

# **INSTALLATION INSTRUCTIONS**

## **High Current Solid-State Relay PN 7564-HC Red / PN 75643-HC Black**

**ONLINE PRODUCT REGISTRATION:** Register your MSD product online. Registering your product will help if there is ever a warranty issue with your product and helps the MSD R&D team create new products that you ask for!

### **Parts Included:**

- 1 - MSD Solid State Relay Module
- 1 - Mounting Kit

**WARNING:** During installation, disconnect the battery cables. When disconnecting, always remove the Negative cable first and install it last.

## **FEATURES**

- 7V to 20V supply
- Four Independent 35A branches
- Automatic Over-temp Protection
- Short circuit protection
- Versatile mounting options
- Single-wire activation by switching power or ground
- LED Status indicators
- Combined total continuous current rating of 140 amps

## **OPERATION**

The main power supply to the unit should originate at the positive battery post. There are four independent branches. Each branch is thermally protected against overload and electrical short. Once the protection circuit has tripped, the activation signal needs to be removed and re-applied to reset the affected channel(s). (Latch-off protection until input is reset)

## **MOUNTING**

The Solid State Relay Module must be mounted in a sturdy, dry location and away from extreme heat. The unit should not be immersed or subjected to direct spray from a power washer.

### **WARNING: LIVE BATTERY POWER:**

Failure to follow these warnings may cause fire, injury, property damage, or even death.

All connections must be properly secured.

Use only automotive grade wire with adequate heat and fluid resistance.

All wire gauges must be adequate for the current in the application.



**Figure 1 PN 7564-HC Red / 75643-HC Black  
High Current Solid-State Relay**

**WIRING**

The ‘Battery’ and ‘Output’ wires connected to the large terminals, must be sized according to the **Wire Size Selection Guide**. (Table 1). Ground, 12V Activation and Chassis ground wires can be 18-22 AWG.

1. A good chassis ground should be connected to the small right terminal, marked “G” in the lower level (Figure 2).

**WARNINGS:** Attach the power wire to the BATT terminal **before** connecting it to the battery post.

Remove the power wire from the battery post before removing it from the BATT terminal

2. Securely connect the BATT terminal wire to the positive battery post. Use the wire size selection guide to choose the appropriate wire.
3. Each output branch can be activated by one of two configurations, ground or 12 volts.

**Note A:** The lower right terminal marked “G” must be grounded for either configuration (Figure 3 & 4).

**Note B:** 12V Activation - apply 12V to the appropriate upper level terminal, 1-4 (Figure 3).

**Note C:** Ground Activation - apply ground to the appropriate lower level terminal, 1-4 (Figure 4).

**PWM Operation:**

A PWM signal can be used in the Solid-State Relay Module with a maximum frequency of 150 hertz and a duty cycle range from 50% to 90%. The maximum time in PWM mode should not exceed 30 minutes.

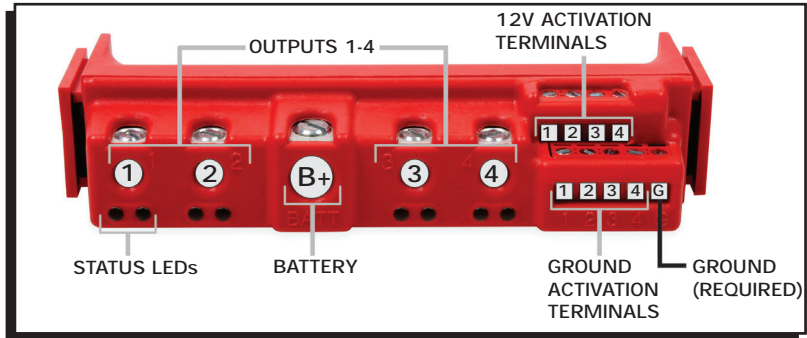
Duty cycle values below 50% may cause a faster thermal increase and trigger over-temp protection, especially with inductive loads (i.e. big fans).

If you run below a 50% duty cycle, you may experience thermal over-temp protection within a few minutes.

If operating in PWM mode for only a few seconds, the range can be extended from 30% to 90%.



A Loctite® Threadlocker 242® packet is included to fasten all threaded screws. It will penetrate the thread grooves and bond within 10 minutes. Apply only a small amount of Loctite 242 onto the thread of each of the 5 screws. Do not apply an excess amount of Loctite. The medium strength bond can be broken with hand tools, if necessary.

