Installation Instructions

1. Disconnect the vehicle battery.
2. Connect the gauge power requirements as shown in figures 2 & 3.
3. Wire all the components to the proper sources and senders. (See figures 2 & 3)
4. Reconnect the vehicle battery.
5. Power up the gauge and program the various gauge components (if needed). (See Gauge Operation Instructions)

FIGURE 1: Gauge Display Guide

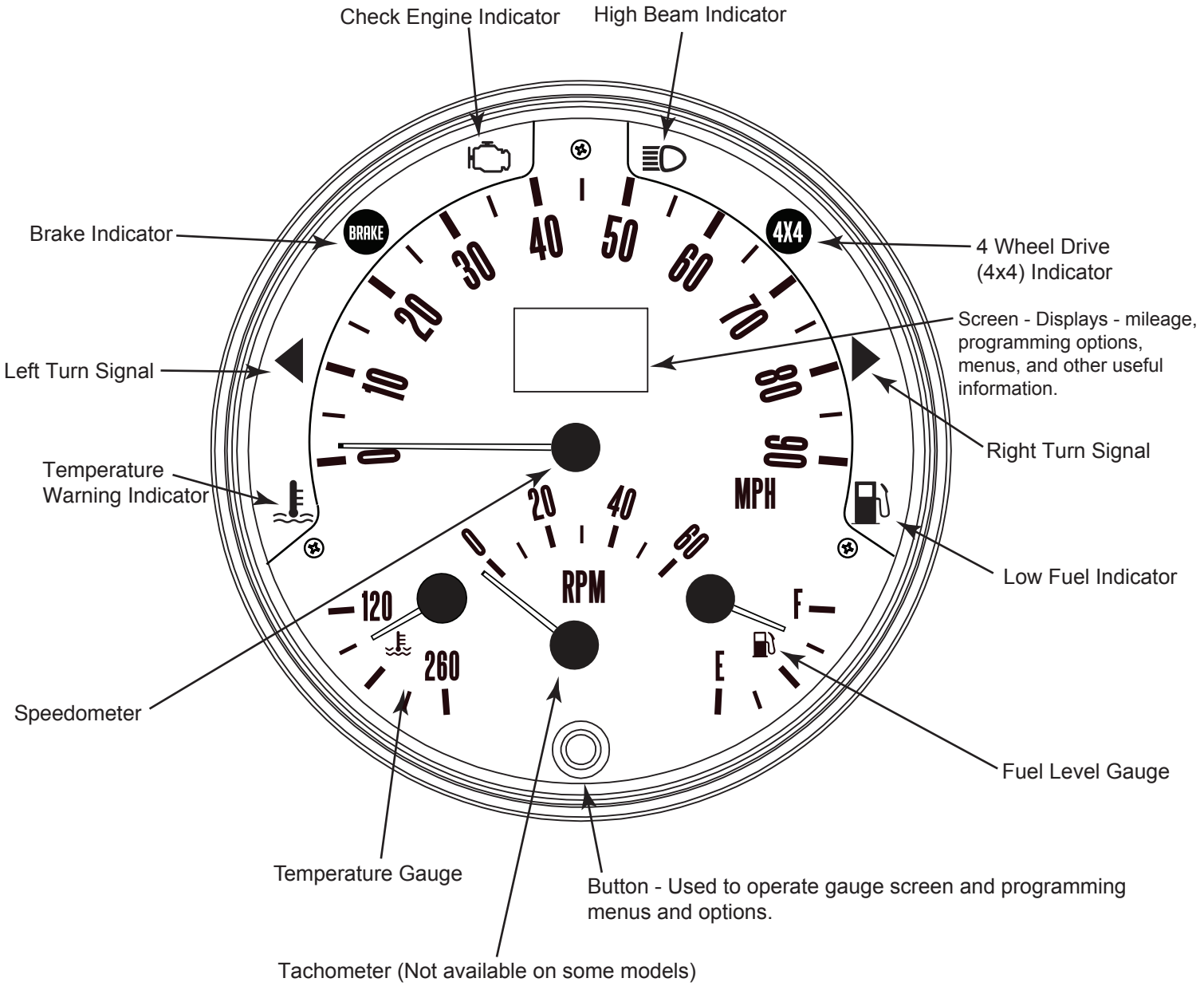


FIGURE 2: Wiring Guide

See Figure #3 for more wiring info.

