

Description

This sensor gives information concerning carbon dioxide (CO2) concentration levels, essential element in air quality monitoring and control in occupied buildings. Changes in concentration of this gas are difficult for humans to recognize. The gas is safe in low concentrations (typically <1000ppm), however prolonged exposure at moderate levels can lead to a range of health related problems such as sick building syndrome causing fatigue like symptoms, effects are most notable in children -kindergartens, schools- due to their higher metabolic activity.

Current and incoming legislation requires CO2 gas monitoring within building environments for optimal control of air quality. Moreover, such CO2 gas monitoring is employed within demand control ventilation systems used for building heating ventilation and air conditioning.



Application Areas

- Indoor Air Quality Measurement in Offices, Schools, hotels and residential areas
- DCV- Demand Controlled Ventilation for energy savings
- HVAC applications for building management
- Home air quality control

Technical Specifications

CO2 specification		Outputs	
Type of Measurement	NDIR -non dispersive infrared technology-	wireless version	EnOcean EEP profile A5-09-04 Concentration increment (linear): 10 ppm
Sensor Type	dual wavelength		Databyte 2 (scale 0...255) 0 bit - 0 ppm 255 bit- 2550 ppm
Measurement Range	400 – 2,550 ppm CO2 by volume		
Resolution	< 20 ppm CO2		
Accuracy	± 5% of reading	Radio Regulations	R&TTE EN 300 220 (TCM 310)
Pressure Dependence	0.13 % of reading per mm Hg		
Response Time	< 3 minutes for a 90% step change		
Warm up Time	< 30 seconds operational < 15 minutes full accuracy		

Thresholds:

PPM1	●	Level 1: green x < 500 ppm
PPM2	✱	Level 2: green flashing when 500 ≤ ppm < 700 ppm
PPM3	●	Level 3: yellow when 700 ≤ ppm < 1200 ppm
PPM4	✱	Level 4: yellow flashing when 1200 ≤ ppm < 1800
PPM5	●	Level 5: red when 1800 ≤ ppm < 2500
PPM6	✱	Level 6: red flashing when ppm ≥ 2500 ppm

Hysteresis for the threshold/level values:

Levels 1,2,3: ± 30 ppm
Levels 4,5,6: ± 80 ppm

Time-Interval

Measuring period: every 1 minute

Transmission Measured Value – Trigger Event:

- ⇒ Heartbeat: if not concentration changes, 4 min by default
- ⇒ Change of value over threshold: if there is ± 40 ppm variation always sending

Electrical Specifications

Power supply SELV 24Vdc (7-28Vdc)

Power consumption 14-45 mA

Operating Temperature 0 ~ +40° C

Storage Temperature -20 ~ + 50 °C

Operating Humidity 0 ~ 95% non-condensing

Electrical connection screw terminals max. 1.5 mm²

EMC EN 61000-6-3, EN 60730-1:2002

General Specifications

Regulatory Compliance CE Mark: EMC 2004/108/EC, LVD 2006/95/EC, RoHS 2011/65/EU, WEEE 2012/19/EU CFR47, Part15 Class A

Product safety 2001/95/EC

Material of housing ABS

Protection Class IP20

Color housing White - RAL 910

Dimensions 71x71x23.5 mm

2.79x2.79x0.93 "

Weight 0.076 kg

Learning process:

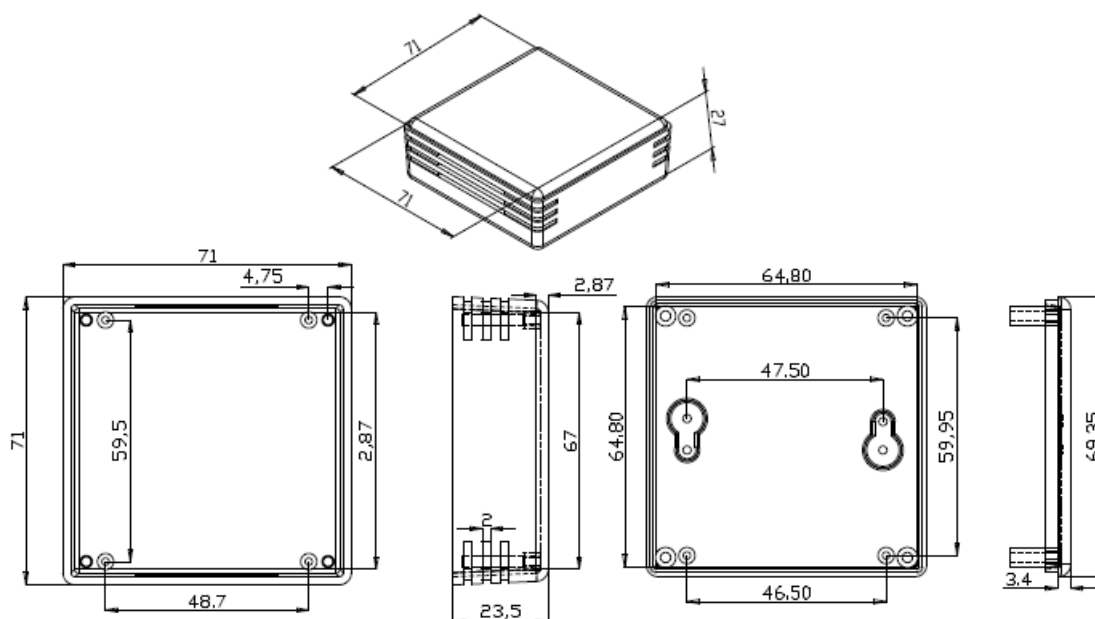


S3-LRN button

When the sensor is connected to the power, the 3 LED lights of the device are flashing . After a few seconds 5-10 sec. when all LEDs are lit, the sensor starts the measurements and just 1 LED is going ON according with the status of the Air Quality (see *Thresholds values*)

If you desire to start the **learning process** to link with an EnOcean Receiver/gateway **you should press the S3-LRN button** on the PCB (see *figure*).

Housing Dimensions (mm)



Warnings & Troubleshooting Considerations:



Polarity connection of the power +/- must be observed!



Don't touch and don't cover the CO2 cuvette module!



When start up if all LEDs are permanently ON means: ●●●
Wrong CO2 measurements, module fault, CO2 module COMMUNICATION ERROR!

