

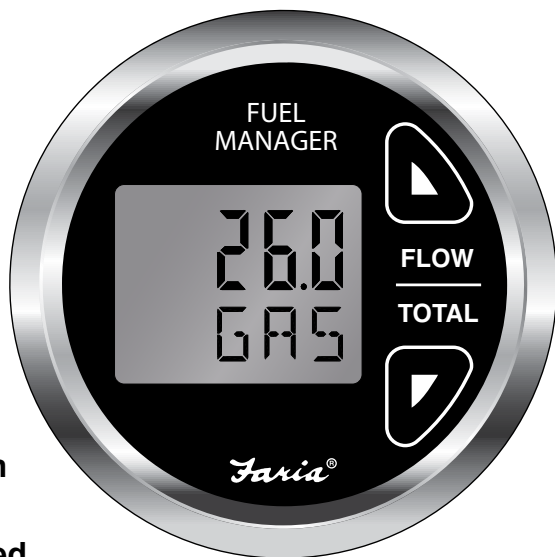
Faria[®] MARINE
INSTRUMENTS

Fuel Manager

Fuel Management System

IMPORTANT

READ THE COMPLETE USER'S MANUAL BEFORE INSTALLING AND OPERATING YOUR NEW FUEL MANAGER.



- Displays Fuel Flow in
GPH or LPH
- Total or Trip Fuel Used
- Low Fuel Alarm
- Calculates Fuel
Remaining In Tank
- Gas Engines Only

Owner's Manual

IS0324 rev D ecr 8569 08/2011

Issue Date	Description
1/26/11	Rev A ecr 8415 01/2011
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3/11/11	Rev A2 ecr 8451 03/2011
05/10/11	Rev B ecr 8513 05/2011
06/08/11	Rev C ecr 8528 06/2011
08/18/11	Rev D ecr 8569

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Specifications - for use with gas engines only and it will not work with recirculating fuel systems such as Diesels and certain EFI Motors.

Size
Mount 21/16" diameter hole
Depth behind face plate 3" min.
Display Multi character LCD

Backlighting
White colored diffused back lighting.

Water Integrity
Front will withstand direct water spray.

Alarm
Audio and visual alarm indicates remaining fuel total has dropped below a preset alarm value.

Flow
0.5 to 34 US gallons per hour
2 to 129 liters per hour
0.4 to 28 imperial gallons per hour

The instrument may show erratic readings or indicate 0 flow below .5 GPH due to the differences in manufacturer's fuel management systems. However, the total fuel consumed shown will be accurate.

Logs
Logs record fuel used up to 999 display units.

Both Trip Log and Total Log are saved in memory at power down.

Both Trip Log and Total Log can be reset.

Fuel Remaining
User enters a fuel value into memory. The quantity of fuel used is automatically subtracted from the total.

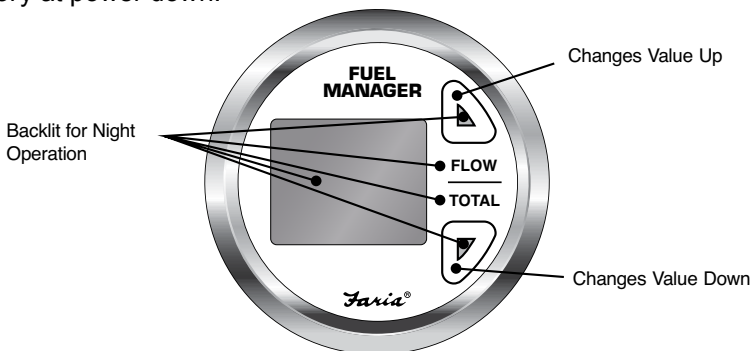
This value remains in memory at power down.

Operating Voltage
8 VDC to 16.5 VDC
Operating Temperature
0°C to 50°C (32°F to 122°F)

Current Drain
90 mA maximum with supplied transducer.

Compliance/Certifications
<6 dB quieting on any marine radio channel (with 3 dB gain antenna) within one meter of the instrument.
Complies with CE EMC standards EN50081-1 and EN50082-1 and FCC Section 15.

Complies with International Standard ISO 8846:1990(E).



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WARNING

Always install the Fuel Flow Transducer AFTER the primary filter. The primary filter must be a good quality water separator type with a minimum filtration of 30 microns or better. (A 10 or 2 micron filter is preferred. The lower the micron rating the finer the filtration.) Failure to provide this level of filtration protection will result in inaccurate readings or total failure or damage to the transducer.

