

Appendix A- Spare Parts List

2.30 COMMON PARTS FOR CONV. DCS500/DCS600 and DCF500/600					
DESCRIPTION	QTY	CODE	TYPE/DATA	NOTES	
)DI/DO connection board	1	3BSE005176R1	SDCS-IOB-21	24V DC-48V DC; digital (A9)	
)DI/DO connection board	1	3BSE005177R1	SDCS-IOB-22	115V AC ; digital (A9)	
)DI/DO connection board	1	3BSE005178R1	SDCS-IOB-23	230V AC ; digital (A9)	
AI/AO connection board	1	3BSE004086R1	SDCS-IOB-3	analog (A 10)	
Communication Board	1	3ADT220059R1	SCDS-COM-5	separate	
AMC-Communic. Board DCS600	1	3ADT312700R1	AMC-DC-2 Board	without Software f. DCS600	
AMC-Communic. Board DCS600	1	3ADT312700R2	AMC-DC-Clas-2 B.	without Software f. DCS600	
Control Panel CDP312	1	3ADT220071R5	CDP312 Rev.F	For DCS500B & DCS600	
I/O Extension Board	1	3BSE005851R1	SDCS-IOE-1		
Adapt. Board /Analog Tacho	1	3ADT300600R1	PS 5311- SET		

*) Select only one Board

	DCR-Kit contains:		2Q	4Q			
2.40	PARTS FOR DCR REBUILD KITS, (12 Pulse etc. see item 2.41)						
DESCRIPTION			2Q	4Q	CODE	TYPE/DATA	NOTES
Cooling fan			1	1	DCA0017670P1	CN52B2	for DCR500B/600 Type
Pulse Interface Board			1	1	DCF1154914R1	SDCS-REB-1	DCR >= 1 Stage
Pulse Amplifier Board			1	1	DCF1192115R1	SDCS-REB-2	DCR >= 2 Stages
Pulse Distribution Board			1	1	3ADT309300R1	SDCS-REB-3	DCR >= 3 Stages
Power Supply for REB-2			2	2	DCE8920037P1	NPSM-01	230V/24V DC/ 2A >= 2 Stages
below listed SDCS- PIN- 41A and PIN-51 are identical with A5/A6/A7 and C4 Modules							
Pulstransformer Board			1	2	3BSE004939R1	SDCS-PIN-41 A	
Power interface board			1	1	3BSE004940R1	SDCS-PIN-51	for 400V up to 1000V AC
Current Transformer 2500/1A			2	2	3ADT751010P1	LT2032 2500/1A	T51/T52 for A5 and A6 Range
Current Transformer 4000/1A			2	2	3ADT751007P1	4000/1A	T51/T52 for A7/C4 Range

2.41 PARTS FOR 12 PULSE SYST.; SUPPLY > 800V-AC & HARD PAR. CONV. A7P					
DESCRIPTION	2Q	4Q	CODE	TYPE/DATA	NOTES
Current Measurement Aid	1	1	3ADT220090R22	SDCS-CMA-2	12 Pulse and Paralleling Converter
Insulation Monitor (10V)	1	1	DCA0019192P1	IRDH 265-4	mounted inside Cab.10-990kOhm
Insulation Monitor (10V)	1	1	3ADV050058P5	IRDH 365-4	Door mounted Vers.10- -990kOhm
Insulation Monitor (10V)	1	1	3ADV050058P1	IRDH 265-3	inside Cab.-EMBR; 2 - 200kOhm
Volt. Adapt. Board f. IRDH 6P.	1	1	DCA0019711P1	AGH 204 S	For IRDH >= 690V-AC 6Pulse
Volt. Adapt. Board f. IRDH 12P.	1	1	3ADV050058P2	AGH 150 W-4	For IRDH >= 690V-AC 12Pulse
DC-DC Transducer (Knick) A92	1	1	3ADN260004P1	8680 A1/A92	For U-AC > 800V & 12 Pulse ser.
High Volt. Transformer T 90	1	1	3ADT745047P1	T 90; 500-1200V-AC	For U-AC > 800V & 12 Pulse ser.
High Volt. Fuses for U >800V-AC	5	5	DCE8063614P1	CC 1500CP GRD 20	2 pcs. for A92; 3 pcs. for T90 ;
Paralleling Interface Board 1	1	1	3ADT220090R31	SDCS-PAR-1-coat	Paralleling Master Conv.
Paralleling Interface Board 2	1	1	3ADT220090R32	SDCS-PAR-2-coat	Paralleling Slave Conv.

