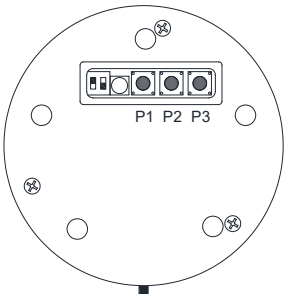
Laser Fuel Sender Installation [19-250]

Important: *Measure your fuel tank depth and read all these instructions before beginning the setup and installation of your new fuel sender.*



Sender Wiring

1) Connect a good ground to the BLACK wire of the sender harness.
2) Connect a Keyed & Fused +12V power to the RED wire of the sender harness.
3) Connect the fuel gauge's signal wire/stud to the YELLOW wire of the sender harness.
   Warning: DO NOT allow any other wires to contact this wire! Doing so will damage the sender!



Sender / Gauge Calibration

Averaging Switch Settings



ON - ON: Minimum averaging with fastest response. (Helpful when bench testing)



ON - OFF: Short averaging.



OFF - ON: Medium averaging.



OFF - OFF: Long / normal averaging with longest response.

The correct averaging setting depends on the fuel tank size and volume. Normally, using a long average setting will make readings smooth but may update slowly when fuel level changes. In reality, fuel level change is very slow, so the long / normal averaging setting is recommended.

Calibration Steps

You don't have to calibrate all settings at one time; each calibration setting can be set independently. For example, if you change to a new gauge, you only need to calibrate the gauge settings, the tank low and full settings are still good. You can also calibrate the gauge without the fuel tank and calibrate the fuel level without the gauge.

Press and hold P1 until the slow flashing green status LED turns off, then release the button to enter the calibration mode.

Standard Gauge Calibration (short sweep)

1) Gauge Empty Position:
   a. The LED should be solid blue. Press P2 or P3 to move the gauge pointer to empty. If the pointer is initially above full or below empty, you may need to keep holding P2 or P3 for up to 8 seconds before you see the pointer move.
   b. When the pointer is positioned to empty, press and hold P1 until the LED turns off. Then release the button. The LED will flash red 3 times to confirm the new setting is saved. If the LED doesn't flash red 3 times, the new setting is NOT saved.

   Note: If you only tap P1, the current setting won't be saved, and you will skip to the next setting.
2) Gauge ½ Position:
   a. The LED should be solid green. Press P2 or P3 to move the gauge pointer to ½. If the pointer is initially above or full or below empty, you may need to keep holding P2 or P3 for up to 8 seconds before you see the pointer move.
   b. When the pointer is positioned to 1/2, press and hold P1 until the LED turns off. Then release the button. The LED will flash red 3 times to confirm the new setting is saved. If the LED doesn't flash red 3 times, the new setting is NOT saved.

   Note: If you only tap P1, the current setting won't be saved, and you will skip to the next setting.
3) Gauge Full Position:
   a. The LED should be solid red. Press P2 or P3 to move the gauge pointer to full. If the pointer is initially above or full or below empty, you may need to keep holding P2 or P3 for up to 8 seconds before you see the pointer move.
   b. When the pointer is positioned to full, press and hold P1 until the LED turns off. Then release the button. The LED will flash red 3 times to confirm the new setting is saved. If the LED doesn't flash red 3 times, the new setting is NOT saved.

   Note: If you only tap P1, the current setting won't be saved, and you will skip to the next setting.

Classic Instruments Full Sweep & Programmable Fuel Gauge Calibration

Set the fuel gauge to operate with a standard universal (240-33Ω) sending unit. Make sure the gauge is powered and connected to the fuel sender.

1a) Gauge Empty Position:

a. The LED should be solid blue. Connect a DC voltmeter to read the voltage on the "gauge" post of the sender. Press P2 or P3 to adjust the voltage to **2.69V**.

b. When you have the required voltage, press and hold P1 until the LED turns off. Then release the button. The LED will flash red 3 times to confirm the new setting is saved. If the LED doesn't flash red 3 times, the new setting is NOT saved.

Note: If you only tap P1, the current setting won't be saved, and you will skip to the next setting.

2a) Gauge ½ Position:

a. The LED should be solid green. Connect a DC voltmeter to read the voltage on the "gauge" post of the sender. Press P2 or P3 to adjust the voltage to **1.66V**.

b. When you have the required voltage, press and hold P1 until the LED turns off. Then release the button. The LED will flash red 3 times to confirm the new setting is saved. If the LED doesn't flash red 3 times, the new setting is NOT saved.

Note: If you only tap P1, the current setting won't be saved, and you will skip to the next setting.

3a) Gauge Full Position:

a. The LED should be solid red. Connect a DC voltmeter to read the voltage on the "gauge" post of the sender. Press P2 or P3 to adjust the voltage to **0.63V**.

b. When you have the required voltage, press and hold P1 until the LED turns off. Then release the button. The LED will flash red 3 times to confirm the new setting is saved. If the LED doesn't flash red 3 times, the new setting is NOT saved.

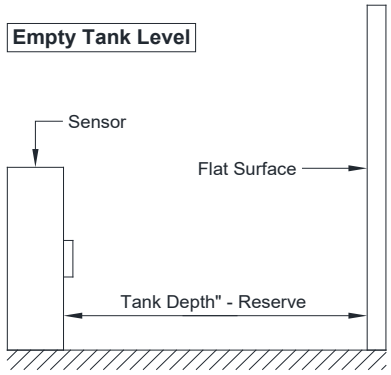
Note: If you only tap P1, the current setting won't be saved, and you will skip to the next setting.

Tank Calibration

When setting up the tank dimensions, the best way is to do it on the actual tank. (tank with small reserve and full tank) If this isn't possible, set up on a bench. Insure no light source is shining directly on the sending unit when setting up the tank dimensions.
For best results, set your empty tank level target up and then go into calibration on the sender, skipping the gauge calibration settings, until you get to the empty tank setting. Calibrate the empty tank setting and then skip the full tank level setting. Now move your target to the full level. Go back into calibration on the sender and skip the gauge calibration settings and the empty tank setting. Now, calibrate the full tank level setting. Doing it this way will ensure you don't have any false measurements when setting up your target on the bench.

4) Tank Empty Position:
    a. This calibration is to set the tank empty (away from sender) level. The LED should be flashing green.
    b. Set up a flat target and sensor parallel to each other on a table. Set the distance between them equal to the depth of your tank minus a small reserve distance (1/2" reserve is typical). The LED will flash faster the closer the target is to the sender.
    c. Once the correct distance is set, wait at least 10 seconds to make sure the sender's reading is stable.
    d. Press and hold P1 until the LED turns off. Then release the button. The LED will flash red 3 times to confirm the new setting is saved. If the LED doesn't flash red 3 times, the new setting is NOT saved.

    Note: If you only tap P1, the current setting won't be saved, and you will skip to the next setting.



5) Tank Full Position:
    a. This calibration is to set the tank full (near sender) level. The LED should be flashing blue.
    b. Set up a flat target and sensor parallel to each other on a table. Set the distance between them equal to the distance between the bottom of the sender and the full fuel level + 3/4". The LED will flash faster the closer the target is to the sender.
    c. Once the correct distance is set, wait at least 10 seconds to make sure the sender's reading is stable.
    d. Press and hold P1 until the LED turns off. Then release the button. The LED will flash red 3 times to confirm the new setting is saved. If the LED doesn't flash red 3 times, the new setting is NOT saved.

    Note: If you only tap P1, the current setting won't be saved, and you will exit the calibration. The status LED will return to a slow green flash.

