

Table 4-7 Field controller current ratings

Model			Maximum auxiliary supply input current A	Maximum continuous field current rating A
MP25A4(R)	MP25A5(R)		13	8
MP45A4(R)	MP45A5(R)			
MP75A4(R)	MP75A5(R)			
MP105A4(R)	MP105A5(R)			
MP155A4(R)	MP155A5(R)			
MP210A4(R)	MP210A5(R)			
MP350A4(R)	MP350A5(R)	MP350A6(R)	23	20
MP420A4(R)				
	MP470A5(R)	MP470A6(R)		
MP550A4(R)				
MP700A4(R)	MP700A5(R)	MP700A6(R)		
MP825A4(R)	MP825A5(R)	MP825A6(R)		
MP900A4(R)				
MP1200A4	MP1200A5	MP1200A6		
MP1850A4	MP1850A5	MP1850A6		
MP1200A4R	MP1200A5R	MP1200A6R		
MP1850A4R	MP1850A5R	MP1850A6R		

4.4.2 Supply requirements

Maximum supply in-balance: 2 % negative phase sequence (equivalent to 3 % voltage in-balance between phases)

Frequency range: 45 to 65 Hz (maximum rate of frequency change is 7 Hz/s).

4.5 Control 24 Vdc supply

The 24 Vdc input has three main functions.

- It can be used to supplement the drive's own internal 24 V when multiple SM-Universal Encoder Plus, SM-Encoder Output Plus, SM-I/O Plus, or SM-I/O 32 modules are being used and the current drawn by these modules is greater than the drive can supply. (If too much current is drawn from the drive, the drive will initiate a 'PS.24 V' trip).
- It can be used as a back-up power supply to keep the control circuits of the drive powered up when the line power supply is removed. This allows any fieldbus modules, application modules, encoders or serial communications to continue to operate.
- It can be used to commission the drive when the line power supply is not available, as the display operates correctly. However, the drive will be in the UV trip state unless the line power supply is enabled, therefore diagnostics may not be possible. (Power down save parameters are not saved when using the 24 V back-up power supply input).

The working voltage range of the 24 V power supply is as follows:

Maximum continuous operating voltage:	30.0 V
Minimum continuous operating voltage:	19.2 V
Nominal operating voltage:	24.0 V
Minimum start up voltage:	21.6 V
Maximum power supply requirement at 24 V:	60 W
Recommended fuse:	3 A, 50 Vdc

Minimum and maximum voltage values include ripple and noise. Ripple and noise values must not exceed 5 %.

4.6 Cable and fuse size ratings



The selection of the correct fuse is essential to ensure the safety of the installation

WARNING

Maximum continuous input currents are given in section 2.2 *Current ratings* on page 8 to aid the selection of fuses and cabling. The maximum input current is dependent on the ripple content of the output current. A value of 100 % ripple has been assumed for the given ratings.

The cable sizing selected when installing a Mentor MP must comply with the local wiring regulations. The information provided in this section is provided for guidance purposes only.

The power terminals on Mentor MP frame size 1 drives have been designed to accommodate a maximum cable size of 150 mm² (350 kcmil) with a temperature of 90 °C (194 °F).

The power terminals on Mentor MP frame size 2A drives have been designed to accommodate a maximum cable size of 2 x 150 mm² (2 x 350 kcmil) with a temperature of 75 °C (167 °F).

The power terminals on Mentor MP frame size 2B drives have been designed to accommodate 2 x 240 mm² with a temperature of 90 °C (194 °F). The use of cables sized using the US national electrical code as shown in Table 4-10 requires the use of a terminal adaptor.

The power terminals on Mentor MP frame size 2C and 2D drives have been designed for use with busbars. The drive can be used with cables as shown in Table 4-10 with the use of a terminal adaptor.

The actual cable size depends on a number of factors including:

- Actual maximum continuous current
- Ambient temperature
- Cable support, method and grouping
- Cable voltage drop

In applications where the motor used is of a reduced rating, the cable sizing selected can be appropriate for that motor. To protect the motor and the output cabling the drive must be programmed with the correct motor rated current.

