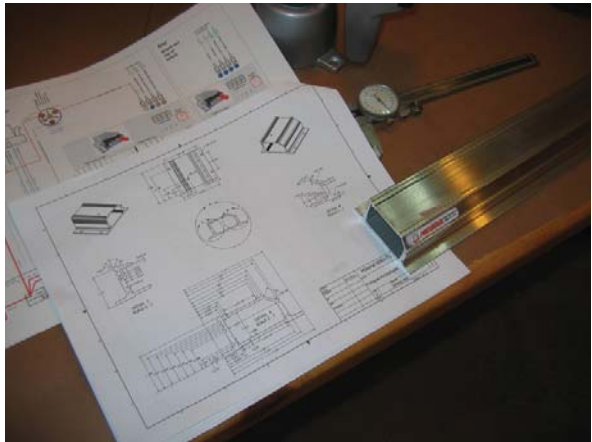
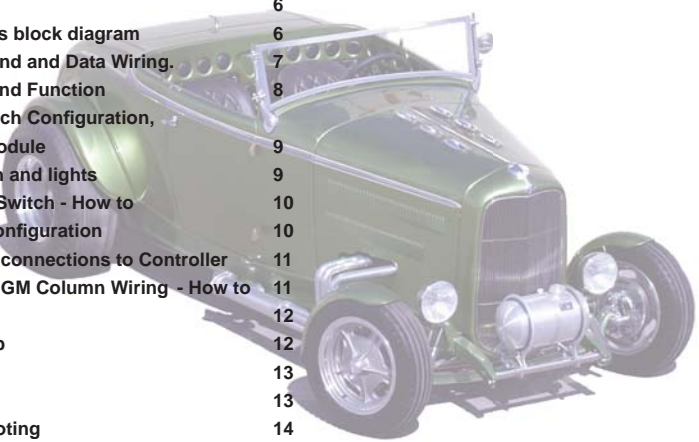




*Basic Signal Set*

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Made in U.S.A.



### System:

The basic Pro-Signal® system controls left, right, front, rear turn and park lights, flasher functions, brake and park lights along with horn and dash indicators. Pro-Signal® components may be used alongside legacy fuse systems to meet any vehicle wiring requirements.

### Controller Module:

The Pro-Signal® Control Module attaches to the steering column and driver controls. The Control Module also connects to the dashboard indicators and can drive either incandescent bulbs or LEDs. The Control Module senses the switch changes, actuates dashboard indicators, and then sends a data-packet containing the switch states across the system's two-wire data bus to the appropriate Output Module.

### Output Modules:

The Pro-Signal® Output Module distributes power to accessories and indicators from locally mounted output modules. Each module can handle up to 4 circuits with a continuous load of up to 25 Amps per circuit. The 100% solid-state electronics provides switching for each circuit according to commands from the Control Module, while continuously monitoring each circuit for short-circuits.



## Series Descriptions

While we can't anticipate all configurations the Pro Signal does cover most signaling configurations.

**PRO-SIGNAL<sup>®</sup> TECHNOLOGY MAY BE USED IN ANY VEHICLE, OR ANY SYSTEM THAT USES 12V POWER AND HAS A NEED FOR SIGNALING LIGHTS. THIS INCLUDES AUTO, OFF ROAD, AGRICULTURAL EQUIPMENT AND RECREATIONAL VEHICLES. IT REPLACES TRADITIONAL MULTI-WIRE HARNESSSES, RELAYS, FUSES, AND FLASHER CANS WITH SOLID-STATE, MICRO CONTROLLER MODULES.**

**PRO-SIGNAL<sup>®</sup> REPLACES TRADITIONAL FUSES BY SENSING THE CURRENT THROUGH AN ACCESSORY AND AUTOMATICALLY SHUTTING DOWN THE CIRCUIT IN THE CASE OF A SHORT CIRCUITS. ONCE THE SHORT HAS BEEN REMOVED THE MODULE AUTOMATICALLY RESETS THE CIRCUIT.**

**BASIC SIGNAL SET  
PROVIDES SIGNALING NEEDS FOR ALL  
12V VEHICLES.**

<b>INPUT FUNCTION</b>	<b>To ACTIVATE</b>
• <b>ACC</b>	<b>+12V</b>
• <b>PARK</b>	<b>+12V</b>
• <b>HORN</b>	<b>GROUND</b>
• <b>LEFT TURN</b>	<b>+12V</b>
• <b>RIGHT TURN</b>	<b>+12V</b>
• <b>BRAKE</b>	<b>GROUND</b>
• <b>BACK-UP LIGHT</b>	<b>GROUND</b>
• <b>FLASHER</b>	<b>+12V</b>



## What's Included

V2 modules have a set of faston connector cables included with each module. 6'-10'



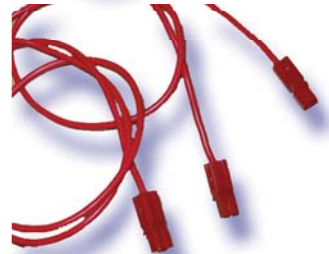
Input cable with connector  
4'-6'



Data harness with module  
connectors, assembled.  
Ground wire included.  
20' span



Power cables, three; assembled.  
8'  
10'  
14'



Modules, one controller; two  
output modules.  
V2 Rear module shown, graphics  
series, Graphite.



