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
Sensor Type	dual wavelenght		Databyte 2 (scale 0…255) 0 bit - 400 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	●	Level1: 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:
$\Rightarrow$ if not concentration changes: 4 min by default
$\Rightarrow$ if there is ± 40 ppm variation always sending

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Wireless EnOcean CO2-Sensor, 868MHz 230Vac / Typ CO2-RW / Art.-No. 2180 153

Electrical specifications

Power supply	230Vac (113-311V absolute maximum ratings)
Power consumption	14-45 mA
Operating Temperature	0 ~ +40º C
Storage Temperature	-20 ~ + 50 ºC
Operating Humidity	0 ~ 95% non-condensing
Electrical connection	screw terminals max. 1.5 mm2
EMC	EN 60730-1:2002

General specifications

Regulatory Compliance	CE Mark: EMC 2004/108/EC, RoHS 2011/65/EU, WEE CFR47, Part15 Class A
Product safety	2001/95/EG
Material of housing	ABS
Protection Class	IP20
Color housing	White
Dimensions	80x80x25 mm 3.15x3.15x0.98 "
Weight	0.93 kg

Installation Diagram


Housing Dimensions (mm)
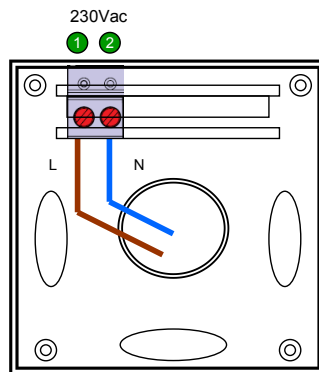
Learning process:

When the sensor is connected to the power the device sends a learning telegram with profile indication. On this moment you can link it with the appropriate EnOcean receiver. If you observe the sensor by front, learn telegram is sent when the 3 LED lights is 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.

If you desire to start the learning process again to link with another receiver you have to power on again the sensor. Every time that the sensor starts up due to power on, it launches a learning telegram after a few seconds –aprox. 5s -
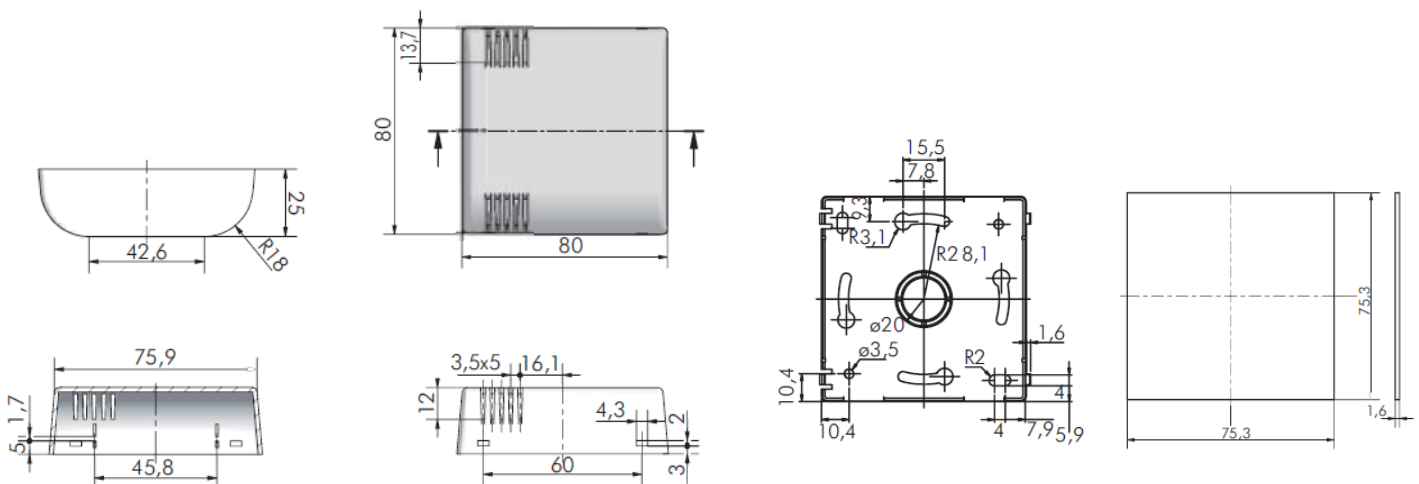
Warnings & Troubleshooting Considerations:

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

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