



# MENTOR MP/QUANTUM MP



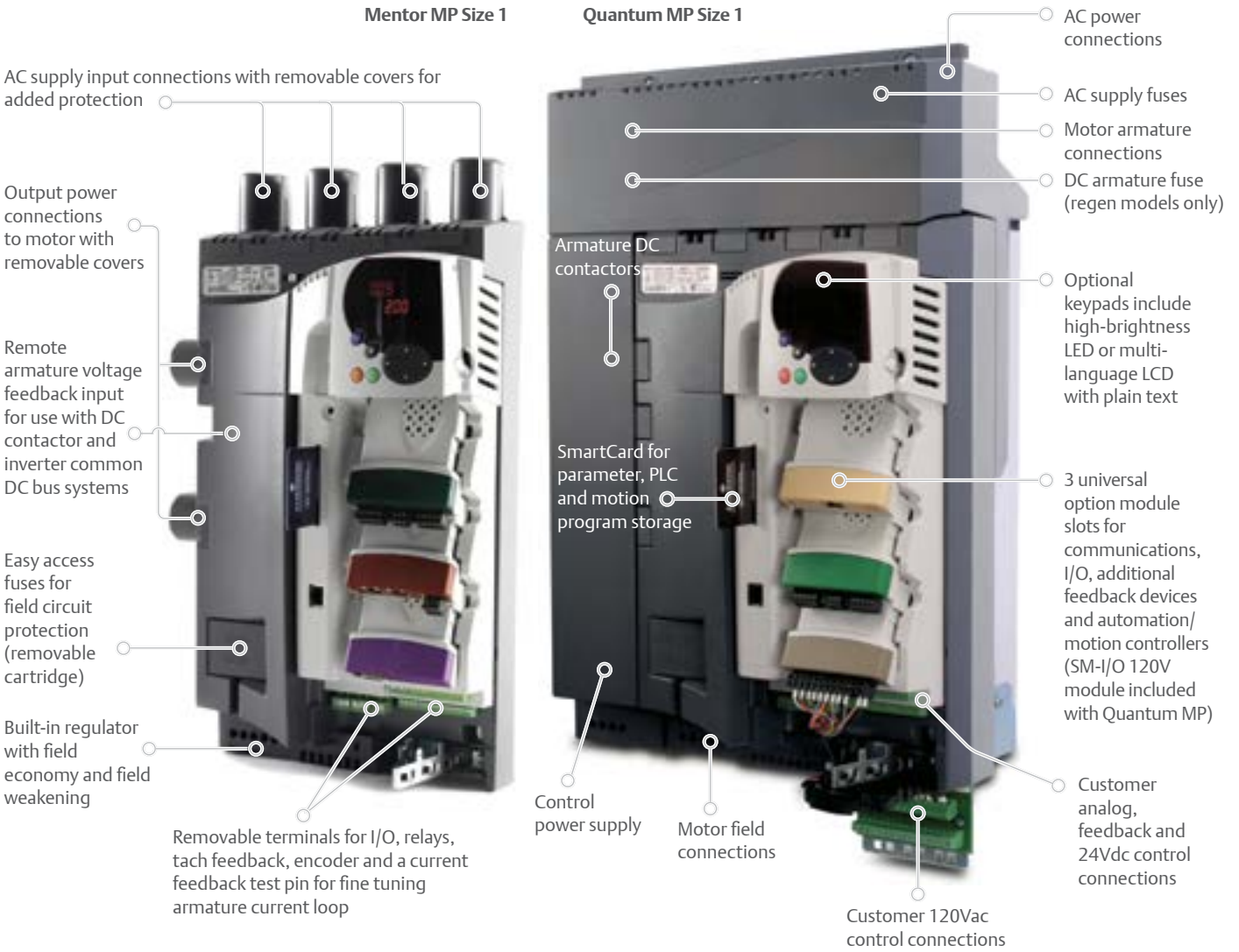
**Control Techniques™**

**DC Drive Solutions**  
25 to 7,400 A  
208-230 V | 380-480 V | 690 V

  
**EMERSON™**  
Industrial Automation

# DC Drives for the 21st Century

Developed by the pioneer in DC drive technology, Control Techniques' Mentor MP and Quantum MP DC motor drives are the most advanced available, providing optimum performance and a high degree of versatile system interfacing capability.



RoHS Compliant



# Flexible Drives

## Solutions for New and Retrofit Applications

### Mentor MP

The Mentor MP is a reliable, flexible and powerful digital DC drive designed to maximize motor performance, enhance system reliability and interface digitally with the latest control equipment using Ethernet and a wide range of industrial networks.

The Mentor MP replaces Mentor II drives. Available in both regenerative and non-regenerative configurations, these 5th-generation drives deliver the reliability, power and control to increase productivity for new machines and applications in which DC motors are already installed. In addition, Mentor MP drives integrate the control platform from the world's leading intelligent AC drive, Emerson's Unidrive SP.

### Quantum MP

The Quantum MP is a packaged Mentor MP that integrates the control functionality of the Mentor MP with a design that incorporates a DC loop contactor, high-speed input fuses, 120Vac control logic and DC output fuses (on all regenerative models). A dynamic braking contactor is also included in drives up to and including 400A models. The Quantum MP saves engineering time and panel space.

Existing Mentor II and Quantum III customers can easily migrate to the new MP platform. All Mentor MP power terminal locations and mounting points are the same as those of the Mentor II. Similarly, all Quantum MP control terminals are the same format as the Quantum III. Both drives include free software tools to assist in transferring drive parameters and programs from older products to new ones.

