

# Voltage Monitoring Relays

## 455 Series

3-Phase Voltage/Phase Monitor



### Description

The 455 series is a three-phase, dual-range voltage monitor that combines load and line side monitoring for a complete protection solution. Load side monitoring alerts the user to contactor failure or impending contactor failure. Line side monitoring protects the motor from damaging fault conditions that may be present prior to the motor starting. This is unique because with other line/load side monitors, the motor must be started before a voltage fault is detected. With the 455 series, the motor is fully protected at all times.

This voltage monitor protects 190–480 V ac, 50\*/60 Hz motors regardless of their size. It automatically selects between the 200 V and 400 V range when the user selects the nominal voltage setpoint. Other adjustments include a 2–30 second trip delay, a 2–300 second restart delay (and manual restart), and a voltage unbalance trip point of 2–8%. The voltage monitor's circuitry is powered through the line side connections so there is no need for separate control power, making it easy to install.

Equipped with an infrared LED, the 455 series can communicate with the optional hand-held diagnostic tool, Informer-MS, to obtain valuable information such as real-time voltage, voltage unbalance on both line and load sides, motor run hours, last 20 faults, last 32 motor starts, high- and low-voltage trip points, voltage unbalance trip point, restart and trip delay settings, LED status, and more.

\*Note: 50 Hz will increase all delay times by 20%.

### Features & Benefits

FEATURES	BENEFITS
<b>Load side monitoring of contactor</b>	Protects motor from contactor failure or worn contacts
<b>Monitors contactor or starter</b>	Prevents rapid cycling
<b>Infrared LED capable</b>	Increases personnel safety for line-of-sight monitoring by using optional Informer-MS

### Applications

- Oil rigs
- Compressors and fan motors
- HVAC
- Heat, well, and sump pumps
- Small conveyer motors

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### Specifications

#### Input Characteristics

**Frequency** 50\*/60 Hz

#### Functional Characteristics

##### Low Voltage (% of setpoint)

**Trip** 90% ±1%

**Reset** 93% ±1%

##### High Voltage (% of setpoint)

**Trip** 110% ±1%

**Reset** 107% ±1%

##### Voltage Unbalance (NEMA)

**Trip** 2–8% adjustable

**Reset** Trip setting minus 1%

##### Trip Delay Time

**Low & High Voltage and Unbalance** 2–30 seconds adjustable

**Single-phasing Faults (>25% UB)** 2 seconds fixed

##### Restart Delay Time

**After a Fault** Manual, 2–300 seconds adjustable

**After a Complete Power Loss** Manual, 2–300 seconds adjustable

**After a Motor Shut-down** Manual, 2–300 seconds adjustable

#### Output Characteristics

##### Output Contact Rating (SPDT)

**Pilot Duty** 480 VA @ 240 V ac

**General Purpose** 10 A

##### High Voltage Relay (-480R)

**Pilot Duty** 470 VA @ 600 V ac

#### General Characteristics

##### Ambient Temperature Range

**Operating** -40° to 70 °C (-40° to 158 °F)

**Storage** -40° to 80 °C (-40° to 176 °F)

**Repeat Accuracy Fixed Conditions** ±0.1%

**Maximum Input Power** 6 W

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

**Wire Size** 12–18 AWG

**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** 1.1 lbs. (17.6 oz., 498.95 g)

**Mounting Method** #8 screws

\*Note: 50 Hz will increase all delay times by 20%.

### Certification & Compliance

<b>UL</b>	UL 508 (File #E68520)
<b>CSA</b>	C22.2 No. 14 (File #46510)
<b>CE</b>	IEC 60947-6-2

### Accessories

#### Informer-MS

A hand-held diagnostic tool designed for use with Littelfuse 455 equipped with an infrared LED transmitter

#### Informer IR Kit-36

36" infrared adapter cable attaches to the face of the unit to provide remote diagnostics without opening the panel.

