ABB industrial drives

DCS800, non-regenerative DC drives
DCS800, regenerative DC drives

Technical catalog

10 to 3000 Hp @ 500 Vdc
200 to 3250 Hp @ 600 Vdc
700 to 4000 Hp @ 700 Vdc
Available up to 1200 Vdc

Contact ABB Inc., Low Voltage Drives

www.abb.us/drives

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DCS800 Module Type Code

DCS800 - S01 - 0680 - 05 [ ] + XXXX

DCS800 Product Family

Type
S0 = 3-phase converter module
A0 = Enclosed converter
E0 = Panel mounted converter
R0 = Rebuild kit

Bridge type
1 = non-regenerative(2-Q)
2 = regenerative (4-Q)

Rated Current
Current rating of drive unit (Amps)

Rated Input Voltage
05 = 230...525 V AC
06 = 270...600 V AC
07 = 315...690 V AC
08 = 360...800 V AC
10 = 450...990 V AC
12 = 540...1200 V AC

Power Terminal Connection
Blank = No option (D1 - D6)
L = Left side power terminals
R = Right side power terminals

Additional Factory Installed Options

Contents

ABB industrial drives

ABB DC industrial drives

ABB DC Industrial Drives

The DCS800 DC industrial drive is the latest drive from ABB, combining the newest control technology with a thyristor power platform that has been factory-proven all over the world. The DCS800 boasts a wider power range than any other DC drive on the market. The hardware and software are designed with you, the user in mind. Special features make installation and configuration simple and allow you to customize the application to your needs.

Industrial Applications

The DCS800 can be used in a wide range of industrial applications including:

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

DCS800 DC drive promises

The drive meets the requirements of the most demanding drive applications. Embedded software functions offer upgrades to all classic installations like 12-pulse, double motor operation, and field reversal.

Highlights

- Reduced installation and commissioning work
- Internal three phase field exciter without additional external hardware (D1-D5)
- Excellent control performance up to highest dynamic application in field weakening operation
- All ACS800 PC tools (via DDCS) can be connected
- Able to be customized to your needs with Adaptive programming and with option Control Builder
- Flexible fieldbus system with built-in Modbus and numerous internally mountable fieldbus adapters

PC Tool for ABB Drives

DriveWindow Light is an easy-to-use tool for your PC for start up and maintenance of your ABB drive. It is included with every DCS800 drive and has the following features:

- User interface tool to view and set parameters
- Startup Assistant tool
- Adaptive programming (AP) tool

It supports a wide range of ABB industrial drives, including ACS350, ACS550, ACS800, DCS400, as well as the DCS800.

Main Features

Feature	Note	Benefit
Smart Control Panel	Two soft-keys, function of which changes according to the state of the panel Built-in “Help” button Real-time clock, allows timed tracing of faults Changed parameters menu	Easy commissioning Fast set-up Easier configuration; Rapid fault diagnosis Quick access to recent parameter changes
Start-up assistant	Included in DriveWindow Light tool and DCS800 Panel	Guided commissioning Preselected important parameters Help function Reduced commissioning time
Automatic Tuning	Speed, armature current, field current control and field weakening	Reduced commissioning time Reduced training
Connectivity	Easy connection of cables Easy connection to external fieldbus systems through multiple I/O and high speed serial communciation options	Reduced installation time Easy to integrate Secure cable connections
Diagnostic assistant	Activated when fault occurs	Quick fault diagnostics, short commissioning
Advanced DC operation	12-pulse parallel, 12-pulse serial, sequential control and sandwich configuration	Can be used in most any high power application because it can be configured in a variety of ways
Advanced motor control	Motor voltage controller maintains dc voltage even when there is a sudden drop in line voltage	Reliable and safe operation even for weak networks
Fieldbus	Built-in Modbus using RS 485 Optional plug-in fieldbus modules	Reduced cost
Highest motor voltage	Available up to 1190 Vac	Higher voltage allows for more power at reduced motor current
ACS800 interfaces	Uses the same PC Tools, plug-in fieldbus and I/O extension modules as the ACS800. Same plus codes too.	Reduced spare parts Reduced training Simple ordering
Speed feedback	EMF, Analog Tachometer, Pulse encoder	Provides a wide variety of option to customize to your needs

DC Power Converter Modules

Enclosure Rating

The power converter DCS800-S0x module carries a NEMA TYPE OPEN (IP00) rating and must be mounted in a protective enclosure. There are seven different frame sizes, D1 through D7, graduated in terms of current and voltage.

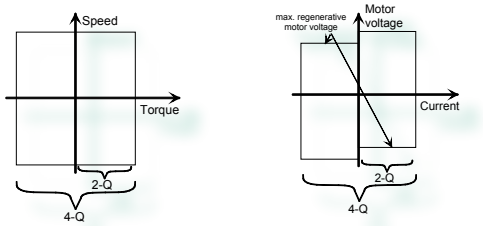
Regenerative and Non-Regenerative Drives

Non-regenerative (2-Q) power converter modules are used when motor torque is always in the same direction or when significant stopping power is not required.

This is ideal for applications such as:

- Fan or blower
- Mixer
- Draw roll
- Extruder

It is not possible for a 2-Q drive to slow down an inertial load. The load will stop only due to friction, windage, or another form of load resistance. Reverse direction is possible but only if toque is always in the same direction such as when



raising and lowering a weight.

Regenerative (4-Q) power converter modules are used when motor torque can occur in either direction. This is for applications such as:

- Stop-start conveyor
- Draw Roll
- Rolling mill
- Unwinder
- Overhead crane hoist

A 4-Q drive is able to start and stop an inertial load in bot forward and reverse directions.

Field Power Supplies and Fusing

Converter modules sizes D1 through D4 are equipped with fused internal field power supplies. The internal field supply is optional on size D5. Sizes D6 – D7 require an external field power supply. See page 20 for details.

AC line fuses and DC armature fuses must be separately mounted. See page 19 for fuse information as well as information on other optional system components.

Voltage Selection

The output voltage of the drive depends on the connection voltage and whether a 2-Q or 4-Q drive is selected. The table below shows the maximum output voltage that will result for various input voltages for both the 2-Q and 4-Q drives.

System connection voltage	DC voltage (recommended)		Ideal DC voltage without load	Recommended DCS800 voltage class type code
	2Q	4Q		
U_{VN}	$U_{dmax\ 2\text{-}Q}$	$U_{dmax\ 4\text{-}Q}$	U_{di0}	
[V]	[V]	[V]	[V]	
230	265	240	310	05
380	440	395	510	05
400	465	415	540	05
415	480	430	560	05
440	510	455	590	05
460	530	480	620	05
480	555	500	640	05
500	580	520	670	05
525	610	545	700	05 (D1-D4), 06
575	670	600	770	06
600	700	625	810	06
660	765	685	890	07
690	800	720	930	07
800	915	820	1060	08
990	1160	1040	1350	10
1200	1380	1235	1590	12

The maximum output voltage of a 4-Q drive can be increased up to the level of $U_{dmax\ 2\text{-}Q}$ if the torque reversal time from motor to regenerative mode is set above 300 ms.

Analog, Digital and Encoder Interface

The drive is equipped with high-speed, high-resolution analog inputs and outputs to interface with user signals. Analog inputs and outputs all have 16-bit resolution (15 plus one sign bit) which is the highest resolution in the industry.

The following interfaces are standard features:

- Analog tachometer
- Pulse encoder
- PTC or PT100 temperature sensor

Optional modules are available to increase the number of analog, digital, tachometer, encoder, and temperature sensor interfaces.

Commissioning Macros

DCS800 Macros

DCS800 is equipped with seven different macros to cover the most frequent parameter settings. Macros are pre-programmed parameter sub-sets. During start-up, the drive can be configured easily without the need to change many individual parameters. The functions of all inputs, several outputs and of allocations in the control structure are set up with the selection of a macro. It will define to the system whether the drive is speed-controlled or torque-controlled, or whether supplementary references are processed. The macro will also define which actual values are available at the analog outputs and which reference value sources are used.