## Control System Upgrade for New or Retrofit Applications

DC drives provide many performance advantages, especially in regenerative and high-power applications. Most DC motors in use today are easily capable of providing continued service. An



MP Series drive is an ideal retrofit choice when upgrading other manufacturers' obsolete drives, with features to ensure they can integrate easily with existing motor, power supply, application equipment and communication networks.

## Performance Advantage

### Unparalleled Flexibility

Three expansion slots accommodate snap-in SM Option Modules for enhanced communications, I/O, additional feedback devices and automation/motion controllers (one slot on Quantum drives is dedicated to the 120Vac interface included as standard).

### Maximum Reliability

Unique, patent-pending galvanic isolation technology helps protect control circuits against poor quality industrial power supplies and lightning strikes.

### System Integration

Integrates with modern communication networks including Ethernet, EtherCAT and DeviceNet.

### Regenerative Drives

MP Series drives are available for two- or four-quadrant (regenerative) operation.

### Wide Power Range

Connect up to four MP1850 drives in parallel for high-power motor operation.

### System Protection

Integrated drive and motor protection for overcurrent, overvoltage, overtemperature, phase loss, SCR junction temperature, feedback loss, field loss and armature open circuit.

### Reduced Harmonics

12 or 24 pulse operation minimizes harmonics.

### SmartCard for Simple Setup and Cloning

Supplied free with every DC drive, this easy-to-use memory card stores drive configuration for simple startup and parameter cloning.

### Keypad Options

Choose no keypad, LED keypad or LCD keypad based on the system design and operating environment.

### Multiple Feedback

Connect AC/DC tachs and incremental encoder to the base drive plus multiple additional devices with SM Option Modules.

### Automation Solutions

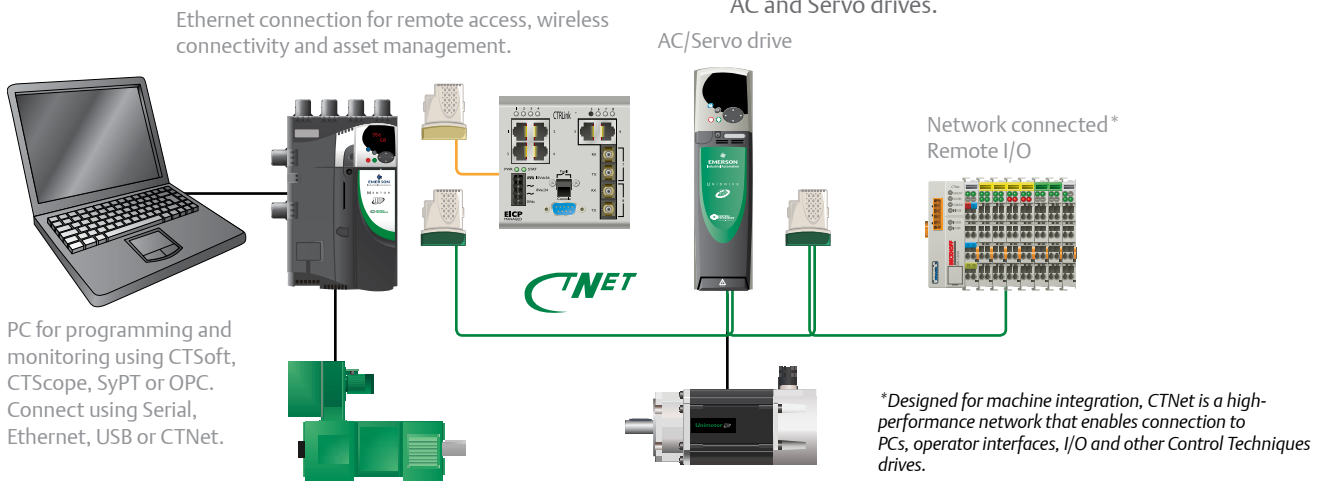
Create custom application solutions with the onboard PLC or add an SM-Applications Plus or SM-Applications Lite V2 Option Module.

# Flexible Control System Integration

## Machine Communication has Never Been More Flexible or Easy to Implement

MP Series drives can operate in virtually any machine networking environment. They can even serve as a gateway and support multiple communication protocols on a single network.

The SM-Applications Plus Option Module provides expanded onboard processing power and ultra-high-speed, peer-to-peer communication between MP Series DC drives and Emerson's AC and Servo drives.



## Application Solutions

Many application solutions can be created by configuring the drive's extensive range of standard features including:

- Speed control
- Torque control
- Digital lock
- PID
- S-ramps
- Contactor control
- PLC
- Mechanical brake control

For more demanding applications, simply insert an SM-Applications Plus Option Module and use SyPTPro software to create almost limitless drive-based solutions.

Typical DC application solutions that can be performed at high-speed using the SM-Applications Plus Option Module include:

- Winders
- Hoists
- Cut-to-length
- Load sharing
- Sectional control





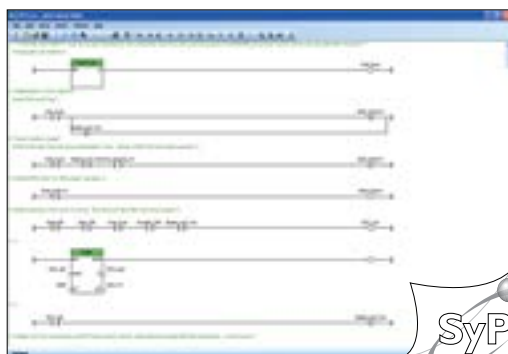
# Software to Meet Your Application Needs

## MP Series Automation Software

Emerson's FREE software suite makes it easy to access the drive's full feature set allowing the user to optimize the drive tuning, back up the configuration and set-up communications networks. The software tools can connect using Ethernet, serial ports, fieldbus, USB or CTNet, Control Techniques' drive-to-drive network.

