

Classic Instruments

1967 – 1972

Chevy Truck

Installation Manual

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Welcome from the Team at Classic Instruments!

Our congratulations and appreciation for your purchase of one of the finest quality sets of specialty instruments ever produced! Your instrument set has been conceived, designed, and manufactured by Classic Instruments, Inc. in the U.S.A. Each instrument has been tested and certified for accuracy and quality before packaging and shipping.

For trouble-free installation and operation follow the instructions exactly as outlined. Your instruments were assembled to precise specifications and although each has a seven (7) year warranty covering defective parts and workmanship – this warranty will not cover instruments or sender units which have been installed incorrectly.

Follow our recommended procedures for installation and proper hookup to maintain the value and appearance of your instrument set during many future years of accurate and dependable service!

LIMITED WARRANTY

Classic Instruments, Inc. (CI) warrants to the original purchaser that any CI product manufactured or supplied by CI will be free from defects in material and workmanship under normal use and service for a period of seven (7) years from date of purchase.

Improper installation, use of sending units other than CI's or attempted repair or adjustments by other than CI shall void this warranty. Disassembly of any instruments or senders for whatever reason shall specifically void this warranty.

It's always easy to look to a part for an issue with your set. Before you conclude that a part may be bad, thoroughly check your work. Today's semiconductors and passive components have reached incredibly high reliability levels, but there is still room for error in our human construction skills. However, on rare occasions a sour part can slip through. Please be aware that testing can usually determine if the part was truly defective or damaged by assembly or usage. Don't be afraid of telling us that you "blew it", we're all human and in most cases, replacement parts are very reasonably priced.

Purchaser requesting a product to be repaired or replaced under warranty must first call CI at 1-800-575-0461 before the return of defective part. Send defective part to 826 Moll Drive, Boyne City, MI 49712, USA. Include a written description of the failure with defective part.

Purchaser agrees and accepts that under no circumstances will a warranty replacement be furnished until CI has first received, inspected, and tested the returned part.

All other warranties expressed or implied are hereby excluded including any implied warranty of merchandise and implied warranty of fitness for a particular purpose. The sole and exclusive remedy for breach of this warranty is limited to the replacement set forth above.

It is expressly agreed that there shall be no further remedy for consequential or other type of damage, including any claim for loss of profit, engine damage or injury.

TECHNICAL ASSISTANCE

1-800-575-0461

OR

Visit our website for the latest in gauge design and updates to our installation manual

www.classicinstruments.com

Remove the Stock / OEM Instrument Panel

- 1) Make sure to disconnect the vehicle battery before you begin to remove the instrument panel.
- 2) Remove the two 5/16" screws which are holding the steering column tight to the base of the dash. This allows the steering column to drop down slightly.
- 3) Remove the six screws that are holding the panel to the dash.
- 4) Remove the light switch knob. To do this, push in the button at the top of the switch box housing (under the dash) and then pull out the light switch knob and shaft. Next, unthread the nut holding the light switch box to the instrument panel and remove the light switch box.
- 5) Remove the wiper knob. To do this, loosen the small set screw, pull the knob off and then unscrew the bezel.
- 6) Disconnect the speedometer cable from the back of the instrument panel.
- 7) Disconnect the oil pressure gauge tube (if equipped) from the back of the instrument panel using a 5/16" wrench. Be sure to protect your upholstery from any oil that may drip from the loosened oil pressure gauge tube.
- 8) Remove the large electrical connector on the back of the instrument panel by squeezing the lock tabs on the sides of the connector.
- 9) Remove throttle and choke controls from the instrument panel (if equipped).
- 10) The instrument panel can now be removed from the dash.
- 11) Please retain all screws, knobs and bezels to reuse when installing the new Classic Instruments panel.

Instrument Cluster Wiring

- 1) Always disconnect the vehicle battery before wiring any gauge.
- 2) Connect a good chassis ground to the **Black** [Position 1] wire of the gauge cluster harness. *We recommend using a dedicated chassis ground (not stacked with other ground wires) to avoid possible problems caused by a bad ground.*
- 3) Connect dash light power to the **Grey** [Position 2] wire of the gauge cluster harness.
- 4) Connect a switched +12VDC power source to the **Pink** [Position 3] wire of the gauge cluster harness. *We recommend using a dedicated power source for the speedometer to avoid possible problems caused by bad “noisy” power.*
- 5) Connect right turn indicator power to the **Blue / White** [Position 4] wire of the gauge cluster harness.
- 6) Connect high beam indicator power to the **Lt. Green** [Position 5] wire of the gauge cluster harness.
- 7) Connect left turn indicator power to the **Lt. Blue** [Position 6] wire of the gauge cluster harness.
- 8) Connect the fuel sender (0-90Ω) to the **Tan** [Position 7] wire of the gauge cluster harness.
- 9) Connect the Classic Instruments oil pressure sender to the **Blue** [Position 8] wire of the gauge cluster harness.
- 10) Connect the Classic Instruments temperature sender to the **Dk. Green** [Position 9] wire of the gauge cluster harness.
- 11) Connect a tachometer signal to the **White** [Position 10] wire of the gauge cluster harness.

STANDARD POINTS & CONDENSER SYSTEM

Connect the negative side of the coil (usually marked as “-“) to the tachometer signal wire.

GMC – HEI (High Energy Ignition System)

Connect the “TACH” terminal on coil side of distributor cap to the tachometer signal wire.

MSD (Multiple Spark Discharge System)

Connect the Tach signal on the MSD box to the tachometer signal wire. If the tachometer does not respond, your MSD system may require a MSD Tach adapter. Part No. 8910 or 8920.

VERTEX MAGNETO SYSTEM

Connect the “KILL” terminal on the side of a Vertex magneto body to the tachometer signal wire. An external adapter such as an MSD “Pro Mag Tach Converter” #8132 may be required.

ACCEL IGNITION COILS

Connect the negative side of the coil to the tachometer signal wire. CAUTION! Some Accel ignition coils require the tach signal wire to be connected to the “+” terminal on the coil! PLEASE carefully read Accel’s instructions before connecting ignition coil.

MALLORY IGNITION

Connect the negative terminal side of coil (usually marked as “-“) to the tachometer signal wire.

IMPORTANT! Some Mallory ignition systems may require you to adjust the tachometer at the 4-cylinder setting (rather than the 8-cylinder setting).

ECM TACHOMETER SIGNAL

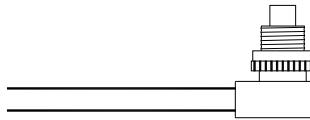
Signal comes from the computer. When using this type of signal, you may need to set the tachometer to a 4-cylinder setting regardless of the actual cylinders on the engine. Signals below 8V amplitude require the use of either the SN76 tach adapter or a 1K .25W pull-up resistor installed between the signal and power posts of the tachometer.

MULTIPLE COIL IGNITION SYSTEMS

A tach adapter is required for these ignition systems. A tach signal driver such as the MSD #8913, which produces a 12V square wave signal, is recommended. Please check with manufacturer for your specific application.

NOTICE! For all other ignition systems please look at the owner’s manual for that system.

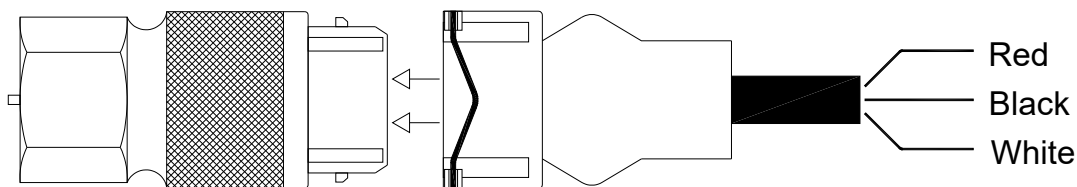
- 12) Connect a speed signal to the **Purple** [Position 12] wire of the gauge cluster harness:
 - a. White signal wire from a pulse signal generator [SN16]
[OR]
 - b. Output from a [SN74Z] speedometer signal interface module.
 - i. See "Speedometer Signal Interface Wiring" section for complete SN74Z wiring instructions.
- 13) Connect the pulse signal generator [SN16] BLACK ground wire (if used) to the **Black / White** [Position 13] wire of the gauge cluster harness.
- 14) Connect the pulse signal generator [SN16] RED power wire (if used) to the **Red / White** [Position 14] wire of the gauge cluster harness.
- 15) Connect constant +12V power (for clock) to the **Pink / White** [Position 15] wire of the gauge cluster harness.
 - a. Connect the two yellow wires from the back of the clock to the two wires of the black pushbutton switch. The wires of the button may be lengthened to allow installation of the button in a desired location.
 - i. *The pushbutton is used to set the clock time. Press and hold the pushbutton to fast forward the time indicated until the correct time is displayed.*



Time Adjust Pushbutton

Pulse Signal Generator [SN16] Wiring

Attach the signal generator to the transmission speedometer gear housing (where the speedometer cable originally connected). Do not use excessive force to tighten. These signal generators produce approximately 16,000 pulses per mile (PPM).