Power Draw = 0.2 Amp
3A to 5A Inline Fuse Recommended
for +12 Accessory Power

1. Blue wire with White Stripe - High Beam Indicator
2. Red wire with Green Stripe - Speed Sensor
3. Green wire with Orange Stripe - Left Turn Signal
4. Black (Double Pigtail paired with wire #6) - CAN High
5. Green wire with Red Stripe - Right Turn Signal
6. Black [White Striped] (Double Pigtail paired with wire #4) - CAN Low
7. Black wire - Brake Indicator
8. Red wire with Black Stripe - GPS Hot Start (Connect to +12VDC non-accessory power).
9. Yellow wire with Black Stripe - Fuel Level Ground
10. Pink wire - Fuel Level Signal
11. Orange wire - 4x4 Indicator
12. Yellow wire with Red Stripe - Water Temp Signal
13. White (Triple Pigtail paired with wires #14 and #15) - Lighting Dimmer
14. Red (Triple Pigtail paired with wires #13 and #15) - +12VDC Switched (5 Amp Inline Fuse Recommended, Power Draw is 0.2 Amp)
15. Black (Triple Pigtail paired with wires #13 and #14) - Ground
16. Yellow wire with Black Stripe - Water Temp Ground
17. Yellow wire - Tachometer Signal (available on some models)
18. Black (Double Pigtail paired with wire #19) - EL Inverter
19. Black [White Striped] (Double Pigtail paired with wire #18) - EL Inverter
20. Purple Wire - Check Engine Indicator