### SyPTLite Onboard Automation Programming

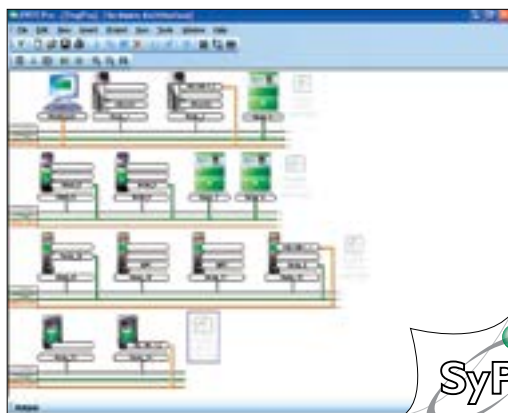
MP Series drives have a built-in programmable controller. The controller is configured using SyPTLite, an easy-to-use Ladder Logic program editor suitable for replacing relay logic or a micro PLC for simple drive control applications.



SyPTLite

### SyPTPro Automation Development Environment

SyPTPro is a full-featured automation development environment that can be used for developing tailored solutions for single or multiple drive applications. The programming environment fully supports three IEC 61131 languages: Function Block, Ladder Logic and Structured Text. *Note: SyPTPro programs require the installation of an SM-Applications Plus or SM-Applications Lite V2 Option Module.*



SyPTPro

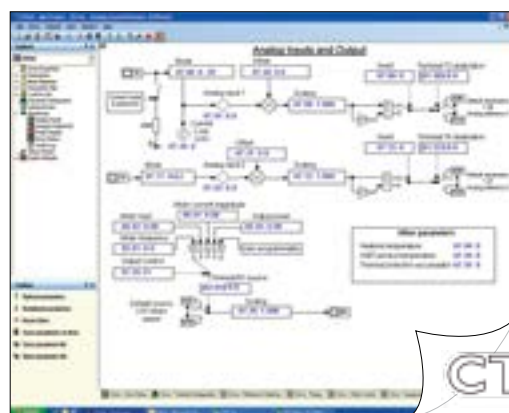
### CTNet Networking

CTNet is a high-speed, deterministic drive-to-drive network linking the drives, SCADA and I/O together to form a networked system. SyPTPro manages both application programs and network communications.

### CTSoft Drive Configuration

CTSoft is a drive configuration tool for commissioning, optimizing and monitoring Control Techniques drives. The software allows you to:

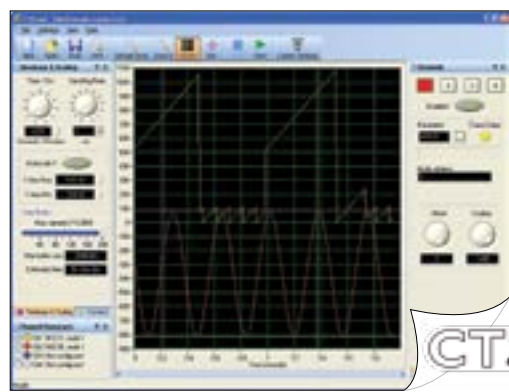
- Commission a drive using configuration or migration wizard
- Read, save and load drive configuration settings
- Manage data on the drive's SmartCard memory device
- Visualize/modify configuration with live animated diagrams



CTSoft

### CTScope Digital Oscilloscope

CTScope is a full-featured software oscilloscope for viewing and analyzing changing values within the drive. The time base can be set to give high-speed capture for tuning or for longer term trends. The user interface is based on a traditional oscilloscope making it universally familiar and user-friendly to engineers worldwide.



CTScope

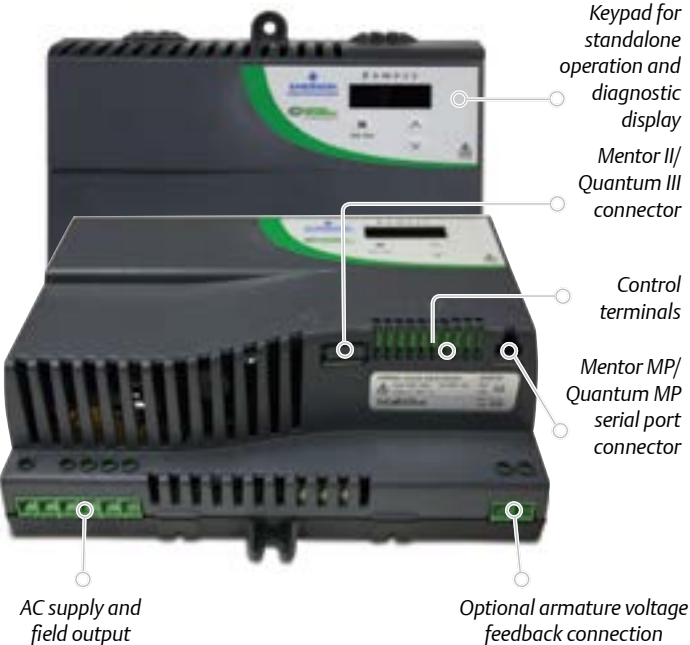
# Added Functionality

## Optional FXMP25 Field Controller

Using a standard RJ45 connection, MP Series drives digitally control the FXMP25 to allow setup using standard drive parameters. The FXMP25 now features an extended current range to 25A. Operating in standalone mode, the FXMP25 may be configured using its own keypad and display.

### FXMP25 Features

- Digital link for field control from Mentor/Quantum MP or Mentor II/Quantum III
- Standalone digital control mode for simple applications
- Flux control for enhanced open-loop performance
- Intelligent field weakening
- Field reversal – low dynamic machine reversing using two-quadrant main stack control from Mentor MP or Quantum MP
- Mentor II/Quantum III ribbon cable connector



## FREE SmartCard Memory Device



The SmartCard memory device supplied with every MP drive can be used to back up parameter sets and PLC programs and copy them from one drive to another.



