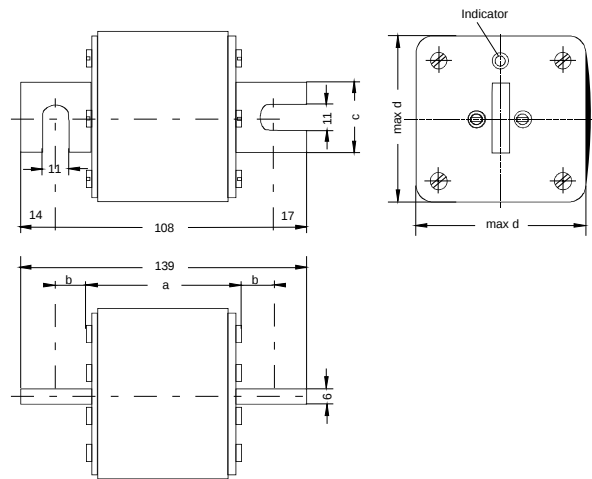


DCS800

Hardware Manual DCS800 Drives (20 to 5200 A)

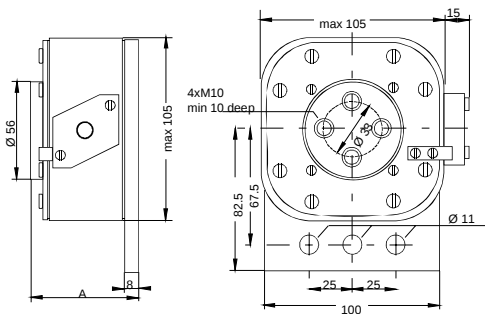


Size 5, 6



Size	a	b	c	d
5	50	29	30	76
6	80	14	30	76

Size 7...10



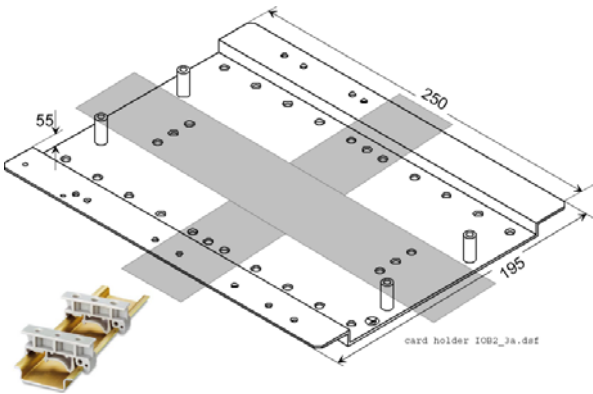
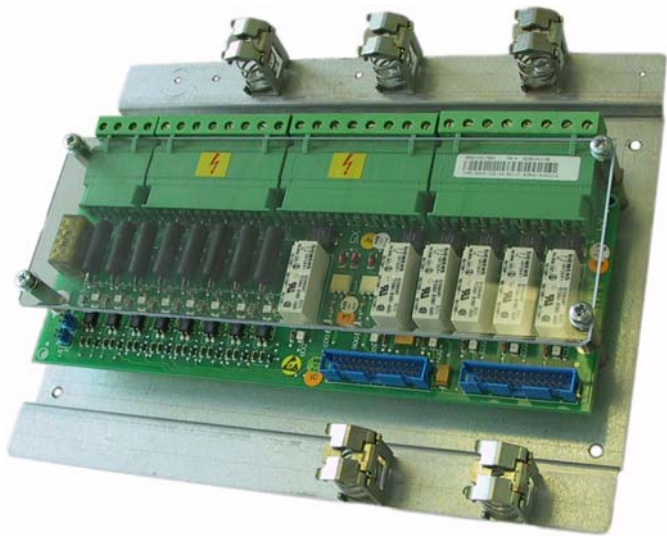
Size	A
7	62
8	90
9	105
10	120

Remark:
Given dimensions may be exceeded in some cases. Please take them only for information.

Card holder for SDCS-IOB-2/3

IOB assembly / mounting kit 3ADT783046

- card holder
 - finger protection cover
 - screen clamp
- (IOB-2x / IOB-3 not included)



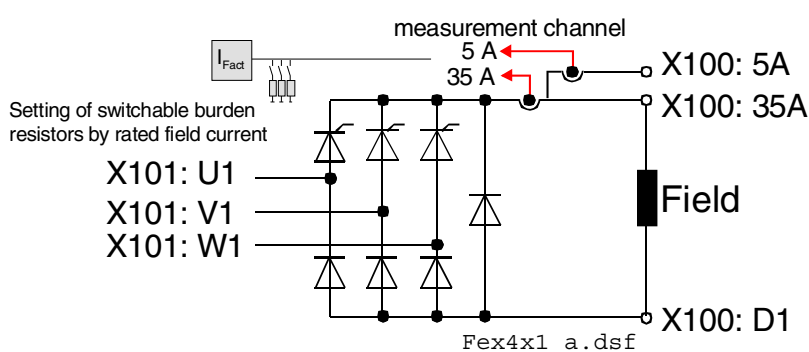
with universal Phoenix clamp 1202713 it is possible to mount the card holder on standard rail system in horizontally or vertically direction