NOTE

When using reduced cable sizes, the branch circuit protection fuse rating needs to be reduced in line with the cable size selected.

The following table shows typical cable sizes based on USA and International standards, assuming 3 conductors per raceway/conduit, an ambient temperature of 40 °C (104 °F) and applications with high output current ripple content.

Table 4-8 Typical cable sizes for size 1 drives

Model		IEC 60364-5-52 ^[1]		UL508C/NEC ^[2]	
		Input	Output	Input	Output
MP25A4(R)	MP25A5(R)	2.5 mm ²	4 mm ²	8 AWG	8 AWG
MP45A4(R)	MP45A5(R)	10 mm ²	10 mm ²	4 AWG	4 AWG
MP75A4(R)	MP75A5(R)	16 mm ²	25 mm ²	1 AWG	1/0 AWG
MP105A4(R)	MP105A5(R)	25 mm ²	35 mm ²	1/0 AWG	1/0 AWG
MP155A4(R)	MP155A5(R)	50 mm ²	70 mm ²	3/0 AWG	4/0 AWG
MP210A4(R)	MP210A5(R)	95 mm ²	95 mm ²	300 kcmil	350 kcmil

NOTE

- The maximum cable size is defined by the power terminal housing using 90 °C (194 °F) rated cables as per Table A.52-5 of the standard.
- Assumes the use of 75 °C rated cables, as per Table 310.16 of the National Electrical Code.

The use of higher temperature rated cable would allow a reduction on the minimum recommended cable size for Mentor MP shown above.

For high temperature cable sizing, please refer to the data supplied by the manufacturer of the high temperature cable.

Table 4-9 Auxiliary wiring for size 1 drives

Frame size	Maximum input current	Continuous output current	IEC 60364-5-52 Table A52-4 Column B2		UL 508C	
			Column B2 derated by 0,87 of PVC at 40			
			E1, E3 size	F+, F-, L11 & L12 size	E1, E3 size	F+, F-, L11 & L12 size
	A	A	mm ²	mm ²	mm ²	mm ²
1	13	8	2.5	1.5	14 AWG	14 AWG

Notes for IEC 60364:

IEC 60364-5-52 use installation method B2, table A.52-4 for three loaded conductors, PVC insulation 30 °C and apply derating factor for 40 °C from table A.52-14 (0.87 for PVC).

Notes for UL508C:

Either 60 °C or 75 °C cable can be used. Ampacities as per table 40.3 as described in the UL508C standard.

Table 4-10 Typical cable sizes for size 2 drives

Model			Maximum input current	Continuous output current	IEC 60364-5-52 Table A52-12 Column 5 derated by 0.91 for 40 °C XLPE cables (IEC 60364-5-52 table A52-14) and 0.77 for cables bunching (IEC 60364-5-52 table A52-17 item 4)		US National Electrical Code	
					90 °C cables at 40 °C ambient		75 °C cable at 40 °C ambient	
			A	A	Input size mm ²	Output size mm ²	Input cables Kcmil	Output cables Kcmil
MP350A4(R)	MP350A5(R)	MP350A6(R)	295	350	120	150	350	400
MP420A4(R)			350	420	150	185	400	500
	MP470A5(R)	MP470A6(R)	395	470	185	240	500	600
MP550A4(R)			450	550	300	2 x 150	2 x 300	2 x 350
MP700A4(R)	MP700A5(R)	MP700A6(R)	585	700	2 x 150	2 x 185	2 x 500	2 x 600
MP825A4(R)	MP825A5(R)	MP825A6(R)	665	825	2 x 185	2 x 240	2 x 600	3 x 350
MP900A4(R)			725	900	2 x 185	2 x 240	3 x 350	3 x 400
MP1200A4(R)	MP1200A5(R)	MP1200A6(R)	1050	1200	2 x 300	3 x 240	3 x 600	4 x 400
MP1850A4(R)	MP1850A5(R)	MP1850A6(R)	1655	1850	4 x 240	4 x 300	*	*

* Values are beyond the mechanical design of the drive. At this power level it may be prudent to consider bus-bars.

