


# **DCS880**

## **Hardware Manual DCS880 Drives (20 to 5200 A)**

**Additional: FSPS-21 module**

## List of manuals

General	Publication number	EN	DE	IT	ES	FR	PL	ZH	RU
DCS880 Quick guide	3ADW000545	<a href="#">EN</a>	<a href="#">DE</a>	<a href="#">IT</a>	<a href="#">ES</a>	<a href="#">FR</a>			
Safety instructions all languages	3ADW000481	<a href="#">EN</a>	<a href="#">DE</a>	<a href="#">IT</a>	<a href="#">ES</a>	<a href="#">FR</a>	<a href="#">PL</a>	<a href="#">ZH</a>	<a href="#">RU</a>
DCS880 Manual set	 DCS880 Manual set	<a href="#">EN</a>							
<b>DCS880 Units</b>									
DCS880 Flyer	3ADW000475	<a href="#">EN</a>	<a href="#">DE</a>	<a href="#">IT</a>	<a href="#">ES</a>	<a href="#">FR</a>		<a href="#">ZH</a>	<a href="#">RU</a>
DCS880 Technical catalog	3ADW000465	<a href="#">EN</a>	<a href="#">DE</a>	<a href="#">IT</a>	<a href="#">ES</a>	<a href="#">FR</a>	<a href="#">PL</a>	<a href="#">ZH</a>	<a href="#">RU</a>
DCS880 Hardware manual	3ADW000462	<a href="#">EN</a>	<a href="#">DE</a>	<a href="#">IT</a>	<a href="#">ES</a>	<a href="#">FR</a>	<a href="#">PL</a>		<a href="#">RU</a>
DCS880 Firmware manual	3ADW000474	<a href="#">EN</a>		<a href="#">IT</a>	<a href="#">ES</a>	<a href="#">FR</a>	<a href="#">PL</a>		<a href="#">RU</a>
DCS880 Service manual	3ADW000488	<a href="#">EN</a>							
DCS880 Hardparallel manual	3ADW000530	<a href="#">EN</a>							
DCS880 12-pulse manual	3ADW000533	<a href="#">EN</a>							
Instructions for mounting the SDCS-CMA-2	3ADW000396	<a href="#">EN</a>							
ACS-AP-x assistant control panels user's manual	3AUA0000085685	<a href="#">EN</a>							
DCS Thyristor power converter – Technical guide	3ADW000163	<a href="#">EN</a>							
<b>Functional safety</b>									
Supplement for functional safety	3ADW000452	<a href="#">EN</a>		<a href="#">IT</a>	<a href="#">ES</a>	<a href="#">FR</a>	<a href="#">PL</a>		<a href="#">RU</a>
<b>Functional safety for enclosed converter</b>									
+Q957 Prevention of unexpected Start Up	3ADW000504	<a href="#">EN</a>							
+Q951 Emergency stop, category 0 with MC opening	3ADW000505	<a href="#">EN</a>							
+Q952 Emergency stop, category 1 with MC opening	3ADW000506	<a href="#">EN</a>							
+Q963 Emergency stop, category 0 without MC opening	3ADW000507	<a href="#">EN</a>							
+Q964 Emergency stop, category 1 without MC opening	3ADW000508	<a href="#">EN</a>							
<b>Enclosed converter</b>									
DCS800-A Installation manual	3ADW000352	<a href="#">EN</a>	<a href="#">DE</a>						
DCS800-A +S880 Enclosed converters, flyer	3ADW000523	<a href="#">EN</a>							
<b>Door mounting kits</b>									
DPMP-01 mounting platform for ACS-AP control panel	3AUA0000100140	<a href="#">EN</a>							
DPMP-02 mounting platform for ACS-AP control panel	3AUA0000136205	<a href="#">EN</a>							
<b>Serial communication</b>									
FCAN-01 CANopen adapter module	3AFE68615500	<a href="#">EN</a>	<a href="#">DE</a>						
FDNA-01 DeviceNet™ adapter module	3AFE68573360	<a href="#">EN</a>							
FECA-01 EtherCAT adapter module	3AUA0000068940	<a href="#">EN</a>	<a href="#">DE</a>		<a href="#">ES</a>				
FENA-11/-21 Ethernet adapter module	3AUA0000093568	<a href="#">EN</a>						<a href="#">ZH</a>	
FEPL-02 Ethernet POWERLINK adapter module	3AUA0000123527	<a href="#">EN</a>	<a href="#">DE</a>						
FPBA-01 PROFIBUS DP adapter module	3AFE68573271	<a href="#">EN</a>	<a href="#">DE</a>				<a href="#">PL</a>	<a href="#">ZH</a>	
FSCA-01 RS-485 adapter module	3AUA0000109533	<a href="#">EN</a>						<a href="#">ZH</a>	
FDCO-01/02 DDCS communication modules	3AUA0000114058	<a href="#">EN</a>							
<b>Tool and maintenance manuals and guides</b>									
Drive composer PC tool	3AUA0000094606	<a href="#">EN</a>							
Drive application programming (IEC61131-3) manual	3AUA0000127808	<a href="#">EN</a>							
Adaptive programming, Application guide	3AXD50000028574	<a href="#">EN</a>							
NETA-21 remote monitoring tool	3AUA0000096939	<a href="#">EN</a>							
NETA-21 remote monitoring tool guide	3AUA0000096881	<a href="#">EN</a>							
DDCS branching unit NDBU-95 user's manual	3BFE64285513	<a href="#">EN</a>							
<b>Extension modules</b>									
FIO-11 Analog extension module	3AFE68784930	<a href="#">EN</a>	<a href="#">DE</a>	<a href="#">IT</a>					
FIO-01 Digital extension module	3AFE68784921	<a href="#">EN</a>	<a href="#">DE</a>	<a href="#">IT</a>					
FAIO-01 Analog extension module	3AUA0000124968	<a href="#">EN</a>	<a href="#">DE</a>						
FDIO-01 Digital extension module	3AUA0000124966	<a href="#">EN</a>							
FEN-01 TTL encoder interface	3AFE68784603	<a href="#">EN</a>	<a href="#">DE</a>	<a href="#">IT</a>				<a href="#">ZH</a>	
FEN-31 HTL encoder interface	3AUA0000031044	<a href="#">EN</a>						<a href="#">ZH</a>	
FEA-03 F series extension adapter	3AUA0000115811	<a href="#">EN</a>							
FSO-21 Safety functions module	3AXD50000015614	<a href="#">EN</a>							
FSPS-21 Safety functions fieldbus module	3AXD50000158638	<a href="#">EN</a>							
Ethernet tool network for ACS880 drives appl. guide	3AUA0000125635	<a href="#">EN</a>							
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# Technical data

