

Installation Instructions for 6-Gauge Sets 41290, 41292, 41294, 41390, 41392, 41393, 41394, 41448

3-3/8" & 5" Electric Programmable Speedometer

Before You Start

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

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.

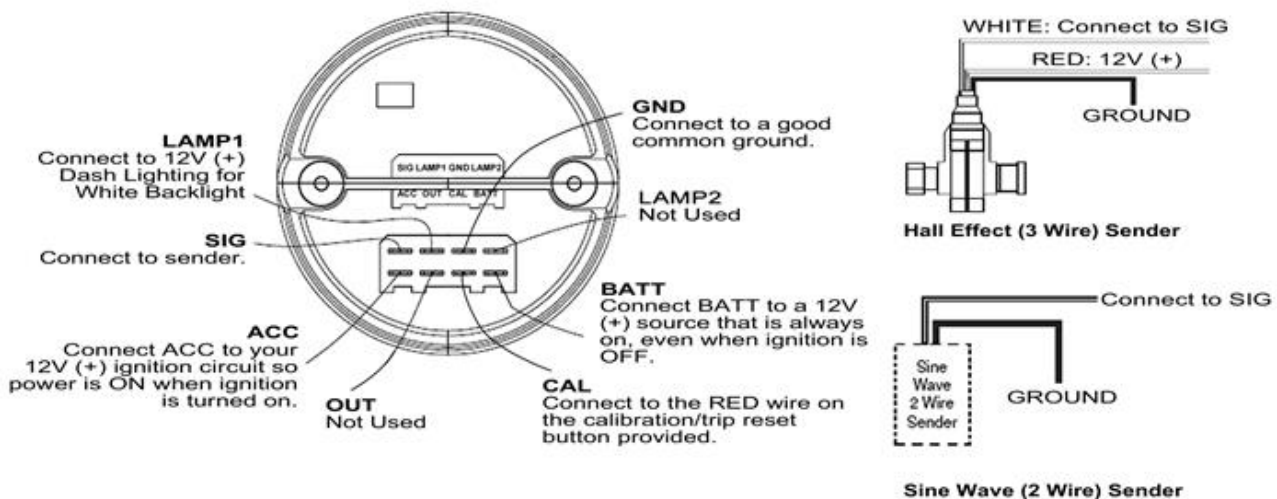
Calibration

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 PPR 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 PPR 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.

Figure 1 Wiring Diagram



Dimmable LED Lighting

This gauge features through-dial, high-definition LED lighting that will not dim when used with standard dash dimmers. A dimmer switch specifically designed for use with this gauge is available separately.

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.

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.

Wiring

Use standard 1/4" blade style crimp connectors to attach the proper wires to the connectors on the back of the gauge.

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.

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 cannot be reset.

Installation Instructions for 3-3/8" & 5" Tachometer

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.

Tachometer Signal Hookup

This performance tachometer has two signal input options (SIG 1 & SIG 2). See Fig 1. Signal Hookup. Choose the option best suited for your vehicle's ignition system. **Only connect 1 signal input.** If you are unsure which signal input to use, connect your signal source to SIG 1.

NEVER CONNECT SIGNAL WIRE TO THE COIL WHEN USING AN MSD OR SIMILAR HIGH OUTPUT CAPACITIVE DISCHARGE STYLE IGNITION SYSTEM. Incorrect installation will damage the tachometer.

General Information

12-volt DC negative (-) ground electrical systems.

Calibration

Calibration of the tachometer is done via dipswitches in the back of the gauge. There are 3 dipswitches, each of which can be set to OFF (down) or ON (up). See Fig 1 for dipswitch settings.

