MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Amikon cover with selected ABB reference pages; not a complete installation manual

DCS 500B / DCS 600 / 3ADT220090R0003

SDCS-POW-1

CONVERTER POWER SUPPLY BOARD

OFFICIAL SOURCES

ABB 3ADW000165R0201 and 3ADW000093R0701 Rev G. Original identification, safety, technical and parts-reference pages unchanged.

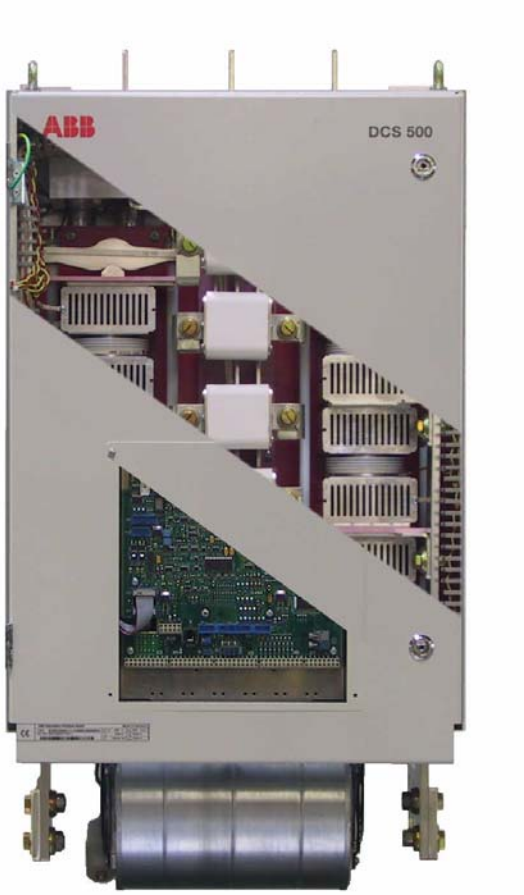
DCS Thyristor Power Converters

for DC drive systems

25 to 5200 A

Technical Data

DCS 400
DCS 500B
DCS 600
DCF 500B
DCF 600



3ADW000165R0201_Technical_Data_e_b

4 Power Supply Board

4.1 Power Supply Board SDCS-POW-1

The SDCS-POW-1 board is designed for DCS 500 converter modules and is mounted on the electronic support. This board is used for all types of modules independent from current or voltage range.

The SDCS-POW-1 works on a switched mode basis in fly back configuration. It generates all necessary DC voltages for the SDCS-CON-2 and all other electronic boards. The input voltage can be selected via the switch SW1 either to 230 V AC or to 115 V AC. The following figure shows the instructions for the selection of the AC input voltage and for the selection of the encoder supply voltage.

If an SDCS-CON-2 (without I/O board SDCS-IOB-3) together with a pulse encoder is used for speed measurement, the incremental encoder supply voltage must be selected by jumpers X5, X4 and X3.