2.50 2-PHASE FIELD EXCITERS					
DESCRIPTION	QTY	CODE	TYPE/DATA	NOTES	
Integrated uncontr. 6 A;FEX-1	1	DCA0012317R1	SDCS-FEX-1	Sep. compl. Unit; incl. Diode M.	
Integrated single 16 A;FEX-2A	1	DCA0012325R1	SDCS-FEX-2 A	Sep. compl. Unit; incl. Thyristor M.	
Control Board DCF503A0050	1	3ADT312400R2	SDCS-FEX-32A	Control Board f. DCF503A0050	
Thyristor/Diode Module 1Q 50A	2	DCA0003270P1	SKKH 57	for DCF503A0050	
Control Board DCF504A0050	1	3ADT312400R1	SDCS-FEX-31A	Control Board f.DCF504A0050	
Thyristor modules 4Q 50A	2	DCA0011132P1	SKKT 42	for DCF504A0050	
Ext. DCF503A0050; 1Q 50 A	1	3ADT209019R1	DCF503A0050	Complete unit DCF503A0050	
Ext. DCF504A0050; 4Q 50 A	1	3ADT209019R2	DCF504A0050	Complete unit DCF504A0050	
Ext. DCF503A0060; 1Q 60 A	1	3ADT209019R11	DCF503A0060	Complete unit DCF503A0060	
Ext. DCF504A0060; 4Q 60 A	1	3ADT209019R12	DCF504A0060	Complete unit DCF504A0060	
Addit. Fan for DCFxxxA0060	2	GHSN700002P1	AC220V 8556V	Fan M55/M56 f. DCFxxxA0060	

2.60 Parts for Three-Phase Fieldexc.; 25A ---520A; Overvolt.Protect. DCF506-..					
DESCRIPTION		4 Q	CODE	TYPE/DATA	NOTES
Control Board for DCF505/506 Units		1	3BSE006309R1	SDCS-FEP-1	(1400V) for DCF505/506
Overvolt. Protect. for Motorfieldexc.		1	DCF1127101R1	DCF506-0140-51	3-Phase Fieldexc. 25A - 100A
Overvolt. Protect. for Motorfieldexc.		1	DCF1127119R1	DCF506-0520-51	3-Phase Fieldexc. 200A - 520A
Overvolt. Protect. for inductive Load		1	DCF1216235R1	DCF506-1200-51	3-Phase EMBR's 820-1200A

6 Digital and analogue I/O boards

The converter with a control board SDCS-CON-2 can be connected in 4 different ways to a control unit via analogue/digital links. Only one of the four choices can be used at the same time (Description

of the I/O's see chapter SDCS-CON-2). These possibilities doesn't increase the number of inputs or outputs. In addition to this an extension of I/O's by SDCS-IOE-1 is possible, which increases the number of inputs.