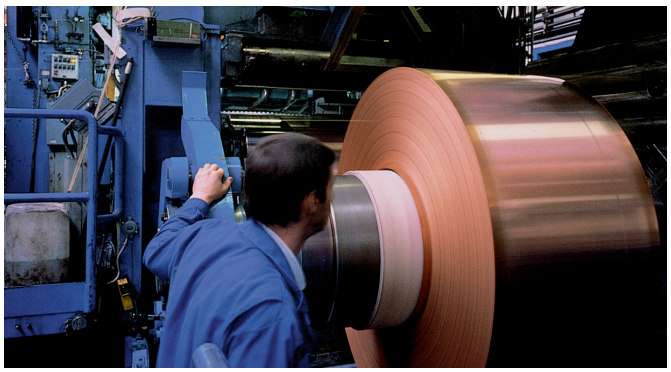
Terminal		Signal	Terminal allocation by macros						
			Factory	Standard	Manual / constant speed	Hand / auto	Hand / motor pot	Motor pot	Torque control
X3:	1	90...270 V AITAC-	-	-	-	-	-	-	-
	2	30...90 V AITAC-	-	-	-	-	-	-	-
	3	8...30 V AITAC-	-	-	-	-	-	-	-
	4	AITAC+	-	-	-	-	-	-	-
	5	AI1-	-	Speed reference	Speed reference	Speed reference	Speed reference	-	Torque reference
	6	AI1+							
	7	AI2-	-	Torque limit	-	-	-	-	-
	8	AI2+							
	9	AI3-	-	-	-	-	-	-	-
	10	AI3+							
X4:	1	AI4-	-	-	-	-	-	-	-
	2	AI4+							
	3	0 V	-	-	-	-	-	-	-
	4	+10 V	-	-	-	-	-	-	-
	5	-10 V	-	-	-	-	-	-	-
	6	0 V	-	-	-	-	-	-	-
	7	AO1	-	Motor speed	Motor speed	Motor speed	Motor speed	Motor speed	Motor speed
	8	AO2	-	Actual armat. volt.	Actual motor curr.	Actual motor curr.	Actual motor curr.	Actual armat. volt.	Motor torque
	9	IACT	Actual current	Actual current	Actual current	Actual current	Actual current	Actual current	Actual current
	10	0 V	-	-	-	-	-	-	-
X5:	1-10		-	-	-	-	-	-	-
X6:	1	DI1	Converter fan ack.	Jog1	Jog1	StartStop	Motor pot up	Direction	Off2 (coast stop)
	2	DI2	Motor fan ack.	Jog2	Jog2	HandAuto	Motor pot down	Motor pot up	Torque select
	3	DI3	Main contact. ack.	External fault	Direction	Direction	Direction	Motor pot down	External fault
	4	DI4	Off2 (coast stop)	External alarm	Parameter select	Speed ref. select	Speed ref. select	Motor pot minimum	-
	5	DI5	E-Stop	E-Stop	E-Stop	E-Stop	E-Stop	E-Stop	E-Stop
	6	DI6	Reset	Reset	Reset	Reset	Reset	Reset	Reset
	7	DI7	OnOff1	OnOff1	On Start pulse	OnOff1	On Start pulse	OnOff1	OnOff1
	8	DI8	StartStop	StartStop	Off1 Stop pulse NC	-	Off1 Stop pulse NC	StartStop	StartStop
	9	+24 V	-	-	-	-	-	-	-
	10	0 V	-	-	-	-	-	-	-
X7:	1	DO1	Fans On cmd.	ReadyRun	ReadyOn	ReadyOn	ReadyOn	ReadyRun	ReadyRun
	2	DO2	Field excit. On cmd.	ReadyRef (running)	ReadyRef (running)	ReadyRef (running)	ReadyRef (running)	Above limit	ReadyRef (running)
	3	DO3	Main contact. On cmd.	Fault or alarm	Tripped (fault)	Tripped (fault)	Tripped (fault)	Fault or alarm	Fault or alarm
	4	DO4	-	Zero speed	Zero speed	Zero speed	Zero speed	Zero speed	Zero speed
	5	DO5	-	Above limit	Above limit	Above limit	Above limit	At setpoint	DC-breaker trip cmd.
	6	DO6	-	-	-	-	-	-	-
	7	DO7	-	-	-	-	-	-	-
	8	0 V	-	-	-	-	-	-	-
X96:	1	DO8 Relay	Main contact. On	Main contact. On	Main contact. On	Main contact. On	Main contact. On	Main contact. On	Main contact. On
	2								
Serial communication			Speed reference	-	-	Speed reference	-	-	-

***NOTE: The analog and digital inputs and outputs shown in this table are automatically configured when you use one of the macros shown in the top row.**

Adaptive programming

Optimal Adaptability

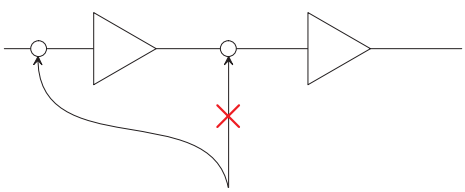
Adaptive programming gives you the ability to customize the drive to your needs without adding more hardware. Change how a digital output works, modify speed or torque reference, or filter an analog input - all these things are possible. You program the drive with the control panel or your PC using DriveWindow Light. Adaptive programming gives you the flexibility you need to make the drive work to your specifications



Adaptive programming features

- 16 programmable function blocks
- 31 Available functions:
  - Logical: AND, OR and XOR
  - Mathematical: add, mul, div, abs, max and min
  - Other: timer, switch, comparator, filter, SR, PI and user-defined warnings or faults
- Freely definable execution order
- Easy documentation
- Same as available with ACS800 AC Drives

The DCS800 DC drive offers you all this as standard features. If more function blocks are required, control builder, which uses compact flash memory, is available with expanded capacity. See page 23 for details.



Startup Assistant

Faster and easier commissioning

The Startup Assistant is part of the standard DCS800 DC Drives software package. It guides you actively through the commissioning procedure either through the control panel or with your PC using Drive Window Light. It is multilingual, requests data with clear and plain text messages, and sets the required parameters to your needs.

On-line info system

To make it easier and more informative, “info system” is available at each step, helping to set the correct values for each parameter and troubleshoot the problems. It also provides you with a step-by-step reference to the printed manuals.

Start-up assistant features

- Easy and fast commissioning procedure
- Intelligent guide to assist you through the commissioning
- Available in 8 languages, including Spanish and French
- Info system always available
- Auto detection of connected hardware

The DCS800 DC drive offers you all this as standard features.

DriveWindow Light
Startup and Maintenance Tool

PC tool for ABB drives

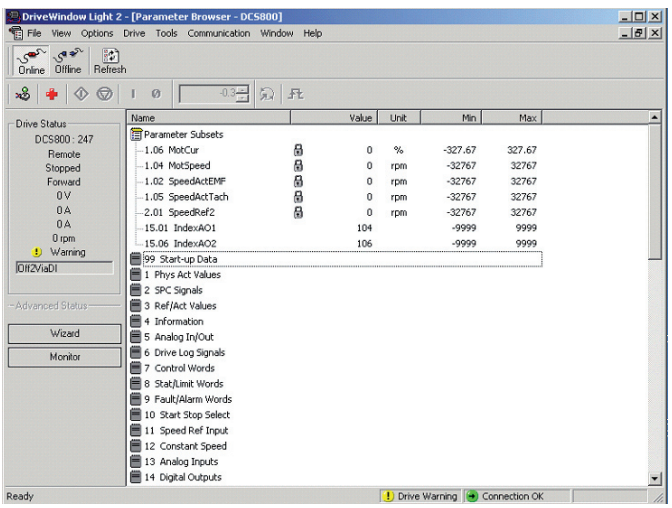
DriveWindow Light is an easy-to-use tool for PC-based start up and maintenance of your ABB drive. It is included with every DCS800 drive and has the following features:

- User interface tool to view and set parameters
- Startup Assistant tool
- Adaptive programming (AP) tool
- Fault Logging/Troubleshooting

It supports a wide range of ABB industrial drives, including ACS350, ACS550, ACS800, DCS400, as well as the DCS800.

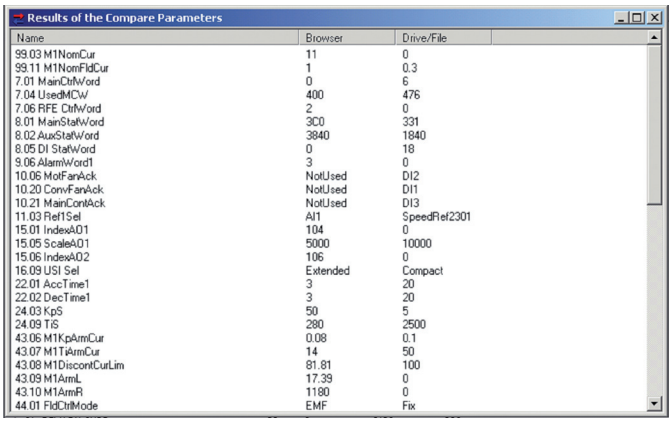
Highlights

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

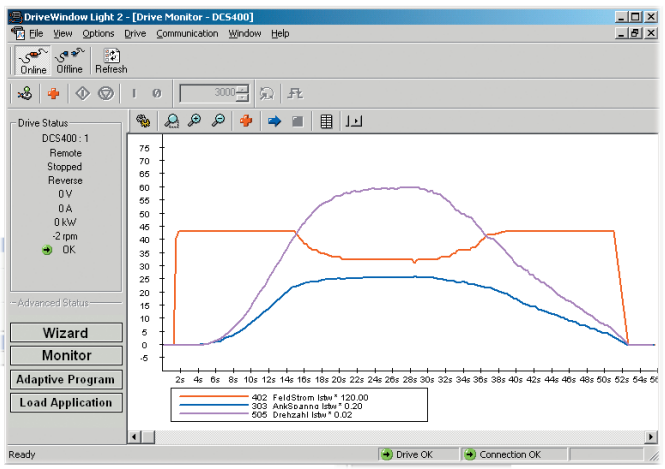


Light software with heavy features

DriveWindow Light offers many functions in an easy-to-use package. It can be used in an offline mode, which enables parameter setting at the office even before going to the actual site. The parameter browser enables viewing, editing and saving of parameters. The parameter comparison feature makes it possible to compare parameter values between the drive and the file. With the parameter subset you can create your own parameter sets. Controlling of the drive is naturally one of the features in DriveWindow Light. Drive status and fault information keeps commissioning time low.



With DriveWindow Light, you can monitor up to four signals simultaneously. This can be done in both graphical and numerical format. Any signal can be set to start the monitoring from a pre-defined level.

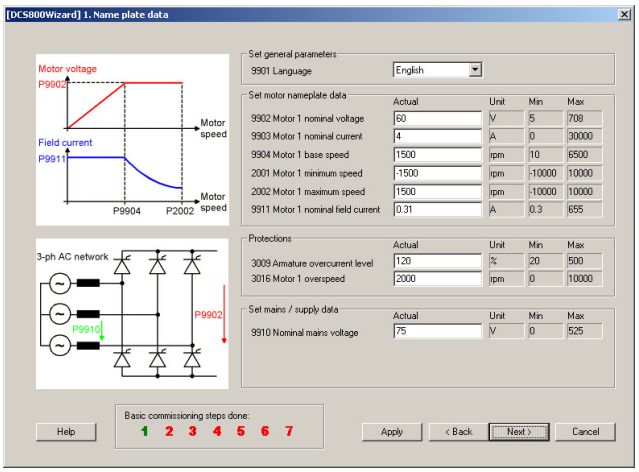


DriveWindow Light, continued

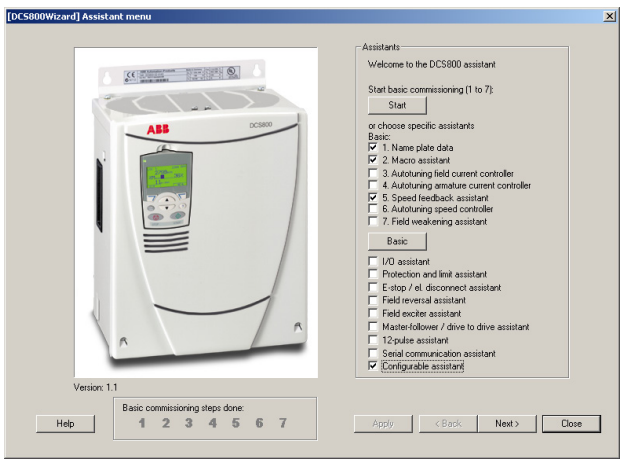
DWL Start-up assistant

DWL Start-up assistant for DCS800 gives important assistance for commissioning by interactive dialog. The commissioning steps are presented in correct sequence and necessary parameters are preselected.

