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DATA SHEET

EMS2 Desk

Produal

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Datasheet
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EMS Desk

LoRaWAN Wireless Sensor

Description

EMS Desk is a sensor slightly larger than an AA-battery and ideal for mounting under desks. It can be used for measuring desk occupancy or as a discrete indoor environment sensor. With the body heat sensor, it can detect when somebody is standing/sitting by a desk or mount it in a door opening to detect whenever someone is walking by.

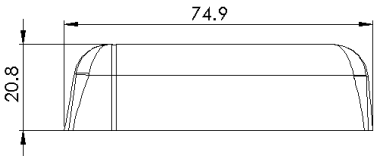


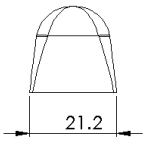
Applications

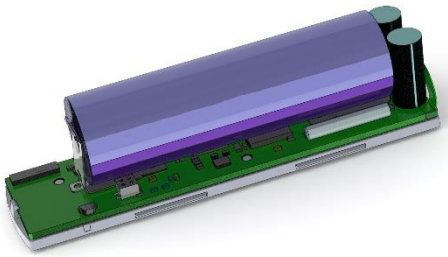
- Indoor environment measuring
- Smart buildings
- Workplace management
- Movement detection
- Occupancy detection

- LoRaWAN® Certification in progress
- Temperature sensor
- Humidity sensor
- Accelerometer
- Thermopile for occupancy detection
- NFC for configuration
- Configuration over the air

Product features







Device Specifications

Mechanical specifications	
Weight	10 g excluding batteries / 30 g including batteries
Dimensions	21.2 x 74.9 x 20.8 mm
Enclosure	Plastic, PC/ABS

Operating conditions	
Temperature	0 to 50 °C
Humidity	0 to 85 % RH (non-condensing)

Elektroniksystem i Umeå AB Industrivägen 12, 90130 Umeå, Sweden
E-mail: support@elsys.se | Web: www.elsys.se

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EMS Desk

LoRaWAN Wireless Sensor

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
Supported LoRaWAN® regions	US902 – 928, EU863 – 870, AS923, AU915 – 928, KR920 – 923, RU864, IN865
Link Budget	137 dB (SF7) to 151 dB (SF12)
RF Transmit Power	14 dB / 20 dB (Region specific)

Device Power Supply	
Battery Type	1 x 3.6V AA Lithium battery (Li-$SOCl_2$)
Expected Battery Life	Up to 10 years (Depending on configuration and environment)

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

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 %
0x03	Acceleration/Level	3	X, Y, Z -127 → +127 (Value of:63=1G)
0x07	VDD (Battery voltage)	2	0-65535mV
0x11	Occupancy	1	0 = Unoccupied / 1 = Pending(Entering or leaving) / 2 = Occupied

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EMS Desk

LoRaWAN Wireless Sensor

Sensors

Temperature

Resolution: 0.1 °C

Accuracy: ±0.2 °C (See figure 1)

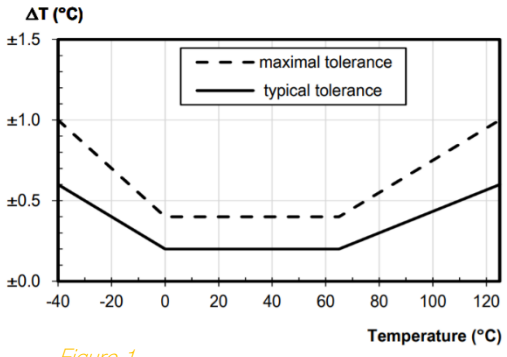


Figure 1

Humidity

Resolution: 0.1 % RH

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

Accuracy of humidity over temperature: See figure 3

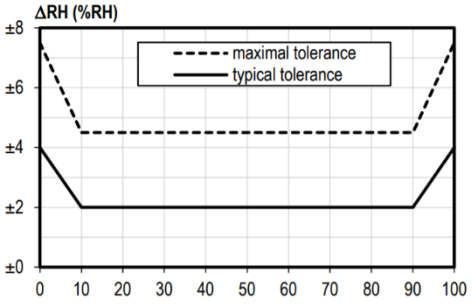


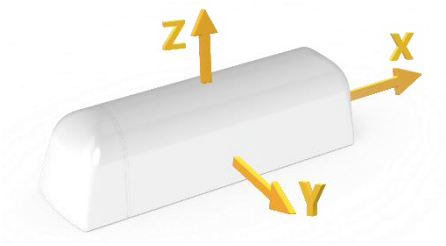
Figure 2

Accelerometer

Range: ± 2.0 g

Sensitivity: 16 mg/digit

Data rate: 10 Hz



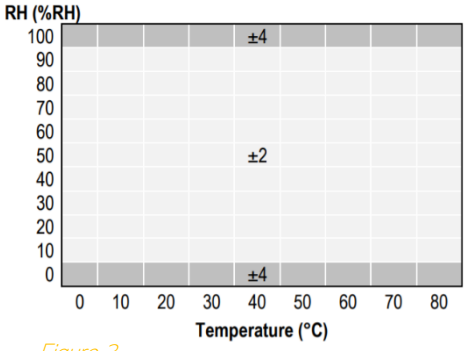


Figure 3

Occupancy

Detection range: 1 m

Field of view: 60°

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