### Features include:

- Parameter and onboard PLC program storage
- Easy drive maintenance and commissioning
- Quick set-up for sequential build of machines
- Machine upgrades can be stored on a SmartCard and sent to the customer for installation



# Options and Accessories

## SM Option Modules

MP Series drives provide application and system designers with an incredibly flexible drive platform which is easily expanded with an extensive range of robust SM (“Solution Module”) Option Modules for economical, space-saving solutions. SM Option Modules install easily into any of the open option slots with no tools required. The I/O, feedback, communication and programmable modules enable MP Series drives to provide an optimized solution to meet your specific requirements.



Option	Description	Order Code
<b>Base Drive Configuration And Programming</b>	Cloning & Parameter Storage Card	SMARTCARD <sup>1</sup>
	Configuration Software	CTSOF
	USB RS485 Comms Cable	CT-USB-CABLE
	Keypad-to-drive Cable, 5ft	SP-LCD-485-005
	Keypad-to-drive Cable, 10ft	SP-LCD-485-010
	Keypad-to-drive Cable, 15ft	SP-LCD-485-015
	Keypad-to-drive Cable, 25ft	SP-LCD-485-025
	Keypad-to-drive Cable, 50ft	SP-LCD-485-050
	Keypad-to-drive Cable, (xxx is cable length in 5-ft increments; max length 100ft)	SP-LCD-485-xxx
<b>Operator Interface</b>	No Keypad Option	Standard
	LED Keypad	SM-KEYPAD <sup>2</sup>
	Backlit LCD Keypad Plus	MP-KEYPAD <sup>2</sup>
	Programmable HMI Panels	See the <i>Options &amp; Accessories</i> brochure
<b>Power Accessories</b>	E-Stop Duty Braking Resistor	See the <i>Options &amp; Accessories</i> brochure
	External EMC Filters	See the <i>Options &amp; Accessories</i> brochure
<b>Applications Programming Software</b>	Ladder & Function Blocks	SYPTLITE
	IEC 61131-3 (Ladder, FB, and text-based)	SYTPRO
<b>Programmable SM Option Modules</b>	Systems Programming (Distributed Control) SM-Applications Plus	SM-APPS-PLUS
	Systems Programming (Centralized Control) SM-Applications Lite V2	SM-APPS-LITE-V2
	System Programming & Registration	SM-REGISTER

1 Can be ordered separately, but comes standard with Mentor MP and Quantum MP

2 These options must be ordered separately

3 Provides an additional Modbus RTU port (in addition to one on drive)

Option	Description	Order Code
<b>Communications SM Option Modules</b>	Modbus RTU Follower	Standard
	Modbus RTU Master	SM-APPS-PLUS <sup>3</sup>
	Modbus RTU Master	SM-REGISTER <sup>3</sup>
	DeviceNet	SM-DEVICENET
	PROFIBUS DP	SM-PROFIBUS-DP
	PROFINET	SM-PROFINET
	Ethernet (Modbus TCP/IP, Ethernet IP)	SM-ETHERNET
	INTERBUS-S	SM-INTERBUS
	CANopen	SM-CANOPEN
	Ethernet (EtherCAT)	SM-ETHERCAT
	CTNet, CTSync	SM-APPS-PLUS
	CTNet, CTSync	SM-REGISTER
<b>Feedback SM Option Modules</b>	Universal Encoder Feedback	SM-UNI-ENCODER
	Incremental Encoder Input	SM-ENCODER-PLUS
	Incremental Encoder Input & Output	SM-ENCODER-OUT
<b>I/O Option Modules</b>	Extended Analog & Digital I/O	SM-I/O-PLUS
	Extra Analog & Digital I/O	SM-I/O-LITE
	Extended Digital I/O	SM-I/O-32
	Extra I/O with Real-Time Clock/Calendar	SM-I/O-TIMER
	120/240Vac I/O	SM-I/O-120V
	Double-Insulated Extended I/O	SM-I/O-PELV
	+24Vdc Protected I/O	SM-I/O-24V
Remote Network I/O	See the <i>Options &amp; Accessories</i> brochure	

## Accessories

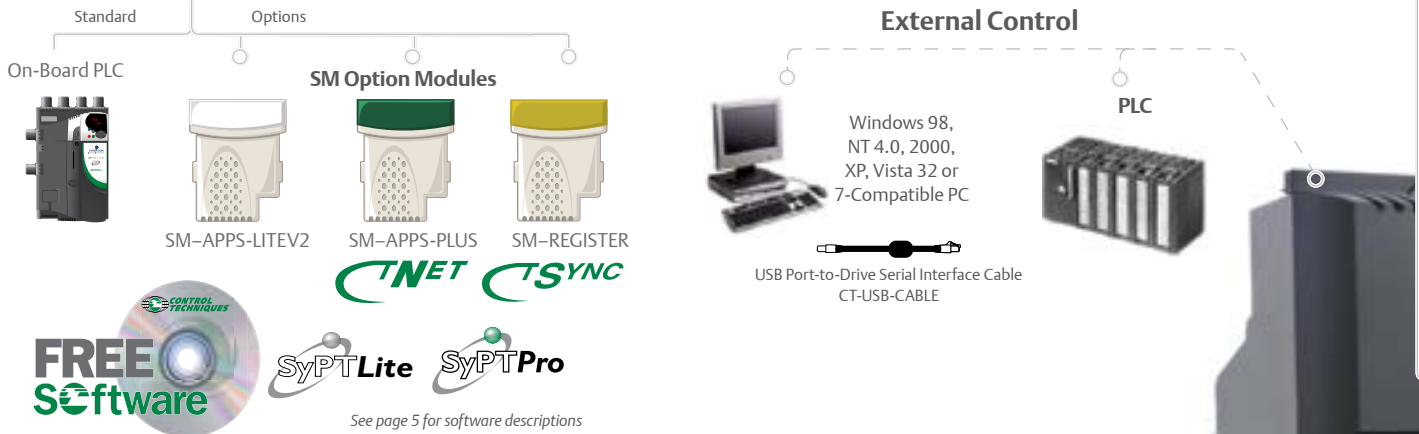
### Power

- Line reactors
- EMC filters
- DC motors
- Dynamic braking resistors
- Field supply buck / boost transformers