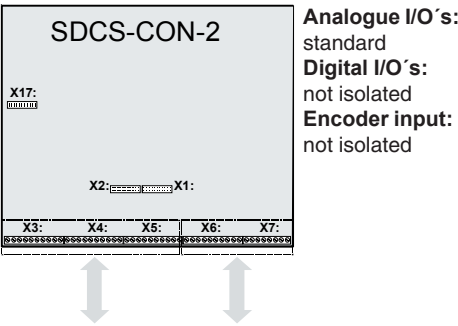


Fig. 6/1 I/O via SDCS-CON-2

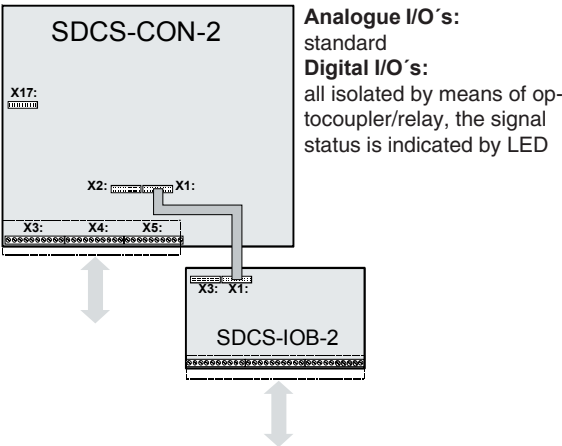


Fig. 6/2 I/O via SDCS-CON-2 and SDCS-IOB-2

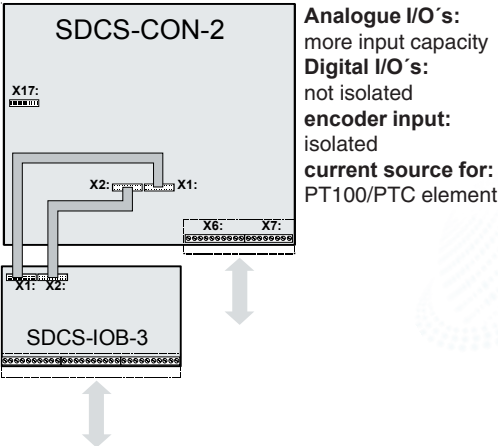


Fig. 6/3 I/O via SDCS-CON-2 and SDCS-IOB-3

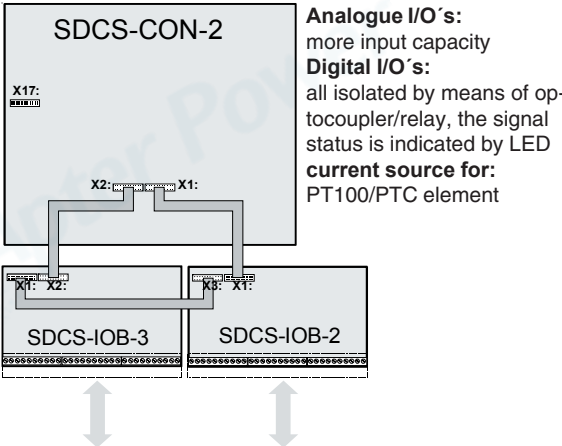


Fig. 6/4 I/O via SDCS-IOB-2 and SDCS-IOB-3

6.1 Digital I/O board SDCS-IOB-2

As described at the beginning of the chapter, there are various options for configuring the inputs/outputs.

The board IOB-2x has 8 digital inputs and 8 digital outputs.
There are three different types existing, which differ at the input voltage level:

SDCS-IOB-21	24...48V DC
SDCS-IOB-22	115 V AC
SDCS-IOB-23	230 V AC

The inputs are filtered and galvanically isolated by using optocouplers. Inputs can form two galvanically separated groups by using either X7:1 or X7:2.

If these boards are in use, they have to be mounted outside the DCS module. They must be mounted in a way, that the conductive supports have a good connection to ground of the installation.

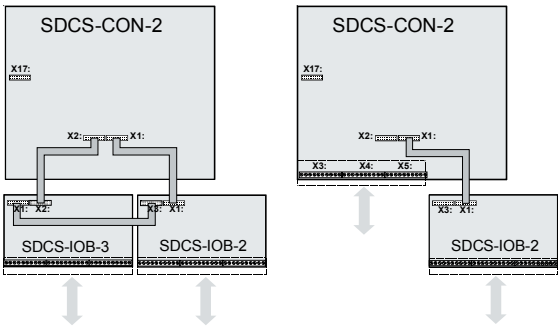


Fig. 6.1/1 I/O via SDCS-IOB-2x / IOB-3 and CON-2

The cable length between X1:1/X1: and X2:2/X2: is max. 1.7 m and between X1:1/X3: is max. 0.5 m because of EMC reasons.

