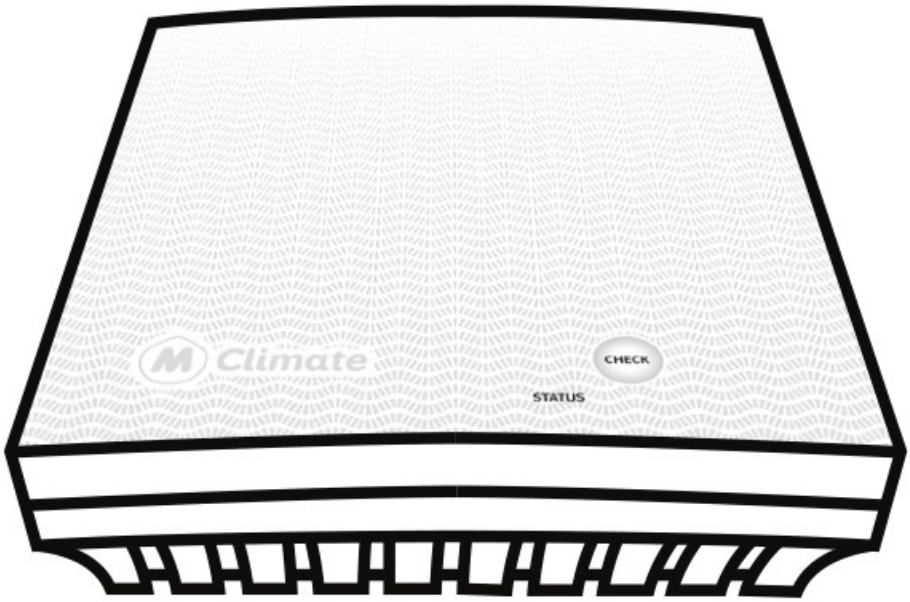
LoRaWAN MC-LW-CO2-01 Sensor and Notifier User Manual

LoRaWAN MC-LW-CO2-01 Sensor and Notifier

User Manual



MClimate CO2 Sensor and Notifier LoRaWAN®

User manual

Scan the QR Code to access MClimate CO2 Sensor and Notifier LoRaWAN®extended documentation

mclimate.eu/lorawan-resources

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Contents

Need some help?

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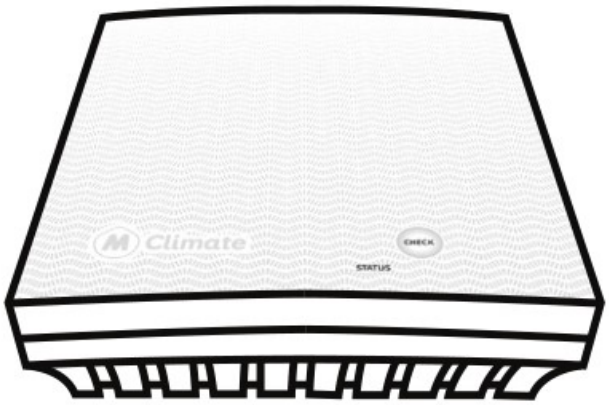
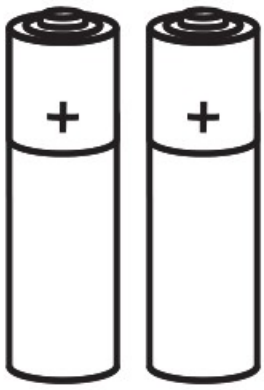
00359 800 3 1010
Monday-Friday 09:00 – 18:00

Sofia, Bulgaria
Sofia Tech Park,
labs building, floor 1

What's inside the box?



MClimate CO2 Sensor and
Notifier LoRaWAN®



2xAA Batteries
Energizer Lithium Ultimate L91

Technical specifications

Description: MClimate CO2 Sensor and Notifier

Model: MC-LW-CO2-01

Dimensions: 80 x 80 x 19mm

Weight: 69gr

Frequency range: 863÷870MHz

LoRaWAN® Device type: Class A End-device

Power supply: 2xAA batteries 1,5VDC

Sensors: NDIR CO2 sensor, temperature & humidity sensor

Work temperature: 0°C to +50°C

Material: ABS

Environmental conditions, in which the device is intended to operate:

- Indoor using;
- for altitude up to 2000m;
- for an ambient temperature:0°C to +60°C;
- for maximum relative humidity of 80% for temperature up to 31°C, decreasing linearly to 25% relative humidity at temperature 50°C;
- for environment with a degree of contamination 2 (PD2).