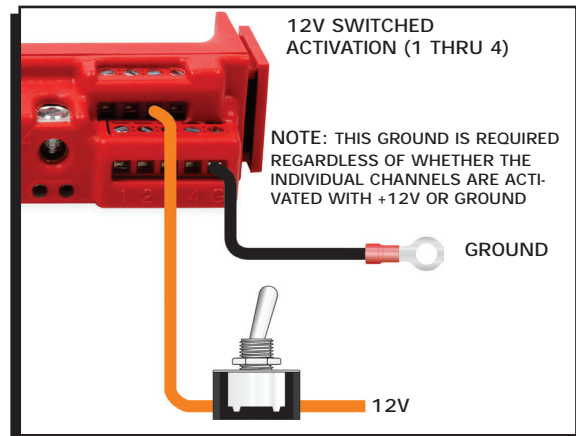


**Figure 2 Solid State Relay.**

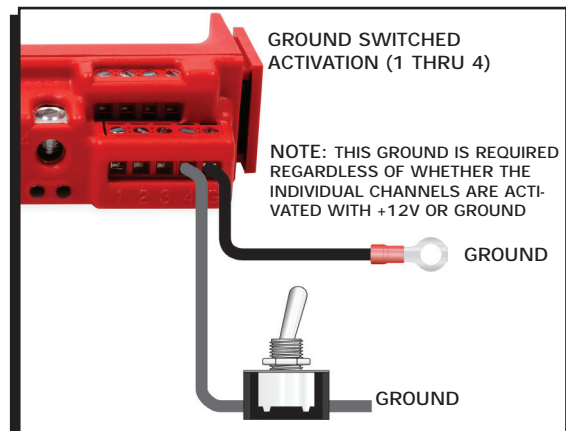
**Wire Size Selection Guide**

Current Rating AMP	Minimum Wire Size AWG
140	2
100	2
80	4
60	6
35	8

**Table 1 Wire Selection Guide**



**Figure 3 12V Activation.**

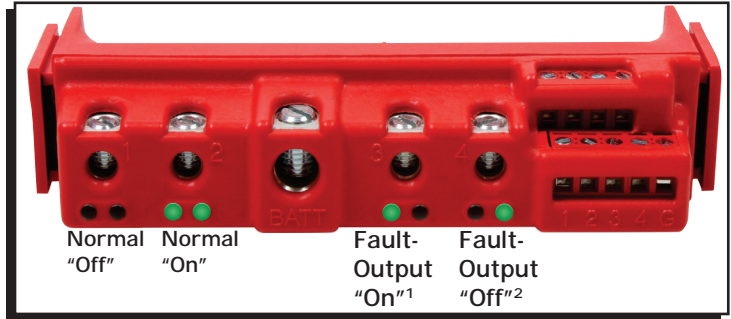


**Figure 4 Ground Activation.**

**LED INDICATORS**

Each relay branch has two diagnostic LEDs just below the corresponding terminal. The LEDs status can assist with diagnosing wiring problems, locating short circuits, or excessive current draws (Figure 5).

**Diagnostic:** Verify battery and ground connections. Deactivate/Reactivate the faulted channel(s) to reset.



**Figure 5 Diagnostic LED**

<sup>1</sup> Fault due to 12V applied directly to the output, or faulty unit.

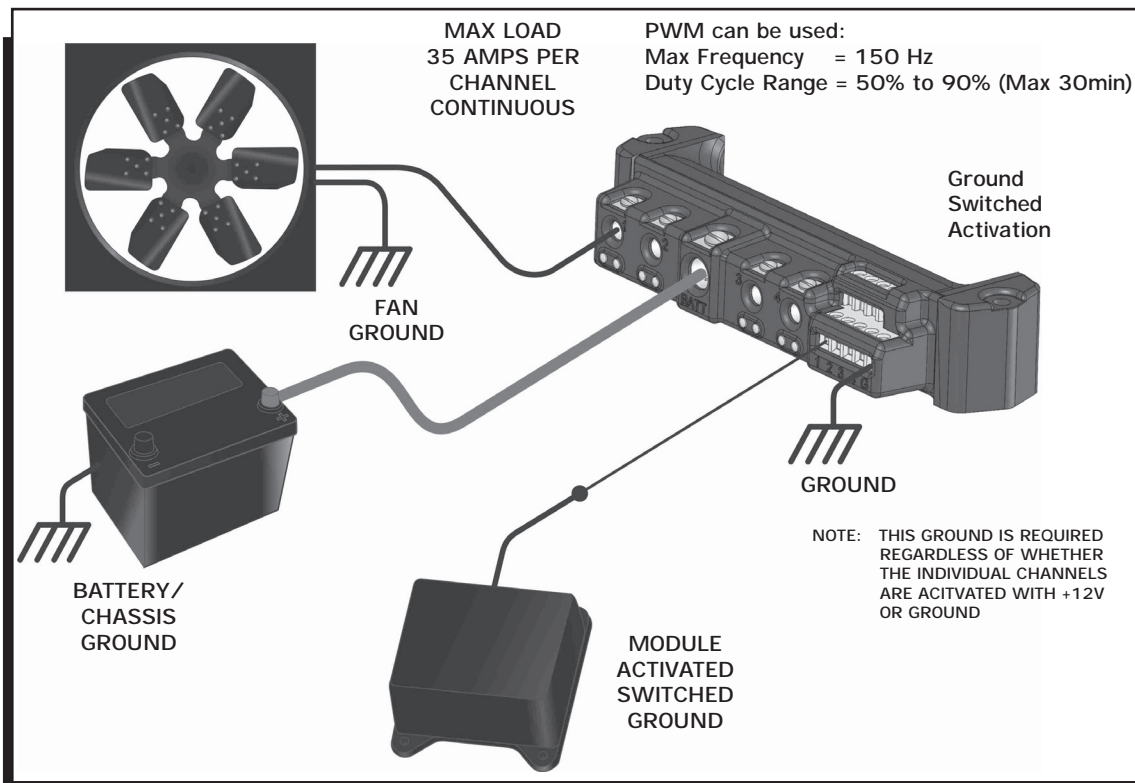
<sup>2</sup> Fault due to over-current, missing BATT Power or Ground. Reset faulted channels(s) by deactivating/re-activating via applicable trigger wires(s).

