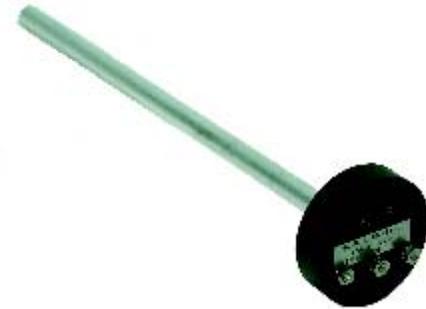


## Owner's Installation Manual

# "XS" Xtreme Series Fuel Level Sender

### GENERAL DESCRIPTION

The ELECTRONIC SENDING UNIT for FUEL tanks provides a continuous readout of the liquid level in your tank. 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 mounting plate assembly has the same 5 hole SAE bolt pattern mounting dimensions as the standard float sending units they replace. The meter (receiving unit) can be remotely located close by or in your dash.



**FUEL SENSOR PROBE** (Gasoline or Diesel) - The probe is constructed of concentric tubing (a small brass or alum. 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 signal suitable to drive a standard meter or other display device.

### UNAFFECTED BY CORROSION

Even if the sensor did corrode (which is improbable because of the high quality materials used), a thin layer of corrosion on the surface of the sensing elements would not change the accuracy because the gap over which the capacitor works is almost 1/10 of an inch whereas corrosion would be measured in 1/100's.

### STANDARD FEATURES

A Capacitive sensor is capable of detecting water in the fuel tank. The presence of water, which will ruin a diesel engine, is readily shown by an overfull indication on the meter. If fuel were being pumped into your tank from a supplier who had water in his big tanks, the presence of the water would show up immediately on your gauge by giving a overfull indication even though the tanks were only 1/4 full. This does not damage the sensor and once the water is pumped out, everything would be normal again. Electronics have been designed to minimize meter error caused by variation of battery voltage.

Eliminates excessive needle bounce on the meter while underway.

Can be built to fit tanks from 3 inches to 120 inches deep.

Works with most receiver units (meters).

**NOTE: Some VDO meters work backwards from standard meters. Please indicate if yours is this type when ordering. If you are not sure of the type you have, give us the model number when ordering please.**

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## Installation

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### FUEL SENDING UNIT SENSOR PREPARATION

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 the probe out of sludge build up or to 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 the outside tube. Be sure the two tubes are not touching or the meter will stay pegged above the full mark when the ignition is turned on.



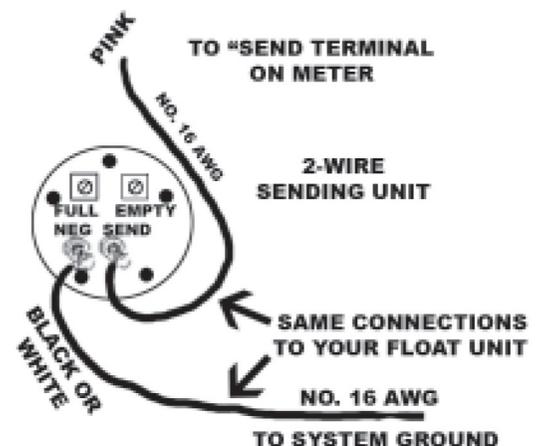
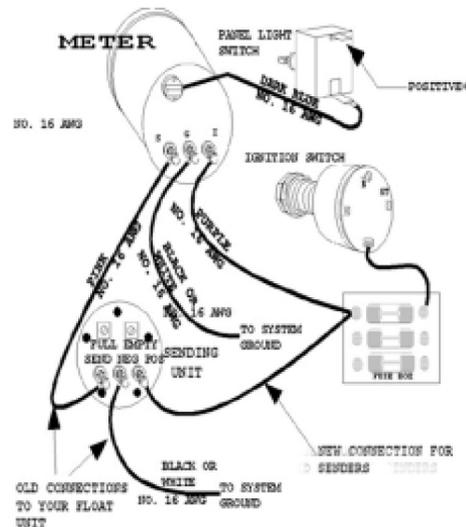
#### Standard Wiring (3 Wire Models):

See Figure 1. Disconnect the "SEND" and "GND" wires from your Float Sending Unit, remove the five (5) mounting screws and lift the float unit. Insert the Electronic Sending Unit and tighten down. Connect the "SEND" and "GND" wires, then add the ignition "IGN" wire and it's ready to go. Depending on how difficult it is to get access to your tank, it usually takes one hour or less to install.

#### Standard Wiring (2 Wire Models):

See Figure 2. You can use your existing wiring. No need to add the 3rd wire for battery connection. The 2-terminal sender is compatible with 240/33 ohm meters, though not with all brands. Disconnect the "SEND" and "GND" wires from your Float Sending Unit, remove the five (5) mounting screws and lift the float unit. Insert the Electronic Sending Unit and tighten down. Connect the "SEND" and "GND" wires, and it's ready to go. Depending on how difficult it is to get access to your tank, it usually takes one hour or less to install.

The following is a partial list 240/33 ohm compatibility. If your 240/33 ohm brand is shown as incompatible with the 2-terminal sender, it will still work with the 3-terminal sender.



| Yes                                  | No                        |
|--------------------------------------|---------------------------|
| HARDIN MARINE                        | WESTACH                   |
| DATCON                               | GAFFRIG (Older than 1996) |
| LIVORSI (or Gaffrig newer than 1996) | TEMP                      |
| OMC                                  | VDO                       |
| STEWART WARNER                       | ROCHESTER                 |
| TELEFLEX                             | WEMA                      |
| US GAUGE                             | YAMAHA BARGRAPH           |
| AUTOMETER 3316/3516                  |                           |
| FARIA                                |                           |



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## Installation

### Calibration:

The EMPTY adjustment is set at the factory. A minor adjustment of the FULL screw ("SEE SETTING THE FULL") is all that should be required to complete the calibration. Complete calibration procedure will be necessary if you have to shorten the probe.

Make the wiring connections as shown on the wiring diagram above. Turn on the ignition switch. Turn the FULL and EMPTY adjustment screw located on top of the unit to the full CW (clockwise) position.

**SETTING THE EMPTY** - Must be done with the probe out of the tank or when the tank is empty.

Slowly turn the EMPTY screw CCW (counter clockwise) until the needle on the meter just stops moving downward. The needle should be on or below the empty mark. Now turn the screw CW (clockwise) to make sure the needle starts moving upscale immediately, then turn CCW until the needle just stops moving downward again. This is the EMPTY reference mark. Repeat this step until you are sure the EMPTY reference is obtained.

**SETTING THE FULL** - Put the probe into your tank. Turn the FULL screw CCW until the needle indicates the liquid level in your tank. For best results, the probe should be fully immersed in a full tank. If you accidentally adjust below your tank level, turn the FULL screw full CW and repeat this setting.

Remove the unit from the tank. Shake the unit a few times to remove the residual liquid. The needle should now rest on or below the empty mark. This completes the calibration. Do not make any more adjustments.

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