If there is not a suitable length of hose after the primary filter, an in-line filter (30 micron or better) should be fitted before the Fuel Flow transducer. Damage due to insufficient filtration is not covered by warranty. If in doubt please consult your local Marine dealer for advice prior to installation.

Installation

Always wire your Fuel Manager into your boat's ignition so that when the engine is turned on, the gauge is recording the fuel used. If an accessory switch is used and you forget to turn the unit on then the gauge will not have recorded the fuel used and will be inaccurate. If you are unsure how to do this, contact a qualified marine electrician.

Location

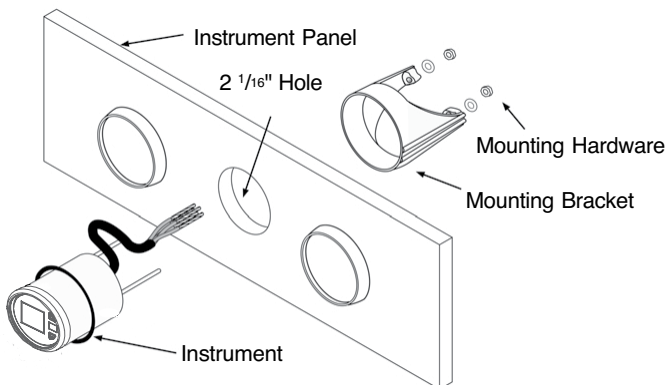
The Fuel Manager is designed for above or below deck installation.

Select a position that is:

- On a flat surface
- At least 12" from a compass
- At least 20" from any radio
- Easy to read by the helmsman and crew
- Protection from physical damage
- Accessible to electrical cable connection

Mounting

- The instrument panel may be up to 3/4" in thickness.
- Drill a 2 1/16" hole in the instrument panel.
- Remove brackets and insert the instrument so the back is flush with the instrument panel.
- Slide the back clamp over the instrument and tighten mounting nuts until secure. Six inch pounds of torque is only required.

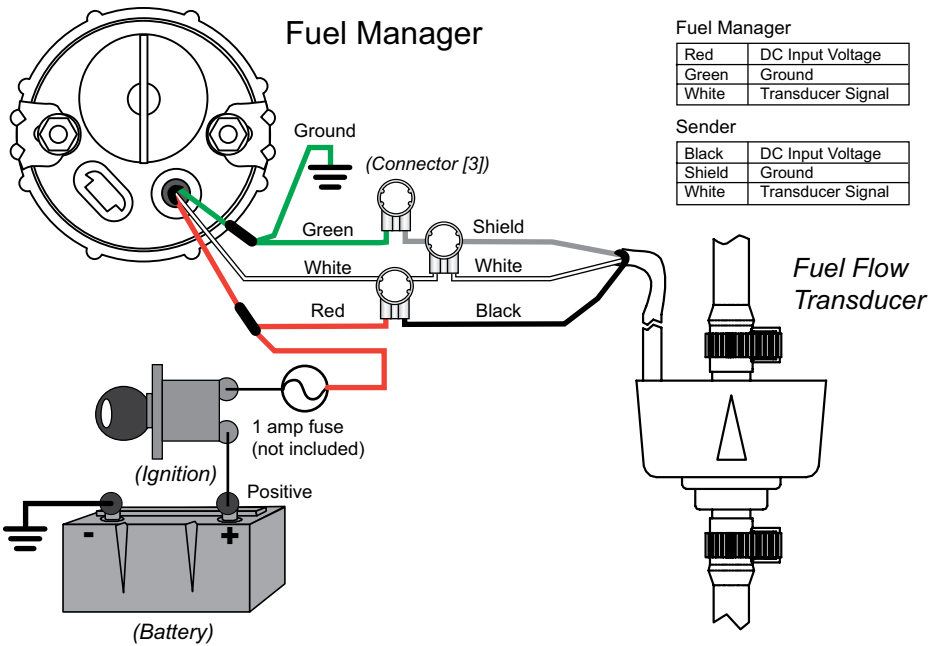


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Wiring Connection

- Keep electrical and transducer cables away from alternator or other noise generating electrical cables. Avoid connecting the instrument to power circuits that share loads with ignition, alternators, inverters and radio transmitters.
- Electrical power supply connections should always be as short as possible.
- Connect the red wire from the gauge to the ignition switch (DC Positive Voltage), through a 1 amp fuse (not included).
- Connect the green wire from the gauge to the electrical ground.
- Connect the fuel flow transducer to the gauge as follows:



WARNING

Every effort has been made by the manufacturer to ensure that the materials used in the Fuel Flow transducer will operate reliably with different fuel mixtures. The manufacturer or its distributors can not be held responsible for how the formulation of the fuel may affect the performance and durability of the transducer, as in many countries the petrol-chemical companies are free to change the contents of the fuel.

