

## Features

Four adjustment pots provide versatility for all kinds of applications.

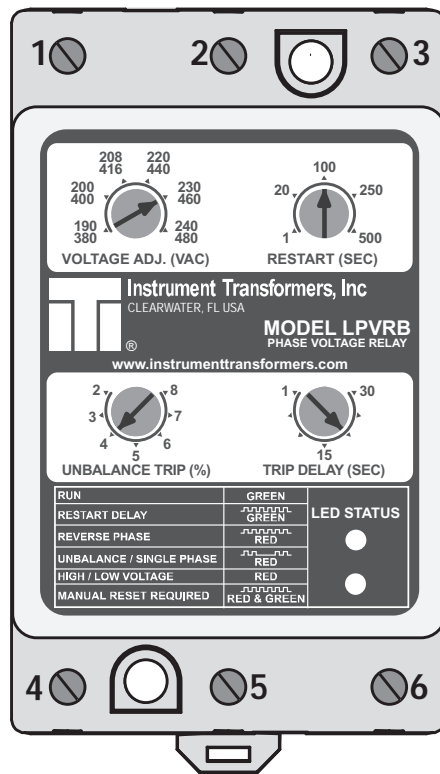
Universal range from 190-480 VAC 50/60 Hz provides the versatility needed to handle global applications.

Diagnostic LEDs indicate trip status and provide simple trouble shooting.

Microcontroller based circuitry provides better accuracy and higher reliability than analog designs.

Transient protected to meet IEEE and IEC standards and operate under tough conditions.

Will detect single phase condition regardless of regenerated voltages.



## PHASE VOLTAGE RELAY

**Model LPVRB**

**Three Phase Voltage Monitor**

**Engineered Protection**

**Microcontroller Based**

### *Protects 3-Phase motors from:*

- Loss of any Phase
- Low Voltage
- High Voltage
- Voltage Unbalance
- Phase Reversal
- Rapid Cycling

### *Additional Features:*

- Compact Design
- UL and cUL listed
- CE Compliant
- Finger Safe Terminals
- 5 year Warranty
- Made in USA
- Standard Surface or DIN Rail Mount
- Standard 1-500 sec. Variable Restart Delay
- Standard 2-8% Variable Voltage Unbalance
- Standard 1-30 sec. Variable Trip Delay
- One 10 Amp General Purpose Form C Relay
- Optional Manual Reset

The **Model LPVRB** is designed to protect 3-phase loads from damaging power conditions. Its wide operating range combined with UL and CE compliance enables quick access to domestic and global markets.

A unique microcontroller-based voltage and phase sensing circuit constantly monitors the three phase voltages to detect harmful power line conditions. When a harmful condition is detected, the LPVRB's output relay is deactivated after a specified trip delay. The output relay reactivates after power line conditions return to an acceptable level for a specified amount of time (Restart Delay) or after a manual reset. The trip and restart delays prevent nuisance tripping due to rapidly fluctuating power line conditions.

The Model LPVRB automatically senses whether it is connected to a 190 to 240V 60 Hz system, a 440 to 480V 60 Hz system, or a 380 to 416V 50 Hz system. An adjustment is provided to set the nominal line voltage from 190-240 or 380-480 VAC. Other adjustments include a 1-30 second trip delay, a 1-500 second restart delay, and a 2-8% voltage unbalance trip point adjustment.

Two LEDs indicate the status of the Model LPVRB; Run Light, Under Voltage, Over Voltage, Phasing Fault/ Reverse Phase, and Manual Reset.

The LPVRB ships with a jumper installed for automatic restart. A connector with two 12" wires is included for manual reset switch.

