



OWNERS MANUAL SSC3

Solid State Contactor Models:

SSC3-200A (200 Amps, 2 Lug)

SSC3-200B (200 Amps, 4 Lug)

SSC3-300 (300 Amps, 4 Lug)

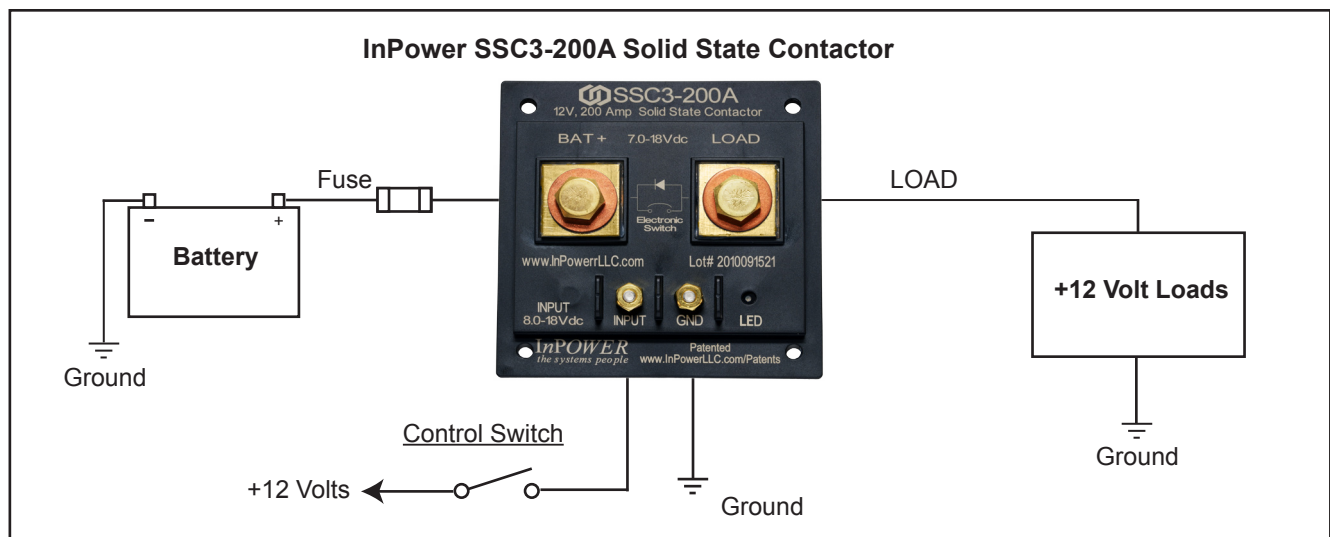
1.0 Introduction

The InPower SSC3 Series is a family of high current solid state DC contactors. These contactors are available in current ratings of 200 and 300 amps, and are packaged plastic case with a metal baseplate. As they have extremely low current draw when in the off state, they are ideally suited for use as load disconnect switches. A key feature is the contactor's highly efficient, low on-resistance, DC power switch. This results in superior performance by producing a low voltage drop and generating only a small amount of internal heat.

The SSC3 family also incorporates LoadLogic technology which automatically compensates for different types of loads, starting up difficult loads, yet accurately detecting a dead short fault. It assists with starting up into resistive loads, inductive loads, capacitive loads, incandescent loads, and identifies dead short faults.

The status LED indicator is on when the SSC3 is ON (off when OFF), and flashes to indicate a fault shutdown. Automatic fault shutdown occurs for over-current, loss of ground, high/low-battery voltage, and/or over-temperature. In a fault condition the contactor is latched in the off state. To reset the unit the faults must be cleared; then the control input voltage must be removed (<4.0V), then re-applied (>8.0V). Removing the +BAT cable will also reset the unit.

The control INPUT and GND inputs utilize a 8-32 Threaded Terminals. The brass nuts on the INPUT and GND terminals shall be torqued to 4-5 inch lbs. Connections for the high current DC cables utilize 3/8" - 16 brass bolts and copper washers with brass contact pads for low contact resistance. Four 0.20" mounting holes allow for solid mounting to a secure metal surface.



2.0 System Operation

The SSC3 is controlled by a positive DC voltage on INPUT terminal. The turn ON voltage is +8.0 Vdc (Range of +8.0 to 18.0 Volts). The turn OFF voltage is <+4.0 Vdc. **Note that the input voltage must drop to under +4.0 volts, then increase to +8.0 volts to turn on again.**

Certain fault conditions will cause the power switch to turn off and the LED to start blinking. The SSC3 will remain latched off until the fault(s) are cleared, the INPUT voltage removed, then the INPUT voltage re-applied.

