Radar Distance/Level Sensor EM410-RDL



EM410-RDL is a non-contact Radar Distance/Level Sensor that adopts Millimeter Wave Radar technology. By measuring millimeter-wave signals at higher frequencies, it provides more stable performance over longer distances, and is less affected by environmental conditions. It can detect the distance between the sensor and liquid of various types, unaffected by temperature, dust, condensate etc. With IP68 waterproof and sealed enclosure, it can withstand the worst environment, while maintaining the measurement accuracy, and does not require routine maintenance.

Milesight offers LoRaWAN® version and Cellular version to meet different communication needs. The LoRaWAN® version can be integrated with Milesight LoRaWAN® gateway and Milesight Development Platform, enabling remote and visual management of all sensor data. The Cellular version supports multiple application modes to be compatible with IoT platforms.

EM410-RDL can used in sewers, rivers, impounding reservoir, storage tanks and high-salt mist environments (including seawater, high-concentration brine), and other locations that require to measure distance and level.



Features

- 8° Radar beam angle can be focused on the target fluid, enabling accurate measurement of liquid level
- Wide measuring range of 0.3m to 12m with small blind zone
- Not affected by dust, condensate, temperature, acoustic noise, etc.
- Non- invasive liquid level monitoring, can detect hazardous or non-hazardous liquids
- External antenna or internal antenna versions are optional for various applications
- > Built-in 3-axis accelerometer sensor to monitor device tilt status
- Support to check radar-echo curve and one-click diagnostic to calibrate the distance, ensuring the accurate measurement under different environments
- Support blind zone alarm when the ranging results are within the blind zone
- Adopt PVDF material, offering excellent corrosion resistance, wear resistance and compressive strength for harsh environments
- > IP68 waterproof design, resistant in fresh water to a maximum depth of 1m for up to 48 hours
- > Thread design for common tank installation without extra accessories needed
- > Store historical records locally and support retransmission to prevent data loss
- Easy configuration via NFC and Bluetooth
- Support management and OTA upgrade via Milesight Development Platform

LoRaWAN® Version Only

Function well with standard LoRaWAN® gateways and network servers

Cellular Version Only

Support multiple network protocols to be compatible with IoT platforms

Specifications

Measurement		
Distance		
Technology	Millimeter Wave Radar	
Target	Liquids or Smooth Surface Solid	
Radar Frequency Band	60GHz	
Detection Angle	8°	
Detection Distance	0.3m ~ 12m	
Accuracy	Up to ± 2mm ¹	

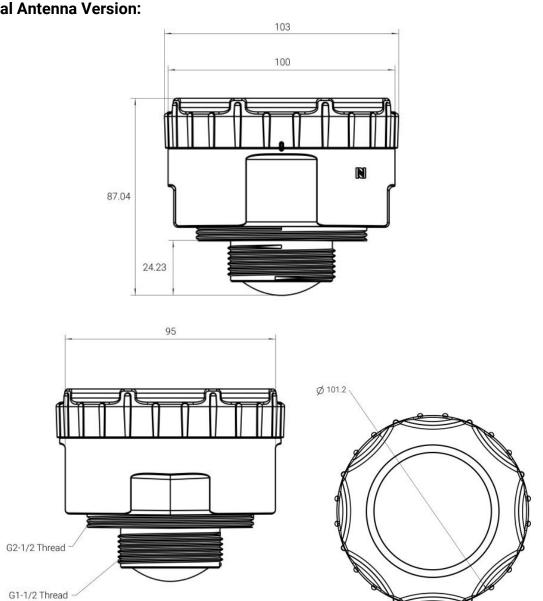
Resolution	1mm	
Device Position		
Status	Normal/Tilt	
Wireless Transmission	on	
LoRaWAN® Version		
Frequency	CN470/IN865/EU868/RU864/US915/AU915/KR920/AS923-1&2&3&4	
Tx Power	16 dBm (868 MHz)/20 dBm (915MHz)/19 dBm (470MHz)	
Sensitivity	-137dBm @300bps	
Mode	OTAA/ABP Class A	
Antenna	Internal Antenna or External Antenna (Hardware Optional)	
	External Antenna (EA) Version: 1 \times 50 Ω SMB Male Connector	
Cellular Version		
Frequency Band	LTE (CAT 1): B1/B3/B5/B7/B8/B20/B28 for EMEA/Australia/New	
	Zealand	
SIM Slot	1 x Nano SIM (4FF) Slot, 1.8V/3V	
Application Mode	TCP/UDP/MQTT/AWS/Milesight Development Platform	
Antenna	Internal Antenna or External Antenna (Hardware Optional)	
	External Antenna (EA) Version: 1 × 50 Ω SMB Male Connector	
Others		
LED Indicator	1 × LED indicator (Internal)	
Configuration	Mobile App via NFC or Bluetooth, Downlink	
Advanced Feature	Distance Threshold Alarm, Distance Change Alarm, Blind Zone Alarm,	
	Radar-echo Curve, Diagnostic, Data Storage (2,000 entries), Data	
	Retrievability (LoRaWAN® Version), Data Retransmission	
Physical Characterist		
Power Supply	1 × 19000 mAh ER34615 Li-SOCL ₂ Battery	
Battery Life ²	LoRaWAN® Version: Around 7 Years	
	Cellular Version: Around 5 Years	
	(15-min collection Interval+1440-report interval, 25°C)	
Operating Temperature	LoRaWAN® Version: -40°C ~ 70°C	
Dolotivo Urmidia.	Cellular Version: -35°C ~ 70°C	
Relative Humidity	0 ~ 100% (non-condensing)	
Ingress Protection	IP68 (1m underwater, 48 hours)	
Dimension	Φ 101 × 87 mm (Φ 3.98 × 3.43 in)	
Weight	400g	

Housing&Color	PVDF (UL94 V0), Blue + Grey	
Supported Tank Thread	G1 ½"	
Installation	Wall Bracket Mounting, Tank Threaded Installation	
Approvals		
Regulatory	LoRaWAN® Version: CE, FCC	
	Cellular Version: CE	

¹ Perfectly smooth flat-surfaced solid, or still liquid surface.

◆ Dimensions (mm)

Internal Antenna Version:



² Tested under laboratory conditions and for guideline purposes only.

External Antenna Version:

