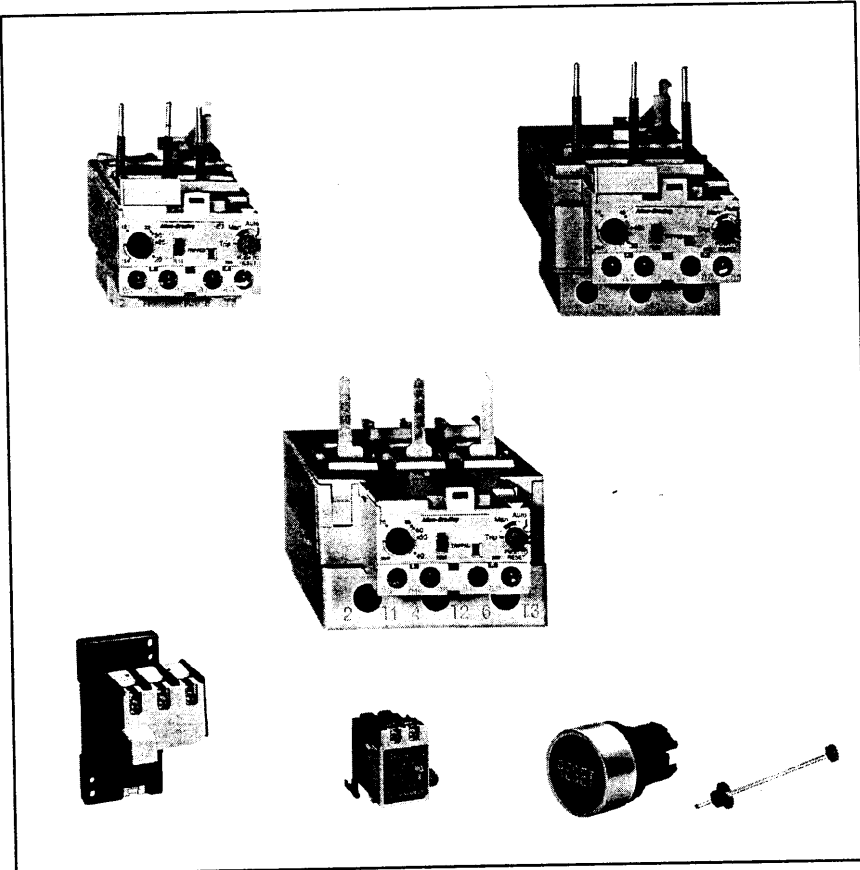


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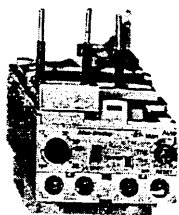
MCS-E Electronic Motor Protection Relays Bulletin 193-E

- Self powered
- Phase loss protection
- Wide adjustment range (3.2:1)
- 1 N.O. and 1 N.C. isolated auxiliary contacts
- Choice of tripping classes (class 10 or 20)
- Compact size
- Low energy consumption (150 mW)

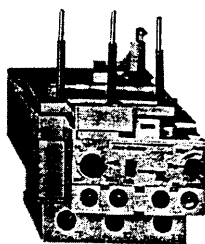
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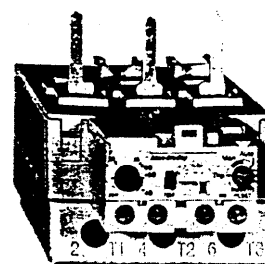
Electronic Motor Protection Relays



Cat. No. 193-EA1GB



Cat. No. 193-EA1JD



Cat. No. 193-EA1KE

Manual Reset

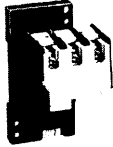
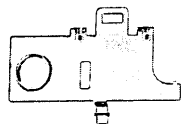
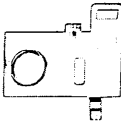


Mounts to Contactor	Reset	Adjustment Range [A]	Trip Class 10		Trip Class 20	
			Cat. No.	Index	Cat. No.	Index
100-M05-100-C23	M	0.1...0.32	193-EA1AB	001	193-EA2AB	002
100-M05-100-C23	M	0.32...1.0	193-EA1CB	003	193-EA2CB	004
100-M05-100-C23	M	1.0...2.9	193-EA1DB	005	193-EA2DB	006
100-M05-100-C23	M	1.6...5.0	193-EA1EB	007	193-EA2EB	008
100-M05-100-C23	M	3.7...12	193-EA1FB	009	193-EA2FB	010
100-M05-100-C23	M	12...32	193-EA1GB	011	193-EA2GB	012
100-C30-100-C37	M	12...37	193-EA1HC	013	193-EA2HC	014
100-C43	M	14...45	193-EA1JD	015	193-EA2JD	016
100-C60-100-C85	M	26...85	193-EA1KE	017	193-EA2KE	018

