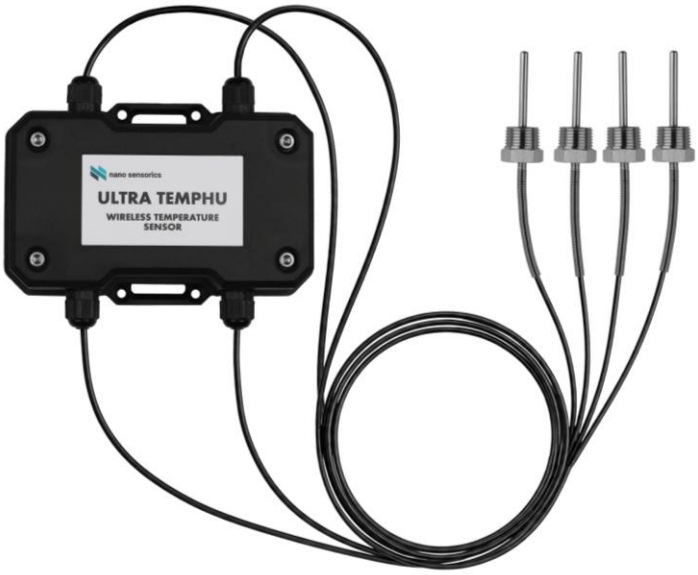
ULTRA TempHu sensor

The ULTRA TempHu is advanced technology heavy duty outdoor sensor applied for the full sensing of temperature with 4x temperature probes. ULTRA TempHu is enclosed in a room sensor box and is designed to be wall mounted. ULTRA TempHu is completely wireless and powered by 2x “D cell” lithium batteries. The integrated advanced intelligent (AI) computational algorithm enables reliable capability of the measurement the magnitude of the temperature and constant auto self or manual calibration through downlink messaging. The data transmitted from the sensor is based on Class A LoRaWAN® wireless network.



Applications

- Outdoor heavy duty temperature measurement
- Mission critical applications
- Industrial factories
- Heat pumps
- Custom probes possible

Product features

- IP67 / IP68 Class
- LoRaWAN communication
- Computational AI algorithm.
- 4x outdoor temperature sensors
- Configuration over the air
- Super heavy duty robust enclosure
- Auto self-calibration

Sensing characteristics	
Temperature	-40 to 180 °C
Temperature Accuracy	Max '+/-1°C@ -40 — -10°C Max '+/-0.4°C@ -10°C — 180°C
Temperature sensing options	4x temperature probes
Sensing cable length	From 1 - 2 m depending on temperature sensing option
Mechanical specification	
Weight	200 g without batteries
Enclosure	Plastic ASA+PC-FF
Storage Temperature	-40 to 85 °C
Sensor Power Supply	
Battery Type	2x D cell Lithium batteries
Expected Battery Life	<15 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

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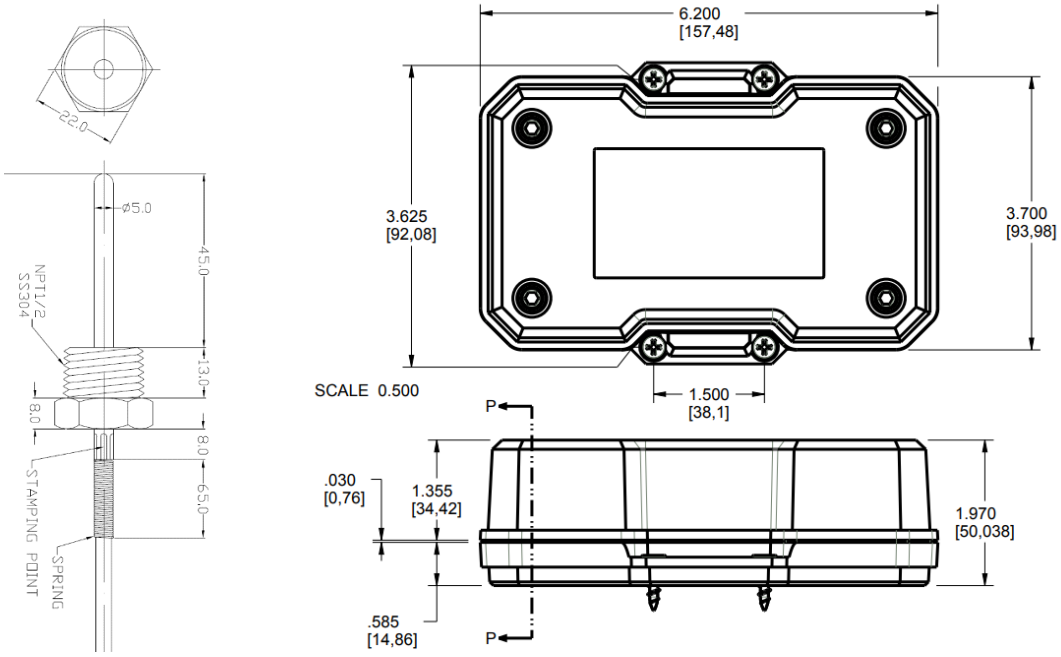
Radio / Wireless specification	
Wireless Technology	LoRaWAN® 1.0.3
Wireless Security	LoRaWAN® End-to-End encryption (AES)
LoRaWAN Device Type	Class A End-device
Supported LoRaWAN® features	OTAA, ABP, ADR, Adaptive Channel Setup
Supported LoRaWAN® regions	US902 – 928 Optional: EU863 – 870, AU915 – 928, 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 (1st probe)	2	MSB byte -128 to +128 C, LSB byte, value after decimal point
Temperature (2nd probe)	2	MSB byte -128 to +128 C, LSB byte, value after decimal point
Temperature (3rd probe)	2	MSB byte -128 to +128 C, LSB byte, value after decimal point
Temperature (4th probe)	2	MSB byte -128 to +128 C, LSB byte, value 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:



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