



Flyer

ABB DC Drives
DCS800-A, 18 A to 9800/19600 A
Enclosed converters

DCS800-A Enclosed Converters

Latest Technology, High Performance and a User-Friendly Concept

DCS800-A are DCS800 converter modules mounted in an enclosure.

The series is a complete range of enclosed converters intended for the supply and control of DC machines. DCS800-A provides maximum flexibility in the firmware, the drive itself is programmable as well as a serial communication (e.g. Profibus) interface plus 12-pulse parallel, serial and sequential.

DCS800-A enclosed converters are fully digital. Optional equipment is available to meet different safety standards. The converter can be used for standard applications but has the flexibility to be customized for the most demanding applications.

Comprehensive Product Range

DCS800-A enclosed converters are available as 6-/ 12-pulse and in 2- or 4-quadrant, with current ranges from 18 to 9800/19600 A and supply voltages of 230...990 (1200) V AC. A selection of options is available to provide the user with a system meeting the most demanding technical requirements and performance expectations.

Common control electronics throughout the product range reduces spare parts inventory and training requirements.

DCS800-A Concept

- A single drive control technology is available for a wide power range to reduce training costs and meets the requirements of various applications.
- Common AC busbar designs for group drives are available for the most cost-efficient and functional system structure.
- Incoming supply section for group drives can be equipped with air circuit breakers or insulation switches.
- Control cubicles offer various I/O solutions in combination with ABB controls e.g. AC800M.
- Approval for many application specific standards (e.g. ABS, DNV, Lloyd, UL, CSA) can be ordered as option.
- Flexible design of power cable entry provide simple installation and minimum power down time especially for upgrades.

Digital Control

To meet the most stringent control requirements, the DCS800-A features speed control, which reduces the effects from gear backlash and torsional vibration arising in mechanical systems. High-performance speed and torque control will fulfill all requirements for rapid response and high control accuracy. Autotuning for armature, field current and speed controller simplifies the commissioning.

What is a DCS800 DC drive?

The DCS800 DC Drive is simple to buy, install, configure and use, saving considerable time.

- Precise delivery
- Quick installation
- Rapid start-up

The drive has common user and process interface with fieldbus, common software tools for sizing, commissioning, maintenance and common spare parts.

Where can it be used?

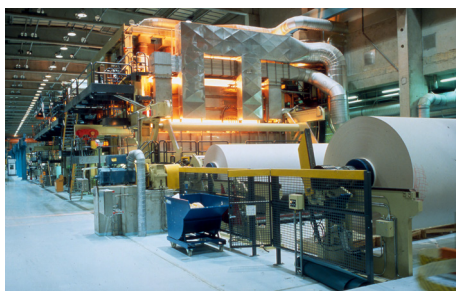
DCS800 can be used in the wide range of all industrial application of

- Metals
- Vessels
- Pulp & Paper
- Ski lifts
- Material handling
- Magnets
- Test rigs
- Mining
- Food & Beverage
- Electrolysis
- Printing
- Battery Chargers
- Plastic & Rubber
- and more

DCS800 DC drive promises

The drive meet the requirement of all demanding drive application like: testrig, mine hoist, rolling mill as well as none motoric applications like: electrolysis, magnetics, battery charger ...

Embedded software functions offer the upgrades of all classic installations 12-pulse, shared motion, double motor operation, field reversal control.



Highlights

- Assistant control panel providing intuitive use of the drive.
- Excellent control performance up to highest dynamic application in field weakening operation.
- All ACS800 PC tools (via DDCS) can be connected.
- Reduced installation and commissioning work.
- Internal three phase field exciter without additional external hardware.
- Prepared for additional software function by adaptive programming and IEC61131 programming.
- Flexible fieldbus system with built-in Modbus and numerous internally mountable fieldbus adapters.

Software Tools

Start-up assistant

Faster and easier commissioning

The Start-up assistant serves in DCS800 DC Drives. It guides you actively through the commissioning procedure either by the control panel or ABB PC tools. It is multilingual, requests data with clear and plain text messages, and sets the required parameters to your needs. It also comes with an online info system with step-by-step reference to printed manuals.

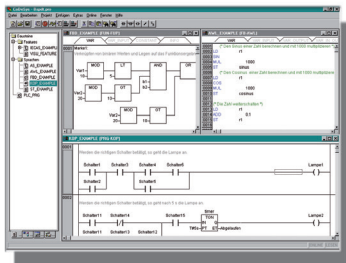
IEC 61131 programming

ControlBuilder DCS800

The ControlBuilder is a user-friendly tool based on the IEC61131-3 standard for programming the DCS800. With the ControlBuilder it is possible to develop - in a fast and easy way - new function e.g. winders, decentralized controls, safety functions, ... directly in the drive.