Storage and transportation conditions:

- for an ambient temperature:-40°C to +85°C;
- for relative humidity 5% to 90% without condensation

Manufacturer
MClimate Jsc, 1784 Sofia, Sofia Tech Park, Labs Building, 111J Tsarigradsko Shose

Compliance with the WEEE Directive
The appliance marked with this symbol should not be disposed of with other household waste. It must be handed over to the relevant collection point for the recycling of electrical and electronic equipment.

⚠ Safety Instructions

Please read the safety instructions before installing the device! Failure to follow the recommended instructions in this manual may be dangerous or in violation of the law. The manufacturer MClimate Jsc., is not responsible for any loss or damage caused by failure to follow the instructions in the operating manual.

Legal Notices

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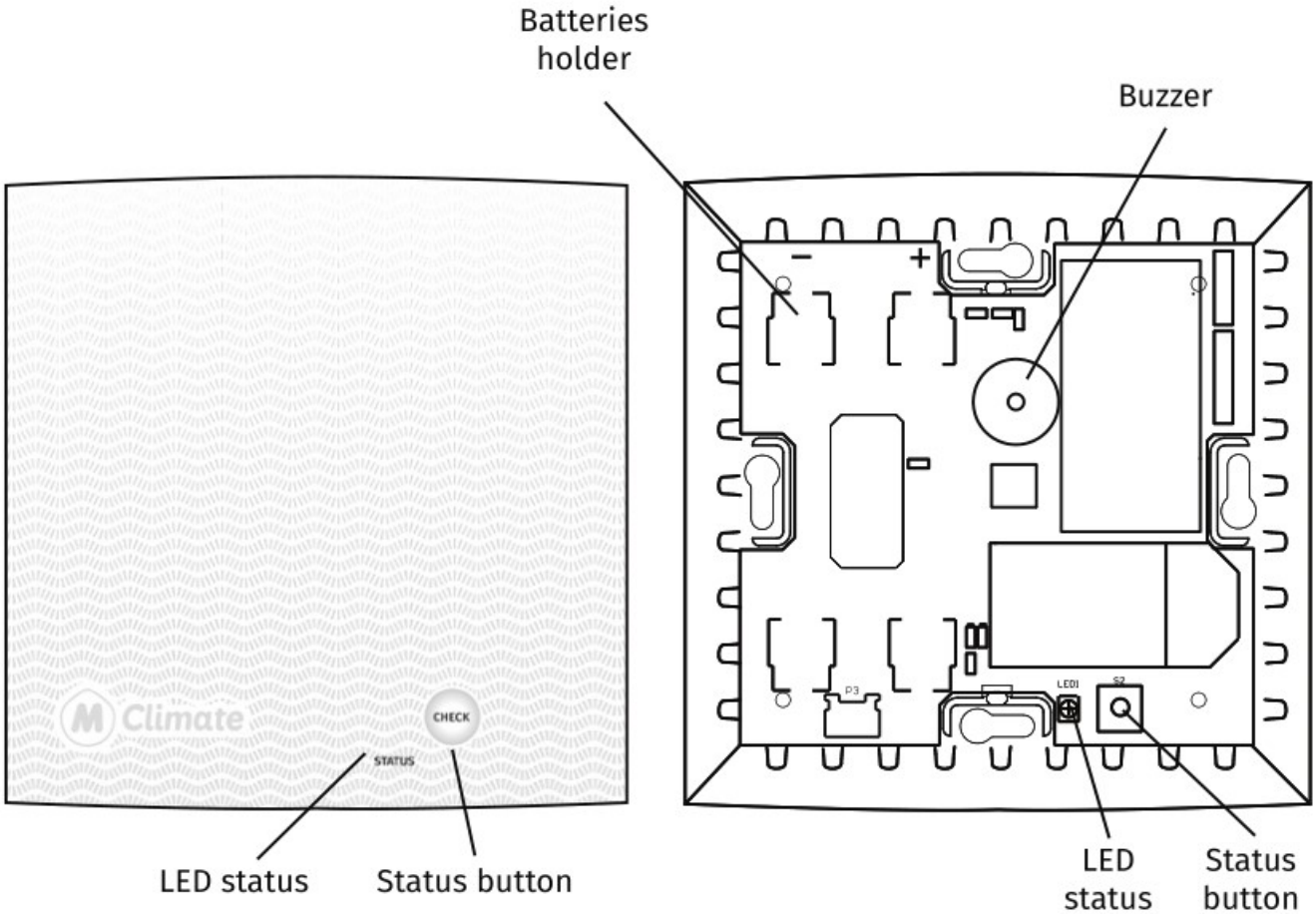
EU Declaration of Conformity
This device complies with the essential requirements and other applicable provisions of the following EU directives:

2014/53/EC, EN 50491-3:2009
EEU 300 220-1 V3.1.1:2017
EN 60950-1:2006+A11:2009 +A1:2010+A12:2011+
A2:2013 + AC:2015
EEU 300 220-2 V3.1.1:2017, EN 301 489-1

Compatibility

In order to operate MClimate CO2 Sensor and Notifier LoRaWAN®, you will need:
LoRaWAN® network
Battery (2xAA battery 1,5VDC)
Device operating voltage: 2.7 – 3.6VDC

Device parts



Assembled MClimate CO2 Sensor and Notifier LoRaWAN®, top view

Disassembled MClimate CO2 Sensor and Notifier LoRaWAN®, top view

Calibration

The device comes pre-calibrated with ABC algorithm enabled. By default, the ABC algorithm is based on a 8-day period. It keeps a log of the minimum measured CO2 in ppm and at the end of the period considers the minimum value as if it was 400 for the next period. Meaning – if during the previous period the minimum measured CO2 was 430ppm, in the next period this value will be measured as 400ppm.

The ABC auto-calibration is a standard practice in the industry and is applicable for places with non-constant occupation. If a place is constantly occupied (e.g. manufacturing plant), you have to disable the ABC algorithm.

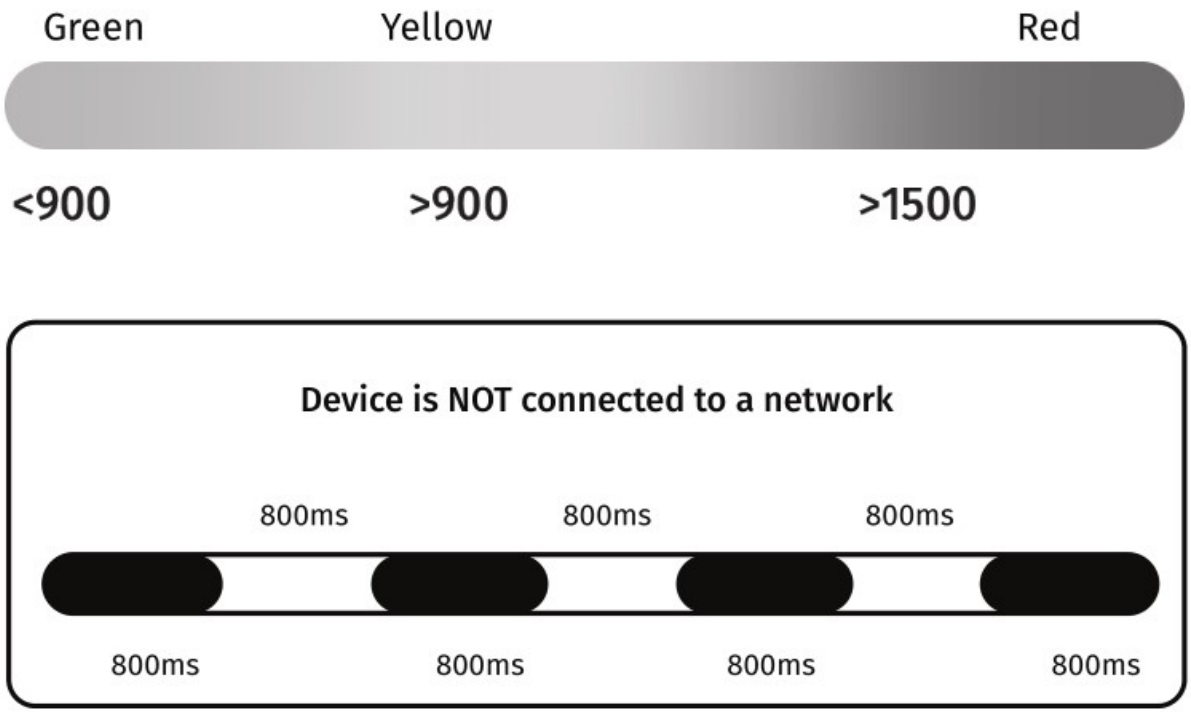
Apart from the ABC algorithm, if the device measures a value below 400ppm, it will run the ABC algorithm immediately, as CO2 values below 400ppm (background level) are considered impossible for smart building applications.

