## Bulletin 193-K — Miniature Bimetallic Overload Relays

- Standard motor protection for AC and DC motors
- Overload protection Trip Class 10A
- Auxiliary switch (1 N.O. and 1 N.C.)
- Phase loss sensitivity
- Manual/Auto reset button
- Test release
- Stop button
- Trip indicator

Bulletin 193-K bimetallic overload relays are designed for use with Bulletin 100-K contactors and Bulletin 104-K reversing contactors. These class 10A ambient temperature-compensated thermal overload relays include a differential mechanism for sensitivity to phase-loss conditions.

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## Standards Compliance

IEC/EN 60947-1,-4-1,-5-1
UL 508
CSA 22.2. No. 14

## Certifications

CE Marked
cULus Listed (File No. E33916, Guide NKCR, NKCR7)

## Miniature Bimetallic Overload Relays

| Mounts to Contactor | Setting Range [A] ∗❄ | Max. Current Rating of Backup Fuse [A] | | | | Cat. No. |
|---|---|---|---|---|---|---|
| | | IEC Coordination | | UL 508 | | |
| | | Type 1 | Type 2 | UL Class K5/RK5, 600V, 5 kA | UL Class CC, J, 600V, 50 kA | |
| 100-K05…100-K12 | 0.10…0.16 | 35 | 1 | 1 | 1 | **193-KA16** |
| | 0.16…0.25 | 35 | 1 | 1 | 1 | 193-KA25 |
| | 0.25…0.40 | 35 | 2 | 1 | 1 | **193-KA40** |
| | 0.35…0.50 | 35 | 2 | 2 | 2 | **193-KA50** |
| | 0.45…0.63 | 35 | 2 | 2 | 2 | **193-KA63** |
| | 0.55…0.80 | 35 | 4 | 3 | 3 | **193-KA80** |
| | 0.75…1.0 | 35 | 4 | 3 | 3 | **193-KB10** |
| | 0.9…1.3 | 35 | 6 | 4 | 4 | **193-KB13** |
| | 1.1…1.6 | 35 | 6 | 5 | 5 | **193-KB16** |
| | 1.4…2.0 | 35 | 10 | 8 | 8 | **193-KB20** |
| | 1.8…2.5 | 35 | 20 | 10 | 10 | **193-KB25** |
| | 2.3…3.2 | 35 | 20 | 12 | 12 | **193-KB32** |
| | 2.9…4.0 | 35 | 20 | 15 | 15 | **193-KB40** |
| | 3.5…4.8 | 35 | 20 | 15 | 15 | **193-KB48** |
| | 4.5…6.3 | 35 | 20 | 20 | 20 | **193-KB63** |
| 100-K09…100-K12 | 5.5…7.5 | 35 | 20 | 25 | 25 | **193-KB75** |
| | 7.2…10.0 | 35 | 20 | 35 | 30 | **193-KC10** |
| 100-K12 | 9.0…12.5 | 35 | 20 | 50 | 30 | **193-KC12** |

∗ To select the setting range for use in Y-Δ Starters, multiply the rated operating current of the motor by a factor of 0.58.
❄ For motors with Service Factor of 1.15 or greater, use motor nameplate full load current. For motors with service factor of 1.0, use 90% of the motor nameplate full load current.

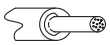
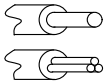
## Accessories

| | Description | | Cat. No. |
|---|---|---|---|
|  | **Remote Reset Solenoid**<br>For remote reset of 193-K and 193-T1 overload relays | | 193-T1R⊗ |
| | **Reset Adapter**<br>Expands the reset target area when using an external reset | | 193-RA3 |
|  | **External Reset Button**<br>For enclosed, through-the-door reset applications. Metal construction IP66, non-illuminated with rod (length: 142 mm, adjustable range 141…159 mm).<br>Refer to the 800F catalog pages for additional types. | Reset Button | 800FM-R611 |
|  | | Rod | 800F-ATR08 |

## ⊗ Coil Voltage Codes for Remote Reset Solenoid

| [V] | 24 | 48 | 110 | 120 | 125 | 220…240 |
|---|---|---|---|---|---|---|
| 50 Hz | — | — | D | — | — | — |
| 60 Hz | — | — | — | D | — | — |
| 50/60 Hz | KJ | KY | — | — | — | KF |
| DC | ZJ | ZY | ZD | — | ZS | — |

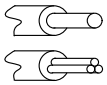
## Main Circuits

| | | | 193-K |
|---|---|---|---|
| **Rated Isolation Voltage** $U_i$ | | | 690V |
| Rated Impulse Strength $U_{imp}$ | | | 6 kV |
| Rated Operating Voltage $U_e$ | | IEC/UL | 690V AC / 600V AC |
| **Wiring cross section**<br>**Terminal type** | | |  |
| **Terminal screws** | | | M3.5 |
|  | Fine stranded with ferrule | [mm²] | 2 x (1.5…4) |
|  | Solid or coarse stranded | [mm²]<br>[AWG] | 2 x (1.5…4)<br>2 x (16…12) |
| Recommended torque | | [N•m]<br>[lb•in] | 1.2<br>10.6 |
| Pozidriv screwdriver | | Size | 2 |
| Slotted screwdriver | | [mm] | 1 x 6 |

## General Data

| | 193-K |
|---|---|
| Standards | IEC/EN 60947-1, -4-1, -5-1,<br>UL 508, CSA 22.2. No. 14 |
| Certifications | CE, cULus |
| Approximate Weights (unpackaged) | 0.115 kg (0.25 lb) |

