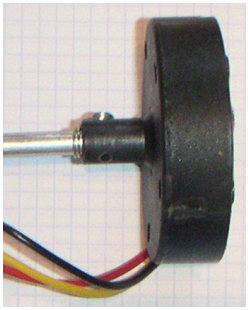

Capacitive Fuel level sender

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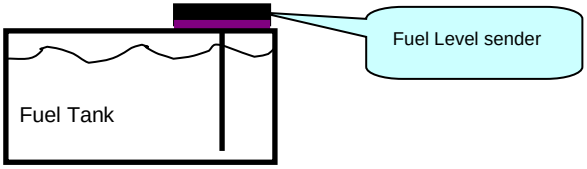
Introduction

Description

The unit (which has no moving parts) consists of a sensor probe and an amplifier. The amplifier components, which are located in the mounting plate assembly, are encapsulated in an epoxy resin compound to seal out moisture and other contaminants which could affect the operation. The probe is constructed of concentric tubing (a small brass tube inside a larger aluminum tube). The tubes, which are separated by small insulators to keep the tubes from touching, acts as a capacitor that has one value in air (empty tank) and changes in value as the fuel level rises inside the probe. The amplifier converts these values to a DC voltage output signal: 0.3V Empty and 4.0V Full.

Installation

Sketch of an installation



Preparation

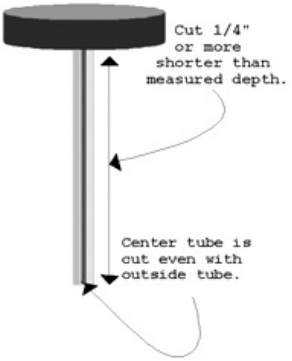
The fuel probe is constructed of concentric tubing (one small tube inside another), separated by small spacers press fit on the small inner tube.

Measure the depth of your tank from the outside top to the tank bottom.

Using a tubing cutter, cut the outside tube 1/4 inch or more less than the measured depth. **Be careful not to damage the center tube**. It is recommended to be 1 inch or more off the bottom on deeper tanks to keep probe out of sludge build up or give a more accurate reading for v-shaped tanks.

Insulators are placed on the center tube to prevent it from touching the outside tube. Slide the exposed insulators on the center tube up until they are just inside the outside tube.

Cut off the center tube flush with outside tube.



Make sure (with an ohmmeter) that the two tubes are not touching.

IMPORTANT: Don't make your sender shorter than the bottom of whichever of the following ranges it is in: 3 to 6", 6+ to 12", 12+ to 24", 24+ to 48", 48+ to 96", 96+ to 192".

e.g. for the 24" sender we deliver as standard, do not shorten to less than 12" (30cm).

Bending

The top section of tubing (about 6cm) between the sender's body and the black marking can be bent without a risk of creating a short circuit. Further down this section, insulators are placed on the center tube to prevent it from touching the outside tube. Bend very carefully with large radius of curvature. **Make sure (with an ohmmeter) that inner and outer parts do not contact.**

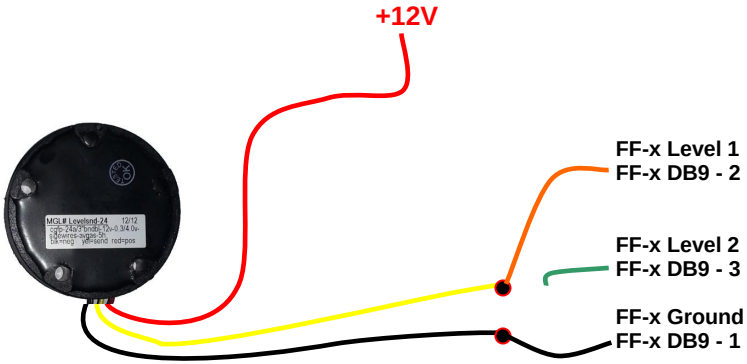
Mounting

If you had to cut your sending unit then the EMPTY adjustment must be made prior to installation (see calibration instructions on page 6).

- ☐ Place the gasket on the sending unit.
- ☐ Align the holes and apply a sealer such as Permatex on the gasket.
- ☐ Put a small amount of sealant in the mounting holes
- ☐ Insert the mounting screws with flat washers and lock washers.
- ☐ Place the sending unit in the tank. Note that the holes are not symmetrical.
- ☐ Rotate until the holes line up
- ☐ Tighten down the mounting screws.