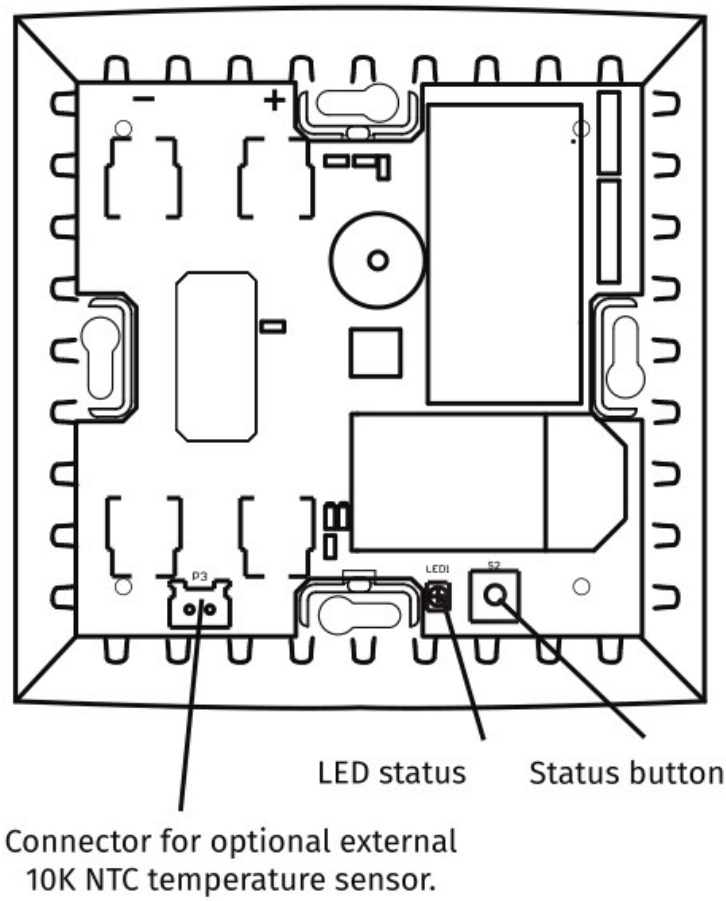
LED, Buttons and behaviour

When you press the button, the device indicates the current:

1. CO2 Level
– Green: Good CO2 levels (less than 900ppm by default)
– Yellow: Medium CO2 levels (>900ppm and <1500ppm)
– Red: Bad CO2 levels (>1500ppm)

2. Connection status
– Constant indication: The device is connected to a LoRaWAN® network





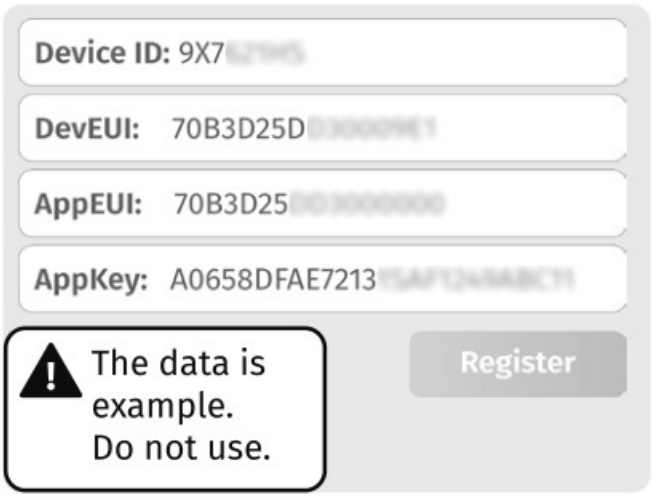
Warning: CO2 levels thresholds as well as the color of the indication can be changed through a downlink command.

Acoustic alarm: The acoustic alarm activates when the CO2 reading is in medium or bad level. By default, the acoustic alarm is disabled.

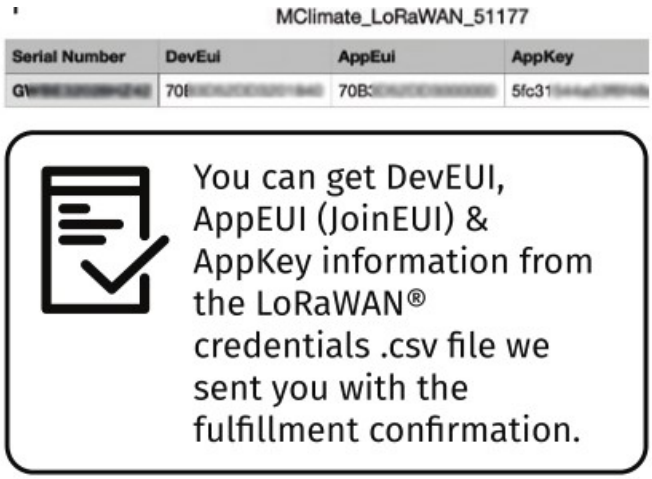
Warning: Acoustic notification behavior can be changed with a downlink command!

Commissioning

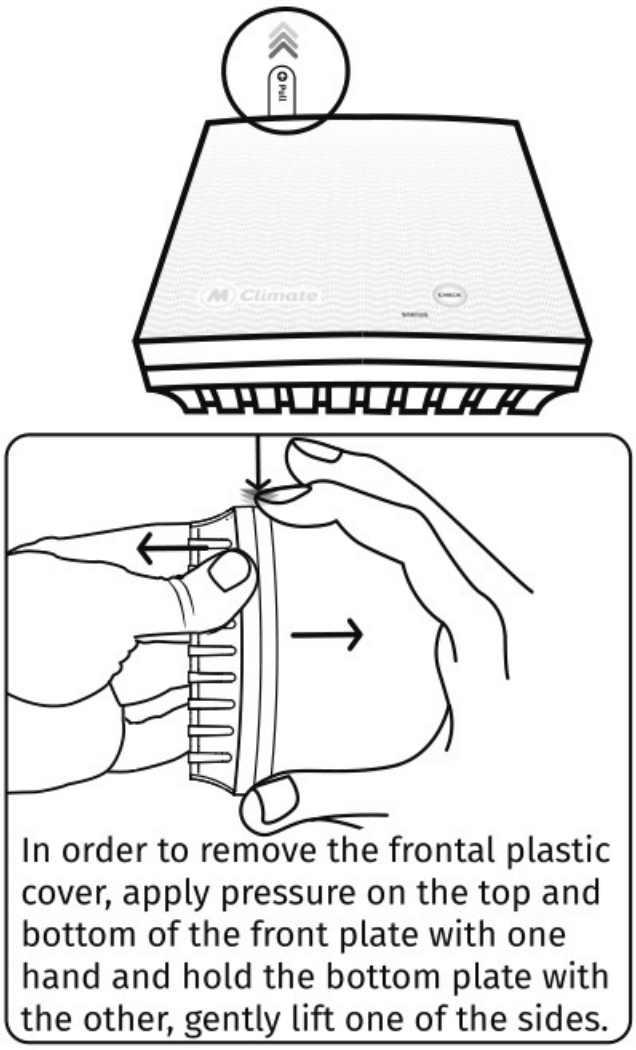
1. Open your LoRaWAN® Network provider access panel and add the device using the supplied Serial Number, DevEUI, AppEUI (JoinEUI) and AppKey.



2. Continue the Installation with the instructions of your LoRaWAN® Network provider.



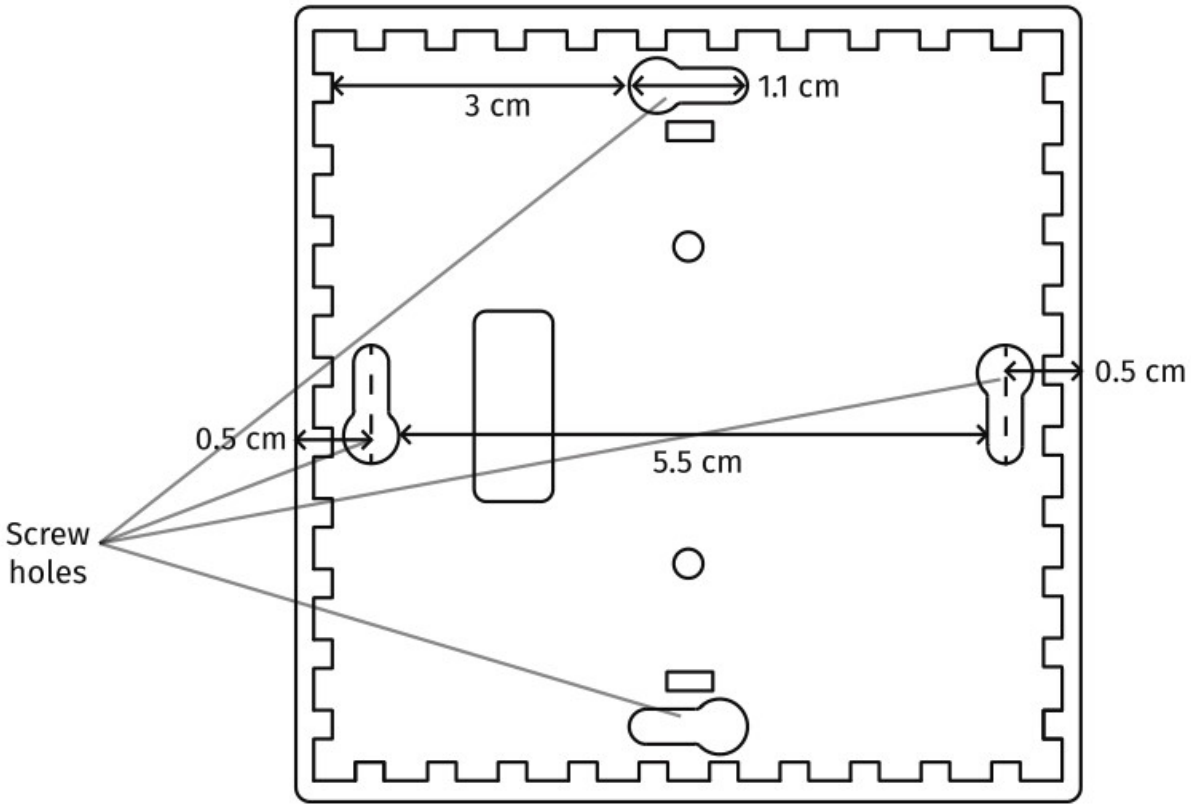
3. After pulling away the protective film from the batteries, the device will automatically connect to the network. In order to see whether the device has connected to the network, please check LED, Buttons and behaviour.



Installation

We recommend installing the device in an open environment (e.g. not in a recess) at 1.5m height. Do not install the device near air vents as it will negatively impact the CO2 measurements. Avoid large metal parts as it will worsen the RF performance. Use double-sided tape to attach it or remove the frontal plastic cover and use screws to attach it in a more permanent manner.

We recommend installing the device so that the QR code with the serial number stays on the bottom-right side of the device in order to ensure good measurements.