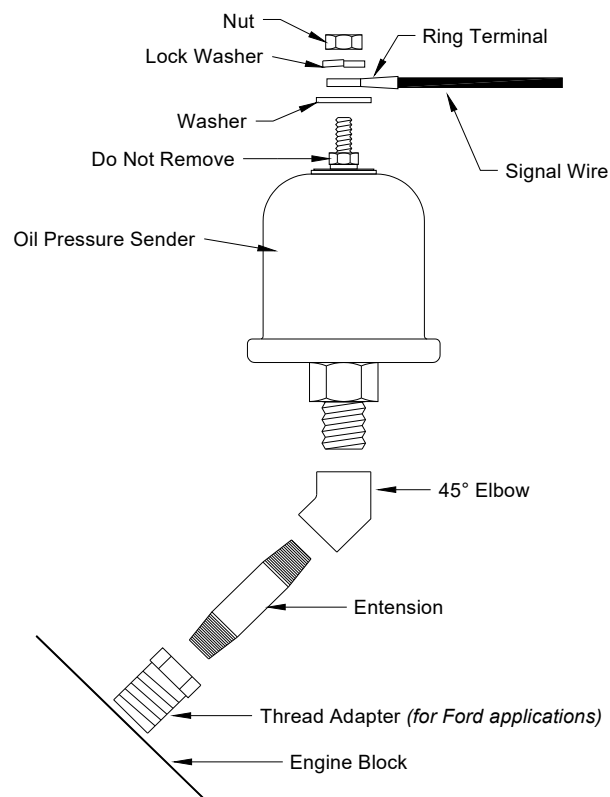


Red: ----- Power
Black: ----- Ground
White: ----- Signal

Oil Pressure Sender Installation

(Part No. SN52)

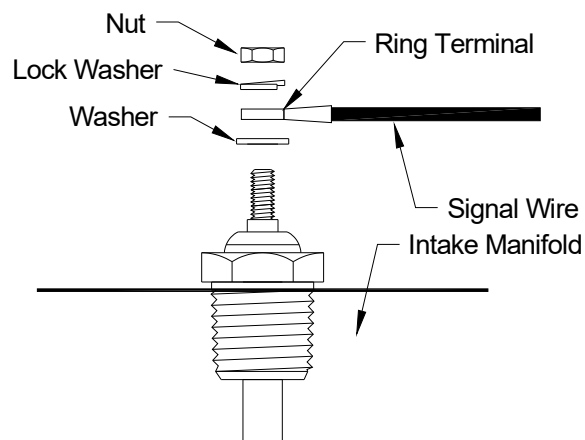
- 1) Disconnect battery before installation.
- 2) Only install Classic Instruments sending units when the engine is COLD.
- 3) DO NOT use Teflon tape on the threads. These threads are slightly tapered and designed to be self-sealing. The sender uses the threads for its ground connection and sealant may cause a poor ground causing inaccurate readings. If supplemental sealant is needed, we recommend using Loctite C5-A anti-seize. This is a copper based anti-seize which will allow a good electrical connection for the sender ground.
- 4) Connect a wire from the top terminal of the oil pressure sender to the **Blue** wire of the gauge wire harness.