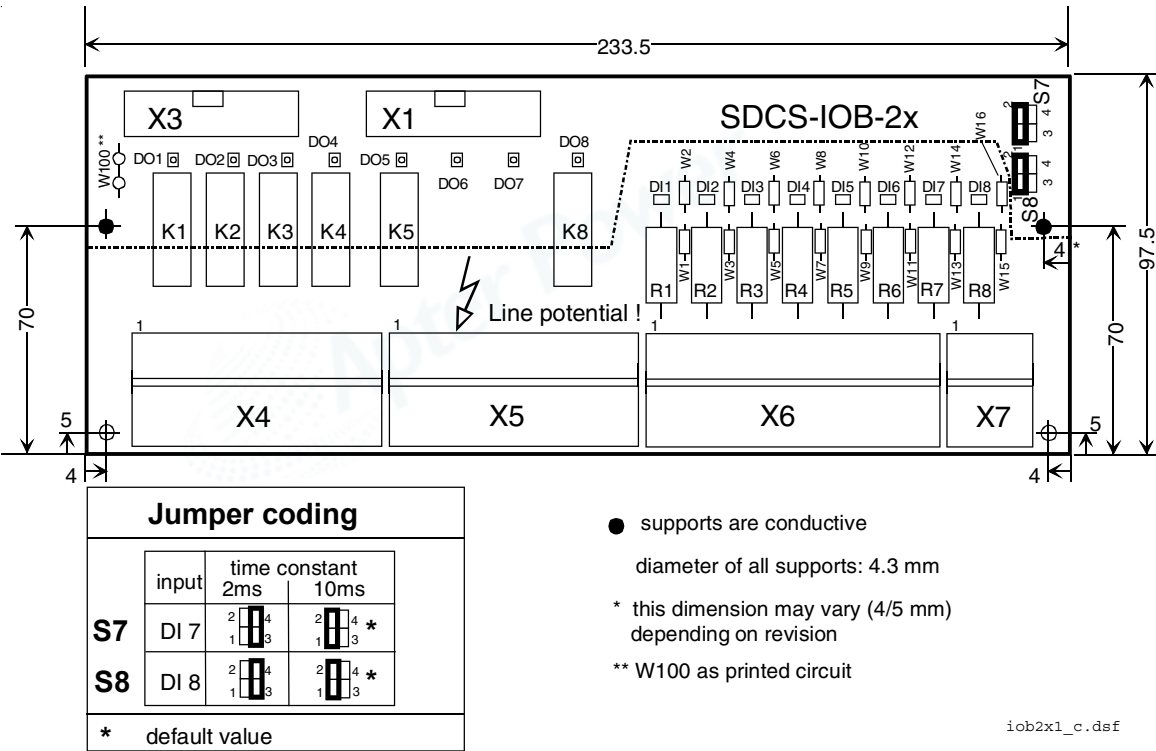
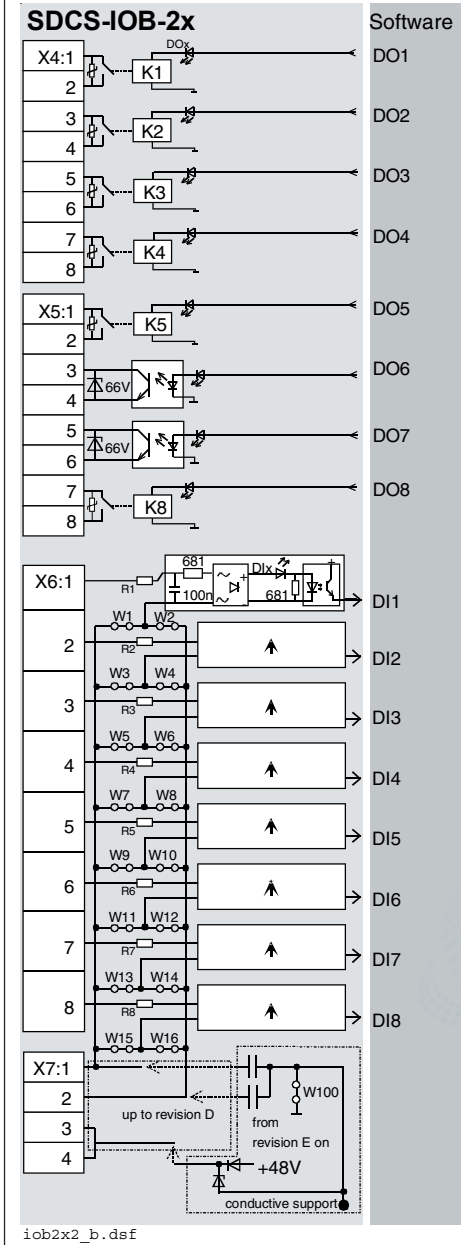


