

ATL's MICRO-CONTROLLER FUEL LEVEL SENDING UNIT

(Capacitance-Based "Sending Unit" Without Adjusting Screws)

INSTALLATION INSTRUCTIONS - Addendum to DS-448

ATL's new MicroController-Based (MCB) fuel level sending units (sometimes referred to as level senders or probes) can be distinguished from our older analog style by a "P" in the part number on the ID Label on the sending unit "head": ie PFLS. MCB sending units do not have adjusting screws on the "head" and are only for use with oil, diesel or gasoline with up to 10% ethanol content.

HOW THE SENDING UNIT MEASURES LIQUID LEVEL

ATL's sending units work by measuring the capacitance of a column of fuel. This means that no moving parts are required. In the sending unit, capacitance is measured between the inner-sensing tube and the grounded outer tube, and it requires the fluid to be non-conductive. The electronics in the "head" convert measured capacitance to the programmed output in ohms (or volts by special order).

SHORTENING THE SENDING UNIT (if required)

A sending unit's outer tube can be shortened using a tubing cutter, and the inner tube snipped with a diagonal cutter. CAUTION: Do not bend, and remember to add aluminum button to foot of tube (See DS 448)

CONNECTIONS

NEG: connect this terminal to DC ground. NOTE: ATL's sending units only work with negative-ground systems.

SEND: connect this terminal to the "S" input of your gauge or display. NOTE: The electronic output from this sending unit will confuse an ohmmeter if you try to take a resistance reading.

POS: 3-terminal sending units have an ignition-voltage POS terminal to run their electronics. A fused voltage between 11-28 vdc should be wired to the POS connection. The voltage should turn off when the system is turned off, both for safety and to avoid running down the battery. For a number of brands of 240/33 ohm gauges (not all), we can make a special sender that does not have this POS connection. These 2-terminal senders run their electronics from voltage on the SEND connection.

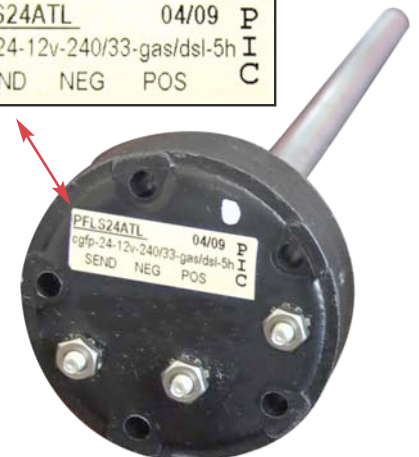
LOW-LEVEL: An alarm or warning light feature can be custom ordered in a 4-terminal sending unit, ususally to indicate low level or high level

*MAG	P/N PFLS24	02/09	P
cgfp-24-12v-240/33-2t-gas/dsl-2t-5h			I
SND	NEG		C



Two Terminal Sending Unit
(Power from Gauge)

PFLS24ATL	04/09	P	
cgfp-24-12v-240/33-gas/dsl-5h		I	
SEND	NEG	POS	C



Three Terminal Sending Unit
(Power from Ignition Switch)

NOTE: White Dot on Sender Head Indicates Unit Has Been Calibrated At The Factory

(continued)



Example of finished installation
3-terminal unit

CALIBRATION

OUTPUT RANGE AND LOW/HIGH LEVEL WARNINGS ARE NOT CHANGEABLE BY THE CUSTOMER:

The output range (eg 240/33 ohms) and warning levels (if ordered) are set at the factory. They cannot be changed by the end user. They can only be altered at the factory if needed.

A. SETTING THE EMPTY LEVEL ON SENDERS WITH THREE OR FOUR SCREW TERMINALS:

The **Empty** level is already calibrated to be the bottom of the sending unit if you use the sender at its factory length. If you have shortened the sender, the **Empty** should be recalibrated with the following steps. Note, the timing is very important. Recalibration will set both the **Empty** level and the **Low** level warning if so equipped

1. With the sending unit out of the tank but wired normally, keep the power off.
2. Wire the **SEND** terminal temporarily to the **NEG** terminal with a “jumper”.
3. Turn the power on, and remove the **SEND/NEG** jumper wire after **TWO SECONDS** (1,000-1, 1000-2). The gauge needle will then do some bouncing and finish on **Empty**. If it finishes somewhere other than **Empty** or lower, there is a wiring problem or a mismatched output range. *Please call, email or fax for help.*

B. SETTING THE FULL LEVEL ON SENDING UNITS WITH THREE OR FOUR SCREW TERMINALS:

The **Full** level is automatically detected by a special sensor each time you fill the tank. The **Full** level does not have to be set manually. However, if you wish to set it manually, follow the steps 1-2-3 listed below, using the appropriate fuel. The special sensor helps the sending unit respond correctly to gasoline with ethanol or to biodiesel. **Full** is calibrated at the factory a couple of inches below the sender’s head. If you have shortened the sender, or prefer a different **Full** height, the **Full** level can be recalibrated using these steps:

1. With the sender in a full tank (or tube) of the appropriate fuel, but properly wired, keep the power off.
2. Wire the **SEND** terminal temporarily to the **NEG** terminal with a “jumper”.
3. Turn the power on, and remove the **SEND/NEG** jumper wire after **FIVE SECONDS** (1,000-1, 1000-2, 1000-3, 1000-4, 1000-5). The gauge needle will then do some bouncing and finish on **Full**. If it finishes somewhere other than full or higher, there is a wiring problem or a mismatched output range. *Please call, email or fax for help.*

C. SETTING SENDING UNITS WITH TWO SCREW TERMINALS:

A rare-earth magnet (provided with the sender, or use Radio Shack 64-1895) is used to set **Empty** and/or **Full** on sending units with two terminals. This magnet, when placed vertically over the word **MAG** on the identification label, performs the same function as the “jumper” wires when you follow the 1-2-3 sequence of paragraphs A & B above. After counting off the seconds (2 for **Empty** and 5 for **Full**), remove the magnet to simulate disconnecting the “jumper”.

USA 1-800-526-5330 **www.atlfuelcells.com**

AERO TEC LABORATORIES INC.
45 Spear Road Industrial Park
Ramsey, NJ 07446-1251 USA
Tel: 201-825-1400 • Fax: 201-825-1962
email: atl@atlinc.com www.atlinc.com



AERO TEC LABORATORIES LTD.
One Patriot Drive, Rooksley Park
Milton Keynes, England MK13-8PU
Tel: (0)1908-351700 • Fax: (0)1908-351750
email: atl@atlltd.com www.atlltd.com