# Mentor MP/Quantum MP, Fast and Easy Integration Flexibility

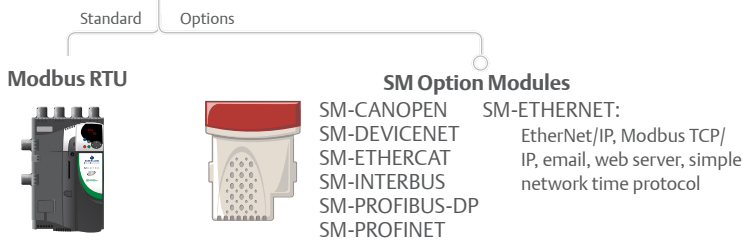
## Applications with PLC or Motion Functionality



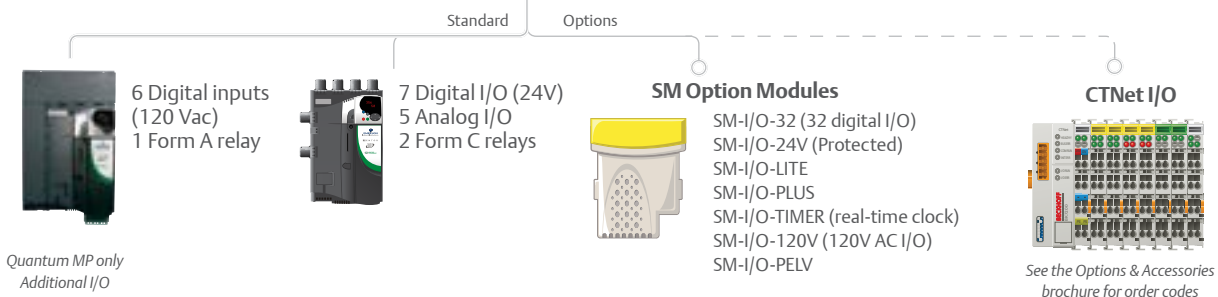
## Operator Interface Options



## Communications



## Input / Output





## Dynamic Braking Options

### Dynamic Brake Resistors E-Stop or Cyclic Duty



See the Options & Accessories  
brochure for order codes

## Field Control

Standard

Options



Integrated  
Field Control  
Size 1: 8A  
Size 2: 20A



FXMP25  
Field Control  
up to 25A



Mentor MP  
greater than  
25A

## Feedback

Standard

Options



Armature voltage  
AC or DC Tach  
Encoder

**SM Option Modules**  
SM-UNI-ENCODER  
SM-ENCODER-PLUS  
SM-ENCODER-OUT



**Quantum MP  
Size 1**

## Motor Control Mode

Armature Voltage  
Feedback

Tach  
Feedback

Encoder  
Feedback



# Mentor MP Terminal Connections

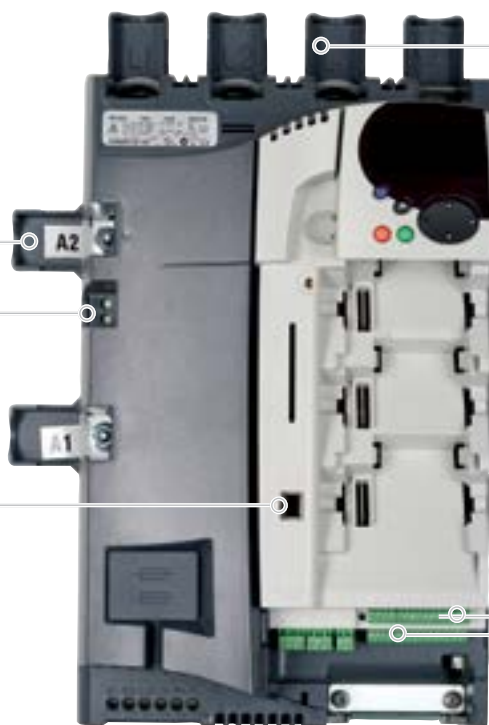
Power - Armature	
Pin #	Function
A1	Armature +
A2	Armature -

Motor Armature Voltage Feedback	
Pin #	Function
MA1	Armature +
MA2	Armature -

RS485	
Pin #	Function
1	120Ω Termination Resistor
2	RX TX
3	Isolated 0V
4	+24V (100mA)
5	Isolated 0V
6	TX Enable
7	RX\ TX\
8	RX\ TX\ (if termination resistors are required, link to pin 1)
Shell	Isolated 0V

External Field Supply RS485	
Pin #	Function
1	120Ω Termination Resistor
2	RX TX
3	Isolated 0V
4	+24V (100mA)
5	Isolated 0V
6	TX Enable
7	RX\ TX\
8	RX\ TX\ (if termination resistors are required, link to pin 1)
Shell	Isolated 0V

Power - Field	
Pin #	Function
E1	Control Electronics Supply
E3	Control Electronics Supply
L12	Field On/Off
L11	Field On/Off
F+	Field +
F-	Field -



