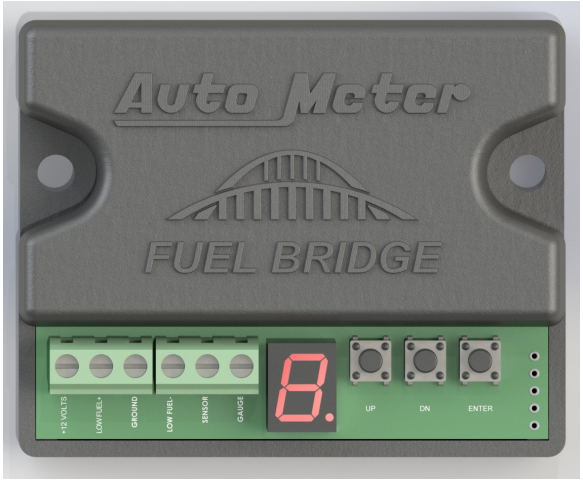
FUEL BRIDGE, FUEL SENDER & GAUGE INTERFACE MODULE

2650-1995-77 Rev. C

IMPORTANT
WEAR SAFETY GLASSES

Used for mating non-matching fuel level senders and gauges.

***Note:** Compatible with AutoMeter Short Sweep Electric gauges (SSE). Not compatible with AutoMeter Full Sweep, stepper motor, programmable fuel gauge. Not compatible with the InVision series digital dash display.



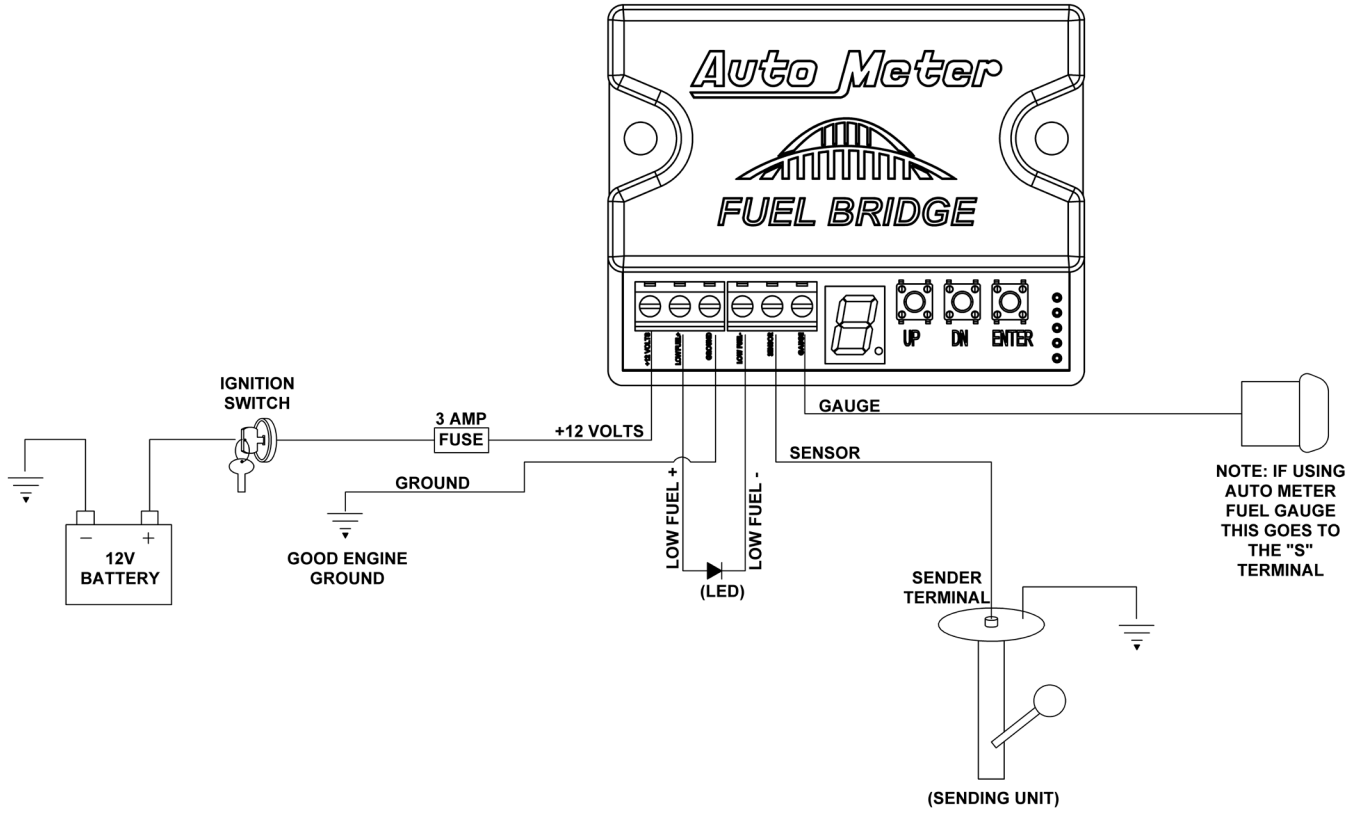
What is Included:
Auto Meter model 9109 Fuel Bridge

