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 conveyor 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 conveyor 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

- 12–18AWG

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

- Height: 74.4 mm (2.93”)
- Width: 133.9 mm (5.27”)
- Depth: 74.9 mm (2.95”)

Weight

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

Mounting Method

- #8 screws

Special Options

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

<table>
<thead>
<tr>
<th>MODEL</th>
<th>LINE VOLTAGE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<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)

![Dimensions Diagram](image)

## Wiring Diagram

![Wiring Diagram](image)

**Disclaimer Notice** – Information furnished is believed to be accurate and reliable. However, users should independently evaluate the suitability of and test each product selected for their own applications. Littelfuse products are not designed for, and may not be used in, all applications. Read complete Disclaimer Notice at [www.littelfuse.com/product-disclaimer](http://www.littelfuse.com/product-disclaimer).