Fieldbus control

Gateway to your process



DCS800 DC Drives have connectivity to major automation systems. This is achieved with a dedicated gateway concept between the fieldbus systems and ABB drives. The fieldbus gateway module can easily be mounted inside the drive. As a result of the wide range of fieldbus gateways, your choice of automation system is independent from your decision to use first-class ABB drives.

Start-up and maintenance tool

DriveWindow Light 2

PC tool for ABB drives

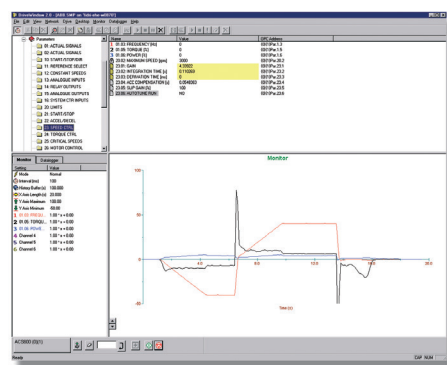
DriveWindow Light 2 is an easy-to-use start-up and maintenance tool for ABB drives. Supported drives are ACS140, ACS160, ACS350, ACH400, DCS400, ACS550, ACH550, DCS800 and ACS800.

- Viewing and setting parameters in offline and online mode
- Editing, saving and downloading parameters
- Comparing parameters
- Graphical and numerical signal monitoring
- Drive control
- Start-up assistants
- DWL AP tool for DCS800
- All DCS800 DC drives are equipped with DriveWindow Light

Start-up, maintenance and integration

DriveWindow 2

ABB's DriveWindow is an advanced, easy-to-use PC software tool for the start-up and maintenance of ABB DCS800 DC Drives. Its host of features and clear, graphical presentation of the operation make it a valuable addition to your system providing information necessary for troubleshooting, maintenance and service, as well as training. With DriveWindow the user is able to follow the co-operation of several drives simultaneously by collecting the actual values from the drives onto a single screen or printout.



DriveOPC

Integration tool

DriveOPC is a software package which allows OLE for Process Control (OPC) communication between Windows applications and DCS800 DC drives. It allows Object Linking and Embedding (OLE) for Process Control (OPC) communication. This OPC server is an ideal tool for integrating DCS800 DC drives and commercial PC software and creating PC-based controlling and monitoring systems.

DCS800-A enclosed converters

DCS800-A enclosed converters are suitable for three-phase supply voltages from 230 V to 990 (1200) V, 50 or 60 Hz. The rated DC current range is from 18 to 9800/19600 A.

DCS800-A enclosed converters with rated DC current from 18 A up to 1850 A are available in two different layouts:

- Single drive configuration without horizontal busbars therefore AC cable connection
- Group drive configuration with horizontal busbars (size-dependent on rated amps)

The standard configuration is protection class IP21 and cable connection from bottom.

Group drives from sizes D6 and D7 on request. DCS800-A can be tailored to meet different needs by using combinations of the following options:

- Earth Fault Detection (current sensitive) • Insulation Monitor (voltage sensitive) • Motor Fan Starter • Galvanic Isolation of converter voltage measurement • Cabinet design according to EMC-regulations • EMC Filters • Protection Class IP 21-Standard • Protection Class IP 31 with filter (insect screen) in air inlet and outlet • Protection Class IP 42 with filter in air inlet; air outlet same as IP 21 • IP 54 on request • Gland plate and bottom plate • Special Colour (only outside) acc. to RAL standard • Heater • Lighting • Horizontal Busbars

DCA 650 Control Cabinet

Advant controller AC 800 • Fieldbus interface FCI (AF100)

- Location of full range of S800 I/O modules.

The S800 I/O system consists of the control module (AC 80, FCI, AC 800M), digital and analogue I/O modules.

Digital inputs and outputs

8 channels • input voltages from 24 V...250 V

Analogue inputs and outputs (12 bit resolution)

8 channels

Drive Bus Communication

CI854 provides fast optical DDCS communication

Incoming Supply Sections for Group Drives

Incoming supply sections (DCA 63x) are used to supply several droup drives connected by horizontal busbars. The connection to the AC supply can be made by cables or busbars. The cable / busbar entry is at the bottom of the incoming supply section.