Dimmable LED Lighting

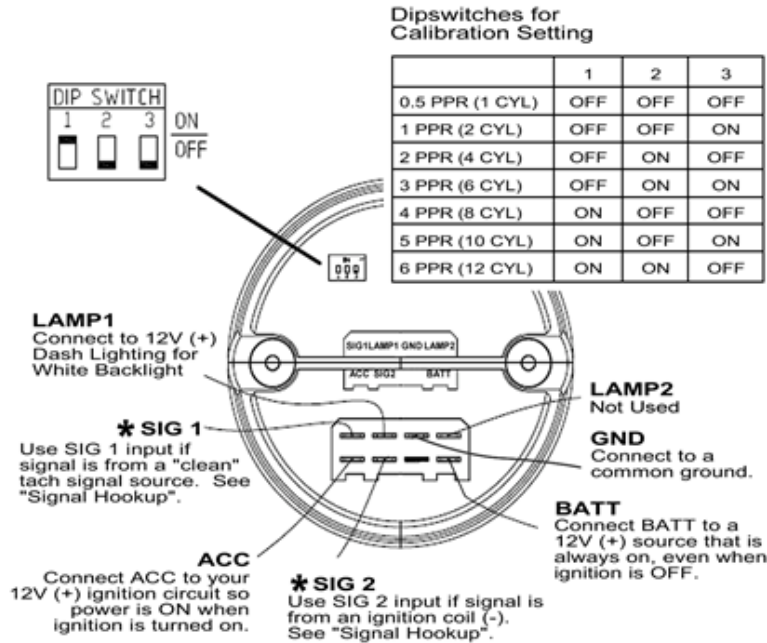
This gauge features through-dial, high-definition LED lighting that will not dim when used with standard dash dimmers. A dimmer switch specifically designed for use with this gauge is available separately.



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Wiring

Use standard 1/4" blade style crimp connectors to attach the proper wires to the connectors on the back of the gauge. 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.

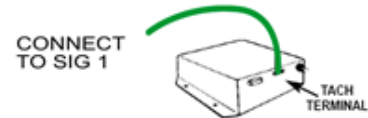


SIGNAL HOOKUP

Determine which SIGNAL input to use (**SIG 1** or **SIG 2**). **Only connect ONE signal input.** If you are unsure which SIGNAL input to use connect your signal source to SIG 1.

"Clean" Tach Signal

Connect the signal wire from the signal source to SIG 1 if you are using a tach signal from any of the following: ignition with tach output terminal, ECU, tach adapter, other "clean" tach signal source



Ignition Coil (-)

if you are using a signal from an ignition coil (-), connect the signal wire from the coil negative (-) to SIG 2.

CONNECT TO SIG 2



Tachometer Signal Hookup (Additional Info)

This tachometer has two signal input options. **Only connect 1 signal input.** If you are unsure which signal input to use, connect your signal source to **SIG 1**.

SIG 1: "Clean" Signal

On applications where a "clean" tachometer signal output is available (typically a 12V square wave signal) connect the signal source to **SIG 1**. Applications with "clean" tachometer output signals include ignition boxes with tachometer output terminal, dedicated tachometer signal from ECU, and tachometer adapters.

SIG 2: Ignition Coil (-) & HEI with Tach Output

On standard ignition coils connect the signal wire from the coil negative (-) to **SIG 2** on the back of the tachometer. On HEI ignitions with tachometer output: connect the signal wire from the HEI Tach output terminal to **SIG 2** on the back of the tachometer. **Note:** Some ignition coil applications (including many 4 cylinder applications) output a relatively clean signal. If this is the case for your application you may need to use the **SIG 1** input.

No Signal or Noisy Signal?

- Verify you have a good common ground.
- Verify you have a good signal connection.
- Verify your signal amplitude is at least 8V (i.e. 5V signal will not drive the tachometer).
- Try switching input signal wires (i.e. try SIG 1 if you are using SIG 2 input).

For extreme cases of noisy signals you may need to install a Tachometer Filter.

Installation Instructions for 2-1/16" Short Sweep Electric Gauges (Volts, Temp, Pressure & Fuel Level)

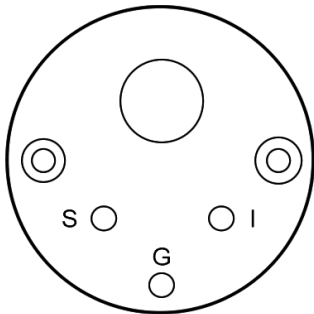
Before You Start

Please 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.
- 2-1/16" gauge mounts in a 2-1/16" diameter hole.
- Make sure mounting location does not impair visibility or interfere with driving. Also check behind the mounting location for any wiring or components before drilling.

