Mentor MP/Quantum MP

Flexible DC Drives

25 to 7,400A
208-230V / 380-480V / 575V / 690V

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.

Mentor MP Size 1

AC supply input connections with removable covers for added protection

Output power connections to motor with removable covers

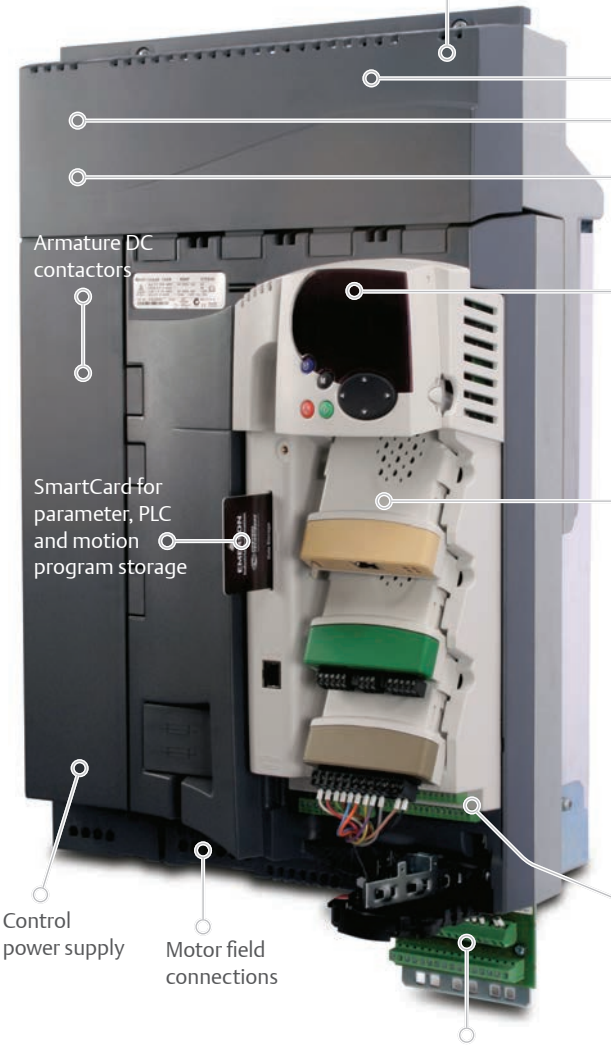
Remote armature voltage feedback input for use with DC contactor and inverter common DC bus systems

Easy access fuses for field circuit protection (removable cartridge)

Built-in regulator with field economy and field weakening

Removable terminals for I/O, relays, tach feedback, encoder and a current feedback test pin for fine tuning armature current loop

Quantum MP Size 1



AC power connections

AC supply fuses

Motor armature connections

DC armature fuse (regen models only)

Armature DC contactors

Optional keypads include high-brightness LED or multi-language LCD with plain text

SmartCard for parameter, PLC and motion program storage

3 universal option module slots for communications, I/O, additional feedback devices and automation/ motion controllers (SM-I/O 120V module included with Quantum MP)

Control power supply

Motor field connections

Customer analog, feedback and 24Vdc control connections

Customer 120Vac control connections

N1652

ISO 14001

ISO 9001

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 Control Techniques' 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, Control Techniques' 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.

