

POWER-GATE™ Solid-State Devices Uni-Directional Relay



Made in U.S.A

**up to 600 Amps
12 and 24 Volts**



A solid state uni-directional relay can be used to switch on/off high current loads like motors, inverters, lights, and communications equipment. Unlike mechanical relays, POWER-GATE relays don't arc, require minimal trigger current, and are highly reliable in dust and vibration laden environments.

POWER-GATE solid state unidirectional relays are designed to switch a source to a load. Devices are strictly DC, and have no mechanical contacts or moving parts which means no arcing or degradation in performance over time. Much like conventional relays, devices are provided an input trigger signal to turn on or off. An integrated microcontroller provides additional functionality including:

- differentiation between in-rush and shorted conditions
- response to low or high voltage thresholds
- timers to delay turn on or off
- overcurrent protection
- over temperature protection
- precision circuit breaker functionality
- fault status and troubleshooting feedback

Uni-directional relay can be programmed to behave as follows:

- Circuit Breakers are specifically programmed for precision current monitoring and circuit breaking functionality.
- Voltage Sensitive Disconnects, also known as low voltage disconnects (LVD) are specifically programmed for popular low voltage/high voltage cutout applications. They can also be remotely adjusted using a Remote Control Programmer (coming soon)

By melding the worlds of electronic and mechanical design, our internationally patented large MOSFET arrays provide smart, reliable, unidirectional switching of high current.

APPLICATIONS:

An arrayed MOSFET SSR designed to switch and control DC. POWER-GATE is factory programmable to behave as follows:

- Manually triggered relay
- Low Voltage Disconnect (fully autonomous)
- Combination of manual and automatic response
- Precision Circuit Breaker

Common uses include military, aeronautic, automotive, marine, industrial machinery, photovoltaic, and fleet utility.

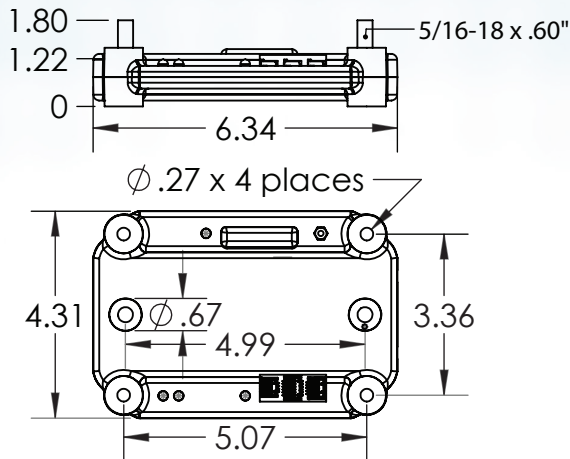
FEATURES and BENEFITS:

- Low voltage, high current capability
- Internationally patented arrayed MOSFET technology
- Optional sleep mode for ultra-low current draw
- 99.9% efficiency at max. current
- Fully Encapsulated solid state design
- Light weight
- Dramatically smaller than conventional devices
- Market-leading, ultra-low on-state resistance
- No heat sinks or airflow required
- Quik-turn capability
- Recommended by top battery manufacturers
- Low voltage cutoff
- High voltage cutoff
- Overcurrent protection
- Overtemperature protection
- Timers
- Delays
- Manual override trigger
- Manual activation trigger
- Short circuit protection
- Voltage transient self-protection
- Fully autonomous operation
- On-board fault diagnostics

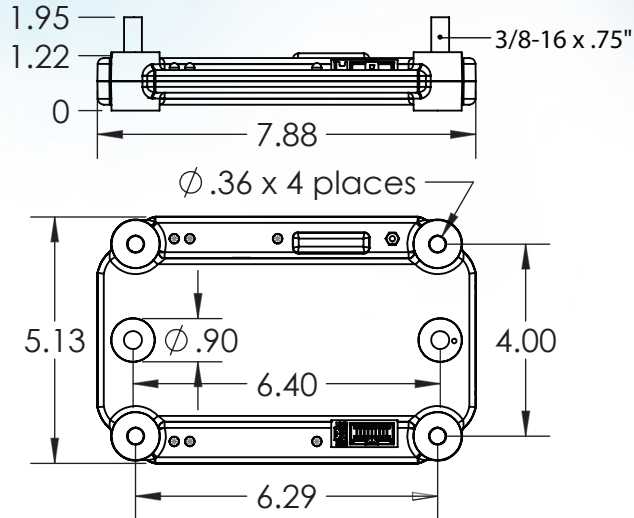
Perfect Switch, LLC
(858) 720-1339

MECHANICAL SPECIFICATIONS:

SMALL PACKAGE



MEDIUM PACKAGE



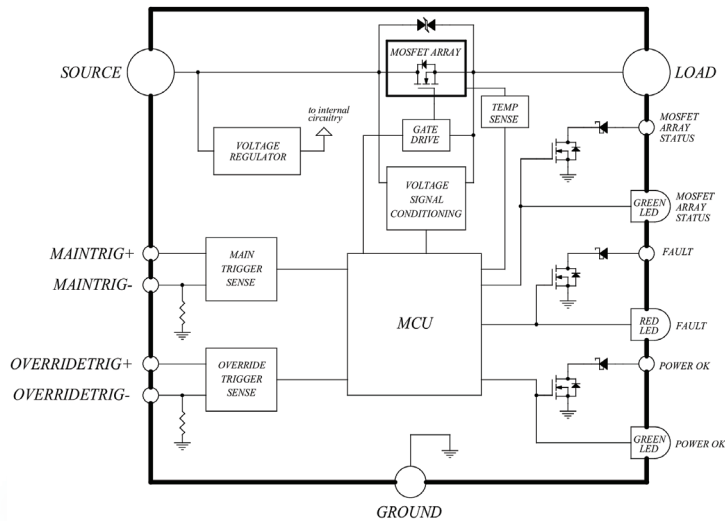
PACKAGE CHARACTERISTICS:

- Injection molded high temperature polycarbonate
- Dow Corning Sylgard - aerospace electronics grade
- Five integrated LED's for visual status and diagnostics
- Four integrated reinforced mounting points
- Machined brass connection posts
- 6-32 brass ground post with provided ring terminal
- Molex control harness
- Vinyl post insulators
- Two enclosure size options, current depending

Quick Specs:

Supply Voltage	4.8 to 18 VDC (12 volt device) 4.8 to 36 VDC (24 volt device)
Ambient Temperature	-40 to +85 °C
Trigger Voltage	3.3 to 36 VDC
Maximum Continuous Load Current	50 to 600 amps DC
Input-to-Output Voltage Drop	35 to 55 mVDC Typical
Trigger Current	173 μ ADC (12 volt device) 413 μ ADC (24 volt device)
Operating Current	18.0 mADC (12 volt device, trigger at 10 VDC) 21.7 mADC (24 volt device, trigger at 10 VDC)
Quiescent Current Sleep Mode	2.5 mADC (12 volt device) 2.8 mADC (24 volt device)
Internal Overtemp Shutdown	135 °C

RY Series Functional Block Diagram:

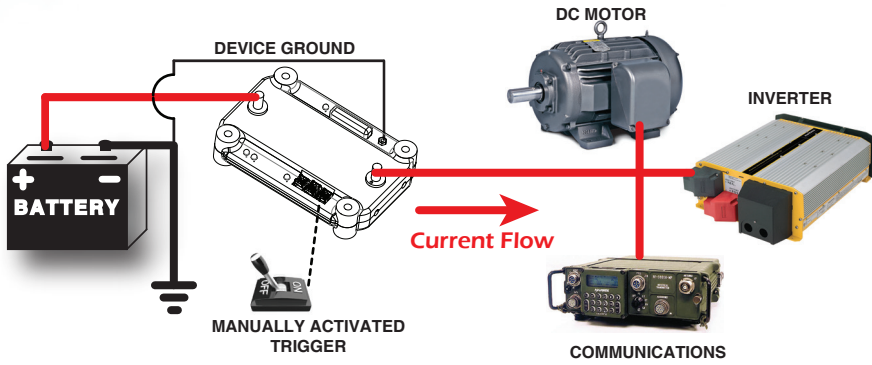


*MOSFET ARRAY STATUS: on when MOSFET array is enhanced
 FAULT: on during over-current, short-circuit, circuit-break, over-temperature, and under- and over-voltage
 POWER OK: on when source voltage is above minimum allowable*

