



MCF-LW12CO2E constantly checks and reports the air quality of classrooms, offices and closed rooms in real time. A small sensor that helps the community to live better.



MCF-LW12CO2E

The advanced multi-sensor that improves your indoor environment

Quality of life is directly affected by the quality of the indoor air that we are forced to breathe. Very often, without realizing it, we stay still for a long time in places that jeopardize the health of our airways and whole bodies. Knowing the level of key factors such as CO₂, temperature, density of volatile organic compounds, pressure, means being able to intervene if tolerable thresholds are exceeded. This prevents the consequences such as the increased risk of spread of Covid-19. It also helps put in place energy saving procedures. With this innovative sensor it is possible to constantly monitor six parameters, programming the alert thresholds, the time frequency of the monitor and the notification systems. Now the three traffic light LEDs (with adjustable brightness)

display the air quality in a simple and immediate way, based on CO₂, bVOC or both, with four thresholds that can be configured via NFC or remotely. The device has a long-lasting battery guarantee: even with poor radio coverage a minimum activity of four years without any maintenance on the device. It is also possible to easily create a network of sensors by connecting them to a Cloud for integrated and comparative management of the environments to be monitored. The device uses the LoRaWAN[®] standard, which combined with the functional test and calibration of each sensor before delivery, and the ability to update the firmware via NFC, make this device reliable, safe and lasting, suitable for professional applications.



CO₂ levels reflect COVID-19 risk

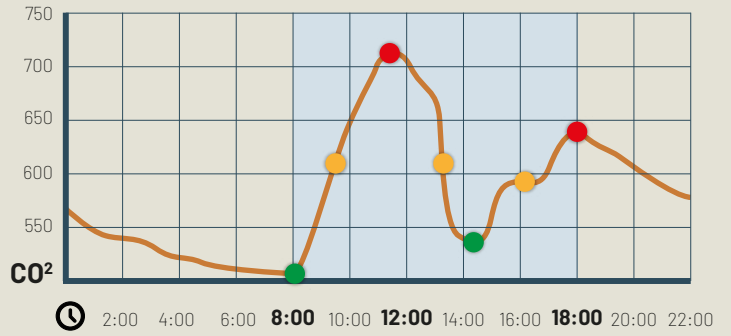
A recent research published by the University of Colorado in Boulder confirms this. According to this study, monitoring carbon dioxide indoors is an inexpensive but powerful way to control the risk of people becoming ill with Covid. It has been shown that excess CO₂ increases the risk of virus transmission.

Source: www.sciencedaily.com/releases/2021/04/210407143809.htm



Application examples

A university with many classrooms, some with high attendance or long stays. Each classroom has its own sensor installed. The properly adjusted thresholds act directly on LoRaWAN® devices that control the mechanized opening of windows (actuators), on the parameters of the air conditioning system, on the speed of the forced ventilation fans and on the brightness of artificial lighting. In this way, the temperature and air quality of each room (as well as the lighting) are constantly adjusted, improving the comfort of the rooms, avoiding waste of energy, and reducing the number of manual interactions with windows and HVAC.



Applications

- Schools, universities, kindergartens
- Public and private offices
- Meeting rooms
- Hospitals
- Waiting rooms
- House of worship
- Museums and exhibitions

Measures

- CO2
- VOC (Volatile Organic Compound)
- Pressure
- Temperature
- Light
- Humidity

Specifications

- Cortex M0 + CPU
- EEPROM 32Kb
- 64k flash
- AES 128 bit encryption
- LoRaWAN® stack class A 1.0.2 EU868, AS923, AU915 and US915
- Temperature $-10 \div 60 \text{ } ^\circ\text{C}$ ($\pm 0.5^\circ\text{C}$)
- Humidity $0 \div 100\%$ ($20 \div 80\% \pm 3\%$ @ 25°C , $0 \div 20\% - 80 \div 100\% \pm 5\%$ @ 25°C)
- Pressure $300 \div 1100\text{hPa}$ ($\pm 1\text{hPa}$)
- Light sensor $0.01 \div 80000 \text{ lux}$ ($\pm 15\%$)
- IAQ index $0 \div 500$
- bVOC $500\text{ppb} \div 16700\text{ppm}$ (sensor to sensor deviation $\pm 15\%$)
- CO2 $300 \div 5000 \text{ ppm}$ ($\pm 50\text{ppm} \pm 3\%$ of reading)
- 3 traffic light LEDs for air quality display (CO2, bVOC or both) with adjustable brightness
- 4 configurable thresholds for LEDs driving and real time measurement message
- Battery powered with 4 years of battery life (SF = 12, 10 minutes reading period)
- Battery capacity (included) 21600mAh
- NFC for node configuration, FW update and data reading
- Indoor installation
- Storage temperature $-20 + 80^\circ\text{C}$
- Operating temperature $-10 + 60^\circ\text{C}$
- Dimensions: $120 \times 80 \times 25\text{mm}$
- Weight $\sim 225\text{g}$