Connection to Infinity/Velocity FF_x

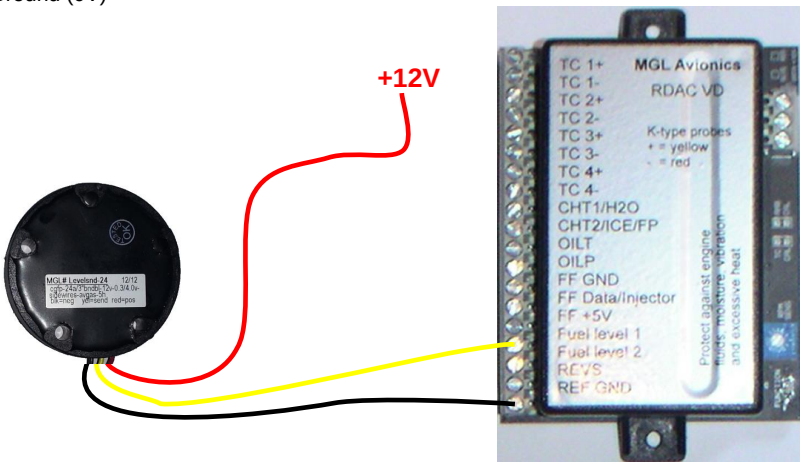
Red wire: +12 V DC (11V to 28 Vcc)
Yellow wire: Signal (E0.3/F4.0)
Black wire: Ground (0V)



Caution: incorrect wiring may damage the FF-1 and/or the Fuel sender(s).

Connection to MGL RDAC-VD

Red wire: +12 V DC (11V to 28 Vcc)
Yellow wire: Signal (E0.3/F4.0)
Black wire: Ground (0V)

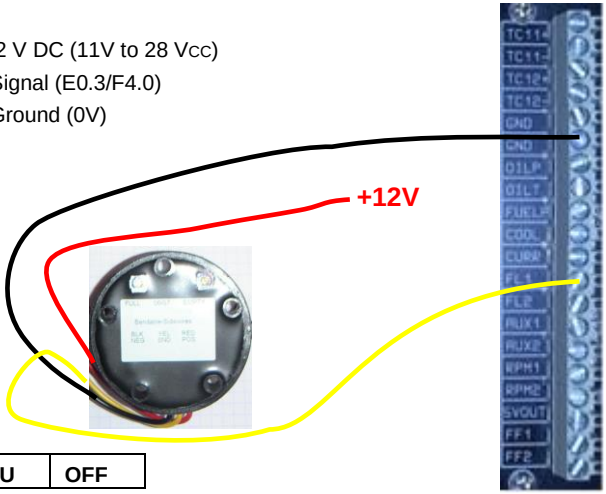


Caution: incorrect wiring may damage the FF-1 and/or the Fuel sender(s).

Connection to MGL RDAC-XF

Position RDAC-XF « Fuel Level PU » on **« OFF »**.

Red wire: +12 V DC (11V to 28 Vcc)
Yellow wire: Signal (E0.3/F4.0)
Black wire: Ground (0V)



Fuel Level 1 PU	**OFF**

Attention: un câblage incorrect peut endommager le RDAC ainsi que le capteur de niveau.

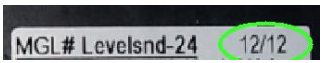
Notes

Calibration

A complete calibration procedure will be necessary if you have to shorten the probe.

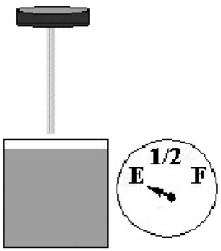
Calibration procedure

Respect the following timings in the calibration procedure:

 **Date Code**	**T_Empty**	**T_Full**
<= 3/13 (March 2013)	2	6
>= 4/13 (April 2013)	10	20

Setting the « Empty »

This adjustment must be done with probe out of tank or when tank is empty.

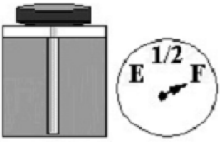


- ☐ Turn power OFF
- ☐ Short the output line to ground
- ☐ Turn power ON
- ☐ Remove the short after **T_Empty seconds**
- ☐ Wait 5 seconds until the output voltage stabilizes at 0.3V

Repeat these steps until you are sure the EMPTY reference is obtained. Write down the value.

Setting the « Full »

Put the probe into your tank. The probe should be fully immersed in a full tank.