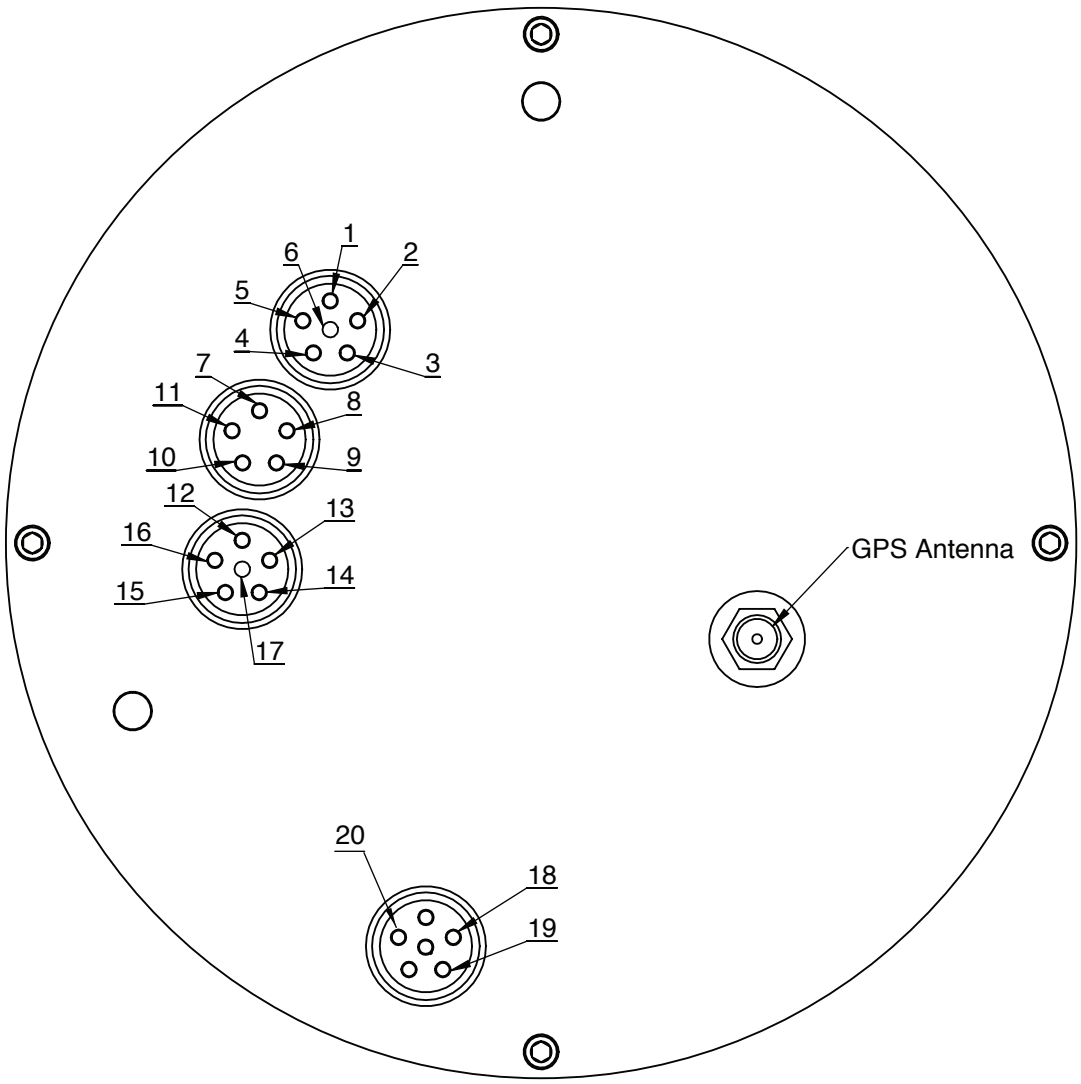
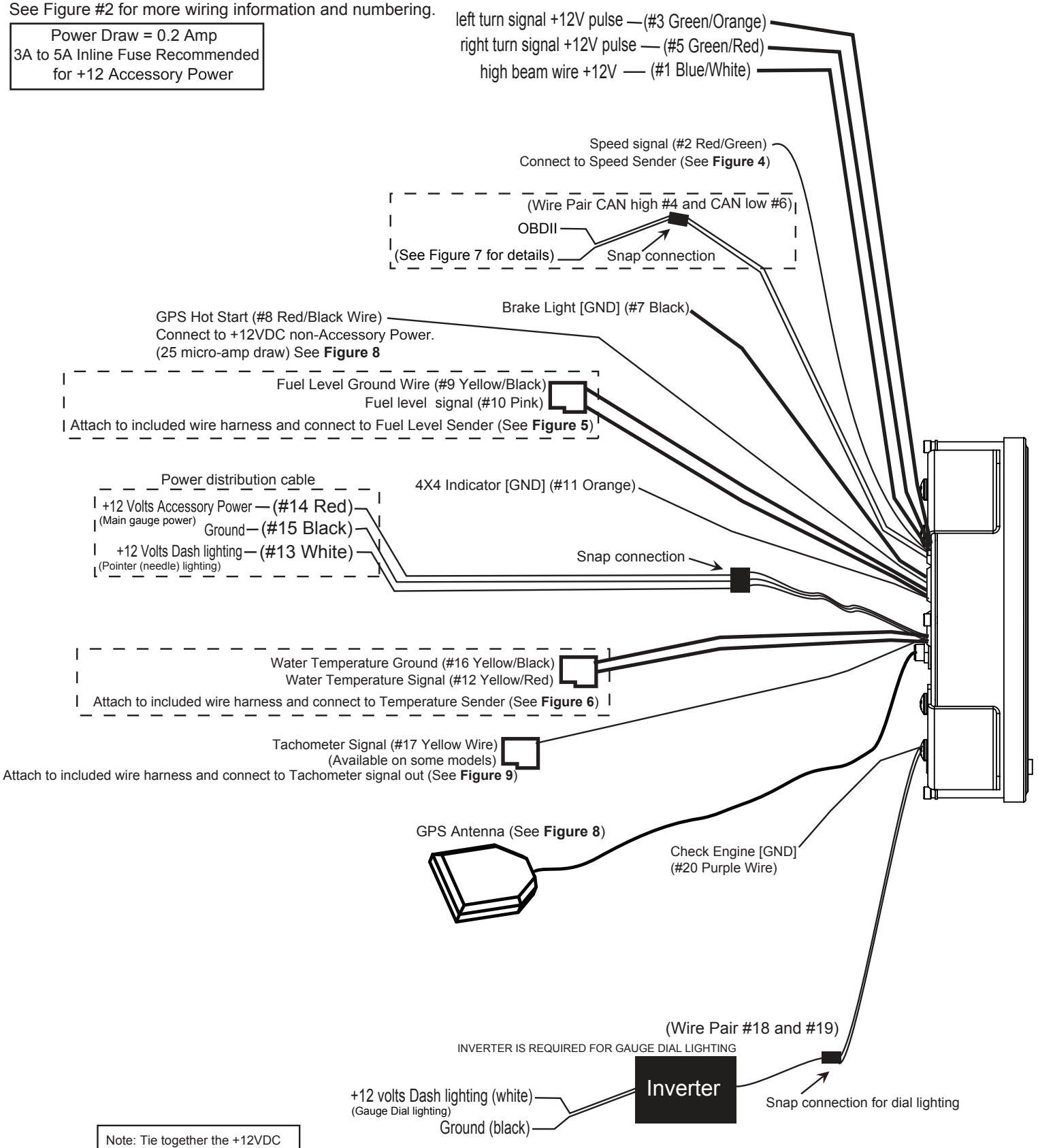


FIGURE 3: Connection Guide

See Figure #2 for more wiring information and numbering.

Power Draw = 0.2 Amp
3A to 5A Inline Fuse Recommended
for +12 Accessory Power



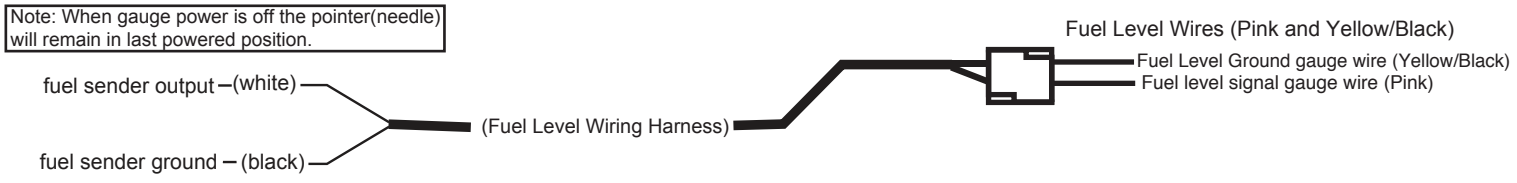
Note: Tie together the +12VDC dash lighting wire (#13 white) to the +12VDC inverter white wire and connect to the same dash lighting source.

Dial Lighting Inverter Note: Single EL dial lighting inverter included with individual gauge.
Multi-gauge EL dial inverter included with gauge set of 3 to 8 gauges.
Protect any unused connectors. Damage to an unused connector could cause inverter failure.

FIGURE 4: OPTIONAL Backup Speedometer Sender Connection (Requires GPS signal for calibration, See Figure 8)

Alternate ECU Setup: You can connect signal wire directly to the speedometer signal out on the vehicle's ECU.

FIGURE 5: Fuel Level Sender Connection (see Gauge Operation Instructions for calibration instructions)



Note: Fuel sender ground should be connected to the fuel level sender ground. If you do not have a fuel level sender ground connect to the chassis ground.

FIGURE 6: Temperature Sender Connection

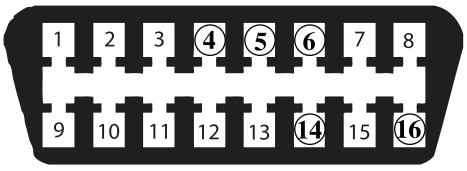
Note: When gauge power is off the pointer(needle) will remain in last powered position.

FIGURE 7: OBDII Setup

OBDII Note: Speedhut CJ Speedometer gauge will not function when used in conjunction with any other OBDII device. Cycle the gauge power to restore proper gauge function.

1. Connect power distribution requirements as shown in Figures 2 & 3. (Make sure that the vehicle battery is disconnected)
2. Connect the black CAN high wire (#4) to the OBDII pin 6, Connect the white striped black CAN low wire (#6) to the OBDII pin 14. [CAUTION: Do not connect to a powered OBDII system. Failure to do so will throw a check engine code.]
3. Mount gauge for easy viewing.

