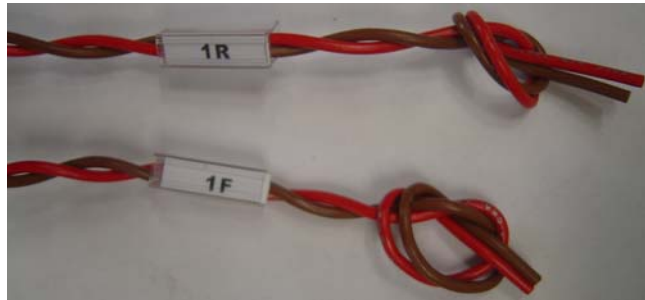
The connections are: thyristors gate, current transducer, armature voltage transducer and bridge thermal protection.

- **Thyristors Gate:**

Two quadrant: 6 pairs of red/brown cable (length = 3m)

Four quadrant: 12 pairs of red/brown cable (length = 3m)

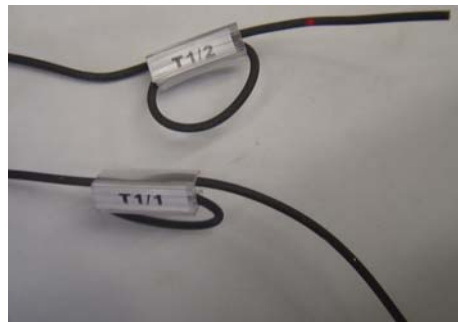
Every pairs of cable is numbered from 1 to 6 with reference to forward bridge (F) or to reverse bridge (R) for four quadrant bridge (picture 1). Refer to the drawings in next pages for the proper connection of every pairs of cable.



Picture 1

- **Current transducers (CT):**

Two pairs of black cables (T1/R - T1/N for the first CT and T2/N - T2/R for the second CT) are available (length = 3m)



Picture 2

- **Armature voltage transducer:**

Two black cables (length = 3m) with faston termination and with identification + and - (Picture 3).

- **Bridge thermal protection (NC contact):**

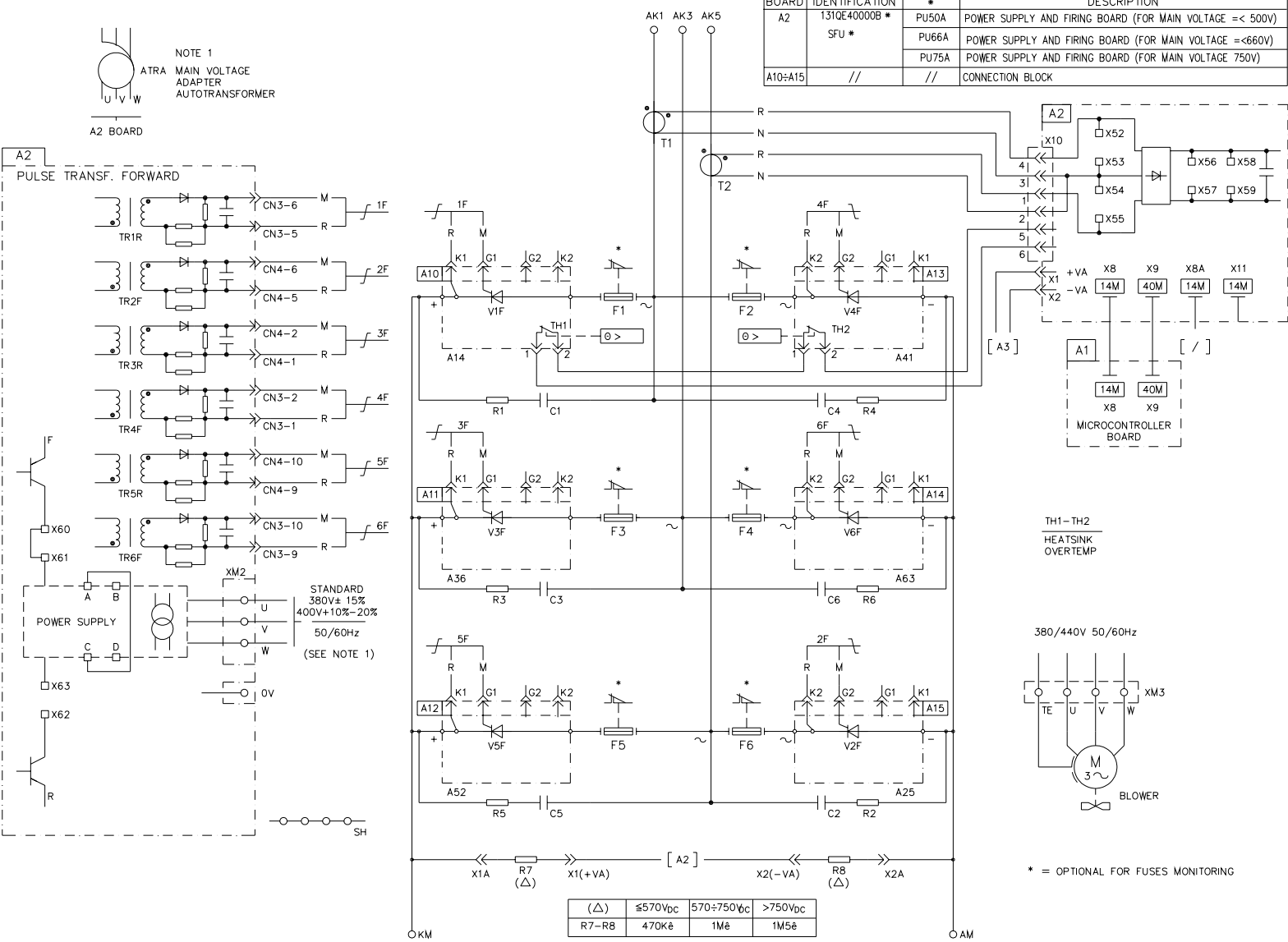
Two black cables (length = 3m) with faston termination