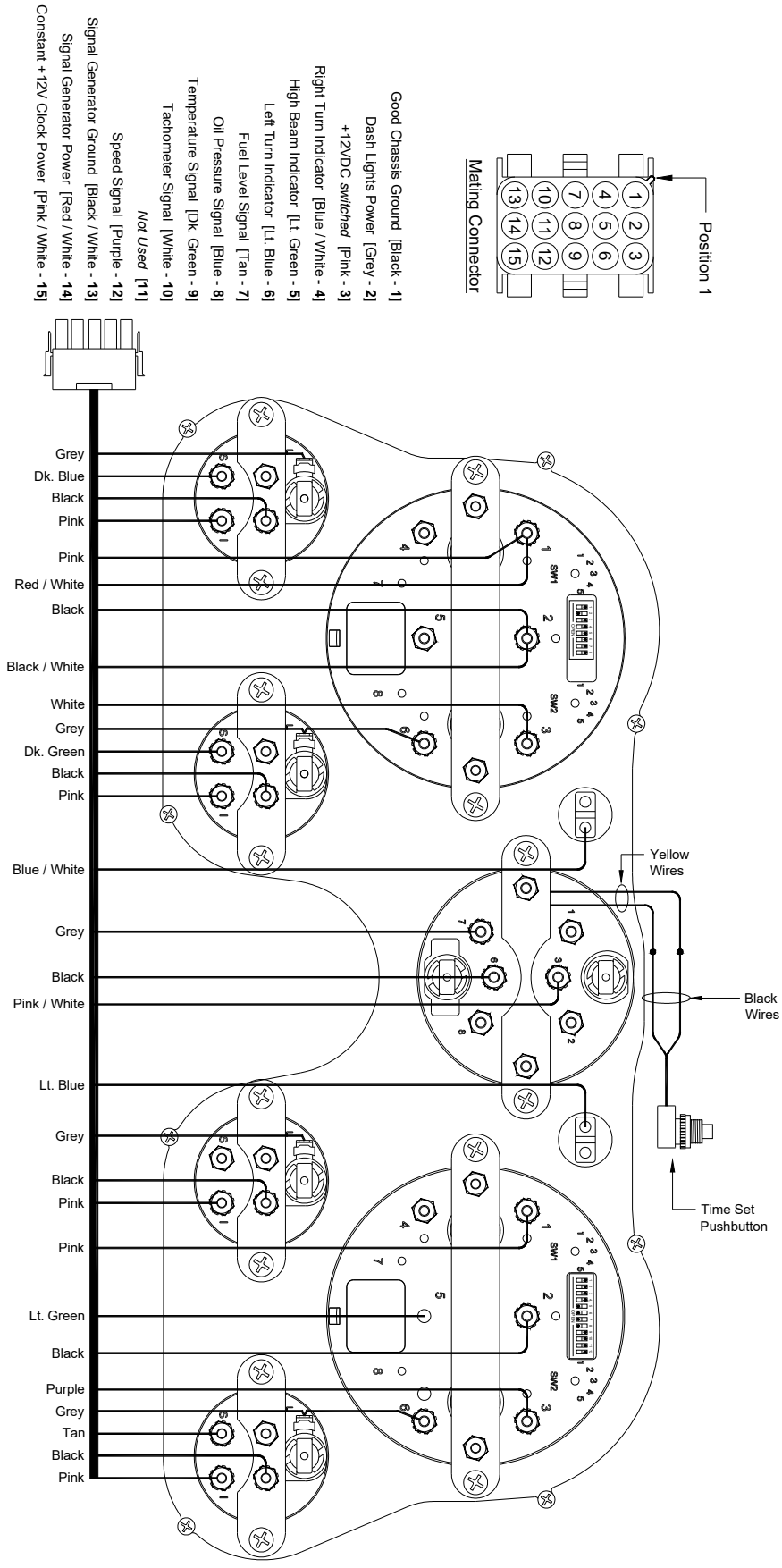
Temperature Sender Installation

(Part No. SN22, SN23, SN24 & SN25)

- 1) Disconnect battery before making any connections.
- 2) Install the Classic Instrument's temperature sending unit only when the engine is COLD!
- 3) DO NOT use Teflon tape on the threads. These threads are slightly tapered and designed to be self-sealing. The sender uses the threads for its ground connection and sealant may cause a poor ground causing inaccurate readings. If supplemental sealant is needed, we recommend using Loctite C5-A anti-seize. This is a copper based anti-seize which will allow a good electrical connection for the sender ground.
- 4) Install the temperature sender into the intake manifold of your engine if possible. Installing the sender in the engine cylinder head may cause inaccurate temperature readings.
- 5) Connect a wire from the top terminal of the temperature sender to the **DK. Green** wire of the gauge wire harness.
- 6) Tighten until snug. DO NOT OVER TIGHTEN!