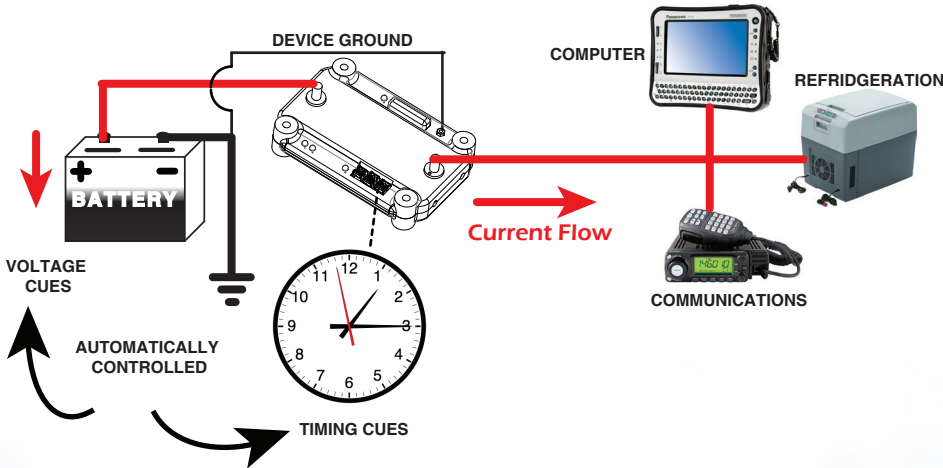
NOTES:

For complete specifications, please see device Specification sheet.

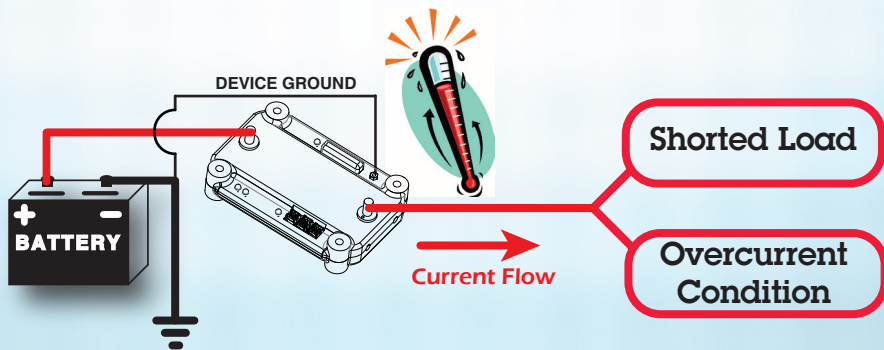
SAMPLE APPLICATION:



POWER-GATE Uni-directional relay can be manually activated or ignition-switched to power or de-power all high and low current accessories including motors, inverters, communications equipment, lighting, refrigerators/freezers, and sensitive computer equipment.



POWER-GATE Uni-directional relay can be programmed to automatically respond to low-voltage or high voltage battery conditions, and various timing cues making the device highly customizable. The ability to handle both high and low current in a single, easy-to-install module makes **POWER-GATE** a compelling choice when programmed to behave as a low voltage disconnect and preserve battery health.



POWER-GATE Uni-directional relay can be programmed to respond as a precision circuit breaker. If the device senses a shorted load or an overcurrent condition, the device will “open” and de-power the output.

The device will also respond to over temperature conditions by sensing strategically placed sensors within the sealed module.