

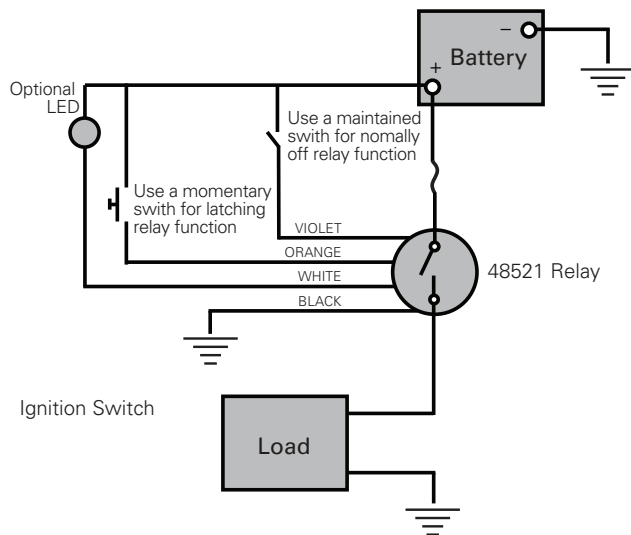
Installation Instructions

Solid State Dual Relay

Part Number: 48521



Connection Schematic



Installation

Caution: Do not mount device in a location where it will be exposed to a direct heat source, moisture or salt spray.

Mount device in a location where there is air circulation. Under normal operating conditions this device may run hot. Use caution when handling.

1. Disconnect the battery or power supply or switch it off with the master disconnect switch before installation.

2. Connect "Battery+" stud to the battery positive terminal (or battery positive terminal block) using appropriate gauge cable and proper fusing.

NOTE: If a master disconnect switch is used, the relay should be installed "after" the master disconnect, such that the master disconnect switch can be used to shut off power to the relay.

3. Connect "Load+" stud to accessory load(s) using appropriate gauge cable.
4. Connect black "Ground" wire to ground.
5. If using the normally open relay option, connect the purple wire through a control switch (usually a SPST toggle switch) to battery+. Connect the orange wire to Ground.
6. If using the latching relay option, connect the orange wire through a SPST momentary switch to battery+.
7. Optional connections:
 - To use a LED to indicate when the load(s) are on (positive feedback), connect white "Status" wire to the negative side of the LED indicator. Connect the positive side of the Indicator to battery+.
 - To use "Status" for feedback to a digital control unit, connect the white wire to the digital input and a pull up resistor. Connect the other side of the resistor to the logic Vcc.
8. Reconnect the battery or power supply.

General Specifications

Environmental: -40°C to 85°C. SAE J1455 & J1113
Electronics sealed to IP67
Ignition-proof to ISO 8846

Electrical: 9-16V DC (12V)
Continuous 200A
Inrush 500A (5 seconds)
Quiescent 2mA max

Status: Active low, 50mA
Pulled to ground when load(s) are on

Dimensions: Overall height is 3.0" (76.2mm)
See drawing below

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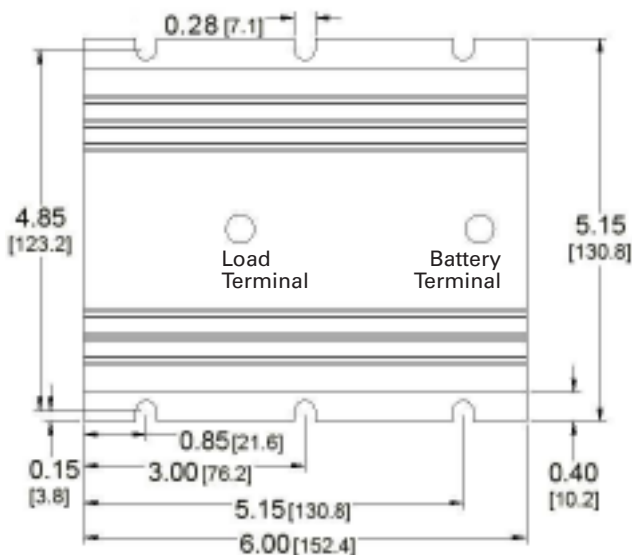
Solid State Dual Relay

Part Number: 48521

Normal Operation Summary

- **Normally Open Relay Option Function**
When the switch attached to the purple wire is turned on, the relay will turn the load(s) on. When the switch is turned off, the load(s) will turn off.
- **Latching Relay Option Function**
In this mode, the output won't turn on until the momentary control switch attached to the orange wire is depressed and then released. The output will stay on until the control switch is depressed and then released a second time.
- **Optional Status Connection Function**
The "Status" wire is connected to ground when the load(s) are on and high impedance when the output is off.
- **Over-Current**
If the load(s) draw more than 250 amps for five seconds, the load(s) will be turned off. After a ten second delay, the operator will be able to turn the load(s) on.

Dimensions inches (mm)



Troubleshooting

1. **Output does not turn on**
 - a. Ground – Check to make sure that the black wire has a very solid ground. Make sure that the ground wire is not isolated from ground, look for paint under ring terminals and consider using lock washers to make sure that you have a low resistance ground connection.
 - b. Switch – If you are using the orange wire to drive the 48521 as a latching relay, make sure that you are using a momentary switch. The relay is designed to turn on when the orange wire is pulsed (power is applied and then removed). If you use a maintained switch with the orange wire, the relay will not turn until the switch is turned on and then turned off.
2. **Output goes on and stays on when switch is off**
 - a. Misconnect – If the connections to the Battery and Load studs are reversed (if the voltage on the load stud is higher than the battery stud), the output will turn on and stay on until the connections are removed. The battery stud is on the side opposite from the control wires. Check to make sure that the correct cable is connected to the correct stud.
 - b. Latching Mode – If the orange wire is connected to the switch, the relay is in latching mode. In this mode, the output will not turn on until the orange wire is pulsed (power is applied and then removed). The output will not turn off until the orange wire is pulsed (power is applied and then removed) a second time.
 - c. Accidental Activation of Latching Mode – If you are using the purple wire to activate the relay, make sure the orange wire is grounded.
3. **Output goes on, but then goes off**
 - a. Overcurrent – If the loads are drawing more than 250A for 5 seconds, the relay will shut down and wait 10 seconds to recover. If you are using the purple wire and the switch is on, the unit will immediately try to turn on. If you are using the orange wire, the switch will need to be pulsed (power is applied and then removed) to turn on the relay.
 - b. Switch – If you use a momentary switch with the purple wire the unit will turn on and then off when the switch is released.

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