- The basic port collects basic motor and connection data and executes controller auto tunings
- The advanced port provides assistance for 12-pulse operation, field reversal, serial communication (fieldbus) and master-follower configuration.
- A context-sensitive help function is present during the whole sequence



One page is freely configurable by the user. An individual commissioning sequence or parameter selection can be setup to application, machine or motor demands.

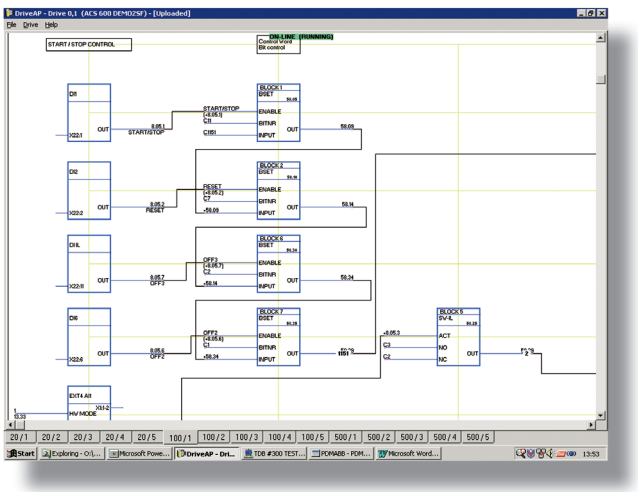


Adaptive programming (AP) tool

DWL AP is a graphical PC tool to create, document, edit and download Adaptive Programs. Adaptive Program tools contain 16 function blocks and are available in standard firmware. DWL AP offers a clear and easy way to develop, test and document these programs with a PC.

It is a user-friendly tool to modify function blocks and their connections. No special programming skills are required; basic knowledge about block programming is sufficient.

Adaptive Programs are easy to document as hard copies are store as PC files. All related information is saved directly to the drive by parameter.



DCS800 Firmware

DCS800 basic firmware

DCS800 firmware includes the basic function of speed control, armature current, field current and motor voltage. The flexible design for command location enables fieldbus control, master-follower control, control from hardware signals as well as a mixed structure. The design of drive logic enables a drive reaction defined by Profibus standard but can also be configured to adapt classic command structures.

All parameters can be accessed through serial communication or by IEC 61131 or adaptive programming. Seven macros are pre-defined and two user-macros can be configured by the user.

Functions of basic firmware

- Different speed ramp functions
- Speed control
- Torque control
- Armature current control
- Field current control
- Automatic field weakening
- E-stop function according to Profibus standard
- Dual field control
- Mechanical brake control
- DC breaker control
- Programmable digital and analogue outputs
- Master-Follower
- 16 blocks Adaptive Program
- Interface for IEC 61131 programming
- 12-pulse function - parallel, serial, sequential
- 3-phase field exciter operation
- Converter protection (temperature, voltage,...)

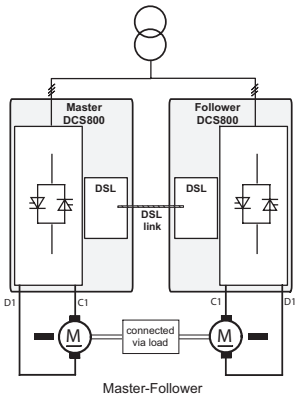
Motor protections

- Stall protections
- Thermal motor model
- 2 channel motor temperature measurement PTC or PT100
- Klixon supervision
- Speed feedback error
- Over speed
- Armature current ripple
- Armature over current
- Minimum field current

Master-Follower applications

Drives connected in Master-Follower application

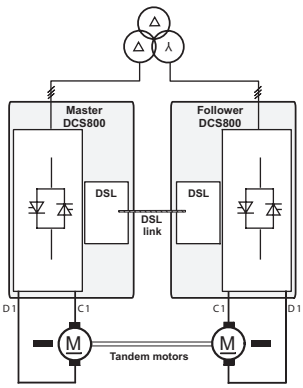
When motors run on a common shaft or other belted or mechanical connection, and run with the same speed or torque, use the master/follower configuration.



Master-Follower

Partial 12-pulse Master-Follower configuration

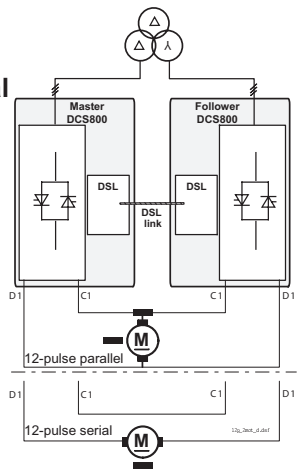
Under this configuration, converters are fed by a 12-pulse transformer with separated secondary windings whose phase positions differ by 30°.
This configuration delivers the same advantages concerning harmonics to the network as a standard 12- pulse application (see next item), but no T-reactor is needed.



partial 12-pulse

Typical configuration for high power drives connected in 12-pulse parallel, serial or sequential application

12-pulse systems are used to reduce line harmonics or motor noise level, or to increase output current or voltage of the converter system. Only the 11th and 13th, the 23rd and 25th, the 35th etc. are present. The harmonics on the DC side are reduced also, which increases efficiency.



Environmental Conditions

System connection	
Voltage, 3-phase:	240 to 990 V acc. to IEC 60038
Voltage deviation:	±10% continuous; ±15% up to 0.5 sec.
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
Please note: Special consideration must be taken for voltage deviation in regenerative mode.	
Protection Class	
Converter module and options (line chokes, fuse holder, field supply unit, etc.):	UL Type Open
Enclosed converters:	UL Type 1, UL Type 12
Paint finish	
Converter module:	RAL 9002
Enclosed converter:	light grey RAL 7035

Environmental limit values	
Permissible cooling air temperature.	
- at converter module air inlet:	0 to +55°C
with rated DC current:	0 to +40°C
with different DC current:	+40 to +55°C derating (1%/1°C)
- Options:	0 to +40°C
Relative humidity (at 5...+40°C):	5 to 95%, no condensation
Relative humidity (at 0...+5°C):	5 to 50%, no condensation
Change of the ambient temp.:	< 0.5°C / minute
Storage temperature:	-40 to +55°C
Transport temperature:	-40 to +70°C
Pollution degree (IEC 60664-1, IEC 60439-1):	2
Site elevation	
<1000 m above M.S.L.:	100%, without derating
1000 to 4000 M.S.L.:	with derating (1%/100m)

Sound pressure level

Size	Sound pressure level L_p (1 m distance)		Vibration
	as module	enclosed conv.	as module
D1	55 dBA	54 dBA	0.5 g, 5...55 Hz
D2	55 dBA	55 dBA	
D3	60 dBA	73 dBA	
D4	70 dBA,	77 dBA	
D5	73 dBA	78 dBA	1 mm, 2...9 Hz 0.3 g, 9...200 Hz
D6	75 dBA	73 dBA	
D7	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 600 V	UL 508 C Power Conversion Equipment CSA C 22.2 No. 14-95 Industrial Control Equipment, Industrial Products Available for converter modules including field exciter units. Types with UL mark: • see UL Listing www.ul.com / certificate no. E196914 • or on request	UL/CSA types: on request
>600 V to 1000 V	EN / IEC: see table below. Available for converter modules including field exciter units.	EN / IEC types: on request (for details see table below)

Regulatory compliance

The converter module and enclosed converter components are designed for use in industrial environments. In EEA countries, the components fulfill the requirements of the EU directives, see table below.