## Mounting

The modules are moisture and vibration resistant and mount in any convenient location away from extreme heat sources, such as engine headers. The bolt pattern is 2.45x1.50", #6 Hardware is recommended. Hex cap screws are preferred. Hardware not included

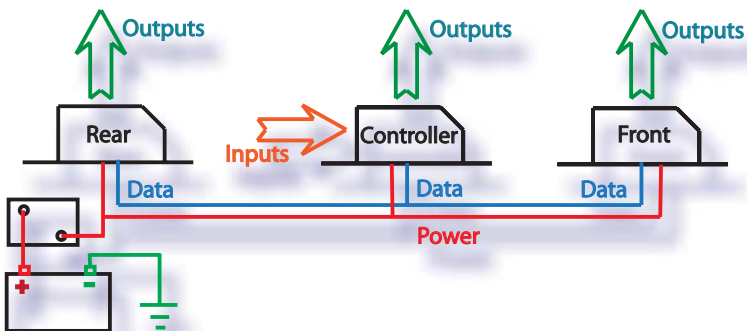


The Controller is normally mounted under the dash, output modules are mounted in the front and rear of the vehicle.

## Wiring:

The entire wiring harness for the Pro-Signal® system consists of three wires. A single power cable distributes power to all Pro-Signal® modules directly. The power cable is routed with a wire pair that forms the module data bus, creating the smallest possible wiring harness.

## Wire Harness block diagram



## Power, Ground and Data Wiring.



**Note:** Connect all ground wires to chassis prior to connecting power and data to modules. Ground wires are black and assembled with the data cable.

**Note:** Always use a manual battery disconnect or fuse to protect main power to modules. Pro Signal recommends a 40-50 amp marine style circuit breaker with manual disconnect. 50-80 amp version show, not included. A 40 amp fuse is also acceptable.



Ensure all grounds are clean and secure. Remove paint and oils.

Connect supplied power and data cables to modules and secure wires appropriately to avoid wire chafing.








**Tip:** Accessories like trunk lights and audio amplifiers that are not supported by the Pro Signal may be connected to the module input power cable with an after market fuse block.

See [Smart-Wiring.com](http://Smart-Wiring.com). Click on **Store** link.







# Wire Color and Function





## Controller Module Inputs

Function	Activate	Wire color	AWG	Function	Connects to
Acc	(+12V)		20	Input	Accessory pole, Ignition switch
Left Turn	(+12V)		20	Input	GM Connector Harness, pin H
Right Turn	(+12V)		20	Input	GM Connector Harness, pin J
Back-up	(GND)		20	Input	Back-up switch
Horn	(GND)		20	Input	GM Connector Harness, pin G
Park/License	(+12V)		20	Input	Head light switch
Brake	(GND)		20	Input	Brake switch





## Controller Module Outputs

Function	Wire color	AWG	Current	Connects to
Ignition Switch		14	25A	Battery pole, Ignition switch
Dash lights		16	15A	Dimmer or directly to gauges lights
Left/flasher IND		16	5A	Dash, Indicator bulbs
Right/flasher IND		16	5A	Dash, Indicator bulbs

## Front Module Outputs

Function	Wire color	AWG	Current	Connects to
Horn		16	15A	Horn
Park Light		16	15A	Front park light filaments
Left Turn		16	15A	Front Left turn light filament
Right Turn		16	15A	Front Right turn light filament

## Rear Module Outputs

Function	Wire color	AWG	Current	Connects to
Back-up		16	15A	Back-up light filament
Park Light		16	15A	Rear park/licence light filaments
Left Turn/brake		16	15A	Left Turn/Brake light filament
Right Turn /brake		16	15A	Right Turn/Brake light filament

Current limits are factory set

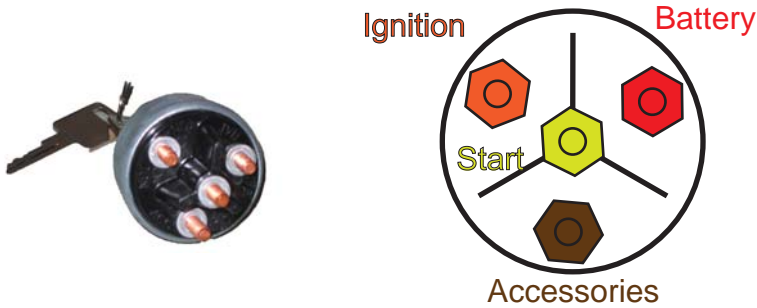
Module power, data and grounds not listed





## Ignition Switch Configuration, Controller Module

Use a common on/off/on/mom ignition switch, not included.