The incoming supply section can be located preferable left side of line-ups, but also right side and even in the middle of line-ups.

Options

- Cabinet design according to EMC-regulations • Isolation Switch (DCA 631) • Breaker (DCA 632) • Earthing switch • Residual Current Detection • AC Current Measurement • AC Voltage Measurement • Arc Detecting Relay • Emergency stop relays, tripping circuits

Field Exciters

Several Solutions available

- Ratings from 6 to 450 A • Integrated, separate or external
- 2-phase or 3-phase versions • 1-; 2-; 4-quadrant • Digital control • Auto/manual tuning

The field exciters are controlled via a serial DCS-Link with a speed of 500 kBaud for fast and accurate control.

On board field exciters are 3-phase half controlled field exciters 6 A / 15 A / 20 A / 25 A in D1 up to D4 converter modules (525 V).

FEX-425 field exciter is also a 25 A 3-phase half controlled unit assembled in a D5 converter module.

DCF803: 0050 B

2-phase, 1-quadrant, half controlled

DCF804: 0050 B

2-phase, 4-quadrant, full controlled (field reversal)

DCS800-A21: 18...400 A (2-Q), DCS800-A22: 22...450 A

(4-Q), 18...400 (22...450) A, 3-phase, full controlled, separate cabinet including overvoltage protection

DCS800-F01: 18...285 A (2-Q), DCS800-F02: 22...300 A

(4-Q), 18...285 (22...300) A, 3-phase, inside D6 / D7 armature cabinet is possible; including overvoltage protection

DCS800 Converter modules

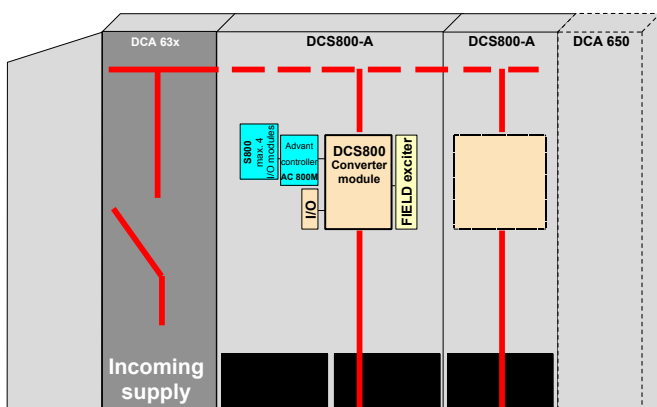
Basic design

The DCS800 flexibility allows the user to configure functions of the drive easily, suitable for different applications. The basic firmware includes following options:

- Processing the speed reference with a speed ramp generator (S-ramp capability, accel/decel ramp) • Processing the speed feedback • Speed controller • Torque reference processing • Current controller • Field weakening • Automatic/manual field reversal • Autotuning of current controller • Autotuning of speed controller • Speed monitor • Drive control logic • Remote/local operation • Emergency stop • Electronic circuits are not sensitive to line phase sequence • Motor overload protection • Dual field • Programmable analogue outputs • Field supply • Master/follower via fibre optics • 12-Pulse link

