DCS880

Hardware Manual
DCS880 Drives (20 to 5200 A)

Additional

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Type code

The type code contains information on the specification and configuration of the drive. The first digits from left show the basic configuration (e.g. DCS880-S01-2000). The optional selections are given thereafter on the name plate by plus code. The main selections are described below. Not all selections are available for all types.

The drive's basic type code: DCS880-aab-cccc-ddef + plus code			
Product family	DCS880		
Product type:	aa	= S0 = R0 = E0 = A0	Standard converter module Rebuild kit Panel solution Enclosed converter
Bridge type:	b	= 1 = 2	Single bridge (2-Q) 2 anti-parallel bridges (4-Q)
Module type:	cccc	=	Rated DC current (IP00)
Rated AC voltage:	dd	= 04 = 05 = 06 = 07 = 08 = 10 = 12	100 V_{AC} ... 415 V_{AC} 100 V_{AC}... 500 V_{AC} (IEC), 525 VAC (UL) 270 V_{AC}... 600 V_{AC} 315 V_{AC} ... 690 V_{AC} 360 V_{AC} ... 800 V_{AC} 450 V_{AC} ... 990 V_{AC} 540 V_{AC} ... 1190 V_{AC}
Power connection:	e	= X = L = R	Standard H1 ... H7 Left side H8 Right side H8
Revision code:	f	= 0 = A	1st generation H7: fusing adaption due to UL certification
Field exciter configuration:	+0S163 +S164		H1 ... H4 without OnBoard field exciter H5 and H6 with internal field exciter, supply external (H5 and H6: 25 A, Rebuild kit: 16 A / 25 A)
Fan voltage:	Standard		Size H4 Fan voltage: 230 V / 1-ph
Application programming:	+S551		Memory unit including drive application programming license
SDCS-DSL-H10:	+S521		1 DCSLink channel, 0 channels optical power link SDCS-DSL-H10 (H1 ... H4)
Current measurement:	+S175		SDCS-CMA-2 (H6 ... H8)
Voltage measurement:	+S185		SDCS-PIN-H51 configured for 20 V_{AC} ... 100 VAC (H6 ... H8)
Control panel:	+0J404 +J428 +J429		Without control panel daisy-chain option DPI-H01 kit Bluetooth control panel ACS-AP-W

The technical data and specifications are valid as of going to press. ABB reserves the right to make subsequent alterations.

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Semiconductor fuses (F1) and fuse holders for armature circuit

Size	Converter type (2-Q)	Converter type (4-Q)	Fuse	Fuse holder	Fuse type	Fuse holder
					North America	
D1	DCS800-S01-0020-04/05	DCS800-S02-0025-04/05	50A 660V UR	OFAZ00 S3L	FWP-50B	1BS101
	DCS800-S01-0045-04/05	DCS800-S02-0050-04/05	80A 660V UR	OFAZ00 S3L	FWP-80B	1BS101
	DCS800-S01-0065-04/05	DCS800-S02-0075-04/05	125A 660V UR	OFAZ00 S3L	FWP-125A	1BS103
	DCS800-S01-0090-04/05	DCS800-S02-0100-04/05	125A 660V UR	OFAZ00 S3L	FWP-125A	1BS103
	DCS800-S01-0125-04/05	DCS800-S02-0140-04/05	200A 660V UR	OFAZ1 S3	FWP-200A	1BS103
D2	DCS800-S01-0180-04/05	DCS800-S02-0200-04/05	250A 660V UR	OFAZ1 S3	FWP-250A	1BS103
	DCS800-S01-0230-04/05	DCS800-S02-0260-04/05	315A 660V UR	OFAZ2 S3	FWP-300A	1BS103
D3	DCS800-S01-0315-04/05	DCS800-S02-0350-04/05	500A 660V UR	OFAZ3 S3	FWP-500A	1BS103
	DCS800-S01-0405-04/05	DCS800-S02-0450-04/05	700A 660V UR	OFAZ3 S3	FWP-700A	See Note 1
	DCS800-S01-0470-04/05	DCS800-S02-0520-04/05	700A 660V UR	OFAZ3 S3	FWP-700A	See Note 1
D4	DCS800-S01-0610-04/05	DCS800-S02-0680-04/05	900A 660V UR	3x 170H 3006	FWP-900A	See Note 1
	DCS800-S01-0740-04/05	DCS800-S02-0820-04/05	900A 660V UR	3x 170H 3006	FWP-900A	See Note 1
	DCS800-S01-0900-04/05	DCS800-S02-1000-04/05	1250A 660V UR	3x 170H 3006	FWP-1200A	See Note 1
D3	DCS800-S01-0290-06	DCS800-S02-0320-06	500A 660V UR	OFAZ3 S3	FWP-500A	See Note 1
D4	DCS800-S01-0590-06	DCS800-S02-0650-06	900A 660V UR	3x 170H 3006	FWP-900A	See Note 1

Note 1: No fuse holder is available; attach the fuses directly to the busbar.
Fuses and fuse holders for armature circuit (details see chapter Fuses and fuse holders IEC)

Fuses (F3.x) and fuse holders for field circuit

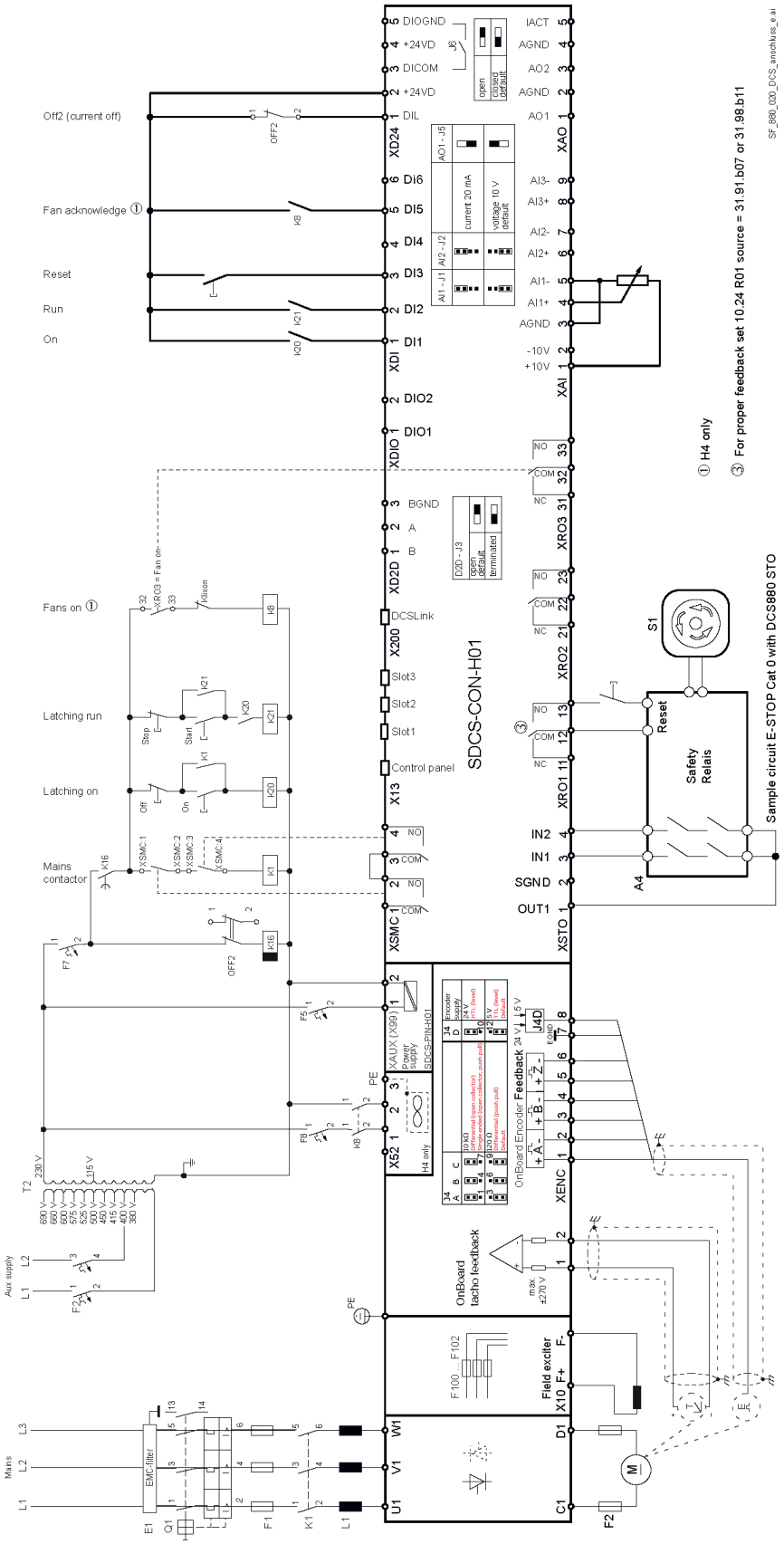
Depending on the protection strategy different types of fuses are used. The fuses can be sized according to the maximum field current. In this case take the fuse, which fits to the rated field current levels. If the field converter is connected to two phases of a network, two fuses should be used. In case the unit is connected to one phase and neutral only one fuse at the phase can be used. The table below lists the fuse currents depending on the table above.

