

EMS Door

Description

With a size slightly larger than an AA-battery, EMS Door is one of our most subtle sensor yet. EMS Door can be used as an opening activity sensor or for movement detection. The small size makes it ideal for mounting on door frames, windowpanes or other small surface areas.

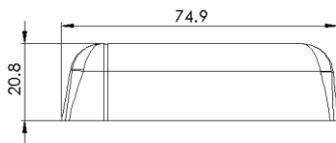


Applications

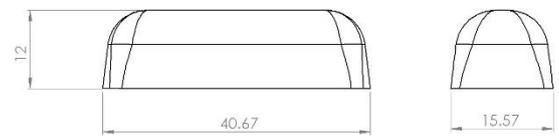
- Smart buildings
- Workplace management
- Door activity detection
- Movement detection

Product features

- LoRaWAN® Certification in progress
- Accelerometer
- Door switch
- NFC for configuration
- Configuration over the air



Dimensions of the EMS Door sensor



Dimensions of the magnet (mm)

Device Specifications

Mechanical specifications

Weight	10 g excluding batteries / 30 g including batteries
Dimensions EMS Door	21.2 x 74.9 x 20.8 mm
Dimensions magnet	15.57 x 40.67 x 12 mm
Enclosure	Plastic, PC/ABS

Operating conditions

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

EMS Door

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
0x03	Acceleration/Level	3	X, Y, Z -127 → +127 (Value of:63=1G)
0x07	VDD (Battery voltage)	2	0-65535mV
0x0A	Pulse count	2	0-65535 (Between two send intervals)
0x0B	Pulse count ABS	4	Absolute value 0-4294967295
0x0D	Digital	1	1 / 0 (On / Off)

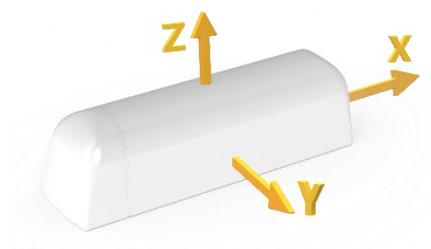
Sensors

Accelerometer

Range: ± 2.0 g

Sensitivity: 16 mg/digit

Data rate: 10 Hz



Door switch

The door switch consists of a reed switch on one side of the sensor. The maximum detection distance is 10 mm but may be affected by the material of the door (metal will reduce the range).

The Hub

Technical Datasheet



Intuitive IoT gateway



The Wattsense Hub: Universal connector

The Hub is an electronic device

- **Created to connect all equipment from all buildings:** IoT sensors, meters, heating, air conditioning air handling systems, building management systems (BMS).
- **Easy and quick to install:** accessible for all. If the building already has a BMS, the Hub connects to the main bus as the third party. If there's no BMS, a BMS network is directly created by the Hub.
- **Telemetry and controls:** collects data and controls equipment.
- **Smart Converter:** unifies the field communication protocols.
- **Connected to your system:** connect your software to the Hub thanks to the protocols BACnet Server and MQTT client.
- **Powerful IoT device:** combines the functionality of a gateway, a PLC, a modem, and an edge device.
- **Edge computing:** hosts user plug-ins for local automation.

Power supply

- 24V DC +/-10%, 2A.
- The cable between the power supply and the Box: 2 wires (red, black), 22 AWG, minimum section: 0.35 mm².

The Hub is protected against overvoltage, undervoltage, overcurrent from the power supply with indication by LED: green LED when the power supply is compatible, red LED if it is not suitable.

Hardware	
CPU	528MHz ARM Cortex A7
Memory	512MB RAM
Storage	4GB Flash
Consumption	5W
Dimension	160 x 110 x 55 mm
Weight	340g
Operating temperature	From 0 ° C to + 45 ° C
Humidity	5% to 95% humidity - No condensation

Interfaces		
Type of interface	Number	Operating LEDs
3G/4G Modem	1	Yes
LoRaWAN module from 863MHz to 928MHz	1	No
Ethernet	2	Yes
RS485 RJ45	2	Yes
USB	2	No
Micro USB	1	No
KNX	1	Yes
M-Bus (3UL Max.)	1	Yes
X-Bus (LPB)	1	Yes

Protection of communication bus against ESD, short circuit, over consumption.

Drivers

- BACnet IP
- BACnet IP Server
- Diematic
- KNX S et LTE
- LON FT10
- LON IP-852
- LPB
- LoRaWAN 1.0 Local private - Frequency plans supported:
AS_923_925, AU_915-928, EU_863_870, IN_865_867, US_902_928
- M-Bus (3UL Max.)
- Modbus RTU
- Modbus TCP/IP
- Modbus TCP/IP Server
- MQTT Client

Software

- Secured Linux Yocto distribution.
- Built-in drivers for all buses, protocols and building equipment.
- Onboard LoRaWAN server: decodes LoRaWAN data locally directly in the Box.
- Automatic discovery of equipment on BACnet.
- Remote and automated configuration.
- Secure server communication via MQTT.
- Automatic and secure software updates.

Security

Enterprise-grade security based on SSL/TLS with the following properties:

- Two-way authentication between Box and server with x509 certificates.
- End-to-end encryption.
- Message integrity checks.

Data frequency

Data is retrieved by default at a 10-minute interval, excluding IoT sensors that have their own frequencies to minimize battery consumption. Commands (downlink) are placed instantly.