This transducer has been specially developed for use in Marine application with gasoline inboard and outboard engines only. The manufacturer does not warrant its operation of suitability for any other application.

Installation of the Fuel Flow Transducer

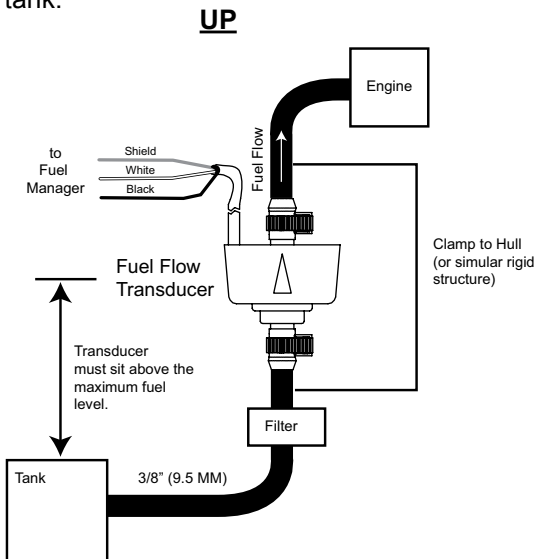
The fuel flow transducer is designed for installation in a Coast Guard approved 3/8" (9.5 mm) flexible fuel line. The transducer **MUST** be installed **AFTER** the main fuel filter.

It should be located well away from any area where it will be effected by excessive heat or vibration from the engine. It is preferable to mount the transducer in a vertical position (as shown below).

If your boat does not have a flexible fuel hose and is fitted with a metal fuel line or fuel line other than the US Coast Guard 3.8" (9.5 mm) a section of 3/8" (9.5 mm) must be fitted between the fuel transducer and the existing fuel lines. Consult an Engine Specialist for professional advice to ensure the various fuel line connection are correctly made.

Always ensure that the hose on either side of the transducer is clamped to the hull or similar rigid structure, to minimize vibration. Mounting hardware is **NOT** supplied.

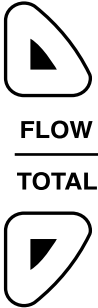
After selecting a suitable location, cut the fuel line and using the fuel hose attaching clips provided install the transducer so that the **FUEL IN** side of the transducer connects to the fuel tank.



Description

The Fuel Manager is a device that shows the amount of fuel used by measuring the amount of fuel passed through a transducer and averages that flow to give an estimate of the fuel used while operating your boat. You can learn more about this averaging on page 7.

The Fuel Manager is designed for ease of use. There are two buttons.



Pressing the up button will show you the Rate of Flow through the transducer.



Pressing the down button allows the user to select the functions concerning the Fuel Remaining in the tank.



Instrument Setup

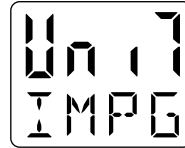
Select units of measure

The Fuel Manager can display fuel values in US gallons, Liters or Imperial gallons. To change the current display setting, perform the following steps.

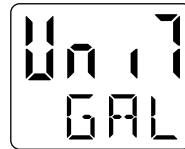
1. While holding the down button, power up the unit by turning on the ignition key.



2. Once the unit is on, release the down button. The current display setting is shown, as pictured below:



Imperial Gallons

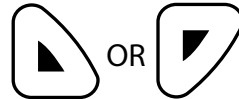


US Gallons

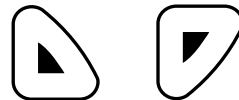


Liters

3. To select another display setting, use the up or down button to change the value.



4. To save the change and exit this mode, press and hold both the up and down buttons together for one (1) second.



The fuel values are now displayed using the new setting.

Calibration

The fuel transducer supplied with the Fuel Manager, when installed properly, will provide readings at better than 5% accuracy. Individual calibration will

increase this level of accuracy to better than 2% over a fuel flow range of 2 to 32 US gallons per hour (10 to 120 Liters per hour).