Field converter type	Field current	F3.1	F3.2	F 3.3
DCF803-0016 FEX-425-Int* DCF803-0035 DCF803-0050 DCF804-0050	$I_F \leq 6$ A	10 A 660 V UR*	OFAA 00 H10	10 A
	$I_F \leq 12$ A	16 A 660 V UR*	OFAA 00 H16	16 A
	$I_F \leq 16$ A	25 A 660 V UR*	OFAA 00 H25	25 A
FEX-425-Int* DCF803-0035 DCF803-0050 DCF804-0050	$I_F \leq 25$ A	50 A 660 V UR*	OFAA 00 H50	35 A
DCF803-0035 DCF803-0050 DCF804-0050	$I_F \leq 35$ A			50 A
DCF803-0050 DCF804-0050	$I_F \leq 50$ A	80 A 660 V UR	OFAA 00 H80	63 A
DCF803-0060 DCF804-0060	$I_F \leq 60$ A			80 A
Type of protection elements		Semiconductor fuse fuse holder OFAZ 00 S3L	LV HRC type for 690 V, fuse holder OFAZ 00 S3L	Circuit breaker for 500 V or 690 V

* Fuse (F3.1) KTK25 included in FEX-425-Int package. D4+ field fuses are external. D5 field fuses are internal.
Fuses and fuse holders for field circuit

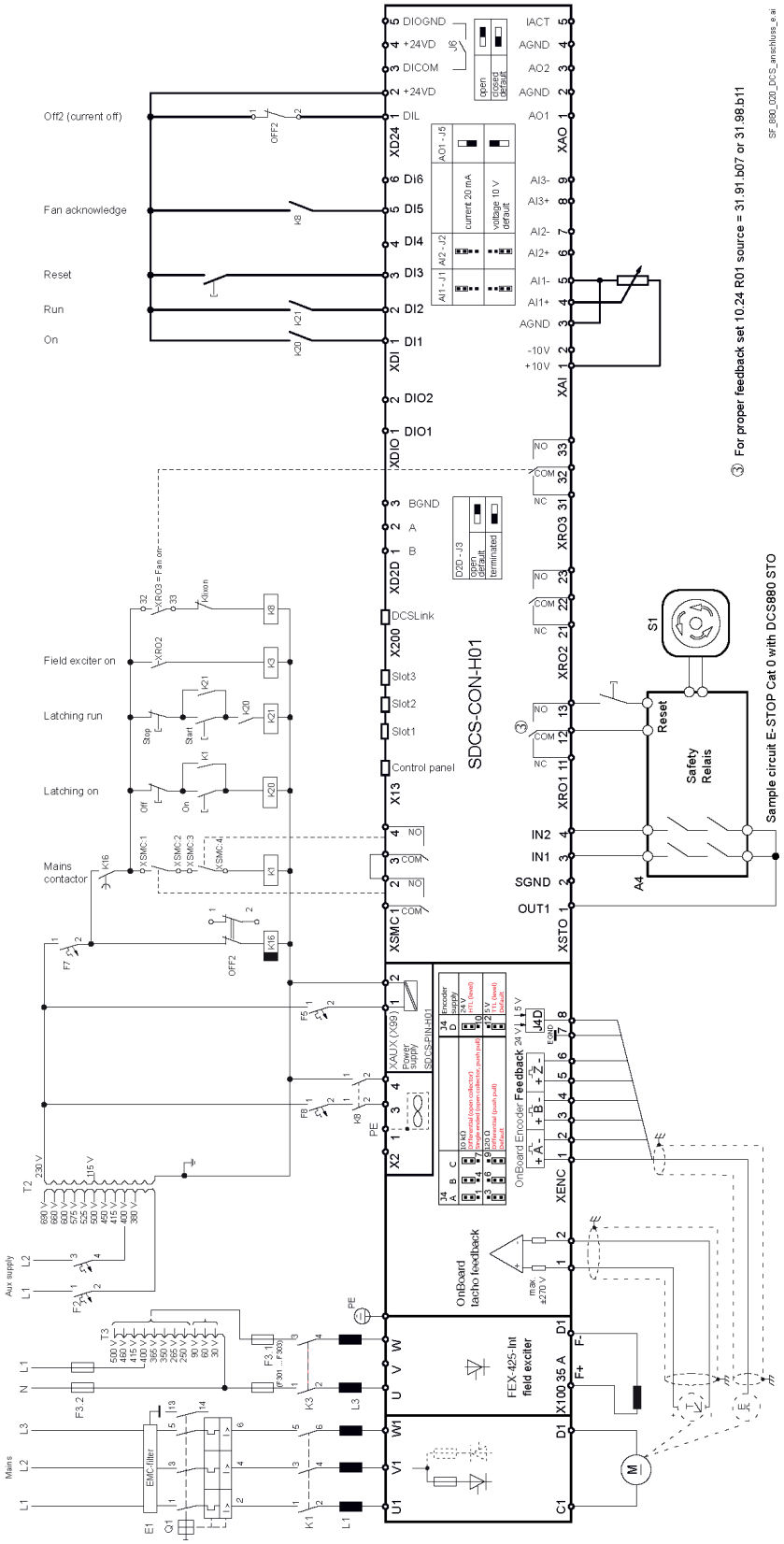
Converters size H1 ... H4 configuration using an OnBoard field exciter

Wiring the drive according to this diagram offers the highest degree of monitoring functions done by the drive.



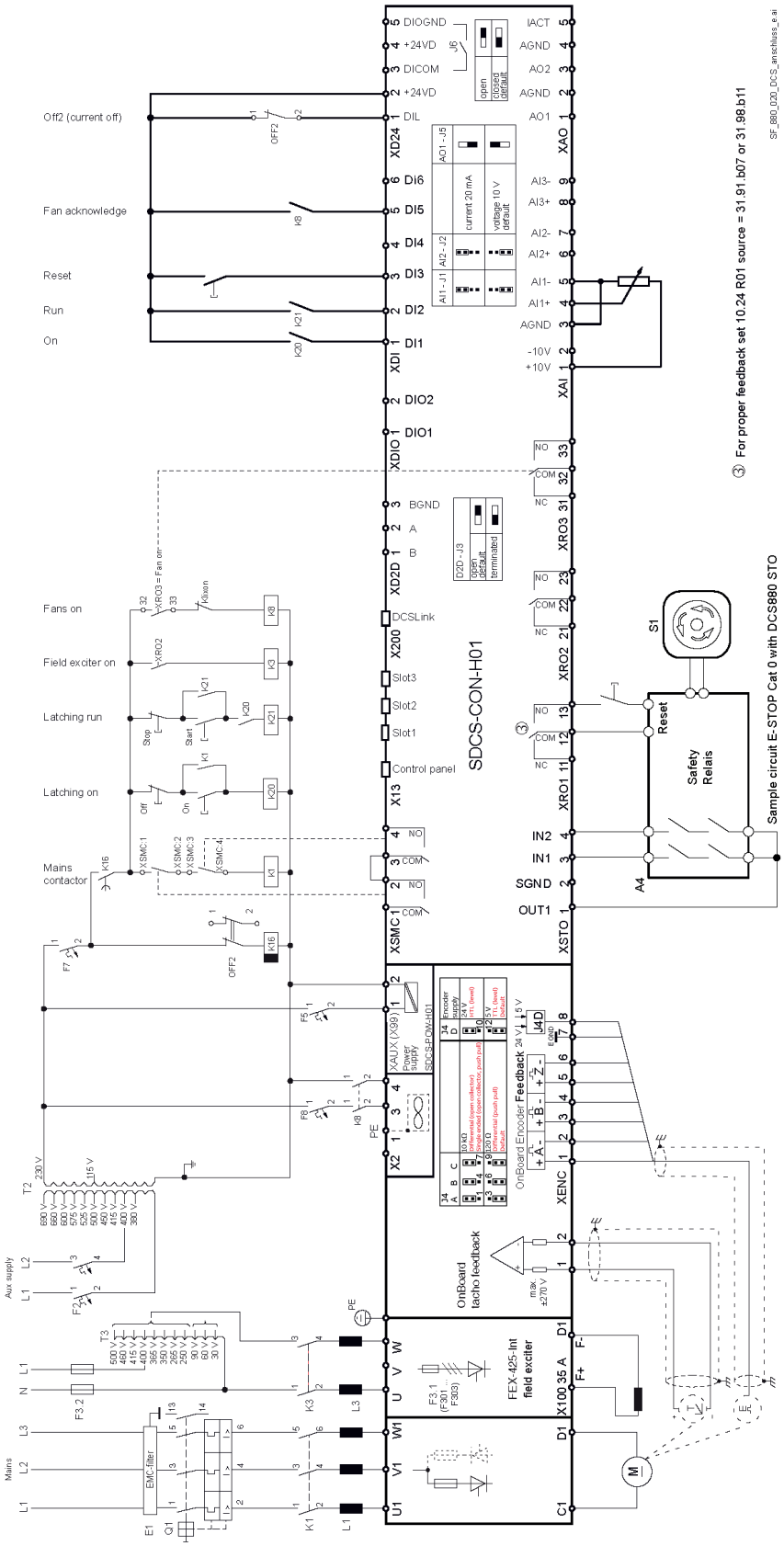
Converters size H5 configuration using FEX-425-Int field exciter

