Relay Configuration Form

* Required

1. **Uni-directional or Bi-directional Relay?**
   Uni-directional relays are installed between a source of voltage/current, and a load. Because the primary semiconductors are MOSFETS, direction of current flow is critically important in order to avoid back-biasing the integral body diodes. As such, uni-directional relay can be damaged if a source of voltage/current is present on both the input and output of the device. A uni-directional application would be switching current from a battery to a load like a motor or lights. If voltage/current can backflow in opposite direction due to a charging source or battery present on the output, a uni-directional device is unsuitable and a bi-directional device must be selected. Bi-directional relays can be installed between two batteries or two sources of voltage/current. The use of back-to-back MOSFETS provides the ability to completely disrupt current flow in both directions. If a relay is needed to switch battery power to an inverter, but the inverter is actually an inverter/charger, then when in the charging mode, current will flow from the charger to the battery....a bi-directional device is necessary. A bi-directional relay cannot carry as much current as a uni-directional relay due to the additional resistance of a back-to-back MOSFET configuration. If you have questions regarding your application, contact us at 858.720.1339. A description or sketch of your application will assist us in determining which configuration is needed for any given application.
   Mark only one oval.

   - ◯ Uni-Directional
   - ◯ Bi-Directional

Contact Information

Please complete contact information in full.

2. **Contact Name** *

3. **Company**

4. **Address**

5. **City**

6. **State / Province**

7. **Zip**

8. **Country**

9. **Email**

10. **Phone**

11. **Fax**

Relay information (required)

12. **Maximum Continuous Current** *
Mark only one oval.

- 25 amps
- 50 amps
- 100 amps
- 150 amps
- 200 amps
- 250 amps
- 300 amps
- Other:

13. **Nominal Voltage Rating** *
What is the system voltage?
Mark only one oval.

- 12 volts DC
- 24 volts DC
- Other:

14. **LED Options**

Mark only one oval.

- Option A - None
- Option B - All (factory default)
- Option C - Power + Status
- Option D - Power + Fault
- Option E - Status + Fault
- Option F - Power
- Option G - Status
- Option H - Fault
- Option I - Custom
- Other: .....

15. **Trigger Signal**

Input signal telling the device to respond. Default is an active high trigger.

Mark only one oval.

- Option A - None (none = autonomous operation)
- Option B - Active High (high signal = relay closed, low signal = relay open)
- Option C - Active Low (low signal = relay closed, high signal = relay open)
- Other: .....

Relay Optional Settings

POWER-GATE relays have an onboard processor. Optional features can be programmed causing the device to behave as a low voltage / high voltage disconnect, circuit breaker, respond to timing features like delays, and a power-sipping sleep mode.

16. **Undervoltage Shutdown**

At what low voltage threshold would you like the device to respond and de-power the loads from the source?

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17. **Undervoltage Shutdown Delay**

When the undervoltage threshold is met, after what period of time do you want the device to react? The device can respond instantly, or response can be delayed. A delay will cause the device to respond to a static voltage condition, as opposed to the instantly responding to momentary dips in voltage often seen when loads are applied. For example, in a 12 volt system, one may want to protect the battery from deep discharge by low voltage disconnecting the battery from loads at 12.2 volts. One may add a 1 minute delay to insure that the relay will not false-trip during momentary dips in voltage, and open only after the voltage 12.2 volts for at least 1 minute indicating a stable voltage condition.

18. **Undervoltage Reset**

At what system voltage should the device close and re-power the loads? If the device has low voltage disconnected at 12.2 volts, what elevated voltage would you like the device to restore the connection? This voltage setting usually coincides with the restoration of a charging source. So if the device low voltage disconnects at 12.2 volts, when a charging source is applied, we want the device to close the connection between source and load.....so the undervoltage reset level might be 13 volts (for example) which absolutely indicates a charging source is present.

19. **Overvoltage Shutdown**

At what high voltage threshold would you like the device to respond and de-power the loads from the source?

20. **Overvoltage Shutdown Delay**

    When the overvoltage threshold is met, after what period of time do you want the device to react? The device can respond instantly, or response can be delayed. A delay will cause the device to respond to a static voltage condition, as opposed to instantly responding to momentary peaks in voltage often seen when loads are turned on and off. For example, in a 12 volt system, one may want to protect downstream loads from over-voltage damage. As an example, one might set a 17 volt overvoltage shutdown threshold with a 5 millisecond delay so if the device senses 17 volts for more than 5 milliseconds, the device will open and disconnect the output loads from the source.

21. **Overervoltage Reset**

    At what system voltage should the device close and re-power the loads? If the device has over voltage disconnected at 17 volts, what voltage would you like the device to restore the connection? This voltage setting usually coincides with the safe operating voltage. So if the device over voltage disconnects at 17 volts, if the device senses voltage at 14.9 volts or lower, the device will close and restore the connection between the source and loads.

22. **Override Feature**

    If the device is open due to either an over-voltage or under-voltage setting, the device can be forced closed by using the override feature. Override is typically implement using a micro-switch connected to wires in the control harness.

Sleep Mode

The relay's onboard processor is constant running in order to preserve critical self-protection features and respond instantly to changes in voltage, load, or temperature. This requires the relay to draw current from the battery. In some applications, conservation of power is critical due to limited battery resources or periods of storage or non-use. To minimize quiescent current draw, the device can be forced into an optional sleep mode. In sleep mode, instead of constantly monitoring the electrical system, it samples the system once every 10 seconds and determines if the relay should emerge from sleep mode due to a change in system voltage or current, or if nothing has changed, go back into sleep mode for another 10 seconds.

23. **Activate Optional Sleep Mode**

Mark only one oval.

- YES
- NO

24. **Sleep Mode Delay**

The device can be forced into sleep mode instantly after a low or high voltage disconnect, or sleep mode can be delayed by minutes, hours, or days depending on the application requirments. Please detail when you'd like sleep mode triggered.

Circuit Breaker

The device can be programmed to behave like a circuit breaker by sensing current flowing from input-to-output, if current exceeds a predefined threshold (+/- 5%), the device will "break" the circuit and open the relay.

25. **Breaker specifics**

If you wish your device to have breaker functionality, specify at what amperage you'd like the device to break open. The device's amperage rating must be above the breaking current threshold. For example, if continuous carrying current is 250 amps and you want it to break open if current exceeds 285 amps, select a 300 amp relay.

Any additional comments or questions, please elaborate here:

26.

Thank you for sending this configuration

As soon as we review the information provided, we'll be in touch with you to verify your configuration and assign a part number and/or specification code if necessary.