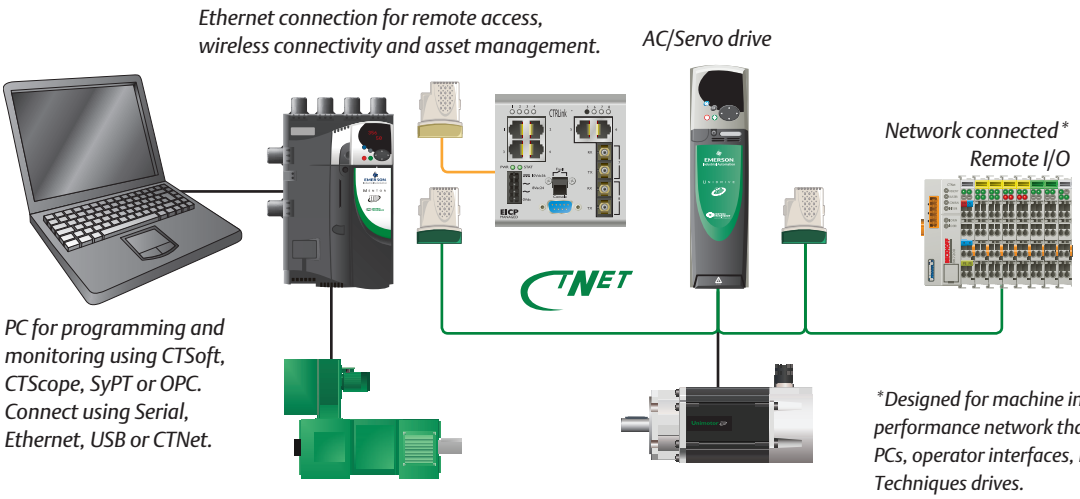
Automation Solutions
Create custom application solutions with the onboard PLC or add an SM-Applications Plus or SM-Applications Lite V2 Option Module.

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 Control Techniques' 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

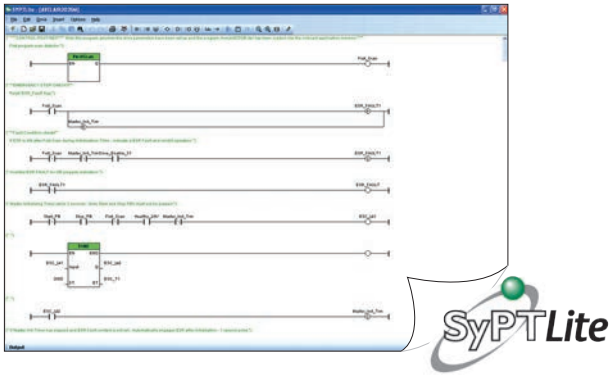
Software to Meet Your Application Needs

MP Series Automation Software

Control Techniques' 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.

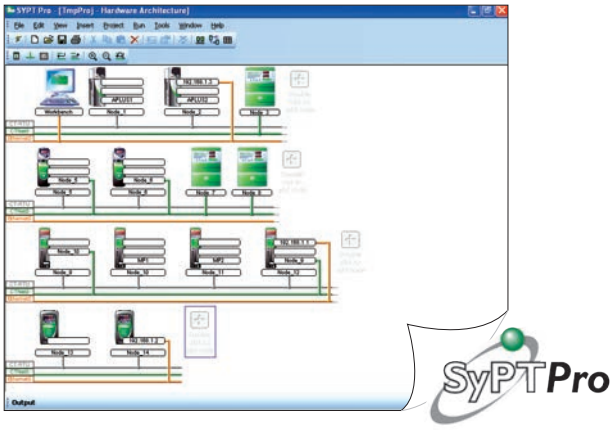
SyPTLite Onboard Automation Programming

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.



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.*



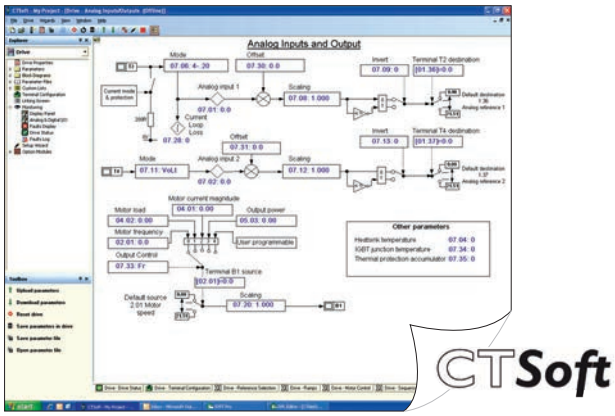
CTNet Networking

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

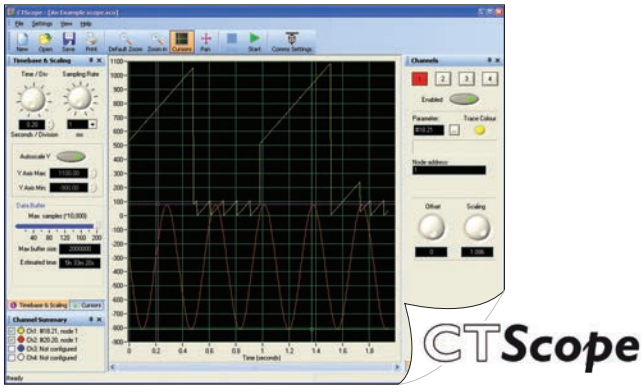
CTSoft is a drive configuration tool for commissioning, optimizing and monitoring Control Techniques drives. The software allows you to:

- 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



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.



