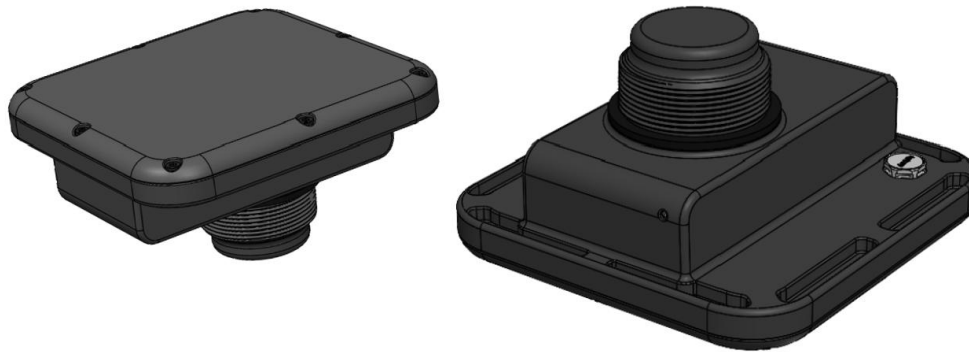


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Sensor Datasheet: RM-LE-1000



The RM-LE-1000 is an intrinsically safe, tank level monitoring sensor (mmWave) designed for tanks and totes, including stainless steel and poly totes with a 2" bung hole opening or with a modified lid with a 2" threaded bung hole. Installation requires no tools, as the sensor can be securely attached to the tank with just hand tightening.

The RM-LE-1000 can measure the fluid level in the tank with millimeter precision. This allows you to monitor the usage and flow rates of the tank for optimal efficiency. With the included GPS technology, the RM-LE-1000 allows you to both track and locate tanks in the field. The sensor is designed for hazardous chemicals and meets Intrinsically Safe Class 1, Division 1, ABCD requirements.

The RM-LE-1000 uses contactless mmWave radar technology and can be configured to report notifications based on events, level changes, or scheduled intervals. The device communicates using LTE-M, with automatic fallback to NTN satellite when terrestrial coverage is unavailable. The sensor can detect impacts in the field and identify when a tank is being transported to another location. The RM-LE-1000 battery is designed to last up to 10 years with daily reporting, contingent on operating conditions and communication frequency.

Sensor Specifications	
Measurement Principle	Level Measurement: Non-contact FMCW mmWave Radar
Sensor	mmWave
Operating frequency	60 Ghz
Beam Angle	4-6°
Range	0 to 12m
Accuracy	±5 mm
Resolution	1 mm
Update rate	1 hz
Reporting Interval	User specified, battery life contingent
Target Applications	Remote site, no power or connectivity for chemicals, water, sewer, oil
Mechanical	
Enclosure Material	UV-Stabilized High-Density Polyethylene (HDPE-UV)
Enclosure Dimension	16.5 x 16.8 x 9.2 cm
Estimated weight	300 g
Mounting	2" Male NPT
Cable glands/conduit entries	Not applicable - no cable connections
Electrical	
Battery Type	Single cell, Li-SOC12 D-Cell, non-replaceable
Max nominal voltage, continuous current	3.6V, 100mA, DC
Supply voltage, Max power consumption	3.6V, 0.4W
Battery Life	10 years; based on 1 report and 2 measurements per day, 1 GPS/wk
Environmental	
Operational temperature range	-35°C to +60°C
Ingress protection	IP 65, Outdoor use
Humidity limit	0-100% relative
Hazardous Area Classification	
North Americal (Class/Div)	Class I, Div 1, Groups A-D, T4 EX ia IIC T4 Ga
North America (Class/Zone)	Class I, Zone 0, AEX ia IIC T4 Ga
Communication	
Primary Data Communication	
LTE-M	3GPP LTE-M (Cat-M1) terrestrial cellular connectivity for low-power wide-area operation, encrypted with AES-256
NTN	Satellite NTN connectivity using 3GPP Release 17 NB-IoT/LTE-M waveform with automatic fallback from terrestrial LTE-M, encrypted with AES-256
Local Wireless Interface	
Bluetooth	For commissioning, configuration, local diagnostics and secure pairing, Range: 5–20 m typical
NFC	Tap to pair Bluetooth
Location Services	
GNSS/GPS	GPS asset location, weekly communication for battery life
Certifications and Compliance	
UL 60079-0 (Edition 7) 2019 rev 2020, UL 60079-11 (Ed 6) 2013 rev 2018, UL 60079-28 (Ed 2) 2021 rev 2017, UL 62368-1 (Edition 3) ANSI Approved: October 22, 2021, CSA 60079-0 (Edition 4) 2019, CSA 60079-11 (Edition 2) 2014 R 2018, CSA C22.2 NO. 60079-28:16 (R2021), CSA 62368-1 (Edition 3) 2019	Designed for UL/CSA Hazardous Location and Electrical Safety certification (60079-0, 60079-11, 60079-28, 62368-1). Certification pending