Accessories

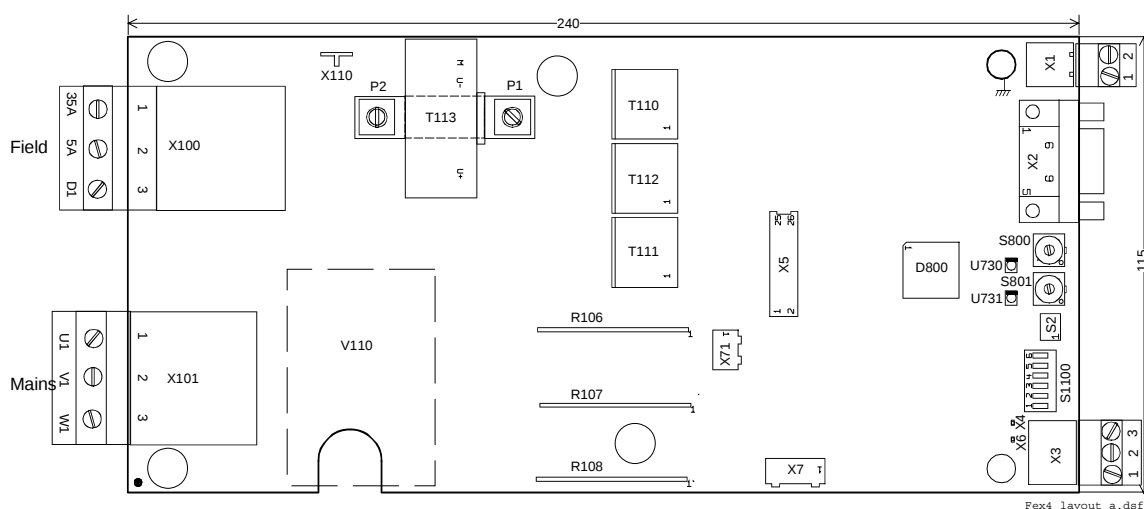
DCF803-0035 and FEX 425 internal

The field exciter DCF803-0035 and FEX425intern are half controlled three-phase field converter. Both field converters are based on the same controller board SDCS FEX4. The board is equipped with own synchronization and current control. The current measurement circuit is automatic scaled based on rated motor field current. The field exciter is fully controlled and monitored via serial communication from the armature converter.

The field exciter is prepared to operate as three phase as well as single phase converter. Single phase operation is provided with terminals U and W



Layout of the SDCS-FEX-4 board



Electrical data

Power circuit	
AC Field input voltage	110 V -15%...500 V +10% single or three-phase
AC input current	< DC output current
Frequency	same as DCS Converter module
AC isolation voltage	600 V
Line reactor	external
Line fuses	KTk25 for FEX425 internal; external for DCF803-0035
DC output current *	300 mA (min)...25 A= FEX425 internal; ...35 A = DCF803-0035
Powerloss	< 130 W (at rated current)
Auxiliary supply	
DC input voltage	24 V DC
Input current	< 200 mA supplied from SDCS-DSL-4 X51
Buffering	10ms

* 3-phase or single phase operation

Control unit

The control includes the following main blocks:

- Micro controller H8 for current control synchronization and fault handling.
- Two channel actual field current measurement of DC circuit.
- H8 controller for serial communication based on CAN standard.
- Driver circuit for firing of half control bridge.
- The software is stored in the flash PROM memory. This software contains
 - PI current control for field circuit
 - Fault and reset logic
 - Synchronization and PLL function
 - setting of current measurement channel

The setting and updating of all control parameters are set from armature converter via DCS link serial communication. Actual field current reference, current control and status bits are cyclic sent via DCS link serial communication.

The field exciter is equipped with an autoscaling function of burden resistor based on nominal field current of motor.

Power section

The power section is a three-phase half controlled bridge with free-wheeling diode.