Recommended Tools & Supplies:
Wire, 20g or 22g, stranded automotive grade. 3 or 4 different colors preferred.
Small flat blade screwdriver.
Wire strippers
Wire crimpers
Your choice of wire splice connectors, or solder, or heat shrink for wire connections
Your choice of wire coverings for neatly organizing or bundling wires.
Zip ties (small or medium) for neatly organizing or bundling wires.
General automotive electrical knowledge
3A automotive fuse & fuse holder
Soldering iron, solder, various sizes of heat shrink tubing
Digital volt/ohm meter

Step 1, Preparation:
In this step, you should do the following prior to starting the installation.
- Determine where you will mount the module. It should be mounted inside the vehicle, in a clean dry area that can be reached for programming.
- Identify what sender you have, either by vehicle application, or by measuring resistance.
- If the sender is completely unknown, you will need to have access to the sender for custom calibration.
- Find a suitable power and ground source.

Step 2, Mounting:
As mentioned in Step 1, this should be mounted in a dry, interior location. Once programmed, you should no longer need to access it, although you will need access to it after being wired for programming purposes.
You may mount in any position.
You may use the two screw holes to mount to a panel, or a bracket (screws not included).

Step 3, Wiring:
All wiring can be small 20g or 22g wire. This unit draws very little current, therefore larger wire is not necessary, and may even be harder to work with when attaching to the Fuel Bridge terminals.



12v terminal: This gets wired to any 12v power source that turns on & off with the key. We recommend using the same power source as you are using for your gauges. If wired to power separately, use an automotive 3a inline fuse.

Low+**: This is an optional terminal. If used, this will be the power wire (supplied from the module) to an LED indicator for low fuel level. (It will not operate an incandescent bulb/indicator). See Step 5.

Gnd: Wire this to the same ground as you are using to ground your existing gauges. You may also ground this to engine ground.

Low-**: This is an optional terminal. If used, this will be the ground wire (supplied from the module) to an LED indicator for low fuel level. See Step 5.

Sensor: This will be the wire coming from the fuel tank sender, also known as the signal wire. This wire will no longer be connected to your gauge, or anything else. This will be wired only to the Sensor terminal of the Fuel Bridge. The other end of this wire remains on the fuel sender.

Gauge: This wire will be the new sender output wire from the Fuel Bridge, to the “S” terminal on an Auto Meter gauge (or signal/sender terminal on a non-Auto Meter gauge).

Step 4A, Programming:
Power must remain on during this process.
If you know your sender resistance range, proceed from here. If you do not know the range, or have a sender not listed in the list of sender ranges, skip this step and proceed to step 4B.
Use the chart below to determine the option number for the various resistance ranges.

