Description
The 50R series is a single-phase voltage monitor with a voltage-sensing circuit that constantly monitors the single-phase power for a low-voltage condition. When a harmful condition is detected, the MotorSaver® deactivates its output relay after a specified trip delay. The output relay reactivates after power line conditions return to an acceptable level and a specified amount of time has elapsed (restart delay). The trip delay prevents nuisance tripping due to rapidly fluctuating power line conditions. This monitor is used in a variety of applications such as compressors, air conditioners, heat pumps, well pumps, sump pumps, and small conveyer motors.

Features & Benefits

<table>
<thead>
<tr>
<th>FEATURES</th>
<th>BENEFITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proprietary voltage sensing circuitry</td>
<td>Constant monitoring of single-phase power for a low-voltage condition</td>
</tr>
<tr>
<td>Adjustable trip delay (-3 models) and restart delay (-2 models) settings</td>
<td>Prevents nuisance tripping due to rapidly fluctuating power line conditions, allows staggered start-up of multiple motors after a fault</td>
</tr>
<tr>
<td>High-voltage detection (-9 models)</td>
<td>Trips and resets at a fixed percentage of the setpoint: trip 110%, reset 107%</td>
</tr>
<tr>
<td>600 V rated relay contacts available on some models</td>
<td>Eliminates the need for a control transformer to step voltage down to 120–240 V for a control circuit</td>
</tr>
</tbody>
</table>

Applications
- Fan motors
- Air conditioners
- Compressors
- Heat, well, and sump pumps
- Small conveyer motors
## Specifications

### Input Characteristics

**Line Voltage**
- **50R-100**: 95–120 V ac
- **50R200**: 190–240 V ac
- **50R400**: 380–480 V ac

**Frequency**
- 50*/60 Hz

### Functional Characteristics

**Low Voltage**
- **Trip (% of setpoint)**: 90%
- **Reset (% of setpoint)**: 93%
- **Delay Time (Nominal) Trip**: 4 seconds
- **Restart (low voltage)**: 2 seconds
- **Restart (complete power loss)**: 2 seconds

### Output Characteristics

**Output Contact Rating**
- **50R-100, 50R200**
  - Pilot Duty: 480 VA @ 240 V ac
  - General Purpose: 10 A @ 240 V ac
- **50R400**
  - Pilot Duty: 470 VA @ 600 V ac

### General Characteristics

**Ambient Temperature Range**
- Operating: -20°C to 70 °C (-4 °F to 158 °F)
- Storage: -40 °C to 80 °C (-40 °F to 176 °F)

**Maximum Input Power**
- 5 W

**Relative Humidity**
- 10–95%, non-condensing per IEC 68-2-3

**Terminal Torque**
- 7 in.-lbs.

**Wire Size**
- 12–18 AWG

**Electrostatic Discharge (ESD)**
- IEC 61000-4-2, Level 3, 6 kV contact, 8 kV air

**Fast Transient Burst**
- IEC 61000-4-4, Level 3, 3.5 kV input power and controls

**Transient Protection (Internal)**
- IEC 61000-4-5; 1995 ±6 kV

**Dimensions**
- **H**: 74.4 mm (2.93”); **W**: 133.9 mm (5.27”); **D**: 74.9 mm (2.95”)

**Weight**
- 0.98 lb. (15.68 oz., 444.52 g)

**Mounting Method**
- #8 screws

**Special Options**
- Opt. 2: Variable Restart Delay
  - Manual, 2–300 seconds
- Opt. 3: Variable Trip Delay
  - 2–30 seconds
- Opt. 9: High Voltage Detection
  - Operating Points
    - **Trip (% of Setpoint)**: 110%
    - **Reset (% of Setpoint)**: 107%

*Note: 50 Hz will increase all delay timers by 20%*

## Certification & Compliance

<table>
<thead>
<tr>
<th>Certification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>UL</td>
<td>UL 508 (File #E68520)</td>
</tr>
<tr>
<td>CE</td>
<td>IEC 60947-6-2</td>
</tr>
</tbody>
</table>

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Ordering Information

<table>
<thead>
<tr>
<th>MODEL</th>
<th>LINE VOLTAGE</th>
<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>50R-100</td>
<td>95–120 V ac</td>
<td>Fixed trip and restart delay</td>
</tr>
<tr>
<td>50R-100-2</td>
<td>95–120 V ac</td>
<td>Fixed trip and variable restart delay (manual, 2–300 s)</td>
</tr>
<tr>
<td>50R200</td>
<td>190–240 V ac</td>
<td>Fixed trip and restart delay</td>
</tr>
<tr>
<td>50R2002</td>
<td>190–240 V ac</td>
<td>Fixed trip and variable restart delay (manual, 2–300 s)</td>
</tr>
<tr>
<td>50R2003</td>
<td>190–240 V ac</td>
<td>Fixed restart and variable trip delay (2–30 s)</td>
</tr>
<tr>
<td>50R20029</td>
<td>190–240 V ac</td>
<td>Fixed trip and variable restart delay (manual, 2–300 s) plus high voltage detection</td>
</tr>
<tr>
<td>50R400</td>
<td>380–480 V ac</td>
<td>Fixed trip and restart delay</td>
</tr>
<tr>
<td>50R4002</td>
<td>380–480 V ac</td>
<td>Fixed trip and variable restart delay (manual, 2–300 s)</td>
</tr>
<tr>
<td>50R4003</td>
<td>380–480 V ac</td>
<td>Fixed restart and variable trip delay (2–30 s)</td>
</tr>
<tr>
<td>50R40029</td>
<td>380–480 V ac</td>
<td>Fixed trip and variable restart delay (manual, 2–300 s) plus high voltage detection</td>
</tr>
</tbody>
</table>

Dimensions Inches (mm)

Wiring Diagram

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