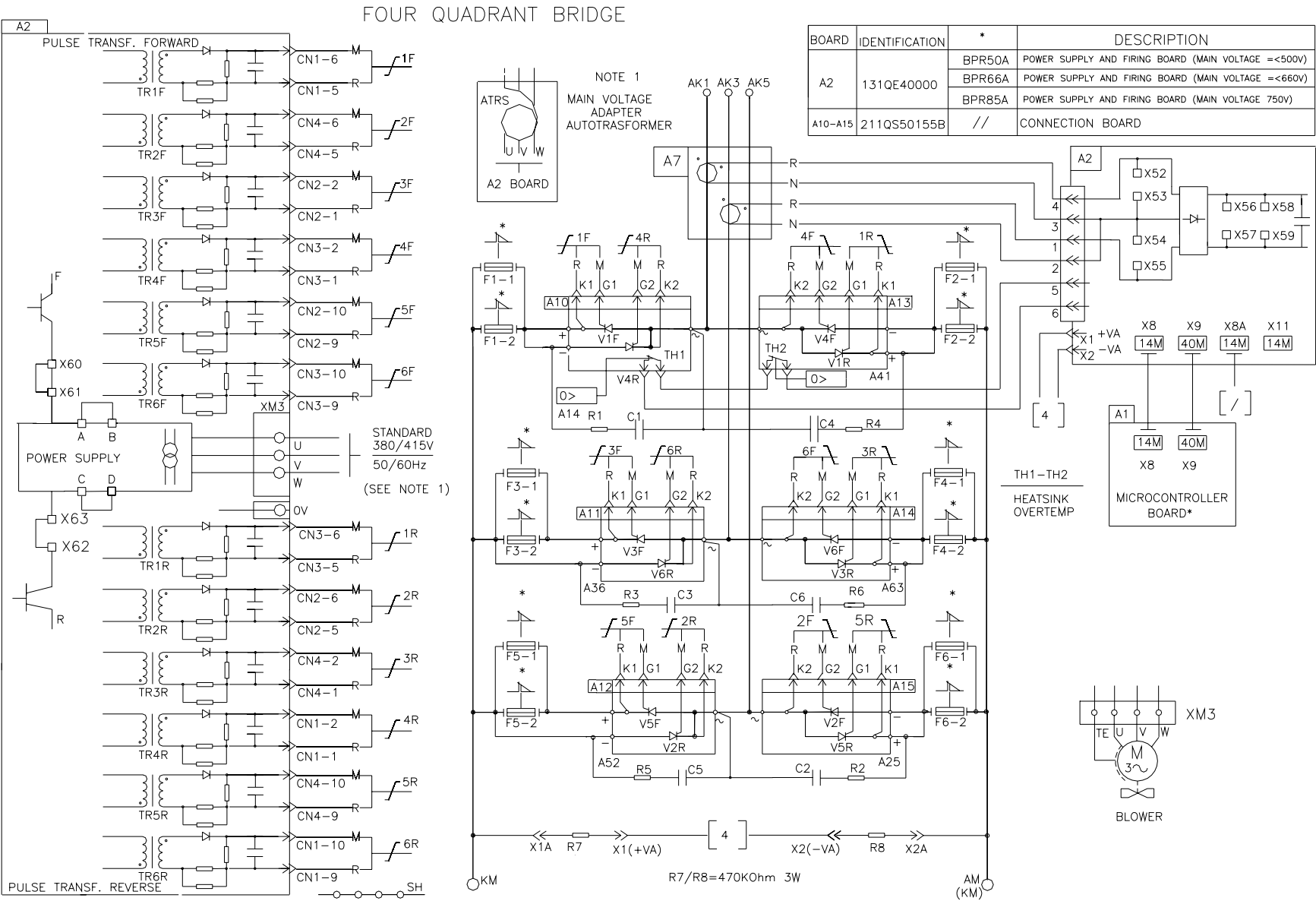
If the bridge thermal protection is not present the two cables must be jumpered.



Picture 3

TWO QUADRANT BRIDGE





E) OPTIONS:

- SPDI1           KEYPAD  
                  ELC25908301
- SPDKS          SPDI1 remote kit  
                  ELC25908305
- SPDI2          KEYPAD with connector for printer  
                  ELC28730316



- SPDS1          Serial Link RS485  
                  ELC25908306



- SPPB2          Kit PROFIBUS  
                  1000073579



- ATRS 22        Synchronism autotransformer           ELC206698
- ATRS 50        Synchronism autotransformer           ELC204699
- SPDIO          Logics I/O Expansion                ELC25908304
- SPAEO          Internal field bridge                 ELC25908820



- SPAEl          Internal field regulator                ELC25908821







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