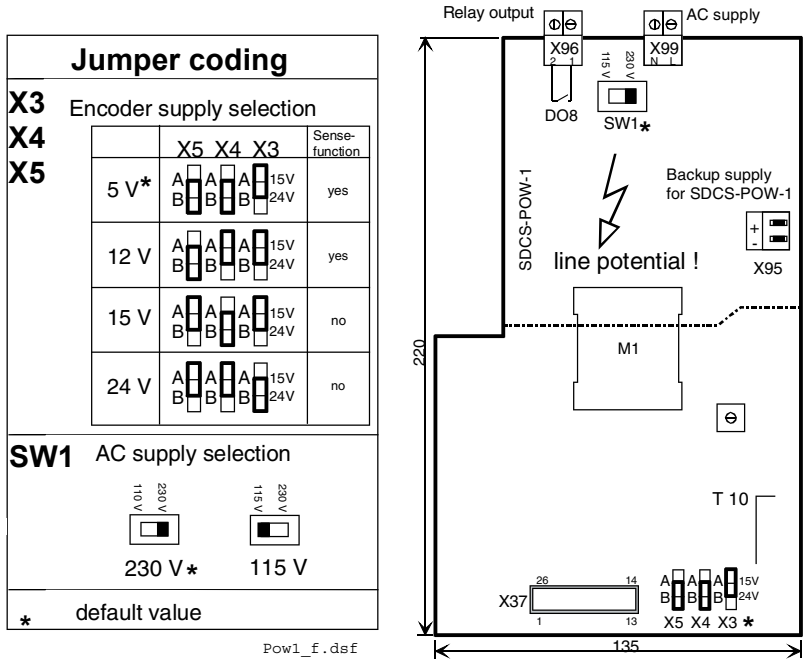


Fig. 4.1/1 Layout of the SDCS-POW-1 board

AC Supply voltage

Supply voltage	115 V AC	230 V AC
Tolerance	-15%/+10%	-15%/+10%
Frequency	45 Hz ... 65 Hz	45 Hz ... 65 Hz
Power consumption	120 VA	120 VA
Power loss	≤60 W	≤60 W
Inrush current	20 A / 20 ms	10 A / 20 ms
Mains buffering	min 30 ms	min 30 ms

Supply voltage	+5 V *	+15 V	+24 V	+48 V2
Test terminals	X 5 B	X3 A	X3 B	heat sink T 10

* The 5 volt level can be checked, if 5 volt is selected!

Output X96-DO8

Potential isolated by relay (NO contact)
MOV- element (275 V)
Contact rating: **AC**: ≤250 V~/ ≤3 A~
DC: ≤24 V-/ ≤3 A-
or ≤115/230 V-/ ≤0.3 A-)

Backup supply

These two terminals are used to add additional capacitance (e.g. KJ 2001) to the existing ones to increase the mains buffering time. More detailed data is available on request via your ABB representative.

DCS Thyristor Power Converters

for DC Drive Systems
25 to 5200 A

Service Manual
DCS 500B
DCS 600 MultiDrive

Code: 3ADW 000 093 R0701 Rev G

S_M_E_G.DOC

EFFECTIVE: Jul. 9th, 2004
SUPERSEDES: Rev F Jul. 4th, 2002

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Safety Instructions

Attention

The manual *Safety and operating instructions for drive converters* (3ADW 000 033) has to be followed strictly.

Overview

This chapter contains safety instructions which must be complied with during installation, operation and maintenance of the power converters series **DCS 500B or DCS 600**. If these instructions are not complied with, this may result in injuries (perhaps even with fatal) or in damage to the power converter, the motor and the driven machine. Before starting with any work whatsoever at or with this unit, you must read the information given in this chapter.

Warnings

Warnings provide information on states which if the specified procedure for the state concerned is not meticulously complied with may result in a serious error, in major damage to the unit, in injury to persons and even in death.
They are identified by the following symbols:



Danger: High Voltage! This symbol warns you of high voltages which may result in injuries to persons and/or damage to equipment. Where appropriate, the text printed adjacent to this symbol describes how risks of this kind may be avoided.

- All electrical installation and maintenance work on the thyristor power converter must be carried out by properly qualified staff who have been thoroughly trained in electrical engineering.
- The thyristor power converter and its adjacent units must be properly earthed by qualified professionals.
- You must NEVER perform any work on the thyristor power converter while it is still switched on. First switch the unit off, use a measuring instrument to make absolutely sure that the power converter has really been de-energized, and only then you may start with the work concerned.
- Due to external control circuits, there may be dangerously high voltages present at the thyristor power converter even after the line voltage has been switched off. So always work at the unit with appropriate caution! Non-compliance with these instructions may result in injury (or even death!).



General warning: this symbol warns you of non-electrical risks and dangers which may result in serious or even fatal injury to persons and/or in damage to equipment. Where appropriate, the text printed adjacent to this symbol describes how risks of this kind may be avoided.