Wiring the drive according to this diagram offers the highest degree of monitoring functions done by the drive. Field converters FEX-425-Int are equipped with their own synchronization and must be supplied from independent mains supply voltage max. 500 V (single-phase or 3-phase).



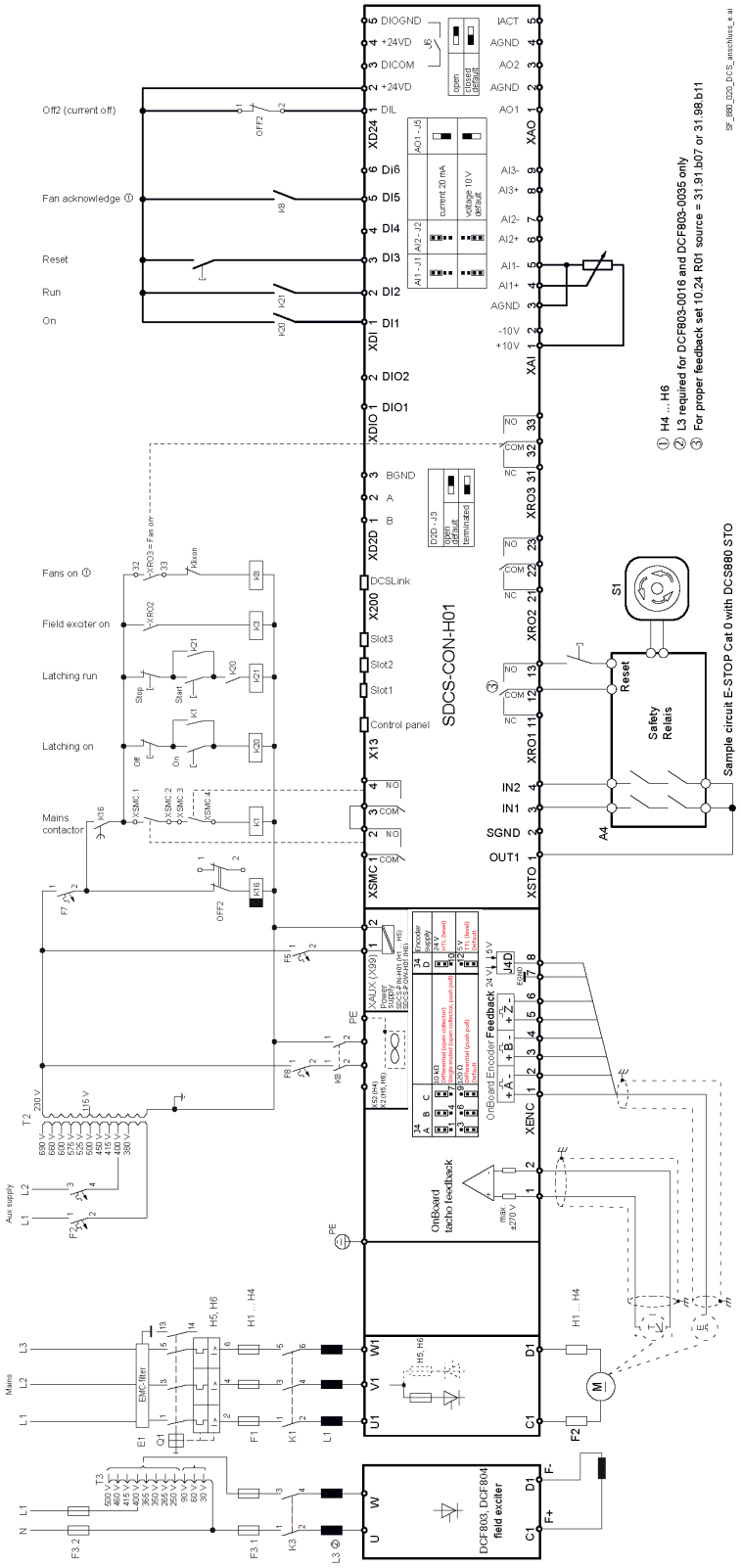
Converters size H6 configuration using a FEX-425-Int field exciter

Wiring the drive according to this diagram offers the highest degree of monitoring functions done by the drive. Field converters FEX-425-Int are equipped with their own synchronization and must be supplied from independent mains supply voltage max. 500 V (single-phase or 3-phase).



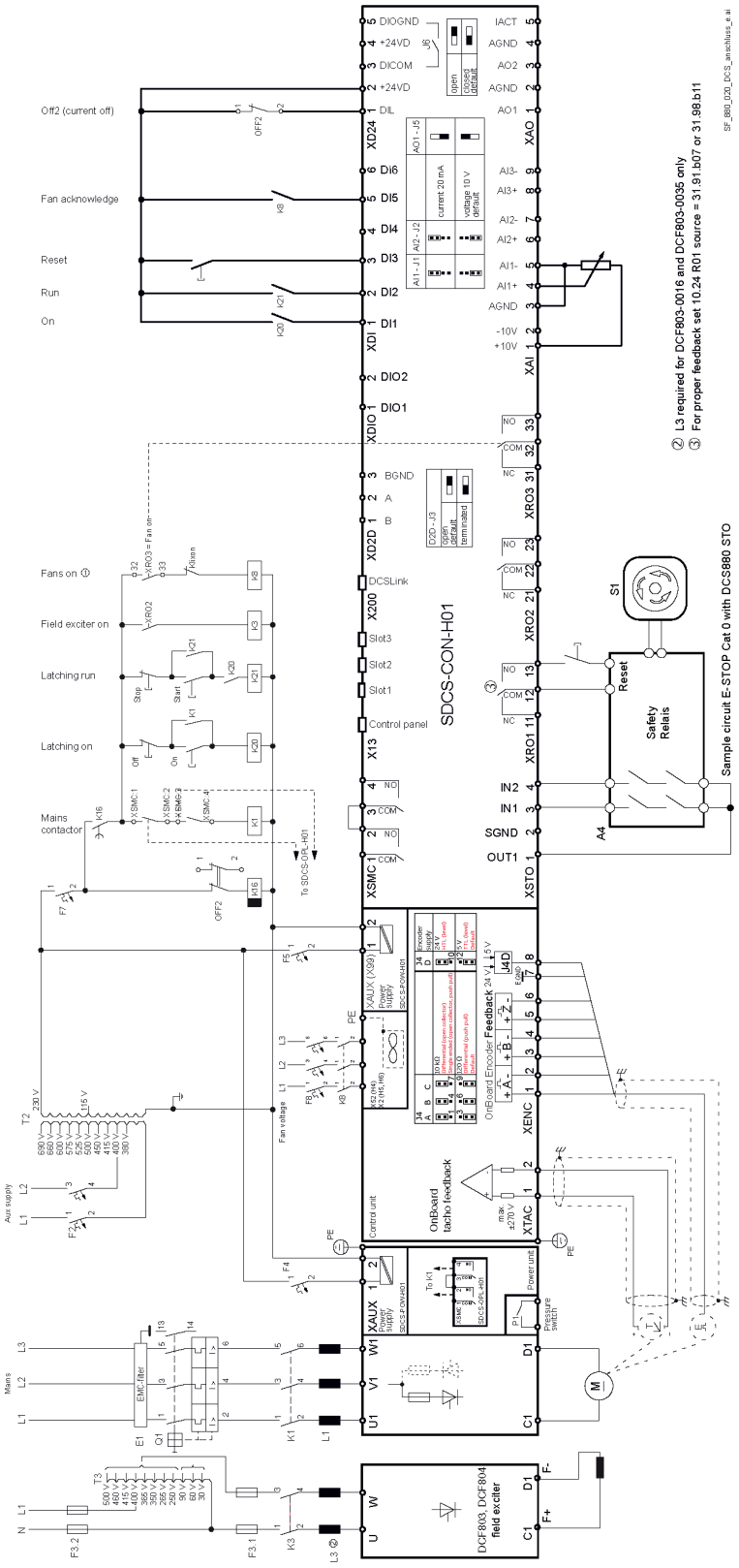
Converters size H1 ... H6 configuration using external field exciters DCF803, DCF804

Wiring the drive according to this diagram offers the highest degree of monitoring functions done by the drive. Field converters DCF803 / DCF804 are equipped with their own synchronization and must be supplied from independent mains supply voltage max. 500 V (single-phase or 3-phase).



