

TECHNICAL SPECIFICATION

The ATL EL-AD-151 (Resistance Output) and EL-AD-152 (Voltage Output) Fuel Level Senders are highly advanced sensors for continuously measuring the contents of a fuel tank. These sensors are both adjustable and can be cut to length (between 540mm and 200mm).

A low level alarm switches when the fuel drops below a predetermined level (default is 1/8th of the tank), but the alarm point can be optionally specified anywhere between 0-100%.

Dimensions:

Probe length: 540mm
Note: The probe length should leave min. 16mm from the end of the probe to the base of the tank. The probe shaft cannot be cut shorter than 200mm.

Electrical:

Supply voltage: 12 or 24Vdc nominal* **Supply current:** 28mA@12Vdc + output load
Connections: 500mm long flying leads which can be optionally fitted with any specified receptacle **Accuracy:** $\pm 2.0\%$ of depth @ 20°C (+68°F)

*Protected against overvoltage (80Vdc for 2 minutes) and incorrect electrical connection

Outputs:

Resistive (EL-AD-151): 240 Ω (Empty) to 33 Ω (Full). Not suitable for constant current application.
Voltage (EL-AD-152): 0-5V [Note: V out is protected from damage if misconnected to V+ (>32V) or Gnd.]
Alarm: Switch to ground at 1/8 tank depth - max load 100mA - optionally adjustable between Empty and Full.
Warning Output Load: 100mA max.

Construction:

Housing: 30% glass filled Nylon 66 **Internal sensor:** Aluminium
Sensor tube: Stainless steel 316 **Wetted seals:** PTFE & Nitrile
Internal insulators: PTFE

Fluid Types: Only suitable for EU standard pump fuel (diesel and petrol).

Environmental Ratings:

Temperature - operating: -40°C to +85°C (-4°F to +185°F) **Sealing:** IP67
- storage: -40°C to +105°C (-40°F to +221°F) **Shock:** 50g 6.3mS
Max tank pressure: For use in unpressurised tanks **Weight:** 300g (10 oz) (1M long unit)
Vibration: BS EN 60068-2-64:1993 (15.3grms) **EMC:** Type approval in accordance with EN ISO 13766:2006

Wire colour codes:

Red: V+ (9 ~ 34V)
Green: V- (Ground)
Yellow: LLA max 100mA
Blue: Signal out (V)
Black: Signal out (O)
White: Calibration



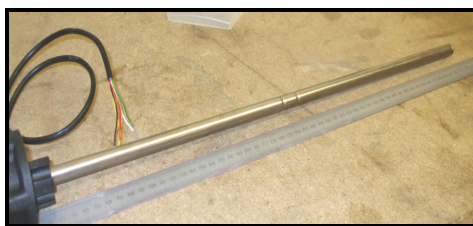
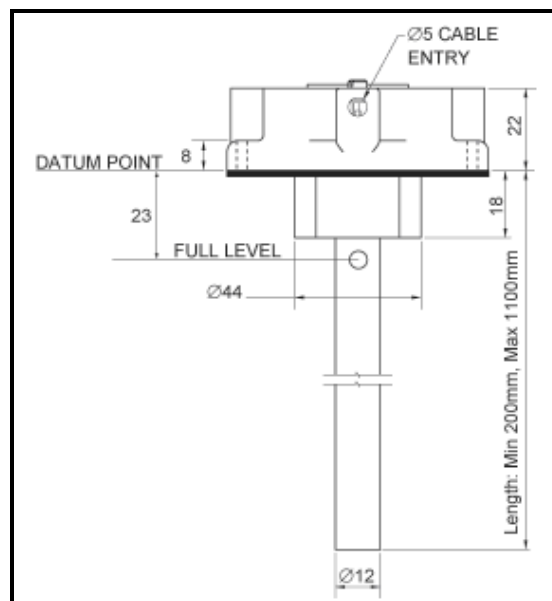
LEVEL PROBE CUTTING, WIRING & CALIBRATION INSTRUCTIONS

Before starting this procedure, please ensure that the correct ATL Fuel Level Probe is being used with the correct Dashboard Gauge/Data Logger. Note: ATL Dashboard Gauge EL-AD-068 **only** works with Fuel Level Probe EL-AD-151 (Resistive 240-33 Ohms Output). For customers using the Fuel Level Probe EL-AD-152 (Voltage 0-5V Output), these will only work with a Data-Logger.

