

Voltage Monitoring Relays

50R Series

Single-Phase Voltage Monitor



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

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

Applications

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

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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

(SPDT - 1 Form C)	
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	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

UL	UL 508 (File #E68520)
CE	IEC 60947-6-2

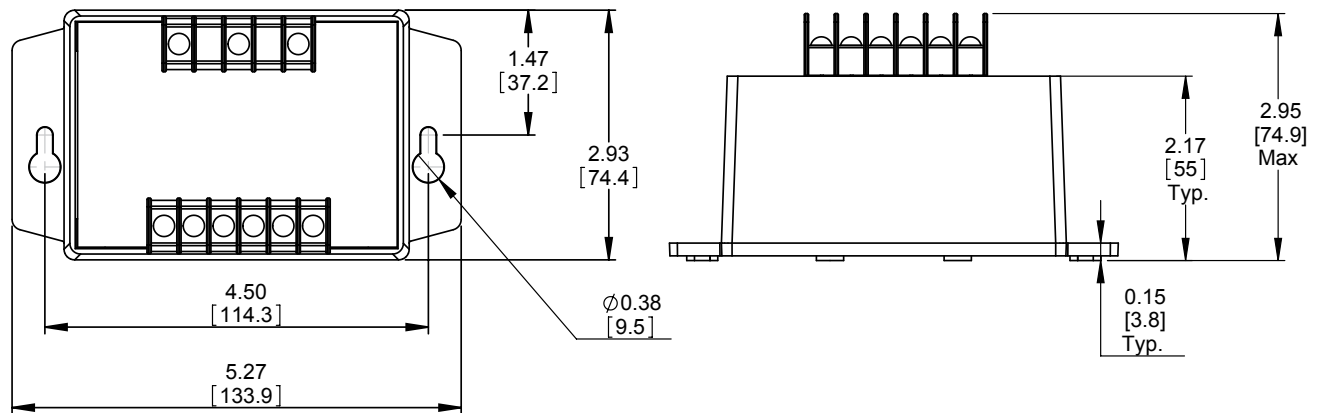
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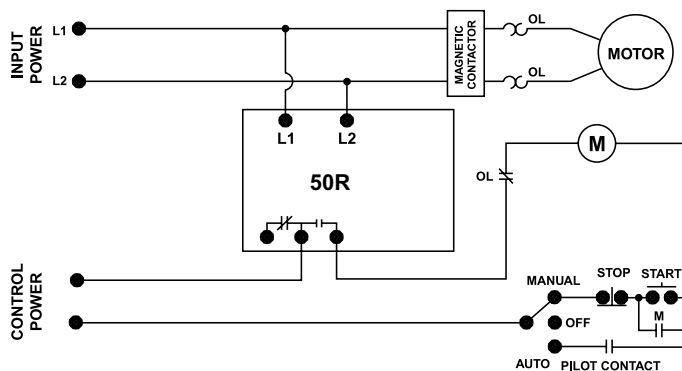
Ordering Information

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

Dimensions Inches (mm)



Wiring Diagram



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