Does your vechicle support the CAN-BUS protocol?



Vehicle's OBDII connector pin numbering

OBDII CAN (J1979) protocol Pinout:

If the vehicle has wires that connect to pins 6 and 14 of the OBDII connector then the vehicle supports the CAN-BUS (J1979) protocol.

Pin 4 -- Chassis Ground
Pin 5 -- Signal Ground
Pin 6 -- CAN High (data)
Pin 14 -- CAN Low (data)
Pin 16 -- +12volt Battery power (NOT a source for gauge power)

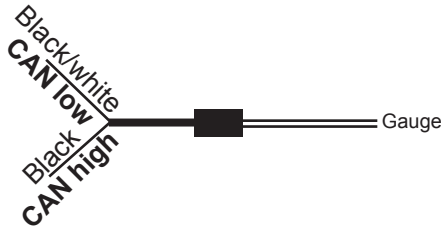
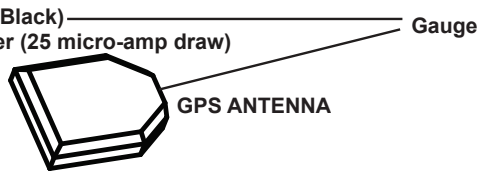


FIGURE 8: GPS Antenna and Hot Start Wire



1. Connect GPS receiver antenna into back of speedometer.
2. For best performance, mount GPS antenna with as much view of sky as possible (preferably on the roof of the vehicle). The GPS antenna is waterproof and magnetic. If the car's roof is not accessible then mount the antenna on top of the vehicle's dash with as much exposure as possible to the sky through the window.

NOTE: Antenna is able to receive signal through some thin materials i.e. wood, glass, fiberglass, and plastic. All types of metal will block the signal.

3. Hot start feature is optional. Connecting the hot start wire to constant +12volts allows GPS to quickly acquire satellites in less than 2 seconds. This feature saves your current satellite position within the speedometer enabling it to quickly restore your position on power up when Speedometer has been powered off.

NOTE: Please note that if the speedometer has been powered off longer than 4 hours, it could take up to 1 minute to acquire signal due to the satellites moving significantly from your location. This is normal.

Power Draw NOTE: The hot start current draw is extremely low (25 micro-amp) and will have virtually zero impact on a vehicle's battery charge. Hot start wire should be connected directly to battery +12voltage and should remain powered 100% of the time.

FIGURE 9:

Caution- HIgh voltage sometimes present on ignition coil wires. Engine must be off when connecting yellow wire.

Note: If you plan to operate the tachometer using OBDII CAN-BUS (J1979), then you do not need to connect the Tachometer signal wire.

Your vehicle ignition system will fall under one of these 4 ignition types. The type of ignition system will determine where the yellow tachometer signal wire (wire #17) is connected and what the number of pulses per revolution the tachometer should be set to.

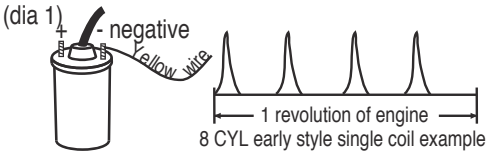
Type #1 (single coil) - Up until the 1990's tachometers picked up the signal from the (-) side on a single ignition coil, reading every pulse sent to all the cylinders. For example, an 8 cylinder (4 stroke) engine fires 4 spark plugs per revolution or all 8 spark in 2 revolutions. Connecting the yellow wire to the negative side of the single coil on an 8 cylinder results in picking up 4 sparks in 1 revolution (see diag. 1). This type of ignition was used pre-dominantly until the 1990's and distributes sparks to each spark plug. In some vehicles during the 90's the coil and distributer merged into one unit, but it is the same ignition system - one coil that distributes sparks to all cylinders. When connecting the yellow wire to this style of ignition you will be picking up all cylinder sparks (see diag. 5).