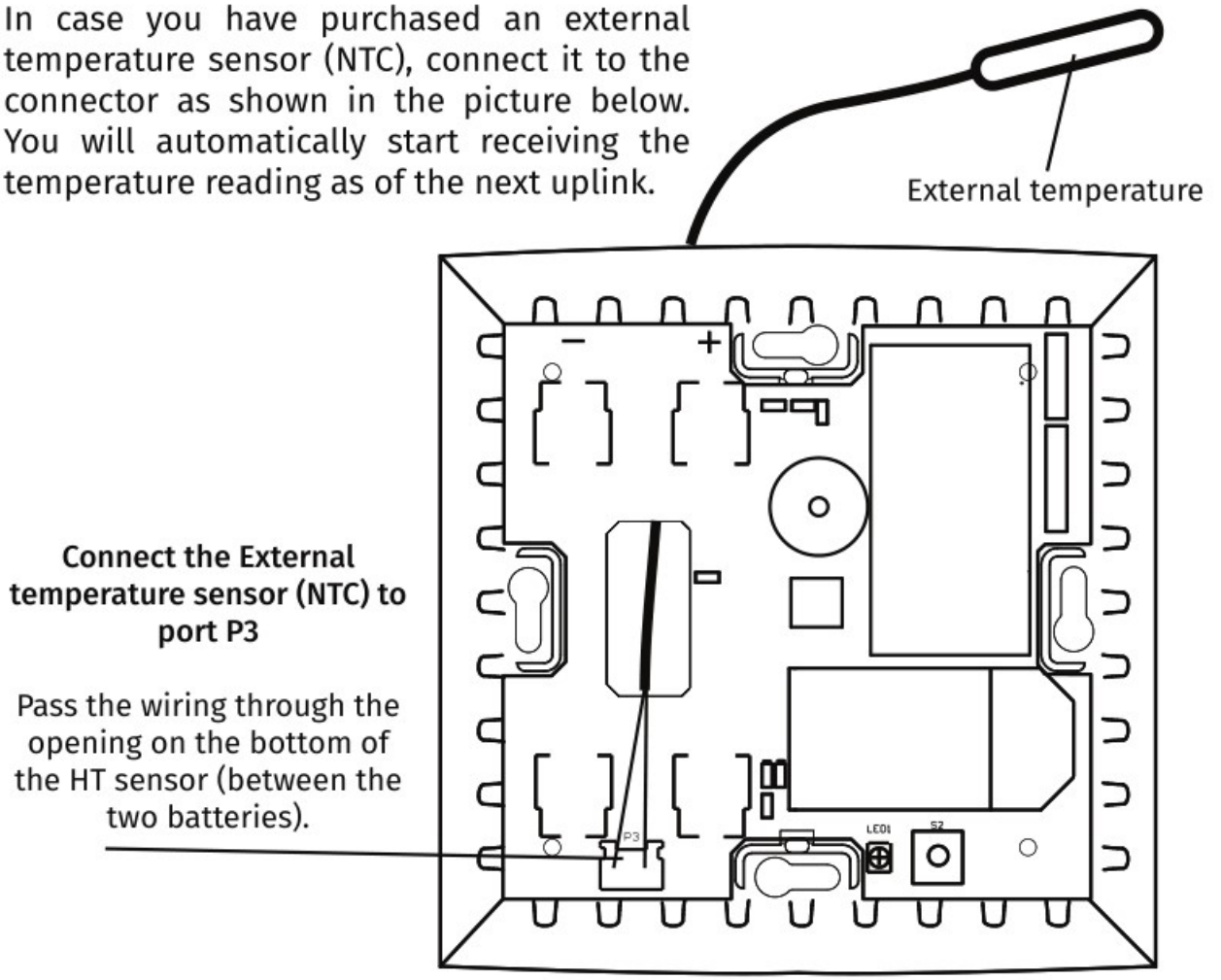


Disassembled MClimate CO2 Sensor and Notifier
LoRaWAN®, back view

Installation of external temperature sensor (NTC)

MClimate CO2 Sensor measures ambient temperature and relative humidity using a digital temperature sensor. The device also supports installing an additional temperature sensor (NTC) in cases where you want to monitor e.g. pipe surface temperature.

In case you have purchased an external temperature sensor (NTC), connect it to the connector as shown in the picture below. You will automatically start receiving the temperature reading as of the next uplink.



Disassembled CO2 Sensor, top view

www.mclimate.eu

Designed & Manufactured by MClimate in Europe.
last update: 29.05.2024

Documents / Resources

	**LoRaWAN MC-LW-CO2-01 Sensor and Notifier** [pdf] User Manual MC-LW-CO2-01, MC-LW-CO2-01 Sensor and Notifier, MC-LW-CO2-01, Sensor and Notifier, Notifier

References

- **LoRaWAN Resources | MClimate**
- **User Manual**