Option Number	Sender type (resistance range)
1	240-33
2	0-90
3	0-30
4	16-158
5	73-10
6	73-10 non linear
7	10-180
8	40-250
A	Learning (0-1k/1k-0)

1. While power is off, push and hold the Enter button and turn power on. Once power is on, you can release the button. The display will indicate which number calibration was last used.
2. Press the Up or Down button to select the sender being used (use the chart above), then press Enter. If the sender is not listed, or is unknown, skip these steps and proceed to step 4B.
3. The Fuel Bridge display will show a flashing F. Use the up or down button to adjust the pointer on your fuel gauge slightly above the Full mark. Press Enter.
4. Now you should see a flashing 3 on the Fuel Bridge display. Use the up or down buttons to adjust the pointer on your gauge to the 3/4 mark. Press Enter.
5. Now you should see a flashing 2 on the Fuel Bridge display. Use the up or down buttons to adjust the pointer on your gauge to the 1/2 mark. Press Enter.
6. Now you should see a flashing 1 on the Fuel Bridge display. Use the up or down buttons to adjust the pointer on your gauge to the 1/4 mark. Press Enter.
7. Now you should see a flashing E on the Fuel Bridge display. Use the up or down buttons to adjust the pointer on your gauge to the E mark (or slightly below E). You will now push & hold Enter for 2 seconds, or until the display on the Fuel Bridge goes dark.
8. Upon the button push in the previous step, the fuel gauge will now raise to Full, then will drop to the current reading (if below Full). You are now finished. The unit can now be powered down.

Step 4B, Programming (unknown or custom sender):
Power must remain on during this process.
This step is if you do not know your fuel sender resistance range, or if it is not listed in options 1 thru 8 in the above chart. While it is rare for a sender to have a resistance range that exceeds 1,000 ohms, some do exist. The Auto Meter Fuel Bridge will NOT accommodate a sender range in excess of 1,000 ohms.
The fuel sender must be accessible for this particular set up as the Fuel Bridge will have to learn what position on the sender is Full, and what position on the sender is Empty.

1. While power is off, push and hold the Enter button and turn power on. Once power is on, you can release the button. The display will indicate which number calibration was last used.
2. Press the Up or Down button to select “A” for sender learning then press Enter. The Fuel Bridge display will show a flashing F. At this time, the sender float position needs to be in the upmost (Full) position. Use the up or down button to adjust the pointer on your fuel gauge slightly above the Full mark. Press Enter.
3. Now you should see a flashing 3 on the Fuel Bridge display. Use the up or down buttons to adjust the pointer on your gauge to the 3/4 mark. Press Enter.
4. Now you should see a flashing 2 on the Fuel Bridge display. Use the up or down buttons to adjust the pointer on your gauge to the 1/2 mark. Press Enter.
5. Now you should see a flashing 1 on the Fuel Bridge display. Use the up or down buttons to adjust the pointer on your gauge to the 1/4 mark. Press Enter.
6. Now you should see a flashing E on the Fuel Bridge display. At this time the sender float position needs to be at the lowest (Empty) position. Use the up or down buttons to adjust the pointer on your gauge to the E mark (or slightly below E). You will now push & hold Enter for 2 seconds, or until the display on the Fuel Bridge goes dark.
7. Upon the button push in the previous step, the fuel gauge will now raise to Full. You may now exercise the float on your sender to various positions, and the gauge should follow, though it will have a delay. This delay is intended to help with not seeing as much “fuel slosh” that occurs in some tanks.
8. You may now install your sender. You are now finished. The unit can now be powered down.

Step 5, Low Fuel Level:
Using the low fuel level warning is optional, and is not able to be set. It is intended to turn on at, or below 1/8 tank. When you are adjusting the fuel level settings on the gauge during programming, the low fuel level warning will depend on where you set your E to on the gauge. If you set it directly on E, your low fuel level warning will turn on close to 1/8 tank. If you set you’re E setting to below E, the low fuel warning will likely not turn on until you get even further below 1/8.

In order to help keep you from running out of fuel, we do recommend that you set your E setting during programming to a little below E, so that you do not potentially run out of fuel at the same moment that your gauge reads E. This would give you a little reserve.

**If you choose to use the low fuel light, you must use an LED that draws less than 12ma. The low fuel warning will NOT function with an incandescent bulb.