- When thyristor power converters are in use, the electric motors, power transmission elements and the driven machines are working in an extended operating range, which means they have to cope with a relatively high loading.
- You should have made sure that all units, devices and appliances used are actually suitable for this higher loading.
- If you have to operate the thyristor power converter at a rated motor voltage and/or a rated motor current significantly below the figures stated in the thyristor power converter's output data, you must take appropriate precautionary measures to protect the unit against overspeed, overload, breakage, etc., by modifying the software or hardware appropriately.
- For insulation testing, you must disconnect all cables from the thyristor power converter. You should avoid operating your unit at values other than the rated data. Non-compliance with these instructions may cause lasting damage to the thyristor power converter.

- The thyristor power converter possesses a number of automatic reset functions. When these functions are executed, the unit will be reset after an error and will then resume operation. These functions should not be used if other units and devices are not suitable for an operating mode of this kind, or if their use might entail dangerous situations.



Warning of electrostatic discharge:
this symbol warns you against electrostatic discharges which may damage the unit. Where appropriate, the text printed next to this symbol describes how a risk of this kind may be avoided.

Notes

Notes supply information on states requiring particular attention, or indicate that additional information is available on a specific topic. For this purpose, the following symbols are used:

CAUTION! **Cautions** are designed to draw your attention to a particular state of affairs.

Note A **note** contains or refers you to additional information available on the particular topic concerned.

Mains connection

You can use a switch disconnector (with fuses) in the power supply of the thyristor power converter to disconnect the electrical components of the unit from the power supply for installation and maintenance work. The type of disconnector used must be a switch disconnector as per EN 60947-3, Class B, so as to comply with EU regulations, or a circuit-breaker type which switches off the load circuit by means of an auxiliary contact causing the breaker's main contacts to open. The mains disconnector must be locked in its "OPEN" position during any installation and maintenance work.

EMERGENCY STOP buttons

EMERGENCY STOP buttons must be installed at each control desk and at all other control panels requiring an emergency stop function. Pressing the STOP button on the CDP 31x control panel of the thyristor power converter will neither cause an emergency motor stop, nor will the drive be disconnected from any dangerous potential.

To avoid unintentional operating states, or to shut the unit down in case of any imminent danger according to the standards in the safety instructions it is **not** sufficient to **merely** shut down the drive via signals „RUN“, „drive OFF“ or „Emergency Stop“ respectively „control panel“ or „PC tool“.

Intended use

The operating instructions cannot take into consideration every possible case of configuration, operation or maintenance. Thus, they mainly give such advice only, which is required by qualified personnel for normal operation of the machines and devices in industrial installations.

If in special cases the electrical machines and devices are intended for use in non-industrial installations - which may require stricter safety regulations (e.g. protection against contact by children or similar) -, these additional safety measures for the installation must be provided by the customer during assembly.

2.00	PARTS FOR CONV. MODULES DCS500B; DCS600 and DCF500B/600 IN STANDARD VERS.

2.10	COMMON PARTS FOR CONV. DCS500B/DCF500Bxxxx-xx-21..(CON-2)				
DESCRIPTION	QTY		CODE	TYPE/DATA	NOTES
Control board DCS500 B	1		3ADT220072R4	SDCS-CON - 2	with actual software 21.xxx
Power supply board	1		3ADT220090R3	SDCS-POW-1 COAT	

2.20	COMMON PARTS FOR CONV. DCS600/DCF600xxxx-xx-15..MultiDrive; 18..Crane SW				
DESCRIPTION	QTY		CODE	TYPE/DATA	NOTES
Control board +AMC-DC-2 Board	1*		3ADT220072R5	CON-2+AMC-DC-2	w.act. SW.15.xxx+AMC-DC-2 B.
Control board +AMC-Clas-2.	1*		3ADT220072R7	CON-2+AMC-Clas-2	w.act.SW.15.xxx+AMC-C-2 B.
Control b.+AMC-DC-2 Crane	1*		3ADT220072R22	CON-2-18+AMC-DC-2	Crane SW18+AMC-DC-2; incl. Fee
Control b.+AMC-Clas-2 Crane	1*		3ADT220072R20	CON-2-18+AMC-C-2	Crane SW18+AMC-C-2; incl. Fee
Power supply board	1		3ADT220090R3	SDCS-POW-1 COAT	

*) Select only one Board