

**Mentor MP brings DC drive technology up to date**, enabling existing and new DC motors to provide economic and productive service. DC drive technology remains cost effective, efficient and is relatively simple to implement. For new applications DC drive provides many advantages, especially for regenerative and high power applications.

Features:

### **Greater motor field control**

- Built in field controller as standard
- Gives excellent field control for the majority of DC motors
- Reduces the need for external components

### **Enhanced field control with FXMP25**

The FXMP25 may be controlled digitally by using a standard RJ45 connection, allowing set-up by standard drive parameters

The FXMP25 can also function in standalone mode using its integrated keypad and display

### **Enhanced system design**

The heatsink cooling fans are intelligently controlled and only run when required, thus increasing reliability and reducing maintenance

- Eighteen different option modules allow customisation of the drive, including fieldbus, Ethernet, I/O, extra feedback devices and motion controllers
- The drive system designer is able to embed automation and motion control within the drive, eliminating communications delays that reduce performance

### **Fast set-up, configuration and monitoring**

Quick and easy to set-up

- Can be configured using optional removable keypads
- Advanced autotune features help you get the best performance from your machine
- PC software and Smartcard tools for rapid commissioning
- Intelligent networked system with CTNet
- Program inbuilt controller with SyPTLite

- Develop tailored solutions for applications modules with SyPTPro
- Option modules for all common Industrial Ethernet, fieldbus networks

### **Retro-fit projects**

Easy integration with your existing motor, power supply, application equipment and communication networks has been ensured from the design stage

- Mentor MP brings performance and possibilities to your application with minimum migration costs

### **Ease of migration**

Mentor MP has been designed so existing Mentor II customers can easily migrate to the new platform

- All power terminal locations and mounting points have been retained
- Mentor MP has a much smaller frame size than the 900 A Mentor II with paralleling options to offer high power density
- CT Soft has a built in migration wizard to assist with the transfer of drive parameters and programs
- Smaller cable requirements make connections within the cubical easier. Construction of a custom-made bus-bar is not required

### **Motor Field Control**

Built in field controller as standard in every Mentor MP

- Gives excellent field control for the majority of DC motors
- Reduces the need for external components

An external motor field controller is recommended when:

The required field current is greater than that offered by the standard drive, up to 25 A. For example, older motors with low field voltages

- The field is required to be forced down more quickly than is possible with a standard half controlled field bridge

•Applications can be implemented with simple field current reversal, without armature reversal, if machine dynamics can still be met

#### Specification

Models available for two or four quadrant (regenerative) operation

- 25A to 7400A, 24V - 480V / 500V - 575V / 500V - 690V
- Optional high-brightness LED or multi-language LCD keypad, simple configuration using plain text
- Modular parallel connection for higher power motor operation
- 12/24 pulse operation to minimize harmonics
- IP20 (NEMA 1) protection for size 1, IP10 (open chassis) for size 2A and 2B, and IP00 (open chassis) for size 2C and 2D for easy, low cost installation
- Integrated drive and motor protection for:
  - Over current
  - Over temperature
  - Phase loss
  - SCR/Thyristor junction temperature
  - Feedback loss
  - Field loss
  - Armature open circuit
- Internal field controller with intelligent field weakening means that for 90% of applications no additional external controller is required
- Frame size 1 to 8A
- Frame size 2 to 20A
- Flux control for enhanced open loop performance
- Optional FXMP25 external field controller for current fields up to 25A
- Digital link for field control from Mentor MP or Mentor II
- Standalone digital control mode for simple application
- Flux control for enhanced open loop performance

- Intelligent field weakening
  - Field forcing – for high dynamic machine reversal
  - Field reversal – low dynamic machine reversing using two quadrant main stack
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- Mentor MP has a field control mode for fields requiring greater than 25A
  - Serial port for Modbus RTU and PC communications
  - 3 Universal option module slots, allowing Mentor MP to benefit from the solutions developed for Control Techniques market leading AC drive technology.
- Each option slot allows:
- High performance PLC and motion control
  - Ethernet and Fieldbus communications
  - Connectivity to additional feedback devices
  - Additional I/O
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- Galvanically isolated control
  - Smartcard for drive parameter back-up and copying, allowing rapid installation and maintenance
  - Integrated PLC as standard
  - Standard software features for easy integration
  - PID controller
  - Motorized potentiometer
  - Digital lock (Slave operation from master encoder)
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- Open loop control using estimated speed advanced processing based on armature voltage and field flux feedback
  - Closed loop control using
  - Tacho-generator feedback for connection to traditional DC motor
  - Incremental encoder feedback for higher accuracy and position control
  - Optional SinCos, SSI, Hiperface and EnDAT connectivity for high performance applications

- High performance control strategy
- 32 bit microprocessor
- 35µs current sampling time
- Speed controller and ramps update 250µs
- Autotune features for armature, field current loops and speed loop

### Current ratings

The power ratings for the 480V, 575V and 690V configurations are shown below.

The continuous current ratings given are for a maximum ambient temperature of 40°C (104°F) and an altitude of 1000m (3,300ft). For operation at higher temperatures and altitudes de-rating is required.

Overload of 150% for 30s is available with ambient temperature of 40°C (104°F) up to a maximum of 10 repetitions per hour.

### 230V ratings

MODEL	AC INPUT	DC OUTPUT CURRENT		TYPICAL
	CURRENT	CONTINUOUS	CONTINUOUS OVERLO	MOTOR
			150%	POWER
			AD	240Vdc
	A	A	A	@
				hp
MP25A4(R)	22	25	37.5	5

