



ELT Radar LoRa

LoRaWAN Wireless Sensor

ELT Radar LoRa is a LoRaWAN® device for distance measurement. ELT Radar LoRa is enclosed in an IP67 box and is designed to be mounted outside. It is the ideal sensor for measuring in advanced places or extreme weather conditions.



Product features

- LoRaWAN Certified
- Compatible with LoRaWAN® 1.0.3
- Measures distance
- Measures ambient temperature
- Detects acceleration
- Measures ambient atmospheric pressure
- IP67 Classified
- Battery-powered
- NFC for configuration
- Configuration over the air

Applications

- Smart cities
- Agriculture
- Industries
- Extreme weather conditions
- Exposed areas (containers e.g.)

Device specifications

Mechanical specifications

Weight	60 g excluding batteries
	100 g including batteries
Dimensions	94 x 59 x 35 mm
Enclosure	IP67

Operating conditions

Temperature	-40 to 60 °C
Humidity	0 to 100% RH

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Device Power Supply

Battery Type	1 x 3.6V AA Lithium Battery
Expected Battery Life	<10 years (Depending on configurations and environment)

Radio / Wireless

Wireless Technology	LoRaWAN® 1.0.3
Wireless Security	LoRaWAN® End-to-End encryption (AES-CTR), Data Integrity Protection (AES-CMAC)
LoRaWAN Device Type	Class A End-device
Supported LoRaWAN® features	OTAA, ABP, ADR, Adaptive Channel Setup
Link Budget	137 dBm (SF7) to 151 dBm (SF12)
Available Frequencies	US902 – 928, EU863 – 870, AS923, AU915 – 928, KR920 – 923, RU864, IN865
RF Transmit Power	14 dBm / 20 dBm (Region specific)

Device Logging Function

Sampling Interval	Configurable via NFC and downlink configuration
Data Upload Interval	Configurable via NFC and downlink configuration

Data types

	Type	Data size	Comment
0x01	Temperature	2	-3276.5 °C – 3276.5 °C (Value of: 100 → 10.0 °C)
0x02	Humidity	1	0 – 100 %
0x07	VDD (Battery voltage)	2	0 – 65535 mV
0x0E	External distance	2	0 – 65535 mm
0x0F	Motion (Acceleration)	1	0 – 255 (Interrupts from accelerometer)
0x14	Pressure	4	Pressure data (hPa)
0x3D	Debug information	4	Data depends on debug information
0x3E	Sensor settings	n	Sensor setting sent to server at startup (first package). Sent on Port+1.

Radar specification

Parameter	Min	Max	Unit
Operating frequency range	57	64	GHz
Distance accuracy (@25 °C)	2.67	2.83	mm
Distance resolution (@25 °C)	1.2	2.4	mm
Distance range	0.15	15.0	m

Internal sensors

Temperature

Resolution: 0.1 °C

Accuracy: ± 0.2 °C (See figure 1)

Humidity

Resolution: 0.1 % RH

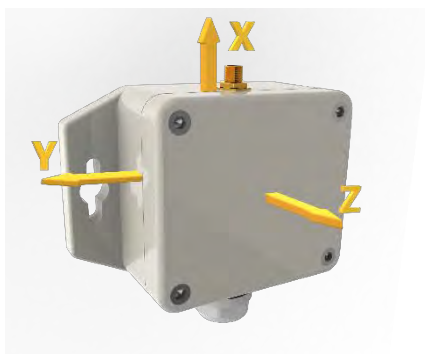
Accuracy at 25 °C: ± 2 % RH (See figure 2)

Accuracy of humidity over temperature: See figure 3

Accelerometer

Range: ± 2.0 g

Sensitivity: 16 mg/
digit Data rate: 10 Hz



Atmospheric pressure Range: 260 – 1260 hPa

Accuracy: ± 1 hPa

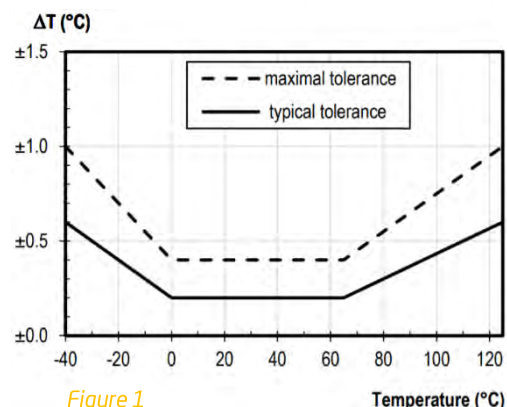


Figure 1

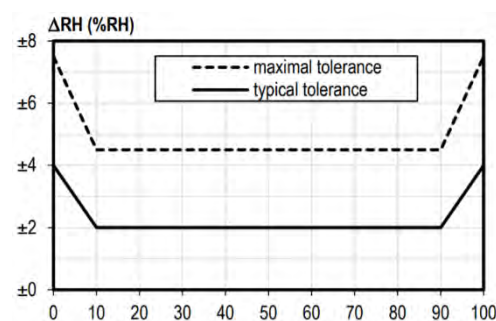


Figure 2

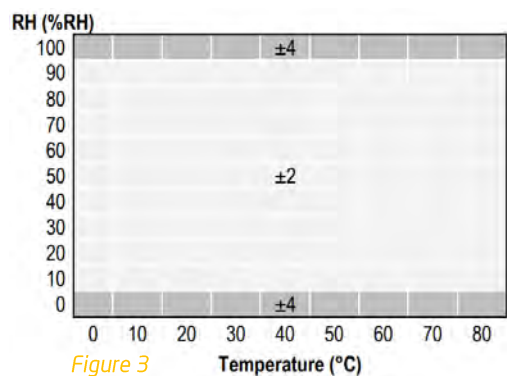


Figure 3