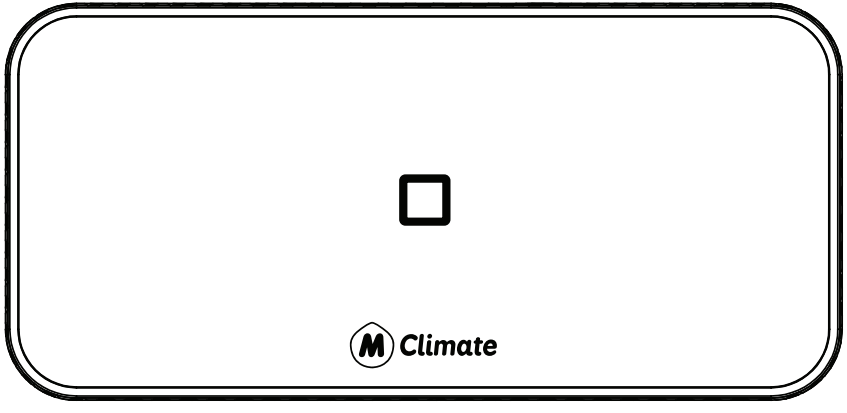


MClimate CO2 + PIR lite LoRaWAN®

User manual

Scan the QR Code to access MClimate CO2 + PIR lite LoRaWAN® extended documentation

mclimate.eu/lorawan-resources

Bulgarian

За да разберете как се инсталира MClimate CO2 + PIR lite LoRaWAN®, сканирайте QR кода или посетете линка до него.

Italian

Per installare MClimate CO2 + PIR lite LoRaWAN® scannerizzare il codice QR oppure aprire il link al suo lato.

Swedish

För att ta reda på hur du installerar MClimate CO2 + PIR lite LoRaWAN®, skanna QR-koden eller besök länken bredvid den.

Czech

Chcete-li zjistit, jak nainstalovat MClimate CO2 + PIR lite LoRaWAN®, prohlédněte si kód QR nebo navštivte odkaz vedle něj.

Polish

Aby dowiedzieć się, jak zainstalować MClimate CO2 + PIR lite LoRaWAN®, zeskanuj kod QR lub odwiedź link obok niego.

Finnish

Tutustu MClimate CO2 + PIR lite LoRaWAN®-laitteen asentamiseen, skannaa QR-koodi tai vierailla sen vieressä olevassa linkissä.

German

Um herauszufinden, wie man MClimate CO2 + PIR lite LoRaWAN® installiert, scannen Sie den QR-Code oder besuchen Sie den Link daneben.

Dutch

Om te weten te komen hoe u MClimate CO2 + PIR lite LoRaWAN® installeert, scan de QR-code of bezoek de link ernaast.

Need some help?

For more product information and issues related to it, visit:
mclimate.eu/lorawan-resources
or write us to:
lorawan-support@mclimate.eu

French

Pour savoir comment installer MClimate CO2 + PIR lite LoRaWAN®, scannez le code QR ou visitez le lien à côté de celui-ci.

Spanish

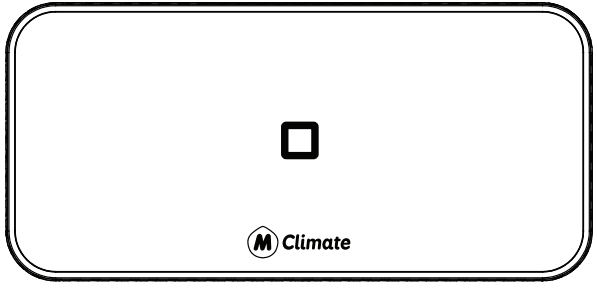
Para saber cómo instalar MClimate CO2 + PIR lite LoRaWAN®, escanee el código QR o visite el enlace al lado.

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

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

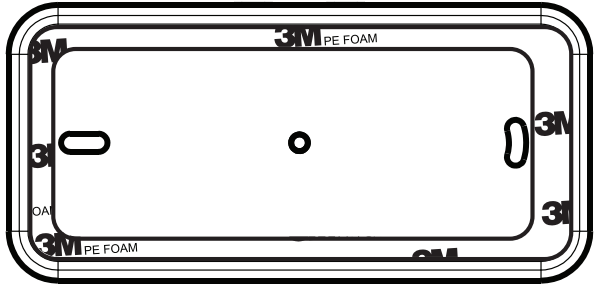
Table of content

What's inside the box?

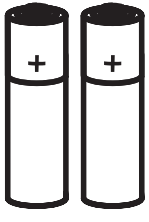


MClimate CO2 + PIR lite LoRaWAN®

Secure bolt



Wall mounting plate with 3M



2xAA Batteries
Energizer Lithium
Ultimate L91

Technical specifications

Description: MClimate CO2 + PIR lite LoRaWAN is a stand-alone sensor powered by 2xAA batteries lasting for up to 15 years with the default configuration. The device features NDIR CO2 sensor, PIR (occupancy) sensor, as well as temperature and humidity sensors. The data from the CO2 + PIR lite can be used in any LoRaWAN compatible system, incl. Building Management Systems to control demand-based ventilation. Sensor information can be exposed as datapoints in Modbus, BACnet and KNX systems through the use of a special gateway.
SKU: MC-LW-LITE-CO2+PIR-01
Dimensions: 122mm x 58mm x 22mm
Weight: 75gr
Materials: PC/ABS
Frequency range: 863÷870MHz
Power supply: 3VDC, 2xAA 1.5VDC Energizer Ultimate Lithium AA
Sensors: CO2 (NDIR), PIR, Temperature, Humidity
Working temperature: 0°C to +50°C
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

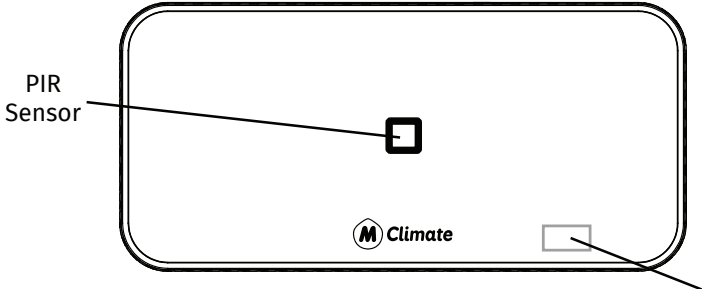
Please read the safety instructions before installing the device! Failure to follow the recommended instructions in this manual may be dangerous or in violation of the law. The manufacturer MClimate Jsc., is not responsible for any loss or damage caused by failure to follow the instructions in the operating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

Legal Notices
All information, including but not limited to, features, functionality, and / or other product specifications are subject to change without notice. MClimate retains all rights to review or update its products, software or documentation without being required to notify any natural or legal person.
The MClimate and MClimate logo are trademarks of MClimate Jsc. All other brands and product names mentioned herein are trademarks of their respective owners.
EU Declaration of Conformity
This device complies with the essential requirements and other applicable provisions of the following EU directives:

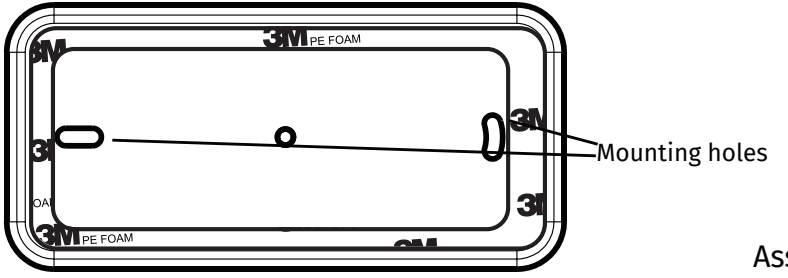
2014/53/EU (RED)
EN 300 220
2014/30/EU (EMC)
EN 55032
2014/35/EU (LVD)
EN 63044
EN 62368