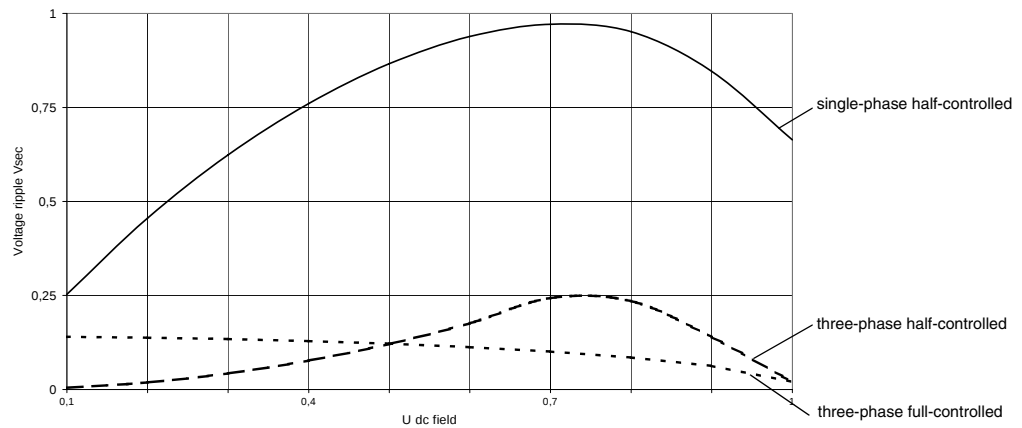
The external field exciter DCF803-0035 is the three-phase half controlled bridge including snubbers based on SDCS-FEX-4 board. Line fuses and the line reactor and transformer must be located outside the housing.

The internal field exciter FEX425 is a ready installed field exciter in a D5 armature converter. The unit is based on a SCDS-FEX-4 board and contains also line fuses. The supply must be connected by independant line reactors located outside of the D5 module, see drawing in chapter *The DCS800*, section *Armature circuit converter DCS800-S D5...D7*.

If the unit is used as a single phase supply the terminal U and W must be used. For single-phase supply an autotransformer for voltage adaptation is recommended.

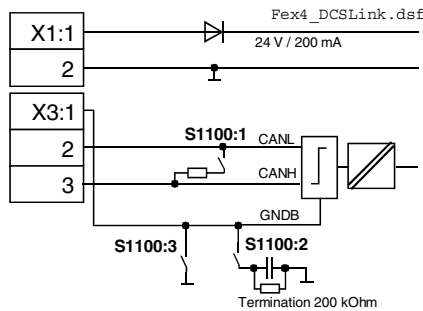
Please see comparison of output voltage ripple between single-phase and three phase-supply.

Voltage ripple of U_{DC} voltage depending on operation modes



DCS LINK communication

The field converter is controlled from armature converter via DCS link serial communication based on CAN hardware.



Supply		Remarks
24 V	≤200 mA	24 V grounded supply f. SDCS-FEX-4

DSL communication		Remarks
Bus termination		
S1100	:1 = ON	120 ohm
	:1 = OFF	no termination
Ground termination		
S1100	:2 = ON	200 kOhm R-C ground termination
	:3 = ON	0 Ohm ground termination
	:2,:3 = OFF	no termination

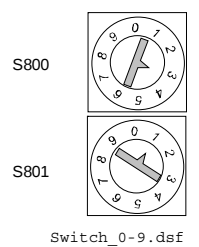
Node address is set by: S800 digit 0 (node address 00 is not possible!)
S801 digit 10

Same node address must be selected in the corresponding armature converter.
example: node address=13 ==> S800 = 3 and S801 = 1

Selection of communication speed is set by S1100

S1100:6	S1100:5	S1100:4	Baudrate kBaud *	Selection of armature converter, param [94.02]
OFF	OFF	OFF	20	0
OFF	OFF	ON	50	1
OFF	ON	OFF	125	2
OFF	ON	ON	250	3
ON	OFF	OFF	500	4
ON	OFF	ON	800	5
ON	ON	OFF	888	6
ON	ON	ON	1000	7

* see Parameter [94.08], [94.09]



Diagnosis

All messages are sent to armature converter and displayed by armature converter control panel. If communication is broken or node numbers are mixed up a simple fault display on SDCS-FEX-4 board can be used. Therefore the unit is equipped with two small LED.

U730 = Green

U731 = Yellow

Following messages are displayed:

both OFF	no 24V supply
green and yellow continues	No firmware
green blinking	25 A / 35 A output active, waiting for DCSLINK communication
green continues	25 A / 35 A output active, DCSLINK communication OK
yellow blinking	5A output active (X100:2), waiting for DCSLINK communication
yellow continues	5A output active (X100:2), DCSLINK communication OK
green and yellow toggling:	

X times yellow Y times green

X=1	Y=1	Alarm	phase missed	
	Y=2	Alarm	maximum temperature heatsink	
X=2	Y=1	Fault	DCS link serial communication failed	
	Y=2	Fault	Synchronization fault	
	Y=3	Fault	Overcurrent	
	Y=5	Fault	Field AC supply voltage < 30V	
	Y=6	Fault	Field AC supply voltage < 650V	
	Y=9	Fault	maximum temperature heatsink	
	Y=12	Fault	Auxiliary voltage	
	Y=14	Fault	general hardware	No RESET
	Y=15	Fault	general software	No RESET