

HORIZON

Marine Electronics

FF41 Fuel Flow

Owner's Manual

- Calculates Fuel Remaining In Tank
- Displays Fuel Flow in GPH or LPH
- Total or Trip Fuel Used
- Low Fuel Alarm
- Standard 2 inch Round Mounting

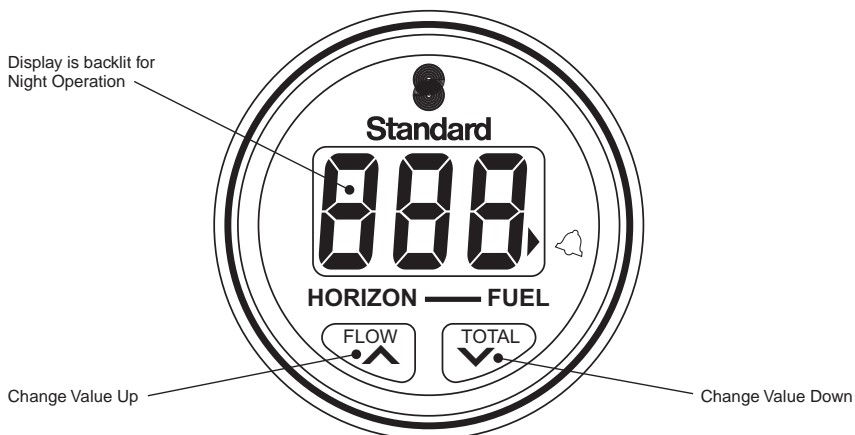


Contents

Specifications	4
Installation	5
Location	5
Mounting	5
Wiring Connection	6
Installation of the fuel flow transducer	6
Operation	7
Fuel Flow.....	7
Fuel Remaining Functions.....	7
Changing the fuel remaining value	7
Setting the low fuel alarm	8
Alarm activation	8
Resetting the TRIP LOG or the TOTAL LOG	8
Instrument Setup	9
Selecting units of measure	9
Calibration	9
Troubleshooting Chart	10

Specifications

- **Size**
 - Mount 2" diameter hole
 - Depth behind face plate 3¾" min.
 - Display 3-character LCD
- **Color**
 - Black with texture on bezel.
- **Backlighting**
 - Red colored diffused lighting for display.
- **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**
 - 2.5→160 liters per hour
 - 0.5→43 US gallons per hour
 - 0.4→36 imperial gallons per hour
- **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 this 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 max. with supplied transducer.
- **RF Interference**
 - <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.



WARNING

IT IS VERY IMPORTANT TO INSTALL A FUEL FILTER BETWEEN THE FUEL FLOW TRANSDUCER AND THE FUEL TANK. THIS FILTER WILL CATCH LARGER PARTICLES OF DIRT FROM THE FUEL TANK AND PREVENT THE FINE GAUZE FILTER IN THE FUEL FLOW TRANSDUCER FROM BECOMING BLOCKED AS THIS MAY DAMAGE THE ENGINE.

Installation

Location

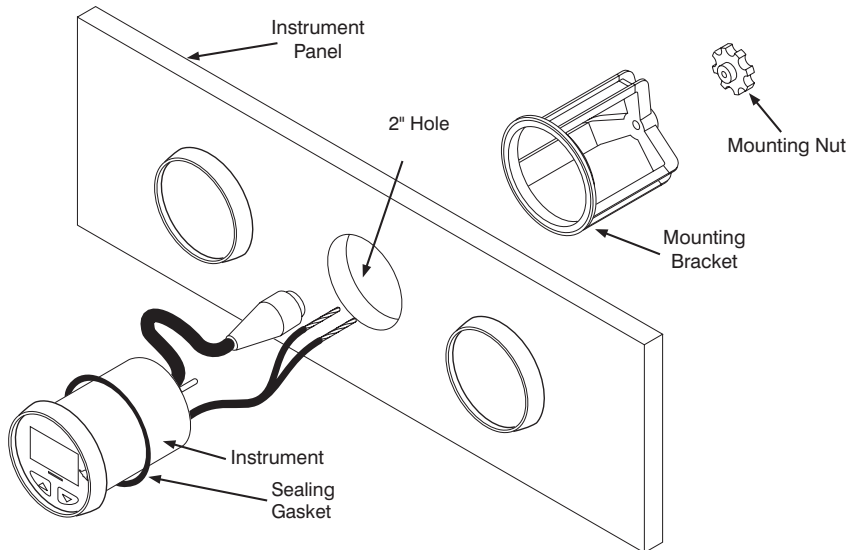
The FF41 is designed for above or below deck installation. Select a position that is:

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

Mounting

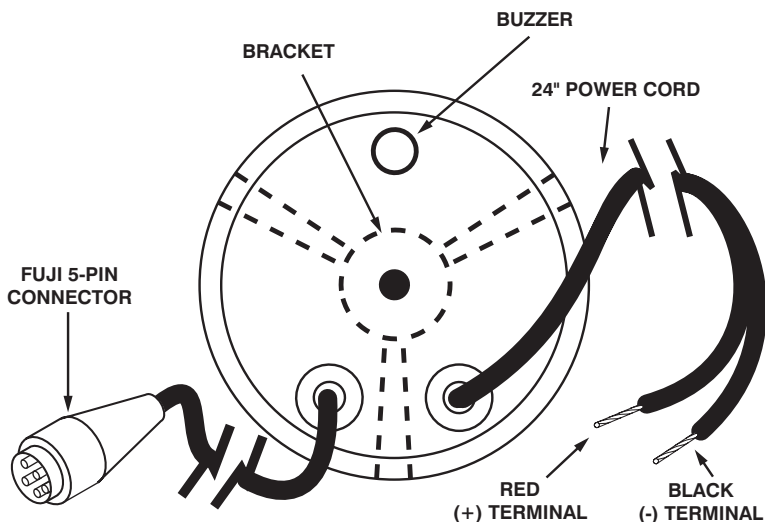
The instrument panel must be $\frac{1}{8}$ " to $\frac{3}{4}$ " in thickness.

- Drill a 2" hole in the instrument panel.
- Remove brackets and insert the instrument so the back is flush with the instrument panel.
- Slide the bracket over the instrument and tighten the mounting nut until secure.



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 to the positive supply through a 1 amp fuse or a 1 amp circuit breaker. Connect the black wire to the electrical ground.
- Connect the fuel flow transducer to the five pin transducer inlet cable.



Installation of the fuel flow transducer

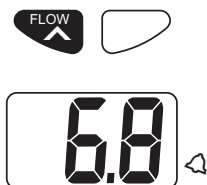
The fuel flow transducer is designed for installation in Coast Guard approved $\frac{3}{8}$ " flexible fuel line. The transducer **MUST** be installed **AFTER** the main fuel filter. It should be located well away from any area where it will be effected by excessive heat or vibration from the engine. It is preferable to mount the transducer in a vertical position.

Drain all the fuel from the flexible fuel line. 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 (see FT100 instructions for details).

Operation

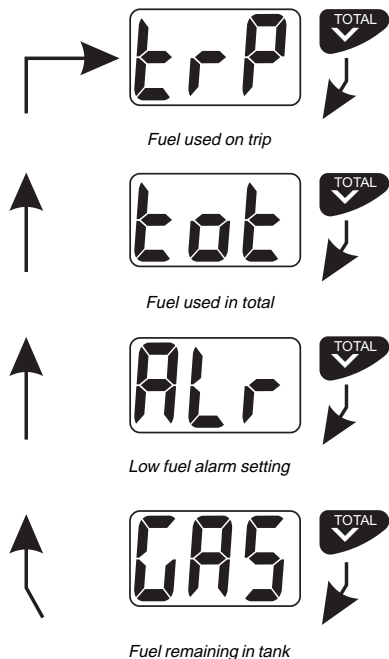
Fuel Flow

Press the **FLOW** key to display the current fuel flow rate.



Fuel Remaining Functions

Press the **TOTAL** key to cycle through the possible functions. Each time the **TOTAL** key is pressed the display will show an identifier for 2 seconds before the value is displayed.



Changing the fuel remaining value

To change the value of fuel remaining in the tank, press the **TOTAL** key until the display indicates GAS for two seconds and then displays the current value.