Automatic / Manual Reset

Mounts to Contactor	Reset	Adjustment Range [A]	Trip Class 10		Trip Class 20	
			Cat. No.	Index	Cat. No.	Index
100-M05-100-C23	A	0.1...0.32	193-EA4AB	019	193-EA5AB	020
100-M05-100-C23	A	0.32...1.0	193-EA4CB	021	193-EA5CB	022
100-M05-100-C23	A	1.0...2.9	193-EA4DB	023	193-EA5DB	024
100-M05-100-C23	A	1.6...5.0	193-EA4EB	025	193-EA5EB	026
100-M05-100-C23	A	3.7...12	193-EA4FB	027	193-EA5FB	028
100-M05-100-C23	A	12...32	193-EA4GB	029	193-EA5GB	030
100-C30-100-C37	A	12...37	193-EA4HC	031	193-EA5HC	032
100-C43	A	14...45	193-EA4JD	033	193-EA5JD	034
100-C60-100-C85	A	26...85	193-EA4KE	035	193-EA5KE	036

Bulletin 193-E
MCS-E Electronic Motor Protection Relays
Accessories

Add-on Accessories

	Description	For use with		Cat. No.	Index
	DIN Rail / Panel Adapter For separate mounting of the electronic motor protection relay, can be mounted to top-hat rail EN 50 022-35	193-EA__B		193-EPM1	037
		193-EA__C		193-EPM1	038
		193-EA__D		193-EPM2	039
		193-EA__E		193-EPM3	040
	Anti-Tamper Cover Provides protection against inadvertent adjustment of mode selector and full load current settings.	193-EA all		193-BC4	041
	Current Adjustment Cover Provides protection against inadvertent adjustment of the current setting.	193-EA all		193-BC5	042
	Remote Reset Solenoid For remote reset of electronic overload relays	193-EA all		193-ER1⊗	043
	External Reset Button Metal construction IP 66, non-illuminated with rod (Length: 142 mm, adjustment range 141...159 mm) Please consult push-button catalog 800E for additional types.	193-EA all		800ES-R611WTR08	044

⊗ Voltage suffix code

Available coil voltages 12... 600 V 50 Hz / 12... 600 V 60 Hz

Standard coil voltages




[V] \ [Hz]	24	48	110	115	120	220	220-230	240										
50	J	-	D	-	-	A	F	-										
60	J	-	-	-	D	-	-	A										
DC	Z24	Z48	-	Z01	-	-	-	-										

Surcharge for spec. voltage up to 20 pcs. (no surcharge for quantities greater than 20 pcs.)

Index 045

Labeling Materials

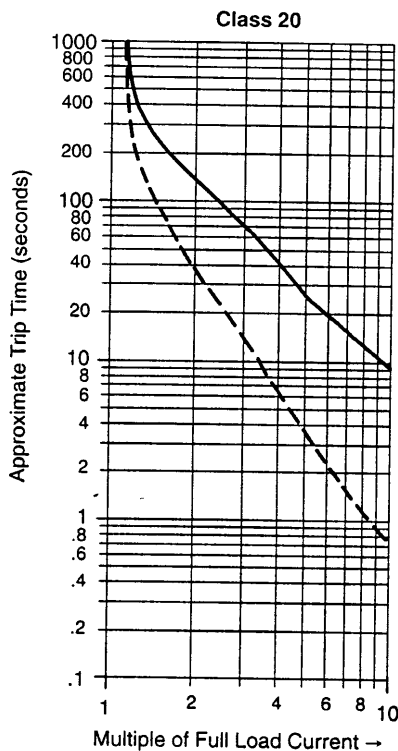
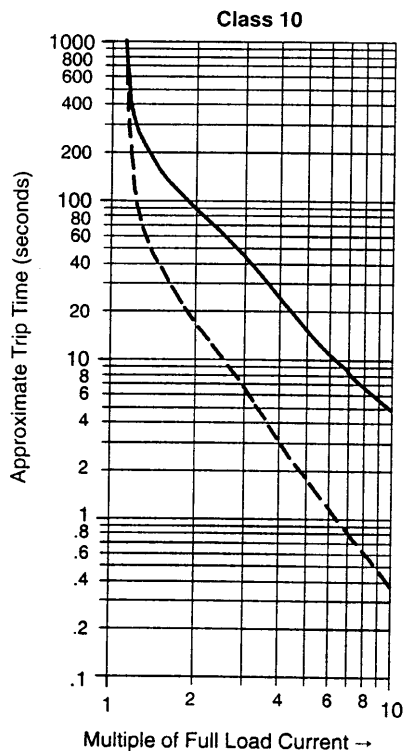
- Uniform markings and labels for contactors, motor protection devices, timers and circuit-breakers