Trouble Shooting Tips:

Gauge Remains on F or E after calibration: This can be caused by no signal from the fuel tank sender. Reasons for no signal are (1) no ground at the sender. The sender MUST have a ground wire, grounding the mounting flange in order to function. (2) open circuit wire (meaning broken, or no connection) between the sender and the Fuel Bridge. (3) faulty sender.
Just like a gauge without the Fuel Bridge, the Fuel Bridge also depends on a properly functioning sender. Your sender can be tested with an ohm meter. Contact Auto Meter Tech Support at service@autometer.com for assistance on how to measure this if needed.

Gauge pointer does not move when calibrating the Fuel Bridge: If the fuel bridge shows the numbers, or letter on its digital display as it should during calibration, you will then want to look at the following possible causes. (1) check the integrity of the wire going from the Fuel Bridge, to the gauge. Your wire should be uninterrupted from the Gauge terminal of the Fuel Bridge, to the fuel gauge. (2) does your fuel gauge also have power and ground? You may want to check this with a volt meter to verify both. (3) is your fuel gauge functional? This can be tested rather easily. Disconnect your fuel gauge wire from the Fuel Bridge terminal. Turn power on. Does your gauge read E or F? Now touch your gauge wire (the one that you had connected to the Gauge terminal of the Fuel Bridge) to ground. Does your gauge move to the opposite direction? If your gauge was previously on F, but did not move to E by grounding your gauge wire (or visa versa), then this is an indicator of your gauge not functioning due to either no power, no ground, bad wire, bad connection, or malfunctioning gauge.

Performing a Learned Calibration and at the end, the Fuel Bridge continues to flash F, and holding the Enter button for any period of time does not result in the display going blank: This is typically caused by no signal to the Fuel Bridge from the fuel sender. See the possible causes in the first trouble shooting tips.

No digital display, remains dark, even after several attempts to put into calibration mode: (1) Use a volt meter to measure across the 12v & Gnd terminals (red lead from your meter to 12v, and black lead of your meter to the Gnd terminal). Do you measure 12v or higher with the key on? If not, you either do not have power, or you do not have ground. Please check both. (2) when checking the power & ground, if you found that it does have 12v or higher, then shut the key off and measure again. If you “do” still have power with the key off, you must then relocate your power source to a switched (keyed) 12v power. If it has power at all times, it will never go into calibration mode. (3) you measure good power, and is “not” powered with the key off. Contact Auto Meter Tech Support at service@autometer.com for further assistance.

SERVICE

For service send your product to Auto Meter in a well packed shipping carton. Please include a note explaining what the problem is along with your phone number. If you are sending product back for warranty adjustment, you must include a copy (or original) of your sales receipt from the place of purchase.

12 MONTH LIMITED WARRANTY

AutoMeter Products, Inc. warrants to the consumer that all AutoMeter High Performance products purchased from an Authorized AutoMeter Reseller will be free from defects in material and workmanship for a period of twelve (12) months from date of the original purchase. Products that fail within this 12 month warranty period will be repaired or replaced at AutoMeter’s option, when determined by AutoMeter that the product failed due to defects in material or workmanship. This warranty is limited to the repair or replacement of parts in the AutoMeter High Performance product and the necessary labor done by AutoMeter to effect the repair or replacement of the AutoMeter High Performance product. In no event shall AutoMeter’s cost to repair or replace an AutoMeter High Performance Product under this warranty exceed the original purchase price of the AutoMeter High Performance Product. Nor shall AutoMeter Products, Inc. be responsible for special, incidental or consequential damages or costs incurred due to the failure of an AutoMeter High Performance Product. This warranty applies only to the original purchaser of the AutoMeter High Performance Product and is non-transferable. This warranty also applies only to AutoMeter High Performance Products purchased from an Authorized AutoMeter Reseller. All implied warranties shall be limited in duration to the said 12 month warranty period. Breaking the instrument seal, improper use or installation, accident, water damage, abuse, unauthorized repairs or alterations voids this warranty. AutoMeter disclaims any liability for consequential damages due to the breach of any written or implied warranty on all products manufactured by AutoMeter Products, Inc. For a comprehensive listing of Un-Authorized AutoMeter Resellers please visit www.autometer.com/autometerlocator/index/unauthorized.

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