Instrument Cluster Wiring Diagram

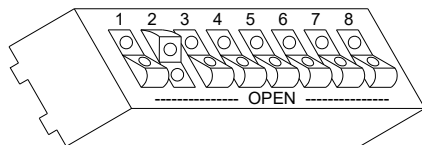


Tachometer Setup

Set the tachometer dip switches to the appropriate cylinder engine setting for your application. Note: Some ECM tachometer signals (*specifically on LS engines*) require the tachometer to be set at the 4-cylinder setting regardless of the actual cylinders on the engine.

Number of Cylinders / Poles	Tachometer Dip Switch Setting
4	1 & 2 OPEN
6	2 & 3 OPEN
8	2 OPEN
10-Pole Alternator Signal	4 & 5 OPEN
12-Pole Alternator Signal	4 OPEN
20-Pole Alternator Signal	6 OPEN

Tachometer Setup
(Set dip-switches from the table to OPEN, all others CLOSED)

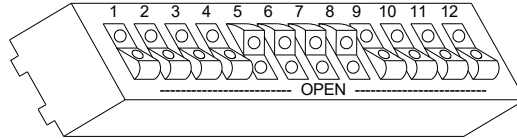


Dip switches on back of tachometer
(Figure shows the factory preset 8 cylinder setting)

Speedometer Calibration for SN16 Speed Signals

- 1) Set the 12 dip switches on the back of the speedometer to their default position of (5, 6, 7, 8 OPEN). **Power to the speedometer must be OFF when making adjustments to the dip switches.**
- 2) Check the current speedometer calibration at a known 60mph by pacing a vehicle with a calibrated speedometer or by using a GPS.
- 3) Note the speedometer reading at a known 60mph.
- 4) Stop the vehicle and turn power OFF to the speedometer.
- 5) Look up the speedometer reading on the 16,000 PPM calibration chart and set the speedometer dip switches according to the chart. The dip switches shown on the chart should be the **ONLY** switches set to OPEN. All other dip switches should be set to CLOSED.
- 6) The speedometer is now calibrated. The dip switches must be set back to the default position in order to use the calibration chart on future calibrations.

Speedometer Calibration Chart – SN16 Signal



(Default Dip Switch Setting)

(Switch 5 6 7 8 OPEN)

Set speedometer switches **5 6 7 8 OPEN**, all others closed (*code for 16,000 PPM*). Drive vehicle at 60mph. If the speedometer reads other than 60, turn off power & set switches per chart below.

Speedometer Reading	OPEN SWITCH	Speedometer Reading	OPEN SWITCH
40 MPH	8 9 11 12	80 MPH	4 5 6 10 12
41 MPH	7 10 12	81 MPH	4 5 6 8
42 MPH	7 8	82 MPH	4 5 6 8 9 11 12
43 MPH	7 8 9 11 12	83 MPH	4 5 6 7 10
44 MPH	6 10	84 MPH	4 5 6 7 8
45 MPH	6 8	85 MPH	4 5 6 7 8 9 11 12
46 MPH	6 8 9 11 12	86 MPH	3 10 12
47 MPH	6 7 10 12	87 MPH	3 8
48 MPH	6 7 8	88 MPH	3 8 9 11 12
49 MPH	6 7 8 9 11 12	89 MPH	3 7 10 12
50 MPH	5 10	90 MPH	3 7 8
51 MPH	5 8	91 MPH	3 7 8 9 11 12
52 MPH	5 8 9 11 12	92 MPH	3 6 11 12
53 MPH	5 7 10 12	93 MPH	3 6 8
54 MPH	5 7 8	94 MPH	3 6 8 9 11 12
55 MPH	5 7 8 9 11 12	95 MPH	3 6 7 10 12
56 MPH	5 6 10 12	96 MPH	3 6 7 8
57 MPH	5 6 8	97 MPH	3 6 7 8 9 11 12
58 MPH	5 6 8 9 11 12	98 MPH	3 5 10 12
59 MPH	5 6 7 10 12	99 MPH	3 5 8
60 MPH	5 6 7 8	100 MPH	3 5 8 9 11 12
61 MPH	5 6 7 8 9 11 12	101 MPH	3 5 7 10 12
62 MPH	4 10 12	102 MPH	3 5 7 8
63 MPH	4 8	103 MPH	3 5 7 8 9 11 12
64 MPH	4 8 9 11 12	104 MPH	3 5 6 10 12
65 MPH	4 7 10	105 MPH	3 5 6 8
66 MPH	4 7 8	106 MPH	3 5 6 8 9 11 12
67 MPH	4 7 8 9 11 12	107 MPH	3 5 6 7 10 12
68 MPH	4 6 10 12	108 MPH	3 5 6 7 8
69 MPH	4 6 8	109 MPH	3 5 6 7 8 9 11 12
70 MPH	4 6 8 9 11 12	110 MPH	3 4 10 12
71 MPH	4 6 7 10 12	111 MPH	3 4 8
72 MPH	4 6 7 8	112 MPH	3 4 8 9 11 12
73 MPH	4 6 7 8 9 11 12	113 MPH	3 4 7 10 12
74 MPH	4 5 10 12	114 MPH	3 4 7 8
75 MPH	4 5 8	115 MPH	3 4 7 8 9 11 12
76 MPH	4 5 8 9 11 12	116 MPH	3 4 6 10 12
77 MPH	4 5 7 10 12	117 MPH	3 4 6 8
78 MPH	4 5 7 8	118 MPH	3 4 6 8 9 11 12
79 MPH	4 5 7 8 9 11 12	119 MPH	3 4 6 7 10 12