**Note:** Check with switch manufacture for maximum current ratings. Must be rated for a minimum of 25 amps.

Accessories pole must be connected to Brown 20awg input wire on controller.

## Brake switch and lights

Brake switch:

One pole of the brake switch is connected to the violet controller input wire, BRAKE; and the other pole of brake switch is grounded.

Brake light:

Connect the rear module wire, LEFT or RIGHT to the brake/turn/flasher lamp filament. Left is green, right is blue.

**Tip:** Wire names are underlined in this document.



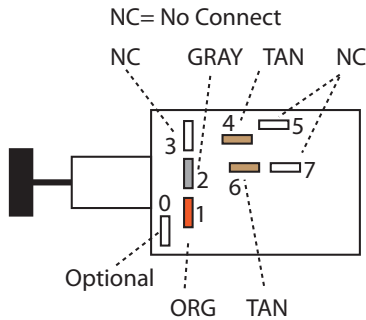
# Tail Lamp Configuration

## Standard

The 2 filament configuration will combine brake, turn and flasher into one filament, and the park light will use the second filament.

## Head Lamp Switch - How to

GM style head lamp switches with dimmers, as well as standard switches are supported by the Pro Signal.



GM style shown,  
bottom view

- 0) Dome light, (WHITE 16awg) installer supplied wire, optional
- 1) Ignition switch, battery pole (Orange 14awg) from IGN SW
- 2) To dash/gauge lights, dimmer (GRAY 16awg) installer supplied wire
- 3) Not used with Pro-Signal
- 4) Controller module input Park/Licence sense (TAN 20awg)
- 5) Not used with Pro-Signal
- 6) Controller module Dimmer or gauge lights (TAN 16awg)
- 7) Not used with Pro-Signal



## Turn Signal Connections to Controller

Common toggle and momentary switches can be used.

## Turn Signal, GM Column Wiring - How to

Controller inputs to GM column connector

<u>Horn</u> (PNK)	Connected to the “G” pin
<u>L Turn</u> (GRN)	Connected to the “H” pin
<u>R Turn</u> (LT BLU)	Connected to the “J” pin

Controller output to GM column connector

Ignition switch,  
battery pole (ORG) Connect to the “N and M” (16AWG)

**Tip:** See Pro Signal Basic Signal Set schematic for detailed information.

**Note:** All controller inputs are activated by applying +12V to the sensor wires, with three exceptions:

1. Horn
2. Brake
3. Back-up



The flasher wire on the GM column does not need to be connected when using a GM style column. Flash is activated through turn signal wires.



## Software

There is nothing for the installer to program. The system was designed to be easier to install than a legacy system. Programming isn't needed with a legacy system, and programming isn't needed with the Pro Signal system.

An interactive matrix for the Basic Signal Set can be viewed at <http://www.electronicprototypes/prosig.html>

### Common Safety Functions

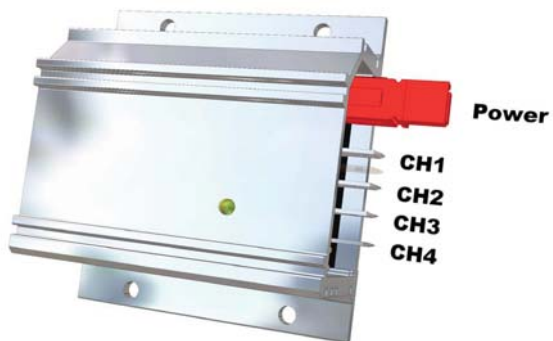
1. A hard short circuit shutdown is initiated by the controller after 2 seconds, and is reset by removing the short, turning off the accessory and then turning it back on.
2. Modules are shut down within 2 seconds if data cable is disconnected.

### Fault resets

1. In the event of a short circuit or overload to the ignition switch; power is restored by turning the switch to the ACC or IGNITION position and depressing the brake peddle.
2. All other circuits are reset buy turning off/on the corresponding sensor.

### Channel map

Each Pro Signal module has 4 output channels. Refer to the install schematic for channel functions.