European union directive	Manufacturer's assurance	Harmonized standards	
		Converter module	Enclosed converter
Machinery Directive			
98/37/EEC 93/68/EEC	Declaration of Incorporation	EN 60204-1 [IEC 60204-1]	EN 60204-1 [IEC 60204-1]
Low Voltage Directive			
73/23/EEC 93/68/EEC	Declaration of Conformity	EN 60146-1-1 [IEC 60146-1-1] ⟨ (EN 50178 [IEC --]) see additional IEC 60664 ⟩	EN 60204-1 [IEC 60204-1] ⟨ EN 60439-1 [IEC 60439-1] ⟩
EMC Directive			
89/336/EEC 93/68/EEC	Declaration of Conformity (Provided that all installation instructions concerning cable selection, cabling and EMC filters or dedicated transformer are followed.)	EN 61800-3 ① [IEC 61800-3] ① in accordance with 3ADW 000 032	EN 61800-3 ① [IEC 61800-3] ① in accordance with 3ADW 000 032/3ADW 000 091

Current Ratings

Non-Regenerative

Type code Non-regenerative	Frame Size	Input RMS Current A_{rms}	Normal Duty		Standard Duty		Heavy Duty		Internal field current A	Air Flow 60 Hz ft^3/min	Heat Dissipation BTU/hr
			I_{2Nd} A_{dc}	P_{2Nd} HP	I_{2Sd} A_{dc}	P_{2Sd} HP	I_{2Hd} A_{dc}	P_{2Hd} HP			
500 Vdc											
DCS800-S01-0020-05	D1	16	19	10	18	10	18	10	6A	nonvent.	375
DCS800-S01-0045-05		37	42	25	38	20	38	20		210	580
DCS800-S01-0065-05		53	61	30	54	30	54	30		210	751
DCS800-S01-0090-05		73	88	50	78	40	78	40		210	955
DCS800-S01-0125-05		102	124	75	111	60	104	60		210	1297
DCS800-S01-0180-05	D2	147	171	100	164	100	148	75	15A	210	1911
DCS800-S01-0230-05		188	219	125	205	125	205	125		210	2491
DCS800-S01-0315-05	D3	257	300	150	264	150	264	150	20A	210	3105
DCS800-S01-0405-05		330	385	200	325	200	325	200		420	3822
DCS800-S01-0470-05		384	447	250	405	250	405	250		420	4504
DCS800-S01-0610-05+S171	D4	498	580	300	484	300	490	300	25A	610	6005
DCS800-S01-0740-05+S171		604	704	400	670	400	664	400		610	7302
DCS800-S01-0900-05+S171		734	865	500	795	500	795	500		1160	9145
DCS800-S01-1200-05+S163	D5	979	1105	700	950	600	851	550	25A	500	17402
DCS800-S01-1500-05+S163		1224	1450	900	1320	800	1280	800		500	18084
DCS800-S01-2000-05+S163		1632	1904	1100	1480	900	1479	900		500	22520
DCS800-S01-2050-05	D6	1673	1985	1250	1585	1000	1585	1000	External	940	27297
DCS800-S01-2500-05		2040	2395	1500	1986	1250	1990	1250		940	30709
DCS800-S01-3000-05		2448	2820	1750	2416	1500	2416	1500		940	37875
DCS800-S01-3300-05	D7	2693	3178	2000	2416	1500	2416	1500	External	2500	39922
DCS800-S01-4000-05		3264	3690	2250	2890	1750	2897	1750		2500	44358
DCS800-S01-5200-05		4243	4820	3000	3972	2500	3800	2250		2500	64831
600 Vdc											
DCS800-S01-0290-06	D3	237	280	200	268	200	268	200	External	210	3105
DCS800-S01-0590-06+S171	D4	481	561	400	480	300	470	300	External	610	6347
DCS800-S01-0900-06	D5	734	828	600	665	500	665	500	External	500	17402
DCS800-S01-1500-06		1224	1428	1000	1325	1000	1325	1000		500	21496
DCS800-S01-2000-06		1632	1850	1250	1490	1100	1479	1100		500	27638
DCS800-S01-2050-06	D6	1673	1850	1250	1490	1100	1479	1100	External	940	31392
DCS800-S01-2500-06		2040	2380	1750	1990	1500	1990	1500		940	34804
DCS800-S01-3000-06		2448	2790	2000	2380	1750	2380	1750		940	41628
DCS800-S01-3300-06	D7	2693	3035	2250	2380	1750	2380	1750	External	2500	44699
DCS800-S01-4000-06		3264	3720	2500	2970	2250	2970	2250		2500	51523
DCS800-S01-4800-06		3917	4410	3250	3507	2500	3507	2500		2500	66537
700 Vdc											
DCS800-S01-0900-07	D5	734	820	700	620	500	620	500	External	500	17402
DCS800-S01-1500-07		1224	1428	1250	1160	1000	1160	1000		500	21496
DCS800-S01-2000-07		1632	1850	1500	1490	1250	1479	1250		500	27638
DCS800-S01-2050-07	D6	1673	1850	1500	1490	1250	1479	1250	External	940	31392
DCS800-S01-2500-07		2040	2380	2000	1990	1750	1990	1750		940	34804
DCS800-S01-3000-07		2448	2790	2500	2380	2000	2380	2000		940	41628
DCS800-S01-3300-07	D7	2693	3035	2500	2380	2000	2380	2000	External	2500	44669
DCS800-S01-4000-07		3264	3720	3250	2970	2500	2970	2500		2500	51523
DCS800-S01-4800-07		3917	4480	4000	3507	3000	3507	3000		2500	66537
360 - 800 Vdc line voltage	DATA AVAILABLE UPON REQUEST										
450 - 990 Vdc line voltage	DATA AVAILABLE UPON REQUEST										
540 - 1200 Vdc line voltage	DATA AVAILABLE UPON REQUEST										

Current Ratings

Regenerative

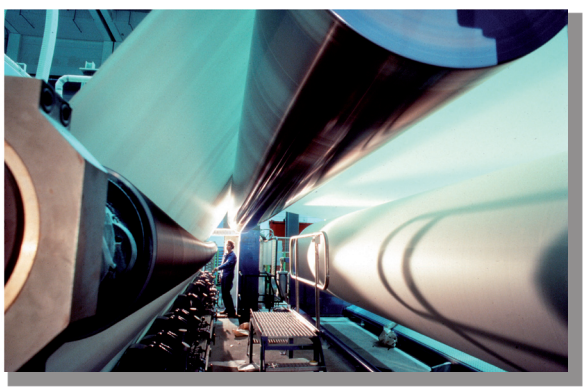
Type code Regenerative	Frame Size	Input RMS Current A_{rms}	Normal Duty		Standard Duty		Heavy Duty		Internal field current A	Air Flow 60 Hz ft^3/min	Heat Dissipation BTU/hr
			I_{2Nd} A_{dc}	P_{2Nd} HP	I_{2Sd} A_{dc}	P_{2Sd} HP	I_{2Hd} A_{dc}	P_{2Hd} HP			
500 Vdc											
DCS800-S02-0025-05	D1	20	23	10	20	10	20	10	6A	nonvent.	375
DCS800-S02-0050-05		41	47	25	38	20	38	20		210	580
DCS800-S02-0075-05		61	71	40	54	30	54	30		210	751
DCS800-S02-0100-05		82	95	50	84	50	79	40		210	955
DCS800-S02-0140-05		114	133	75	125	75	110	60		210	1297
DCS800-S02-0200-05	D2	163	190	100	166	100	166	100	15A	210	1911
DCS800-S02-0260-05		212	247	150	208	125	208	125		210	2491
DCS800-S02-0350-05	D3	286	333	200	287	150	264	150	20A	210	3105
DCS800-S02-0450-05		367	428	250	360	200	357	200		420	3822
DCS800-S02-0520-05		424	489	300	405	250	405	250		420	4504
DCS800-S02-0680-05+S171	D4	506	647	400	605	300	544	300	25A	610	6005
DCS800-S02-0820-05+S171		669	806	500	740	400	664	400		610	7302
DCS800-S02-1000-05+S171		816	965	600	815	500	810	500		1160	9145
DCS800-S02-1200-05+S163	D5	979	1105	700	950	600	851	500	25A	500	17402
DCS800-S02-1500-05+S163		1224	1450	900	1320	800	1280	800		500	18084
DCS800-S02-2000-05+S163		1632	1885	1100	1490	900	1479	900		500	22520
DCS800-S02-2050-05	D6	1673	1985	1250	1585	1000	1585	1000	External	940	27297
DCS800-S02-2500-05		2040	2395	1500	1995	1250	1990	1250		940	30709
DCS800-S02-3000-05		2448	2820	1750	2382	1500	2382	1500		940	37875
DCS800-S02-3300-05	D7	2693	3178	2000	2416	1500	2416	1500	External	2500	39922
DCS800-S02-4000-05		3264	3690	2250	2890	1750	2890	1750		2500	44358
DCS800-S02-5200-05		4243	4820	3000	3972	2500	3800	2250		2500	64831
600 Vdc											
DCS800-S02-0320-06	D3	261	295	200	268	200	268	200	External	210	3105
DCS800-S02-0650-06+S171	D4	530	619	400	540	400	540	400	External	610	6347
DCS800-S02-0900-06	D5	734	828	600	665	500	665	500	External	500	17402
DCS800-S02-1500-06		1224	1428	1000	1325	1000	1325	1000		500	21496
DCS800-S02-2050-06	D6	1673	1850	1250	1490	1100	1490	1100	External	940	31392
DCS800-S02-2500-06		2040	2380	1750	1980	1500	1980	1500		940	34804
DCS800-S02-3000-06		2448	2790	2000	2293	1750	2293	1750		940	41628
DCS800-S02-3300-06	D7	2693	3035	2250	2370	1750	2370	1750	External	2500	44699
DCS800-S02-4000-06		3264	3720	2500	2970	2250	2970	2250		2500	51523
DCS800-S02-4800-06		3917	4410	3250	3507	2500	3507	2500		2500	66537
700 Vdc											
DCS800-S02-0900-07	D5	734	820	700	620	500	620	500	External	500	17402
DCS800-S02-1500-07		1224	1428	1250	1160	1000	1160	1000		500	21496
DCS800-S02-2050-07	D6	1673	1850	1500	1490	1250	1490	1250	External	940	31392
DCS800-S02-2500-07		2040	2380	2000	1990	1750	1983	1750		940	34804
DCS800-S02-3000-07		2448	2790	2500	2280	2000	2275	2000		940	41628
DCS800-S02-3300-07	D7	2693	3035	2500	2380	2000	2380	2000	External	2500	44669
DCS800-S02-4000-07		3264	3720	3250	2965	2500	2965	2500		2500	51523
DCS800-S02-4800-07		3917	4480	4000	3507	3000	3507	3000		2500	66537
360 - 800 Vdc line voltage	DATA AVAILABLE UPON REQUEST										
450 - 990 Vdc line voltage	DATA AVAILABLE UPON REQUEST										
540 - 1200 Vdc line voltage	DATA AVAILABLE UPON REQUEST										

Note: Normal Duty: 110% overload for 60 seconds, 100% for 10 minutes
Standard Duty: 150% overload for 30 seconds, 100% for 15 minutes
Heavy Duty: 150% overload for 60 seconds, 100% for 15 minutes

Dimensions and Weights

Unit Size	Power Connection		Weight (lbs)	Dimensions	
	In	Out		h x w x d (in)	h x w x d (mm)
D1	Bottom	Bottom	24	12.5 x 10.8 x 8.0	310 x 270 x 200
D2	Bottom	Bottom	35	13.8 x 10.8 x 10.8	310 x 270 x 270
D3	Bottom	Bottom	55	15.8 x 10.8 x 12.5	400 x 270 x 310
D4	Bottom	Bottom	84	23.0 x 10.8 x 13.8	580 x 270 x 345
D5	Top	Bottom	242	41.5 x 20.3 x 16.3	1050 x 510 x 410
D6	Left	Left	396	69.0 x 18.3 x 16.3	1750 x 460 x 410
D7	Left or Right (as selected in the type code)		693	69.0 x 30.0 x 22.5	1750 x 760 x 570

D1 D2 D3 D4 D5 D6 D7



Plug-in options

Basic control panel

The basic control panel features a single line numeric display. The panel can be used to control the drive, set the parameter values or copy them from one drive to another. It comes with every DCS800.