# PHASE VOLTAGE RELAY

- Specifications
- Operating Points
- Special Options

## Model LPVRB Three Phase Voltage Monitor

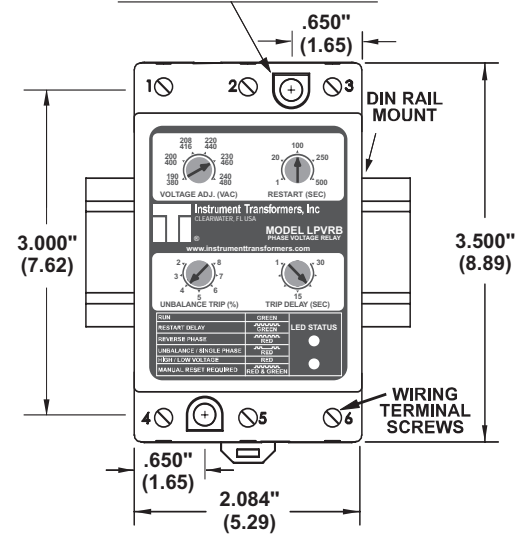
### Specifications

- 3-Phase Line Voltage** .....190 - 480 VAC  
(475 - 600 VAC optional)  
(95 - 120 VAC optional)
- Frequency** .....50\* or 60 Hz
- Low Voltage (% of set point)**
- Trip .....90% ±1%
  - Reset .....93% ±1%
- High Voltage (% of set point)**
- Trip .....110% ±1%
  - Reset .....107% ±1%
- Voltage Unbalance (NEMA)**
- Trip .....2 - 8% adjustable
  - Reset .....Trip setting minus 1% (5 - 8%)  
Trip setting minus .5% (2 - 4%)
- Trip Delay Time**
- Low, High and Unbalanced Voltage .....1 - 30 seconds adjustable
  - Single Phasing Faults .....1 second fixed
- Restart Delay Time** (When manual reset pins are shorted.)
- After a Fault .....1 - 500 seconds adjustable
  - After a Complete Power Loss .....1 - 500 seconds adjustable
- Output Contact Rating**
- 1-Form C .....10 A General Purpose @ 240 VAC  
Pilot Duty 480VA @ 240 VAC, B300
- Power Consumption** .....6 Watts (max)
- Weight** .....14 oz.
- Enclosure** .....Polycarbonate
- Terminal Torque** ......6 in.-lbs.
- Wire Type** .....Stranded or solid 12-20 AWG, one per terminal
- Safety Marks**
- UL .....UL508
  - CE .....IEC 60947-6-2
- Standards Passed**
- Electrostatic Discharge (ESD) .....IEC 1000-4-2, Level 3, 6kV contact, 8kV air
  - Radio Frequency Immunity, Radiated .....150 MHz, 10V/m
  - Fast Transient Burst .....IEC 1000-4-4, Level 3, 3.5 kV input power & controls
- Surge**
- IEC .....IEC 1000-4-5, Level 3, 4kV line-to-line;  
Level 4, 4kV line-to-ground
  - ANSI/IEEE .....C62.41 Surge and Ring Wave Compliance  
to a level of 6kV line-to-line
  - Hi-potential Test .....Meets UL508 (2 x rated V +1000V for 1 minute)
- Environmental**
- Temperature Range.....Ambient Operating: -20° - 70° C (-4° - 158°F)  
Ambient Storage: -40° - 80° C (-40° - 176°F)
- Class of Protection .....IP20, NEMA 1 (FINGER SAFE)
- Relative Humidity.....10-95%, non-condensing per IEC 68-2-3
- Special Options**
- Manual Reset .....External momentary push button required.

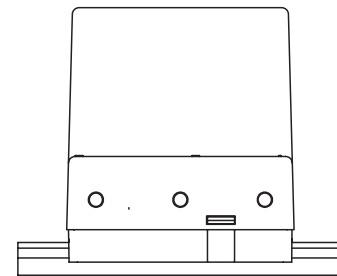
\*Note: 50 Hz will increase all delay timers by 20%

For complete information on warranty, liability, terms, returns, and cancellations, please refer to the Instrument Transformers, Inc. Standard Conditions of Sale.

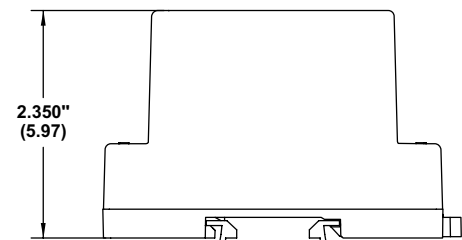
Surface Mount  
2- #6 or #8 x 5/8 Screws



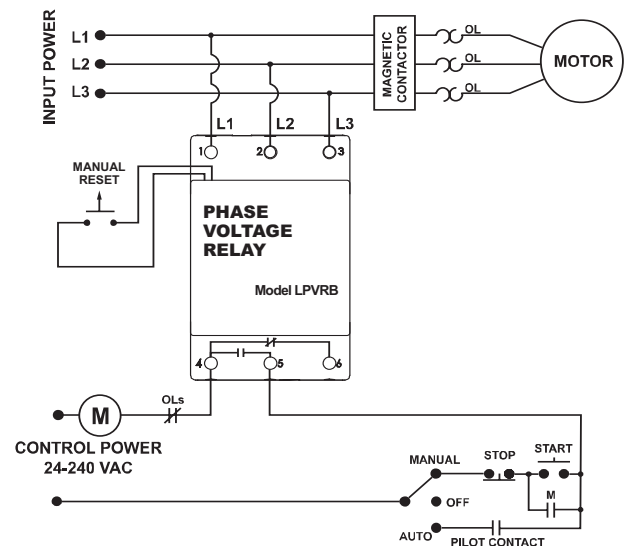
FRONT VIEW



BOTTOM VIEW



SIDE VIEW



TYPICAL WIRING DIAGRAM



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