



LoRaWAN Intrinsically safe ultrasonic level sensor

With an ultrasonic level sensor, the battery powered Intrinsically Safe Liquid Level logger is suitable for monitoring fuel tanks levels.

Applications

- Liquid Level Ultrasonic level sensor
 - Kerosene, Diesel, Gasoline
 - Oils/Waste Oils
 - Other hazardous/non hazardous
- Tanks
 - Fixed or mobile
 - Underground
- Spot and continuous inventory measurement

Benefits

- Accurate, reliable tank level reporting to server monitoring application
- LoRaWAN Communication
- Programmable Alarms
 - High level
 - Low levels
 - Rate of level change (fill or drain)
- Reports local temperature and battery level
- Plug and play installation
- Mounting/attachment options – wall/pole
- Remote re-configurability
- Easy to install and commission
- Up to 15 years battery life
- Minimum 1 year warranty



Characteristics	LoRaWAN Logger Intrinsicly safe	Ultrasonic sensor Intrinsicly safe
Dimensions		
Safety	II 2 G Ex ib IIA T3 Gb Zone 1 [-20°C < Ta < +55°C] [-4°F < Ta < + 131°F]	Class 1, Div 1, Group A,B,C & D T4 Class I, Zone 0 AEx ia IIC T4 Ga Complies with UL913 [-20°C < Ta < +60°C] [-4°F < Ta < + 140°F]
Conformance	ATEX, EMC, LVD, RED, RoHs, CE, LoRa Alliance, REACH	ATEX, Hazloc, IECEx, CE, RoHS
Housing Material	Moulded plastic, DSM K224-LGM35 or Ultramid® 8267G HS BK-106	Moulded plastic, Polypropylene, UV Stabilized
Weight	220g/8oz (excluding cable & gland)	140g/5oz (excluding cable & gland)
Fixing/Mounting	Wall mount with screws, Vertical pipe mounting with cable ties, Horizontal pipe mounting with cable ties	2" & 1½" & 1¼" Multi thread adapter
Environmental Protection	Ingress protection IP68 – Outdoors, Impact resistance to IK06 ,UV resistant - UL 746C Flammability rating UL94-V0	Ingress protection IP67 – Outdoors, Impact resistance to IK06 ,UV resistant - UL 746C Flammability rating UL94-V0
Communication	868MHz LoRaWAN communication	
Manual Activation	Integrated slider magnetic switch. Installation status feedback is provided via a bi-colour LED	

Characteristics	LoRaWAN Logger Intrinsically safe
Battery technology	3.6V SAFT LS17500 or EVE ER17505 capacity 3.6Ah
Material Compatibility	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
Ultrasonic Resolution	±1cm / ±0.4"
Operating Temperature	-20°C to +55°C / -4°F to 131°F (Note 1)
Storage Temperature	+20°C to +25°C / 68°F to 77°F clean, cool, dry and ventilated. (Note 1)
Accuracy	±2cm / ±0.78"
Battery life	Up to 15 Years from activation (Note 2)
Humidity	0 – 100% RH
Receiver Sensitivity	Up to -136dBm
Output Power	+14dBm (25mW)(measured into the internal antenna on the PCB; internal antenna gain = -3dB typ)
Ultrasonic Range	12cm to <4M (>5" to < 13 ft)
Approximate range	More than 15km/9miles range in sub-urban situation (depends on environmental configuration) More than 2km/1.25miles range in urban situation (depends on environmental configuration)
Frequency	863 - 876MHz Nominal 868MHz ISM band, environment dependant
Signal Divergence	See polar plot for the sonic profile included on this datasheet
User interface	Slide switch with bi-colour LED for user feedback on unit status and radio signal strength.
Cable length	3m / 10ft

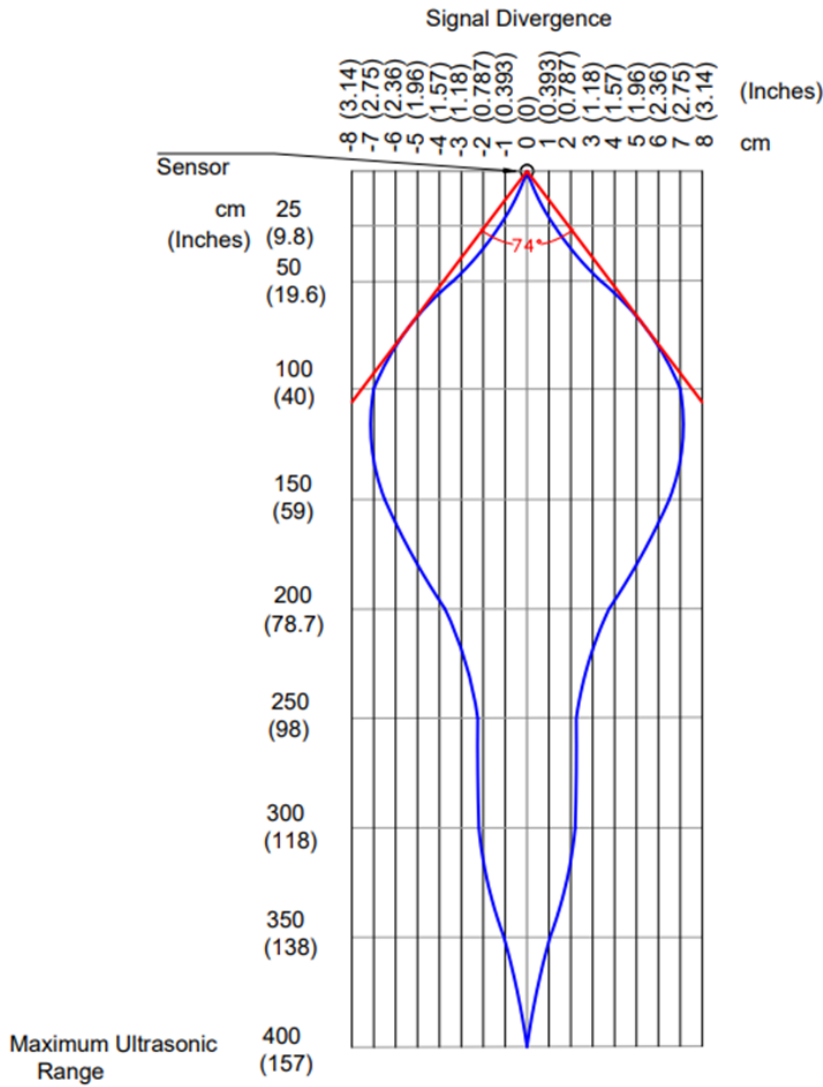
Operation

The Intrinsically Safe ultrasonic sensor is suitable for Monitoring Liquid levels up to 4m / 13 ft depth. It has a 3m / 10 ft cable to facilitate mounting.

Note 1: Storage and operation above 25°C/77°F may reduce battery life. Shelf life recommended not to exceed 12 months.

Note 2: Based on activation within 6 months of the manufacturing date of the product, and device configuration for 4 measurement per day, 4 LoRaWAN connections per day from a location where the LoRaWAN coverage does not require retries (SF7), and a normal distribution over the operating temperature range centred at +25°C/77°F

Signal Divergence Plot



Find a position for the sensor which respects a clear path for the ultrasonic signal.