

Installation Instructions for Programmable Speedometer

Before You Start

- Read instructions completely before installing.
- ALWAYS WEAR SAFETY GLASSES.

- Install gauge only when engine is cool and ignition is off.
- Make sure all necessary tools, materials, and parts are on hand.
- Disconnect negative (-) battery cable before installing gauge.

General Information

12-volt DC negative (-) ground electrical systems. This electronic speedometer comes pre-calibrated for 16000 pulses per mile. No further calibration is required if:

1. The transmission's speedometer cable take off is 1000 RPM at 60 MPH. Most vehicles meet this requirement. If the vehicles tire size and/or differential ratio has changed, the speedometer needs to be recalibrated.
2. The vehicle is equipped with a 16-pulse/revolution sender.

If conditions 1 and 2 have not been met, calibrate the electric speedometer using the CALIBRATION process below.

Signal Interface

This speedometer is designed to work with both hall effect senders and magnetic pickup sensors. The input level can range from TTL 5V square wave (hall effect) to AC sign wave signals (magnetic pickup). Connect the signal output wire from the sender to the SIG terminal on the gauge.

Always consult the service manual for the vehicle you are working on to ensure proper connection. Incorrect hookup will damage the speedometer and void warranty. Please read these instructions carefully.

Fig 1. Wiring Diagram

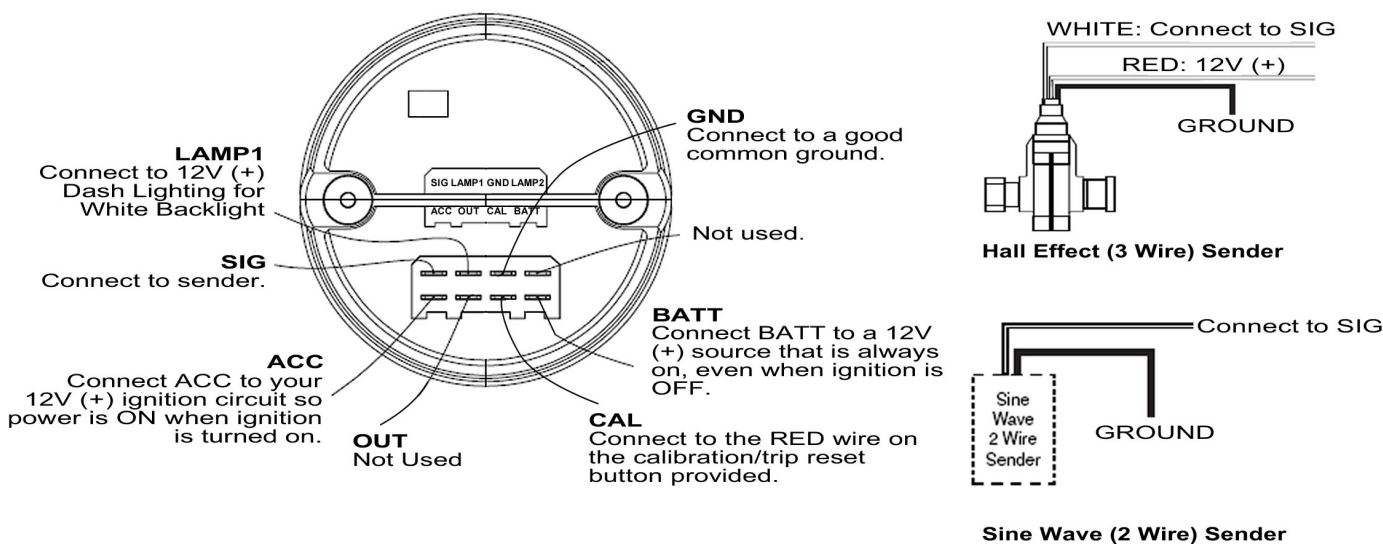


Table 1. Wiring Summary

	Pin	Row	Notes
SIG	1	Top	Connect to signal wire on speedometer sender.
LAMP	2	Top	Connect to 12V+ dash lighting for white backlight.
Ground	3	Top	Connect to a good common ground.
Not Used	4	Top	
ACC	1	Bottom	Connect to 12V+ ignition circuit so power is ON when ignition is turned on.
OUT	2	Bottom	Not typically used. See www.marshallinstruments.com/faqs/ for more information.
CAL	3	Bottom	Connect to the RED wire on the calibration/trip button.
BATT	4	Bottom	Connect to a 12V+ source that is always on, even when ignition is OFF (i.e. Battery +)

Wiring

Use 20 AWG stranded or heavier wire for installation. Route wires away from any moving parts and hot engine components. Secure wires firmly along their route. **Note:** As a safety precaution, the ACC and 12V+ connections should be fused. We recommend using a 1 Amp, 3 AG fast-acting type cartridge fuse.

Calibration/Trip Button Installation

The speedometer includes a remote mount calibration/trip reset button. Connect the BLACK wire on the button to a common ground. Connect the RED wire to the CAL terminal on the speedometer. Mount the remote button in a convenient location.

Calibration

1. With the ignition off, press and hold the CAL/TRIP button. Turn the ignition on, then release the CAL/TRIP button.
2. The odometer/trip display will indicate CAL to verify that calibration mode has been accessed. The pointer will move to 50% scale.
3. Drive the vehicle EXACTLY one (1) measured mile then stop.
4. Press the CAL/TRIP button again to complete the calibration.
5. If the number of pulses is between 4,000 to 200,000 the odometer/trip display will indicate the actual pulses counted by the speedometer for five (5) seconds. This indicates a successful calibration. The speedometer will return to normal operation automatically.

If the number of pulses is below 4,000 at the end of one mile, the odometer/trip display will show zeros for five (5) seconds after the button is pressed. The calibration will not be updated, and the original calibration will be maintained. Correct the problem and recalibrate the speedometer.

If the number of pulses is above 200,000 at the end of one mile, the odometer/trip display will show zeros for five (5) seconds after the button is pressed. The calibration will not be updated, and the original calibration will be maintained. Correct the problem and recalibrate the speedometer.

Odometer and Trip Operation

The speedometer comes with an odometer (ODO) and two trip functions (TRIP 1 and TRIP 2). Press the CALIBRATION/TRIP button multiple times to cycle from ODO to TRIP 1 to TRIP 2. To reset a specific TRIP reading, hold the CALIBRATION/TRIP button for 3 seconds. The Odometer can not be reset.

No Signal or Erratic Signal

The most common speedo issues are due to wiring or sender problems:

1. Bad ground connection. Make sure the ground connection on the gauge is connected to the same spot as the car battery ground to ensure you have a good ground. Do the same for the sensor (the gauge and the sensor need to have a good common ground).
2. Bad wiring/connections. Verify your connections and wiring are good.
3. Erratic signal can be caused by noise introduced from routing the signal wire close to a high voltage electric source (i.e. spark plug wire, ignition). Make sure your signal wire isn't picking up any noise.
4. Bad sender or incorrectly installed sender. Ensure your sender is operating correctly and is producing a good signal. If possible, confirm the speedo operation with a known good signal source.

If you are still seeing some noise after checking the above items, try adding a 0.05uF (micro Farad) or 0.1uF capacitor across the input to ground (connect one end of the capacitor to SIG connector, the other to the Ground connector). If signal noise is the issue, this will help filter out any signal noise and smooth pointer response.