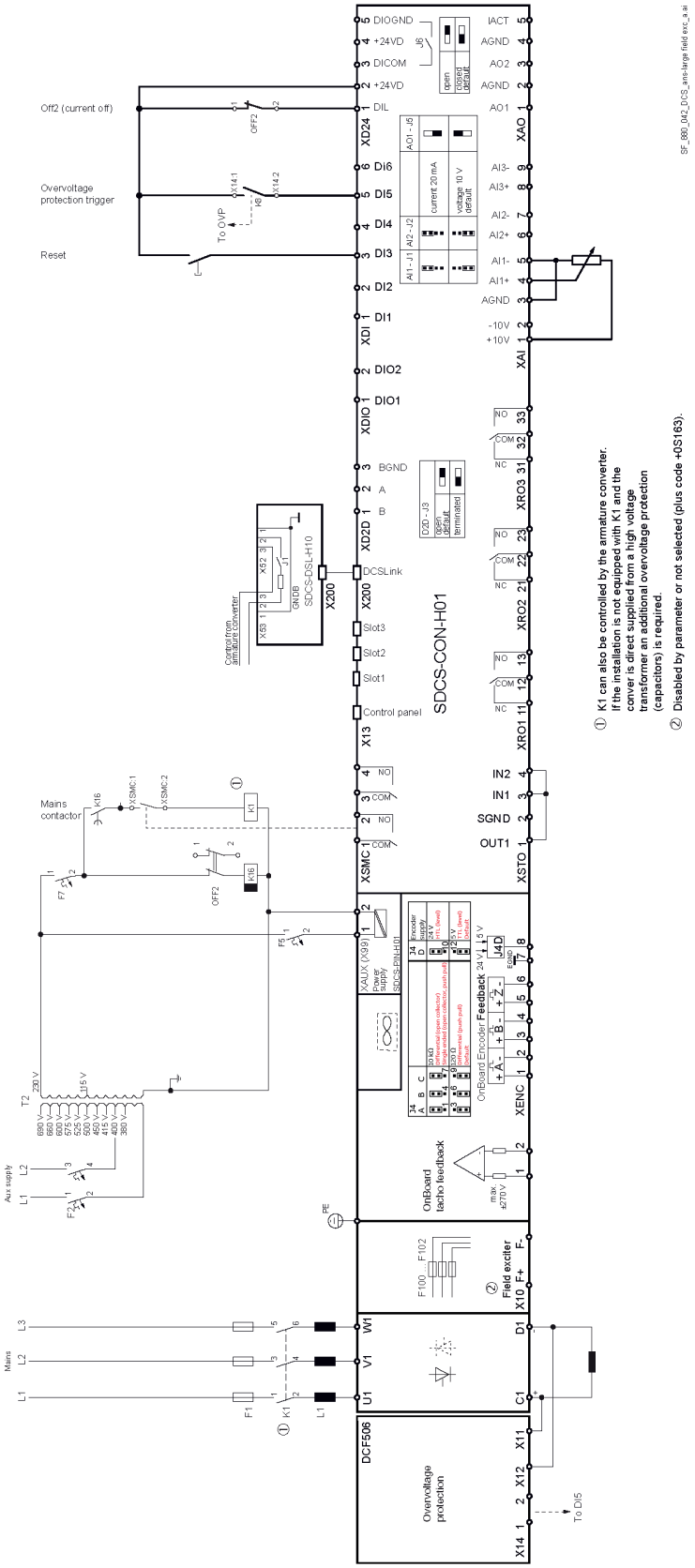
Converters size H7 and H8 configuration using external field exciters DCF803, DCF804

Wiring the drive according to this diagram offers the highest degree of monitoring functions done by the drive. Field converters DCF803 / DCF804 are equipped with their own synchronization and must be supplied from independent mains supply voltage max. 500 V (single-phase or 3-phase).



Converters size H1 ... H3 as large field exciter

Wiring the drive according to this diagram offers the highest degree of monitoring functions done by the drive.



Protecting the drive and the input power and motor cables against thermal overload
The drive protects itself, its mains- and the motor cables against thermal overload when the cables are sized according to the nominal current of the drive. No additional thermal protection devices are needed.
WARNING
If the drive is connected to multiple motors, use a separate circuit breaker or fuses for protecting each motor cable and motor against overload. The drive overload protection is set to the total motor load. It may not trip due to an overload in one motor circuit only.

Protecting the motor against thermal overload
According to regulations, the motor must be protected against thermal overload and the current must be switched off when overload is detected. The drive includes a measured motor temperature function and a motor thermal model function. They protect the motor and switch off the current when necessary.
Measured motor temperature:
For safety, the actual temperature indication is given by motor temperature sensors. The most common temperature sensors are:
– Motor sizes IEC180 … 225: Thermal switch, e.g. klixon.
– Motor sizes IEC200 … 250 and larger: PTC or PT100.
See the DCS880 Firmware Manual for more information on the connection and use of the temperature sensors.

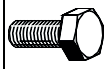
Motor thermal model:
Additionally, depending on drive parameter settings, an implemented function monitors a calculated temperature value (based on a motor thermal model). The user can tune the thermal model by feeding in additional motor and load data.
See the DCS880 Firmware Manual for more information on the motor thermal model.
WARNING
The motor thermal model function shall not be used solely as electronic motor overload protection safety function.

Protecting the drive against ground faults
The drive is not equipped with an internal ground fault protective function to protect the unit against ground faults in the motor and motor cables.
Residual current device compatibility
The drive is suitable to be used with residual current devices of Type B.
Note:
The EMC filter in front of the drive includes capacitors connected between the main circuit and the frame. These capacitors and long motor cables increase the ground leakage current and may cause fault current circuit breakers to function.

Cross-sectional areas - Tightening torques

Recommended cross-sectional area to **DINVDE 0276-1000** and **DINVDE 0100-540 (PE)** trefoil arrangement, up to 50°C ambient temperature. The necessary wire torque at 60°C wire temperature is the same as recommended in the following table.

Armature:

Converter type	C1, D1			U1, V1, W1		PE		
		1 	(2.) 					
	I_{DC} [A-]	[mm²]	[mm²]	Iv [A~]	[mm²]	[mm²]		[Nm]
DCS880-S0b-0025-0d	25	1 x 6	-	21	1 x 4	1 x 10	1 x M6	6
DCS880-S0b-0050-0d	50	1 x 10	-	41	1 x 6	1 x 10	1 x M6	6
DCS880-S0b-0075-0d	75	1 x 25	-	61	1 x 25	1 x 16	1 x M6	6
DCS880-S0b-0100-0d	100	1 x 25	-	82	1 x 25	1 x 16	1 x M6	6
DCS880-S0b-0150-0d	150	1 x 35	-	114	1 x 35	1 x 16	1 x M10	25
DCS880-S0b-0200-0d	200	2 x 35	1 x 95	163	2 x 25	1 x 25	1 x M10	25
DCS880-S0b-0250-0d	250	2 x 35	1 x 95	204	2 x 25	1 x 25	1 x M10	25
DCS880-S0b-0300-0d	300	2 x 70	1 x 95	220	2 x 50	1 x 50	1 x M10	25
DCS880-S0b-0320-0d	320	2 x 70	1 x 95	220	2 x 50	1 x 50	1 x M10	25
DCS880-S0b-0350-0d	350	2 x 70	-	286	2 x 50	1 x 50	1 x M10	25
DCS880-S0b-0450-0d	450	2 x 95	-	367	2 x 95	1 x 95	1 x M10	25
DCS880-S0b-0520-0d	520	2 x 95	-	424	2 x 95	1 x 95	1 x M10	25
DCS880-S0b-0650-0d	650	2 x 120	-	555	2 x 120	1 x 120	1 x M12	50
DCS880-S0b-0680-0d	680	2 x 120	-	555	2 x 120	1 x 120	1 x M12	50
DCS880-S0b-0820-0d	820	2 x 150	-	669	2 x 120	1 x 120	1 x M12	50
DCS880-S0b-0900-06/07	900	4 x 95	3 x 150	734	4 x 70	1 x 150	2 x M12	50
DCS880-S0b-1000-0d	1000	2 x 185	-	816	2 x 150	1 x 150	1 x M12	50
DCS880-S0b-1190-0d	1190	4 x 120	-	971	4 x 95	2 x 95	2 x M12	50
DCS880-S0b-1200-0d	1200	4 x 120	-	979	4 x 95	2 x 95	2 x M12	50
DCS880-S0b-1500-0d	1500	4 x 185	-	1224	4 x 150	2 x 150	2 x M12	50
DCS880-S0b-2000-0d	2000	8 x 120	6 x 185	1632	4 x 240	2 x 240	2 x M12	50
DCS880-S0b-1900-0d	1900	8 x 120	6 x 185	1550	4 x 240	2 x 240	4 x M12	50
DCS880-S0b-2050-dd	2050	8 x 120	6 x 185	1673	6 x 120	3 x 120	4 x M12	50
DCS880-S0b-2500-0d	2500	7 x 185	-	2040	8 x 120	4 x 120	4 x M12	50
DCS880-S0b-2600-dd	2600	7 x 185	-	2122	8 x 120	4 x 120	4 x M12	50
DCS880-S0b-3000-0d	3000	8 x 185	-	2448	7 x 185	4 x 185	4 x M12	50
DCS880-S0b-3300-dd	3300	8 x 185	-	2693	7 x 185	4 x 185	4 x M12	50
DCS880-S0b-4000-dd	4000	7 x 300	-	3264	8 x 240	4 x 240	4 x M12	50
DCS880-S0b-4800-0d ①	4800	8 x 300	-	3876	6 x 300	3 x 300	4 x M12	50
DCS880-S0b-5200-0d ①	5200	8 x 300	-	4202	6 x 300	3 x 300	4 x M12	50

① Reduced ambient temperature 40°C.

You will find instructions on how to calculate the PE conductor's cross-sectional area in VDE 0100 or in equivalent national standards. We would remind you that power converters may have a current- limiting effect.

Excitation:

Size	H1	H1	H2	H3, H5, H6	H4	DCF803-0035
DC output current	6 A	12 A	18 A	25 A	30 A	35 A
max. cross sectional area	6 mm²/ AWG 10	6 mm²/ AWG 10	6 mm²/ AWG 10	6 mm²/ AWG 10	6 mm²/ AWG 10	6 mm²/ AWG 10
min. cross sectional area	1 mm²/ AWG 16	2.5 mm²/ AWG 13	4 mm²/ AWG 11	6 mm²/ AWG 10	6 mm²/ AWG 10	6 mm²/ AWG 10
Tightening torque	1.5 ....1.7 Nm					

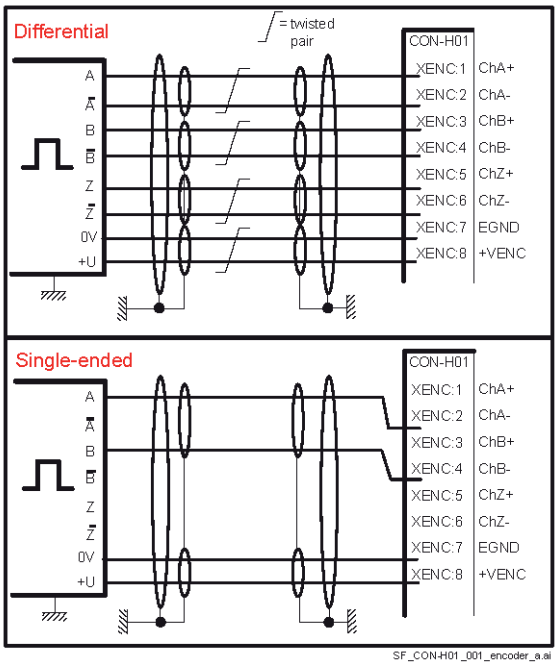
Pulse encoder connection

OnBoard encoder interface (XENC on SDCS-CON-H01)

On the SDCS-CON-H01 it is possible to select the supply voltage using jumper J4D.

	Hardware configuration	
Encoder supply	SDCS-CON-H01	J4D
5 V, default (TTL level)	no sense	
24 V (HTL level)	no sense	

The wiring is shown in the figure below

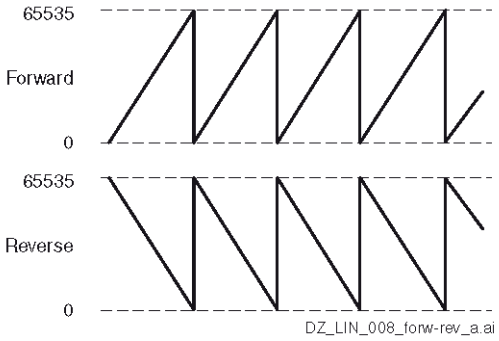


Commissioning hint:

If the drive's measured direction of rotation is wrong or does not correspond to the measured EMF speed, fault 7301 Motor speed feedback may appear during start-up. If necessary correct it by exchanging the field connections F1 and F2 or exchange tracks A+ and A-.

For single-ended encoders tracks A- and B- must be exchanged.

94.16 OnBoard encoder position should look like this:

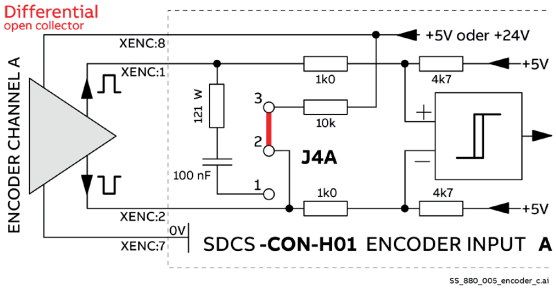


Pulse encoder connection principles

Two different encoder connections are available.

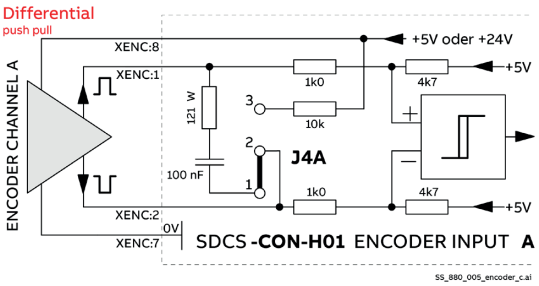
1. Differential connection; only pulse encoders generating voltage signals can be used.
2. Single-ended (push pull) connection; only pulse encoders generating voltage signals can beused.

Differential connection:



Jumper settings for differential (open collector) encoders connected to a SDCS-CON-H01

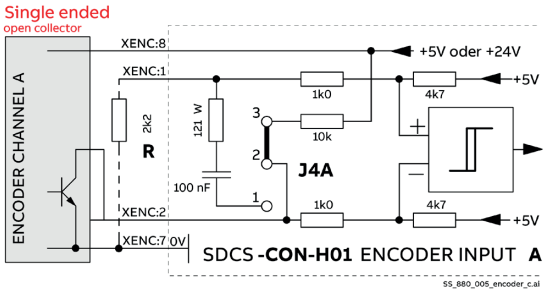
Jumper	SDCS-CON-H01				
J4A J4B J4C	2 - 3 5 - 6 8 - 9		2 - 3 5 - 6 8 - 9		Differential
J4D	5 V: 10 – 11 (TTL level)		24 V: 11 – 12 (HTL level)		Voltage source



Jumper settings for differential (push pull) encoders connected to a SDCS-CON-H01