Notes for IEC 60364:

NOTE

- IEC 60364-5-52 table A 52-12 F method column 5 = Single core cable in free air.
- IEC 60364-5-52 table A52-14 correction factor for ambient air temperature others than 30 °C.
- IEC 60364-5-52 table A52-17 item 4 correction factor for groups of more than one circuit or more than one multi-core cable placed on a single layer on a perforated tray.

NOTE

Notes for US National Electrical Code:

- Table 310.17 allowable ampacities of single-insulated conducted rated 0 through 2000 V in free air, based on ambient air temperature of 30 °C (87 °F).
- Derating factor of 0.88 is applied for 40 °C to the 75 °C cable column. Table 310.17 is based on 30 °C (86 °F) ambient air temperature.
- NEC 2005 edition table 310.15(B)(2)(a) shows the adjustment factors for more than three current-carrying conductors in a race way or cable, for 4-6 current-carrying conductors 0.80 derating factor is applied.

Table 4-11 Auxiliary wiring for size 2 drives

Frame size	Maximum input current	Continuous output current	IEC 60364-5-52 Table A52-4 Column B2		UL 508C	
			Column B2 derated by 0,87 of PVC at 40			
			E1, E3 size	F+, F-, L11 & L12 size	E1, E3 size	F+, F-, L11 & L12 size
	A	A	mm ²	mm ²	mm ²	mm ²
2	23	20	6	4	10 AWG	10 AWG

Notes for IEC 60364:

IEC 60364-5-52 use installation method B2, table A.52-4 for three loaded conductors, PVC insulation 30 °C and apply derating factor for 40 °C from table A.52-14 (0.87 for PVC).

Notes for UL508C: Either 60 °C or 75 °C cable can be used. Ampacities as per table 40.3 as described in the UL508C standard.

4.6.1 Ferraz Shawmut fuses



Fuses

The AC supply to the drive must be installed with suitable protection against overload and short-circuits. The following tables show the recommended fuses. Failure to observe this requirement will cause risk of fire.

WARNING

Ferraz Shawmut fuses are recommended for the Mentor MP.

Table 4-12 Ferraz Shawmut semiconductor fusing for size 1 drives

Model	International				USA			
	Description	Catalog No.	Ref No.	UL app	Description	Catalog No.	Ref No.	UL app
Field fuses	10 x 38 mm Ferrule	FR10GB69V12.5	H330011	✓	10 x 38 mm Ferrule	FR10GB69V12.5	H330011	✓
MP25A4	22 x 58 mm Ferrule	FR22GC69V32	A220915	✓	A50QS Series round fuse	A50QS40-4	Y215583	✓
MP25A5								
MP45A4		FR22GC69V63	X220912	✓	A50QS Series round fuse	A50QS70-4	B222664	✓
MP45A5								
MP75A4		FR22GC69V100	W220911	✓	A50QS Series round fuse	A50QS125-4	K218417	✓
MP75A5								
MP25A4R		FR22GC69V32	A220915	✓	A70QS Series round fuse	A70QS60-4	H219473	
MP25A5R								
MP45A4R		FR22GC69V63	X220912	✓	A70QS Series round fuse	A70QS80-4	X212816	
MP45A5R								
MP75A4R		FR22GC69V100	W220911	✓	A70QS Series round fuse	A70QS125-4	Q216375	
MP75A5R								
MP105A4	Size 30 Square body fuse	PC30UD69V160EF	M300092	✓	A50QS Series round fuse	A50QS175-4	A222663	✓
MP105A5								
MP155A4		PC30UD69V200EF	N300093	✓	A50QS Series round fuse	A50QS250-4	W211251	✓
MP155A5								
MP210A4		PC30UD69V315EF	Q300095	✓	A50QS Series round fuse	A50QS350-4	T215343	✓
MP210A5								
MP105A4R	Size 70 Square body fuse	PC70UD13C160EF	T300604	✓	A70QS Series round fuse	A70QS175-4	A223192	
MP105A5R								
MP155A4R		PC70UD13C200EF	V300605	✓	A70QS Series round fuse	A70QS250-4	L217406	
MP155A5R								
MP210A4R		PC70UD12C280EF	L300712	✓	A70QS Series round fuse	A70QS350-4	M211266	
MP210A5R								

NOTE

A50QS series are only rated up to 500 Vac.