	Variante		Cat. No.	Index
	Label sheet • 10 sheets with 105 self-adhesive paper labels 6 x 17 mm	10 each	100-FMS	046(pcs.)
	Marking tag sheet • 10 sheets with 160 perforated paper labels 6 x 17 mm • for use with transparent cover	10 each	100-FMP	047(pcs.)
	Transparent cover • 100 each • for use with perforated labels	100 each	100-FMC	048(%)
	Marking tag carrier • 100 each • to be used with label strip:	System V4 / V5 100 each System Bul. 1492W 100 each	100-FMA1 100-FMA2	049(%) 050(%)

The labeling field of the motor protection relay may also be written on directly by hand.

Bulletin 193-E
MCS-E Electronic Motor Protection Relays
 Specifications

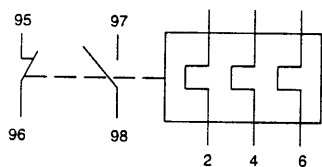
Trip Curves



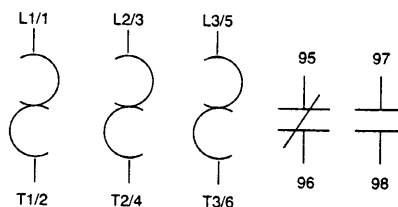
— Approximate trip time for 3-phase balanced condition from cold start

- - - Approximate trip time for 3-phase balanced condition from hot start

Wiring Schematic



Typical IEC Wiring Schematic



Typical NEMA Wiring Schematic

MCS-E Electronic Motor Protection Relays Specifications

Electronic Motor Protection Relays

Main Circuit

		193- EA__B	193- EA__C	193- EA__D	193- EA__E
Rated insulation voltage U_i	[M]	690			
Rated impulse withstand voltage U_{imp}	[M]	6000			
Rated operating voltage U_e	[M]	690			

		193- EA__B	193- EA__C	193- EA__D	193- EA__E
Terminal cross-sections					
Terminal type					
Terminal screws		M 4	M 5	M 8	
Flexible with wire end ferrule	[mm ²]	1 x (1 ... 4) 2 x (1 ... 4)	1 x (2.5 ... 16) 2 x (2.5 ... 10)	1 x (4 ... 35) 2 x (4 ... 25)	
Solid conductor	[mm ²]	1 x (1.5 ... 6) 2 x (1.5 ... 6)	1 x (2.5 ... 25) 2 x (2.5 ... 10)	1 x (4 ... 50) 2 x (4 ... 35)	
Solid / stranded conductor	[AWG]	14 ... 8	14 ... 6	2	
Recommended torque	[Nm]		1.8	4	
Pozidriv-screwdriver	Size		2	2	
Slotted screwdriver	mm		1 x 6	-	
Hexagon socket size SW	[mm]		-	4	

Control Circuit

		193- EA__B	193- EA__C	193- EA__D	193- EA__E
Rated insulation voltage U_i	[M]	600			
Rated impulse withstand voltage U_{imp}	[M]	6000			
Rated operating voltage U_e	[M]	600			
Rated operating current I_e					
AC-15	12...120 V [A]	3 / 2			
	220...240 V [A]	1.5 / 1.5			
	380...480 V [A]	0.75 / 0.75			
	500...600 V [A]	0.6 / 0.6			
DC-13, L/R ≤ 15 ms	24 V [A]	1.1 / 1.1			
	110 V [A]	0.4 / 0.4			
	220 V [A]	0.2 / 0.2			
	440 V [A]	0.08 / 0.08			

		193- EA__B	193- EA__C	193- EA__D	193- EA__E
Conventional thermal current I_{th} [A]		5			
Terminal cross-sections					
Terminal type					
Terminal screws		M 3.5			
Flexible with wire end ferrule	[mm ²]	2 x (0.75 ... 2.5)			
Solid conductor	[mm ²]	2 x (0.75 ... 4)			
Solid / stranded conductor	[AWG]	18 ... 12			
Recommended torque	[Nm]	1.4			
Pozidriv-screwdriver	Size	2			
Slotted screwdriver	mm	1 x 6			

General

		193-EA__B	193-EA__C	193-EA__D	193-EA__E
Weight	[kg]	0.14	0.17	0.21	0.36
Standards		IEC 947, EN 60 947, DIN VDE 0660, UL, CSA			
Corrosion resistance		95 % rel. humidity, non-condensing, 30...60°C			
Ambient temperature					
open		-20 ... +50 °C (-4 ... 122 °F)			
enclosed		-20 ... +40 °C (-4 ... 104 °F)			
Temperature compensation		Continuous			
Shock resistance (10 ms sinusoidal shock)	[G]	10			
Type of protection		IP 1X			