Plus code

+0J400	If no control panel is required
- J409	Panel mounting kit ACS/H-CP-EXT plus cable

Plug-in fieldbus module

See next section.

Fast optical DDCS communication module

DCS800 provides an interface SDCS-COM-8 fast serial communication:

- Master channel ModuleBus to AC800M
- I/O channel to AIMA-01 board
- Master-Follower DDCS channel
- Tools channel e.g DriveWindow, remote diagnostic NETA, as well as the CDP 312 from ACS800 range can be connected on this board
- The board must be located in slot3

Plus code

+L508	Module bus 10 Mbd (SDCS-COM-81)
+L509	NxxA fieldbus adapter 5 Mbd (SDCS-COM-82)

Drive-specific serial communication board

The SDCS-DSL board provides the serial communication for:

- Drive to drive
- Drive to external field power supply
- 12-pulse applications

Plus code

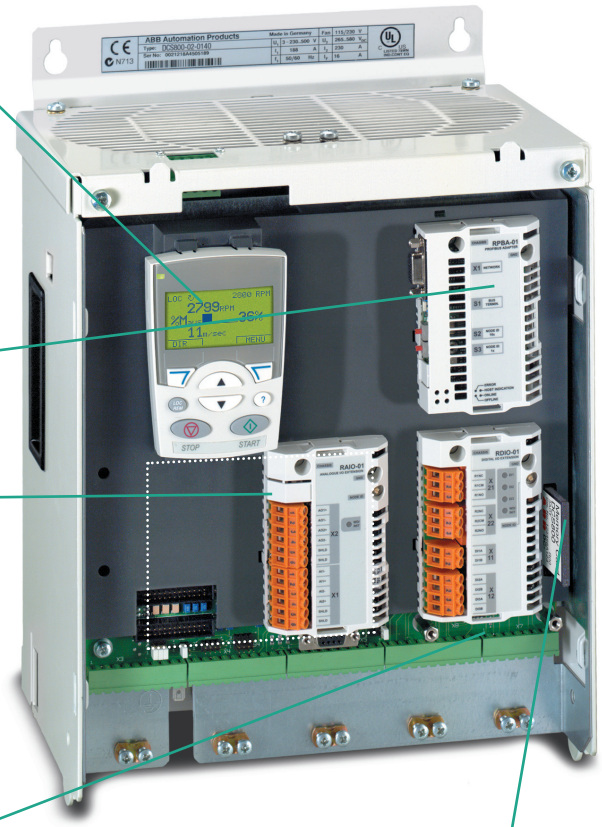
+S199	SDCS-DSL communication board

Field Power Supply

Sizes D1 through D4 drives have an internal field power supply. On Size D5, the field power supply is optional. Sizes D6 – D8 require an external field power supply.

Plus code

+S163	Internal field supply (D5)



Control Builder

To include Control Builder with the drive, the compact flash memory card must be ordered with a plus code. CoDeSys software for the PC is ordered separately.

Plus code

+S200	Compact flash memory card (SDCS-MEM-8)

I/O extension option module

This plug-in option offers additional analog or digital I/O. They can be used, for example, in a Master-Follower application for interlocking functions. All the relays can be programmed to on/off by parameter. Alternatively, a fieldbus module can be used to control any external components in the system.

Plus code

+L501	RDIO-01 Digital extension module 3xDI, 2xDO
+L500	RAIO-01 Analog extension module 2xAI, 2xAO

Communication Options

Fieldbus Control

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.

Manufacturing flexibility

Drive control
The drive control word (16 bit) provides a wide variety of functions from start, stop and reset to ramp generator control. Typical setpoint values like speed, torque and position can be transmitted to the drive with 15 bit accuracy.

Drive monitoring
A set of drive parameters and/or actual signals, like torque, speed, position, current etc., can be selected for cyclic data transfer providing fast data for operators and the manufacturing process.

Drive diagnostics
Accurate and reliable diagnostic information can be obtained via the drive alarm, limit and fault words, reducing the drive downtime and, therefore, the downtime of the manufacturing process.

Drive parameter handling
Total integration of the drives in the production process is achieved by single parameter read/write up to complete parameter set-up or download.

Easy to expand
Serial communication simplifies the latest trend of modular machine design enabling the installation to be expanded at a later stage with low effort.

Reduced installation and engineering effort

Cabling
Substituting the large amount of conventional drive control cabling with a single twisted pair reduces costs and increases system reliability.

Design
The use of fieldbus control reduces engineering time at installation because of the modular structure of the hardware and software.

Commissioning and assembly
The modular machine configuration allows pre-commissioning of single machine sections and provides easy and fast assembly of the complete installation.

Currently available gateways

Gateway	Plus Code
Profibus-DP	+K454
DeviceNet	+K451
CANopen	+K457
ControlNet	+K462
Modbus	+K458
Ethernet	+K466

Fuse Connections

Semiconductor type F1 fuses and fuse holders for AC and DC power lines

The converter units are subdivided into two groups. Frame sizes D1, D2, D3 and D4 with rated currents up to 1000 A, require external line fuses. Frame sizes D5, D6 and D7, with rated currents of 900 A to 5200 A, have semiconductor fuses installed internally. No additional external semiconductor fuses needed.

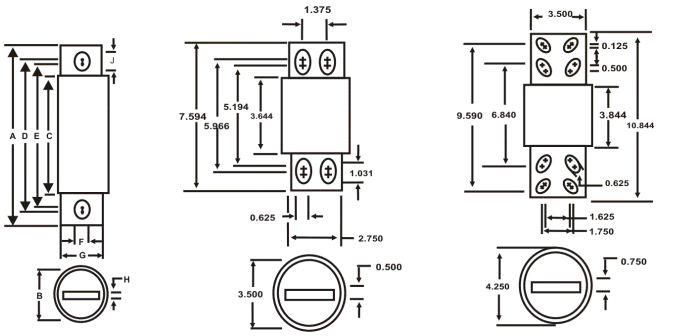
The table shows the recommended fuses and fuse holders for each converter type for the incoming three-phase AC line. If DC fuses are also required, use the same type and size.

Type of Converter		Fuse*	Fuse Holder*	Design Figure
2-Q Converter	4-Q Converter	North America	single-pole	
DCS800-SO1-0020-05	DCS800-SO2-0025-05	FWP-50B	1BS101	1
DCS800-SO1-0045-05	DCS800-SO2-0050-05	FWP-80B	1BS101	1
DCS800-SO1-0065-05	DCS800-SO2-0075-05	FWP-125A	1BS103	1
DCS800-SO1-0090-05	DCS800-SO2-0100-05	FWP-125A	1BS103	1
DCS800-SO1-0125-05	DCS800-SO2-0140-05	FWP-200A	1BS103	1
DCS800-SO1-0180-05	DCS800-SO2-0200-05	FWP-250A	1BS103	1
DCS800-SO1-0230-05	DCS800-SO2-0260-05	FWP-300A	1BS103	1
DCS800-SO1-0315-05	DCS800-SO2-0350-05	FWP-500A	1BS103	1
DCS800-SO1-0405-05	DCS800-SO2-0450-05	FWP-700A	BH-3	1
DCS800-SO1-0470-05	DCS800-SO2-0520-05	FWP-700A	BH-3	1
DCS800-SO1-0610-05	DCS800-SO2-0680-05	FWP-900A	See Note 1	2
DCS800-SO1-0740-05	DCS800-SO2-0820-05	FWP-900A	See Note 1	2
DCS800-SO1-0900-05	DCS800-SO2-1000-05	FWP-1200A	See Note 1	3

**Use 3 for the AC side. DC fuses may be required by local safety regulations. If so, use 2 for the DC side.*
Note 1: No fuse holder is available. Attach fuses directly to busbar.

Dimensions

Fig. 1: 5-800 Amp Range Fig. 2: 900-1000 Amp Range Fig. 3: 1200 Amp Range



Order #	Fig.	A	B	C	D	E	F	G	H	J
FWP-5B-30B	1	2.870	0.563	1.855	2.477	2.477	0.250	0.405	0.063	0.250
FWP-35B-60B	1	4.375	0.813	2.750	3.708	3.312	0.344	0.725	0.125	0.542
FWP-70B-100B	1	4.406	0.947	2.594	3.625	3.563	0.344	0.750	0.125	0.375
FWP-125A-200A	1	5.090	1.500	2.840	4.190	3.500	0.410	1.000	0.250	0.750
FWP-225A-400A	1	5.090	2.000	2.840	4.280	3.530	0.410	1.500	0.250	0.780
FWP-450A-600A	1	7.090	2.500	2.840	5.720	4.190	0.530	2.000	0.380	1.300
FWP-700A-800A	1	6.630	2.000	2.844	5.562	5.062	0.625	1.500	0.250	0.875

External Field Supply

General data

- Currents from 0.3 to 520 A
- Minimum field current monitor
- Integrated external field power converter or completely separate switchgear cubicle
- Single-phase or 3-phase model
- Controlled by serial communication via DSL board

The three-phase field power converter causes less voltage stress on the motor over the single-phase field converter. This is because rectifying three-phase power provides a smoother DC voltage.