Press and hold both keys for three seconds and the displayed value will begin to flash.



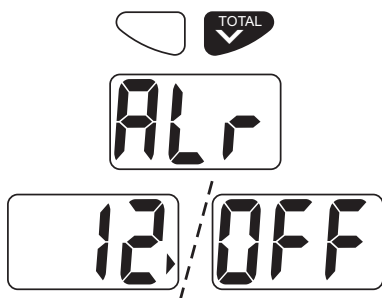
Press and hold for 3 seconds



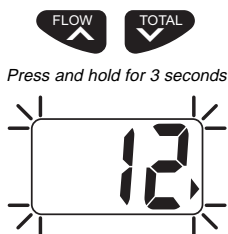
Use the **FLOW** and **TOTAL** keys to change the value. Press and hold both keys for one second to save this new value to memory and to exit this function. The display will indicate GAS and then the new value.

Setting the low fuel alarm

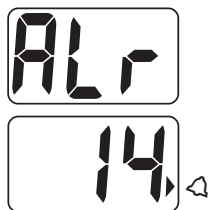
Use the ∇ key to select the alarm function. The LCD will indicate ALr for two seconds and will then display the present alarm value. If no alarm value has been entered the LCD will indicate OFF.



Press and hold both keys for three seconds and the displayed value will begin to flash.



Use the ∇ and ∇ keys to select the desired alarm value. Press and hold both keys for one second to save this new value to memory and to exit this function. The display will indicate ALr and then the new value.



The arrow pointing at the alarm bell will be activated.

Alarm activation

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

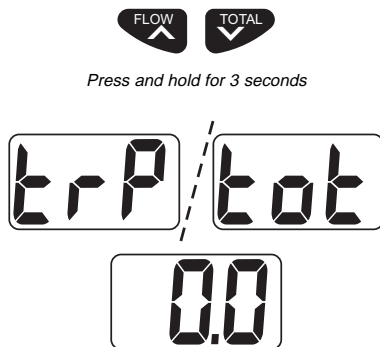


Press any key to mute the alarm. The alarm arrow will continue to flash as long as the alarm condition remains.

Resetting the TRIP LOG or the TOTAL LOG

To reset a log, press the ∇ key until the display indicates the name of the log to be reset.

Press and hold both keys for three seconds. Display will show trP or tot for 2 seconds before resetting to zero.



The trip log value may be reset without changing the total log value.

If the total log is reset to zero, then the trip log will automatically reset to zero.


Note :

If the total log exceeds 999 then both it and the trip log will be reset to zero.

Instrument Setup


Selecting units of measure

The Horizon fuel flow meter will indicate fuel values in Liters, Imperial gallons or US gallons. To change the current setting perform the following steps:

1. Power up the unit while holding down the  key.



Hold down during power up

2. When the unit is on, release the  key. The display will indicate the current display unit with:







Imperial Gallons



US Gallons



Liters

3. To select the display unit desired, use the  and  keys to change the value.
4. To exit this mode, press and hold both the  and  keys simultaneously for one second.




Press and hold to exit

Information will now be indicated in the selected display unit.

Calibration

The fuel transducer supplied with the fuel flow meter 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. Use the following steps to calibrate your fuel flow meter:



1. Reset the total log value to zero (see previous page).
2. Use a known amount of fuel. The larger the amount the more accurate the calibration will be.
3. Take note of the actual volume of fuel used and the fuel used indicated by the total log. If these two totals are different the instrument may require calibration.
4. Press and hold the  key while applying power



Hold down during power up

5. Release the  key. Display will flash current total log value.



6. Use the  or  keys to make the display indicate the actual volume of fuel used.
7. Press both keys simultaneously for 1 sec to exit.



Press and hold for 1 second

The fuel flow meter is now calibrated.

Troubleshooting Chart

No display:

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

No flow reading indicated:

1. Check connection to flow transducer.
2. Remove transducer from fuel line, blow through transducer, a whistling noise will indicate the turbine is rotating.

Low flow reading indicated:

1. Check that the gauze filter is clean. If the filter is not installed fine strands may clog up the turbine.
2. Check calibration is correct.

High or erratic reading:

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



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