Compatibility
In order to operate MClimate CO2 + PIR lite LoRaWAN®, you will need:
LoRaWAN® network

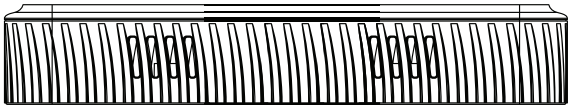
Device parts



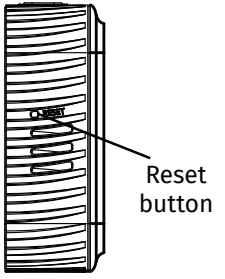
Assembled MClimate CO2 + PIR lite LoRaWAN®, front view



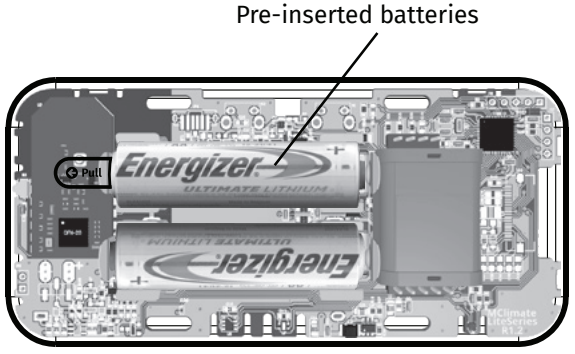
Assembled MClimate CO2 + PIR lite LoRaWAN®, back view



Assembled MClimate CO2 + PIR lite LoRaWAN®, top view

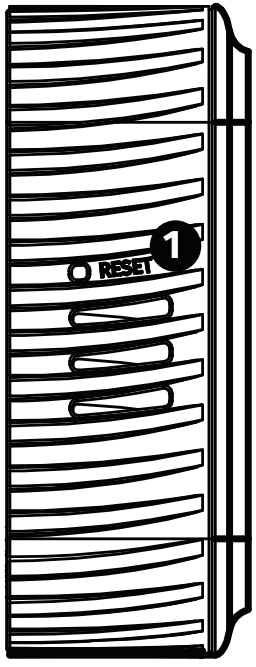


Assembled MClimate CO2 + PIR lite LoRaWAN®, side view



Disassembled MClimate CO2 + PIR lite LoRaWAN®, back view

Buttons



#	Button	Function
1	**Reset** If you click the Reset button, you will do two things at once: - Check the status of the LoRaWAN connectivity - Measure current CO2 levels and trigger recalibration if needed.	When pressed for 10s the device resets, triggering a Join Request on SF12. Performing a Reset IS NOT equal to factory reset. All configured parameters are preserved. When pressed quickly, the LED shows the LoRaWAN connectivity status and the device checks the CO2 levels.

Behavior

Start-up behavior

The device starts when you insert the two AA batteries or when you remove the batteries pull tab. Power-on is indicated by the Status LED lighting up for 2s.

The device immediately sends a LoRaWAN Join-Request on SF12. While it is waiting for a Join-Accept from the LNS, the Status LED blinks briefly every 1s.

If the join procedure has been successful, the LED shows solid color for 3 seconds.

If you click the Reset button, you will do two things at once:
- Check the status of the LoRaWAN connectivity
- Measure current CO2 levels and trigger recalibration if needed.

Using the Reset button during installation
If you observe the Status led after you initially power-on the device, you won't have to use the Reset button to check the LoRaWAN connectivity status.

- If you are servicing a site and need to understand if the device is connected to the LoRaWAN network, you can press the reset button briefly.

- If it shows solid indication for 3 seconds, then it is connected to a LoRaWAN network.

- If blinks briefly every 1s, it means that the device has not received a Join-Accept from the LoRaWAN network.

Data transmissions

Once joined, the device will execute two types of transmissions:
- Periodic, as configured
- When the Reset button is clicked.

