INSTALLATION INSTRUCTIONS

ELECTRIC SPEEDOMETER

2650-1268-00 Rev. C

IMPORTANT
WEAR SAFETY GLASSES

QUESTIONS:

If after completely reading these instructions you have questions regarding the operation or installation of your instrument(s), please contact AutoMeter Technical Service at **866-248-6357.** You may also email us at **service@autometer.com.** Additional information can also be found at **http://www.autometer.com/tech_faq.aspx**

General Information

This electric speedometer utilizes a LCD to display odometer and trip odometer mileage. Momentarily pressing the Trip/Reset button on the dial window cycles the odometer, trip 1, and trip 2 displays on the LCD. Pressing and holding the Trip/Reset button for more than two seconds while in either trip mode, will reset the trip odometer currently being displayed. The odometer cannot be reset.

NOTE: The odometer on this speedometer will show some mileage less than 5 miles (8 km). This is a result of factory testing to insure optimum quality.

Speedometer Senders

The speedometer is designed to operate with an electrical speed sender. The speed sender signal range must be between 500 and 400,000 pulses/mile (310 and 248,500 pulses/km). Any speed sender or electronic module that meets the following two conditions can be used:

1. Pulse rate generated is proportional to vehicle speed.
2. Output voltage within the ranges listed below:
   - Hall effect sender, 3-wire (5 to 16V)
   - Sine wave generator, 2-wire (1.4 VAC min.)
   - 5V Square wave (CMOS)

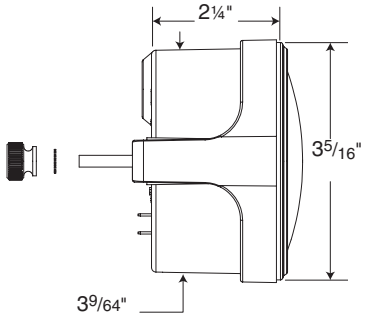
Recommended – AutoMeter Hall effect sender, 3-wire 16 pulses/revolution.

5291	Standard 7/8– 8 thread. 16 PPR, Hall Effect
5292	Ford, plug in. 16 PPR, Hall Effect Standard
5293	Standard 7/8-18 thread, 2 wire, 8 PPR sine wave
5289	GPS Interface Module
5290	Universal Speed Sensor
3299	Optional Tach/Speedo Gauge Connector

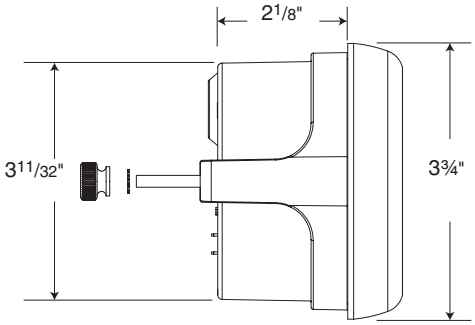
Mounting

1. Mount a 3 1/8" speedometer in a 3 5/32" dia. hole, a 3 3/8" speedometer in a 3 3/8" dia. hole and a 5" speedometer in a 4 5/8" dia. hole. Be careful not to cut the hole too large.
2. Cut a 3/8" dia. hole in the firewall for the speedometer wires. Place a rubber grommet in the hole and route the wires through the grommet to the engine compartment.
3. Connect the speedometer wires as shown in the wiring sections.
4. Secure the speedometer to the dashboard using the provided bracket and hardware.

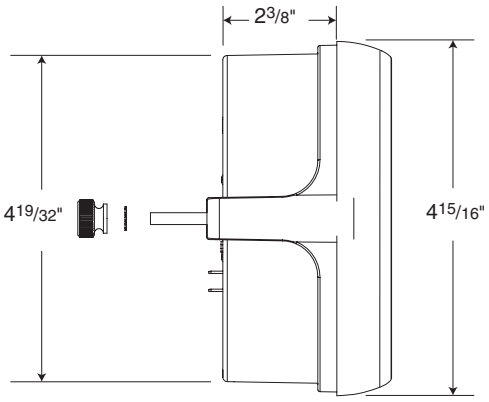
3 1/8" Models



3 3/8" Models



5" Models



Testing

Once the speedometer is mounted and wired into the vehicle, the speedometer should be tested to verify that the electrical connections are working properly. First, watch the speedometer's pointer as the power is applied. The pointer should first move to a midrange position, then down to the 0 position on the dial. This action verifies that power is properly connected to the speedometer. The vehicle should be driven some distance to verify the Vehicle Speed Sender (VSS) is connected properly and that the pointer moves. If the pointer does not move off of the zero position, verify that the VSS is connected properly. In some cases calibration may be needed if the pointer does not register speed. Follow the calibration procedure and retest.

