



Engineered Quality Alternate Fuel Equipment

PG210 - Normal Operation Mode

In normal operation mode, the unit will display the contents level of the auxiliary fuel tank. The 0-90 ohm sender of the auxiliary tank must be connected between the Sender 1 wire and the ground of the vehicle. The transfer of fuel from the auxiliary fuel tank to the main fuel tank can be initiated manually by pressing the switch on the unit or if programmed can be automatically pumped based on the fuel volume in the main tank. The unit will acknowledge the transfer by illuminating the amber lamp while supplying power to the Pump wire. Once the auxiliary fuel tank is empty or the main fuel tank shut off limit has been reached the unit will automatically turn the auxiliary fuel tank pump off and sound the buzzer with a double beep. When the transfer pump is switched on automatically using the programmed fill limit setting, the unit will also sound the buzzer with a single beep. Therefore allowing the end user to hear what is happening while driving.

Auxiliary Fuel Tank
Sender 1 Resistance

$\geq 70 \Omega$

Auxiliary Fuel
Tank Pump Off



Auxiliary Fuel
Tank Pump On



$\geq 50 \Omega < 70 \Omega$



$\geq 30 \Omega < 50 \Omega$



$\geq 10 \Omega < 30 \Omega$



$\geq 5 \Omega < 10 \Omega$



$< 5 \Omega$



'Flashing Red'
1 second - on
1 second - off

PG210 - Fault Mode

If a continuous open circuit is observed for more than 10 minutes on the Sender 1 input. The level gauge will begin to flash at a rate of 4 seconds on and 1 second off, with the last value measured being displayed. It is also important to note that the transfer of fuel from the auxiliary fuel tank to the main fuel tank will be manually operated therefore the user will need to remember to switch the auxiliary transfer pump off.

Auxiliary Fuel Tank Sender 1 Resistance	Auxiliary Fuel Tank Pump Off	Auxiliary Fuel Tank Pump On
$\geq 70 \Omega$		
$\geq 50 \Omega < 70 \Omega$		
$\geq 30 \Omega < 50 \Omega$		
$\geq 10 \Omega < 30 \Omega$		
$< 10 \Omega$		
	'Flashing Gauge' 4 second - on 1 second - off	'Flashing Gauge' 4 second - on 1 second - off

PG210 - Test Mode

To enter the test mode a 180 ohm resistor is required. Before power is applied to the unit connect the 180 ohm resistor between the Sender 1 wire and the ground of the vehicle. Once connected apply 12 volt power to the unit via the Ignition power wire.

The unit will initially enter the test mode with the sound of the buzzer and then each lamp will individually illuminate and step through the following sequence:



If this sequence is not observed, you will need to recheck the wiring of the Sender 1 input.

Once the initial sequence is complete the unit will now configure itself as a voltage display showing the value on the Sender 2 input. Sender 2 can be connected to any 0 to 5 volt signal with each indicator on the level display representing 1 volt increments. Note that in this mode it is also possible to turn the auxiliary fuel tank pump on and off by pressing the switch with the amber lamp indicating its state of operation.

Main Fuel Tank Sender 2 Voltage	Auxiliary Fuel Tank Pump Off	Auxiliary Fuel Tank Pump On
$\geq 4 \text{ V}$		
$\geq 3 \text{ V} < 4 \text{ V}$		
$\geq 2 \text{ V} < 3 \text{ V}$		
$\geq 1 \text{ V} < 2 \text{ V}$		
$< 1 \text{ V}$		

To exit the test mode, remove the 180 ohm resistor and reapply power to the unit. The unit will now default to normal operation mode.

PG210 - Program Mode

To enter program mode the unit must be in normal operation mode, then press the switch 4 consecutive times within 2 seconds. The unit will now sound the buzzer and enter the first part of the program mode.

The first part is identified by a single flash of the amber lamp. The user can now disable or set the time the auxiliary fuel pump will continue to run for once the empty red lamp on the gauge has begun to flash. If set this will allow the auxiliary fuel tank to be pumped completely empty without the need for Sender 1 to provide feedback at low tank volumes. The user can program the desired time by cycling through the lamp positions using the switch. Each lamp position represents a time that can be selected as seen below:

Time = Disable



Time = 1 Minute



Time = 2 Minutes



Time = 3 Minutes



Time = 4 Minutes



Once the time has been set wait for 10 seconds, the buzzer will sound with a double beep to indicate that the value has been saved and the first part is complete. It will then proceed to the second part of the program mode.

The second part is identified by a double flash of the amber lamp. The user can now disable or set the automatic main fuel tank fill and shut off options. The options allow the voltage signal from the main fuel tank to control the operation of the auxiliary fuel tank pump via the Sender 2 input wire. The user needs to ensure that the voltage signal from the main fuel tank is present and set for each point separately. Therefore, it may be necessary to program this twice, once when the main fuel tank is near empty and again when the tank is almost full. The bottom green lamp indicates the fill point of the main fuel tank while the top green lamp indicates the shut off point of the main fuel tank. A selected point will be highlighted by the green lamp flashing and can be toggled between the two points by pressing the switch. A point which is not selected but has its lamp continuously on, indicates that the point has already been set. When a point is selected, the red indicator lamp will also inform the user if the point is disabled or set. If disable the red indicator will be on otherwise the red indicator will be off as it was previously set. To set the point of the Sender 2 value at this level, press the switch 2 consecutive times within 0.5 second. The unit will now sound the buzzer and the red indicator lamp will be off in this position. If you wish to disable a point, select the point and then press the switch 5 consecutive times within 2 seconds and it will be disabled. Now the red indicator lamp will be on, confirming it is now disabled.

Main Fuel Tank - Automatic Fill and Shut Off Disabled
(Automatic Fill Selected)



Main Fuel Tank - Automatic Shut Off and Fill Disabled
(Automatic Shut Off Selected)



Main Fuel Tank - Automatic Fill and Shut Off Set
(Automatic Fill Selected)



Main Fuel Tank - Automatic Shut Off and Fill Set
(Automatic Shut Off Selected)



Main Fuel Tank - Automatic Fill Set while Shut Off Disabled
(Automatic Shut Off Selected)



Main Fuel Tank – Automatic Shut Off Set while Fill Disabled
(Automatic Fill Selected)



Once the options have been set wait for 10 seconds, the buzzer will sound with a double beep to indicate that the second part is complete. If both option are set the unit will exit the program mode and return to normal operation mode. Otherwise it will proceed to the third part of the program mode.

The third part is identified by a triple flash of the amber lamp. This part is only enable if only one option was set in the second part of the program mode. The user is now required to set the slope of the Sender 2 voltage input. Due to the types of main fuel tank senders available the unit needs to know if the Sender 2 voltage increases or decreases as the main fuel tank is being filled. It's important to set this correctly otherwise the process will be reversed. Hence filling of the main fuel tank will not be possible when the main fuel tank is empty and the possibility of an overfill can occur if the main fuel tank is full. The slope type can be toggled between increase and decrease by pressing the switch.

Main Fuel Tank voltage increases
as the Main Tank is being filled



Main Fuel Tank voltage decreases
as the Main Tank is being filled



Once the slope has been set wait for 10 seconds, the buzzer will sound with a double beep to indicate that the value has been saved and the third part is complete. It will then exit the program mode while a long single beep and return to normal operation mode.

PG210 – Wiring Diagram

