

# POWER-GATE™ Solid-State Devices

## Bi-Directional Relay



Made in U.S.A

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



**A solid state bi-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 bi-directional relays are designed to switch a source to a load, or switch current between two sources. 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
- Five levels of overcurrent protection
- Four levels of under-voltage protection
- Four levels of over-voltage protection
- Two levels of circuit-break shutdown and three options for reset
- Remote LED outputs for monitoring of device status and faults
- over temperature protection
- precision circuit breaker functionality
- fault status and troubleshooting feedback

Bi-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)

### 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.

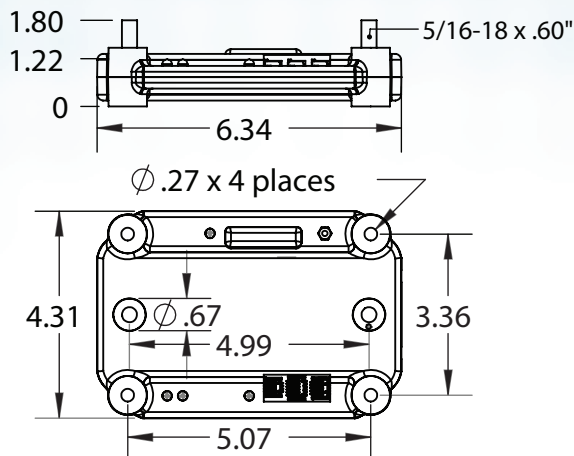
### FEATURES and BENEFITS:

- 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

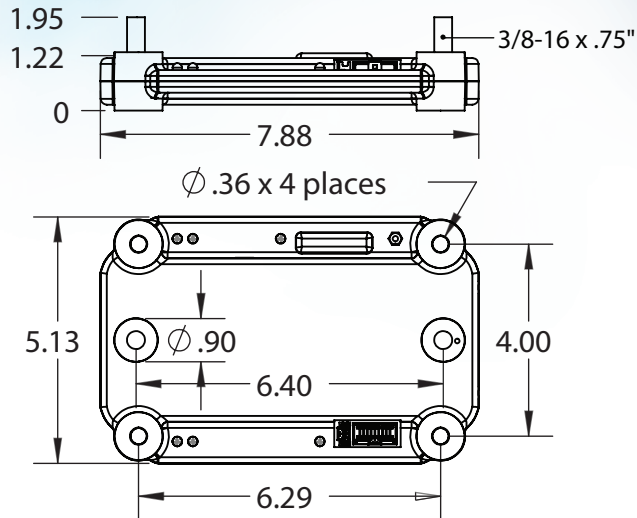
Perfect Switch, LLC  
(858) 720-1339

## MECHANICAL SPECIFICATIONS:

### SMALL PACKAGE



### MEDIUM PACKAGE



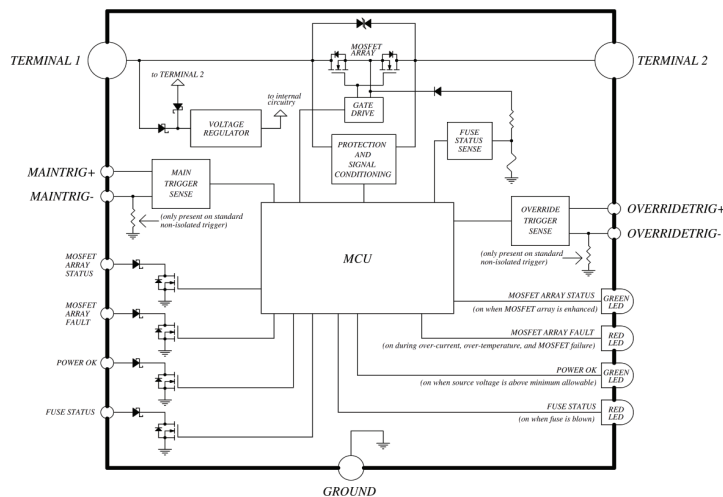
### PACKAGE CHARACTERISTICS:

- 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:

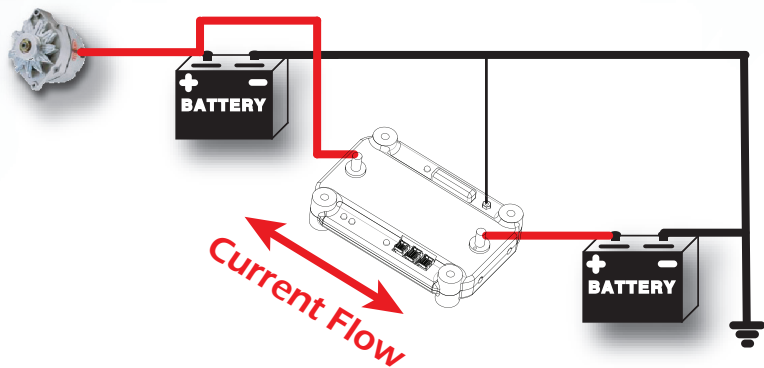
Supply Voltage	4.8 to 18 VDC (12 volt device) 4.8 to 36 VDC (24 volt device)
Ambient Temperature	-40 to +105 °C
Trigger Voltage	3.3 to 36 VDC
Maximum Continuous Load Current	50 to 600 amps DC
Input-to-Output Voltage Drop	35 to 65 mVDC Typical
Trigger Current	173 µADC (12 volt device) 413 µADC (24 volt device)
Operating Current	18.1 mADC (12 volt device, trigger at 10 VDC) 22. mADC (24 volt device, trigger at 10 VDC)
Quiescent Current Sleep Mode	2.4 mADC (12 volt device) 2.5 mADC (24 volt device)
Internal Overtemp Shutdown	135 °C

### RB Series Functional Block Diagram:

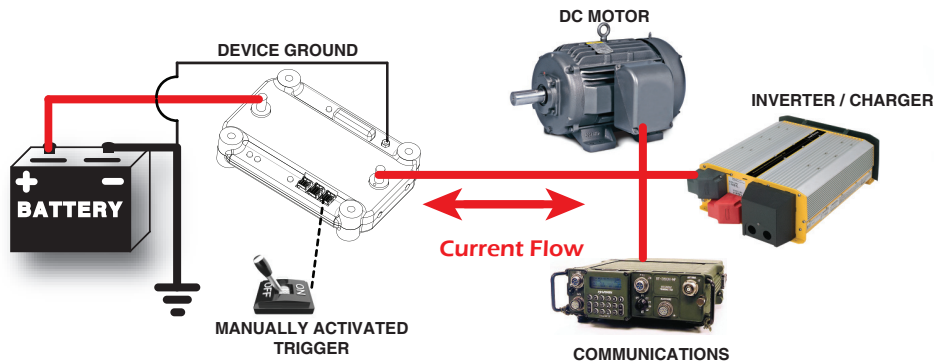


### NOTES:

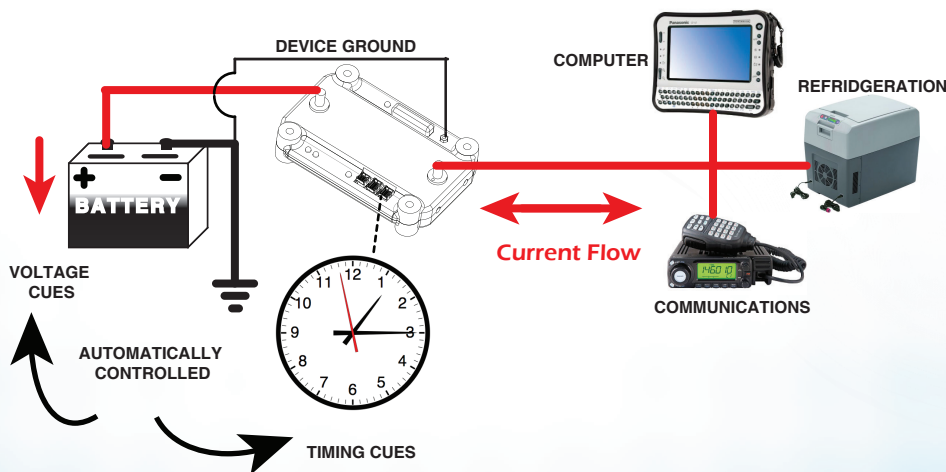
For complete specifications, please see device data sheet.



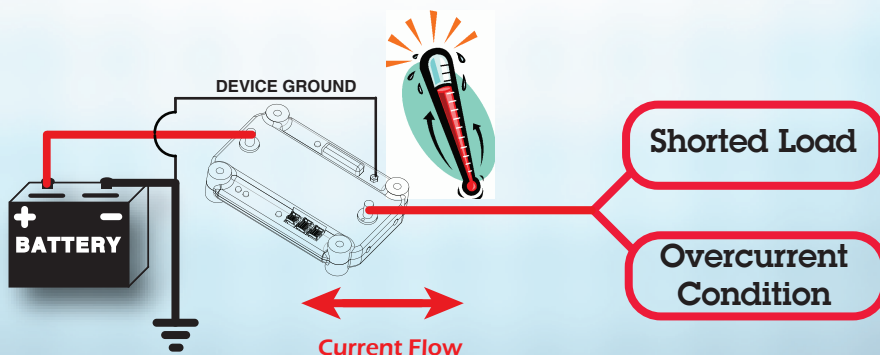
A Bi-directional relay must be used when voltage sources are present on both sides of the device in order to fully open the electrical circuit and insure no MOSFET damage occurs.



**POWER-GATE Bi-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 Bi-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 Bi-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.