



Electromagnetic Industries LLP.

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E300189

Three Phase Voltage Monitor

Model EI-SPVR2 Relay

Application: The EI-SPVR2 is designed to monitor Phase to Phase voltages for three phase electrical equipment that are sensitive to Phase Loss, Phase Unbalance, Phase Reversal, Over-Voltage and Under-Voltage conditions.

The SPVR2 has a set of "Form C" contacts that change state if an abnormal condition exists for the duration of the adjustable time delay. The exception is that the unit will trip instantaneously any time it detects a Phase Reversal or the Over-voltage reaches 150% of rated voltage, or the voltage drops below 50% rated voltage after being in Under-Voltage alarm condition for more than 1 sec.

Normal Input Voltages: 120 VAC, 208 VAC, 480 VAC and 575 VAC Phase to Phase

Frequency: 60 Hz.

Ambient Temperature Range: 0 - 40 Deg. C

Storage Temperature: -40 Deg. C to +85 Deg. C

Weight: 2.5 Lbs

Standard Features

- Power On Indication (LED)
- "Form C" contacts
- Phase Reversal Protection with LED indication
- Phase Unbalance Protection (2% to 8% Adjustable) with LED indication
- Phase Loss Protection with LED indication
- Undervoltage Protection (80%) with LED indication
- Over-voltage Protection (115%) with LED indication
- Adjustable Trip Time Delay (0 to 30 Sec.)
- Adjustable Reset Time Delay (except for the 120V) (1 Sec. to 5 min)
- Automatic Reset when condition clears and at Power Up
- Panel or Door Mounting Options
- Clear Cover
- Meets NEC service Entrance Requirements
- Maintain Fault Indication after Loss of Power.



Normal Voltage (Phase to Phase)	Freq. 60 Hz	Operating Voltage Range
120	60 Hz	96 - 138
208	60 Hz	166 - 239
480	60 Hz	384 - 552
575	60 Hz	460 - 661

How to Order: EI SPVR2 - XXX - X

Model

Voltage Phase to Phase

"D" Indicates Door Mount, for Panel Mount, leave blank



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SPVR2 OPERATION

A correctly installed SPVR2 Voltage Monitoring Relay will protect a three phase power system from Phase Reversal, Phase Unbalance, Phase Loss, Over voltage and Undervoltage conditions. (See Note for 240 Volt Unit)

When operating in a normal condition, the green 'Normal' LED will be illuminated and the relay contacts will be de-energized.

In a Phase Reversal condition, the SPVR Relay will instantaneously change state and the "Normal" LED will extinguish. If power is still available on all three phases the red LEDs will flash in a counterclockwise direction.

In a Phase Unbalance (2% -8% adjustable), Phase Loss, Undervoltage (80% to 35% normal Voltage), or Over voltage (115% to 150% Normal Voltage) condition the corresponding LED will illuminate and the Trip Time Delay will begin.

If the condition has not cleared before exceeding the time delay, the relay contacts will change state and the "Normal" LED will extinguish.

If an Over voltage greater than 150% exists for more than 1 sec. SPVR2 will trip instantaneously.

If an Under Voltage condition exists for more than 1 sec. AND the voltage drops below 50% the SPVR2 will trip instantaneously.

For any fault, if the condition clears before reaching the time delay setting, the SPVR will clear the fault and reset all time delays.

For Undervoltage, the relay will reset at 90% normal voltage.
For Over voltage, the relay will reset at 107% normal voltage.

The SPVR2 is designed to be used in a system where changing the state of the relay contacts may interrupt/secure power being used to energize the relay. Once power is removed, the cause of the fault can be determined by depressing the "Trip Indication" push button. (If done w/in 7 days of the trip and the unit has been powered up for a minimum of 4 hours.)

If power is still available after the unit trip, and the condition clears, the SPVR2 holds the contacts in the fault condition until the 'Time Delay to Reset' expires. During this time, the green "Normal" LED will flash.

Any time the unit is powered up and the "Trip Indication" pushbutton is pressed, the SPVR2 will reset all faults and all time delays.

Notes:

- 1) The SPVR 240 does not detect Phase Unbalance.
- 2) The green Ground wire coming out of the right side of the unit MUST be tied directly to Ground for proper operation of the unit.