For single-phase operation, we recommend integrating an auto transformer in the field power converter's supply circuit to adjust the AC input voltage to the field voltage and to reduce the voltage ripple in the field circuit.

All field converters are controlled by the armature converter via a serial interface (SDCS-DSL board). This interface serves to set-up, control and diagnose the field converter and thus provides an option for exact control.

Field converter types

DCF803-0035 and FEX425

- Three-phase or single-phase operation
- Half-wave thyristor/diode bridge
- Microprocessor control, with the electronic system being supplied by the armature-circuit converter (24 V)
- Construction and components have been designed for an insulation voltage of 600 Vac
- Fast-response excitation is possible with an appropriate voltage reserve; de-excitation takes place by field time constant
- Output voltage U_A (single-phase operation)

$$U_A \le U_V * \left(\frac{100\% + TOL}{100\%} \right) * 0.9$$

TOL = tolerance of line voltage in %

U_V = Line voltage

- Recommendation (single-phase operation): Field voltage 0.6 to 0.8 * U_V

- Output voltage U_A (three-phase operation):

$$U_A \le U_V * \left(\frac{100\% + TOL}{100\%} \right) * 1.35$$

TOL = tolerance of line voltage in %

U_V = Line voltage

Note: Calculation valid also for FEX425 (internal supply for D5 frame)

Table of field converter units

Unit type	Output current I_{DC}	AC field supply voltage	Auxiliary supply voltage	Remarks
DCF803-0035	0.3 to 35 A	110V -15% to 500V*/1-ph +10% single-phase or three-phase	24 V DC 200 mA	Line reactor required: • for 3 phase operation use KLR21BTB, KLR45BTB • for 1 phase, use auto transformer Always fuse external
DCF803-0050	0.3 to 50 A	110V -15% to 500V**/1-ph +10%	115 or 230 V	if necessary via matching autotransformer; fuse external; Dimensions HxWxD: 370x125x342 [mm]
DCF804-0050	0.3 to 50 A	110V -15% to 500V**/1-ph +10%		
DCS800-S0x-xxxx-05	25 to 520 A	200V. to 500V**/3-ph		additional hardware components required for overvoltage protection (DCF506)

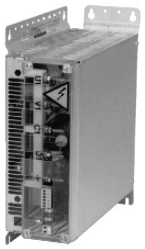
Notes:

* Up to 600 Vac with auto transformer

** Up to 690 Vac with auto transformer

External Field Supply

DCF803-0050



- Single-phase operation
- Half-wave thyristor/diode bridge (1-Q)
- Built-in line chokes
- Microprocessor control with the control electronics being supplied separately (115...230 V/1-ph)
- Construction and components have been designed for an insulation voltage of 690 VAC.
- Output voltage U_A

$$U_A \le U_V * \left(\frac{100\% + TOL}{100\%} \right) * 0.9$$

TOL = tolerance of line voltage in %
U_V = Line voltage

- Recommendation:
  Field voltage 0.6 to 0.8 * U_V

DCF804-0050

- Single-phase operation
- Full-wave regenerative thyristor bridges (4-Q)
- Built-in line chokes
- This unit offers field reversal as well as fast-response excitation / de-excitation
  In the steady-state condition, the full-wave bridge runs in half-wave mode so as to keep the voltage ripple at a minimum. With a quickly alternating field current, the bridge switches to full-wave mode.
- Same design as DCF803

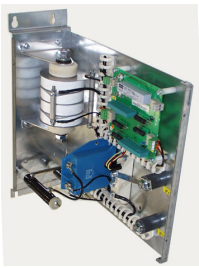
DCS800

This converter can also be used for field exciter operation. An additional overvoltage protection unit is required. It provides field currents from 25 A up to 520 A unipolar and bipolar for field reversal function.

- Output voltage
  U_A respectively $U_{dmax\ 2\text{-}Q}$:
  see *table on page 7*
- Recommendation:
  Field voltage 0.5 to 1.1 * U_V
- The three-phase field supply converters DCS800-S01/S02 need a separate active overvoltage protection unit DCF 506 for protecting the power part against inadmissibly high voltages.

Assignment of field supply converter to overvoltage protection unit

Field supply converter for motor fields	Overvoltage protection
DCS800-S0x-0020-05	DCF506-0140-51
...	
DCS800-S0x-0140-05	
DCS800-S0x-0200-05	DCF506-0520-51
...	
DCS800-S0x-0520-05	



DCF506-140-51, without cover

Line reactors and AC Contactors

Unit Type		Line Choke for Config. A	Line Choke for Config. B	AC Contactors
2Q Converters	4Q Converters	1.5% imp.	5% imp.	
500 Vdc				
DCS800-S01-0020-05	DCS800-S02-0025-05	KLR21BTB	KLR21CTB	A12
DCS800-S01-0045-05	DCS800-S02-0050-05	KLR45BTB	KLR45CTB	A30
DCS800-S01-0065-05	DCS800-S02-0075-05	KLR80BTB	KLR80CTB	A50
DCS800-S01-0090-05	DCS800-S02-0100-05	KLR110BCB	KLR110CCB	A75
DCS800-S01-0125-05	DCS800-S02-0140-05	KLR130BCB	KLR130CCB	A110
DCS800-S01-0180-05	DCS800-S02-0200-05	KLR200BCB	KLR200CCB	A145
DCS800-S01-0230-05	--	KLR200BCB	KLR200CCB	A210
--	DCS800-S02-0260-05	KLR250BCB	KLR250CCB	A210
DCS800-S01-0315-05	DCS800-S02-0350-05	KLR300BCB	KLR300CCB	A260
DCS800-S01-0405-05	--	KLR360BCB	KLR360CCB	AF400
DCS800-S01-0470-05	DCS800-S02-0450-05	KLR420BCB	KLR420CCB	AF400
--	DCS800-S02-0520-05	KLR480BCB	KLR480CCB	AF400
DCS800-S01-0610-05	DCS800-S02-0680-05	KLR600BCB	KLR600CCB	AF580
DCS800-S01-0740-05	DCS800-S02-0820-05	KLR750BCB	KLR750CCB	AF750
DCS800-S01-0900-05	--	KLR750BCB	KLR750CCB	AF1350
--	DCS800-S02-1000-05	KLR850BCB	KLR850CCB	AF1350
DCS800-S01-1200-05	DCS800-S02-1200-05	KLR1100BCB	KLR1100CCB	AF1350
DCS800-S01-1500-05	DCS800-S02-1500-05	KLR1250BCB	KLR1250CCB	AF1650
600 Vdc				
DCS800-S01-0290-06	--	KLR250BCB	KLR250ECB	A260
--	DCS800-S02-0320-06	KLR300BCB	KLR300ECB	A260
DCS800-S01-0590-06	DCS800-S02-0650-06	KLR600BCB	KLR600ECB	AF460
DCS800-S01-0900-06	DCS800-S02-0900-06	KLR750BCB	KLR750ECB	AF750
DCS800-S01-1500-06	DCS800-S02-1500-06	KLR1250BCB	KLR1250ECB	AF1650

Note:
- Configuration A: For most installations
- Configuration B: For installations that require compliance with EN 61-800-3 or when AC and DC drives are on the same line
- See DCS800 hardware manual for additional information

Control Builder

Programming tool

Control Builder is an optional, user-friendly tool for programming the DCS800 based on the IEC61131-3 standard. With Control Builder, it is possible to develop application programs directly in the drive quickly and easily, programs that customize the application, decentralize control, add additional interlocks, and much more. Control Builder offers a clear and easy way to develop, test and document your application programs.

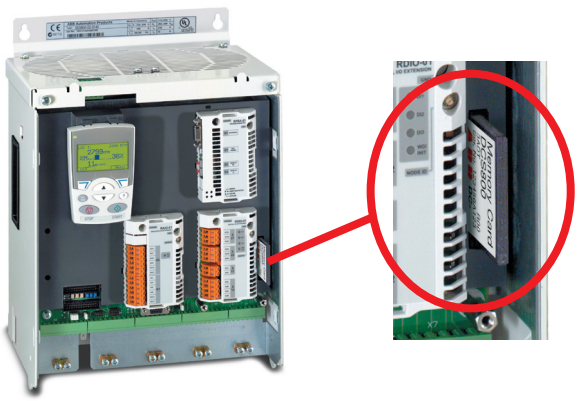
Control Builder consists of the following:

- CoDeSys programming software for the PC
- Compact flash memory card
- Expanded library of functions

CoDeSys is a PC software tool for creating, documenting, editing and downloading your custom application program. No special programming skills are required. CoDeSys supports all five programming languages of IEC61131-3 Additionally, a Continuous Function Chart option is included. This makes it possible for you to program the drive in whatever language you are most comfortable with.

Compact flash memory card: The application program is stored on a compact flash memory card (MC) which is plugged into the drive. MC memory is sufficient to store a program made up of hundreds of functions.

Expanded library of functions: More than 100 types of functions are available including strings, timers, counters, and triggers, in addition to math and conversion functions. Various pre-configured functions are also included such as a PID-controller and a winder. User defined functions can also be created and saved.



Upload and download

Application programs can be uploaded from connected drives and displayed graphically on a PC screen for service and documentation purposes. Online debugging functions include single-step, single-cycle, and breakpoint modes. An event triggered recording tool for variables and signals is also available. Programs made off-line can be downloaded to any of the connected drives that support them.

