Service Bulletin 2011-1

Subject: SPVR Voltage Monitoring Relays

ISSUE:

Electromagnetic Industries has received reports of a small percentage of SPVR-480 units indicating and tripping as if an Unbalance Condition exists when the condition either does not exist or is lower that the Trip Set-point.

Findings:

During our investigation it was discovered that a component in the unit was degrading and causing the SPVR to see an Unbalance condition. On all returned units, when this component was replaced, the SPVR returned to normal operation and test results matched the original test data from when they were final tested before shipping.

At the time of this Service Bulletin, the only way Electromagnetic Industries has been able to duplicate these failures is to Megger the unit. Although some units failed right after being Meggered, others failed months later.

Please note that the vast majority of SPVRs have been operating without issue and this issue may be caused by a condition we have not yet discovered. This issue also seems to occur approximately 1 year after the SPVRs have being put into service.

Although we have been unable to determine with absolute certainty what is causing the degradation of the component in question, we know it is the only component affected.

To address this issue, Electromagnetic Industries has redesigned the SPVR to eliminate this component, thereby eliminating the issue regardless of the cause. The SPVR2 is expected to be available within 4 weeks of the release of this Service Bulletin.

Warranty:

For all units having this issue, we are extending our 1 year warranty to 3 years.

If you are experiencing this issue, please contact Electromagnetic Industries LLP for an RMA number and instructions for returning the affected unit.

Installation:

The SPVR2 units are Form/Fit/Function the same as the SPVR units with the exceptions shown on page 2 of this bulletin.

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Installation:

The SPVR2 will be Form/Fit/Function to the SPVR with the following exceptions:

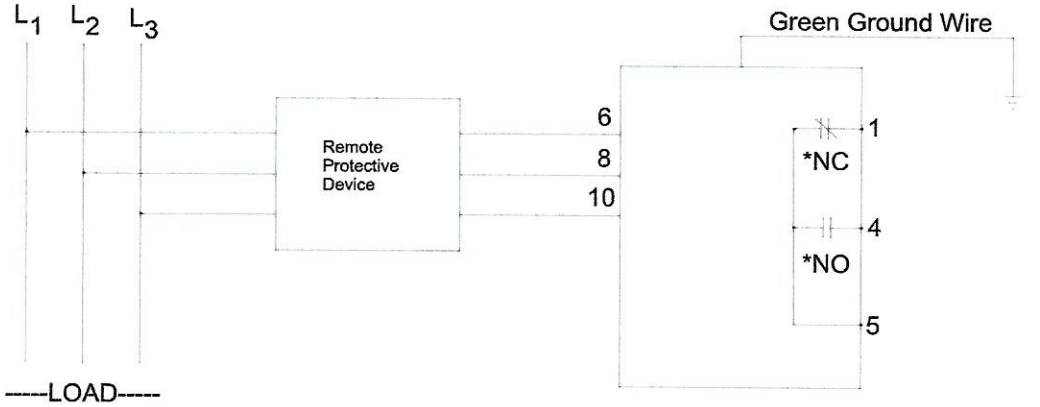
1)The SPVR2 will have a green ground wire protruding from the right hand side of the enclosure. This must be grounded for proper operation of the SPVR2.

2)The SPVR2 in an Over Voltage condition between 115%- 150% will have the adjustable time delay settings. Anytime the Over Voltage condition exceeds 150% for more than 1 second, the SPVR2 will instantaneously trip regardless of the time delay setting.

3)The SPVR2 in an Under Voltage condition between 80%- 50% will have the adjustable time delay. If the SPVR2 is in an Under Voltage condition for more than 1 second and then voltage drops below 50%, the SPVR2 will trip.

Note: The Ground Wire must be grounded for the unit to operate properly.(See Figure 1.1)

Model EI-SPVR Relay



*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

SPVR2 Models

SPVR2	Voltage Phase to Phase	Voltage Phase to Ground
SPVR2-120	120	69
SPVR2-208	208	120
SPVR2-240	240	120/208/120
SPVR2-480	480	277
SPVR2-575	575	332

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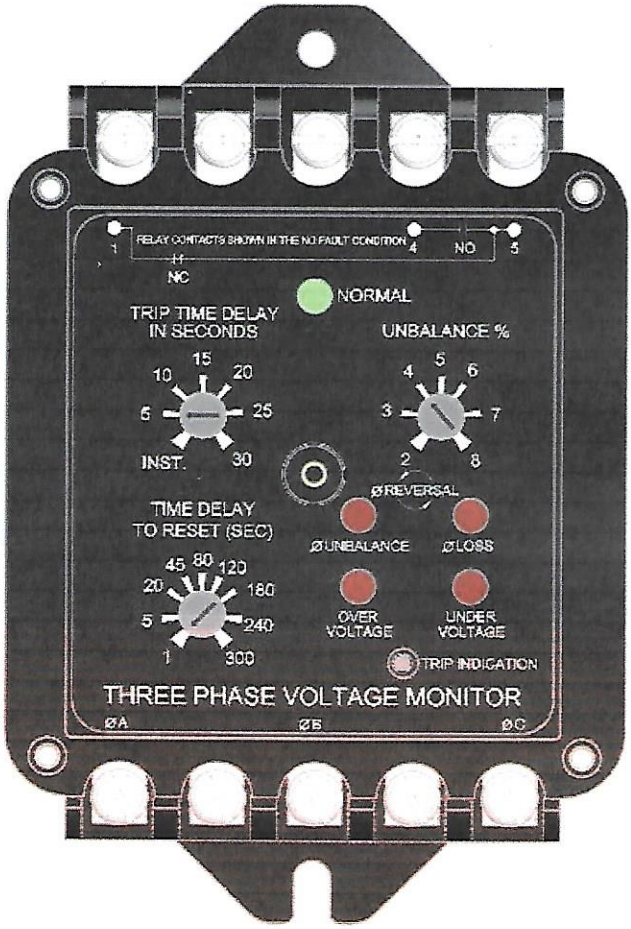
SPVR2 OPERATION



A correctly installed SPVR2 Voltage Monitoring Relay will protect a three phase power system from Phase Reversal, Phase Unbalance, Phase Loss, Over Voltage and Under Voltage conditions.

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 SPVR2 Relay contacts 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, Under Voltage (80%-50% 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.

Anytime an Over Voltage of greater than 150% exists for more than 1 sec. the SPVR2 will instantaneously trip regardless of the time delay setting.

Anytime the SPVR2 is in a Under Voltage condition for more than 1 sec.
AND the voltage drops to 50%, the SPVR2 will instantaneously trip regardless of the Time Delay setting.

For any fault, if the condition clears before reaching the time delay setting and the relay changing state, the SPVR2 will clear the fault and reset all time delays.

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

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 prior to the trip.)

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 LED will flash.

The SPVR2 will reset at power up. Any indication of the previous trip or power down condition will be lost.

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