- ☐ Turn power OFF
- ☐ Short the output line to ground
- ☐ Turn power ON
- ☐ Remove the short after **T_Full seconds**
- ☐ Wait 5 seconds until the output voltage stabilizes at 4.0V

Repeat these steps until you are sure the “FULL” reference is obtained. Write down the value.

Remove the unit from the tank. Shake the unit a few times to remove the residual liquid. The measured value should now be close to the EMPTY value obtained above. ***This completes the calibration. Do not make any more adjustments.***

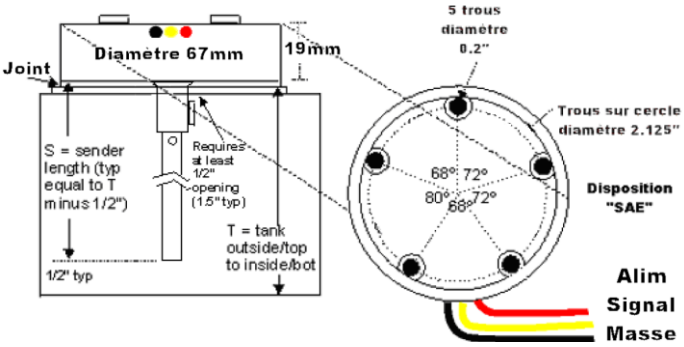
You may now proceed to the « tank » calibration of your Stratomaster.

Calibration record

Date	Instrument	« EMPTY » value	« FULL » value

Specifications

Dimensions



Diameter: about 0.26" (67mm)

Thickness: about 0.75" (19mm)

Probe length: about 24" (60cm) (adjustable 12" to 24")

Materials

Body: Nylon 6/6

Gasket: Cork & Nitrile Rubber (Buna-n), thickness 2.5mm approx..

Probe: Aluminum, length about 24" (60cm).

Spacers: Polyester Ultradur®

Electronics: encapsulated in epoxy resin compound

Power

Voltage: +11V to +12V DC **Current**: 10 mA typical

Temperature

-40°C to +85°C

Wiring

Wire length about 8" (20cm)

Red wire: +11V to +28V CC **Yellow** wire: Signal (E0.3/F4.0) **Black** wire: Ground (0V)

Notes

Warranty

The product is guaranteed against faulty workmanship for a period of 12 months from date of purchase. Delta Omega may at their discretion decide to either repair or replace the product. Delta Omega will provide free labor and parts. Courier costs or postage costs will be for the account of the purchaser. Please note: Certain parts are subject to breakage by misuse or external influences that cannot be covered by any warranty. In particular the following possible damages are excluded:

- Any damage due to unusual events e.g. aircraft crashes, hard landings, dropping the instrument, excessive G forces, excessive vibration.
- Exposing the instrument to incorrect power supply voltages, such as connecting the instrument to mains power supply, any voltage in excess of 30 volts DC, and any AC voltage.
- Connection of unqualified or incorrect devices. Please contact us before you connect anything unusual to this instrument.
- Damage due to excessive static discharge.
- Damage due to lightning strike.

Any signs of opening the instrument or tampering with any of the internal parts will invalidate the warranty.

Delta Omega endeavors to repair any faulty unit whether inside or outside of the warranty period speedily and at the lowest possible cost. Your first stop in case of a malfunction should be the dealer were you bought the product. It may be possible to repair your product without it having to be shipped to us.

DISCLAIMER

Delta Omega cannot be held responsible for incidents or damage by whatsoever nature caused by incorrect fuel level indication. Installation and operation of the product and its related parts is outside our sphere of influence and control. We do not manufacture either the fuel level sender or the fuel flow sender and are not appointed agents of either.
Delta Omega cannot be held responsible for incidents or damage by whatsoever nature caused by incorrect readings, displays, installation or operation of the product.
Operation of the product is the responsibility of the pilot in command of the aircraft. The pilot in command has to make himself/herself familiar with the operation and limitations of the product before commencing ground or flight operations as well as all other aspects of operation.
The product has not been submitted to the CAA or FAA or EASA or any of its agencies for any form of certification. Operation and installation of this product is subject to the relevant rules and regulations of your country and flight authority.
If any of the above is not acceptable to the pilot in command he/she must refrain from operating the aircraft or remove the product from the aircraft before commencing aircraft operations.

WEEE

This symbol on the product or on its packaging indicates that this product must not be disposed of with your other household waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local city office, your household waste disposal service or the shop where you purchased the product.