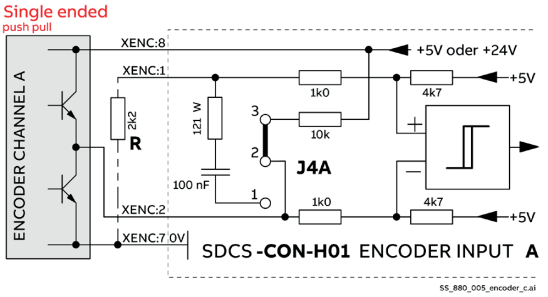
Jumper	SDCS-CON-H01				
J4A J4B J4C	1 - 2 4 - 5 7 - 8		1 - 2 4 - 5 7 - 8		Differential
J4D	5 V: 10 – 11 (TTL level)		24 V: 11 – 12 (HTL level)		Voltage source

Single-ended connection:



Jumper settings for single-ended (open collector) encoders connected to a SDCS-CON-H01

Jumper	SDCS-CON-H01				
J4A J4B J4C	2 - 3 5 - 6 8 – 9		2 - 3 5 - 6 8 - 9		Single ended
J4D	5 V: 10 – 11 (TTL level)		24 V: 11 – 12 (HTL level)		Voltage source



Jumper settings for single-ended (push pull) encoders connected to a SDCS-CON-H01

Jumper	SDCS-CON-H01				
J4A J4B J4C	2 - 3 5 - 6 8 – 9		2 - 3 5 - 6 8 - 9		Single ended
J4D	5 V: 10 – 11 (TTL level)		24 V: 11 – 12 (HTL level)		Voltage source

To get a threshold lower than 5 V each terminal XENC:1, 3 and 5 must be connected via a resistor R to GND.

Cable length:

The maximum distance between pulse encoder and SDCS-CON-H01 dependents on the voltage drop of the connecting lines and on the output and input configuration of the used components. Use cables according to the table below. Use twisted pair cables with pair shielding plus overallshielding.

Cable length	Parallel wires for power source & GND	Cable used
0 ... 50 m	1 x 0.25 mm²	12 x 0.25 mm²
50 ... 100 m	2 x 0.25 mm²	12 x 0.25 mm²
100 ... 150 m	3 x 0.25 mm²	14 x 0.25 mm²

Cable length	Parallel wires for power source & GND	Cable used
0 ... 164 ft	1 x 24 AWG	12 x 24 AWG
164 ... 328 ft	2 x 24 AWG	12 x 24 AWG
328 ... 492 ft	3 x 24 AWG	14 x 24 AWG

Internal 24 V_{DC} used

DCS880

XAI	Reference voltage and analog inputs	
1	+VREF	+10 V_{DC}
2	-VREF	-10 V_{DC}
3	AGND	Common ground (connected to frame)
4	AI1+	±10 V or 0 (4) ... 20 mA depending on J1
5	AI1-	
6	AI2+	±10 V or 0 (4) ... 20 mA depending on J2
7	AI2-	
8	AI3+	±10 V
9	AI3-	
J1	J1	AI1 current / voltage selection jumper
J2	J2	AI2 current / voltage selection jumper

XAO	Analog outputs	
1	AO1	±10 V or 0 (4) ... 20 mA depending on J5
2	AGND	Common ground (connected to frame)
3	AO2	±10 V
4	AGND	Common ground (connected to frame)
5	IACT	Connection point for a scope (H1 ... H6 only) ①
J5	J5	AO1 current / voltage selection switch

XD2D	Drive-to-drive link	
1	B	Drive-to-drive link
2	A	(master-follower or embedded fieldbus)
3	BGND	Isolated ground 2
J3	J3	Drive-to-drive link termination switch

XRO1, XRO2, XRO3	Relay outputs	
11	NC	250 V_{AC} / 30 V_{DC} 2 A
12	COM	
13	NO	
21	NC	250 V_{AC} / 30 V_{DC} 2 A
22	COM	
23	NO	
31	NC	250 V_{AC} / 30 V_{DC} 2 A
32	COM	
33	NO	

XD24	Digital interlock	
1	DIL	Digital interlock, ground: DICOM
2	+24VD	+24 V_{DC}, 200 mA, ground : DIOGND
3	DICOM	Isolated digital input ground for DI1 ... DI5 and DIL
4	+24VD	+24 V_{DC}, 200 mA, ground : DIOGND
5	DIOGND	Isolated digital input / output ground for DI6, DIO1, DIO2
J6	J6	Digital ground selection switch (DIOGND and DICOM)

XDIO	Digital inputs / outputs	
1	DIO1	max. +24 V_{DC} → 2k → 100n → DIOGND; Relay driver; +24 V_{DC} DO; +3.3 V_{DC} DI
2	DIO2	

XDI	Digital inputs	
1	DI1	DI1 ... DI5 and DIL: max. +24 V_{DC} → 2k → 100n → DICOM; +3.3 V_{DC} DI
2	DI2	
3	DI3	
4	DI4	
5	DI5	
6	DI6	DI6: max. +24 V_{DC} → 2k → 100n → DIOGND; +3.3 V_{DC} DI

XENC	Encoder	
1	A+	Channel A+ function depending on J4A
2	A-	Channel A- function depending on J4A
3	B+	Channel B+ function depending on J4B
4	B-	Channel B- function depending on J4B
5	Z+	Channel Z+ function depending on J4C
6	Z-	Channel Z- function depending on J4C
7	EGND	Common ground (connected to frame)
8	+VENC	Encoder supply 5 V_{DC} or 24 V_{DC} depending on J4D, 250 mA
J4A	J4A	Differential or single ended (10 k pull up)
J4B	J4B	selection jumpers
J4C	J4C	
J4D	J4D	Encoder supply 5 V_{DC} or 24 V_{DC} selection jumper
J7A	J7A	Not in use for DCS880
J7B	J7B	

XTAC	Analog tacho	
1	AITACH+	±8 ... 270 V_{DC}
2	AITACH-	

XSMC	Mains contactor		
1	MCCOM	250 V_{AC} / 30 V_{DC} 2 A	Fixed output for the mains contactor
2	MCNO		
3	STOCOM	250 V_{AC} / 30 V_{DC} 2 A	Fixed output for safe torque off (STO) zero current monitor
4	STONO		

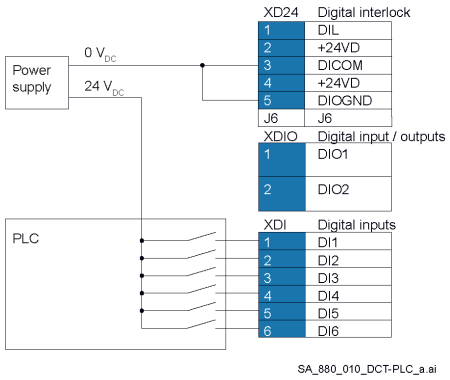
XSTO	Safe torque off (STO)	
1	OUT1	24 V_{DC} for STO circuit
2	SGND	Common ground (connected to frame)
3	IN1	Both circuits must be closed for drive to start
4	IN2	Open circuits block the firing pulses
X12	Safety functions module connection	
X13	Control panel connection	
X205	Memory unit connection	

Safety relais

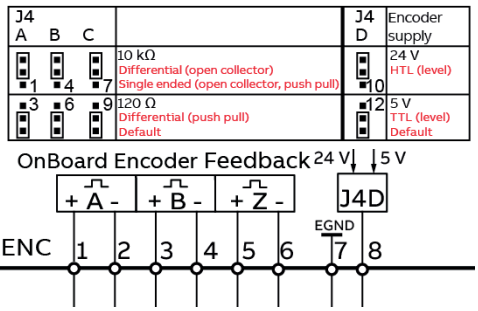
① For H7 and H8 see SDCS-OPL-H01.

