



## Description

The PowerTempHu is advanced technology indoor sensor applied for the full sensing of the PVC and XLPE cable conductivity and temperature. PowerTempHu is enclosed in a room sensor box and is designed to be wall mounted. PowerTempHu is completely wireless and powered by 3.6V AA lithium batteries. The integrated advanced intelligent (AI) computational algorithm enables reliable capability of the measurement the magnitude of the temperature, humidity. The data transmitted from the sensor is based on Class A LoRaWAN® wireless network.



## Applications

- XLPE, PVC cable conductivity measurement in critical points of the cable line.
- Indoor environment measuring
- Industrial factories
- Industrial facilities

## Product features

- LoRaWAN communication
- Computational AI algorithm.
- Indoor temperature sensor
- Configuration over the air
- Robust enclosure
- Auto self-calibration

### Sensing characteristics

Temperature	--40 to 85 °C
Temperature Accuracy	Max '+/-1°C@ -20— -10°C Max '+/-0.4°C@ -10°C— 85°C
Carrying current conductivity factor	XLPE cables: from 1,20 up to 0,60 for the temperatures @ 0— 60°C PVC cables: from 1,3 up to 0,30 for the temperatures @ 0— 60°C
Temperature sensing options	1 phase; low, medium, high voltage busbar duct enclosure
Sensing cable length	From 1-10 m depending on temperature sensing option

### Mechanical specification

Weight	100 g without battery, 150 g with battery
Dimensions	121 x 62 x 26 mm
Enclosure	Plastic ASA+PC-FF
Storage Temperature	-40 to 85 °C

### Sensor Power Supply

Battery Type and voltage	1x 3.6 V or 2x3.6 V AA Lithium Battery ER14505 AA lithium batteries (3.6V2400mAh/section)
Expected Battery Life	<13 years (Depending on configurations and environment)

### Sensor logging Function

Sampling Interval	Configurable via downlink, NFC configuration is optional
Data Upload Interval	Configurable via downlink, NFC configuration is optional

**Radio / Wireless specification**

Wireless Technology	LoRaWAN® 1.0.3
Wireless Security	LoRaWAN® End-to-End encryption (AES)
LoRaWAN Device Type	Class A End-device
Supported LoRaWAN® features	OTAA, ABP, ADR, Adaptive Channel Setup
Supported LoRaWAN® regions	EU863 – 870 Optional: US902 – 928, EU863 – 870, AU915 – 928, EU433, RU864, IN865
Link Budget	137 dB (SF7) to 151 dB (SF12)
TX Power	14dBm±1dBm (Region specific)
Rx Sensitivity	132 dBm (LoRa, Spreading Factor=12, Bit Rate=293bps) -118 dBm (FSK, Frequency deviation=5kHz, Bit Rate=1.2kbps)
Communication range	10 km (line-of-sight, actual transmission distance depends on the environment)

**Data sizes**

Measurement	Data size	Elaboration
Temperature	2	MSB byte -128 to +128 C, LSB byte, value after decimal point 0 to 100
PVC conductivity_Index	2	MSB byte represent before decimal point of factor, LSB byte represents 4 digits after decimal point expressed as unsigned 2 byte value, first byte – integer factor, second byte – factor(four digits after decimal point).
XLPE conductivity_Index	2	MSB byte represent before decimal point of factor, LSB byte represents 4 digits after decimal point expressed as unsigned 2 byte value, first byte – integer factor, second byte – factor(four digits after decimal point).
Battery	2	MSB byte represent Volts before decimal point , LSB byte represents two digits after decimal point expressed as unsigned 2 byte value, first byte – integer Volts, second byte – Volts (two digits after decimal point).

**Sensor dimensions:**