Table 4-13 Ferraz Shawmut branch circuit protection fusing for size 1 drives

Model		International				USA	
		Description	Catalog No.	Ref No.	UL app	Catalog No.	UL app
Auxiliary		21 x 57 mm Cylindrical	HSJ15	D235868		AJT10	√
MP25A4	MP25A5	22 x 58 mm Ferrule	FR22GG69V25	N212072		AJT30	√
MP45A4	MP45A5		FR22GG69V50	P214626		AJT45	√
MP75A4	MP75A5		FR22GG69V80	Q217180		AJT70	√
MP25A4R	MP25A5R		FR22GG69V25	N212072		AJT30	√
MP45A4R	MP45A5R		FR22GG69V50	P214626		AJT45	√
MP75A4R	MP75A5R		FR22GG69V80	Q217180		AJT70	√
MP105A4	MP105A5	NH 00 Knife Blade	NH00GG69V100	B228460		AJT125	√
MP155A4	MP155A5	NH 1 Knife Blade	NH1GG69V160	F228487		AJT175	√
MP210A4	MP210A5		NH1GG69V200	G228488		AJT225	√
MP105A4R	MP105A5R	NH 00 Knife Blade	NH00GG69V100	B228460		AJT125	√
MP155A4R	MP155A5R	NH 1 Knife Blade	NH1GG69V160	F228487		AJT175	√
MP210A4R	MP210A5R		NH1GG69V200	G228488		AJT225	√

Table 4-14 Ferraz Shawmut DC Semiconductor protection fusing for size 1 drives

Model	International				USA			
	Description	Catalog No.	Ref No.	UL app	Description	Catalog No.	Ref No.	UL app
MP25A4R	20 x 127 mm Cylindrical	FD20GB100V32T	F089498		A70QS Series round fuse	A70QS60-4	H219473	√
MP25A5R								
MP45A4R	36 x 127 mm Cylindrical	FD36GC100V80T	A083651		A70QS Series round fuse	A70QS80-4	X212816	√
MP45A5R								
MP75A4R	20 x 127 mm Cylindrical	FD20GC100V63T x 2 connected in parallel	F083656		A70QS Series round fuse	A70QS125-4	Q216375	√
MP75A5R								
MP105A4R	Size 120 Square body	D120GC75V160TF	R085253		A70QS Series round fuse	A70QS175-4	A223192	√
MP105A5R								
MP155A4R	Size 121 Square body	D121GC75V250TF	Q085252		A70QS Series round fuse	A70QS250-4	L217406	√
MP155A5R								
MP210A4R	Size 122 Square body	D122GC75V315TF	M085249		A70QS Series round fuse	A70QS350-4	M211266	√
MP210A5R								

NOTE

The above DC fuse recommendations are not required for UL conformity of the Mentor MP drive. Any installations required to meet NEC and/or UL508a panel requirements, must use recognized fuses that meet the requirements of the standard being applied. The UL columns above indicate whether the recommended fuse is a UL recognized component and not its conformance to either NEC or UL508a.

DC fusing is required on four quadrant (R) drives only.

Safety Information	Product information	Mechanical Installation	Electrical installation	Getting started	Basic parameters	Running the motor	Optimization	SMARTCARD operation	Onboard PLC	Advanced parameters	Technical data	Diagnostics	UL information
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Table 4-15 Ferraz Shawmut semiconductor fusing for size 2 drives