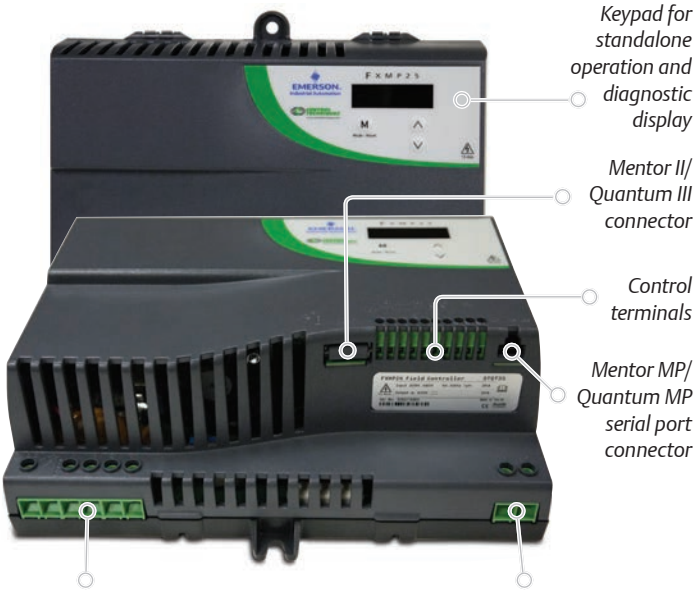
Added Functionality

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.

SMARTCARD

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
Base Drive Configuration And Programming	Cloning & Parameter Storage Card	SMARTCARD[1]
	Configuration Software	CTSOFT
	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
Operator Interface	No Keypad Option	Standard
	LED Keypad	SM-KEYPAD[2]
	Backlit LCD Keypad Plus	MP-KEYPAD[2]
	Programmable HMI Panels	*See the Options & Accessories brochure*
Power Accessories	E-Stop Duty Braking Resistor	*See the Options & Accessories brochure*
	External EMC Filters	*See the Options & Accessories brochure*
Applications Programming Software	Ladder & Function Blocks	SYPTLITE
	IEC 61131-3 (Ladder, FB, and text-based)	SYPTPRO
Programmable SM Option Modules	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

Option	Description	Order Code
Communications SM Option Modules	Modbus RTU Follower	Standard
	Modbus RTU Master	SM-APPS-PLUS[3]
	Modbus RTU Master	SM-REGISTER[3]
	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
Feedback SM Option Modules	Universal Encoder Feedback	SM-UNI-ENCODER
	Incremental Encoder Input	SM-ENCODER-PLUS
	Incremental Encoder Input & Output	SM-ENCODER-OUT
I/O Option Modules	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 Options & Accessories brochure*

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)

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

Standard

On-Board PLC

Options

SM Option Modules

SM–APPS-LITEV2

SM–APPS-PLUS

SM–REGISTER

CTNET CTSYNC

FREE Software

SyPTLite SyPTPro

See page 5 for software descriptions

External Control

Windows 98, NT 4.0, 2000, XP, Vista 32 or 7-Compatible PC

PLC

USB Port-to-Drive Serial Interface Cable
CT-USB-CABLE

Operator Interface Options

SmartCard

Memory device to store and copy drive parameters
SMARTCARD

Software

CTSoft
CTScope
CTOPCserver

HMI Operator Interface

See the Options & Accessories brochure for order codes

Interconnect Cable
(See p. 7 for Order Code)

LCD Keypad

Remote panel or drive mount LCD multilingual text keypad display
MP-KEYPAD

Interconnect Cable
(See p. 7 for Order Code)