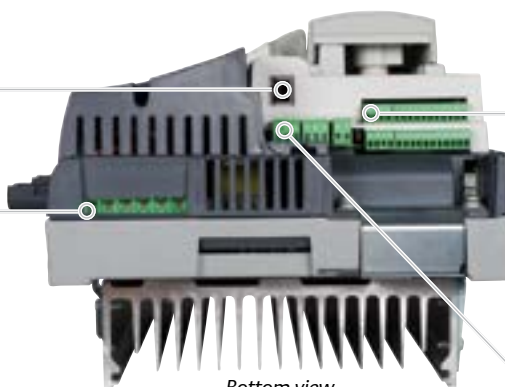
Power - Line	
Pin #	Function
L1	Line In
L2	Line In
L3	Line In
	Ground Connection

Control Terminals - Top Row	
Pin #	Function
1	0V Common
2	24 Vdc External Input
3	0V Common
4	10 Vdc Source, 10mA
5	Analog Input 1 +
6	Analog Input 1 -
7	Analog Input 2
8	Analog Input 3
9	Analog Output 1
10	Analog Output 2
11	0V Common

Control Terminals - Bottom Row	
Pin #	Function
21	0V Common
22	24 Vdc Output, 200mA
23	0V Common
24	Digital I/O 1
25	Digital I/O 2
26	Digital I/O 3
27	Digital Input 4
28	Digital Input 5
29	Digital Input 6
30	0V Common
31	Drive Enable

Control Terminals - Encoder Feedback	
Pin #	Function
A	Channel A
A\	Channel A\
B	Channel B
B\	Channel B\
Z	Marker Pulse Z
Z\	Marker Pulse Z\
+	Encoder Supply
0V	Encoder 0V

Control Terminals - Relays & Tach Feedback	
Pin #	Function
51	Relay 1 Common
52	Relay 1 N/C Contact
53	Relay 1 N/O Contact
61	Relay 2 Common
62	Relay 2 N/C Contact
63	Relay 2 N/O Contact
41	Tach +
42	Tach -



Bottom view

## Frame Size 1 layout

Refer to the product User Guide for other sizes

# Mentor MP Specifications

## Environment

Ambient Operating	32 to 131 °F (0 to 55 °C) Some models are derated above 104 °F (40 °C)
Cooling Method	MP25-MP45 natural convection; MP75 and larger forced convection
Humidity	90% relative humidity at 122 °F (50 °C)
Storage Temperature	-40 to 131 °F (-40 to 55 °C)
Altitude	0 to 9,842ft (0 to 3,000m), derate 1% per 328ft (100m) between 3,280ft (1,000m) and 9,842ft (3,000m)
Enclosure	MP25-MP210: IP20; MP350 to MP900 = IP10; MP1200 and larger = IP00

## AC Supply Requirements

SCR Supply Voltage	24 to 480Vac -20% +10%, MP500 to 575Vac, 500 to 690Vac ±10%, 3Ø
Frequency	45 to 65Hz
Supply Fault Current	100kA
Auxiliary Supply Voltage	208 to 480Vac ±10%, 1Ø
Armature Voltage (max.)	2-quadrant drives 1.35 X input Vac; 4-quadrant drives 1.15 X input Vac
Field Voltage (max.)	0.9 X input Vac with 1Ø input MP in field mode - 1.35 X input Vac with 3-phase input

## Control

Analog Inputs	Qty 1, high precision differential voltage ± 10V, 14bit + sign Qty 2, general purpose voltage or current ± 10V, 0 to 20mA, 4 to 20mA, thermistor (analog 3 only), 10bit + sign
Analog Outputs	Qty 2, ±10V, 0 to 20 mA, 4 to 20mA, 10bit + sign
Digital I/O	Qty 3, 24Vdc inputs Qty 3, 24Vdc input/outputs
Drive Enable	Digital input 24Vdc
Relays	Qty 2, 5A@240Vac, 5A@30Vdc resistive, 0.5A@30Vdc inductive (L/R = 40ms)
Speed Loop	250µs loop update
Current Loop	35µs current sampling time
Feedback Methods	Encoder (resolution 0.01%) DC tach (resolution 0.1%); AC tach (resolution 1%) (300V max.) Armature voltage (resolution 5%) Qty 3, optional additional incremental and absolute encoders
Field Control	Current regulated with flux control MP25-MP210 8A MP350-MP1850 20A MP optional FXMP25 25A
Serial Communications	2- or 4-wire RS422 or RS485, optically-isolated Protocol is ANSI x 3.28-2.54-A4 or Modbus RTU Baud rate is 300 to 115,200

## Protection and Diagnostics

Control	Patent-pending galvanic electrical isolation, 24Vdc power supply
Supply	Loss, undervoltage, overvoltage, transient suppression
Armature	Open circuit, I <sup>2</sup> t overload, instantaneous overcurrent, semiconductor fuse (regen only)
Field	Loss, overcurrent
Motor	Motor overtemperature switch or thermistor overtemperature trips
Drive Thermal	Heatsink, SCR junction, control board and option module(s)
Current Loop Loss	Loss of analog current reference

# Quantum MP Terminal Connections

RS485	
Pin #	Function
1	120Ω Termination Resistor
2	RX TX
3	Isolated 0V
4	+24V (100mA)
5	Isolated 0V
6	TX Enable
7	RX\ TX\
8	RX\ TX\ (if termination resistors are required, link to pin 1)
Shell	Isolated 0V

Power - Field	
Pin #	Function
E1	Control Electronics Supply
E3	Control Electronics Supply
L12	Field On/Off
L11	Field On/Off
F+	Field +
F-	Field -