Speedometer Calibration Notes and FYI

Your speedometer will arrive to you with a calibration of 16,000 PPM. PPM is "Pulses Per Mile". This default calibration is used as it is the most common calibration on a stock, domestic, cable driven speedometer vehicle when outfitted with a 16 PPR (pulse per revolution) speed sender, and stock transmission and rear differential gear ratios.

It is always a good idea to perform the calibration, especially if any drive-line changes have been made to the vehicle (including tire height), or if you are using a different speed sender, such as the 2-wire, 8 PPR speed sender.

If you have also purchased an AutoMeter GPS Interface Module, no calibration of either component is needed as long as both were purchased new, and no previous calibration has been attempted on either device.

On AutoMeter speedometers with the LCD odometer display, you will see a number displayed for just a second on power up, which is not the mileage. This number is the current PPM number. For most, this number does not mean much, however if you are running an after market computer, or cruise control, this number may be helpful to you (knowing your PPM) when calibrating your cruise control or computer. Its an easy way to know your PPM after calibration.

Calibration (Electric Speedometer calibration made easy!)

To calibrate your electric speedometer:

1. With the power off, push and hold the Trip/Reset button. While holding the button, start the vehicle and continue to hold the button until the pointer sweeps to full scale and stays at full scale. You may now release the button.
2. Drive to the beginning of a pre-marked 2 mile (2 kilometer) distance and stop. It does not matter how far away it is to get to this pre-marked 2 mile (2 kilometer) mile distance. DO NOT SHUT THE ENGINE OFF. Push and release the Trip/Reset button. The pointer will drop to half scale.
3. Drive the 2 mile (2 kilometer) distance. The pointer will remain at the half scale position no matter what speed you drive. It will be normal to see the LCD odometer counting rapidly as it is receiving a speed signal. If you have to stop during the calibration, that is o.k. The speedometer will simply stop counting pulses during this time.
4. At the end of the 2 mile (2 kilometer) distance, stop and press and release the Trip/Reset button. The pointer will drop to 0 and the calibration is stored. You are now finished.

Remember the accuracy of your 2 mile (2 kilometer) distance will directly affect the accuracy of your speedometer.

The following list contains factors that can affect speedometer accuracy and how to minimize them during calibration.

1. Tire diameter increases slightly as vehicle speed increases. To minimize this error drive at an average speed of 45 MPH (75 KPH) during calibration.
2. Tire diameter increases slightly as tire air pressure is increases. To minimize this error, check the vehicle's tires to ensure correct air pressure.
3. Tire diameter changes with vehicle load. Minimize this error by having an average load in the vehicle during calibration.
4. Minimize tire slippage error by not breaking traction during calibration.

Note: Always recalibrate speedometer after any tire size or differential ratio change.

Lighting

For incandescently lit speedometers there are two possible variations.

1. Circuit board mounted bulb. you would remove the black, plastic, nickel sized plug from the rear of the speedometer to access the bulbs(s). Use a pair of needle nosed pliers to then twist the light socket about a 1/4 turn counter clock-wise to remove if needed. This type of lighting will require you to connect lighting power to the LAMP terminal to light up the speedometer.
2. Externally mounted light socket(s). If the speedometer is a plastic case, the light socket will twist a 1/4 turn to remove or install. If the speedometer is a metal case, it will be a "snap-in" light socket. These would have two wires. Typically a white and a black. Connect the black to ground, and the white to your lighting power.

On an incandescently lit speedometer, you can replace the bulb with a common 194 (or slighly brighter 168) bulb, or LED made to replace a 194 bulb. You may also opt to use one of the red, or green included light bulb covers to tint the lighting color. Note: these are ONLY included with incandescent gauges. Not factory LED lit gauges.

LED lit version shown. Also black plug shown (removed). Notice on this one, there is no place for a bulb as it uses internal permanent LED's.

Incandescent version with internal bulb shown with bulb & socket removed for reference. Removed black plug shown in previous example.

Incandescent (5") version shown with external bulb shown, with one removed for reference.

For LED lit speedometers, there will be a LAMP terminal on the back of the speedometer. Connect your lighting power to this terminal. The LED lighting is not user replaceable, and (except for the Elite Series) the color can not be changed. Some speedometers may have a black, plastic, nickel sized plug on the rear, just like the incandescent version, and may even have an empty light socket hole underneath that plug on the circuit board, however that is intentionally left blank. The circuit board will have permanently mounted LED's for through the dial lighting. Adding a light socket and bulb or LED to this empty spot will not result in different lighting.

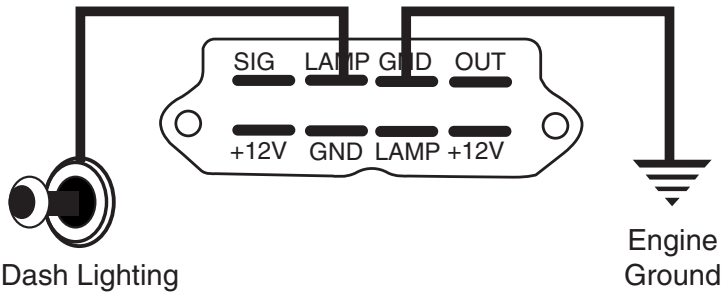
Lighting Adjustment

For incandescently lit speedometers, you can use most factory lighting rheostats (from vehicles that originally used incandescent lighting) to adjust the brightness.

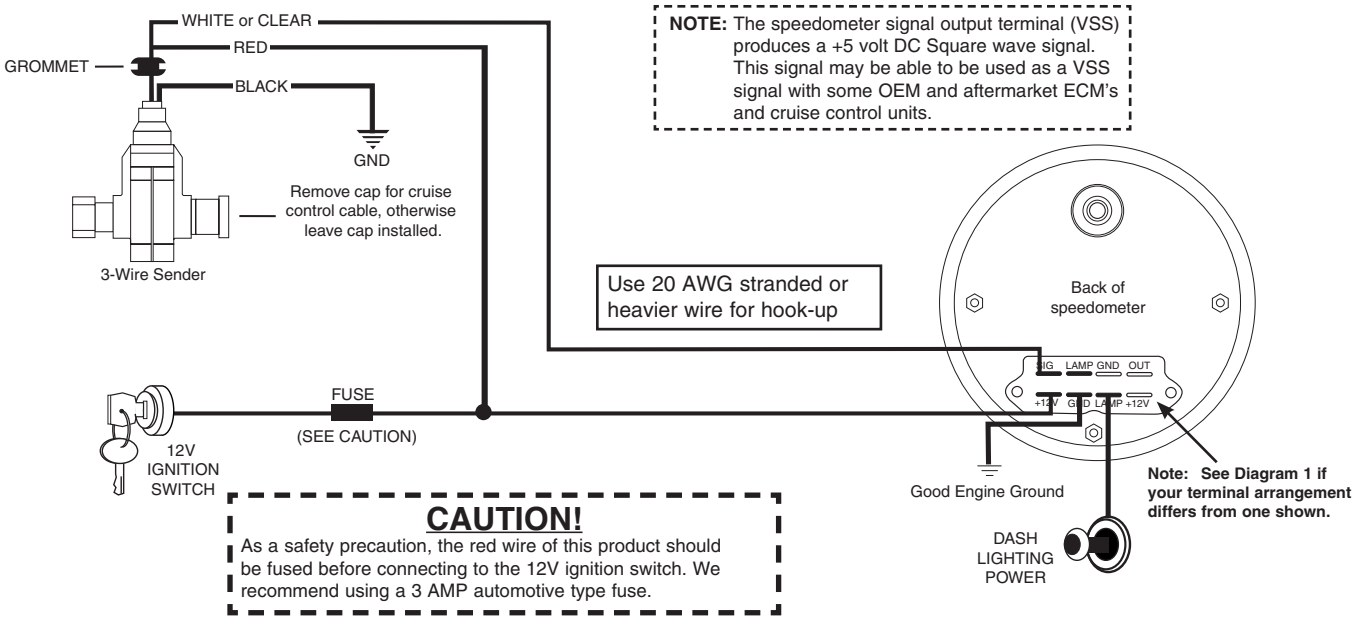
For factory LED lit speedometers, you can use the AutoMeter 9114. This can be wired in series between the factory dimmer and the speedometer, or it can have power in from another source if desired. This will allow fine tuning of the LED lit speedometer brightness

