MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Amikon cover with original ABB technical-reference pages; not an installation manual

DCS 500 / 3BSE005028R1

SDCS-COM-1

OPTICAL DRIVE LINK BOARD

OFFICIAL SOURCES

ABB 3ADW000054R0601 Rev F, section7.1 and context pages. Original reference, not a complete service manual.

DCS Thyristor Power Converters

for DC drive systems

25 to 5150 A

Technical Data

DCS 400
DCS 500/500B
DCP 500/500B
DCS 600
DCF 500/600



How to use the DCS Documentation System

The matrix below indicates all available product documentation and its corresponding order numbers on its left columns as well as all existing DC Drive systems on its top rows. System descriptions, Technical data and Operating instructions (as far as they are available for the corresponding drive) are the basic documents and will be delivered together with each drive. All other documentation has to be ordered separately.

DC drive systems / *Product documentation*			System Drive								Standard Drive							Rebuild
			Cubicle				Module				Cubicle		Module					
			DCV 700	DCA 600	DCF 700/500	DCA 620	DCS 500...11	DCS/DCF 600 MultiDrive	DCF 500	DCS 600 CraneDrive	DCA 500	DCS 500B enclosed	DCS 400	DCS 500...21	DCS/DCF 500B	DCP 500	DCP 500B	DCR
System description	Language	Volume																
3ADW000049	EN, DE	II A									x			x				
3ADW000062	EN, DE	II B														x		
3ADW000066	EN, DE,FR	II D										x			x			
3ADW000069	EN, DE	II E															x	
3ADW000072	EN, DE	II F						x										
3ADW000121 ①	EN	II F1		x		x												
3ADW000095 (Manual) ②	EN,DE,FR,IT,SP	II K											x					
3ADW000139	EN	II F		x						x								
Technical Data	Language	Volume																
3ADW000054	EN, DE,FR	III					x	x	x	x				x	x	x	x	
Operating Instructions	Language	Volume																
3ADW000055	EN,DE,FR,SP	IV A									x	x		x	x	x	x	
3ADW000064	EN, DE	IV C			x				x									
3ADW000080	EN, DE	IV F		x		x		x										
3ADW000091 (Installation)	EN, DE	IV F1	x	x	x	x						x						
Software description	Language	Volume																
3ADW000056	EN	V A1									x			x		x		
3ADW000078	EN	V D1										x			x		x	
3ADW000076	EN	V F		x		x		x										
3ADW000050	EN	-	x				x											
3ADW000031 (Diagr.)	EN	-	x				x											
3ADW000053	EN	V C			x				x									
3ADW000052 (Diagr.)	EN	V C			x				x									
3AST000953 ③	EN			x						x								
Tools	Language	Volume																
3AFE61178775 **CMT/DCS500**	EN	-									x	x		x	x	x	x	
EN 5926915-1 **GAD**	EN	-									x	x		x	x	x	x	
3ADW000048 (Application blocks)	EN	V A2									x	x		x	x	x	x	
3AFY61041486 **DDCTool**	EN	-	x		x		x		x		x	x		x	x	x	x	
3AFY61296123 **Drive *Window***	EN	-		x		x		x		x								
Service Instructions	Language	Volume																
3ADW000093	EN, DE	VI A	x	x	x	x	x	x	x	x	x	x		x	x			
3ADW000131	EN	VI K											x					
Fieldbus	Language	Volume																
3ADW000086	EN	-										x			x		x	
3ADW000097	EN	-		x		x		x		x								
Others	Language	Volume																
3ADW000115 12-Pulse operation	EN	VIII F2		x				x										
3ADW000092 Rebuild manual	EN	XI H1	x	x	x	x	x	x	x		x	x		x	x			
3ADW000128 Paralleling DCS Conv.	EN	VIII D1		x				x				x			x			
3ADW000040 12-Puls operation	EN, DE	VIII A2										x			x		x	

available only for: DCS 500 / 500B / 600 drive systems

Status: 27.Sept.2001

① Covers information of Technical data

② Covers information of Technical data, Operating Instructions, Software Description

③ Covers information of Operating Instructions, Software Description

1 Quick Guide

General remarks
The term “DCS thyristor power converter” is a general designation for basic DC converters from ABB. This term can be found in many parts of the relevant documentation. The precise product name in accordance with the brief descriptions given below characterizes a specific unit.

Brief description of DCS 500 and DCS 500B
The DSC 500**B** unit range is an enhancement developed from the DCS 500 range. The difference between the two ranges lies in the version of the control board: the control board used for the DCS 500B unit range is the SDCS-CON-2 type, which is different from the SDCS-CON-1 type in several points (see the table below).

Brief description of DCP 500 and DCP 500B
In the DCP 500 unit, the electronics of the DCS 500 unit have been equipped with a different power section, which changes its visual appearance, its installation dimensions and the interface between the power section and the electronics. The DCP unit is functionally compatible with the DCS unit, since the electronics (power pack, control board and options and/or control) are identical. The DCP 500B unit range is an enhancement developed from the DCP 500 range, with the difference between the two ranges lying in the control board: the control board used for the DCP 500B unit range is the SDCS-CON-2 type, which is different from the SDCS-CON-1 type in several points (see the table below).

