TECHNICAL DATA

T/LL130 Liquid Level Sensor

FOZMULA
INNOVATION IN SENSORS

The **T/LL130** series is designed for use in water, coolant or fuel/oil tanks and provides a factory set variable resistive, voltage or PWM (Pulse Width Modulated) output suitable for driving industry standard fuel gauges or connecting into PLCs.
The device has no moving parts and can be mounted at any angle above horizontal as long as it covers the whole depth of the tank. The unit cannot be inverted. An optional manual calibration feature is available.

SPECIFICATION

Liquid Types

Liquids compatible with the construction materials, typically diesel, kerosene, petrol, water.
Not suitable for fuels which contain Toluene.

Dimensions

Probe Length:	Min. 200 mm, Max. 1000 mm mobile / 2000 mm static
Threads:	½" BSPT, 1" BSPT, ½" NPT
Optional Flange:	Fozmula **F/T1** SAE 5 Hole

Performance

Accuracy:	±2% of depth @ 20 °C

Materials

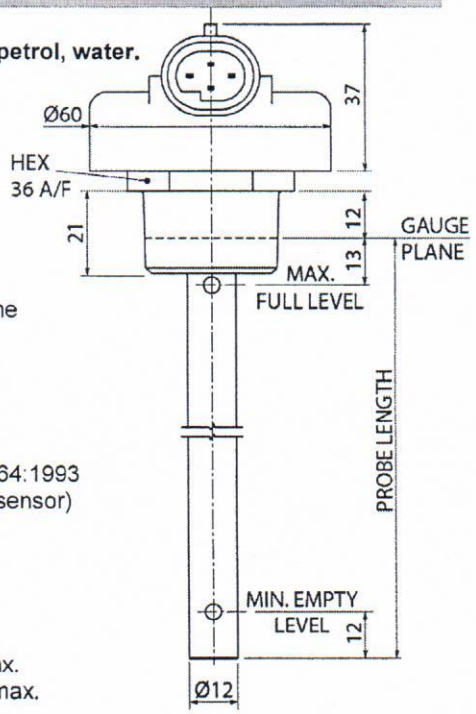
Enclosure:	30% glass filled nylon	**Internal Spacers:**	Polypropylene
Internal Electrode:	PTFE	**End plug:**	PTFE
Sensor Tube:	316 stainless steel	**Wetted Seals:**	Viton (FKM)

Environmental Ratings

Sealing:	IP67 with mating connector	**Shock:**	50 g, 6.3 ms
Max Pressure:	1 bar	**Vibration:**	15.3 Grms BS EN 60068-2-64:1993
Operating Temp:	-20 °C to +85 °C	**Weight:**	300 g (1 m long sensor)

Electrical

Supply Voltage:	9-34 VDC
Supply Current:	30 mA
Supply Protection:	Over-voltage 80 VDC for 2 minutes. Reverse polarity.
Signal Output:	Resistance range; 0-250 Ω or 250-0 Ω, 2 Ω steps, 0.4 W max. Voltage source range; 0-5 V or 5-0 V, 20 mV steps, 10 mA max. PWM 8 kHz on a 5 VDC rail.
Alarm Output:	Switch to ground. Max 100 mA. High or low level. Default setting is 12.5% of full level. Minimum 30 mm from sensor end.
Connections:	4 Way Delphi Packard Metri-Pack 150 Series.
Mating Connector:	Fozmula **C/K1** (Delphi Packard Metri-Pack 150) To fit 0.8-1.0 mm² conductor, Ø1.6-2.15 mm sleeve.



Model	Output	User Calibration
T/LL130	Resistive	No
T/LL131	Voltage	No
T/LL132	PWM	No
T/LL133	Resistive	Yes
T/LL134	Voltage	Yes
T/LL135	PWM	Yes

Calibration Instructions (Models 133, 134 & 135)

Units will be supplied calibrated for diesel. They can be recalibrated for alternative fuels:

Full Point:

1. Install sensor in the tank and power on.
2. Fill tank to required full level.
3. Remove calibration bung from sensor and use a suitable tool to depress PCB mounted calibration button. Hold for 5 seconds to set full point. Release button.
4. Check full point and refit bung.

Empty Point (if required):

1. Fill tank to required level or, for Min. Empty Level, remove from tank and shake to remove excess liquid.
2. Disconnect power.
3. Remove calibration bung from sensor and use a suitable tool to depress PCB mounted calibration button then reconnect power whilst depressing calibration button. Continue to depress for a further 5 seconds to set empty point. Release button.
4. Check empty point and refit bung.