



ELT2

LoRaWAN Wireless Sensor

ELT-2 is a general LoRaWAN® device for measuring analog or digital signals. It is a 2-channel GPIO wireless transceiver and can also provide power to external sensors. ELT-2 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. ELT-2 has the capacity of measuring with remarkably long range.



Product features

- LoRaWAN Certified
- Compatible with LoRaWAN® 1.0.3
- Analog 0 – 10V input
- Digital input
- Pulse counter
- An extra external I/O
- Measures ambient temperature
- Measures ambient humidity
- 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
Direct connection to:	1-wire temperature sensor, Decagon moisture sensor, SO output, Maxbotix ultrasonic distance sensor

Operating conditions

Temperature	–40 to 60 °C (85 °C with external power supply)
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/C (configurable) 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
0x08	Analog1	2	0 – 65535 mV
0x0A	Pulse count	2	0 – 65535 (Between two send intervals)
0x0B	Pulse count ABS	4	Absolute value 0 – 4294967295
0x0C	External temp1	2	-3276.5 °C – 3276.5 °C
0x0D	External digital/button	1	0 / 1 (On / Off, Down / Upp)
0x0E	External distance	2	0 – 65535 mm
0x0F	Motion (Acceleration)	1	0 – 255 (Interrupts from accelerometer)
0x10	External IR temperature	4	2 bytes internal temp, 2 bytes external temp. (-3276.5 °C – 3276.5 °C)
0x12	External water leak	1	0 – 255 (0 = no water detected)
0x14	Pressure	4	Pressure data (hPa)
0x16	Pulse count 2	2	0 – 65535
0x17	Pulse count 2 ABS	4	Absolute value 0 – 4294967295
0x18	Analog 2	2	0 – 65535 mV
0x19	External temp 2	2	-3276.5 °C – 3276.5 °C (Value of: 100 → 10.0 °C)
0x1A	External digital 2	1	0 / 1 (On / Off, Down / Upp)
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.

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

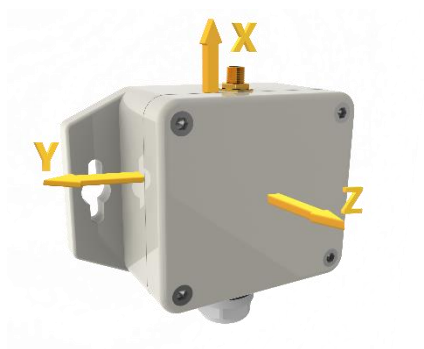
humidity over temperature: See figure 3

Accelerometer

Range: ± 2.0 g

Sensitivity: 16 mg/

digit Data rate: 10 Hz



Atmospheric pressure Range: 260

– 1260 hPa Accuracy: ± 1 hPa