Control board	**SDCS-CON-1**	**SDCS-CON-2**
Inputs and outputs	either via SDCS-IOB-1or via SDCS-IOB-2 **and** IOB-3	• SDCS-IOB-1 integrated on CON-2 (removable terminals) • SDCS-IOB-1 and IOB-2 • SDCS-IOB-1 and IOB-3 • SDCS-IOB-2 and IOB-3
PC operation	Communication board necessary. SDCS-COM-1 or COM-5 can be used.	Communication board necessary. SDCS-COM-1 or COM-5 can be used. COM-5 recommended.
Link via serial interface	SDCS-COM-5 and adapter module for the interface desired are necessary; power supply to adapter module from separate 24-V power pack	Only adapter module for the interface desired is necessary; power supply to adapter modules available on CON-2
Control panel	Panel CDP 310 or CDP 311	Panel CDP 312
Software versions	S 21.1xx (DCS 500)	S 21.2xx (DCS 500B) S 15.xxx (DCS 600)

Table 1/1: Characteristics system features with various control boards

Brief description of DCF 500B
With software release 21.232 or higher DCS 500B has a '3-phase field exciter mode'. A DCF 500B is a three-phase field exciter based on the programmable DCS 500B software and the SDCS-CON-2 control board. The interface boards PIN-1x/PIN-2x are modified; - an overvoltage protection unit DCF 505/506 is required.

Brief description of DCS 600
The DCS 600 converter family is based on the hardware developed for the DCS 500B type.
Instead of a COM-x board, the SDCS_AMC_DC board is used. PC tools will be connected there, as well as the APC (Application controller), if the APC is used as a PLC. If a different PLC is used, separate adapter modules are needed. They must be connected to the AMC-DC board, too. The software code always begins with S15.xxx for MultiDrive or S18.xxx for Crane drives.

Brief description of DCF 600
The DCF 600 unit range is intended to be used for supplying motor fields and is based on the hardware and system configuration of the DCS 600 unit. The software is identical to the DCS 600 software. Similar to DCF 500 units the DCF 505/506 overvoltage protection unit is required. The same modification is applied to the PIN-1x/PIN-2x boards, compared to DCF 500.

Brief description of DCS 400
The DCS 400 is the smallest drive in its class. The compact design has been partly achieved by a fully integrated field exciter based on IGBT technology. A commissioning wizard - available on the control panel and the PC tool - makes start-up of the drive easy. In addition, the DCS 400 contains application macros.

7 Communication boards

7.1 Communication board SDCS-COM-1

This board is used for communications to all DCS 500 converter modules independent from their software version. It consists of 3 different communication channels. All RxD channels (receiver) have blue color, all TxD (transmitter) channels have grey color. If any connections should be made always connect the same color (plug and socket) with each other.

Channel 1 is a HDLC channel of 1.5 Mbits/s and is used for the communication with a PC in conjunction with a operation program. If the software version coded by S21.xxx is in use, the other channels cannot be used together.

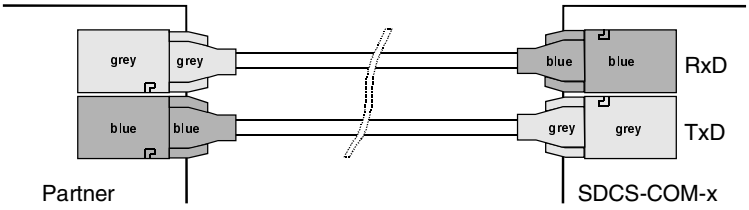
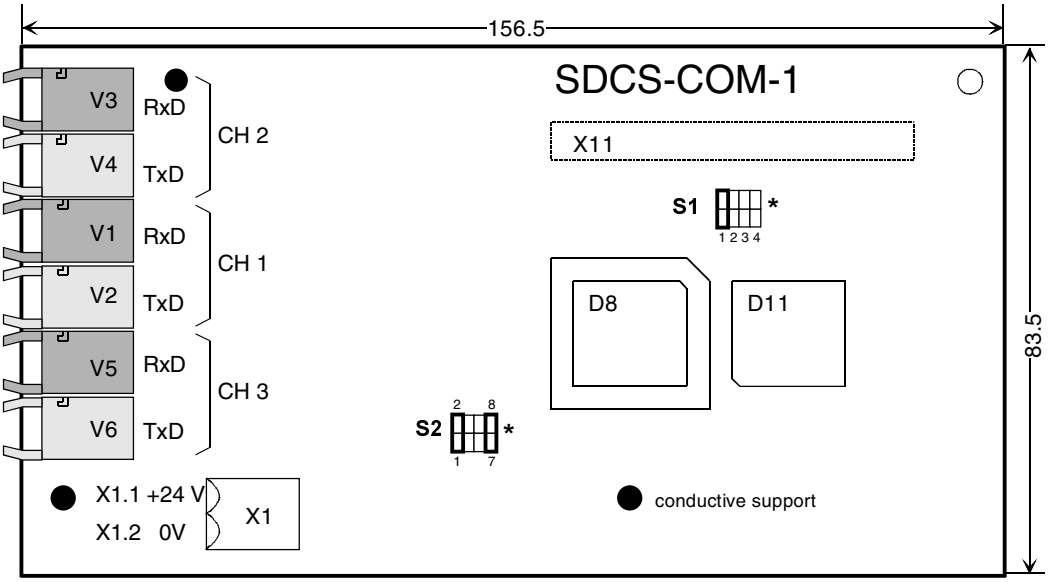


Fig. 7.1/1 Connection between SDCS-COM-x and a partner



Jumper coding

Converter number	Coding for channel 2
1	S1 1 2 3 4 *
2	S1 1 2 3 4
3	S1 1 2 3 4
4	S1 1 2 3 4

Setting for supply of Ch3:

Internal supply S2 2 8 1 7 *

External supply S2 2 8 1 7

* default value

Fig. 7.1/2 Layout and jumper settings of the SDCS-COM-1 board

Since we aim to always meet the latest state-of-the-art standards with our products, we are sure you will understand when we reserve the right to alter particulars of design, figures, sizes, weights, etc. for our equipment as specified in this brochure.

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