

PSR Series Programmable Voltage Sensing Relay Thinking Inside The Box

Solid state relay technology has been around for some time. What has held it back in the extra low voltage market sector is the relatively low efficiency of Mosfet technology suitable for demanding applications in automotive, marine, alternative energy and affiliated applications.

In recent times this has changed, paving the way for Amelec's latest release, a solid state device aimed at replacing outdated electro-mechanical products. As a result we are pleased to introduce the interVOLT Programmable (Voltage) Sensing Relay.

Not only does the PSR Series feature Hi-Rel Mosfet technology but what makes it more impressive is how the technology is utilised to supercede outdated devices, especially voltage sensing versions of the same (VSRs).

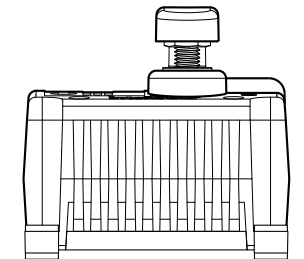
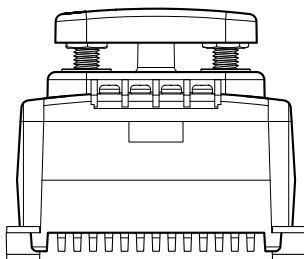
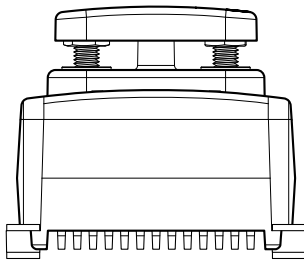
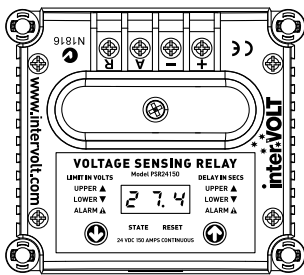
In short, the PSR is a user adjustable voltage sensing relay in terms of voltage and time delay parameters. It allows the user to choose the voltage they want for switching loads on and off rather than be restricted to settings dictated by manufacturers. The time delay allows the relay to activate only after a user specified time to prevent cyclic (threshold) switching. In addition the PSR is electrically isolated (contact to load), non-polarised and bi-directional, features previously unheard of in any other solid state relay devices. Additionally the PSR has the major benefit of being able to change from normally open or normally closed all, literally, at the touch of a button!

The PSR can be used for a myriad of applications, including but not limited to:

- Combining of battery banks for charging and/or load sharing.
- Paralleling battery banks as emergency supplies.
- Switching loads at desired voltages both on and off.
- Protecting equipment from under-voltage supply.
- Isolating batteries at desired voltages both on and off.
- Safe and reliable remote switching of heavy loads.



PSR Series Programmable Voltage Sensing Relay



- Topology - solid state Mosfet (metal oxide semiconductor field-effect transistor) switching circuit.
- Application - for 12 or 24 Volt DC installations. Voltage dependent models.
 - 12 VDC version model number PSR12150
 - 24 VDC version model number PSR24150
- Control Voltage - the upper and lower control voltage limits are user adjustable in 0.1 Volt increments from 9.0 Volts to 38.0 Volts (generic to both 12V and 24V models).
- Time Delay - the upper and lower time delay limits are user adjustable in 1.0 second increments from 001 to 255 seconds.
- Alarm Voltage - the upper and lower alarm voltage limits are user adjustable in 0.1 Volt increments from 9.0 Volts to 38.0 Volts (generic to both 12V and 24V models).
- Contact State - the contact state is user selectable for normally open (N/O) or normally closed (N/C). The factory default is normally open.
- Constant Rating - 150 Amps DC continuous @ 40°C ambient temperature.
- Momentary Rating - 500 Amps DC @ 40°C for a period of 10 seconds @ 10% duty cycle.
- Input Voltage
 - Sensing: 9VDC Minimum, 38VDC maximum.
 - Switching: 33VDC Maximum.
- Contact Resistance - for load terminals $\approx 0.5\text{m}\Omega$ @ 25°C. Does not take into account connections i.e. terminal resistance.
- Alarm Output Signal - equal to input voltage to 200mA maximum.
- Power Consumption (with LED display inactive)
 - Standby (unswitched) - current draw is typically 10mA @ 13.5VDC for 12V systems and 23mA @ 27.0VDC for 24V systems.
 - Active (switched) - current draw is typically 35mA @ 13.5VDC for 12V systems and 55mA @ 27.0VDC for 24V systems.
- Environmental Considerations - Operating temperature range is -25°C to + 50°C. Humidity should not exceed 95 %.
- Environmental Protection - Electronics sealed for dust and water protection to IP67 rating (internal components only).
- Safety Devices
 - Thermal shutdown protection with automatic reset for over temperature.
 - Low voltage shutdown protection with auto reset @ 9.0VDC
- User Interface - the user or operator interface is used to control and monitor the various functions of the PSR. The user interface consists of a 3 digit LED display, 8 control (text) icons and 2 control buttons. The control icons are illuminated (flashing) when used in conjunction with the LED display and control buttons to adjust the desired parameters. Refer to operator manual for detailed information on setting the PSR parameters.
- Control Connections - for control and monitoring functions
 - Sense Terminals - used to monitor the voltage of the desired 12 or 24 VDC supply. They are polarity conscious.
 - External Alarm Output - an external signal voltage for remote monitoring of the user selectable low or high voltage alarm feature.
 - Remote Override Input - used to override the user settings and manually activate the relay by using a simple, low current, control switch i.e. toggle switch remotely located.
- Contact Connections - For load switching. Completely isolated from contact (sense) connections and are bi-directional and uni-polarity (not polarity conscious).
- Termination
 - Load Terminals - M8 threaded stud, tin plated copper, 304 stainless steel hardware.
 - Control Terminals - M3 threaded contacts, tin plated brass, 304 stainless steel hardware.
- Construction - Manufactured using corrosion resistant materials throughout. No ferrous materials are used in the assembly.
- Housing - black electrophoretically coated A360 (ADC 3) die cast aluminium.
- Cover, terminal protector and mounting feet insulators - ABS/ PC injection moulded plastics and stainless steel hardware.
- Fasteners - 304 stainless steel.
- Conformity - Conforms to Australian and New Zealand Electro-Magnetic Compatibility (EMC) standards under AS/NZS CISPR 11:2004.
- Dimensions
 - Footprint - 86mmW x 97mmL overall
 - Profile - 81.5mmH overall (including terminal cover).
 - Weight - 505 grams.