While a properly calibrated unit should provide accuracy within the published limits, it is recommended the user should also have a level sender or fuel level gauge installed in the boat.

This is necessary due to possible operator induced errors such as forgetting to reset the fuel used when filling the tank, or other operator controlled actions that may render the device inaccurate.

Perform the following steps to calibrate your Fuel Manager.

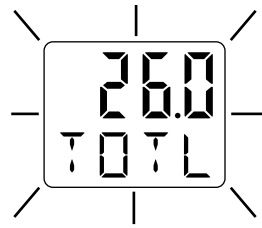
1. Reset the total log value to zero (see page 8)
2. Set the Fuel Remaining value to the size of your tank. (See page 10)
3. Fill the tank. Go boating.

Note: The larger the amount the more accurate the calibration will be. The recommended minimum volume is 10 gallons or at least 1/4 of the total tank volume, if smaller than 40 gallons.

4. Refill the tank. Take note of the actual volume of fuel used to fill the tank and the fuel used indicated by the total log. If these two totals are different, the instrument may require calibration.
5. While holding the up button, power up the unit by turning on the ignition key.

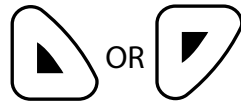


6. Release the button. The display flashes the current total log value.



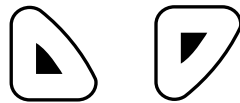
If no action is performed within twenty (20) seconds the unit will return to the normal operating mode.

7. Calibrate. Use the up or down button to change the display and indicate the actual volume of fuel used.



Once calibration is completed.

8. Press both the up and down buttons together and hold for two (2) seconds to save the value.



- 9) Shut the ignition off to power down the Fuel Manager.



10. Set your desired AVG setting. (See page 7, follow steps 1 thru 5.)

Flow Averaging

This function sets the period over which the fuel flow is averaged. The period can be set in the range of 1 to 99 seconds.

Description

Normally engines do not draw fuel from the tank at a constant rate. Instead, they draw fuel at a high rate for a short time until the carburetor bowl or injection reservoir is full, and then draw no fuel for a few seconds. If the true flow rate were displayed, it would be too erratic to read.

Usually a value of 10-15 seconds will give satisfactory results for two stroke naturally carburetor engines. Four stroke engines that use an electronic fuel injection may require longer periods. If the reading seems erratic you can increase the period.

A large number means the fuel flow display will have a slow response time but more accurate average readings, and a short period means the display will have a quick response time and erratic display readings.

The flow period setting only affects the fuel flow display. It does not affect the fuel used or fuel remaining measurement in terms of accuracy.

Flow Average menu

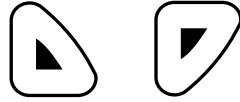
Enter the flow averaging menu:

1. While holding the up button, power up the unit by turning on the ignition key.



2. Press and hold both the up and down buttons together for two (2)

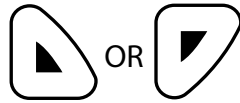
seconds to enter fuel flow average mode.



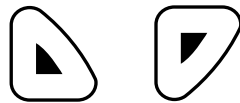
3. The fuel flow average period menu, AVG is displayed briefly and the default value of 10 seconds is displayed if you have not previously changed it.



4. Use the up or down button to select a new value between 1 and 99 seconds.



5. Press and hold both the up and down buttons together for one (1) second to save the new averaging period and return to Normal mode.



Operation

Fuel Flow

Press the up button to display the current fuel flow rate.



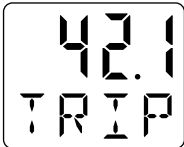
Fuel Remaining Functions

Press the down button to cycle through the functions of the Fuel Manager.



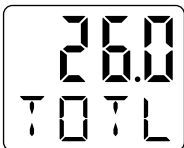
Trip Log

The Trip Log display shows the amount of fuel used on a trip or since the last time the log was reset by the operator.



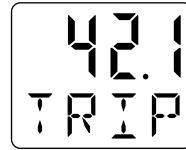
Total Log

The Total display shows the total amount of fuel used since last reset.

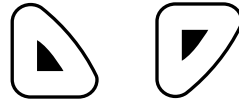


Resetting the TRIP or TOTAL Log

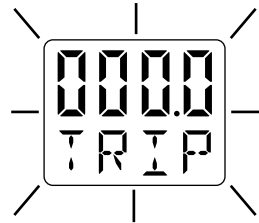
To reset a log, press the down button until the display indicates the name of the log to be reset.



