

Mentor MP



25 A to 7400 A

400 V | 575 V | 690 V

The Ultimate DC Drive

As a world leader in DC drive technology, our innovative products are used in the most demanding applications requiring performance, reliability & energy efficiency.

Mentor MP integrates the control platform from the world's leading intelligent AC drive technology making it the most advanced DC drive available. With optimum performance and flexible system interfacing capability, the Mentor MP drive allows you to maximize motor performance & enhance system reliability. Interface digitally with modern control equipment using Ethernet & fieldbus networks. Mentor MP power connection positions are compatible with Mentor II to simplify retrofit.

Benefits:

- Easy to set-up and commission
- Drive intelligence and system integration
- Machine communications flexibility

Key functions

Function	Function
Jog	✓ Supply loss detection
Bi-polar reference	✓ Low voltage operation
Pre-set speeds	8 Analogue input control
Preset timer	✓ Analogue output control
Skip speed	3 Temperature monitoring
Skip speed bands	✓ Digital input control
Local/Remote	✓ Digital output control
S-Ramp	✓ Relay control
Acceleration rates	8 Mechanical brake controller
Deceleration rates	8 Keypad button assignment
Pulse train frequency reference	0 - 500kHz Motorised potentiometer
Torque reference	✓ Logic function control
Control mode: speed	✓ Timer function control
Control mode: torque	✓ Limit switch control
Control mode: torque control with speed override	✓ Variable selector
Control mode: winder (torque control)	✓ PID Control
Armature voltage drop compensation	✓ Energy meter
Inertia compensation	✓ Trip time stamping
Auto-tune static	✓ Trip logging
Auto-tune rotating	✓ Run time log
Autotune continuous	✓ Parallel 6, 12 and 24 pulse operation
Catch a spinning motor	✓ Control word control
Stop mode: Ramp	✓ Auto reset
Stop mode: Coast	✓ Cloning
Stop mode: Fast ramp	On-board PLC
Regen braking (four quadrant drives)	Additional application parameters
Programmable braking	Second motor set-up
Field economy control	Speed feedback via options
Field weakening control mode	Field voltage control mode
DC contactor control	Position controller

Specification

Mentor MP

Items supplied with the drive	The drive is supplied with a Short Form Guide, a SMARTCARD, safety information, grounding bracket, power terminal shrouds (for sizes 1, 2A and 2B) and mounting feet brackets for size 1 drives.
Storage temperature	-40°C to 55°C, -40°F to 131°F
Operating temperature without de-rate	0°C to 40°C, 32°F to 104°F
Operating temperature with de-rate	0°C to 55°C, 32°F to 131°F
	480 V: 24 V to 480 V -20 % +10 %
Supply requirements	575 V: 500 V to 575 V -10 % +10 % 690 V: 500 V to 690 V -10 % +10 %
Switching frequency range	N/A
Approvals	CE (European Union), cUL Listed (USA and Canada), KC (Korea), RCM (Australia/ New Zealand), EAC (Russian Customs Union)
Product safety standard	EN61800-5-1
Functional safety (Dual STO function)	N/A
Altitude	1000m – No de-rate. 1000m to 3000m - 1% de-rate/100m
Humidity	95% Non-condensing at 40°C
Pollution	Degree 2. Dry, non-conducting pollution only
	Frame 1 - IP20
IP Rating	Frame 2A and 2B – IP10 Frame 2C and 2D – IP00
	Shock test: Referenced standard: BS EN 60068-2-27
Vibration	Bump Test: Referenced standard: IEC 60068-2-29 Random vibration test: Referenced standard: IEC 60068-2-64 Sinusoidal vibration test: Referenced standard: IEC 60068-2-6, EN 61800-5-1:2007
Mounting methods	Surface mount
Output frequency/speed range	N/A
Braking	Regen braking with four quadrant drives.
Operating modes	Estimated speed (open loop), tacho feedback (closed loop) and encoder feedback (closed loop)
Overload capability	150% for 30seconds
Overtoltage category	IEC 60664-1. Evaluated for OVC III.