I/O's of the converter module

- SDCS-IOB-23 + IOB-3 standard configuration • RDIO, RAIO, AMIA as option



Dimensions Converter cabinet

	Single drive				Group drive					
	Height ①	Depth	Width ②	Width ③	Weight [kg]	Height ①	Depth	Width ②	Width ③	Weight ⑦
DC-Converter, Size D1										
DCS800-A0x-0020-04/05-D	2120	600	600	-	220	2120	600	600	-	190+z
DCS800-A0x-0025-04/05-D	2120	600	600	-	220	2120	600	600	-	190+z
DCS800-A0x-0045-04/05-D	2120	600	600	-	230	2120	600	600	-	200+z
DCS800-A0x-0050-04/05-D	2120	600	600	-	230	2120	600	600	-	200+z
DCS800-A0x-0065-04/05-D	2120	600	600	-	230	2120	600	600	-	200+z
DCS800-A0x-0075-04/05-D	2120	600	600	-	230	2120	600	600	-	200+z
DCS800-A0x-0125-04/05-D	2120	600	600	-	250	2120	600	600	-	220+z
DCS800-A0x-0140-04/05-D	2120	600	600	-	250	2120	600	600	-	220+z
DC-Converter, Size D2/D3										
DCS800-A0x-0200-04/05-D	2120	600	600	-	250	2120	600	600	-	220+z
DCS800-A0x-0250-04/05-D	2120	600	600	-	250	2120	600	600	-	220+z
DCS800-A0x-0315-04/05-D	2120	600	600	-	300	2120	600	600	-	270+z
DCS800-A0x-0360-04/05-D	2120	600	600	-	300	2120	600	600	-	270+z
DCS800-A0x-0470-04/05-D	2120	600	800	-	310	2120	600	800	-	280+z
DCS800-A0x-0520-04/05-D	2120	600	800	-	310	2120	600	800	-	280+z
DC-Converter, Size D4										
DCS800-A0x-0610-04/05-D	2120	600	800	-	360	2120	600	800	-	330+z
DCS800-A0x-0680-04/05-D	2120	600	800	-	360	2120	600	800	-	330+z
DCS800-A0x-0740-04/05-D	2120	600	800	-	360	2120	600	800	-	330+z
DCS800-A0x-0820-04/05-D	2120	600	800	-	360	2120	600	800	-	330+z
DCS800-A0x-0900-04/05-D	2120	600	800	-	360	2120	600	800	-	330+z
DCS800-A0x-1000-04/05-D	2120	600	800	-	360	2120	600	800	-	330+z
DC-Converter, Size D5										
DCS800-A0x-0900-06/07-D	2120	600	1400	-	620	2120	600	1400	-	590+z
DCS800-A0x-1200-04/05-D	2120	600	1400	-	640	2120	600	1400	-	610+z
DCS800-A0x-1500-04/05/06/07-D	2120	600	1400	-	720	2120	600	1400	-	690+z
DCS800-A0x-2000-04/05/06/07-D ⑥	2120	600	1400	-	740	2120	600	1400	-	710+z
DC-Converter, Size D6										
DCS800-A0x-1900-08-D ④	2120	600	-	2000	850					
DCS800-A0x-2050-05/06/07-D ⑥	2120	600	2400	-	1100					
DCS800-A0x-2500-04/05/06/07-D ⑥	2120	600	2400	-	1100					
DCS800-A0x-2500-08-D ④	2120	600	-	2000	850					on request
DCS800-A0x-3000-04/05/06/07-D ⑥	2120	600	2400	-	1250					
DCS800-A0x-3000-08-D ④	2120	600	-	2000	950					
DC-Converter, Size D7										
DCS800-A0x-2050-10-D ④	2120	600	-	2100	790					
DCS800-A0x-2600-10/12-D ④	2120	600	-	2100	850					
DCS800-A0x-3300-04/05/06/07/08/10/12-D ④	2120	600	-	2100	950					
DCS800-A0x-4000-04/05/06/07/08/10/12-D ④	2120	600	-	2700 ⑧	1170					
DCS800-A0x-4800-06/07/08-D ④	2120	600	-	2700 ⑧	1200					
DCS800-A0x-5200-04/05-D ④	2120	600	-	2700 ⑧	1200					
DC-Converter, Size D7P										
DCS800-A0x-5200-10PD	2120	600	-	3600	1430					not available
DCS800-A0x-6600-04/05/06/07/08/10PD	2120	600	-	3600	1630					
DCS800-A0x-8000-04/05/06/07/08/10PD	2120	600	-	4800 ⑧	2070					
DCS800-A0x-9600-06/07/08PD	2120	600	-	4800 ⑧	2140					
DCS800-A0x-10400-04/05PD	2120	600	-	4800 ⑧	2140					
Incoming Supply Sections										
DCA 63u-1000-04/05/06/07-D						2120	600	600	600	300
DCA 63u-2000-4/5/6/7-D						2120	600	600	600	320
DCA 63u-3000-4/5/6/7-D ⑥			not available			2120	600	800	800	340
DCA 63u-4000-4/5/6/7-D ⑥						2120	600	800	1000	380
Busbar joining cabinet ⑤						2120	600	200	-	30+z

Fan data

Fan type	Air volume freely blowing [m³/h]		Converter Size
	50 Hz 60 Hz		
2x CN2B2	320	360	D1 D2 D3
4x CN2B2	640	720	D3 D4 0405...0520
W2E200 (230 V)	925	1030	D4 D4 0610...0820
W2E200 (115 V)	925	1030	D4 D4 0610...0820
W2E250 (230 V)	1860	1975	D4 D4 0900...1000
W2E250 (115 V)	1835	1940	D4 D4 0900...1000
D2E 160	800	750	D5
GR31M	1500	1600	D6 *
400...500 V			
GR31M	1500	1600	D6 *
500...690 V			
GR35C	4200	4250	D7 *
400/690V			
2x GR35C	8400	8500	D7P *
400/690V			

