CONTROL TECHNIQUES

MENTOR MP



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	8
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	6kB
Regen braking (four quadrant drives)	✓	Additional application parameters	64
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

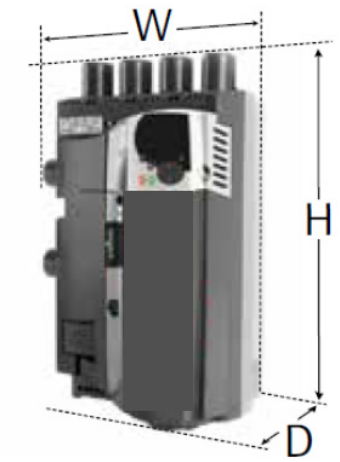
Mentor MP	
Items supplied with the drive	The drive is supplied with a Short Form Guide, a SMARTCARD, safety information, grounding bracket, power terminal shrouds (for sizes 1, 2A and 2B) and mounting feet brackets for size 1 drives.
Storage temperature	-40°C to 55°C, -40°F to 131°F
Operating temperature 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
Supply requirements	480 V: 24 V to 480 V -20 % +10 % 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
IP Rating	Frame 1 - IP20 Frame 2A and 2B – IP10 Frame 2C and 2D – IP00
Vibration	Shock test: Referenced standard: BS EN 60068-2-27 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

Overvoltage 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, LCD keypad
PC Tools	'CTSoft' commissioning and cloning tool
Warranty	2 years
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 Timer, SM-I/O PELV, SM-I/O 120V, SM-I/O 24V Protected, SM-Universal Encoder Plus, SM-Encoder Plus, SM-Encoder Output Plus, Single ended encoder interface, SM-Applications Plus, SM-Applications Lite V2 SM-Register, 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

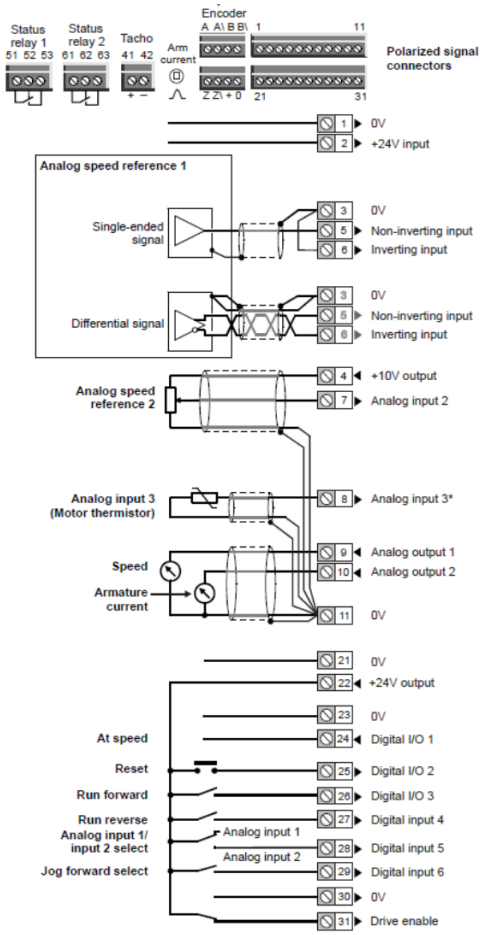
DIMENSIONS



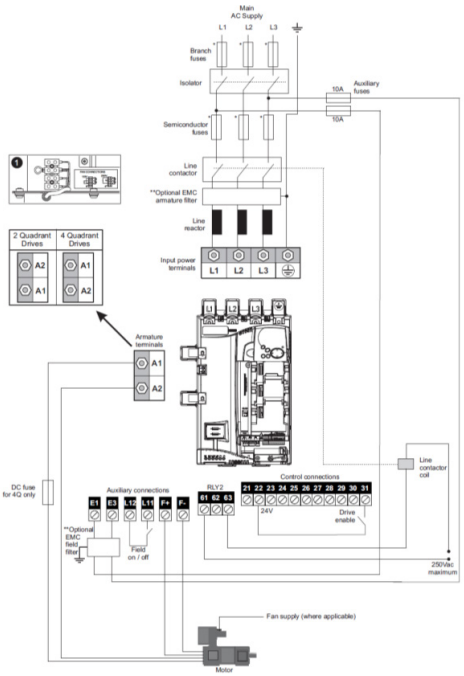
Frame Size	Overall Dimensions						Mounting Dimensions				Mounting Hole Diameter		Weight	
	mm			in			mm		in		mm	in	kg	lb
	H	W	D	H	W	D	H	W	H	W				
1A	444	293	222	17.48	11.54	8.74	380	170	14.96	6.69	6.6	0.26	10.5	23.1
1B	444	293	251	17.48	11.54	9.88	380	170	14.96	6.69	6.6	0.26	13	28.7
2A	640	495	301	25.20	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

MP	-	4	1200A	R
Model: MP	**Frame Size:** N/A	**Voltage Rating:** 4=480V (24 V to 480 V -20 % +10 %) 5=575V (500 V to 575 V -10 % +10 %) 6=690 V (500 V to 690 V -10 % +10 %)	**Current Rating** Continuous armature current rating (A)	**Drive Format** Blank = two quadrant R = four quadrant

MODEL NUMBER AND RATINGS

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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Part No. 0781-0761-0110/21