Model	International				USA			
	Description	Catalog No.	Ref No.	UL app	Description	Catalog No.	Ref No.	UL app
Field fuses (all size 2)	10 x 38 mm Ferrule	FR10GR69V25	F1014581	✓	10 x 38 mm Ferrule	FR10GR69V25	F1014581	✓
		FR10GB69V25	L330014				FR10GB69V25	
MP350A4	Square body fuses	PC30UD69V500TF	W300399	✓	American round fuses	A50QS450-4	E216871	✓
						A70QS450-4	F214848	✓
MP350A4R		PC71UD11V500TF	F300523	✓		A70QS450-4	F214848	✓
MP350A5		PC31UD69V500TF	T300006	✓		A70QS450-4	F214848	✓
MP350A6		PC31UD69V500TF	T300006			A70QS450-4	F214848	
MP350A5R		PC72UD13C500TF	D300498	✓		A70QS450-4	F214848	✓
MP350A6R		PC72UD13C500TF	D300498			A70QS450-4	F214848	
MP420A4		PC32UD69V630TF	M300069	✓		A50QS600-4	Q219457	✓
						A70QS600-4	Y219993	✓
MP420A4R		PC272UD13C630TF	W300721	✓		A70QS600-4	Y219993	✓
MP470A5		PC272UD13C700TF	X300722	✓		2 x A70QS400 in parallel	J214345 (x2)	
MP470A6		PC272UD13C700TF	X300722					
MP470A5R		PC272UD13C700TF	X300722	✓				
MP470A6R		PC272UD13C700TF	X300722					
MP550A4		PC33UD69V700TF	Y300079	✓		A50QS700-4	N223181	✓
						A70QS700-4	E202772	✓
MP550A4R		PC272UD13C700TF	X300722	✓		A70QS700-4	E202772	✓
MP700A4		PC32UD69V1000TF	S300074	✓		A50QS900-4	R212282	✓
						2 x A70QS500-4 in parallel	A218431 (x2)	
MP700A4R		PC72UD10C900TF	G300869	✓		2 x A70QS500 in parallel	A218431 (x2)	
MP700A5		PC32UD69V1000TF	S300074	✓				
MP700A6		PC32UD69V1000TF	S300074					
MP700A5R		PC73UD12C900TF	T300512	✓				
MP700A6R		PC73UD12C900TF	T300512			A50QS1200-4	C217904	✓
MP825A4		PC32UD69V1100TF	M300759	✓		2 x A70QS600-4 in parallel	Y219993 (x2)	
MP825A5		PC33UD69V1100TF	C300083	✓		2 x A70QS600-4 in parallel	Y219993 (x2)	
MP825A6		PC33UD69V1100TF	C300083					
MP825A4R		PC73UD95V800TFB	W300514	✓				
MP825A5R								
MP825A6R		PC73UD95V800TFB	W300514			A50QS1200-4	C217904	✓
MP900A4	PC33UD69V1250TF	D300084	✓	2 x A70QS600-4 in parallel	Y219993 (x2)			
MP900A4R	PC73UD95V800TFB	W300514	✓	2 x A70QS600-4 in parallel	Y219993 (x2)			
MP1200A4	PC33UD60V1600TF	Z300586		2 x A50QS800-4 in parallel	C202287 (x2)			
	A075URD44PPASF2400	K235184	✓	2 x A70QS800-4 in parallel	Z213830 (x2)			

Model	International				USA			
	Description	Catalog No.	Ref No.	UL app	Description	Catalog No.	Ref No.	UL app
MP1200A4R	Square body fuses	PC273UD11C16CTF	J302228		American round fuses	2 x A70QS800-4 in parallel	Z213830 (x2)	
		A075URD44PPASF2400	K235184	√				
MP1200A5		PC232UD69V16CTD	W300215					
		A075URD44PPASF2400	K235184	√				
MP1200A6		PC232UD69V16CTD	W300215					
		PC273UD11C16CTF	J302228					
MP1200A5R		A075URD44PPASF2400	K235184	√				
MP1200A6R		PC273UD11C16CTF	J302228					
		A075URD44PPASF2400**	K235184	√		2 x A50QS1000-4 in parallel.	B217391 (x2)	
MP1850A4						3 x A70QS700-4 in parallel.	*E202772 (x3)	
MP1850A4R						*3 x A70QS700-4 in parallel	*E202772 (x3)	
MP1850A5								
MP1850A6								
MP1850A5R								
MP1850A6R								

NOTE

A50QS series are only rated up to 500 Vac.