Control Terminals - 120Vac		
Pin #	Function	
C1	120Vac Supply	User Output
C2	E-Stop	Input
C3	120Vac Supply	Feed from C2
C4	System Interlocks	Input
C5	120Vac Supply	User Output
C6	Digital Input1 (Stop)	Input
C7	120Vac Supply	Feed from C6
C8	Digital Input2 (Start)	Input
C9	120Vac Supply	Feed from C6
C10	Digital Input3 (Jog)	Input
C11	120Vac	User Output
C12	Digital Input4 (Fwd/Rev)	User Output
C13	120Vac	User Output
C14	Digital Input5 (Reset)	Input
C15	120Vac	Relay Common
C16	Relay Output (Drive On)	Relay Output

External Field Supply RS485	
Pin #	Function
1	120Ω Termination Resistor
2	RX TX
3	Isolated 0V
4	+24V (100mA)
5	Isolated 0V
6	TX Enable
7	RX\ TX\
8	RX\ TX\ (if termination resistors are required, link to pin 1)
Shell	Isolated 0V



Top view



\*See Mentor MP terminal connections on page 10 for specific terminal location.



Bottom view

Power - Line & Armature	
Pin #	Function
DB+*	Dynamic Braking Resistor +
A1	Armature +
A2	Armature -
DB-*	Dynamic Braking Resistor -
L1	AC Line
SR1	Line Suppressor Resistor
L2	AC Line
SR2	Line Suppressor Resistor
L3	AC Line
GND	Ground Connection

Control Terminals - Top Row	
Pin #	Function
1	0V Common
2	24 Vdc External Input
3	0V Common
4	10 Vdc Source
5	Analog Input 1 +
6	Analog Input 1 -
7	Analog Input 2
8	Analog Input 3
9	Analog Output 1
10	Analog Output 2
11	0V Common

Control Terminals - Bottom Row	
Pin #	Function
21	0V Common
22	24 Vdc Output, 200mA
23	0V Common
24	Digital I/O 1
25	Digital I/O 2
26	Digital I/O 3
27	Digital Input 4
28	Digital Input 5
29	Digital Input 6
30	0V Common
31	Drive Enable

Control Terminals - Encoder Feedback	
Pin #	Function
A	Channel A
A\	Channel A\
B	Channel B
B\	Channel B\
Z	Marker Pulse Z
Z\	Marker Pulse Z\
+	Encoder Supply
0V	Encoder 0V

Control Terminals - Relays & Tach Feedback	
Pin #	Function
51	Relay 1 Common
52	Relay 1 N/C Contact
53	Relay 1 N/O Contact
61	Relay 2 Common
62	Relay 2 N/C Contact
63	Relay 2 N/O Contact
41	Tach +
42	Tach -

\*NOTE: Dynamic braking terminals not included in models QMP550A4(R) and AMP700A4(R).

## Frame Size 1 layout

Refer to the product User Guide for other sizes



# Quantum MP Specifications

## Environment

Ambient Operating	32 to 131 °F (0 to 55 °C) Some models are derated above 104 °F (40 °C)
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Humidity	90% relative humidity at 122 °F (50 °C)
Storage Temperature	-40 to 131 °F (-40 to 55 °C)
Altitude	0 to 9,842ft (0 to 3,000m), derate 1% per 328ft (100m) between 3,280ft (1,000m) and 9,842ft (3,000m)
Enclosure	IP00

## AC Supply Requirements

SCR Supply Voltage	208 to 480Vac -20% +10%, 3Ø
Frequency	48 to 65Hz
Supply Fault Current	QMP45-QMP210 = 30kA; QMP350 and larger = 5kA
Auxiliary Supply Voltage	208 to 480Vac ±10%, 1Ø
Armature Voltage (max.)	2-quadrant drives 1.35 X input Vac; 4-quadrant drives 1.15 X input Vac
Field Voltage (max.)	0.9 X input Vac with 1Ø input

## Control

Analog Inputs	Qty 1, high precision differential voltage ± 10V, 14bit + sign Qty 2, general purpose voltage or current ± 10V, 0 to 20mA, 4 to 20mA, thermistor (analog 3 only), 10bit + sign
Analog Outputs	Qty 2, ±10V, 0 to 20 mA, 4 to 20mA, 10bit + sign Qty 1, instantaneous armature current feedback pin, 10V = 2x motor rated current
Digital I/O	Qty 3, 24Vdc inputs Qty 3, 24Vdc input/outputs Qty 7, 120Vac Inputs
Drive Enable	Digital input 24Vdc
Relays	Qty 2, 5A@240Vac, 5A@30Vdc resistive, 0.5A@30Vdc inductive (L/R = 40ms) Qty 1, 120Vac
Speed Loop	250µs loop update
Current Loop	35µs current sampling time
Feedback Methods	Encoder (resolution 0.01%) DC tach (resolution 0.1%); AC tach (resolution 1%) (300V max.) Armature voltage (resolution 5%) Qty 3, optional additional incremental and absolute encoders
Field Control	Current regulated with flux control QMP25-QMP210 8A QMP350-QMP700 20A QMP Optional FXMP25 25A
Serial Communications	2- or 4-wire RS422 or RS485, optically-isolated Protocol is ANSI x 3.28-2.54-A4 or Modbus RTU Baud rate is 300 to 115,200

## Protection and Diagnostics

Control	Patent-pending galvanic electrical isolation, 24Vdc power supply
Supply	Loss, undervoltage, overvoltage, transient suppression, semiconductor fuses
Armature	Open circuit, I <sup>2</sup> t overload, instantaneous overcurrent, semiconductor fuse (regen only)
Field	Loss, overcurrent
Motor	Motor overtemperature switch or thermistor overtemperature trips
Drive Thermal	Heatsink, SCR junction, control board and option module(s)
Current Loop Loss	Loss of analog current reference

