



PRODUCT DATASHEET

NB-IoT TEMPERATURE AND HUMIDITY SENSOR

OVERVIEW

NETOP Temperature and Humidity sensor is a long-range wireless sensor that measures temperature, and the relative humidity of the air within a room. These sensors are perfect for monitoring ambient temperatures and humidity. This sensor is fully compatible with technology by using NB-IoT (Narrowband-IoT).

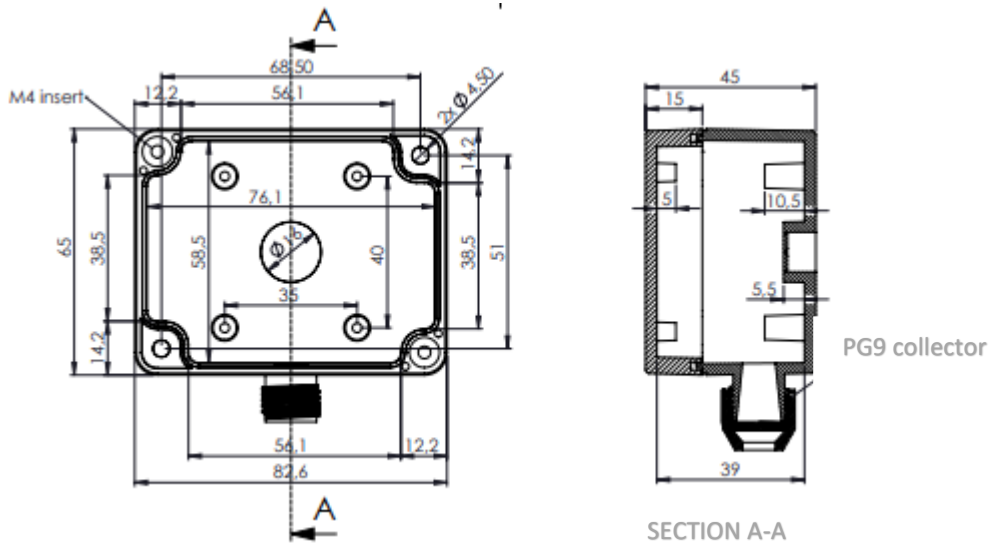




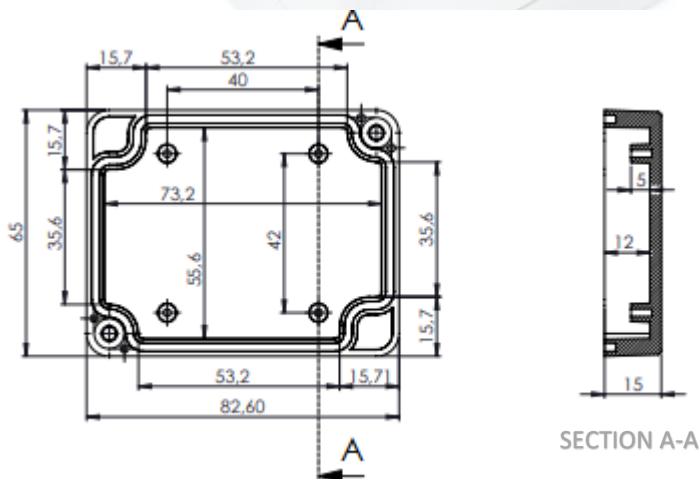
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TECHNICAL DRAWING

Box With Terminal Seal



Cover Page





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KEY FEATURES

Real Plug & Play

Easy to mount & install

Maintenance free

Excellent Extended Range in Buildings

Easy deployment utilizing cellular system

Micro SIM (default)

Ultra -Low Power Consumption

Certificate: RoHS

COMMUNICATION SPECS

Narrow Band IoT (NB-IoT) for connectivity

Supported bands including B1/B2/B3/B4/B5/B8/B12/B13/B14/B18/B19/B20/B25/B26/B27/B28/B66/B72/B73/B85

Internet Protocol Feature: Support MQTT

Extended Coverage: 10-15km with 164 dB maximum coupling loss (MCL)

Antenna Types: Internal (default) or External (depend on request) Antenna

MECHANICS

Housing: ABS (IP65 or higher)

Dimensions: 82.5 x 65 x 45 mm

Operating Temperature: -40°C to +120°C



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POWER SUPPLY

USB/ LIPO Charge / Non-Chargeable Battery

INDICATORS

Green Red Status LED (on board)

TEMPERATURE AND HUMIDITY SENSOR SPECIFICATIONS

Measurement Range: 400 ppm – 5'000 ppm/ -40°C ~ 120°C / 0-100 %RH

Accuracy: $\pm (40 \text{ ppm} + 5\% \text{ reading}) / \pm 0.3^\circ\text{C} / \pm 2\% \text{RH}$

Resolution: 0.01 °C / 0.04 %RH

Data Transmission Period: Min 7 seconds max 40 seconds (battery consumption value may increase or decrease.)