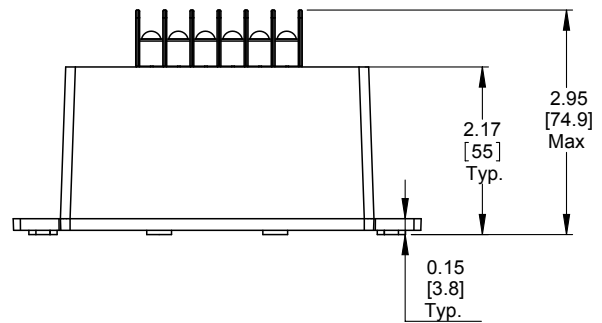
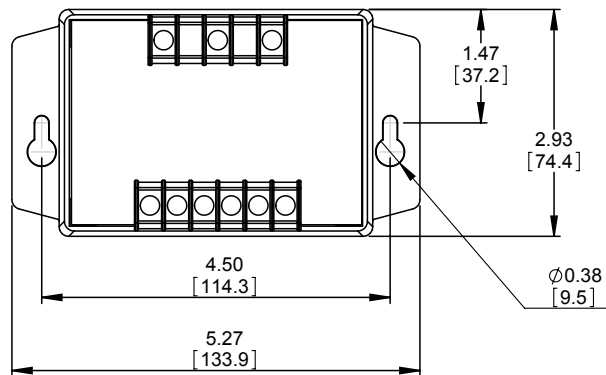
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### Ordering Information

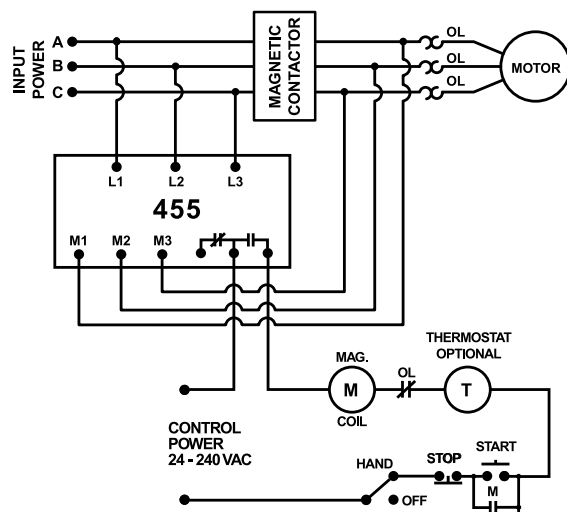
MODEL	LINE VOLTAGE	DESCRIPTION
455	190–480 V ac	Universal line and load side monitor
455480R	380–480 V ac	Used in high voltage applications with pilot duty 470 VA @ 600 V ac
455575	475–600 V ac	For use in Canada or NE USA where 575 V utility power services are common

### Dimensions Inches (mm)

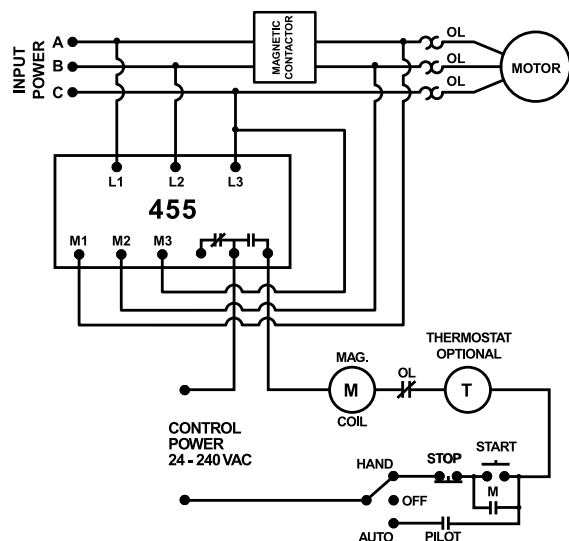


### Wiring Diagram

MODEL 455 WITH MOTOR CONTROL USING A 3-POLE CONTACTOR



MODEL 455 WITH MOTOR CONTROL USING A 2-POLE CONTACTOR



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