

# ABB DC drives DCS800 modules, 10 to 4000 Hp

The practical requirements of a modern DC drive are extremely diverse. A drive should be full of features and easy to use – not a simple task. The challenge is to find an innovative solution which excels in both - the solution is the DCS800.

The DCS800's simple interface and rich feature set allow you to commission your drive quickly and adapt it easily to your specific application. The DCS800 has the widest power range in the industry, all the way up to 2500 hp in a single module package and solutions up to 1200 Volts and 20,000 Amps.



## The latest technology on a proven power platform

The DCS800 has the most advanced digital controller of any DC drive on our proven power platform. What does that mean for you? It means 16-bit analog I/O; 5 msec response time to a step input; 2 msec response time for overriding control; and integrated speed, torque, PID, and voltage controls as standard. It also means automatic tuning to simplify commissioning, macros to simplify setup, and Adaptive Programming feature that allows you to easily customize to your needs. The latest digital technology on a proven power platform – that is the DCS800.

## Commissioning made easy

Starting up the DCS800 is made easy with these important features:

- Startup Assistant gives step-by-step guidance
- Optimized automatic tuning
- Automatic phase sequence detection
- Automatic encoder adjustment
- Pre-defined macros for common applications
- Plain language user guide and help functions
- Simplified fault diagnostics
- High resolution control panel

## AP Programming adds Flexibility

Adaptive Programming (AP) gives you the ability to customize the drive to your needs without adding more hardware. Change how a digital output works, add a PI controller, or filter an analog input – all these things are possible. You program the drive with the control panel or your PC using DriveWindow Light (included with every drive). Adaptive Programming gives you the flexibility you need to make the drive work to your specifications.

## Adaptability second to none

The DCS800 functionality increases according to the requirements of the user. You have the ability to include plug-in options like field bus modules, I/O extension modules, and fiber-optic communication modules. ABB's field bus alternatives give you full access to drive control and status words and to system diagnostics. This makes your choice of automation system completely independent from your decision to use first-class ABB drives.

The DCS800 also offers the adaptability of Control Builder, the tool that puts a fully programmable PLC inside your drive. Control Builder can modify the drive operation, interface, or create whole new functions for your machine. Based on IEC61131, it is easy to program in any one of six programming languages.

## Accessibility through your PC

ABB offers a wide range of software for your PC to make accessing, programming, and diagnostics easier than ever before. DriveWindow Light, included with every drive, gives you a powerful tool to start up and interface with your ABB drive. More complex systems use the original high-speed DriveWindow tool. Its host of features, high speed data, and clear graphical presentation of the operation make it a valuable addition to your system. For Control Builder users, our IEC-61131 programming software gives you all the tools you need to create and modify your applications. If that's not enough, we can even give your drive its own Web page with full internet access.

## Product Highlights

### Communication options

- Profibus-DP
- CANopen
- Modbus RTU
- DeviceNet
- ControlNet
- Ethernet/IP, Modbus TCP
- ProfiNET
- EtherCAT

### Protections

- Temperature
- Motor stalled
- Motor over voltage
- Armature current ripple
- Mains over- and under-voltage
- Over speed
- Motor over current
- Field over voltage
- Zero speed
- Overload
- Field over current
- Minimum field current
- Speed feedback monitoring

### Adaptive Programming

- Up to 16 function blocks from a library of 30 types
- Pre-defined drive-specific function blocks examples include:
  - Free process controller (PI-Controller)
  - I/O and digital operations
- With control panel or PC-Tool there is no need for additional hardware

System connection	
Voltage, 3-phase	240 to 990 V acc. to IEC 60038
Voltage deviation	±10% continuous
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.	
Short Circuit Current Rating (SCCR)	D1-D4+ = 65 kA D5-D7 = 100 kA
Protection Class	
Converter module and options (line chokes, fuse holder, field supply unit, etc.)	UL Type Open
Speed Feedback / Accuracy	
Speed resolution	with encoder 0.005% of nominal speed, with analog tach, 0.1% (16 bits)
Cycle time, speed and current controller	2.77 ms at 60 Hz, 3.33 ms at 50 Hz
Step response, current controller	5 ms
Speed feedback	EMF (transducerless), analog tach, encoder, 2nd encoder with RTAC
Analog tach voltage	±8-30 Vdc, ±30-90 Vdc, ±90-270 Vdc
Pulse encoder voltage	5, 12, 15, 24 Vdc
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 M.S.L.:	with derating (1%/100m)
4000 to 5000 m M.S.L.:	with derating and factory approval
Product Compliance	
UL, cUL, CE, C-TICK	

For more information please contact:

[www.abb.us/drives](http://www.abb.us/drives)

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