CERTIFICATIONS & RELIABILITY

EN 60950-1;2006/A2:2013

ETSI EN 301 489-17 V3.1.1(2017-02)

EN 55032:2015



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NB-IoT FRAME FORMAT

Packet Size: 60 Byte

012345678|1|000102030405060708091011121314151617181920212223

012345678 bytes: Device ID

1 byte: Connection Type(1->NB-IoT)

INFORMATION

012345678: Device ID

|1|: Indicates the type of connection the device uses.





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NB-IoT TEMPERATURE AND HUMIDITY SENSOR PROTOCOL

01-23--01-23-12-34-23-45-YY-YY-YY-YY-YY-YY-YY-YY-YY-01-2C-25-01-12-0D-EF

01: Selected Slot (1 byte)

23: Temperature and Humidity Sensor Board ID (1 byte)

0123: 0x0123H -> 291D -> (2 bytes) -> 291 ppm

1234: 0x1234H -> 4660D -> (2 bytes) -> 46.60 C

2345: 0x2345H -> 9029D -> (2 bytes) -> %90.29 Rh

YY-YY: Empty Data (9 bytes)

012C: Sleeping Period 0x012CH -> 300D Seconds (2 bytes)

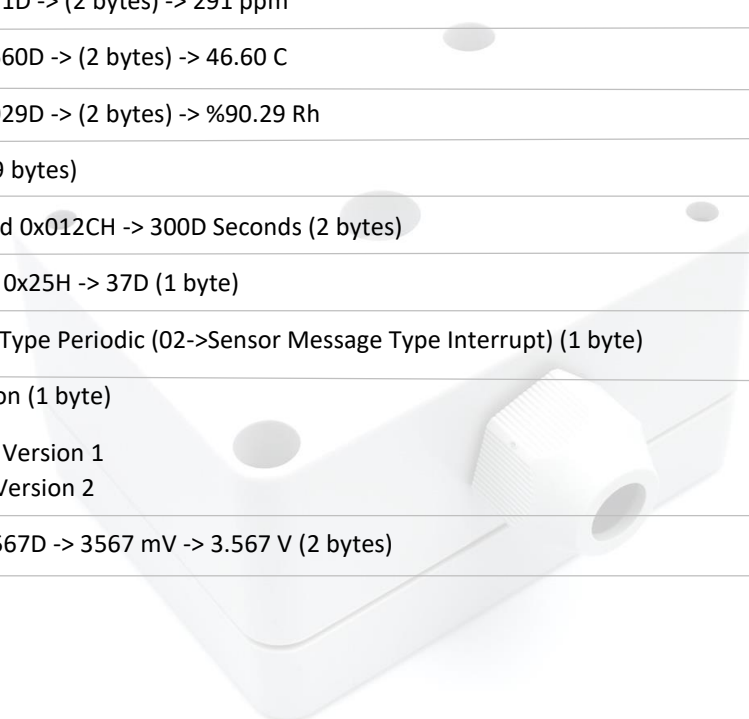
25: Payload Counter 0x25H -> 37D (1 byte)

01: Sensor Message Type Periodic (02->Sensor Message Type Interrupt) (1 byte)

12: Sensor FW Version (1 byte)

- i.Main Version 1
- ii.Sub Version 2

0DEF: 0x0DEFH -> 3567D -> 3567 mV -> 3.567 V (2 bytes)





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INFORMATION

01: Selected slot.

23: This slot determines the sensor type.

0123: Indicates that the amount of CO2 is 291 ppm.

1234: Subtract temperature value of 46.60 C.

2345: Humidity value is %90.29 Rh.

YYYY: Dummy data

012C: Sleep interval along 300S.

25: Data is live or not. Each measurement is incremented by degree.

01: When the sensor message 02 comes, it enters the interrupt.

12: Sensor firmware version 1.2

0DEF: Outputs the measurement in Volt (3.567V).