Fig. 6.1/2 Layout and jumper settings of the SDCS-IOB-2x board



Note:
When the SDCS-CON-2 control board with the SDCS-IOB-2 I/O board is installed, terminals X6: and X7: on the SDCS-CON-2 must not be used.

Output value	Signal definition by	Remarks
K1...K5, K8	Software	potential-isolated by relays (NO contact element) Contact ratings: AC: ≤250 V~/ ≤3 A~ DC: ≤24 V~/ ≤3 A- or ≤115/230 V~/ ≤0.3 A- MOV-protected (275 V)
K6,7	Software	potential-isolated by optocoupler Switching capacity: ≤50 mA external voltage: ≤24 V-

X4:, X5: are screw-clamp terminal types for leads up to 4 mm² cross-sectional area.
Default values are shown within the software diagrams.
The ground potential of the digital outputs may vary within ±100 V to each other.

Input value	Signal definition by	Remarks
Channel 1...8 IOB-21: 0...8 V 18...60 V IOB-22: 0...20 V 60...130 V IOB-23: 0...40 V 90...250 V	Software	potential-isolated by optocoupler (24...48V-) R1...R8 = 4.7 kΩ ≙ "0 signal" ≙ "1 signal" (115V~) R1...R8 = 22 kΩ ≙ "0 signal" ≙ "1 signal" (230 V~) R1...R8 = 47 kΩ ≙ "0 signal" ≙ "1 sig." including tolerance; absolute max values

X6: / X7: are screw-clamp terminal types for leads up to 4 mm² cross-sectional area
Input resistance: see diagram.
Input smoothing time constant: see diagram.
Smoothing time constant of channel 7 and 8 can be changed; see fig. 6.1/2.
The functionality of the input channels, which will be read, can be defined by software; default values are shown within the software diagrams
Power supply for digital inputs: 48V / ≤ 50mA; not galv. isolated from the DCS electronics!

If the inputs are supplied from the internal +48 V (X7:3 and/or X7:4) a connection must be done from either X7:1 and/or X7:2 to ground of the DCS 500 module. In default condition ground is identical to the converter's frame.

If the inputs are supplied by any external source (+48 V DC, 115 V AC or 230 V AC) the neutral line / - line must be connected to either X7:1 or X7:2. If the inputs should be controlled with the same voltage level, but from two different voltage sources, having probably two different ground levels, the first neutral line should be connected to X7:1 and the second to X7:2. In this case the jumpers Wx connecting the inputs to X7:2, but controlled by the source, connected to X7:1, must be cut off.

The same method is needed for the other jumpers Wx.

High frequency grounding is done by 100 nF capacitor.

Fig. 6.1/3 Terminal connection of the SDCS-IOB-2x board