Help

Hardware D1 - D4
Location of hardware

- Power stack
- Power interface board (SDCS-PIN-4) includes OnBoard field exciter, power supply and firing unit
- Electronic tray plus control board (SDCS-CON-4)
- Converter fan
- Intermediate cover
- Plug in options and DCS800 Control Panel
- Click on design cover

Each thyristor power block incorporates two thyristors. All blocks are mounted on the heat sink and the internal busbars are fixed to the thyristor blocks.

On top of the power part sits the power interface board SDCS-PIN-4. It includes the OnBoard field exciter, the power supply for all internal voltages and the firing unit for the armature.

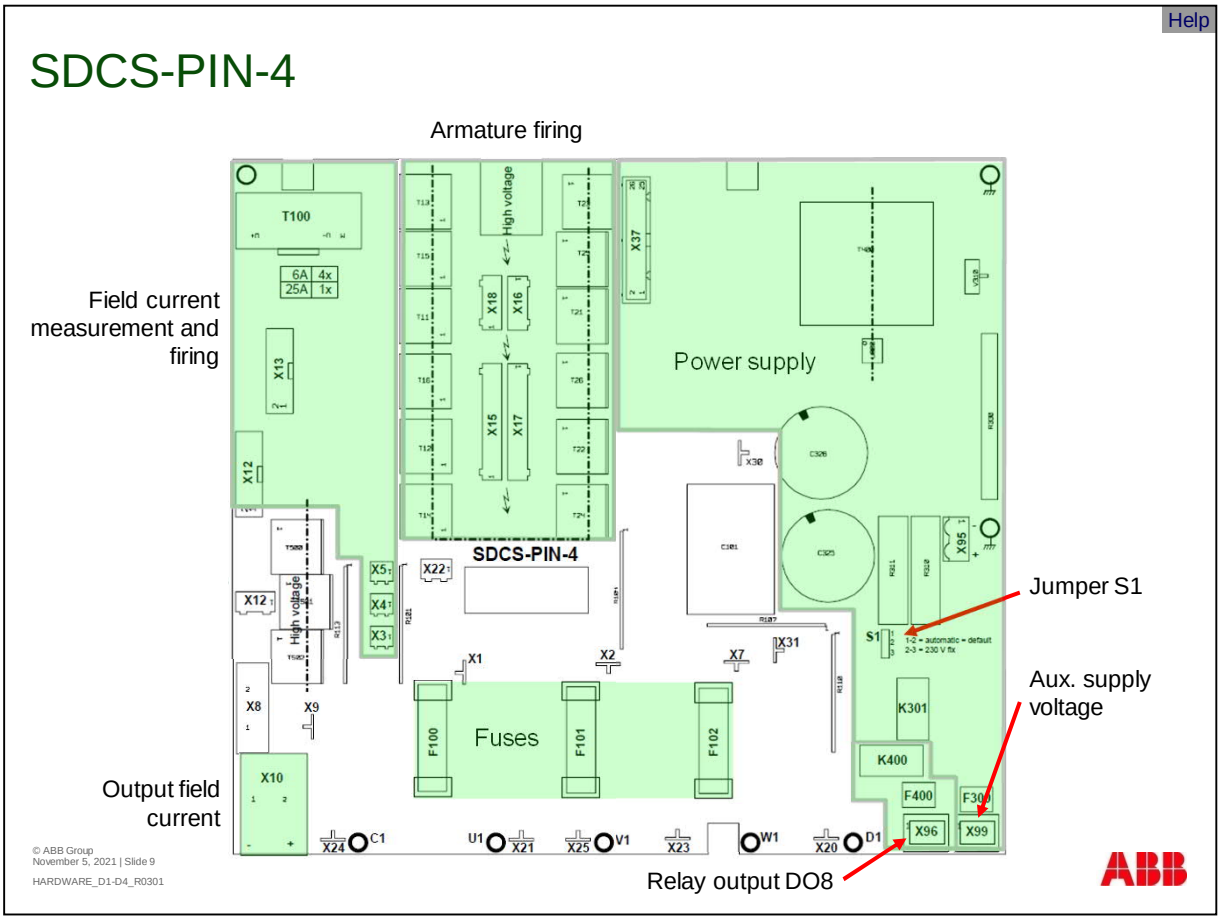
The next layer is the control board SDCS-CON-4 mounted on an electronic tray. The electronic tray is put in the housing by means of 4 hinges and the SDCS-CON-4 is connected to the SDCS-PIN-4 with three flat cables.

For cooling purposes, the fan unit is mounted on the top of the drive.

The intermediate cover is used to protect the sensitive electronic of the drive against electrostatic discharge when plug in options are used in slots 1 to 4.

This animation shows the DCS800 Control Panel and plug in options like serial communication and extension I/O.

Last but not least, the click-on design cover can be mounted on the drive module without using any screws.



The power interface board SDCS-PIN-4 is located between the power part and the control board SDCS-CON-4.
In contrast to old ABB DC Drives where identification, current measurement, burden resistor settings and 2-Q or 4-Q operation was done via hardware on the power interface boards, the DCS800 provides an automatic adjustment option by setting parameters in the firmware.
The SDCS-PIN-4 provides:

- a high ohmic measurement of DC- and AC-voltage,
- an interface for the current transformer measuring the armature current,
- an interface for the heat sink temperature measurement with a PTC resistor and
- a snubber circuit for thyristor protection together with the snubber resistor mounted on the heat sink.

