

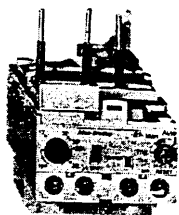
Bulletin 193-E

MCS-E Electronic Motor Protection Relays

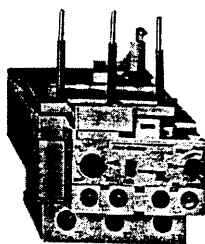
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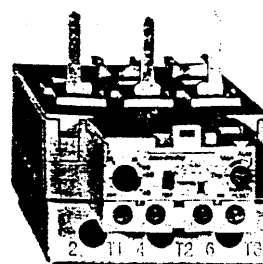
**Electronic Motor Protection Relays**



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   |

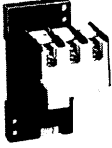
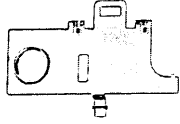
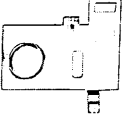


**Automatic / Manual Reset**

| 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   |

# MCS-E Electronic Motor Protection Relays

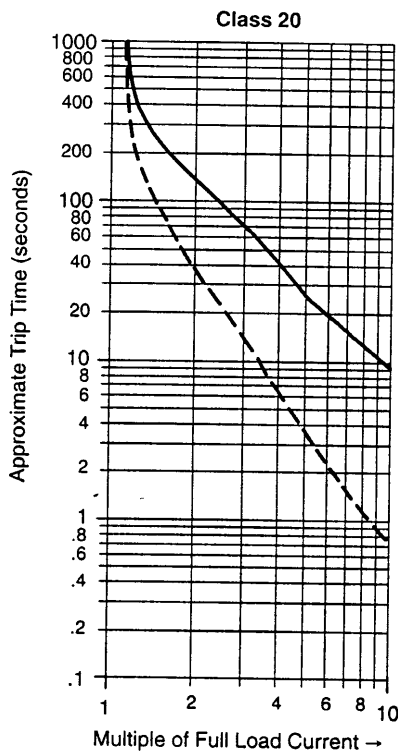
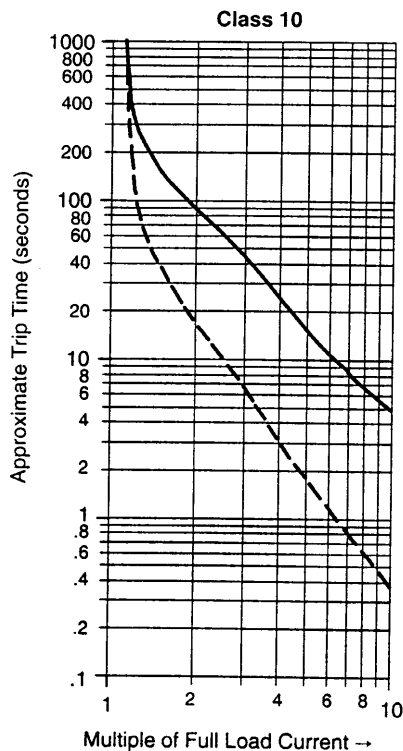
## Accessories

### Add-on Accessories

|   | Description  | For use with |  | Cat. No.             | Index |
|---|--|--------------|--|----------------------|-------|
|  | <b>DIN Rail / Panel Adapter</b><br>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   |
|  | <b>Anti-Tamper Cover</b><br>Provides protection against inadvertent adjustment of mode selector and full load current settings.                | 193-EA all   |  | 193-BC4              | 041   |
|  | <b>Current Adjustment Cover</b><br>Provides protection against inadvertent adjustment of the current setting.                                  | 193-EA all   |  | 193-BC5              | 042   |
|  | <b>Remote Reset Solenoid</b><br>For remote reset of electronic overload relays   | 193-EA all   |  | 193-ER1 <sup>⊗</sup> | 043   |
|  | <b>External Reset Button</b><br>Metal construction IP 66, non-illuminated with rod (Length: 142 mm, adjustment range 141...159 mm)             | 193-EA all   |  | 800ES-R611WTR08      | 044   |

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

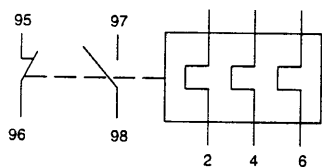
**Trip Curves**



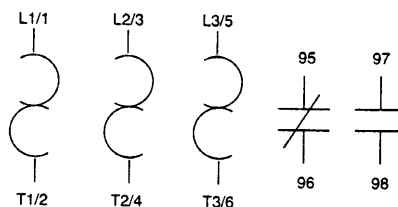
— Approximate trip time for 3-phase balanced condition from cold start

- - - 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-<br>EA__B | 193-<br>EA__C | 193-<br>EA__D | 193-<br>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-<br>EA__B                      | 193-<br>EA__C                        | 193-<br>EA__D | 193-<br>EA__E                    |
|--------------------------------|--------------------|------------------------------------|--------------------------------------|---------------|----------------------------------|
| <b>Terminal cross-sections</b> |                    |                                    |                                      |               |                                  |
| Terminal type                  |                    |                                    |                                      |               |                                  |
| Terminal screws                |                    | M 4                                | M 5                                  |               | M 8                              |
| Flexible with wire end ferrule | [mm <sup>2</sup> ] | 1 x (1 ... 4)<br>2 x (1 ... 4)     | 1 x (2.5 ... 16)<br>2 x (2.5 ... 10) |               | 1 x (4 ... 35)<br>2 x (4 ... 25) |
| Solid conductor                | [mm <sup>2</sup> ] | 1 x (1.5 ... 6)<br>2 x (1.5 ... 6) | 1 x (2.5 ... 25)<br>2 x (2.5 ... 10) |               | 1 x (4 ... 50)<br>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-<br>EA__B | 193-<br>EA__C | 193-<br>EA__D | 193-<br>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     |               |               |

|   |                    | 193-<br>EA__B      | 193-<br>EA__C | 193-<br>EA__D | 193-<br>EA__E |
|---|--------------------|--------------------|---------------|---------------|---------------|
| <b>Conventional thermal current <math>I_{th}</math> [A]</b> |                    |                    |               |               |               |
| 5   |                    |                    |               |               |               |
| <b>Terminal cross-sections</b>                              |                    |                    |               |               |               |
| Terminal type   |                    |                    |               |               |               |
| Terminal screws   |                    | M 3.5              |               |               |               |
| Flexible with wire end ferrule                              | [mm <sup>2</sup> ] | 2 x (0.75 ... 2.5) |               |               |               |
| Solid conductor   | [mm <sup>2</sup> ] | 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              |               |               |               |