All transmissions are subject to complying with the duty-cycle limitations of LoRaWAN end-devices.

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.

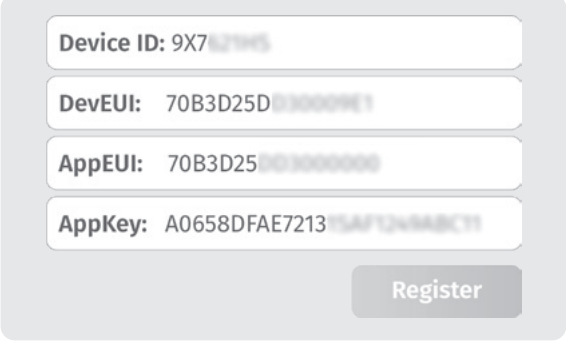
The ABC auto-calibration is a standard practice in the industry and is applicable for places with non-constant occupation. If a place is constantly occupied (e.g. manufacturing plant), you have to disable the ABC algorithm.

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.

Commissioning

Before you install the device, we highly recommend that you first commission it on your LNS. Once the the device is powered on, the device will initiate a LoRaWAN Join Procedure on SF12. Please, make sure you enable ADR in your LNS and/or mark the device as static. The lower the spreading factor, the better the battery life will be.

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



The data is example. Do not use.

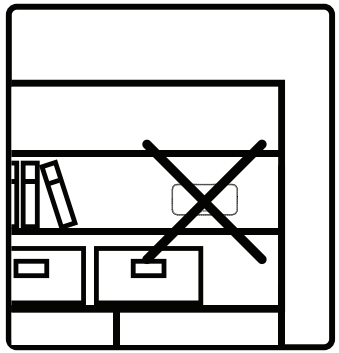
2 Continue the Installation with the instructions of your LoRaWAN® Network provider.