Speedometer Signal Interface [SN74Z] Wiring

- 1) Connect switched +12VDC power to the SN74Z terminal marked **+12 VOLTS**.
- 2) Connect a good ground to the SN74Z terminal marked **GROUND**.
- 3) Connect the red wire of a Classic Instruments SN16 / SN16F pulse signal generator to the SN74Z terminal marked **SENDER +**. *If you are not using a pulse signal generator, this terminal is not used.*
- 4) Connect ¹⁾ one wire of an electronic transmission's vehicle speed sensor (VSS), ²⁾ one wire of a 2-wire pulse signal generator or ³⁾ the black wire of a Classic Instruments SN16 / SN16F pulse signal generator to the SN74Z terminal marked **SENDER -**.
- 5) Connect ¹⁾ one wire of an electronic transmission's vehicle speed sensor (VSS), ²⁾ one wire of a 2-wire pulse signal generator, ³⁾ the white wire of a Classic Instruments SN16 / SN16F pulse signal generator or ⁴⁾ a Computer (ECM / PCM) generated speed signal to the SN74Z terminal marked **SPEEDO IN**.
- 6) Connect the signal post of your speedometer to the SN74Z terminal marked **OUTPUT**.
- 7) ^{Optional:} The SN74Z terminal marked **CRUISE** puts out an 8,000 pulse per mile 12-volt square wave signal that can be used as a signal source for a cruise control, lockup converter, etc...
- 8) Connect two wires from a momentary contact pushbutton to the two terminals on the SN74Z marked **BUTTON**. *A pushbutton is also mounted to the SN74Z that can be used in place of a remote button attached to the BUTTON terminals.*

SN74Z Dip Switch Settings

- Dip Switch #1:
 - Set switch #1 ON to set the output to 8,000 pulses per mile (ppm). *(Classic Instruments speedometers that have 8 dip switches on the back require 8,000 ppm)*
 - Set switch #1 OFF to set the output to 16,000 pulses per mile (ppm). *(Classic Instruments speedometers that have 12 dip switches on the back require 16,000ppm)*
- Filter Switch:
 - Set the Filter Switch ON for square wave speed signals such as ECM / PCM speed signals or SN16 / SN16F pulse signal generator signals.
 - Set the Filter Switch OFF for sine wave speed signals such as OEM vehicle speed sensor (VSS) signals or SN96 / SN95 pulse signal generator signals. *(sine wave signal sensors always have 2 wires)*
- Dip Switches #2 - #5 are NOT used