Corrosive environments	Referenced standard: EN 50178:1998: Table A2 Referenced standard: IEC 60721-3-3 Class 3C2
Immunity Compliance	IEC61800-3, IEC 61000-4-2, IEC 61000-4-3, IEC61000-4-4, IEC61000-4-5, IEC61000-4-6, IEC61000-4-8, IEC61000-4-11, IEC61000-6-1, IEC 61000-6-2.
Emission compliance	Capable of meeting the requirements of Equipment Category C3 without external filters or line reactors. Capable of meeting the requirements of Equipment Category C2 when installed with the recommended filters and line reactors. IEC61800-3, IEC61800-6-3, IEC61000-6-4
Cooling	Forced cooled
Safe Torque off	N/A
Communications*	RS485, EtherCAT, PROFIBUS, Ethernet, DeviceNET, CANopen, Interbus
Control I/O	3 x Analogue input, 2 x Analog output, 3 x Digital I/O programmable, 4 x Digital input, 2 x NO relay 250Vac Max., 6 x 0V common, 1 x 24V user output, 1 x 10V user output, 1 x 24V external input. Additional I/O available with SM-I/O option modules.
Resolution/Accuracy	Analogue input 1: 14 bits plus sign, Analogue input 2 and 3: 10 bits plus sign. Analog output: 10 bits plus sign. Speed control typically 5% in estimated speed mode and dependent on the feedback device in closed loop mode. Current control typical 5%.
On-Board user program capability	6kB
Keypad (LCD)	LED keypad
PC Tools	'CTSoft' commissioning and cloning tool
Warranty	5 Years (warranty terms and conditions apply)
Supported options	RS485-Communications lead, SM-EtherCAT, SM-PROFIBUS, SM-Ethernet, SM-DeviceNET, SM-CANopen, SM-I/O Plus, SM-I/O 32, SM-I/O Lite, SM-I/O PELV, SM-I/O 120V, SM-Universal Encoder Plus, SM-Encoder Plus, SM-Interbus, SM-Profinet, SM-Applications Plus, Remote I/O, FXMP25 (25A field controller).
Accessories	External EMC filters, Grounding bracket (supplied with the drive)

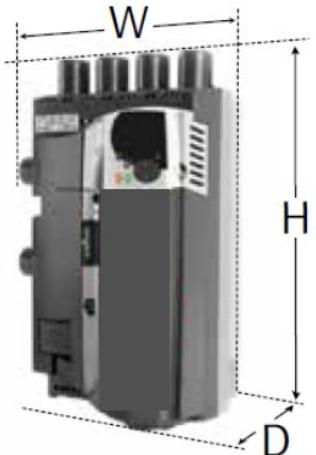
Documentation & Downloads

Product documentation and PC tools available for download from:
www.controltechniques.com/support



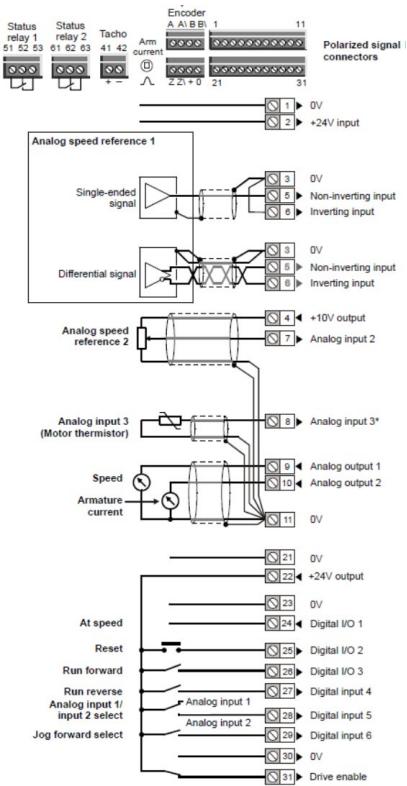
Dimensions

Frame Size	Overall Dimensions						Mounting Dimensions				Mounting Hole Diameter		Weight	
	mm			in			mm		in		mm	in	kg	lb
	H	W	D	H	W	D	H	W	H	W				
1A	444	293	222	17.48	11.54	8.74	380	170	14.96	6.69	6.6	0.26	10.5	23.1
1B	444	293	251	17.48	11.54	9.88	380	170	14.96	6.69	6.6	0.26	13	28.7
2A	640	495	301	25.20	19.49	11.85	225	472	8.86	18.58	9	0.35	38	83.8
2B	640	495	301	25.20	19.49	11.85	225	472	8.86	18.58	9	0.35	46	101.4
2C	1050	555	611	41.43	21.85	24.06	605	394	23.82	15.51	11	0.43	100	220.5
2D	1510	555	611	59.45	21.85	24.06	1065	394	41.93	15.51	11	0.43	138	304.2