LED Keypad

Drive mount LED display to IP54 (NEMA 12)
Size 1 and up.
SM-KEYPAD

Communications

Standard

Modbus RTU

Options

SM Option Modules

SM-CANOPEN
SM-DEVICENET
SM-ETHERCAT
SM-INTERBUS
SM-PROFIBUS-DP
SM-PROFINET

SM-ETHERNET:
EtherNet/IP, Modbus TCP/IP, email, web server, simple network time protocol

Input / Output

Standard

6 Digital inputs
(120 Vac)
1 Form A relay

Quantum MP only
Additional I/O

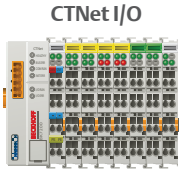
7 Digital I/O (24V)
5 Analog I/O
2 Form C relays

Options

SM Option Modules

SM-I/O-32 (32 digital I/O)
SM-I/O-24V (Protected)
SM-I/O-LITE
SM-I/O-PLUS
SM-I/O-TIMER (real-time clock)
SM-I/O-120V (120V AC I/O)
SM-I/O-PELV

CTNet I/O



See the Options & Accessories brochure for order codes

Dynamic Braking Options

Dynamic Brake Resistors
E-Stop or Cyclic Duty

See the Options & Accessories brochure for order codes

Field Control

Standard

Integrated
Field Control
Size1: 8A
Size 2: 20A

Options

FXMP25
Field Control
up to 25A

Mentor MP
greater than
25A

Feedback

Standard

Armature voltage
AC or DC Tach
Encoder

Options

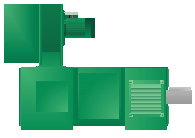
SM Option Modules

SM-UNI-ENCODER
SM-ENCODER-PLUS
SM-ENCODER-OUT

Quantum MP
Size 1

Motor Control Mode

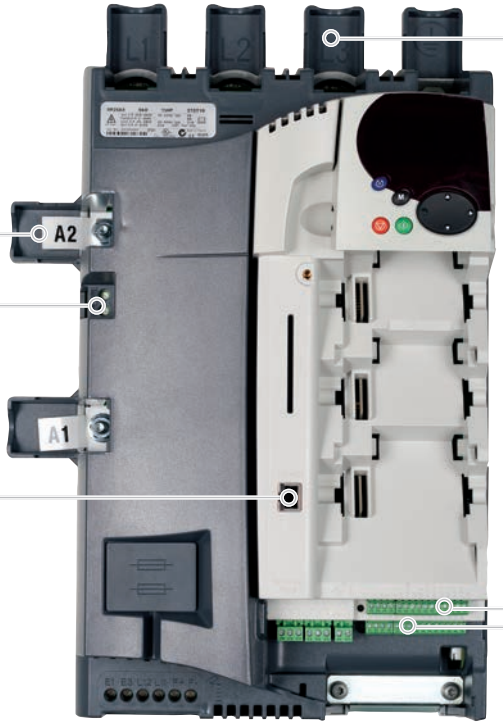
Armature Voltage
Feedback



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

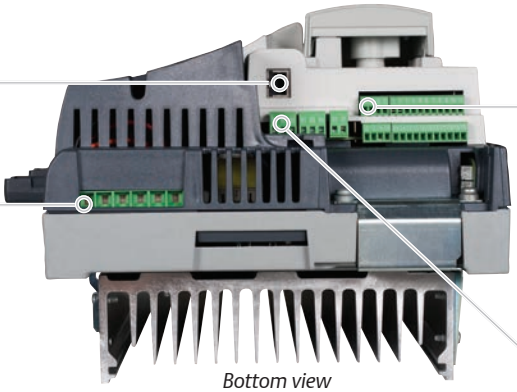
Pin #	Function
1	120Ω Termination Resistor
2	RX TX
3	Isolated 0V
4	+24V (100mA)
5	Isolated 0V
6	TX Enable
7	RX\ TX\
8	RX\ TX\ (if termination resistors are required, link to pin 1)
Shell	Isolated 0V

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 -



Bottom view

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 -

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 to115,200
Protection and Diagnostics	
Control	Patent-pending galvanic electrical isolation, 24Vdc power supply
Supply	Loss, undervoltage, overvoltage, transient suppression
Armature	Open circuit, I^2t 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