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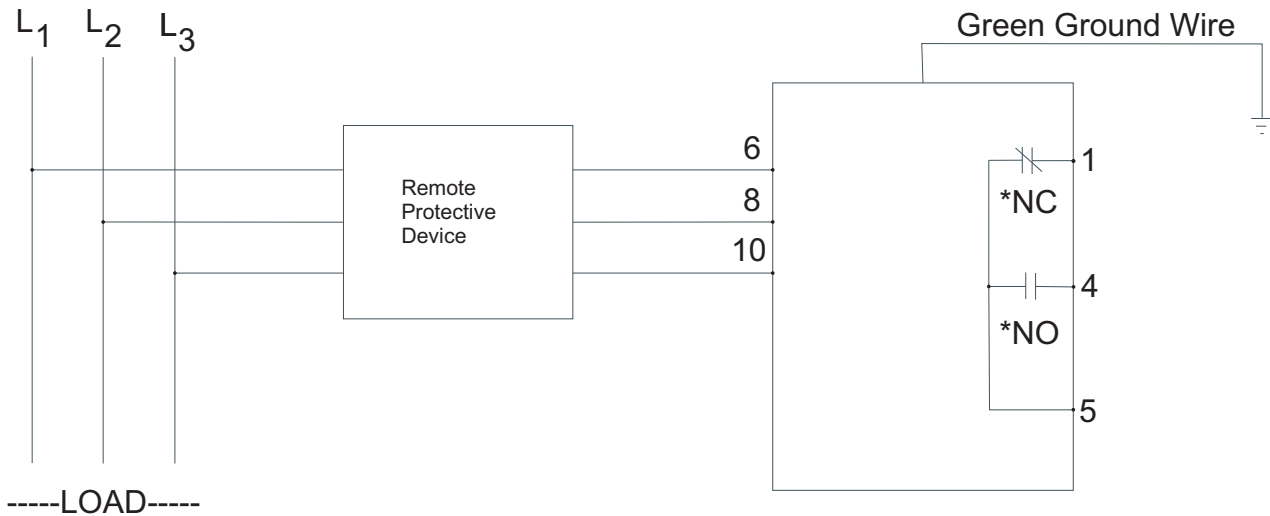
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*RELAY SHOWN IN THE DE-ENERGIZED STATE
(NO ALARM CONDITION)

Figure 1.1

Contact Ratings

RESISTIVE LOAD P.F.=1	16A at 250 VAC 16A at 30 VDC
INDUCTIVE LOAD P.F. =0.4	8A at 250 VAC 8A at 30 VDC

SPVR	Voltage Phase to Phase	Phase to ground
SPVR-120	120	69
SPVR-208	208	120
SPVR-480	480	277
SPVR-575	575	332



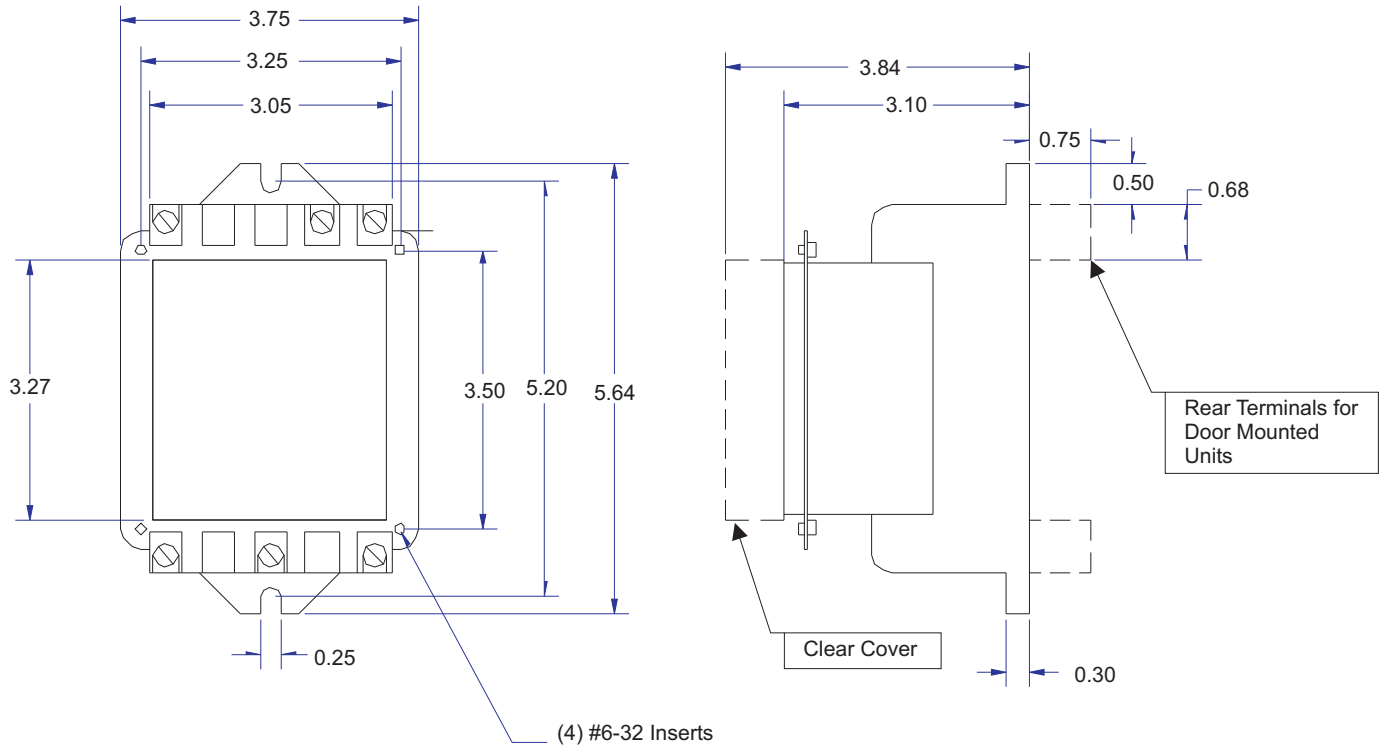
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TYPICAL SPVR2 INSTALLATION:



Suggested mounting for Panel Mount Relay

Suggested mounting for Door Mount Relay