**7564-HC vs 7564 Performance Comparison**

Max ON Time	Amperage Per Channel 7564	Amperage Per Channel 7564-HC	All Channels 7564-HC
Continuous*	20	35	140
3+ Hours	25	40	160
30+ Minutes	30	45	
12 Minutes	35	50	
35 Seconds	40	60	
12 Seconds	45	80	
8 Seconds	50	100	

**Table 2 Amperage VS Time**

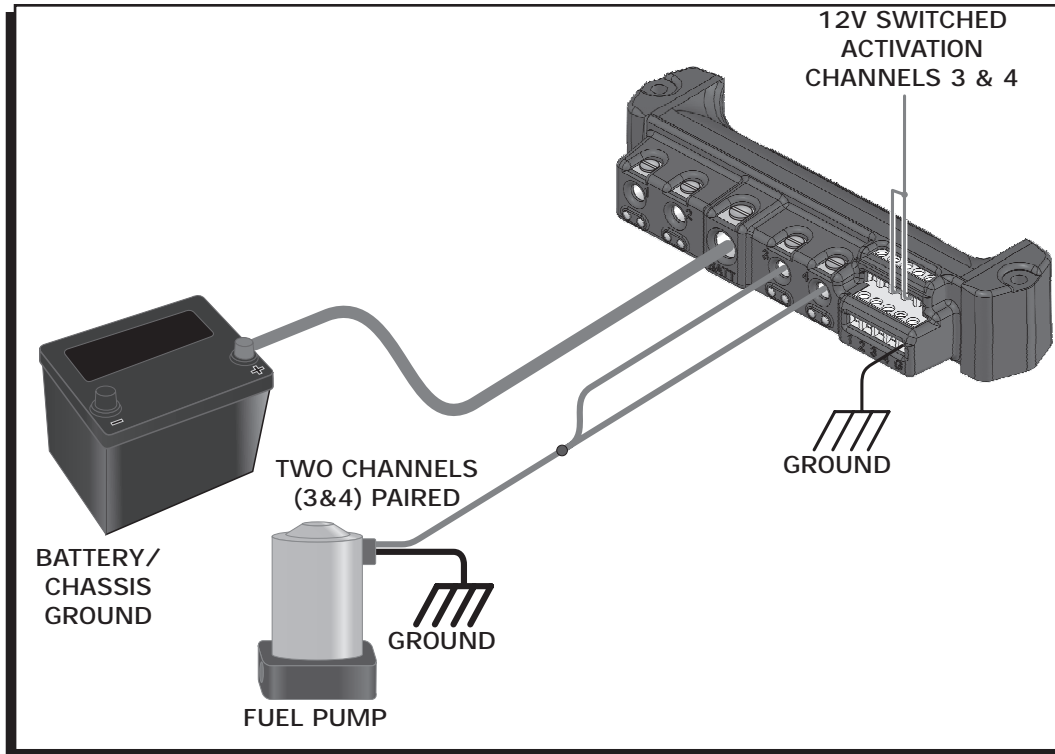
\* See Table 1 for wire size specifications.



**Figure 6 PN 7564-HC Typical Applications.**

**Note:** Two, or more, channels can be combined for devices requiring more than a 35A continuous single-channel rating. See Figure 7 for paired channel operation.

# MSD INSTALLATION INSTRUCTIONS



**Figure 7 PN 7564-HC Paired Channel Application.**