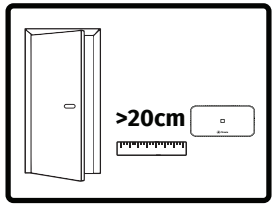
MClimate_LoRaWAN_51177

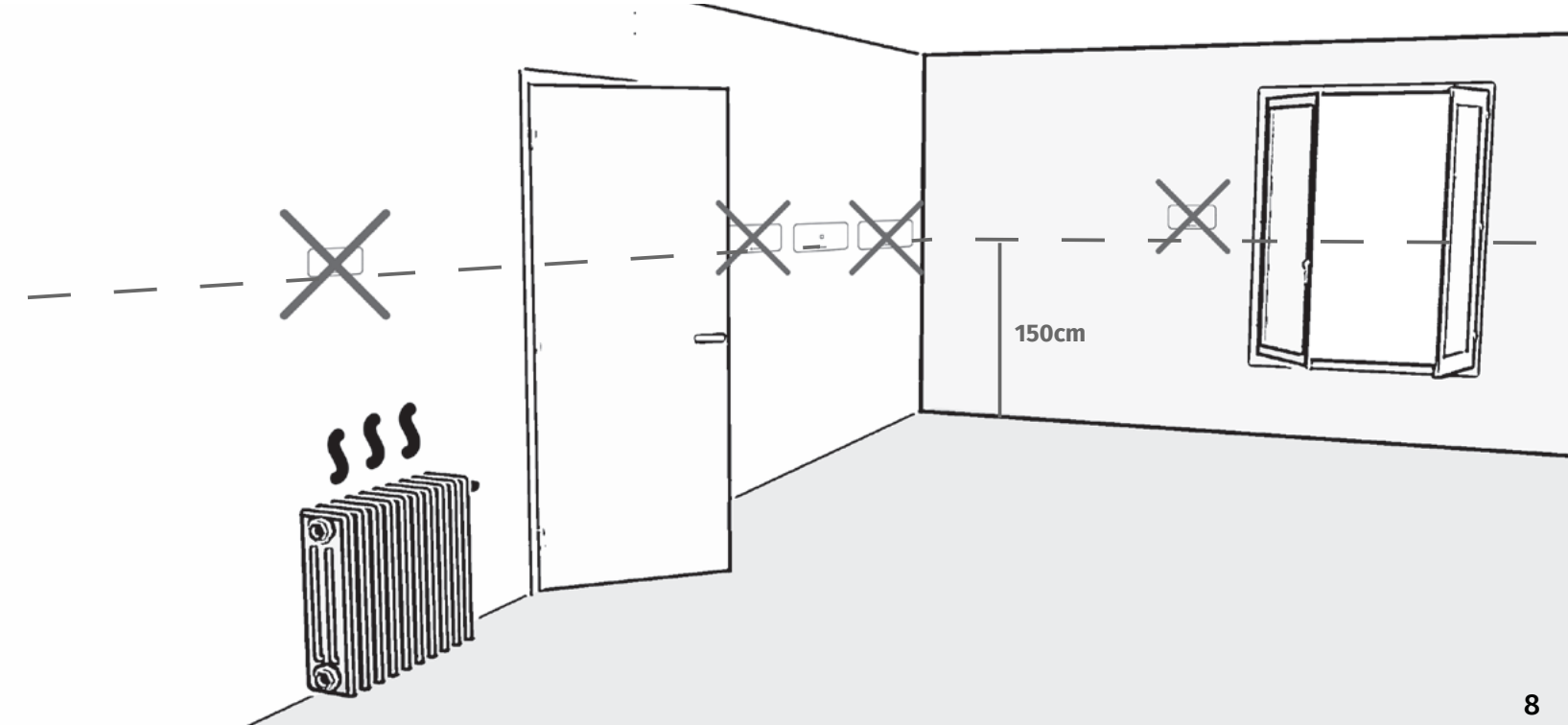
Serial Number	DevEui	AppEui	AppKey
GV	70B	70B3	5fc31

You can get DevEUI, AppEUI (JoinEUI) & AppKey information from the LoRaWAN® credentials .csv file we sent you with the fulfillment confirmation.

Placement guidelines



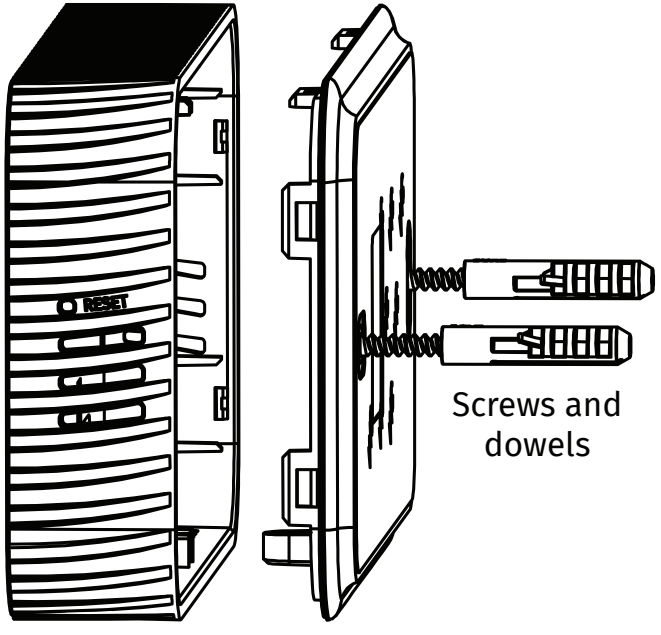




Installation

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 big metal items as it will worsen the RF performance. Use double-sided tape to attach it to the surface or screws and dowels to attach the wall-mounting plate in a more permanent manner.

Once you've secured the wall-mounting plate either with the included 3M tape or with screws and dowels, place the main device part on top and press until it clicks in place.



MClimate

We make any building **smart.**

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Designed & Manufactured by MClimate in Europe.

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