Wiring - Diagram 1

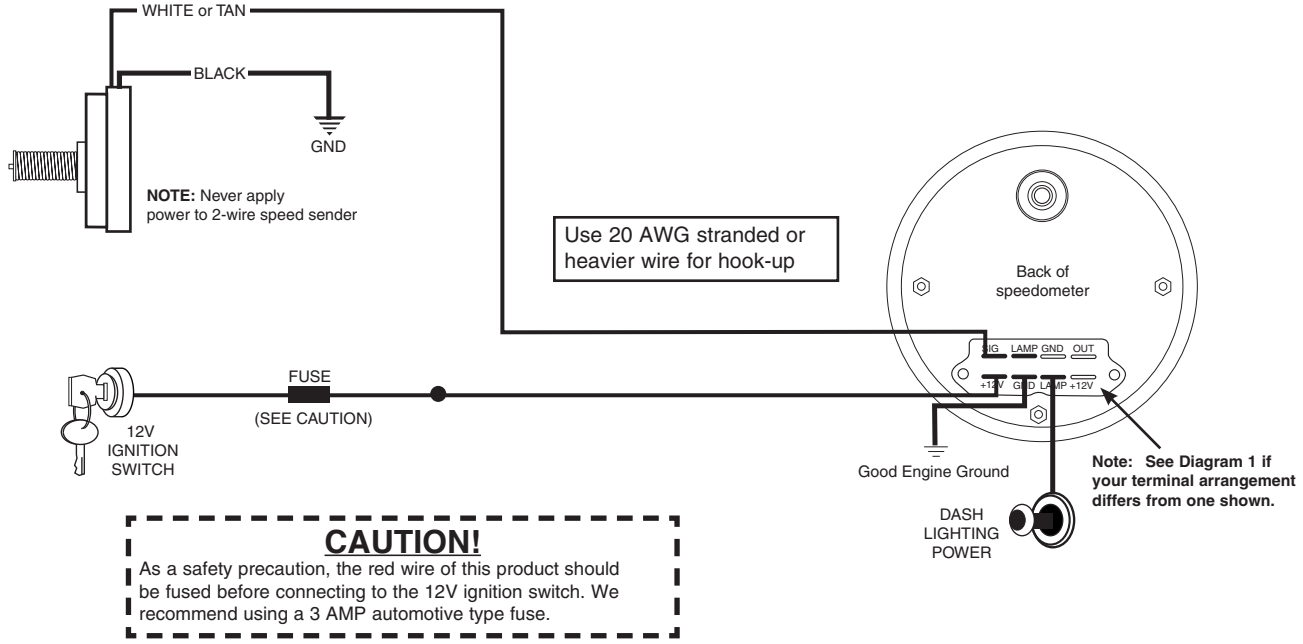
NOTE: Some models may have ground and lamp terminals on the upper row instead of lower row.