Type #2 (coil pack) - (diag. 2) is used in the 96 Mustang v8 with twin coil packs. Coil pack #1 (C1) controls the firing of 4 spark plugs and coil pack #2 (C2) controls the remaining 4 spark plugs. 2 or more separate coils are within each coil pack assembly. In this example each of the 2 coils within each coil pack sends sparks to 2 cylinders at the same time. When one cylinder is firing in the compression stroke, it's paired cylinder is "waste" firing in the exhaust stroke. Each separate coil within the pack is controlled by it's own trigger wire. In other words, if you hooked up the yellow wire to one coil trigger wire within one coil pack, it will see only a fraction of the total engine sparks (see diag. 5).

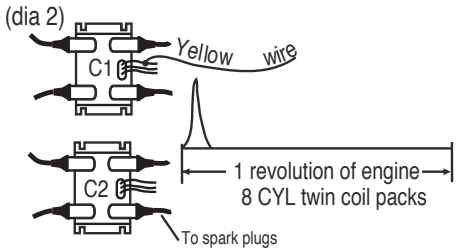
Type #3 (coil on plug) – An individual coil is placed directly on top of each spark plug eliminating the spark plug wires. The yellow wire , when hooked up to any coil, will pick up only 1 pulse per 2 revolutions or 1/2 pulse per 1 revolution (see dia 3). For this type of ignition the yellow wire from the tachometer will connect to the trigger wire on one of the coils. Typically there will be 3 or 4 colored wires coming off of them, but the fourth wire will be blue on one coil and green on the next coil.

Type #4 (tach output from ECU) Some vehicles will have a tachometer output wire coming from the ECU. The yellow wire from our tachometer can receive signal from the ECU by following diagram 4. 4.7k Ω resistor and shrink tubing are included with gauge.

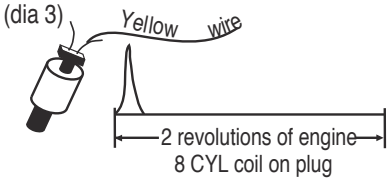
(dia 1)



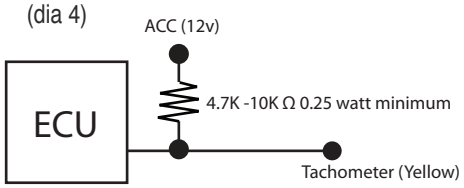
(dia 2)



(dia 3)



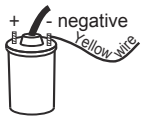
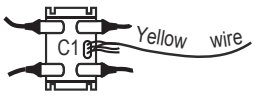
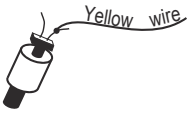
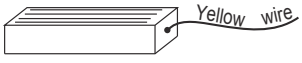
(dia 4)



Setup the Tachometer to run
2 pulses per rev when
connecting it to the engines' ECU.

Important note: Connecting the tachometer to the wrong wire will NOT damage the tachometer or your ignition.

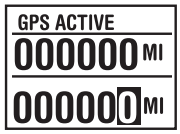
Diag 5: Tachometer yellow wire connection

Type #1 ignitions	Type #2- Coil Packs	Type #3- Coil on Plug	Aftermarket ignitions / tach output
			
Yellow wire connects to: negative side of coil. 12 cyl = 6 Pulses / rev 10 cyl = 5 Pulses / rev 8 cyl = 4 Pulses / rev 6 cyl = 3 Pulses / rev 4 cyl = 2 Pulses / rev (see Tachometer Calibration)	Yellow wire connects to: • negative side of coil (some cars) or • coil control wire (some cars) or • coil trigger wire (some cars). 1 Pulses / rev. (as a good starting point) (see Tachometer Calibration)	Yellow wire connects to: • negative side of coil (some cars) or • coil control wire (some cars) or • coil trigger wire (some cars). 1/2 Pulses / rev. (as a good starting point) (see Tachometer Calibration)	Yellow wire connects to: tachometer output terminal 12 cyl = 6 Pulses / rev 10 cyl = 5 Pulses / rev 8 cyl = 4 Pulses / rev 6 cyl = 3 Pulses / rev 4 cyl = 2 Pulses / rev (see Tachometer Calibration)

To access and use the on screen menu:
Press the button (located on the front of the gauge) to select different options.
Press and hold the button to gain access to an option or menu selection.