WIRING

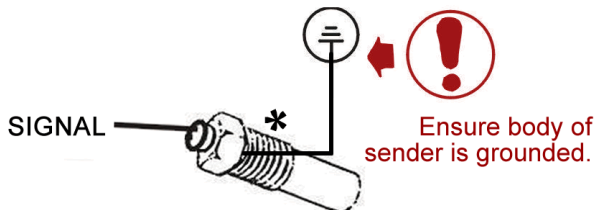
Use 20 AWG stranded or heavier wire for installation. Route wires away from any moving parts and hot engine components. Secure wires firmly along their route. **Note:** As a safety precaution, the 12V+ connections should be fused. We recommend using a 1 Amp, fast-acting type cartridge fuse.



I: 12V ACC (Ignition)
G: Common Ground
S: Signal Input

Temperature Signal Input

Connect the sender terminal to gauge signal input (S). Ensure the body of the sending unit is grounded.



LIGHTING

Light socket snaps into socket hole on the back of the gauge. Connect white light socket wire to 12V dash lighting. Connect black light socket wire to GROUND.

PRESSURE SIGNAL INPUT

1. Connect the G pressure sender terminal to the gauge signal input (S).
2. Connect the WK terminal to a common ground.
3. Use Teflon sealing compound on temperature and pressure sender threads as noted (*). **Test temperature and pressure sender connections for leaks. If a leak is detected, determine the cause of the leak and repair. DO NOT operate the vehicle if a leak is detected.**

VOLTS SIGNAL INPUT

The volts gauge does not require a signal input connection; it receives the voltage from the ignition (power) connection (I).

FUEL LEVEL SIGNAL INPUT

Connect the fuel level sender signal output to the gauge signal input (S).



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Troubleshooting Tips

Fuel Level Gauge Not Working

Verify your gauge ohm range matches your fuel level sender. The fuel level gauge supplied with the 41290, 41292 and 41294 gauge sets are 0-90 ohm and work with a 0 ohms Empty and 90 ohms full sending unit (Most GM Vehicles).

Verify the sending unit is grounded. This is the most common cause of issues with the fuel level gauge. Make sure the sending unit has a good ground and that the gauge has a common ground with the sender (ground at the same place if unsure). It may be necessary to run a dedicated ground wire from the sender body to a good common ground.

Oil Pressure Gauge Not Working

Verify the gauge and the oil pressure sender are wired correctly and that the gauge and sender have a good common ground. Ground them at the same location if unsure. The most common cause of issues is not having a good common ground for both the gauge and the sender.

Water Temp Gauge Not Working

Verify the gauge and the temp sender are wired correctly and that the gauge and sender have a good common ground. Ground them at the same location if unsure. The temp sender grounds through the body of the sender. If the temp sender does not have a good ground (i.e. due to Teflon tape) then use a small clamp around the body of the sender with a wire to a common ground location.

3-3/8" Speedo/Tachometer Lighting Not Working

Make sure that gauge power AND light wires both have power. The 3-3/8" speedo and tachometer feature integrated LED lighting that requires BOTH 12V ACC and the light wire to have power for the lighting to turn on.

How can I dim the Lighting?

Refer to the instructions included with each set (yellow insert). You can dim the four snap in LED bulbs (2-1/16" gauges) via your vehicle's existing dimmer switch or you can use a single 1000 ohm/1W resistor to dim the four 2-1/16" gauge lights to match the 3-3/8" speedo and tachometer lighting.

2-1/16" Lighting

A single 1000 ohm resistor reduces brightness to match the 3-3/8" gauge lighting. Use a higher value resistor for dimmer light, a lower value resistor for brighter light.

3-3/8" Lighting

The 3-3/8" speedo and tachometer have integrated LED lighting. To dim the lighting on these gauges you need to reduce the voltage to the ACC connection (NOT the light wire). A 1W 100 ohm resistor installed inline on the ACC (12VDC) connection to the gauge gives a good level of dimming. Use a higher value resistor for dimmer light, a lower value resistor for brighter light. If your resistance value is too high, the gauge may not get enough power to operate. If this happens, reduce the resistor value. When dimming the lighting with a resistor make sure the 12V+ "Always On" is connected to an unreduced voltage source, i.e. connect the "Always On" connection to either the 12V+ battery or to the main 12V ignition supply.



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