

VEI Systems Installation Instructions

V1-SPO-Lx – Digital Speedometer with Odometer and Tripmeter

Please read these instructions completely before beginning installation to ensure that you have the tools and skills necessary for installation and operation of this instrument. If you are not sure that you can perform the installation safely, then consult a qualified installer. Further instructions available at www.VEISystems.com/technical.html.

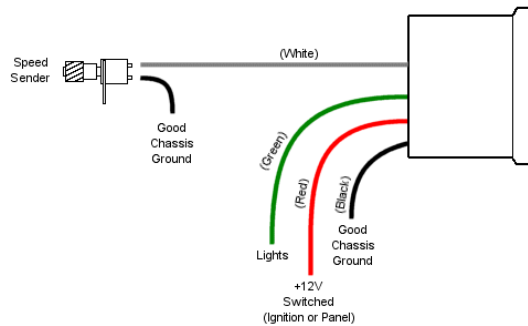
MOUNTING

Install the unit through the front of the mounting hole in the dash pod or panel. If you are making a custom dash panel, you will need to drill a 3-3/8" hole. Slide the clamp onto the 2 studs on the back of the instrument. Secure with the 2 thumb-nuts. Use a small drop of threadlocker or nail polish on the thumb-nuts to prevent them from loosening under vibration.

This speedometer has been designed to be used with a pulse-output sender or vehicle speed sender (VSS) mounted on the transmission. If your vehicle is fuel-injected, has a cruise control, or has an electronic speed sender, you should already have this sender in the transmission. The number of pulses per mile will vary among different senders, but this speedometer can be calibrated to work with almost any sender. Some Chevrolet fuel-injection computers use a VSS that puts out a very high frequency, but we can provide an interface/adaptor for this. If you do not already have a speed sender in the transmission, install the appropriate sender where the drive cable to the mechanical speedometer was mounted. You will need to use the same gear that was on the transmission end of the cable. Since you will not be using the mechanical speedometer anymore, you can completely remove the old drive cable.

WIRING

The wires should be connected as below using crimp-on butt-splice connectors, or soldered and sealed with heat-shrink tubing. Before connecting any wires, you should either disconnect the battery power, or carefully connect the wires in the order shown. If not, you may damage the instrument. Use an existing fuse in the fuse panel, or an external fuse to supply power to the instrument. The V1 series instruments use an 105mA of current avg. and 175mA max, so ensure the fuse is sized appropriately. For a typical 6- or 7-gauge setup, a single 5 Amp fuse is good.



- BLACK -- connect to a solid chassis ground under the dashboard, or directly to the battery. You may need to expose the metal connection point under the dash by scraping or lightly sanding it. A ring terminal and a screw should work well in most cases.
- RED -- connect this to a source of **switched** +12V power. This will usually be found at or near the ignition switch, and will usually have a relay wired through the ignition switch. An alternate source of this is a switched power line from a nearby light or accessory (radio, etc). If you are unsure that the wire can supply the power required for the instrument, then use an external relay.
- GREEN -- connect this wire to the positive line (+12V) from the headlight switch. When this line receives a positive voltage, the gauge will use the “park-lights” brightness setting. Alternatively, if setting up a racing-mode display, this can be connected to a separate mode switch (12V or 0V signal).
- WHITE -- connect this wire to the positive/output wire on the speed sender (the other will already be connected to ground). If you are using a new speed sender that you installed, you can connect any of the wires out of it to ground and the other to the white wire on the speedometer.

OPERATION

Press and hold the button for a few seconds to change the mode. Press and release quickly (tap the button) to change the setting in any mode. Modes are as follows:

MODE	DISPLAY	SETTINGS
Normal	(Speed+Odo) or (Speed+Trip)	Tap to change between odometer and trip. With odometer showing, press and hold to change modes (as listed below), OR with tripmeter showing, press and hold to reset tripmeter.
Set bargraph scale	S120	0-120 MPH, 0-180 MPH, 0-240 MPH
Peak feature on/off	P . Of	Turns on/off the bargraph peak indicator feature. Tap during run to reset.
Brightness Regular	Br . 9	Last digit shows regular brightness level from 1 to 9.
Brightness park-lights on	BP . 1	Last digit shows brightness level with lights on from 1 to 9.
Set startup mode	RUN-	Sets the mode in which the gauge will start on next power-up (“Run” or “Cal”).

CALIBRATION

You will need to calibrate this speedometer for correct speed reading since there will be many variables involved in this system such as speed sender type, gear ratios, tire sizes, etc. First, drive the vehicle at a known speed (either another vehicle next to you or a GPS will work to indicate the actual speed), then note the displayed speed and the known speed. To enter the calibration mode, switch to Set-Startup mode (shown in the table above), set the value to "Cal" (rather than "Run"), then power the unit off and back on using the ignition key. The speedometer will now be in calibration mode, and the first thing displayed is the existing calibration value. Calculate the new calibration value using this formula:

$$\text{New_Calibration_Setting} = \frac{\text{Existing_Calibration_Setting} \times \text{Known_Speed}}{\text{Displayed_Speed}}$$

At this point, change the calibration value to the new calculated value. Power off and on again to return to regular run mode.

NOTE: If the calibration values cannot be set low enough to the calculated value, it means that the vehicle has a speed sender that puts out a high pulse frequency, and you will need a speedometer interface/adaptor to correct this, which we can provide.

WARRANTY & LIABILITY

Neither VEI Systems, nor its dealers or agents shall be liable in any way, for any damage, loss, injury or other claims, resulting from the installation or use of this product. By purchasing or installing this product, you assume all liability of any kind connected with the use and/or application of this product. If you are unsure that you can safely install and use this product, consult a qualified installer or mechanic. The warranty on this product covers only the product itself for a period of 1 year from the date of purchase, and it will be at our discretion to repair or replace the affected parts. No user serviceable parts inside. Warranty void if product enclosure opened.