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|----------|--------------------------|
| Stage 1) | Cutting Instructions |
| Stage 2) | Wiring Instructions |
| Stage 3) | Calibration Instructions |

Stage 1: Cutting Instructions

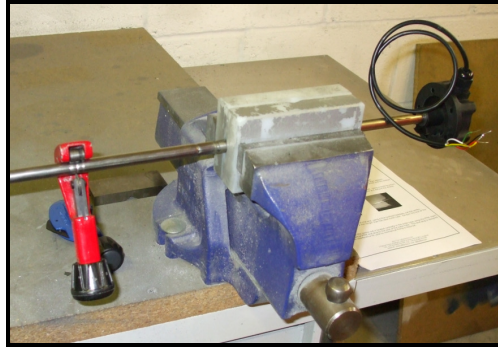
1. Measure the depth of your fuel cell from the inside bottom face to top of mounting plate, where the Header will be positioned.
2. Measure length of probe (from the DATUM POINT), mark this distance on the probe shaft and deduct 16mm. The 16mm reduction in length allows clearance between the probe shaft and the bottom of the tank. **Note: Please do not cut shaft to less than 200mm**



3. Using soft jaws, place probe in vice and gently grip the sensor shaft. **Note: Do not crush the sensor shaft in vice as this is just to support the shaft from turning when trimming to length.**



4. Using a tube cutter, cut the steel tube at the point marked at point (2). **Note: When using the cutting tool, adjust cutting blade slowly to prevent the outer tube being crushed.**



5. Once cut, use a twisting action, to free the centre rod from its end plug, carefully remove and discard the excess tube length.



6. Measure and mark the length of the centre aluminium rod, 1 to 2 mm longer than the steel outer tube.
7. Using a fine toothed hacksaw carefully cut the centre aluminium rod.



8. De-burr the cut edge of outer tube and centre rod.
9. To ensure that the centre rod is located centrally in the outer tube insert the white PTFE insert.



10. Fit the special black end plug to the end of the outer tube. This end plug is designed to be an interference fit and no mechanical fixing is required.



Stage 2: Wiring Information:

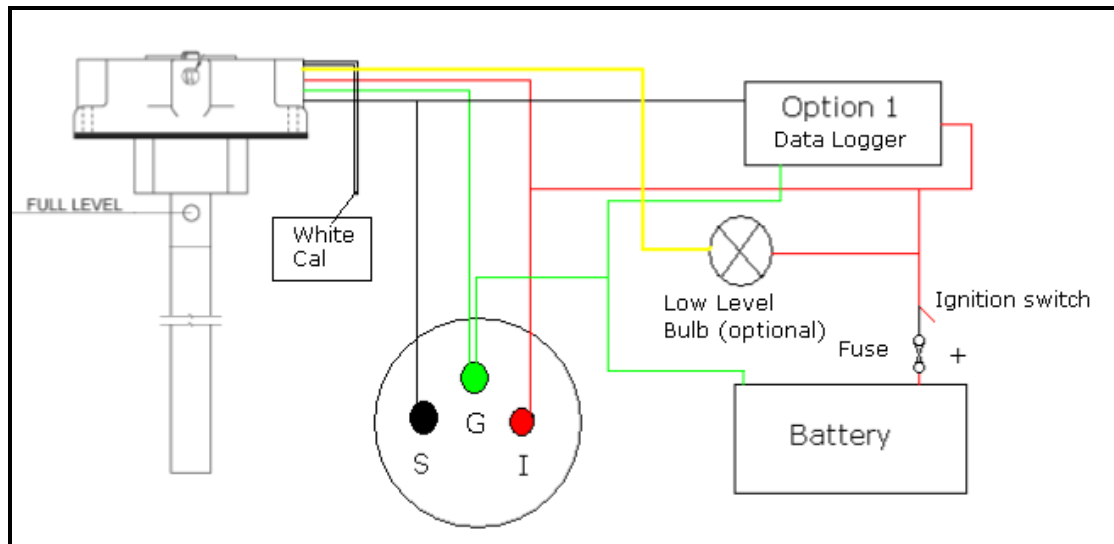
Please check wire colours according to choice of Fuel Level Sender Probe