The armature bridge and OnBoard field exciter share the snubber circuit.

The F100 to F102 fuses protect the field supply, field cables, motor field windings, supply voltage measurement and overvoltage protection.

The power supply provides the auxiliary voltages for the whole drive and the connected options.

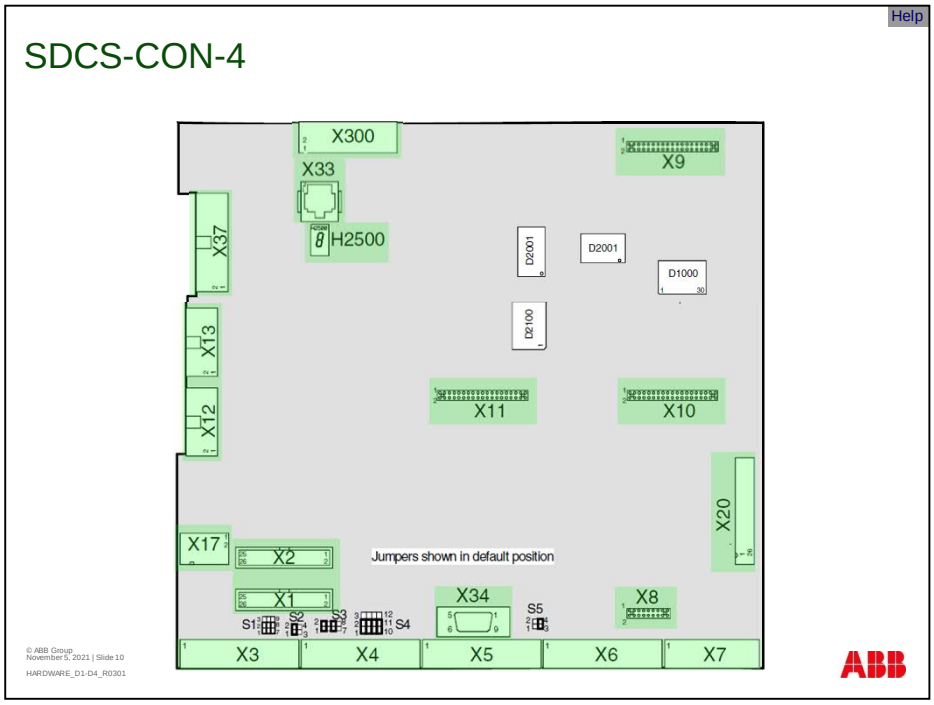
The 230 VAC or 115 VAC auxiliary supply voltage is connected to connector X99. The input features a hardware filter and a voltage limitation.

The power supply on the SDCS-PIN-4 is not a universal power supply. The power supply automatically adjusts itself to an auxiliary supply voltage of either 230 VAC or 115 VAC. With jumper S1 it is possible to suppress the automatic adjustment and set the power supply to a fixed incoming voltage of 230 VAC. This is done in case of varying 230 VAC incoming voltages, for example in a generator network.

The firing pulse transformers and connection cables for the armature bridge with either 6 or 12 thyristors are located here.

OnBoard field exciters with firing pulse transformers and field current measurement via the T100 transformer. The measurement of the field current is automatically scaled and selected by the firmware. If the OnBoard field exciter is not needed, it can be de-selected by the firmware.

The cables for the field supply are connected at connector X10.



The control board SDCS-CON-4 is mounted on an electronic tray in the size D1 to D4 modules. The electronic tray is put in the housing by means of 4 hinges and the SDCS-CON-4 is connected to the SDCS-PIN-4 through three flat cables.

The SDCS-CON-4 is equipped with flash PROM, which contains the firmware and the stored parameters. The parameters can be handled by the DCS800 Control Panel, DriveWindow, DriveWindow Light or by the overriding control. Changed parameters are stored immediately in the flash except for parameters for cyclic communication via the dataset table in groups 90 to 92 and pointers in group 51.
The fault logger entries are also stored in the flash while de-energizing the auxiliary power.

Connectors X1 and X2 are used to connect the isolated I/O boards SDCS-IOB-2 and SDCS-IOB-3.

Connectors X3 to X7 provide the standard digital and analog connection of the drive and have the same terminal layout as the DCS 500 or DCS 600 for easy upgrading.

Connector X8 is needed for the SDCS-DSL-4, which provides the DCSLink interface to field exciters, 12-pulse converters, master-follower and drive-to-drive communication.

Connectors X9 to X11 or slots 1 to 3 respectively are used for R-type extension I/O modules, R-type serial communication adapters and the optical communication board SDCS-COM-8. Slot 1 is used for serial communication and extension I/O. Slot 2 is used for extension I/O only. Slot 3 is used for extension I/O and the SDCS-COM-8.

Connectors X12 and X13 connect the SDCS-CON-4 to the SDCS-PIN-4 for module sizes D1 to D4 or to the SDCS-PIN-51 for module sizes D5 to D7 for voltage, current and temperature measurement. Additionally, the firing pulses are sent to the thyristors trough the SDCS-PIN-4 for D1 to D4 module sizes or to the SDCS-PIN-46 and SDCS-PIN-48 for module sizes D5 to D7.

Connectors X17 and X300 are used as routine test connectors during factory tests of the drive.