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DATA SHEET

ELT-2

Produal

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Datasheet
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ELT-2

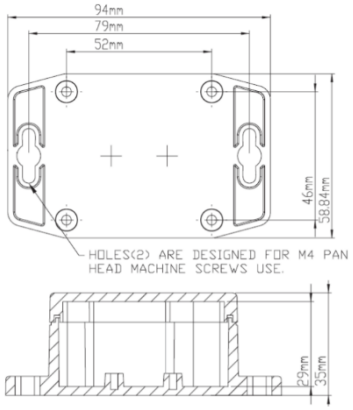
ELSYS.se

LoRaWAN Wireless Sensor

Description

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.





Applications

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

Product features

- LoRaWAN Certified CM
- 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

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, S0 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)

Device Logging Function	
Sampling Interval	Configurable via NFC and downlink configuration
Data Upload Interval	Configurable via NFC and downlink configuration

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 dB (SF7) to 151dB (SF12)
Avaliable Frequencies	US902 – 928, EU863 – 870, AS923, AU915 – 928, KR920 – 923, RU864, IN865
RF Transmit Power	14 dB / 20 dB (Region specific)

Data types

Type value	*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.

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Internal sensors

Temperature

Resolution: 0.1 °C

Accuracy: ±0.2 °C (See figure 1)

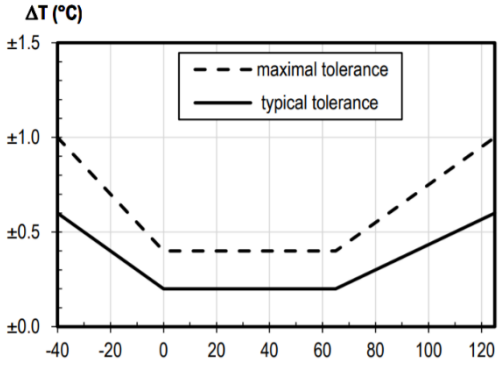


Figure 1

Humidity

Resolution: 0.1 % RH

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

Accuracy of humidity over temperature: See figure 3

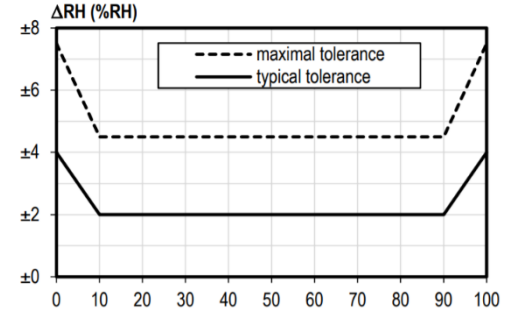


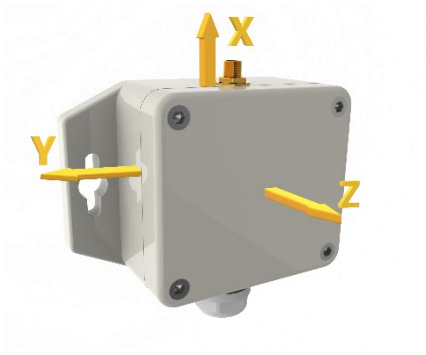
Figure 2

Accelerometer

Range: ± 2.0 g

Sensitivity: 16 mg/digit

Data rate: 10 Hz



Atmospheric pressure

Range: 260 – 1260 hPa

Accuracy: ± 1 hPa

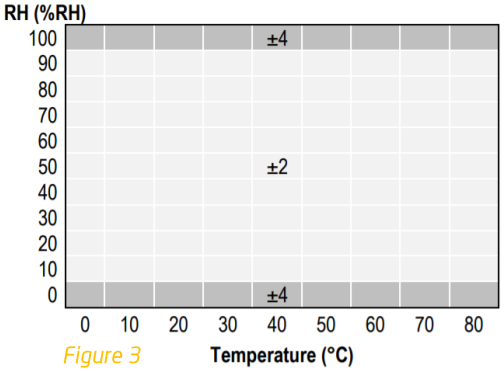


Figure 3

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