## Control Circuits

| | | | 193-K |
|---|---|---|---|
| **Rated Isolation Voltage** $U_i$ | | | 690V AC |
| Rated Impulse Strength $U_{imp}$ | | | 4 kV AC |
| Rated Operating Voltage $U_e$ | | IEC/UL | 690V AC/600V AC |
| Rating Designation<br>**Rated Operating Current** $I_e$ | | | A600/Q300<br>**N.O./N.C.** |
| AC-15 | 24V | [A] | 4 |
| | 240V | [A] | 2 |
| | 400V | [A] | 1.6 |
| | 690V | [A] | 0.15 |
| DC-13 | 24V | [A] | 2 |
| | 110V | [A] | 0.4 |
| | 220V | [A] | 0.25 |
| | 440V | [A] | 0.08 |
| Thermal Current $I_{the}$ | | [A] | 5 |
| Short-circuit withstand, fuse gG | | [A] | 6 |
| Contact Reliability | | | 15V, 2 mA |
| **Wiring cross section**<br>**Terminal type** | | |  |
| **Terminal screw** | | | M 3.5 |
|  | Fine stranded with ferrule | [mm²] | 2 x (1…4) |
|  | Solid or coarse stranded | [mm²]<br>[AWG] | 2 x (1…4)<br>2 x (18…12) |
| Recommended torque | | [N•m]<br>[lb•in] | 1.2<br>10.6 |
| Pozidriv screwdriver | | Size | 2 |
| Slotted screwdriver | | [mm] | 1 x 6 |

## Environmental Ratings

| | | 193-K |
|---|---|---|
| Ambient Temperature | Storage<br>Operating | -55…+80 °C (-67…+176 °F)<br>-20…+60 °C (-4…+140 °F) |
| Humidity | Operating<br>Damp Heat | 5…95% Non-condensing<br>per IEC/EN 60068-2-3 and IEC/EN 60068-2-30 |
| Vibration (per IEC/EN 60068-2-6) | | 3 G |
| Shock (per IEC/EN 60068-2-27) | | 30 G |
| Max. Altitude | | 2000 m |
| Pollution Environment | | Pollution Degree 3 |
| Degree of Protection | | IP2X |
| **Protection** | | |
| Type of Relay | | Ambient compensated, time delay, phase loss sensitive |
| Nature of Relay | | Bimetallic overload relay |
| Trip Rating | | 120% FLA |
| Trip Class | | IEC: 10A, UL 10 |
| Reset Mode | | Automatic or manual |
| Power dissipation | up to 0.4 A | 7 W |
| | 0.5…12.5 A | 6 W |

## General Data

| | 193-K |
|---|---|
| Standards | IEC/EN 60947-1, -4-1, -5-1,<br>UL 508, CSA 22.2. No. 14 |
| Certifications | CE, cULus |
| Approximate Weights (unpackaged) | 0.115 kg (0.25 lb) |

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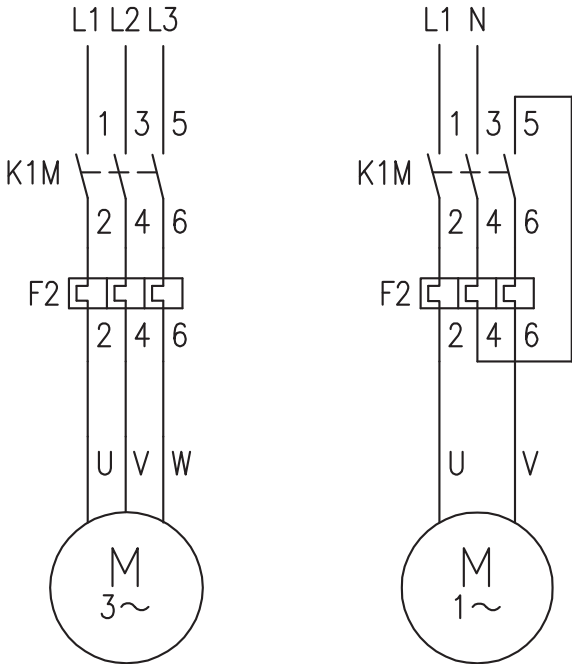
## Thermal Overload Relays

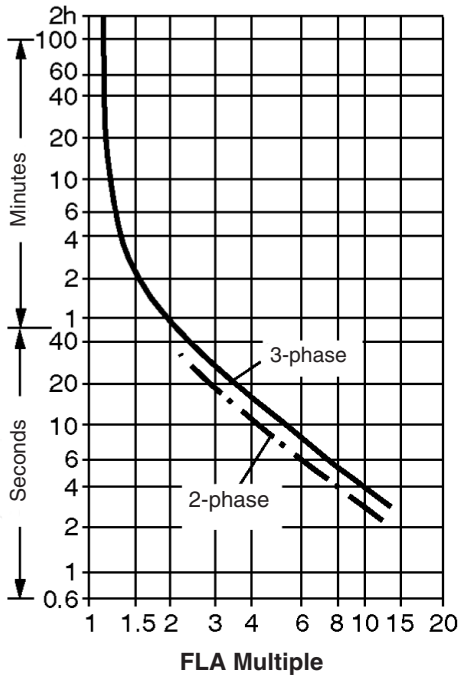
### Circuit Diagrams




## Trip Characteristics

These trip characteristics refer to IEC 60947 and are average values from cold start at an ambient temperature of 20 °C. Trip time is pictured as a function of operating current. With the device at normal operating temperature, the trip time decreases to approximately 25% of the shown value.

**Trip Class 10A**




## Bulletin 100-K, 193-K Approximate Dimensions

Dimensions are shown in millimeters (inches). Dimensions are not intended for manufacturing purposes.