Three operating modes

Control Builder can be used to program the drive in three different ways:

- Standalone mode – CoDeSys is not connected to the drive. The application program can be written in the office and later downloaded to the drive.
- Off-line mode – CoDeSys is connected to the drive. Changes can be made to the application program without any affect on the drive until the program is downloaded.
- On-line mode – CoDeSys is connected to the drive. Changes to the application program are written immediately to the drive and actual values are shown on the screen in real-time.

Advantages and features

- Easy-to-use tool, no special skills required
- Create and download custom programs
- Automatic documentation
- Can eliminate the need for an external PLC
- The application, including source code, is always part of the drive and thus, can be maintained during the whole life cycle of the machine
- The source code can be password protected against unauthorized access

If 16 or fewer function blocks are required, you may be able to use Adaptive programming instead, which is standard on all DCS800 drives. See page 9.

Start-up, maintenance and integration

DriveWindow

Start-up and maintenance tool

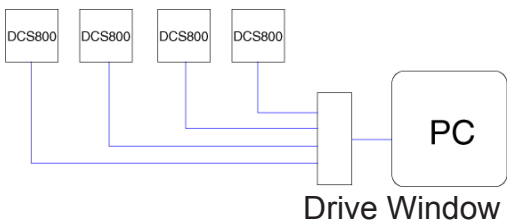
ABB's DriveWindow is an advanced, easy-to-use PC software tool for the start-up and maintenance of ABB DCS800 DC Drives. Its host of features and clear, graphical presentation of the operation make it a valuable addition to your system providing information necessary for troubleshooting, maintenance and service, as well as training.

With DriveWindow the user is able to follow the operation of several drives simultaneously by collecting the actual values from the drives onto a single screen or printout.

Additionally, the client part of DriveWindow may reside on one Local Area Network PC, and the server side on another PC closer to the drives. This enables plant-wide monitoring to be easily accomplished with two PCs.

High speed communication

DriveWindow uses a high-speed fiber optic cable network with DDCS communication protocol.
This makes communication between PC and drives very fast. The fiber optic network is safe and immune to external disturbance. A fiber optic communication card is needed inside the computer.



Monitoring drives

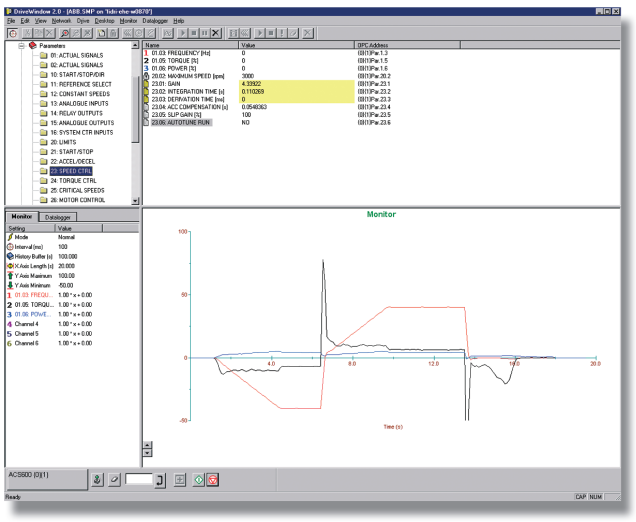
Using DriveWindow you can monitor several drives simultaneously. The history buffer makes it possible to record a large amount of data in the PC's memory. The drive's data logger can be accessed with DriveWindow and viewed in graphical form. The fault logger inside the drive automatically documents every faults, warnings and events that occur. The fault history stored in the drive can be uploaded to your computer.

Versatile back-up functions

Drive parameters can be saved to the PC with DriveWindow, and can easily be downloaded back to the drive whenever needed.

DriveWindow features

- Easy-to-use tool for commissioning and maintenance
- Several drives connected and monitored at the same time
- Monitor, edit or save signals and parameters, clear graphical presentation
- High-speed communication between PC and drive
- Versatile back-up functions
- View data collected and stored in the drive
- Fault diagnosis; DriveWindow indicates the status of drives, and also reads fault history data from the drive
- Compare function for comparing parameter sets



DriveSize

Quality dimensioning

DriveSize is a PC program to help the user select the optimal converter and options, especially in those cases where a straightforward selection from a catalog is not possible. Additionally, it can be used to create printed documents about the dimensioning based on actual load.

The default values make DriveSize simple to use, but the user is provided with many options for drive selection. The shortcut keys make drive selection easy while still honoring the relatively complicated rules.
A manual selection mode is also supported.

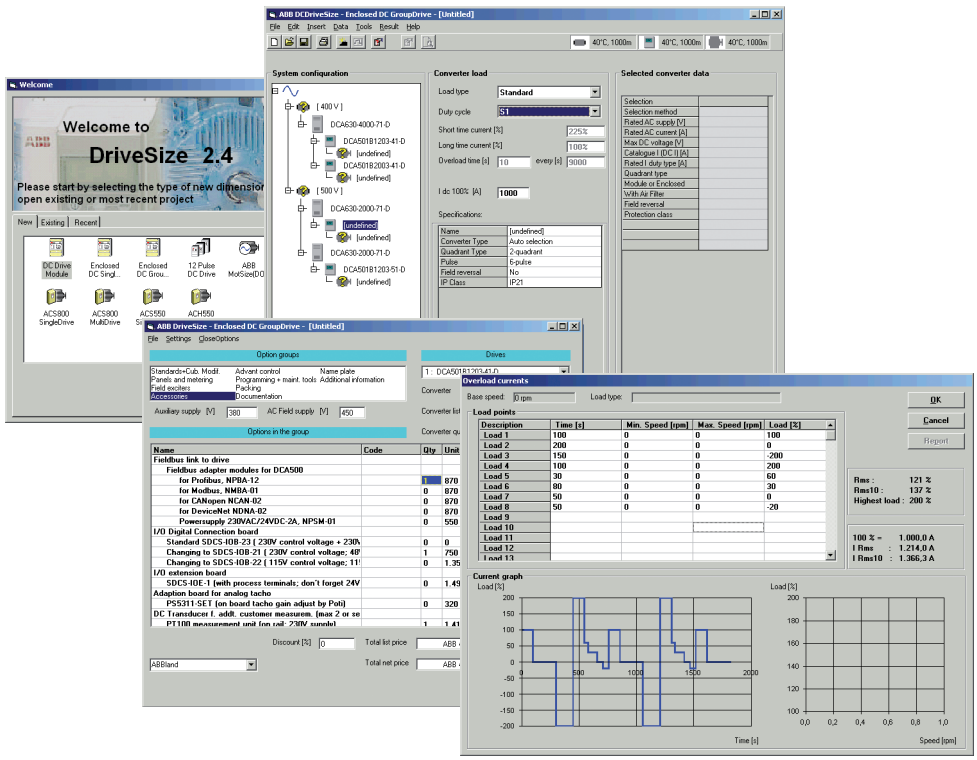
DriveSize is currently used by more than 1000 engineers globally.

DriveSize is for drive system components

- Motors
- DCS converter modules
- DCS enclosed converters
- Group drives (line-ups)
- Drive options

DriveSize features

- Selects the optimal drive unit and motor
- Calculates duty load cycles for converters
- Supplies dimensioning results in graphical and numerical format
- Same tool used for AC and DC.
- Excellent tool for supporting small systems
- Prints and saves the results



Start-up, maintenance and integration
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 with commercial PC software and creating PC-based controlling and monitoring systems.

Remote monitoring

DriveOPC enables remote connection via LAN (local area networks). The remote PC can be connected by its IP address (e.g. “164.12.43.33”) or by the DNS name (e.g. “Gitas213”).

OPC based software

OPC is an industry standard created in cooperation with Microsoft. It is an open architecture interface design, managed by the international OPC foundation. OPC is meant for different kinds of factory automation.

DriveOPC is based on OPC foundation data access standard 1.0A and Microsoft COM/DCOM technology. DriveOPC has full access to all drives, even when remote connection via LAN is used.

High speed communication

DriveOPC uses a high-speed fiber optic cable network with DDCS communication protocol. This makes communication between PC and drives very fast. The fiber optic network is safe and immune to external disturbance. A fiber optic communication card is needed inside the computer.

DriveOPC features

DriveOPC supports OPC’s data access 1.0A.
Read access to:

- Drive status: local, running, direction, fault, warning, reference
- Signals and parameters
- Fault logger contents
- Event logger contents
- General drive information
- Data logger settings, status and contents

Write access to:

- Drive control: local, start, stop, forward, reverse, coast stop, reset fault, home, teach-in, contactor on/off, reference
- Parameters
- Fault logger clear
- Data logger init, start, trig, clear

Remote monitoring tool

Ethernet module

Browser-based, user-friendly

The intelligent Ethernet NETA-01 module gives simple access to the drive by means of the Internet communicating via a standard web browser. The user can set up a virtual monitoring room wherever there is a PC with an Internet connection or via a simple dial-up modem connection. This enables remote monitoring, configuration, diagnostics and, when needed, control. The drive can also provide process related information, such as load level, run time, energy consumption and I/O data, the bearing temperature of the driven machine, for instance.

This opens new possibilities for the monitoring and maintenance of unmanned applications across a range of industries, for instance water, wind power, building services and oil & gas, as well as any application where the user needs access to the drives from more than one location. It also provides an opportunity for OEMs and system integrators to support their installed base globally.

No PC needed at local end

The intelligent Ethernet module has an embedded server with the necessary software for the user interface, communication and data storage. This gives ease of access, realtime information and the possibility for two-way communication with the drive, enabling immediate response and actions, saving time and money. This is possible without using a PC at the local end, as required by other remote solutions.

Powerful and versatile

Up to nine drives can be connected to the intelligent Ethernet module via fiber optic links. It is available as an option for new drives, as well as an upgrade for existing systems. Access to the module is secured by user ID and passwords.