The fault conditions that the SSC3 will recognize include:

1. Over-current condition for greater than 1 Second.
2. Loss of ground
3. Under-voltage
4. Over-voltage
5. Over-temperature
6. Shorted Load Detection

3.0 Specifications

Current Rating:	200 Amps (SSC3-200A/B), 300Amps (SSC3-300)
Standby Current:	3.8 milliamps
Over-current Protection Trip:	205 Amps (+/- 2 Amps) for 1 sec (SSC3-200A/B) 305 Amps (+/- 2 Amps) for 1 sec (SSC3-300)
Operational Temperature Range:	-40° to +185° F (-40° to +85° C)
Over-temperature Shutdown:	> 185° F (> 85° C)
Operational Voltage Range:	+7.0 to +18.0 Volts
Fault Reset:	Remove Voltage (<4.0V) and then reapply a voltage (>8.0V) if no faults exist.
LED Indicator:	Switch on = LED ON, Switch off = LED Off, Faults exist = LED Flash
INPUT Signal Voltage Range:	+8.0 to 18.0 Volts (True - ON), < 4.0 Volts (False - OFF)
Standby Current:	<3.8mA
Environmental:	Designed to IP67
Power Terminal Torque:	Brass Bolts and Copper Washers (supplied with SSC3) torqued to between 10 to 15 ft-lb.
Input and Gnd Terminal Torque:	8/32 Screw Terminal with Brass Nuts torqued to between 4 to 5 Inch Lbs.



WARNING!



4.0 Installation Procedure

Do not weld on the vehicle with the SSC3 installed and connected as damage to the product may result. If electric welding is necessary, disconnect the control INPUT terminal, and the cables attached to the LOAD and BAT+ terminals. Damage due to electric welding while the unit is installed will void InPower's warranty.

4.1 Introduction

This manual provides instructions for installing InPower SSC3 Solid State Contactors. It is important that you follow these instructions carefully and contact InPower if you need assistance or more information.

You can contact InPower at:

InPower LLC
8311 Green Meadows Drive
Lewis Center, Ohio 43035
740-548-0965
www.InPowerLLC.com

4.2 Safety Precautions

This product requires the installer to be trained for installation and work on vehicle electrical systems. We recommend that all wiring meet the SAE and applicable vehicle manufacturer's wiring specifications. Inspect the product and all other components for damage before starting the installation. Do not perform the installation if any problems exist.

Make sure that the vehicle battery power is disconnected during installation of the solid state contactor. Reconnect the battery when the installation is complete. Wear appropriate safety equipment such as eye-glasses, face shield and clothing when installing the equipment and handling the battery. Be careful when working near a battery or loads with high current conductors. Make sure the area is well ventilated and that there are no flames near the battery. Never lay objects on the battery that can short the terminals together or to ground. If battery acid gets in your eyes immediately seek first aid. If acid gets on your skin immediately wash it off with soap and water.

4.3 Mounting Location

First determine where the contractor will be mounted. We recommend mounting it to a flat metal surface that can absorb heat produced by the contactor. Also take into consideration the maximum current needed and the maximum mounting surface temperature (See Specification Section). **The SSC3 should not be mounted in the engine compartment or any location near the engine's heat.** For maximum thermal efficiency the mounting surface should be a thick metal surface such as an aluminum plate 1/8 x 16 x 16 inches or larger.

To facilitate heat transfer, please apply a thin layer of silicon thermal material (user supplied) to the metal plate on the bottom of the SSC3. Smooth this out with a flat edge to insure there are no gaps. Secure the contactor to the flat metal surface using four screws and tighten to a torque setting of 5 inch pounds. **Do not drill out the contactor's four mounting pad holes to use a larger bolt size.**

4.4 Connect the GND

Proper operation of the SSC3 is dependent on a good quality ground system with appropriate sized wires for connection to the chassis battery and the load. For the grounding of the SSC3, be wary of attaching to the frame since many manufacturers only recommend grounding directly to the Engine Block as a guaranteed ground. Consult the recommended grounding documentation for your vehicle.

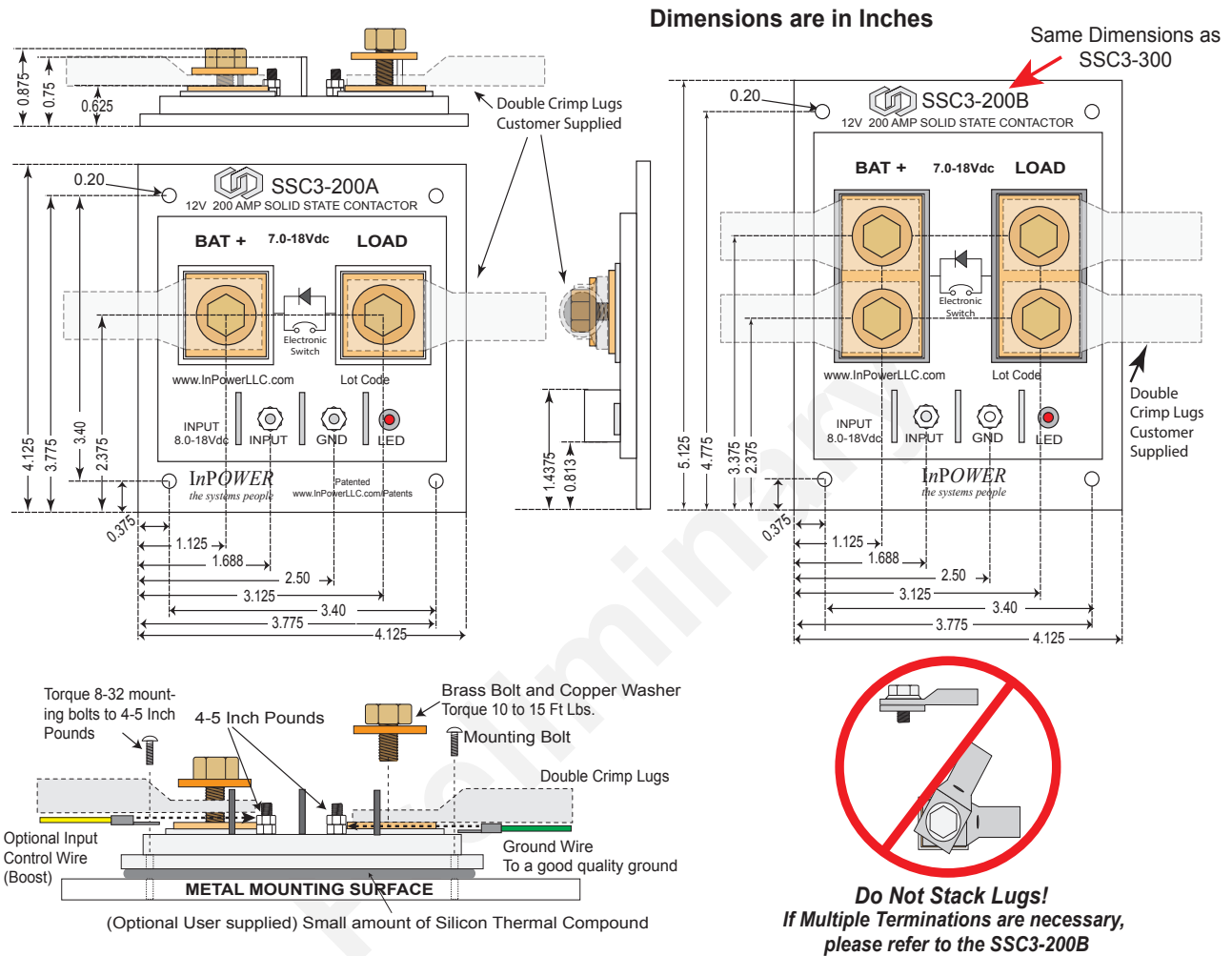
Install a #16 AWG ground wire with a ring terminal and connect it to this good quality ground. Place this on the GND terminal and torque the brass nuts on the 8/32 screw terminal to 4 - 5 Inch Lbs.

4.5 Connect the POWER CABLES and Control INPUT

Prepare the cables to the battery and auxiliary load using an appropriate size cable for the current required. Install a double crimped (or 360 degree crimped) lug terminal on the ends. BAT+ terminal is connected to the positive feed from the chassis battery and LOAD terminal is connected to the auxiliary load(s).

To connect the control voltage to the INPUT terminal, install a #16 AWG ground wire with a ring terminal, and connect that to a 12V control voltage. This can be a switch or voltage source of your choice such as the IGNITION signal. Refer to the input voltage specifications for this interface. Place the ring terminal on the GND terminal and torque the brass nuts on the 8/32 screw terminal to 4 - 5 Inch Lbs.

5.0 Mechanical Specifications and Installation Diagram



6.0 Testing Procedure

Make the following resistance measurements with a digital multimeter with all wires removed from the SSC3.

1. Measure the resistance between the two power terminals (BAT+ to LOAD). The resistance should be 150-160 kOhms in either direction.
2. Measure the resistance from the control INPUT terminal to the GND terminal. The "+" probe should be on the INPUT and "-" probe on the GND. The resistance should be 130 kOhms.
3. Measure the resistance to ground of each power terminal to a GND terminal with the "+" probe on the power terminal and "-" probe on the GND.
4. The resistance should be 104K (BAT+) and 50K (LOAD) Ohms.