ADI
Aircraft Digital Instruments

CE

F60-A

Digital
Fuel Gauge/w Alarms

Introduction

The F60-A Digital Fuel Gauge provides an accurate display of fuel remaining, trip fuel and total fuel used. Fuel remaining can be displayed up to 6550 liters or gallons or as a percentage (0-100%) with user selectable display "damping", which allows for the sensitivity of the display to be compensated such that it will not change readings with every bump or turn. The F60-A is pre-programmed for use with all known resistive American and European level senders made by VDO, Teleflex, Mercury, GM, Stewart-Warner, Centroid, Faria and others. LOW and HIGH fuel alarms can be set over the entire range. When activated, the built-in 85dB alarm will sound and the display will flash. Five levels of backlight intensity can be selected (including OFF), and all setup, alarm values, sender type and maximum tank capacity are all saved in a non-volatile memory. The F60-A ouputs serial data NMEA 0183 (Marine use only) on Terminal (C) or this Terminal may be programmed to activate an external

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Introduction (continued)

alarm or fuel transfer pump. A 5VDC, 10mA (max) is found on Terminal (C) in the latter two examples, and can be used with one of our ER-1A external relays as a control voltage signal.

Specifications

Power Supply: 9.5-33.0 VDC, (0.035amp nominal)

Operating Temp: 32-122F (0-50C)

Size: Standard aviation 2.25" diameter round bezel, with

   standard hole layout of 2.625" diameter at 45 deg. The

   gauge depth is 3.00 when mounted as flush in the panel.

Specifications (continued)

Accuracy: Limited only by the sender accuracy

Senders: Works with 0-30, 0-70, 0-90, 10-73, 10-180, 33-240,

   40-250 ohm level senders by VDO, Teleflex, GM,

   Stewart-Warner, Mercury, Faria and others. (both

   American and European types) Custom versions of the

   F60-A are available for 0-5V and 4-20mA senders

   (special order from factory).

Alarms: 85dB internal LOW and HIGH fuel level alarms, settable

   from 000.0-6553. External alarm output signal of 5V,

   10mA (max) on Terminal (C).

Display: (4) digits, liters, gallons or % 000.0-6553. (5) levels of

   backlight intensity (including OFF).
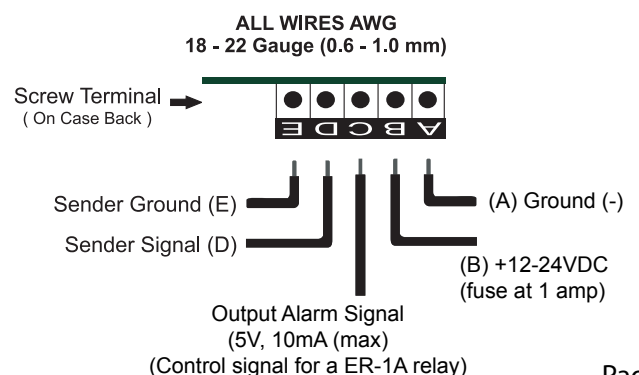

Installation

All of the Aircraft Digital Instruments are of the standard aircraft 2.25" diameter and mounting hole layout dimensions. They can be mounted in your panel either from the front as a surface mount installation, or in the conventional manner from behind. When placing and mounting on the backside of you panel you will not need any additional hardware such as lock nuts, tinnerman clips, bug nuts or the like. The mounting holes in the Bezel are specifically sized so as to grip the included #6-32 allen socket screws just like a elastic nylon stop nut would. The 6-32 screw is merely aligned squarely with the hole and with gentle pressure applied to the allen wrench, screwed in. Should you prefer to surface mount the gauge, the Bezel's screw holes can be easily drilled out to a clearance hole diameter, allowing then for either a drilled and tapped 6-32 threaded hole on your panel, or passing through your panel to be secured with standard hardware.
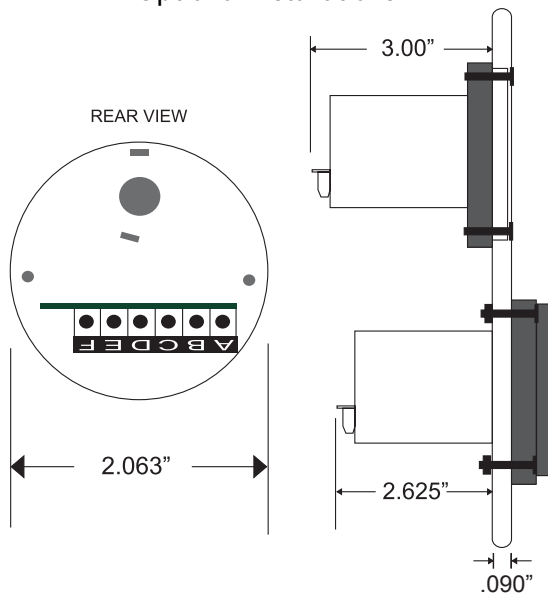

Installation (continued)

We do offer a (6) hole cluster 5052 aluminum CNC machined plate that can be easily used as a hole template, or recessed into a fiberglass or metal instrument panel.
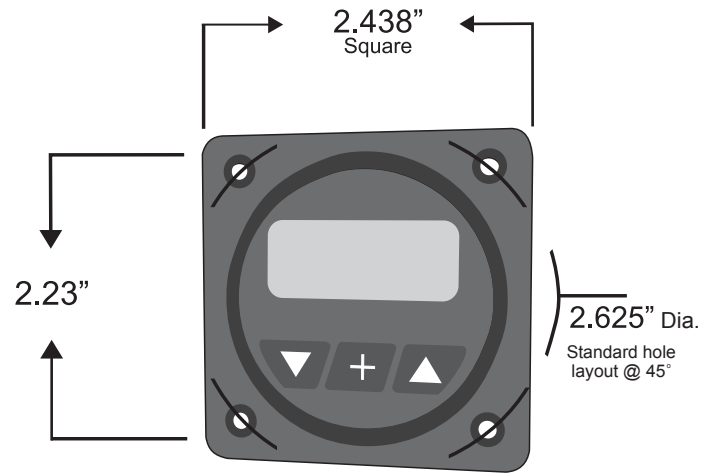
Mounting & Wiring