Table 2: Dimensions of the DCS800-A series

x=1 → 2-Q converter
x=2 → 4-Q converter

u=0 → incoming without switch
u=1 → incom. w. insulation switch
u=2 → incom. w. circuit breaker
u=5 → incom. without options

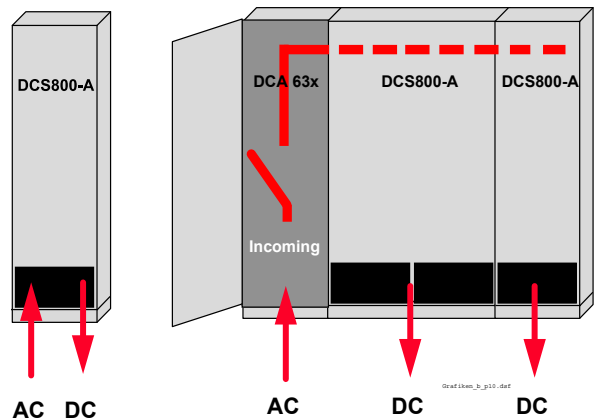
Voltage class: (example: DCS800-A0x-0025-04y-D)
04 → 400 V 05 → 500 / 525 V 06 → 600 V 07 → 690 V
08 → 800 V 10 → 990 V 12 → 1200 V

P → hard parallel (two conv. mod. in parallel)

Notes:

All dimensions are in mm
Please add for each end panel 15 mm and for a door (without buttons) 20 mm

- Height is including detachable hood (120 mm)
- with circuit breaker or contactor
- without circuit breaker or contactor
- DCS800-A with AC supply voltage 3 x 800 V...1200 V or current ≥ 3300 A are generally without circuit breaker.
- Max length of a shipping split is 3.40 m. If the line-up width is longer than 3.40 m busbar joining cabinets are required.
- at 600 V (6) and 690 V (7) only available as 2-Q converter
- z: Weight for busbars: 1000 A / 2000 A = 35 kg/m; 3000 A = 70 kg/m
- The air circuit breaker stands out of the line-up's front. Thus 78 mm have to be added to the total depth of the line-up.
- Listed width for cable connection reduced width for busbar connection on request
- DCA 632 rated current as IEC rating
3000 A UL type on request



Single Drive

Group Drive

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



DCS800-S modules

The versatile drive for processindustry

20 ... 5,200 A_{DC}
 0 ... 1,160 V_{DC}
 230 ... 1,000 V_{AC}
 IP00

- Compact
- Highest power ability
- Simple operation
- Comfortable assistants, e.g. for commissioning or fault tracing
- Scalable to all applications
- Free programmable by means of integrated IEC61131-PLC



DCT880 Thyristor power controller

Controlling electro-thermal processes

16 ... 4,160 A_{DC}
 14 kW... 5 MW
 230 ... 690 (1200) V_{AC}

- Resistive and inductive loads, infrared heaters
- Phase angle, full wave burst and half wave mode
- U, I, P, I² control
- Clear text display with USB port
- Load monitoring
- For all typical load configurations star, delta, open delta, single phase, and multitap
- Reduces energy costs by power optimizer function



DCS800-E series

Pre-assembled drive-kits

20 ... 2,000 A_{DC}
 0 ... 700 V_{DC}
 230 ... 600 V_{AC}
 IP00

- DCS800 module with all necessary accessories mounted and fully cabled on a panel
- Very fast installation and commissioning
- Squeezes shut-down-times in revamp projects to a minimum
- Fits into Rittal cabinets
- Compact version up to 450 A and Vario version up to 2,000 A



DCS800-R Rebuild Kit

Digital control-kit for existing powerstacks

20 ... 20,000 A_{DC}
 0 ... 1,160 V_{DC}
 230 ... 1,200 V_{AC}
 IP00

- Proven long life components are re-used, such as power stacks, (main) contactors, cabinets and cabling / busbars, cooling systems
- Use of up-to-date communication facilities
- Increase of production and quality
- Very cost-effective solution
- Open Rebuild Kits for nearly all existing DC drives
- tailor-made solutions for...
 - BBC PxD
 - BBC SZxD
 - ASEA TYRAK
 - other manufacturers

Contact us

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Power and productivity
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