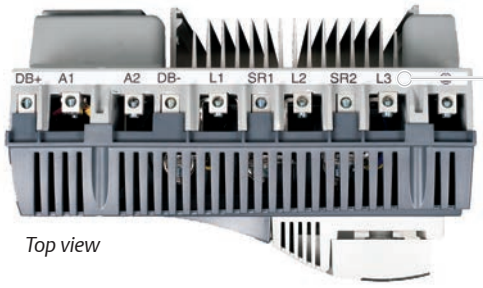
Quantum MP Terminal Connections

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

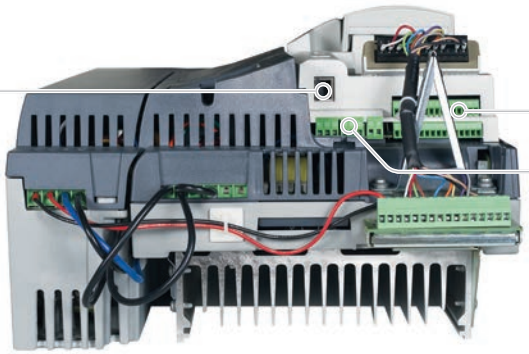
Power - Field	
Pin #	**Function**
E1	Control Electronics Supply
E3	Control Electronics Supply
L12	Field On/Off
L11	Field On/Off
F+	Field +
F-	Field -

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)	Input
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



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 -

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

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

Quantum MP Specifications

Environment	
Ambient Operating	32 to 131 °F (0 to 55 °C) Some models are derated above 104 °F (40 °C)
Cooling Method	QMP45 natural convection; QMP75 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	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^2t 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

Model			Frame	Armature Current (A)*	Field Current (A)	Quadrants of Operation
480V	575V	690V				
MP25A4(R)	MP25A5(R)	n/a	1A	25	8	2 and 4
MP45A4(R)	MP45A5(R)			45		
MP75A4(R)	MP75A5(R)			75		
MP105A4(R)	MP105A5(R)	n/a	1B	105	8	2 and 4
MP155A4(R)	MP155A5(R)			155		
MP210A4(R)	MP210A5(R)			210		
MP350A4(R)	MP350A5(R)	MP350A6(R)	2A	350	20	2 and 4
MP420A4(R)	n/a	n/a		420		
n/a	MP470A5(R)	MP470A6(R)		470**		
MP550A4(R)	n/a	n/a		550		
MP700A4(R)	MP700A5(R)	MP700A6(R)	2B	700	20	2 and 4
MP825A4(R)	MP825A5(R)	MP825A6(R)		825**		
MP900A4(R)	n/a	n/a		900		
MP1200A4	MP1200A5	MP1200A6	2C	1200	20	2
MP1850A4	MP1850A5	MP1850A6		1850		
MP1200A4R	MP1200A5R	MP1200A6R	2D	1200	20	4
MP1850A4R	MP1850A5R	MP1850A6R		1850		

*Current ratings are at 104 °F (40 °C) with 150% overload for 30s. **For this rating 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.

Order String[1]

Mentor MP DC drive

MP1200A4R

MP - Mentor MP

Maximum Armature Current

R - Regenerative
Blank - Non-Regenerative

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

[1]NOTE: Order strings do not include drive keypad. Refer to page 7 for keypad order codes.

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

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 and incorporate the same award-winning control interface as Control Techniques' Unidrive SP AC/Servo drive.

Quantum MP Ratings and Dimensions

Ratings

Model 480V	Frame	Armature Current (A)*	Field Current (A)	Quadrants of Operation
QMP25A4(R)	1A	25	8	2 and 4
QMP45A4(R)		45		
QMP75A4(R)		75		
QMP155A4(R)	1B	155	8	2 and 4
QMP210A4(R)		210		
QMP350A4(R)	2A	350	20	2 and 4
QMP400A4(R)		400		
QMP550A4(R)**		550		
QMP700A4(R)**	2B	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.

Order String[1]

Quantum MP DC Drive

QMP700A4R

QMP - Quantum Package

Maximum Armature Current

Blank - Non-Regenerative

Supply Voltage Rating
4 = 208 to 480Vac

[1]NOTE: Order strings do not include drive keypad. Refer to page 7 for keypad order codes.

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

The Quantum MP Size 2 package is designed for easy system integration into new or existing DC motor applications.

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