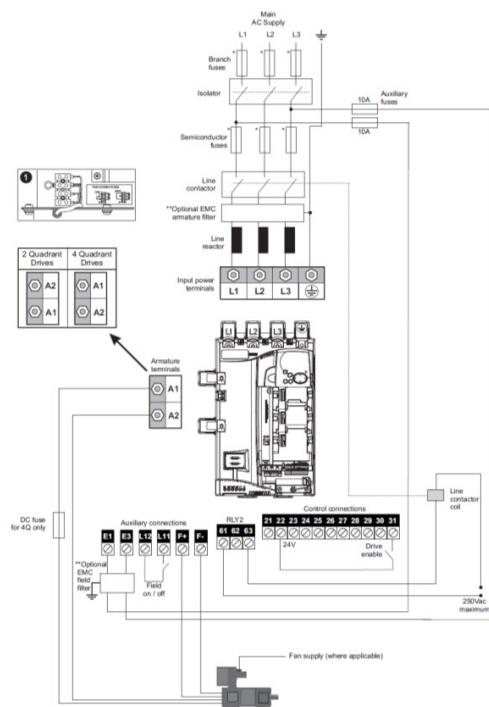


Connections

Default Control Connections



Recommended Power Connections



Part numbers

DC Drive				External Field		
MP	1200A	4	R	FX	MP	25
Mentor Platform	Maximum continuous armature current		R - 4 quadrant operation Blank - 2 quadrant operation		Mentor Platform	
	Supply Voltage:			External Field		Maximum Field Current (A)
	4 = 480 V 24 V to 480 V -20 % +10 %					
	5 = 575 V 500 V to 575 V -10 % +10 %					
	6 = 690 V 500 V to 690 V -10 % +10 %					

Note: At the time of ordering, please select the required interface option.

Dimensions

Model Number	Frame Size	Max. armature current		Motor power		Max. field current	
		A	kW	HP	A		
MP25A4(R)	1A	25	9	15	8		
MP45A4(R)	1A	45	15	27	8		
MP75A4(R)	1A	75	27	45	8		
MP105A4(R)	1B	105	37.5	60	8		
MP155A4(R)	1B	155	56	90	8		
MP210A4(R)	1B	210	75	125	8		
MP350A4(R)	2A	350	125	200	20		
MP420A4(R)	2A	420	150	250	20		
MP550A4(R)	2A	550	200	300	20		
MP700A4(R)	2B	700	250	400	20		
MP825A4(R)	2B	825	300	500	20		
MP900A4(R)	2B	900	340	550	20		
MP1200A4(R)	2C/D	1200	450	750	20		
MP1850A4(R)	2C/D	1850	700	1150	20		
MP25A5(R)	1A	25	14	18	8		
MP45A5(R)	1A	45	25	33	8		
MP75A5(R)	1A	75	42	56	8		
MP105A5(R)	1B	105	58	78	8		
MP155A5(R)	1B	155	88	115	8		
MP210A5(R)	1B	210	120	160	8		
MP350A5(R)	2A	350	195	260	20		
MP470A5(R)	2A	470	265	355	20		
MP700A5(R)	2B	700	395	530	20		
MP825A5(R)	2B	825	465	620	20		
MP1200A5(R)	2C/D	1200	680	910	20		
MP1850A5(R)	2C/D	1850	1045	1400	20		
MP350A6(R)	2A	350	240	320	20		
MP470A6(R)	2A	470	320	425	20		
MP700A6(R)	2B	700	480	640	20		
MP825A6(R)	2B	825	650	850	20		
MP1200A6(R)	2C/D	1200	850	1150	20		
MP1850A6(R)	2C/D	1850	1300	1750	20		

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