SA_880_005_DCS_d.ai

External 24 V_{DC} used



SA_880_010_DCT-PLC_a.ai



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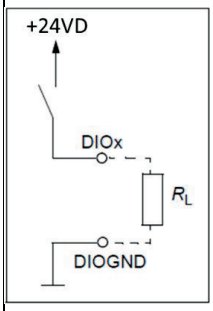
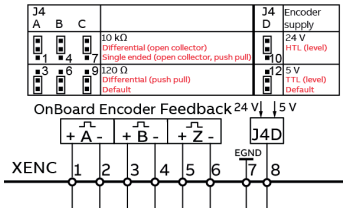
XDIO: Digital inputs / outputs

DIO1 DIO2	Maximum wire size 2.5 mm^2 As input: +24 V_{DC} logic levels: low < 5 V_{DC}, high > 15 V_{DC} R_{in} = 2 kΩ Filter: 0.25 ms As output: Total output current from +24VD is limited to 200 mA  Filter: 0.04 ms Related ground is DIOGND
	Parameter settings see *DCS880 Firmware manual Group 11 Standard DIO, FI, FO*

XDI: Digital inputs

DI1 DI2 DI3 DI4 DI5 DI6	Maximum wire size 2.5 mm^2 +24 V_{DC} logic levels: low < 5 V_{DC}, high > 15 V_{DC} R_{in} = 2 kΩ Hardware filter: 0.04 ms Digital filter up to 8 ms DI1 ... DI5: Related ground is DICOM DI6: Related ground is DIOGND
	Parameter settings see *DCS880 Firmware manual Group 10 Standard DI, RO*

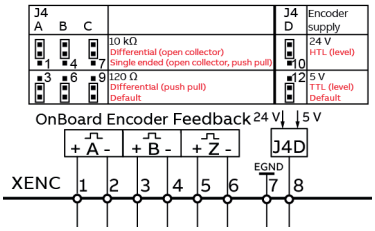
XENC: Encoder

A+ A- B+ B- Z+ Z- EGND +VENC	OnBoard encoder interface supply voltage 5 V or 24 V (non isolated) depending on J4D, 250 mA OnBoard encoder interface type differential or single ended depending on J4A ... J4C Maximum wire size 2.5 mm^2 
	Parameter settings see *DCS880 Firmware manual Group 94 OnBoard speed feedback configuration*

XTAC: Analog tacho

AITACH+ AITACH-	OnBoard tacho interface Maximum wire size 2.5 mm^2 Differential input max. voltage 8 ... 270 V
	Parameter settings see *DCS880 Firmware manual Group 94 OnBoard speed feedback configuration*

Jumpers and switches

Jumper / Switch	Description	Positions
J1 (AI1)	Determines whether analog input AI1 is used as a current or voltage input.	 Current (I)
		 Voltage (U), default.
J2 (AI2)	Determines whether analog input AI2 is used as a current or voltage input.	 Current (I)
		 Voltage (U), default.
J3 (D2D)	Drive-to-drive link termination. Must be set to terminated position when the thyristor power controller is the last unit on the link.	 Bus is not terminated, default.  Bus is terminated.
J4A ... J4D (encoder)	OnBoard encoder interface.	
J5 (AO1)	Determines whether analog output AO1 is used as a current or voltage output.	 Voltage (U), default.
		 Current (I)
J6 (grounding)	Digital ground selection switch. Determines whether DICOM is separated from DIOGND (e.g. the common reference for digital inputs floats). See *Ground isolation diagram*. The insulation voltage between them is 50 V.	 DIOGND and DICOM separated.  DIOGND and DICOM connected, default.
J7A, J7B	OnBoard encoder interface.	 Encoder, default.
		 Not in use for DCS880.

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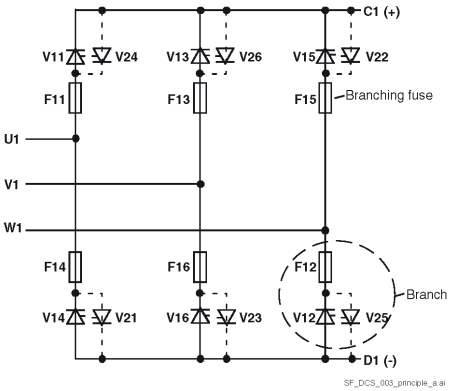
Branch fuses installed inside converters size H5 ... H8, with classic H7

Size	Converter type	Fuse type	Fuse Size
	400 V / 500 V (IEC) / 525 V (UL)		
H5	DCS880-S0b-1190-04/05X0	UR 900 A / 690 V	2
H6	DCS880-S0b-1200-04/05X0	UR 800 A / 660 V	5
H6	DCS880-S0b-1500-04/05X0	UR 1250 A / 660 V	5
H6	DCS880-S0b-2000-04/05X0	UR 1600 A / 660 V	5
H7	DCS880-S0b-2050-05X0	UR 1500 A / 660 V	5
H7	DCS880-S0b-2500-04/05X0	UR 900 A / 660 V ①	5
H7	DCS880-S0b-3000-04/05X0	UR 1250 A / 660 V ①	5
H8	DCS880-S0b-3300-04/05e0	UR 2500 A / 660 V	7
H8	DCS880-S0b-4000-04/05e0	UR 3000 A / 660 V	7
H8	DCS880-S0b-5200-04/05e0	UR 3500 A / 690 V	7
	600 V / 690 V		
H6	DCS880-S0b-0900-06/07X0	UR 630 A / 1250 V	6
H6	DCS880-S0b-1500-06/07X0	UR 1100 A / 1250 V	6
H6	DCS880-S01-2000-06/07X0	UR 1400 A / 1100 V	6
H7	DCS880-S0b-2050-06/07X0	UR 700 A / 1250 V ①	6
H7	DCS880-S0b-2500-06/07X0	UR 1000 A / 1250 V ①	6
H7	DCS880-S0b-3000-06/07X0	UR 1100 A / 1250 V ①	6
H8	DCS880-S0b-3300-06/07e0	UR 2500 A / 1000 V	8
H8	DCS880-S0b-4000-06/07e0	UR 3000 A / 1000 V	8
H8	DCS880-S0b-4800-06/07e0	UR 3000 A / 1000 V	8
	800 V		
H7	DCS880-S0b-1900-08X0	UR 630 A / 1250 V ①	6
H7	DCS880-S0b-2500-08X0	UR 1000 A / 1250 V ①	6
H7	DCS880-S0b-3000-08X0	UR 1100 A / 1250 V ①	6
H8	DCS880-S0b-3300-08e0	UR 2500 A / 1000 V	8
H8	DCS880-S0b-4000-08e0	UR 3000 A / 1000 V	8
H8	DCS880-S0b-4800-08e0	UR 3000 A / 1000 V	8
	1000 V		
H8	DCS880-S0b-2050-10e0	UR 1800 A / 1250 V	9
H8	DCS880-S0b-2600-10e0	UR 1800 A / 1250 V	9
H8	DCS880-S0b-3300-10e0	UR 2500 A / 1250 V	9
H8	DCS880-S0b-4000-10e0	UR 2500 A / 1250 V	9
	1200 V		
H8	Data on request	-	-



Branch fuses installed inside converters size H7 (adapted fusing)

Size¤	Converter·type¤	Fuse·type¤	Fuse·size¤	¤
400·V·/·500·V·(IEC)·/·525·V·(UL)¤				¤
H7¤	DCS880-S0b-2500-04/05XA¤	UR·2240·A·/·690·V·①¤	10¤	¤
H7¤	DCS880-S0b-3000-04/05XA¤	UR·2240·A·/·690·V·①¤	10¤	¤
600·V·/·690·V¤				¤
H7¤	DCS880-S0b-2050-06/07XA¤	UR·1250·A·/·1250·V·①¤	11¤	¤
H7¤	DCS880-S0b-2500-06/07XA¤	UR·2240·A·/·1250·V·①¤	11¤	¤
H7¤	DCS880-S0b-3000-06/07XA¤	UR·2240·A·/·1250·V·①¤	11¤	¤
800·V¤				¤
H7¤	DCS880-S0b-1900-08XA¤	UR·1250·A·/·1250·V·①¤	11¤	¤
H7¤	DCS880-S0b-2500-08XA¤	UR·2240·A·/·1250·V·①¤	11¤	¤
H7¤	DCS880-S0b-3000-08XA¤	UR·2240·A·/·1250·V·①¤	11¤	¤

¶

①·Double·fuse.·2·fuses·mechanically·connected.¶

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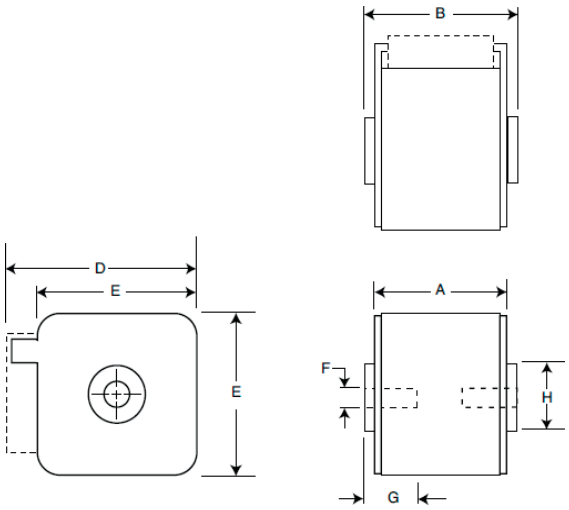
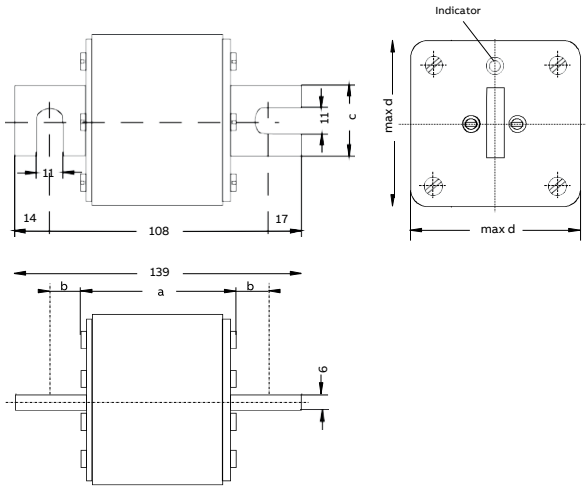
Size 2



