

# EMS2 Series

## Description

The EMS series consists of subtle indoor sensors with different features and LoRaWAN® wireless connectivity. The sensor measures, depending on model, temperature, humidity, acceleration, door activity, occupancy and can also be used as a water leak detector. The EMS series sensors are designed to be mounted on door frames, under desks, under dishwashers or in any other limited surface area. The sensors are equipped with NFC (Near Field Communication).



## Applications

- Indoor environment measuring
- Smart buildings
- Workplace management
- Room occupancy

## Product features

- LoRaWAN Certified <sup>CM</sup>
- Temperature sensor
- Humidity sensor
- Motion sensor (PIR)
- Detects water leak
- Detects opening activity (reed switch)
- Monitors desk occupancy
- NFC for configuration
- Configuration over the air
- Discrete and minimalistic design

## Device Specifications

### Mechanical specifications

Weight	10 g excluding batteries / g including batteries
Dimensions	21.2 x 74.9 x 20.8 mm
Enclosure	ABS UL94-V0 (White)
Protection class	IP20

### Operating conditions

Temperature	0 to 50 °C
Humidity	0 to 85 % RH (non-condensing)
Operating Altitude	0 – 2000 m
Pollution Degree	Degree 2
Usage Environment	Indoor
Storage Temperature	-40 – 85 °C

# EMS2 Series

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

Radio / Wireless	
Wireless Technology	LoRaWAN® 1.0.4, Regional Parameters RP002 – RP1.0.3
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, IN865
Link Budget	137 dBm (SF7) to 151 dBm (SF12)
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

Sensor Characteristics	
Temperature Range	0 to 50 °C
Temperature Resolution	0.1 °C
Temperature Accuracy	Accuracy: ±0.2 °C
Humidity Range	0 – 85 % RH
Humidity Resolution	0.1 % RH
Humidity Accuracy	± 2 % RH at 25 °C
Accelerometer Range	± 2 g
Accelerometer Sensitivity	16 mg/count
Accelerometer Data rate	10 Hz
Occupancy Detection Range	50 cm
Occupancy Field of view	60°
Reed Switch Magnet Detection Range	2 cm max (edge of sensor casing to edge of magnet casing)

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## User Interface

LED	Functionality configurable via NFC and downlink configuration
App Support	Sensor Settings (Using NFC)

## Conformity

CE	
FCC	2ANX3-ERS02
EMC	2014/30/EU
RED	2014/53/EU
LVD	2014/35/EU
RoHS	2011/65/EU + 2015/863
LoRa	1.0.4

## Country of origin

Product Development	Sweden
Plastic casing	Sweden
Production	Sweden, Latvia, Lithuania

## Ordering Information

Art. No.	Description
EMS2Lite	EMS2 Lite
EMS2	EMS2
EMS2DOOR	EMS2 Door
EMS2DESK	EMS2 Desk

## Product Information

Art.	EMS2	EMS2 Lite	EMS2 Door	EMS2 Desk
Function				
Temperature	×	×		×
Humidity	×	×		×
Acceleration	×		×	
Door Activity	×		×	
Water Leak	×	×		
Occupancy				×

## Document Revision History

Version	Description	Date
1.0	First versoin	2024-09-06