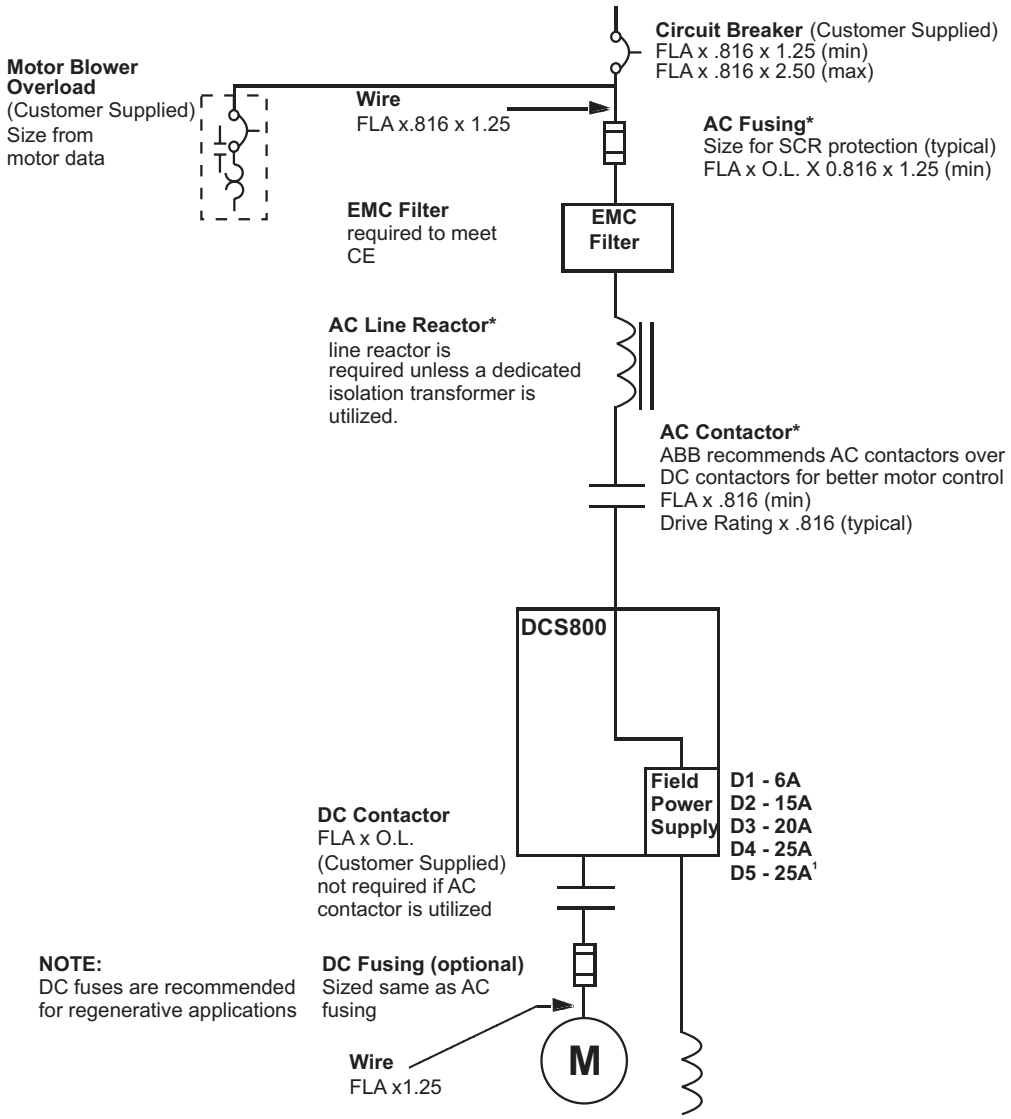
The web page of the module is opened like any other web address. The home page shows a general overview of the system with traffic lights and action buttons to guide the user through the different sections.

Features

- Virtual monitoring room for
  - Monitoring
  - Configuration of parameters
  - Diagnostics
  - Control, if needed
- Browser based access via
  - Intra-/extra-/Internet or
  - Simple dial-up modem connection
- No PC needed at the local end
- Can be used as a Modbus/TCP bridge for control purpose

Drawings

DCS800 D1-D5 Frames (500 Vdc)



Notes:

[1] Can be connected to an independent AC supply

* Product recommendations are included in this catalog. See section 3 for details.

Sizing information given on this page are general guidelines. Sizing of system components must comply with local and national electrical codes.

FLA = Nominal DC Motor Current

Motor Data:

HP_____ Model_____ Frame_____

RPM Base/Max _____/_____

Armature Voltage_____ Amps_____

Field Voltage _____/ Amps_____/_____ Ohms_____

Overload requirements / Duty cycle_____

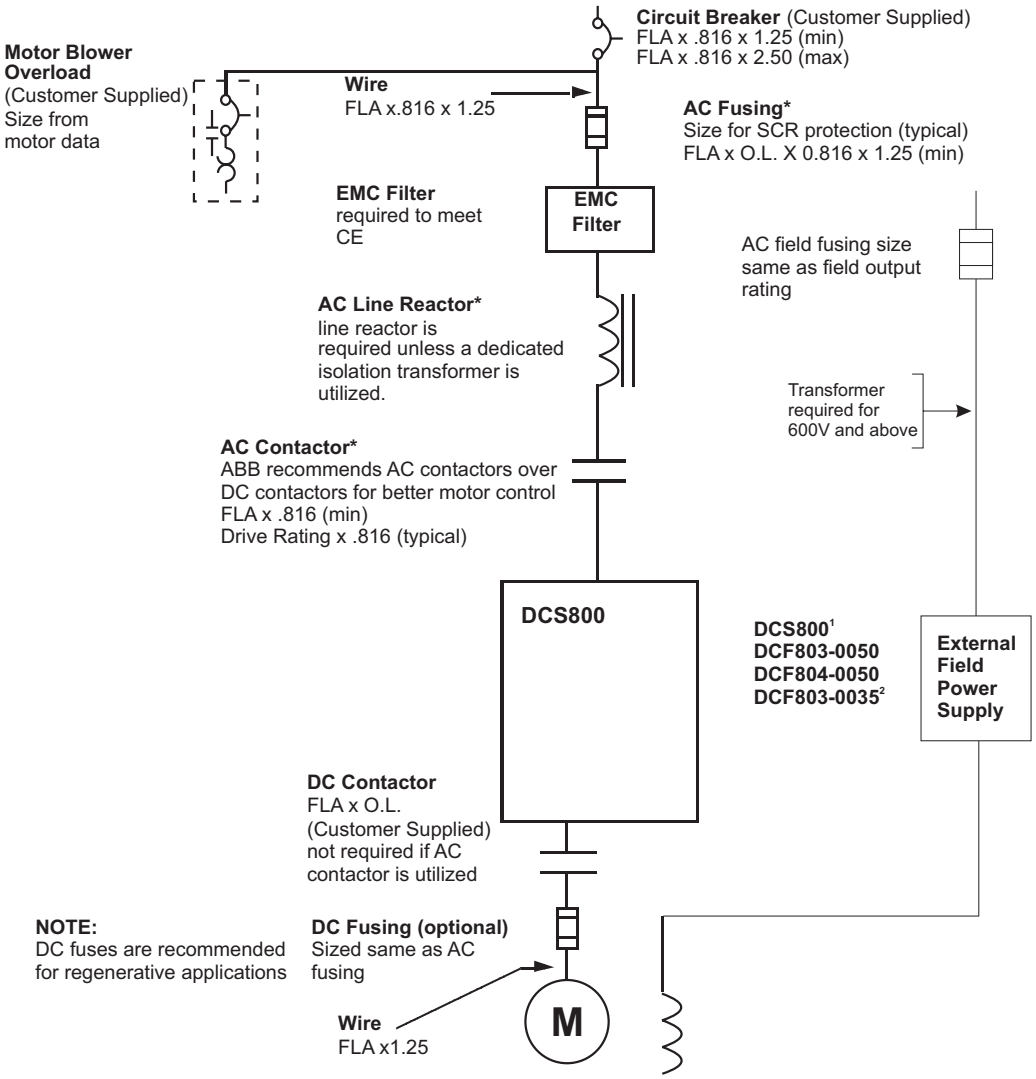
Tach:
Volts/1000RPM_____

Encoder:
PPR _____

Blower:
Voltage_____ Amps _____ Phase_____

Drawings

DCS800 D1-D5 Frames (600 Vdc and above) and DCS800 D6-D7 Frames (all voltages)



Notes:

[1] Overvoltage protection unit and input reactor required

[2] Requires AC line reactor. For single phase supply, autotransformer is recommended

* Product recommendations are included in this catalog. See section 3 for details.

Sizing information given on this page are general guidelines. Sizing of system components must comply with local and national electrical codes.

FLA = Nominal DC Motor Current

Motor Data:

HP_____ Model_____ Frame_____

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Armature Voltage_____ Amps_____

Field Voltage _____/ Amps_____/_____ Ohms_____

Overload requirements / Duty cycle_____

Tach:
Volts/1000RPM_____

Encoder:
PPR _____

Blower:
Voltage_____ Amps _____ Phase_____

Service products

To reduce the total cost of owning ABB drives and to maximize their availability ABB offers the following services:

Training services

ABB offers dedicated training on ABB drives for your service and operating personnel. Upon successful completion of the training course your personnel will have acquired the skills to use ABB drives correctly and safely, and also to get the best results from their application.

Service product code	Service type	Description
US190	DCS800 - 3 days	Maintenance & Commissioning
US191	DCS800 - 1 day	Serial Communications

ABB has a service organization that spans the globe. Contact your local ABB sales office for more information about our services.

http://www.abb.us/drives

Spare part services

ABB offers a fast and effortless information and ordering system to facilitate spare part management.
Parts OnLine is at your service 24 hours.

http://www.abb.com/partsonline

Start-up services

Using ABB's start-up services you can trust that your drives are correctly commissioned and well-tuned to their application. ABB employs authorized professionals who have been thoroughly trained for their job.

ABB maintenance services

ABB maintenance services ensure optimal operation of your drives and extend their useful life.

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http://www.abb-drives.com