## Chapter overview

The technical data contain the technical specifications of the converter, e.g. the ratings, sizes and technical requirements, provisions for fulfilling the requirements for CE and other markings and warranty policy.

## Environmental Conditions

### System connections

Voltage, 3-phase:	100 ... 1000 V acc. to IEC 60038 100 ... 690 V acc. to UL508c
Voltage deviation:	IEC: -10% +15% continuous; ±20% short-time (0.5 to 30 cycles) UL: ±10 % continuous; ±15 % short-time (0.5 to 30 cycles)
Rated frequency:	50 Hz or 60 Hz
Static frequency deviation:	50 Hz ± 2 %; 60 Hz ± 2 %
Dynamic: frequency range:	50 Hz ± 5 Hz; 60 Hz ± 5 Hz
df/dt:	17 % / s

### Environmental limit values

Permissible cooling air temp.	
- at converter module air inlet:	0 ... +55°C
with rated DC current:	0 ... +40°C
with different DC current:	+30 ... +55°C
- Options:	0 ... +40°C
Relative humidity (at 5...+40°C):	5 ... 95 %, no condensation
Relative humidity (at 0...+5°C):	5 ... 50 %, no condensation
Change of the ambient temp.:	< 0.5°C / minute
Storage temperature:	-40 ... +55°C
Transport temperature:	-40 ... +70°C
Pollution degree (IEC/EN 61800-5-1)	2

**Please note:** Special consideration must be taken for voltage deviation in regenerative mode.

The drive must be installed in clean air according to enclosure classification. Cooling air must be clean, free from corrosive materials and electrically conductive dust.

### Degree of protection

Converter module and options IEC: IP 00; acc. to IEC/EN 60529	
(line chokes, fuses, field exciters, etc.):	UL: open type acc. to UL 508c
Overvoltage category (all inputs):	III acc. to IEC 60664-1
Protective class:	I acc. to IEC 61800-5-1

### Site elevation

< 1000 m above M.S.L.:	100 %, without current reduction
> 1000 m above M.S.L.:	with current reduction
Permissible supply systems:	IT, TN, TT (neutral earthed) IT (corner earthed) TT (corner earthed)

### Paint finish

Converter module:	Body RAL 7012 Cover RAL 9017 & RAL 9002
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### Note:

If a FSPS-21 module is used, the storage and transport temperature is derated to -15 to 40°C at higher elevations and the atmospheric pressure of the module is limited to 70 to 106 kPa. For reference, see FSPS-21 manual.

## Sound pressure level and vibration

Size	Sound pressure level $L_p$ (1 m distance)		Vibration
	as module	enclosed conv.	
H1	55 dBA	68 dBA	3 mm, 2 - 9 Hz 1 g, 9 ... 200 Hz
H2	55 dBA	72 dBA	
H3	60 dBA	78 dBA	
H4	66 ... 70 dBA, depending on fan	77 dBA	
H5	75 dBA	77 dBA	0,3 mm, 2 - 9 Hz 0,1 g, 9 ... 200 Hz
H6	70 dBA	78 dBA	
H7	69 dBA	67 dBA	
H8	82 dBA	80 dBA	

## North American Standards

In North America the system components fulfil the requirements of the table below

Rated supply voltage	Standards	
	Converter module	Enclosed converter
to 990 V	UL 61800-5-1 Power Conversion Equipment CSA C 22.2 No. 274-13 Industrial Control Equipment, Industrial Products Available for converter modules including field exciter units. Types with UL mark: • see UL Listing <a href="http://www.ul.com">www.ul.com</a> / certificate no. E196914 • or on request	UL/CSA types: on request

# DCS Family



## DCS550-S modules The compact drive for machinery application

20 ... 1,000 A<sub>DC</sub>  
0 ... 610 V<sub>DC</sub>  
230 ... 525 V<sub>AC</sub>  
IP00

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



## DCS880 modules For safe productivity

20 ... 5,200 A<sub>DC</sub>  
0 ... 1,600 V<sub>DC</sub>  
230 ... 1,000 V<sub>AC</sub>  
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<sub>DC</sub>
- 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<sub>DC</sub>  
0 ... 1,500 V<sub>DC</sub>  
230 ... 1,200 V<sub>AC</sub>  
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<sub>AC</sub>  
110 ... 990 V<sub>AC</sub>  
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



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