*Application overload limited to infrequent overloads to avoid fuse wear out

**Fuse limits applications to those operating at rated current. No cyclic overloads permitted.

Table 4-16 Ferraz Shawmut branch circuit protection fusing for size 2 drives

Model		International				USA						
		Description	Catalog No.	Ref No.	UL app	Description	Catalog No.	Ref No.	UL app			
Auxiliary		25 A 600 Vac High Speed Class J	HSJ205	G235871J	√	25 A 600 Vac High Speed Class J	AJT25R	X21160J	√			
MP350A4(R)	MP350A5(R)	General purpose IEC (square body)	NH2GG69V355	Y228503		General purpose US (round body)	A6D400R	B216776	√			
	MP350A6(R)				A6D500R		P217294	√				
MP420A4(R)			NH3GG69V400	D228508			A6D600R	T217804	√			
MP470A5(R)			NH4GG69V630-8 NH4AGG69V630-8	E215537 W222107								
MP470A6(R)			NH4GG69V630-8	E215537								
MP550A4 (R)			NH4AGG69V630-8	W222107								
MP700A4(R)	MP700A5(R)		NH4GG69V800-8	K216554			A4BQ800	Z219373	√			
	MP700A6(R)		NH4AGG69V800-8	M222858								
MP825A4(R)			NH4GG69V800-8 NH4AGG69V800-8	K216554 M222858						A4BQ1000	P216282	√
MP825A5(R)										A4BQ1200	R216790	√
MP825A6(R)							MF114GG69V2000	G302755		A4BQ2000	B223101	√
MP900A4(R)			MF76GG69V1250	E302753								
MP1200A4(R)	MP1200A5(R)											
	MP1200A6(R)											
MP1850A4(R)	MP1850A5(R)											
	MP1850A6(R)											

NOTE

USA fuses are only rated up to 600 Vac.

Table 4-17 Ferraz Shawmut DC protection fusing for size 2 drives

Model	International				USA			
	Description	Catalog No.	Ref No.	UL recog	Description	Catalog No.	Ref No.	UL recog
MP350A4R	Square Body fuse	D123GB75V630TF	C098557		American round fuse	A70QS600-4	Y219993	✓
MP350A5R						A100P600-4	A217373	✓
MP350A6R								
MP420A4R		D123GB75V800TF	J220946			A70QS800-4	Z213830	✓
MP470A5R		D2122GD75V900TF	T220955		American round fuses 2 in parallel	A100P1000-4 (x2)	Y217371 (x2)	
MP470A6R						A70QS450-4 (x2)	F214848 (x2)	✓
MP550A4R						A70QS600-4 (x2)	Y219993 (x2)	✓
MP700A4R		D2123GB75V12CTF	D098558		American round fuse	A100P1200-4	N218397	
MP700A5R					American round fuses 2 in parallel	A70QS800-4 (x2)	Z213830 (x2)	
MP700A6R						A100P1200-4	N218397	
MP825A4R					American round fuse			
MP825A5R								
MP825A6R								
MP900A4R		D2123GB75V14CTF	B090483		American round fuses 3 in parallel	A70QS600-4 (x3)	Y219993 (x3)	
MP1200A4R	Square body fuses 3 in parallel	PC73UD13C630TF (x3)	Q300509 (x3)		American round fuses 3 in parallel	A70QS700-4 (x3)	E202772 (x3)	
MP1200A5R						A100P700-4 (x3)	T223163 (x3)	
MP1200A6R								
MP1850A4R	Square body fuses 4 in parallel	PC73UD13C700TF (x4)	R300510 (x4)		American round fuses 5 in parallel	A70QS600-4 (x5)	Y219993 (x5)	
MP1850A5R						A100P600-4 (x5)	A217373 (x5)	
MP1850A6R								

NOTE

The above DC fuse recommendations are not required for UL conformity of the Mentor MP drive. Any installations required to meet NEC and/or UL508a panel requirements, must use recognized fuses that meet the requirements of the standard being applied. The UL columns above indicate whether the recommended fuse is a UL recognized component and not its conformance to either NEC or UL508a.