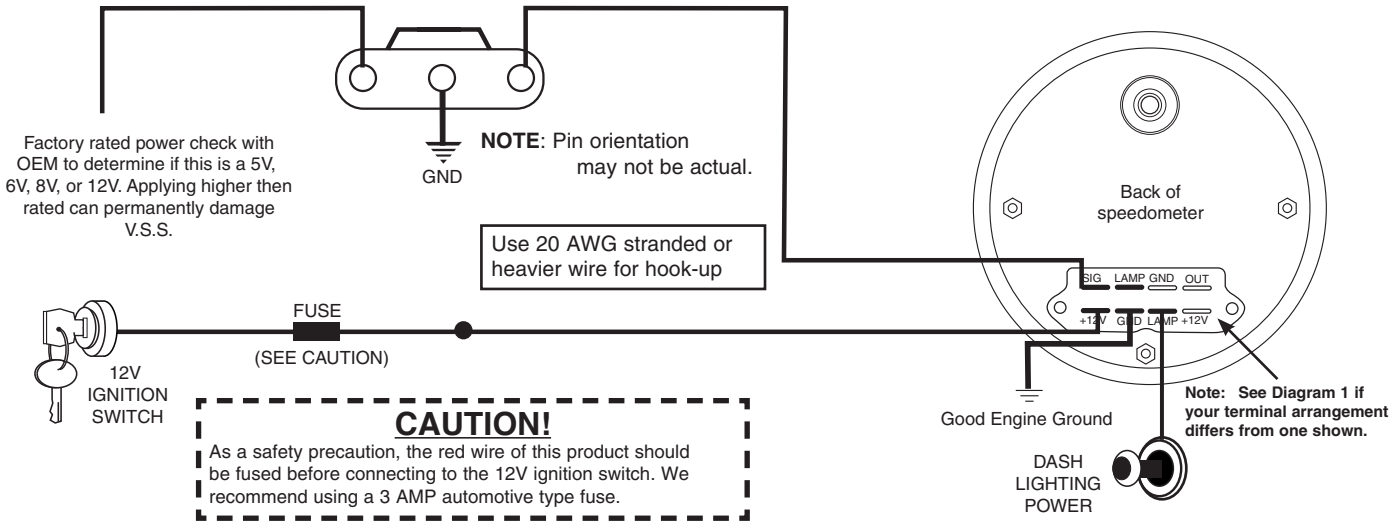
Wiring w/ typical aftermarket 3-wire sender



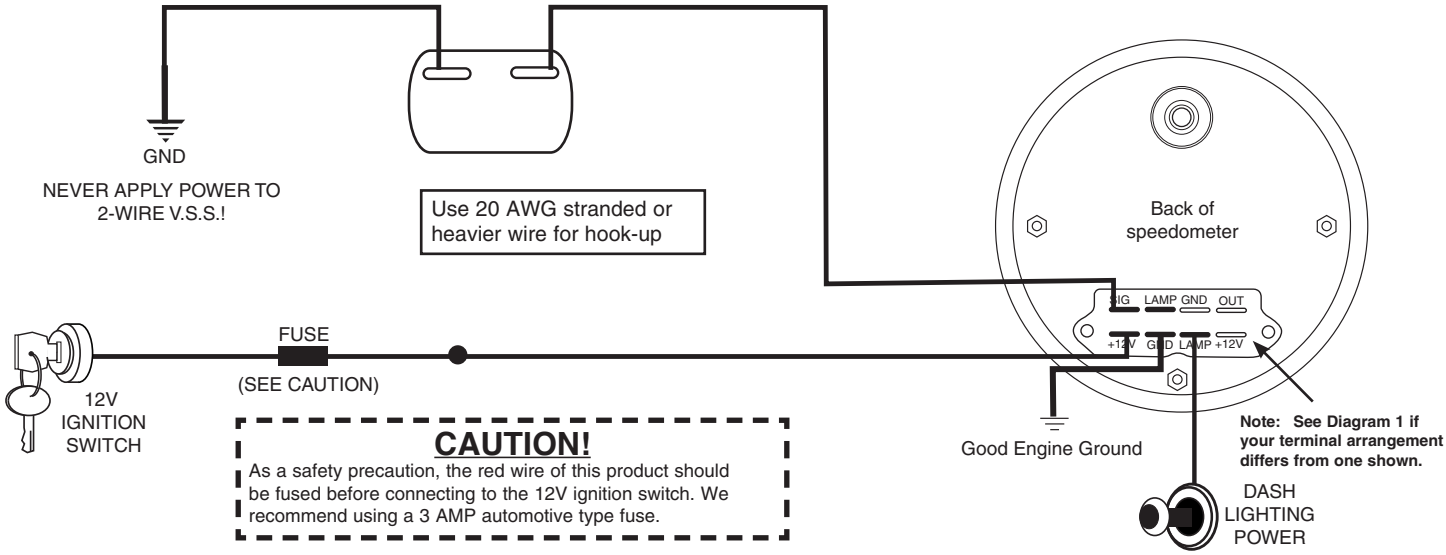
Wiring w/ typical aftermarket 2-wire sender (and no computer)



