

880 Cellular Radar Monitor

An ATEX/C1 D1 Radar sensor specifically designed to be a low profile, non-contact, continuous liquid level sensor.

Applications

- Remote liquid level monitoring
 - Chemicals
 - Water
 - Additives
 - Lubricants
 - Gasoline/ Petroleum
 - Diesel fuel
 - Motor oil
 - Hydraulic fluid
 - Waste Oil
 - Other hazardous/non-hazardous liquids



Benefits

- Invasive or Non-invasive tank monitoring.
- Up to 10 year battery life – ATEX data logger.
- Accurate, reliable level reporting to server monitoring application.
- Spot and continuous inventory management.
- Configurable reporting schedule and alarms.
- Highly configurable server reporting interval from every hour to once per specified day of the week.
- 28 slot loggers with configurable logging interval.
- Programmable alarms
 - High level
 - Low levels
- GPS / GLONASS Global Positioning.
- Bluetooth BLE for installation and instant readings via the app.
- IP68 protected.
- FCC Approved.
- Intrinsically safe.
- Temperature compensated.



Specification	
Characteristic	Transmitter
Dimensions	Height (Top) = 49.4mm (Not including horn section). Diameter (115mm) .
Weight	10oz (280g)
Housing material	UV Stabilized PP material with an option for PVDF [Kynar] material.
Operating temperature	-13°F to 122°F (-25°C to 50°C) (Note 1)
Recommended storage temperature	32°F to 86°F (0°C to 30°C) (Note 1)
Humidity range	10% - 100%
Altitude range	<6500 feet (<2Km) above sea level
Environmental Protection	IP68 – Outdoors
Battery	Lithium LiSOCl ₂ replaceable
Battery Life	Up to 13 years (Note 3)
Radar Range	>3.2" to < 22 feet (>10cm to <6.75m) (Note 5)
Radar Resolution	2mm
Radar Accuracy	Invasive mounting: ±4mm between 3.2" (10cm) and 78.7" (200cm) ±0.75% of full scale between 78.7" (200cm) and 157.5" (400cm) ±2% of full scale if greater than 157.5" (400cm) Non-invasive mounting: ±2% of full scale (Note 4)
Material Compatibility	(Note 2)
Communications	Cat M1/Cat NB1: LTE FDD: B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B26/B28 LTE TDD: B39 (For Cat M1 Only). EGPRS: 850/900/1800/1900MH 2G fall-back. Bluetooth Low Energy (BLE) V5.2 for installation and local readings via BLE App.
ATEX Approval	IECEX II (1)G Ex ia IIB T4 [-25 < Ta < +50°C] [-13 < Ta < +122°F] and North American Class 1, Division 1 UL913.
Accessories	
Gasket (included)	Viton seal included
Adaptor	2" adaptor, Optional non-invasive adapter with adhesive pad.

Conformity	
EMC directive 2014/30/EU	The Electromagnetic Compatibility (EMC) Directive ensures that electrical and electronic equipment does not generate, or is not affected by, electromagnetic disturbance. The overall regulatory framework is the Radio Equipment Directive (RED) 2014/53/EU.
LVD directive 2014/35/EU	The Low Voltage Directive (LVD) ensures that electrical equipment within certain voltage limits provides a high level of protection for European citizens, and benefits fully from the Single Market
RoHS directive 2011/65/EU	This Directive lays down rules on the restriction of the use of hazardous substances in electrical and electronic equipment (EEE) with a view to contributing to the protection of human health and the environment, including the environmentally sound recovery and disposal of waste EEE.
EN 60079-0:2014 EN 60079-11:2014 EN 60079-18: 2014	Electrical apparatus for explosive gas atmospheres - Part 0: General requirements Electrical apparatus for explosive gas atmospheres - Part 11: Intrinsic safety 'i' Electrical apparatus for explosive gas atmospheres - Part 18: Encapsulation 'm'
FCC compliance	Yes
CE compliance	Yes

Note 1: Storage and operation above 68°F (20°C) may reduce battery life. Minimum distance measured is derated with temperatures <32°F (<0°C)

Note 2: Suitable for use in tanks for the storage of water diesel fuel, kerosene, gas oil types A2, C1, C2 and D as defined by BS2869. Consult factory for other applications.

Note 3: One communication per day and assumes a good signal strength, so that no retries are required. One radar sample every 60 mins and assumes 1m tall tank with hydrocarbon liquid. Consult factory for other setups.

Note 4: For non-invasive sensor mounting on plastic tanks. The material and plastic thickness affect the absolute accuracy of the measurements. Water condensation also impacts the accuracy measurement. Note this also assumes vertical mounting.

Note 5: Based on a measurement to a flat liquid target of size 4.65in² (30cm²) and γ reflectivity of liquid or object. E.g.: Kerosene range is typically 4m (13') due to lower dielectric constant.

Non-invasive range is dependant on tank and liquid type. Maximum nominal range for hydrocarbons is 4m (13'). For aqueous liquids up to 6.75m (22').

For ullage measurements less than 20cm (8"), there is an increased likelihood that measurements will have variation/jitter of a few cm.

Material	Invasive		Non invasive	
	Range (imperial)	Range (metric)	Range (imperial)	Range (metric)
Water	22'	675cm	6'	200cm
AdBlue/DEF	22'	675cm	6'	200cm
Diesel	13'	400cm	9'	300cm
Kerosene	13'	400cm	9'	300cm
Gasoline	13'	400cm	9'	300cm

Signal Diversion Chart