Speedometer Signal Interface [SN74Z] Wiring Diagrams

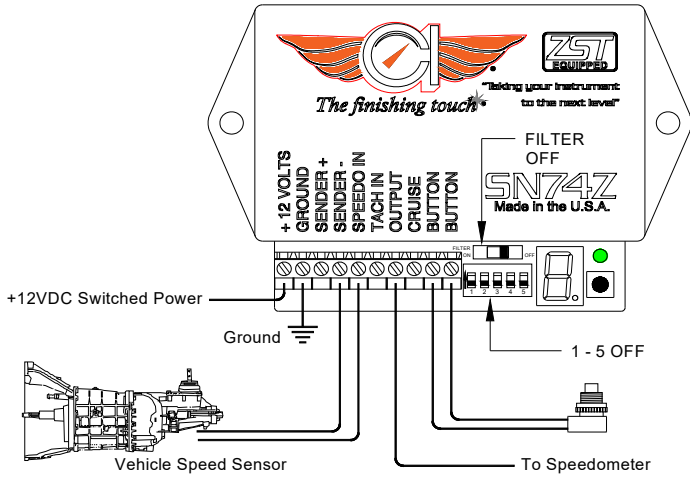


Figure 1: Vehicle Speed Sensor (VSS) Connection

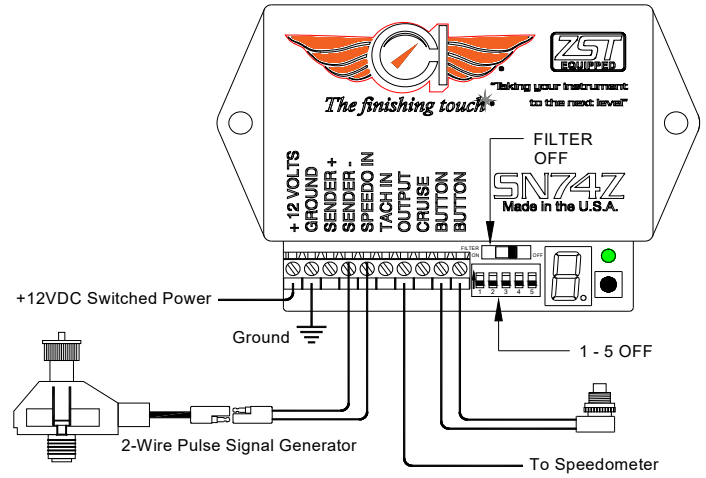


Figure 2: 2-wire Pulse Signal Generator Connection

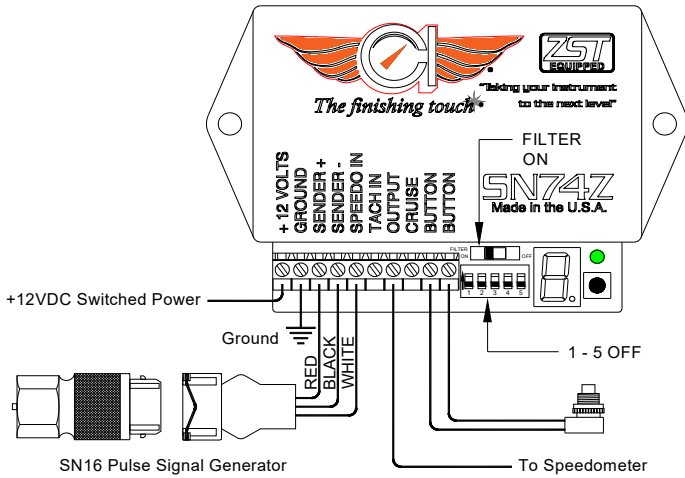


Figure 3: SN16 Pulse Signal Generator Connection

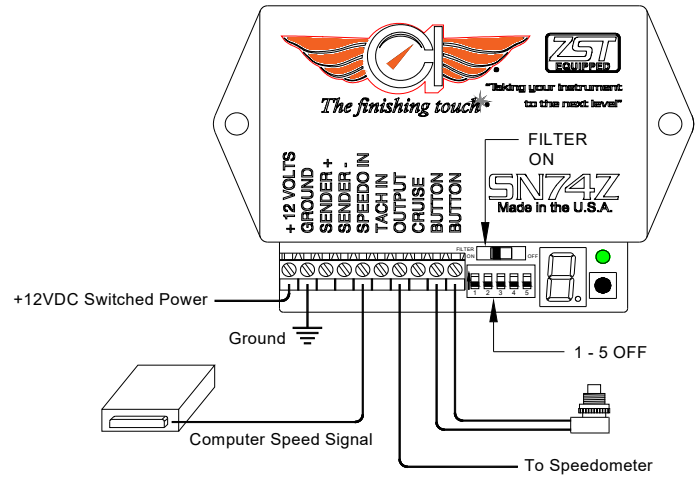


Figure 4: ECM/PCM Speed Signal Connection

SN74Z Speedometer Calibration Modes

There are three calibration modes you can use to calibrate the SN74Z. Use whichever mode seems easiest for your application. It is not necessary to perform all calibration modes.