Press and hold both the up and down buttons together for two (2) seconds.



The display will flash while pressing the buttons.



Release the buttons and the log will reset to zero (0).



The Trip log value may be reset without changing the Total log value. If the Total log is reset to zero (0), then the Trip log will automatically reset to zero (0).

Note: If the Total log exceeds 999 then both it and the Trip log will be reset to zero (0).

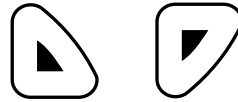


Low Fuel Alarm

The Low Fuel Alarm displays desired remaining volume of fuel which will trigger an alarm. The number indicates the number of units based on your settings.

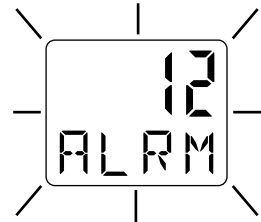


Press and hold both up and down buttons together for two (2) seconds.



The displayed value will begin to flash.

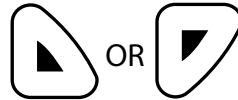
If the fuel remaining value drops below the fuel alarm value, the alarm will sound and the "ALRM" will flash.



Use the up or down button to change the value of the alarm.

Press any button to mute the alarm.

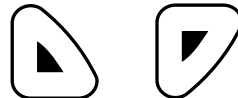
The "ALRM" will continue to flash as long as the alarm condition remains.



If no setting has been set, or the user has entered zero (0), then the display will show "OFF".

A value of zero (0) will turn off the alarm.

Press and hold the up and down buttons together for three (3) seconds to save the new value and exit the function.

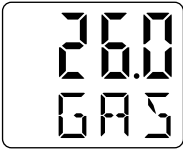


Set the Low Fuel Alarm

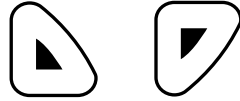
To change the value of the Low Fuel Alarm press the down button until the display shows the "ALRM" display.

Gas

The Gas display shows the amount of fuel remaining in the tank.

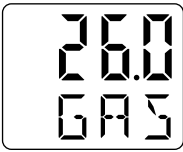


Press and hold the up and down buttons together for three (3) seconds to save the new value and exit the function.

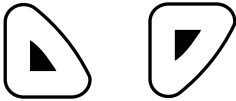


Changing the fuel remaining value

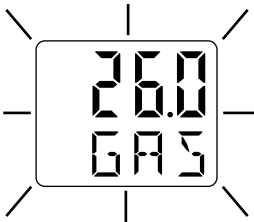
To change the value of fuel remaining in the tank press the down button until the display shows the "GAS" display.



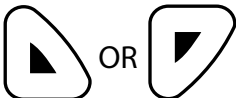
Press and hold both up and down buttons together for two (2) seconds.



The displayed value will begin to flash.



Use the up or down button to change the value.



Things you should know.

- A) It is possible for erratic fuel flow readings at low RPM values due to the fuel reservoir filling and emptying, this is normal and expected.
- B) It is possible for very low fuel flow readings, often even 0.0 GPH, at idle due to the low fuel consumption of the engine.
- C) It is possible for up to 0.5 GPH fluctuations in fuel flow readings at low RPM due to the fuel consumption of the engine. A recommendation would be to increase the fuel flow averaging TIME by following the instructions on page #8.

Troubleshooting Chart

No display:

- 1) Check DC power connections and DC polarity with voltmeter.
- 2) Check the fuse.

No flow reading indicated:

- 1) Check connection to flow transducer
- 2) Remove the transducer from the fuel line, and perform a no pressure flush with the residual fuel left in the transducer by covering the sensor inlet and outlet and shaking for 20 to 30 seconds. When complete with flush, finish with a low to medium pressure (5 PSI maximum) blow into the transducer from both directions manually. When blowing through the transducer a whistling noise will indicate that the turbine is rotating.

Low flow reading indicated:

- 1) Check your primary and secondary filters for obstructions. If no filters are fitted this will lead to blockage and damage of the flow transducer (see page 4).
- 2) Check calibration is correct.

No fuel reading:

- 1) Check your primary and secondary filters for obstructions. If no filters are fitted this will lead to blockage and damage of flow transducer (see page 4).

High or erratic reading:

- 1) Check fuel connections are well made. Air in fuel lines will cause erratic or high readings.



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