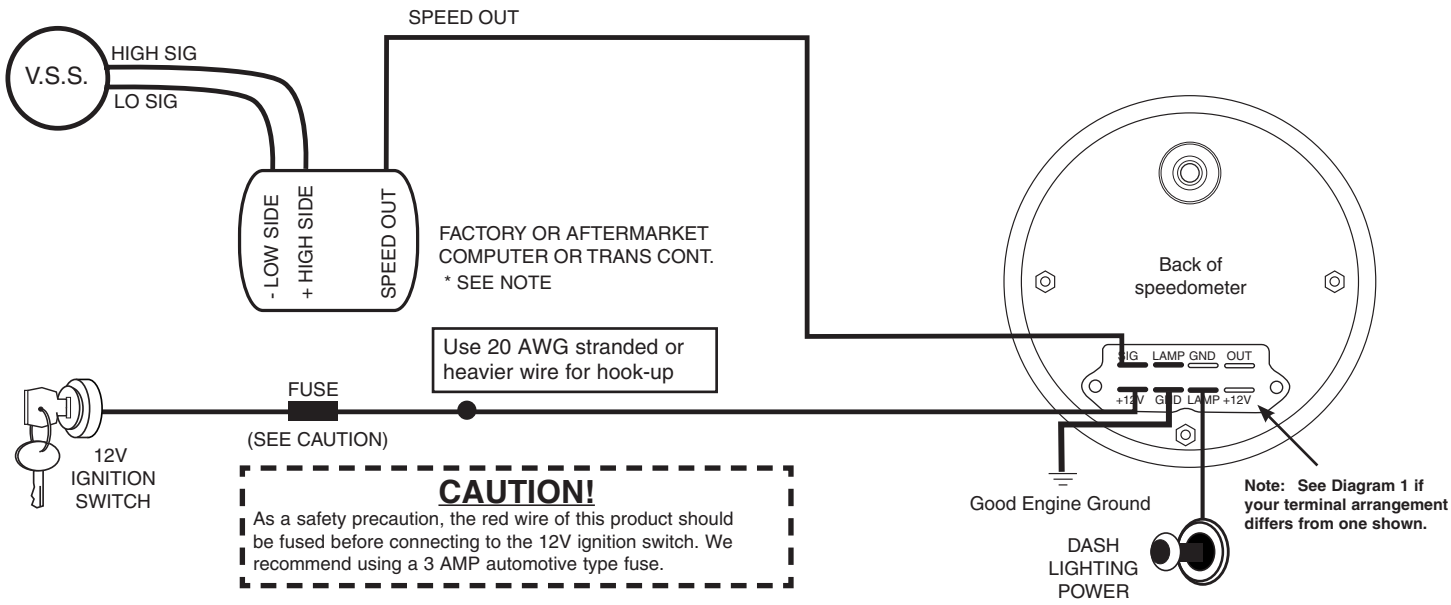
Wiring w/ most OEM 3-wire V.S.S (Vehicle Speed Sensor)



Wiring w/ most OEM 2-wire V.S.S (When no computer involved)