# Mentor MP Ratings and Dimensions

## Ratings

Frame	Order Code	Input Voltage				Armature Current (A)*	Field Current (A)	Quadrants of Operation		
		230 V	460 V	575V					690V	
		Motor (HP)		Order Code	Motor (HP)				Order Code	Motor (HP)
		240 Vdc	500 Vdc		600 Vdc	700 Vdc				
1A	MP25A4(R)	5	10	MP25A5(R)	15	n/a	25	8	2 and 4	
	MP45A4(R)	10	25	MP45A5(R)	30		45			
	MP75A4(R)	20	40	MP75A5(R)	50		75			
1B	MP105A4(R)	30	60	MP105A5(R)	75	n/a	105	8	2 and 4	
	MP155A4(R)	40	75	MP155A5(R)	100		155			
	MP210A4(R)	60	125	MP210A5(R)	150		210			
2A	MP350A4(R)	100	200	MP350A5(R)	250	MP350A6(R)	300	20	2 and 4	
	MP420A4(R)	125	250	n/a		n/a				420
	n/a		MP470A5(R)	350	MP470A6(R)	400	470**			
	MP550A4(R)	150	300	n/a		n/a				550
2B	MP700A4(R)	200	400	MP700A5(R)	500	MP700A6(R)	600	20	2 and 4	
	MP825A4(R)	225	500	MP825A5(R)	600	MP825A6(R)	700			825**
	MP900A4(R)	250	550	n/a		n/a				900
2C	MP1200A4	350	750	MP1200A5	900	MP1200A6	1000	20	2	
	MP1850A4	550	1150	MP1850A5	1400	MP1850A6	1600			1850
2D	MP1200A4R	350	750	MP1200A5R	900	MP1200A6R	1000	20	4	
	MP1850A4R	550	1150	MP1850A5R	1400	MP1850A6R	1600			1850

\* Current ratings are at 104 °F (40 °C) with 150% overload for 30s. \*\* For these ratings at 575V and 690V, 150% overload time is 20s at 104 °F (40 °C) and 30s at 95 °F (35 °C). (R) indicates optional order code for 4-quadrant operation.

HP provided for convenience. Always size drive based on motor Amps.

## Dimensions

Frame Size	Height (H)		Width (W)		Depth (D)	
	in	mm	in	mm	in	mm
1A	17.5	444	11.5	293	8.7	222
1B	17.5	444	11.5	293	9.9	251
2A	25.2	640	19.5	495	11.9	301
2B	25.2	640	19.5	495	11.9	301
2C	41.3	1050	21.9	555	24.1	611
2D	59.4	1510	21.9	555	24.1	611



## Order String<sup>1</sup>

**Mentor MP DC drive**  
**MP1200A4R**

MP - Mentor MP

R - Regenerative  
Blank - Non-Regenerative

Maximum Armature Current

Supply Voltage Rating  
4 = 24 to 480Vac  
5 = 500 to 575V  
6 = 500 to 690V

<sup>1</sup>NOTE: Order strings do not include drive keypad. Refer to page 7 for keypad order codes.

All Mentor MP and Quantum MP DC drives up to 575V ratings are cULus certified. These drives are the most flexible DC drive available today.



# Quantum MP Ratings and Dimensions

## Ratings

Frame	Order Code	Input Voltage		Armature Current (A)*	Field Current (A)	Quadrants of Operation
		230 V	460 V			
		Motor (HP)				
		240 Vdc	500 Vdc			
1A	QMP25A4(R)	5	10	25	8	2 and 4
	QMP45A4(R)	10	25	45		
	QMP75A4(R)	20	40	75		
1B	QMP155A4(R)	40	75	155	8	2 and 4
	QMP210A4(R)	60	125	210		
2A	QMP350A4(R)	100	200	350	20	2 and 4
	QMP400A4(R)	100	225	400		
	QMP550A4(R)**	150	300	550		
2B	QMP700A4(R)**	200	400	700	20	2 and 4

\*Current ratings are at 104 °F (40 °C) with 150% overload for 30s. (R) indicates optional order code for 4-quadrant operation.

\*\*These models do not include dynamic braking contactors.

HP provided for convenience. Always size drive based on motor Amps.



Frame Size 2

The Quantum MP packages are designed for easy system integration into new or existing DC motor applications.

## Dimensions

Frame Size	Height (H)		Width (W)		Depth (D)	
	in	mm	in	mm	in	mm
1A	22.6	573	13.0	330	8.7	272
1B	22.8	578	13.0	330	9.9	251
2A	35.0	889	20.3	516	13.0	330
2B	36.0	915	20.3	516	15.0	381



Frame Size 1

## Order String<sup>1</sup>

Quantum MP DC Drive	
QMP700A4R	
QMP - Quantum Package	R - Regenerative Blank - Non-Regenerative
Maximum Armature Current	Supply Voltage Rating 4 = 208 to 480Vac

<sup>1</sup>NOTE: Order strings do not include drive keypad. Refer to page 7 for keypad order codes.



**SCIGATE AUTOMATION (S) PTE LTD**

No.1 Bukit Batok Street 22 #01-01 Singapore 659592

Tel: (65) 6561 0488

Fax: (65) 6562 0588

Email: [sales@scigate.com.sg](mailto:sales@scigate.com.sg)

Web: [www.scigate.com.sg](http://www.scigate.com.sg)

Business Hours: Monday - Friday 8.30am - 6.15pm

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Moteurs Leroy-Somer SAS. Headquarters: Bd Marcellin Leroy, CS 10015, 16915 Angoulême Cedex 9, France. Share Capital: 65 800 512 €, RCS Angoulême 338 567 258.