The use of the A100P series fuses is limited to applications with L/R time constants of 30 ms or less. DC fusing is only required on four quadrant (R) drives.

4.6.2 Alternative fusing

Please refer to section 12.2.2 *Alternative fusing* on page 164.

Table 4-18 Mentor MP size 1 drive thyristor I^2t rating for semiconductor fusing

Model		Thyristor I^2t (A ² s)	Latching current IL (mA)	Holding current IH (mA)
Field regulator		400		
MP25A4	MP25A5	1030	450	200
MP45A4	MP45A5	3600		
MP75A4	MP75A5	15000		
MP25A4(R)	MP25A5(R)	1030		
MP45A4(R)	MP45A5(R)	3600		
MP75A4(R)	MP75A5(R)	15000		
MP105A4	MP105A5	80000	300	200
MP155A4	MP155A5			
MP210A4	MP210A5			
MP105A4(R)	MP105A5(R)			
MP155A4(R)	MP155A5(R)			
MP210A4(R)	MP210A5(R)			

Table 4-19 Mentor MP size 2 drive thyristor I^2t ratings for semiconductor fusing

Model	Thyristor I^2t (A ² s)	Latching current IL (mA)	Holding current IH (mA)
Field regulator	400		
MP350A4(R) MP550A4(R) MP420A4(R)	320000	200	150
MP350A6(R) MP470A6(R) MP470A5(R)	281000	300 - 2000	150 - 500
MP700A4(R) MP900A4(R) MP825A4(R)	1050000		
MP700A6(R) MP825A6(R) MP825A5(R)	1200000		
MP1200A4(R) MP1200A6(R) MP1200A5(R)	2720000	2000	1000
MP1850A4(R) MP1850A6(R) MP1850A5(R)			

When using Mentor MP to control a high impedance load such as a high current motor field winding, it becomes necessary to connect a resistor across the A1 / A2 terminals to ensure sufficient current flows.

The required resistor value can be calculated as follows:

1. Determine the required output voltage
2. Calculate $R = V / I_L$
3. Calculate $P = I_L^2 \times R$ to find the power rating

Example:

If $V = 200$ V and the required output current is 210 A,
then $R = 200 \text{ V} / 300 \text{ mA} = 666 \text{ } \Omega$
and $P = 300 \text{ mA}^2 \times 666 = 60 \text{ W}$

4.6.3 Internal field fuses

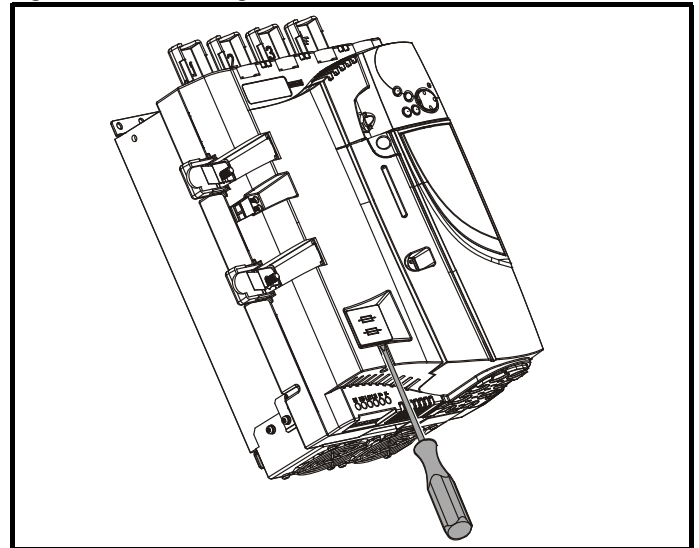
The internal field fuses provide protection to the field controller. The fuses can rupture if there is a fault in the field circuit. The user should check the internal field fuses if the drive is tripping field loss (FdL) and the field controller is enabled.



Isolate the power before removing the internal field fuses.

WARNING

Figure 4-10 Removing the internal field fuses



Insert a flat-head screwdriver into the groove as shown above and lever downwards to remove the fuse cover. Refer to section 4.6.1 *Ferraz Shawmut fuses* on page 44 for fuse types.