ALL WIRES AWG
18 - 22 Gauge (0.6 - 1.0 mm)

Screw Terminal
(On Case Back)

A B C D E

Sender Ground (E)
Sender Signal (D)

(A) Ground (-)

(B) +12-24VDC
(fuse at 1 amp)

Output Alarm Signal
(5V, 10mA (max)
(Control signal for a ER-1A relay)

Optional Installations

REAR VIEW

3.00"

A B C D E F

2.063"

2.625"

.090"

Gauge Dimensions

2.438"
Square

2.23"

2.625" Dia.

Standard hole
layout @ 45°

▽ + △

Operation

Key Functions

The ▼ + ▲ keys are used to select backlight levels, display fuel remaining (in liters, gallons or %) display total gallons/liters used or amount of fuel used this trip, set the LOW/HIGH level alarms, select sender type (ohm range) and set hte tank's capacity. After changes are made, the new information is automatically saved to memory.

Backlight Intensity

Press the + key for 1/2 second (until you hear a short beep when released) to adjust the backlight brightness. Each time you press (1/2 second) and release the + key, the light level will change. 1, 2, 3, 4, OFF.... 1, 2, 3, 4, OFF.... etc.

Setting LOW/HIGH Level Alarms

While viewing Gallons/Liters Remaining, press and hold the ▼ or ▲ key for (10) seconds to view/set the LOW or HIGH level alarm respectively. (you will hear a long beep while holding in either the low (▼) or high (▲) for the (10) seconds, and the alarm value is displayed. Now use either the ▼ or ▲ keys to scroll to what ever value you wish to set for the alarm, then press the + key for 1/2 second to save that value to memory.

Alarm ON/OFF

Press the ▼ or ▲ key for 1/2 second to "arm" or "disarm" the alarms. The display will flash "ON" or "OFF" briefly to indicate for you the state of the alarms. You should leave the alarms "armed" at all times and only disarm it to silence the alarm buzzer if activated.

Checking Fuel Remaining

Press the + key to disply the gallons/liters of fuel remaining. Press the ▲ key to display the fuel remaining in percent (0-100%).

Trip Fuel Used/Total Fuel Used

Press the ▼ key to display how many gallons or liters you have used THIS trip. Trip "Fuel Used" automatically resets to (0) every time you disconnect power from the instrument. (Turn off master) Quickly press both the ▲ and ▼ keys simultaneously to display how many gallons/liters have been used. 9How much is needed to refill the tank).

Selecting Sender Type

Press and hold down both the ▼ and + keys for (10) seconds (until you hear a long beep). Use the ▲ and ▼ keys to toggle to and select the sender you wish to match from the list below. Press the + key for 1/2 second to save your entry selection. The factory default sender is U-5 (10-180 ohms).

U-1 (0-30 ohms)	U-10 (90-0 ohms)
U-2 (0-70 ohms)	U-11 (73-10 ohms)
U-3 (0-90 ohms)	U-12 (180-10 ohms)
U-4 (10-73 ohms)	U-13 (240-33 ohms)
U-5 (10-180 ohms)	U-14 (250-40 ohms)
U-6 (33-240 ohms)	U-15 0-5V **
U-7 (40-250 ohms)	U-16 5-0V **
U-8 (30-0 ohms)	U-17 4-20mA **
U-9 (70-0 ohms)	

** Custom Versions

Setting Max Tank Capacity

The factory default tank capacity is set for 250.0 (liters or gallons). To change the tank size, press and hold the ✚ key for (10) seconds (until you hear a long beep). Use the ▼ and ▲ keys to change the maximum tank capacity, wither in liters or gallons. Once you have your correct tank maximum capacity showing in the display (be as specific as you wish to within 1/10th of gallon/liter) then press the ✚ key for 1/2 second to save your entry to memory.

Selecting External Alarm, Transfer Pump Mode, or NMEA (Marine use)

To toggle screw Terminal (C) between external alarm, or to automatically fuel transfer pump (based on your selected LOW and HIGH fuel alarm settings), press and hold down both the ▲ and ▼ keys for (10) seconds (until you hear a long beep). The

display shows "E-AL" (External Alarm), "tFEr" (Fuel Transfer) or "dAtA" (for NMEA Marine use) to indicate the currently selected mode. When the alarm output or fuel transfer pump is activated, a +5VDC signal voltage (10mA max load) is present on Terminal (C). In the fuel transfer mode, the display will flash when the transfer pump is running. The pump will activate when the fuel level drops below the LOW alarm value, and turn OFF when the fuel level reaches the HIGH alarm setting.

Viewing/Changing Display Damping

To help prevent display fluctuations in rough air or turns the display can be "damped" to varying degrees by the user. If you wish the display to respond more quickly, or more slowly, you can alter the display damping between a value of 1-254. The factory default value is 32. The higher the damping value selected, the slower the display of the F60-A will respond to changes.

To change the factory default setting of 32, press and hold both the ✚ and ▲ keys for (10) seconds (until you hear a long beep). Use the ▼ and ▲ key to select a value (1-254). Once the desired value is selected and displayed press the ✚ key for 1/2 second to save your choice to memory.