Instant Calibration Mode

- Start with vehicle power off.
- Press and hold the calibration button and start the engine. *Once the engine is running, release the button.*
- The LED digit will display **C**, indicating entry into module select mode.
- After a few seconds, the LED digit will display **S**, **r** or **F**. Tap the button to cycle round robin through these setup options. Press and hold the button when the LED digit displays **S** (*indicating setup for speedometer applications*).
- Release the button when the LED digit displays **C**, indicating entry into calibration mode.
- Tap the button to change the LED digit to **1** indicating instant calibration mode. *Continuing to tap the button will cycle round robin through the calibration modes 1, 2, 3 and F.*
- Press and hold the button with the LED digit indicating **1** until the **1** starts blinking.
- Begin driving at 30 mph based on GPS or a pace car. *(The green LED on the SN74Z should blink indicating that it is getting a signal).*
- While driving steady at that speed, press and hold the button until the LED digit changes back to **C** (*to confirm that calibration is saved*).
- The speedometer should now begin reading 30 mph.
- Press and hold the button while the LED digit displays **C** to exit calibration mode. *(Tap the button to cycle round robin through the calibration modes again if you would like to perform another calibration).*

Real-Time Calibration Mode

- Start with vehicle power off.
- Press and hold the calibration button and start the engine. *Once the engine is running, release the button.*
- The LED digit will display **C**, indicating entry into module select mode.
- After a few seconds, the LED digit will display **S**, **r** or **F**. Tap the button to cycle round robin through these setup options. Press and hold the button when the LED digit displays **S** (*indicating setup for speedometer applications*).
- Release the button when the LED digit displays **C**, indicating entry into calibration mode.
- Tap the button to change the LED digit to **2** indicating real-time calibration mode. *Continuing to tap the button will cycle round robin through the calibration modes 1, 2, 3 and F.*
- Press and hold the button with the LED digit indicating **2** until the **2** starts blinking.
- Begin driving a known speed. *(The green LED on the SN74Z should blink, indicating that it is getting a signal).*
- Press and hold the button to change the speed shown on the speedometer. The first time the button is pressed and held, the speed shown on the speedometer will increase. The second time the button is pressed and held, the speed shown on the speedometer will decrease.
 - The SN74Z will alternate increasing or decreasing the speed shown on the speedometer each time the button is pressed. Press and hold the button to fine tune the speed shown on the speedometer.
- Once the speedometer is reading the correct speed, wait 8 seconds without pushing the button (*in order to save the calibration*). The LED digit will change back to **C** to confirm calibration is saved.
- Press and hold the button while the LED digit displays **C** to exit calibration mode. *(Tap the button to cycle round robin through the calibration modes again if you would like to perform another calibration).*

Marked Mile Calibration Mode

- Start with vehicle power off.
- Press and hold the calibration button and start the engine. *Once the engine is running, release the button.*
- The LED digit will display **C**, indicating entry into module select mode.
- After a few seconds, the LED digit will display **S**, **r** or **F**. Tap the button to cycle round robin through these setup options. Press and hold the button when the LED digit displays **S** (*indicating setup for speedometer applications*).
- Release the button when the LED digit displays **C**, indicating entry into calibration mode.
- Tap the button to change the LED digit to **3** indicating marked mile calibration mode. *Continuing to tap the button will cycle round robin through the calibration modes 1, 2, 3 and F.*
- Press and hold the button with the LED digit indicating **3** until the **3** starts blinking.
- Begin driving a known mile. (*The green LED on the SN74Z should blink, indicating that it is getting a signal*).
 - When driving the known mile, the speedometer will not indicate any speed. This is normal.
- At the end of the known mile, press and hold the button until the LED digit changes back to **C** to confirm calibration is saved.
- Press and hold the button while the LED digit displays **C** to exit calibration mode. (*Tap the button to cycle round robin through the calibration modes again if you would like to perform another calibration*).