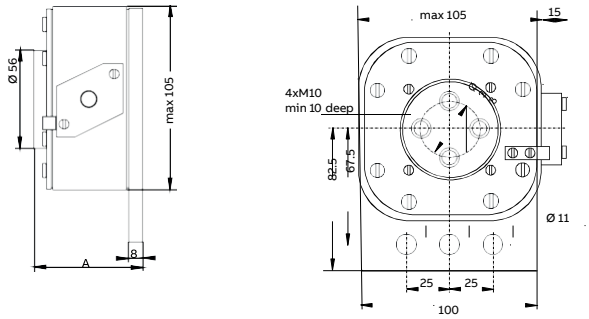
Size	A [mm]	B [mm]	D [mm]	E [mm]	F	G [mm]	H
2	50	51	77	61	M10	10	M24

Size 5, 6



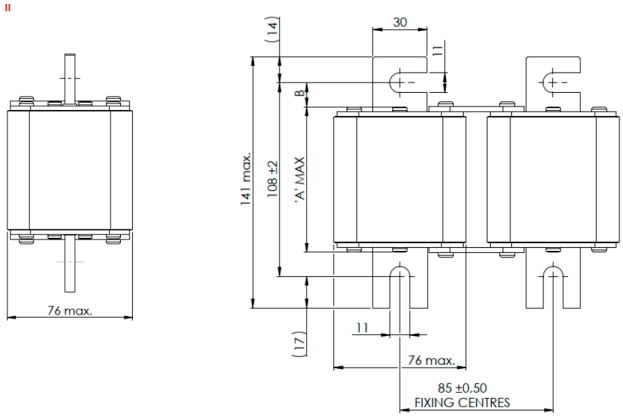
Size	a [mm]	b [mm]	c [mm]	d [mm]
5	50	29	30	76
6	80	14	30	76

Size 7 ... 9



Size	A [mm]
7	62
8	90
9	105

Size 10, 11



Size	A MAX [mm]	B [mm]	
10	52	29 ±2	53
11	82.5	14 ±2	51, 52

Note:
The given dimensions may be exceeded in some cases. Please take them only for information

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Fuses and fuse holders IEC
Semiconductor fuses and fuse holders for AC and DC power lines
The DCS880 size H1 ... H4 requires external mains fuses. For regenerative drives, DC fuses are recommended. The 4th column of the table below assigns the AC fuse to the unit. In case the unit should be equipped with DC fuses, use the same type of fuse as used on the AC side.

Size	Converter type (2-Q)	Converter type (4-Q)	Fuse type	Fuse size	Resistance [mW]	Fuse holder
-	-	-	10A 660V UR	0	30	OFAZ 00 S3L
-	-	-	25A 660V UR		15	OFAZ 00 S3L
H1	DCS880-S01-0020-04/05	DCS880-S02-0025-04/05	50A 660V UR		6	OFAZ 00 S3L
	DCS880-S01-0045-04/05	DCS880-S02-0050-04/05	80A 660V UR		3	OFAZ 00 S3L
	DCS880-S01-0065-04/05	DCS880-S02-0075-04/05	125A 660V UR		1.8	OFAZ 00 S3L
	DCS880-S01-0090-04/05	DCS880-S02-0100-04/05				OFAZ 00 S3L
H2	DCS880-S01-0135-04/05	DCS880-S02-0150-04/05	200A 660V UR	1	0.87	OFAZ 1 S3
	DCS880-S01-0180-04/05	DCS880-S02-0200-04/05	250A 600V UR		0.59	OFAZ 1 S3
	DCS880-S01-0225-04/05	DCS880-S02-0250-04/05	315A 660V UR	2	0.47	OFAZ 2 S3
	DCS880-S01-0270-04/05	DCS880-S02-0300-04/05	500A 660V UR	3	0.30	OFAZ 3 S3
H3	DCS880-S01-0290-06	DCS880-S02-0320-06				OFAZ 3 S3
	DCS880-S01-0315-04/05	DCS880-S02-0350-04/05				OFAZ 3 S3
	DCS880-S01-0405-04/05	DCS880-S02-0450-04/05	700A 660V UR		0.22	OFAZ 3 S3
	DCS880-S01-0470-04/05	DCS880-S02-0520-04/05				OFAZ 3 S3
H4	DCS880-S01-0590-06	DCS880-S02-0650-06	900A 660V UR	4	0.15	3 x 170H 3006
	DCS880-S01-0610-04/05	DCS880-S02-0680-04/05				3 x 170H 3006
	DCS880-S01-0740-04/05	DCS880-S02-0820-04/05				3 x 170H 3006
	DCS880-S01-0900-04/05	DCS880-S02-1000-04/05	1250A 660V UR		0.09	3 x 170H 3006

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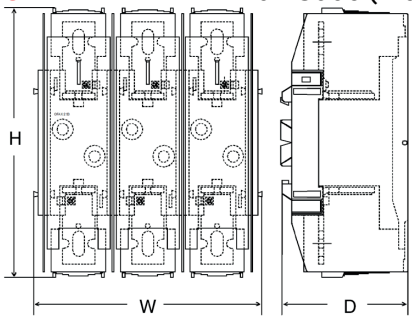
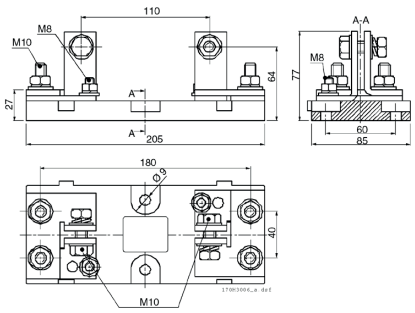
Dimensions of fuse holders

OFAZ xx xxx 170H 3006 (IP00)





Fuse holder	H x W x D [mm]	Protection
OFAZ 00 S3L	148 x 112 x 111	IP20
OFAZ 1 S3	250 x 174 x 123	IP20
OFAZ 2 S3	250 x 214 x 133	IP20
OFAZ 3 S3	265 x 246 x 160	IP20

DCS Family

DCS550-S modules
The compact drive for machinery application

20 ... 1,000 A_{DC}
0 ... 610 V_{DC}
230 ... 525 V_{AC}
IP00

- Compact
- Robust design
- Adaptive and winder program
- High field exciter current

DCS880 modules
For safe productivity

20 ... 5,200 A_{DC}
0 ... 1,600 V_{DC}
230 ... 1,000 V_{AC}
IP00

- Safe torque off (STO) built in as standard
- Compact and robust
- Single drives, 20 A to 5,200 A, up to 1,600 V_{DC}
- IEC 61131 programmable
- Intuitive control panel and PC tool with USB connection and start up assistant
- Wide range of options to serve any DC motor application

DCS800-A enclosed converters
Complete drive solutions

20 ... 20,000 A_{DC}
0 ... 1,500 V_{DC}
230 ... 1,200 V_{AC}
IP21 – IP54

- Individually adaptable to customer requirements
- User-defined accessories like external PLC or automation systems can be included
- High power solutions in 6- and 12-pulse up to 20,000 A, 1,500 V
- In accordance to usual standards
- Individually factory load tested
- Detailed documentation

DCT880 modules
Thyristor controller

20 ... 4,200 A_{AC}
110 ... 990 V_{AC}
IP00

- Precise power control in industrial heating applications
- Two or three phase devices
- Power optimizer for peak load reduction
- Built on ABB's all-compatible drives architecture
- Intuitive control panel and PC tool with USB connection and start up assistant
- Application control programs and drive application programming with IEC 61131 programming

ABB Automation Products
Wallstadter-Straße 59
68526 Ladenburg • Germany
Tel: +49 (0) 6203-71-0
Fax: +49 (0) 6203-71-76 09
www.abb.com/dc-drives

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06.2020

462Z0301A0240000