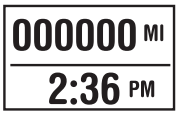
GPS SPEEDOMETER:
When the gauge is powered on, it will begin to search for satellites to acquire a GPS signal.

After a GPS signal is aquired the screen will display “GPS ACTIVE”.



When the the GPS signal is active the following displays and menus will be available:

Clock



Clock feature. Time is acquired from GPS satellites. User only needs to adjust the hour setting for his/her time zone.

Press and hold button to set clock hours. (color will invert)
Toggle through am / pm hours until correct time is reached.
Release button for several seconds and time is stored. (color will return to normal)

Elevation

Elevation feature is acquired from GPS satellites and shows the current elevation from sea level in feet or meters depending on model.

Speed

Speed feature shows mph or kmh in display

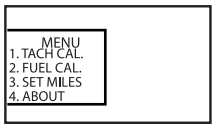
Direction

Shows the current direction

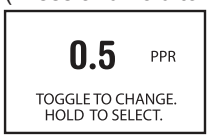
Note: Default direction is North(N). Correct direction is displayed only when moving.

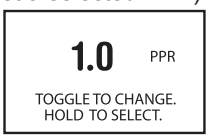
Follow these steps below for all menu items

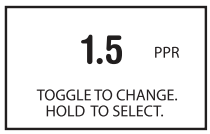
1. Press and hold button down while turning on gauge power to enter the calibration menu.
2. A quick button press will toggle LCD screen through all the available menu settings and display.
3. Press and hold to select the menu item (2-3 seconds).
4. Press and hold button to change setting.

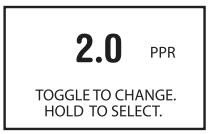


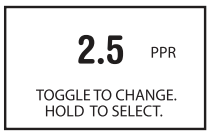
Use the "TACH CAL." menu to calibrate the TACHOMETER Pulses Per Rev (PPR) [available on some models]:
Repeatedly press the button to toggle through the following PPR options:
(Press and hold to set a selected PPR)

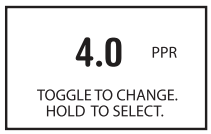


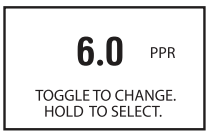




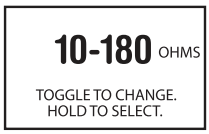


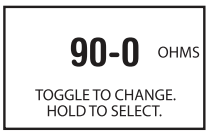


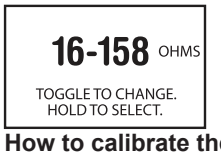




Use the "FUEL CAL." menu to calibrate the the ohm range for the FUEL LEVEL:
Repeatedly press the button to toggle through the following OHM ranges:
(Press and hold to set a selected Ohm range)







How to calibrate the FUEL LEVEL gauge to custom Ohm Range:
After toggling through the Ohm ranges there will be an "EMPTY" option and a "Full" option.
EMPTY option: While your fuel tank is empty press and hold to set.
FULL option: While your fuel tank is full press and hold to set.

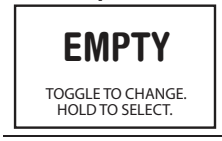


CHART 1: **Common Factory Ohm Ranges**

Empty	Full	Vehicle Application
0 ohms	30 ohms	Most pre-'65 GM
0 ohms	90 ohms	Most GM '65-present
16 ohms	158 ohms	Most Fords '87-present
73 ohms	8-12 ohms	Most Fords before '87 and most Chrysler
240 ohms	33 ohms	Use with 3262 sender
10 ohms	70 ohms	Ford Bi- Metallic Gauges (pre 1987 F-Series Trucks)
15 ohms	160 ohms	Ford Magnetic Gauges (1987 and later F-Series Trucks)

Use the "Set Miles" menu to set the Odometer miles:
Repeatedly press the button to toggle through the digits:
(Press and hold to cycle the numbers 0-9)
To save: do not press the button for 5 seconds.

Use the "About" screen to view manufacturing date and other diagnostic information: