Installation Instructions

6391308 **8 Function Switch Panel**

The 6391308 control system is a modular switch panel system with 5 on/off switches (1, 2, 3, 4, and 6) and 3 momentary switches (5, 7 and 8) for controlling vehicle 12 volt auxiliary devices. The power module can support up to 8 inputs and 8 outputs. This packet contains the following documents:

- Switch Module (3035624) Instructions ..... pg. 1
- Power Module (3035625) Instructions ..... pg. 2
- Wiring Instructions ..... pg. 3
- Switch Legend Kit (3035629) Instructions ..... pg. 4
- Input/Output Diagram ..... pg. 5
- Program Logic Description ..... pg. 6-7
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Switch Module (3035624) Instructions

The VCMSII switch module contains software that controls the entire VCMSII system. A label on the rear of each switch module indicates the model number, manufacturing LOT code, and the program number loaded into the module (fig. 1). Please have these numbers ready should you need technical assistance. For technical assistance, please call InPower Customer Service at 740-548-0965.

Fig. 1

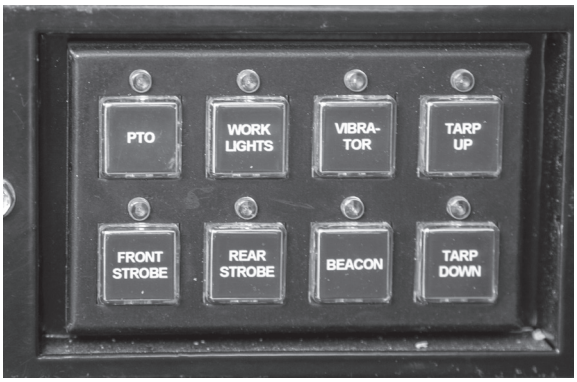


MOUNTING YOUR VCMSII SWITCH MODULE

Customer must supply:

- (4) 6-32 nuts and lock washers per module
- (1) case ground wire terminated with a ring terminal per switch module when mounting to an ungrounded surface.

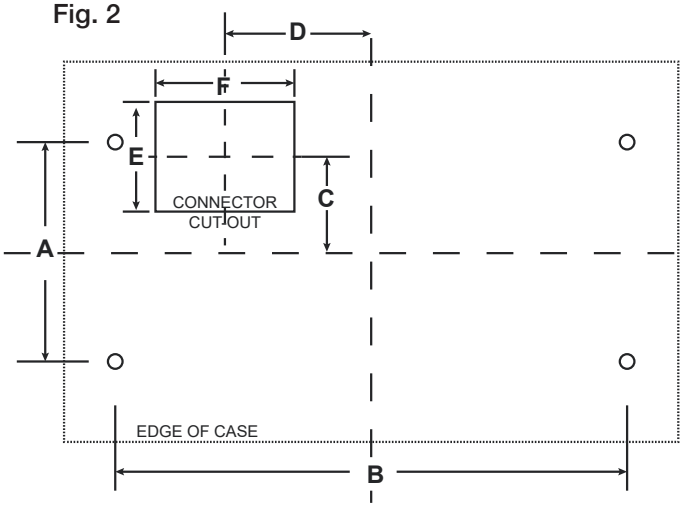
1. Determine the best flat surface on which to mount the switch module. The switch modules are moisture resistant; however, care should be taken to mount them in areas where they will not collect moisture.



Take into account the routing of the interconnecting 8-pin system communication cable that attaches to the rear of the module.

2. Drill four mounting holes and cut the connector clearance hole in the mounting surface. See mounting cutout details below for dimensions (fig. 2).

Fig. 2



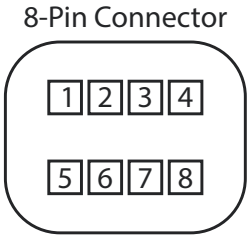
Template Dimensions	
A	1.50 in
B	3.50 in
C	0.50 in
D	1.00 in
E	1.00 in
F	1.20 in

3. Mount the switch module using the four 0.70 inch long 6-32 threaded studs protruding from the rear of the module. Use one 6-32 nut and one lock washer per stud.

—continued inside

4. Connect a static ground wire to one of the studs. We recommend using a wire terminated with a ring terminal wire between one lock washer and the unit case. Make sure this wire is connected to a good quality chassis ground. This wire ensures that the switch panel is protected against any excess static shocks.
5. Plug in the 8-pin connector of the Data Originator Cable (P/N 3035627) to the connector on the rear of the module.

Fig. 3

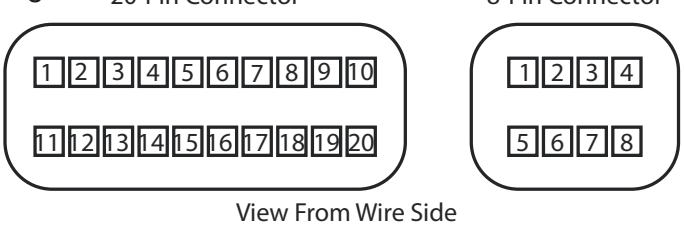


6. Ground the VCMSII electronic system by connecting the black wire from Pin 5 in Data Originator Cable (P/N 3035627) connector of the VCMSII switch module to a good quality chassis ground.
NOTE: This ground connection provides the ground for all other VCMS II modules connected to the switch module through the communications cable. Do not connect any other external grounds to the VCMSII connectors. This may create a ground loop potential that could interfere with proper operation of the system.
7. Install the other VCMSII modules according to their respective installation instructions.

Power Module (3035625) Instructions

- The VCMSII Power Module (3035625) connects your VCMSII system to inputs, outputs and fused power.
- The VCMSII Power Module has two connectors (fig. 4):
  - (1) 8-pin Molex 150 connector for communication and ground between VCMSII system modules
  - (1) 20-pin Molex 150 connector for system inputs, outputs and 12 volt power

Fig. 4



- The 20-Pin connector has 8 system signal inputs (pins 1, 2, 3, 4, 7, 8, 9, 10), 4 system 12 volt power inputs (pins 5, 6, 15, 16), and 8 power load outputs (pins 11, 12, 13, 14, 17, 18, 19, 20). On the Power Cable (P/N 3035626), the system signal input wires are WHITE, the system 12 volt power inputs are RED, and the power load outputs are BLUE. Each wire is labeled.

MOUNTING YOUR VCMSII POWER MODULE

1. Determine the best location for the module. Take into account the routing of the interconnecting cables (communication and power) to ensure proper clearance and easy access for service.
2. The module should be mounted on a flat, metal surface to avoid distortion of the case during mounting process and for later heat dissipation. If no metal surface is available, provide a metal plate with a minimum of 144 square inches (12 x 12) of surface area to accommodate heat sinking of the power module.

WIRING - Power Inputs: 20 PIN Power Cable

- Determine total current requirements for the power module operation. This will determine how many fused power inputs will be required. Any unused power inputs should be safely taped back to avoid end user using these connections or inadvertently shorting them out.
- On the Power Cable (P/N 3035626), the power input wires are RED.

Total Current Requirements	Minimum Number of Power Inputs
0 to 14 amps	1 x 15 amp fuse
15 to 29 amps	2 x 15 amp fuses
30 to 44 amps	3 x 15 amp fuses
45 to 60 amps	4 x 15 amp fuses

Power Outputs: 20 PIN Power Cable

- The VCMSII Power Module has eight power outputs, which are over-current protected for up to 15 amps per output (60 total per module). The outputs must be connected to the appropriate load from the pin locations noted on page 1 in the connector diagram. There is no need for additional circuit protection.
- On the Power Cable (P/N 3035626), the power output wires are BLUE. We recommend that spliced connections be soldered and protected with weather-resistant heat shrink tubing.

Control Inputs: 20 PIN Power Cable

• The VCMSII Power Module input connections are customized to your specific needs. They can be programmed to be pull up (ground true) or pull down (+12V true). Consult your I/O diagram for connection requirements for each of these inputs.

• Some input connections are not used. No special termination is required for unused inputs.

• On the Power Cable (P/N 3035626), the input wires are WHITE.

System Communication Connections: 8 Pin

• The 8 Pin connector serves as the communication port for the VCMSII system control. It has wires for system data and system ground. The system needs only a single ground from the main switch panel to a good chassis ground. ***Do not connect any other grounds to your system*. Making more than one ground connection may cause incorrect operation of the system.***

**** Note: To dissipate any static generated moving in and out of the vehicle, we recommend grounding the switch panel cases. This case ground, intended only to protect the specific switch panel from static damage, should not be confused with the system ground, which grounds the electrical system itself.***

• The Data Origin Cable (P/N 3035627) includes a single blunt-cut BLACK wire for system ground.

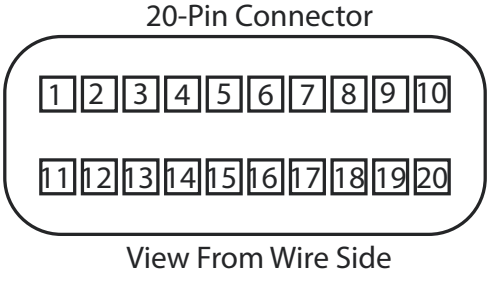
Wiring Instructions

The VCMSII control system is modular and fully customizable. The system uses Molex 150 series connectors for all connections. Three connectors with blunt cut wires are included in your kit for wiring power, inputs, outputs and data between modules.

CONNECTORS AND PRE-ASSEMBLED BLUNT CUT PIGTAILS

20-pin Connector (fig. 5)

Fig. 5

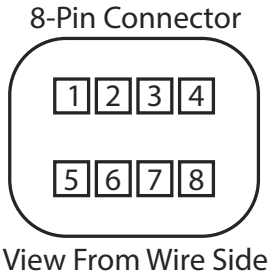


• 3035627 Power Cable is the connection for system inputs, system outputs and fused power to the power module.

• System user inputs 1 to 4 connect to Pins 1 to 4 (White). System user inputs 5 to 8 connect to Pins 7 to 10 (White). User outputs 1 to 4 connect to Pins 11 to 14 (Blue). User outputs 5 to 8 connect to Pins 17 to 20 (Blue). Primary Fused Power connects to Pins 5, 6, 15 and 16 (Red).

8-pin Connectors (fig. 6)

Fig. 6



• 3035627 Data Origin Cable is the data connector used on the Switch Module. This connector contains the VCMII primary ground connection on Pin 5 (black).

• Primary System Ground goes to Pin 5 (black). This ground is passed through Pin 1 (Black). Module power passes through Pin 4 (Red). Module data communications pass through Pin 2 (Pink) and Pin 3 (Yellow). Pins 6, 7 and 8 are plugged.

• 3035628 Data Termination Cable is the data connector used on the Power Module to terminate the data connections.

• Pins 1 to 4 are plugged. Module ground passes through pin 5 (black). Module power passes through Pin 8 (Red). Module data communications pass through Pins 6 (Pink) and 7 (Yellow).

MAKING CONNECTIONS TO VCMSII MODULES

• Connections to the pre-assembled blunt cut pigtails must be soldered and covered with weatherproof sealed heat shrink tubing. Unused wires must be covered with weatherproof sealed heat shrink tubing and taped back to ensure they do not short out or get used for other circuit applications that may interfere with proper function of the system.

SYSTEM GROUND

• The VCMSII is designed to have only one system ground. This ground connection should be made at the master switch panel location with a single black wire from Pin 5 on the 8-pin connector. On the Data Origin Cable (P/N 303628), the wire will be BLACK.

Switch Legend Kit (3035629) Instructions

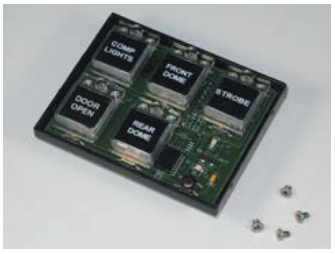
1. Installing and customizing legends for the 3035624 Switch Module is easy. Each push button switch contains a separate molded switch cap. The Legend Kit contains ten silicone light diffusers and several sheets of different switch legends.

2. To install legends, remove the four side screws on the Switch Module. Then, remove the top case. The switch caps may now be removed (fig. 7)

Fig. 7



Switch Module Fully Assembled. *(6 funtion shown)*



Switch Module with Top Case Removed. *(6 funtion shown)*

3. A matrix of forty legends are printed on each sheet of special photographic paper (fig. 8). Be sure to reference your System Input/Output diagram. Cut out the desired legends, then place legend into the switch caps, followed by the light diffusers. Press the diffuser fully into the switch cap using a blunt object such as a closed ball point pen. No adhesive required (fig. 9).

Note: If you need to replace a legend, take care when removing the diffuser so as not to gouge it. We recommend using a pair of blunt nosed pliers.

Fig. 8

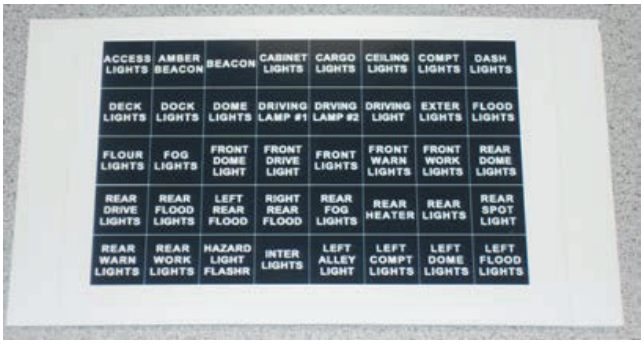
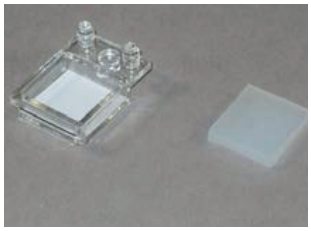


Fig. 9



Switch cap, light diffuser and printed legend.



Switch cap with printed legend installed.



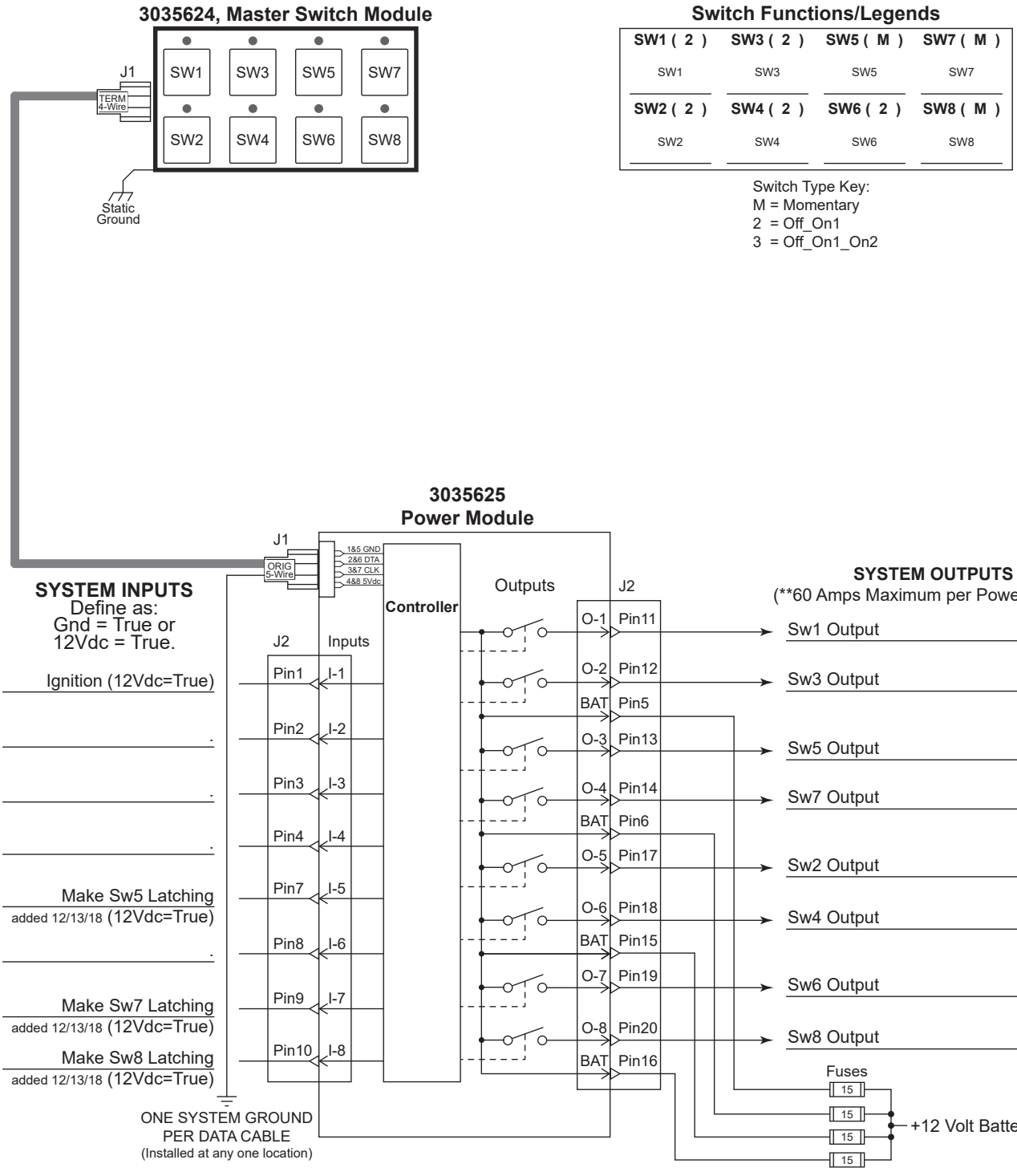
Switch Cap with printed legend and light diffuser installed.



Switch Cap with printed legend and light diffuser assembled.

4. When the switch caps are fully assembled, return them to the switch module. Make certain the two prongs on the underside of the switch cap are fully seated in their holes. Then, replace the top case and the screws.

System Input/Output Diagrams



Switch Panel System 6391308 Program Logic

SYSTEM COMPONENTS:

(1)	3035624	Switch Module, 8-Position SP73 Software & Buyer's Label
(1)	3035625	Power Module
(1)	3035626	20-Pin Connector with twenty 12" blunt cut wires
(1)	3035627	8-Pin Connector with five 12" blunt cut wires for Data & System Ground
(1)	3035628	8-Pin Connector with four 12" blunt cut wires for Data
(1)	3035629	Generic Legend Kit

3035624 SWITCH MODULE ASSIGNMENTS:

Sw1	Latching	(Off_On1)
Sw2	Latching	(Off_On1)
Sw3	Latching	(Off_On1)
Sw4	Latching	(Off_On1)
Sw5	Momentary or Latching	(Mty or Off-On1), I5 Controlled
Sw6	Latching	(Off_On1)
Sw7	Momentary or Latching	(Mty or Off-On1), I7 Controlled
Sw8	Momentary or Latching	(Mty or Off-On1), I8 Controlled

3035625 Power Module INPUT ASSIGNMENTS:

I1,Mod1 – Ignition	(12Vdc = True)
I5,Mod1 – Make Sw5 Latching	(12Vdc = True)
I7,Mod1 – Make Sw7 Latching	(12Vdc = True)
I8,Mod1 – Make Sw8 Latching	(12Vdc = True)

3035625 Power Module OUTPUT ASSIGNMENTS:

O1,Mod1 – Switch 1 Output
O2,Mod1 – Switch 3 Output
O3,Mod1 – Switch 5 Output
O4,Mod1 – Switch 7 Output
O5,Mod1 – Switch 2 Output
O6,Mod1 – Switch 4 Output
O7,Mod1 – Switch 6 Output
O8,Mod1 – Switch 8 Output

Switch Panel System 6391308 Program Logic, continued

SWITCH MODULE BACK LIGHTING and SPECIAL FUNCTIONS:

- Set Backlighting On when I1,Mod1 (Ignition) True.
- Clear switches All Switches when I1,Mod1 (Ignition) is False.
- Set Backlight Off when I1,Mod1 (Ignition) is False.
- When I5,Mod1 (Make Sw5 Latching) is true switch Sw5 is no longer a momentary switch but becomes a latching Off-On1 switch.
- When I7,Mod1 (Make Sw7 Latching) is true switch Sw7 is no longer a momentary switch, the mutually exclusive function with Sw8 is disabled, and Sw7 becomes a latching Off-On1 switch.
- When I8,Mod1 (Make Sw8 Latching) is true switch Sw8 is no longer a momentary switch, the mutually exclusive function with Sw7 is disabled, and Sw8 becomes a latching Off-On1 switch.

PROGRAM LOGIC:

- Output O1,Mod1 (Switch 1 Output) = On if Sw1 is On.
- Output O2,Mod1 (Switch 3 Output) = On if Sw3 is On.
- Output O3,Mod1 (Switch 5 Output) = On if I5,Mod1 (Make Sw5 Latching) is false and Sw5 is On Momentary. OR;
- Output O3,Mod1 (Switch 5 Output) = On if I5,Mod1 (Make Sw5 Latching) is true and Sw5 is On.
- Output O4,Mod1 (Switch 7 Output) = On if I7,Mod1 (Make Sw7 Latching) is false and Sw7 is On Momentary and Sw8 is Off. OR;
- Output O4,Mod1 (Switch 7 Output) = On if I7,Mod1 (Make Sw7 Latching) is true and Sw7 is On.
- Output O5,Mod1 (Switch 2 Output) = On if Sw2 is On.
- Output O6,Mod1 (Switch 4 Output) = On if Sw4 is On.
- Output O7,Mod1 (Switch 6 Output) = On if Sw6 is On.
- Output O8,Mod1 (Switch 8 Output) = On if I8,Mod1 (Make Sw8 Latching) is false and Sw8 is On Momentary and Sw7 is Off. OR;
- Output O8,Mod1 (Switch 8 Output) = On if I8,Mod1 (Make Sw8 Latching) is true and Sw8 is On.

WARRANTY

Buyers Products Co. warrants all truck/trailer hardware manufactured or distributed by it, to be free from defects in material and workmanship for a period of one year from date of shipment. Parts must be properly installed and used under normal conditions. Any product which has been altered, including modification, misuse, accident or lack of maintenance will not be considered under warranty. Normal wear is excluded. The sole responsibility of Buyers Products Co. under this warranty is limited to repairing or replacing any part or parts which are returned, prepaid, and are found to be defective by Buyers Products Co. Authorization from Buyers Products Co. must be obtained before returning any part. No charges for transportation or labor performed on Buyers' products will be allowed under this warranty.