# Electrical

## Basic Electrical Specifications:

System specifications:  
Model: PS4CH3MV2

Module	Inputs	Outputs	Output Power
Controller	7	4	75-350W
Front	0	4	200W ea ch
Rear	0	4	200W ea ch

### Min-Max Limits

Inputs	Ground to +15V
Output current limits	5 to 25Amps (Factory set)
Thermal operating	-35c to +85c

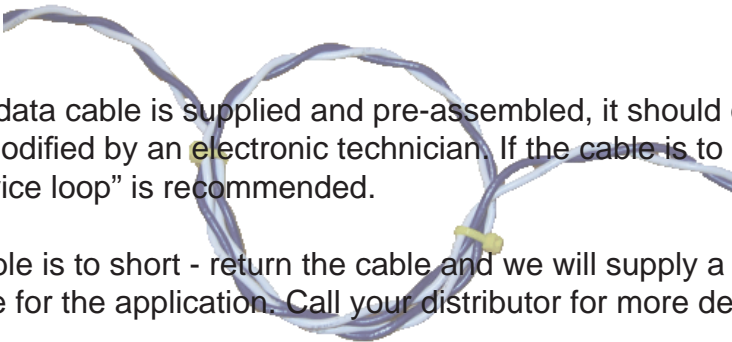
### System Status LED

Green,	Once every 10 seconds: healthy, communication okay
Orange,	Once every 10 seconds: module okay; no communication - check data cable.
Red,	Module error; call support
No LED,	Missing power or ground

### Notice:

All Smart-Wiring products are for chassis ground vehicles only.

## Service loop



The data cable is supplied and pre-assembled, it should only be modified by an electronic technician. If the cable is too long a “service loop” is recommended.

If cable is too short - return the cable and we will supply a longer cable for the application. Call your distributor for more details.



## Trouble shooting

**Problem:** Turn signals do not operate  
**Cause:** Ignition switch is off or brown ACC input wire is disconnected from ignition switch  
**Solution:** Turn ignition switch to ACC or IGNITION.  
Or connect brown wire to ignition switch.

## FAQ

**Question:** Can more than one accessory be connected to an Output Module circuit?  
**Answer:** Yes. If a Pro Signal circuit is overloaded it simply will not turn on.

**Question:** How is the system debugged?  
**Answer:** Use the following check off list.

1. Are the modules properly grounded?
2. Are the data and power cables connected correctly?
3. See System Status LED table on page 13 for correct operation.



# Glossary of Terms

**ACC:**

Accessory

**AWG:**

American Wire Gauge.

**BLK:**

Black

**BRN:**

Brown

**Channel:**

An electrical circuit

**Control lines:**

Two twisted wires from the controller to all output modules. These wires carry the data to turn on and off all accessories attached to the output modules.

**Camo:**

Camouflage

**Conn:**

Connector

**Current:**

A measure of electron flow (AMP)  
 $E/R = I$

**Data:**

Digitally formatted information

**FAQ:**

Frequently asked questions

**Filament:**

Illuminating wire in bulb

**GM:**

General Motors

**GND:**

Ground

**GRN:**

Green

**GRY:**

Gray

**IND:**

Indicator

**IGN:**

Ignition

**Legacy system:**

Old style wire harness

**LED:**

Light emitting diode

**Matrix:**

Software mapping grid of system functions.

**LT BLU:**

Light Blue

**Min-Max:**

Minimum to Maximum

**MOM:**

Momentary

**NC:**

Not Connected

**NO:**

Normally Open

**ORG:**

Orange

**OEM:**

Original Equipment Manufacture

**Pig tail:**

Wires from module that cannot be disconnected.

**PNK:**

Pink

**Pole:**

Electrical connection point

**Software:**

Not hardware

**SW:**

Switch

**VIO:**

Violet



# INDEX



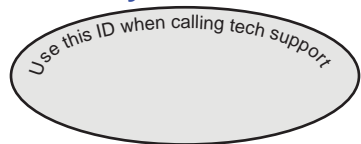
A	accessory	4	S	short circuit	12
	Answer	14		Software	12
B	bolt pattern	6	W	Wire Color	8
	Brake	9			
C	circuit breaker	7			
D	Data	7			
E	Electrical	13			
F	FAQ	14, 15			
	filament	10			
G	GM column	11			
	ground wires	7			
H	Hardware	6			
	heat sources	6			
	Horn	11			
I	Installation	4, 6, 7			
L	LED	13			
N	Note:	7, 9			
O	Output Modules	3			
Q	Question	14			
R	reset	12			

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## System ID



Universal-Prototyping-1.1.9

MODEL: PS4CH3MV2