Wiring w/ most OEM 2-wire V.S.S. when using computer or trans controller

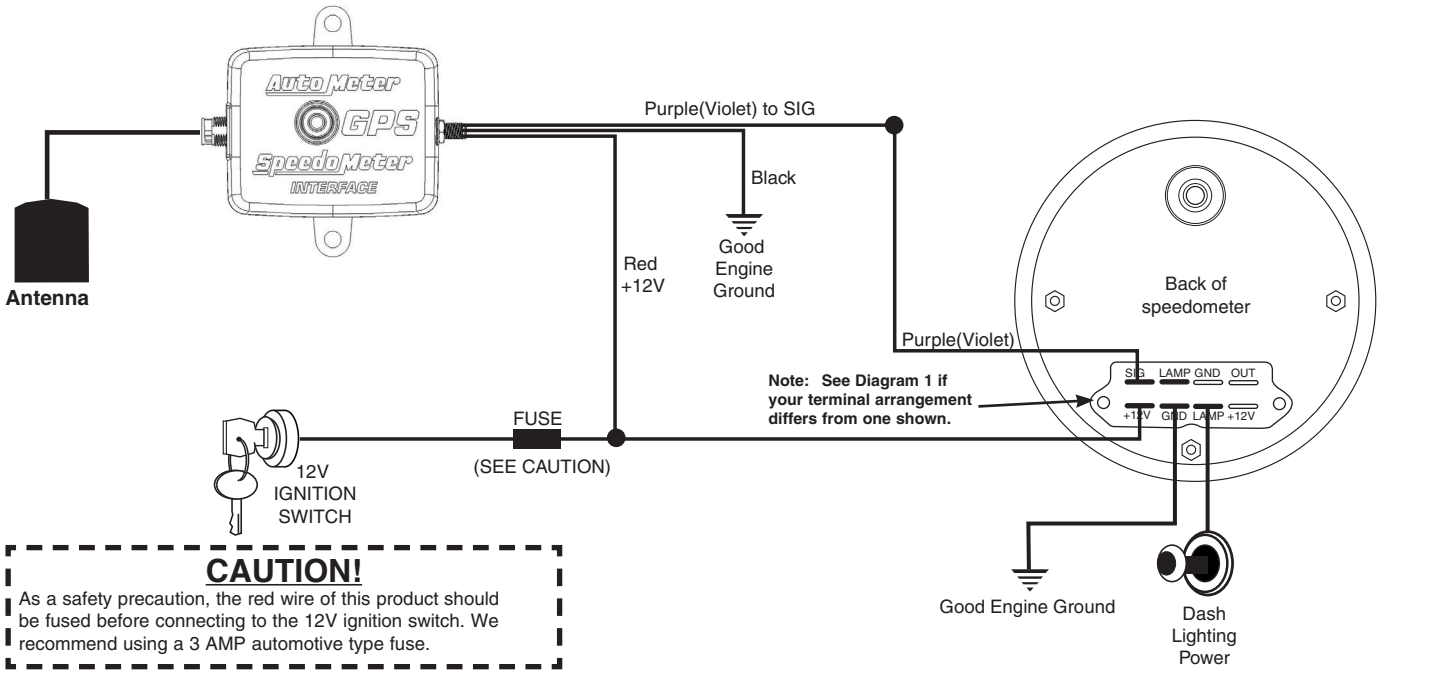


CAUTION!

As a safety precaution, the red wire of this product should be fused before connecting to the 12V ignition switch. We recommend using a 3 AMP automotive type fuse.

NOTE: IF A SPEEDOMETER OUTPUT CIRCUIT IS UNAVAILABLE, OR INOPERABLE, YOU MAY INSTEAD CONNECT TO THE HIGH SIDE SIGNAL. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT AUTOMETER TECH SUPPORT AT 866-248-6357.

Wiring w/ AutoMeter 5289 GPS Interface



CAUTION!

As a safety precaution, the red wire of this product should be fused before connecting to the 12V ignition switch. We recommend using a 3 AMP automotive type fuse.

SERVICE

For service send your product to AutoMeter in a well packed shipping carton. Please include a note explaining what the problem is along with your phone number. If you are sending product back for Warranty adjustment, you must include a copy (or original) of your sales receipt from the place of purchase.

12 MONTH LIMITED WARRANTY

AutoMeter Products, Inc. warrants to the consumer that all AutoMeter High Performance products purchased from an Authorized AutoMeter Reseller will be free from defects in material and workmanship for a period of twelve (12) months from date of the original purchase. Products that fail within this 12 month warranty period will be repaired or replaced at AutoMeter's option, when determined by AutoMeter that the product failed due to defects in material or workmanship. This warranty is limited to the repair or replacement of parts in the AutoMeter High Performance product and the necessary labor done by AutoMeter to effect the repair or replacement of the AutoMeter High Performance product. In no event shall AutoMeter's cost to repair or replace an AutoMeter High Performance Product under this warranty exceed the original purchase price of the AutoMeter High Performance Product. Nor shall AutoMeter Products, Inc. be responsible for special, incidental or consequential damages or costs incurred due to the failure of an AutoMeter High Performance Product. This warranty applies only to the original purchaser of the AutoMeter High Performance Product and is non-transferable. This warranty also applies only to AutoMeter High Performance Products purchased from an Authorized AutoMeter Reseller. All implied warranties shall be limited in duration to the said 12 month warranty period. Breaking the instrument seal, improper use or installation, accident, water damage, abuse, unauthorized repairs or alterations voids this warranty. AutoMeter disclaims any liability for consequential damages due to the breach of any written or implied warranty on all products manufactured by AutoMeter Products, Inc. For a comprehensive listing of Un-Authorized AutoMeter Resellers please visit www.autometer.com/autometerlocator/index/unauthorized.

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