EL-AD-151 (Resistance 240-33 Ω)

Red: V+ (9 ~ 34V)
Green: V- (Ground)
Yellow: LLA max 100mA
Black: Signal out (Ohm)
White: Calibration

EL-AD-152 (Voltage 0-5V)

Red: V+ (9 ~ 34V)
Green: V- (Ground)
Yellow: LLA max 100mA
Blue: Signal out (V)
White: Calibration



IMPORTANT: PLEASE ENSURE THAT VEHICLE HAS A NEGATIVE EARTH SYSTEM

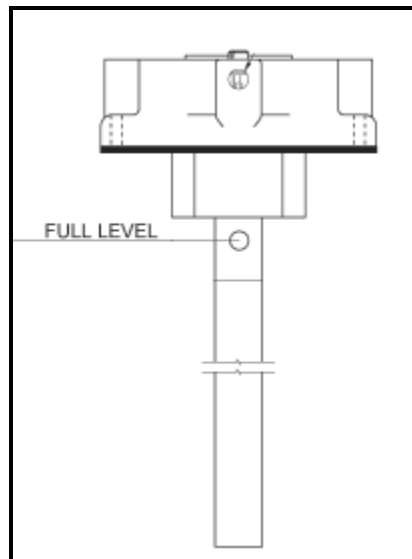
Stage 3: Calibration Instructions

1. With the probe out of the Fuel Cell, wire up the Fuel Level Sender Probe to the ATL Dashboard, or Data Logger, as per the wiring diagram (Page 4). Connect the calibration wire (white) to ground, or onto the shaft of the Sensor Probe, and then power up the Sender with a 12V supply. Disconnect the calibration wire (white) after 10 seconds, but keep the Sender connected to the 12V supply. This has calibrated the **Zero** (Empty) point of the Sender output.

Note: If using a Dashboard Gauge, this will stay on 'Full'. Please ensure that a 12V supply is connected at all times during calibration.



2. Insert the Fuel Level Probe into the Fuel Cell and refuel the cell until the fuel level reaches above the "Full Level" hole in shaft (see diagram).



3. Touch the calibration wire (white) to ground for 10 seconds and then remove it. This has calibrated the **'Full'** point of the Sender output.

Notes: After calibration, the sender can be manually raised and lowered, in and out of the fuel cell so that the fuel level output can be observed on the Gauge or Data Logger.

Troubleshooting Questions

1. Is the correct sender being used for the application?
 - EL-AD-151 gives a resistance output
 - EL-AD-152 gives a voltage output
2. Is the correct probe being used with the gauge?
 - Gauge EL-AD-068 only works with Probe EL-AD-151
3. Are the vehicle electrics negative earth?
 - Sender probe only works with negative earth.
4. Is the power supply 12 volts, as per instructions?
5. Has the probe been cut to correct length? Sender probe must only be cut as per the instructions. Take care not to bend or damage the central element when cutting to length. Care must be taken when fitting the plastic centre into tube. The inner tube must NOT touch the outer tube.
6. Was the foot fitted leaving clearance to the base of the cell? If the sender foot is 'trapped' when it is bolted in (i.e. it is too long) then it is unlikely to read the fuel level unless full. It may also read full as the level drops (as fuel is trapped in the tube).
7. When fitting the plastic spacer (after cutting the tube to length), please ensure that it does not form a seal against the foot as the foot is fitted to the outer tube. Ensure it is a minimum of 10mm from the end of the tube.
8. Does the installer have the instruction sheets?
9. Is the probe being immersed in the fuel that will be used? Please note that due to differing dielectric constants, the Fuel Level Probe must be re-calibrated each time a different fuel is used (e.g. race or road).
10. Has the wiring diagram been followed as per instructions?
11. Is the number on the shaft of the probe correct?
12. When calculating low and high settings the time delay should be between 3 and 10 seconds.
13. Once the system has been correctly set up, the temperature of the fuel during use may affect the reading at the gauge.
14. If the sender has been cut to length, both low and full settings will have to be re-calibrated. This is because the default factory settings are for the manufactured length not the cut length.