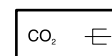


EGQ 281: Room transducer, CO₂, recessed



EGQ281F031



How energy efficiency is improved

Measuring the CO₂ concentration for energy-efficient control of the room climate

Features

- CO₂ sensor for continuous measurement of the CO₂ concentration for the demand-controlled ventilation of rooms (e.g. meeting rooms, conference rooms, offices, classrooms, etc.)
- CO₂ measurement with NDIR dual-beam technology¹⁾, therefore stable in the long term and resistant to external influences
- Any ageing or contaminating effects are continuously compensated in real time
- Very fast response to changes in the CO₂ concentration in rooms
- Temperature-compensated calibration for the standard air pressure of 1013 mbar
- Calibrated ex works and ready to use immediately
- Low energy requirement of the ventilation system during the warming up time of the sensor
- Including frame

Technical data

Power supply		
	Power supply (SELV)	15...24 V= (±10%) / 24 V~ (±10%)
	Power consumption	< 1.6 W (typ. 0.3 W) < 3.9 VA (typ. 0.7 VA)
Output signal		
	Analogue output	0...10 V
	Load current	Max. 10 mA
Parameters		
	Measuring range	0...2000 ppm
	Measuring accuracy	< ±50 ppm 2% of the measured value (25 °C and 1013 mbar)
	Time constant	< 195 s (t ₉₀)
	Measuring cycle	15 s
	Long-term stability	Typ.20 ppm/year
Ambient conditions		
	Ambient temperature	-20...70 °C
Construction		
	Housing	Pure white
	Housing material	Lower section: PA6 Front plate: PC
	Frame design	Gira E2
	Weight	90.0 g
Standards and directives		
	Type of protection	IP30 (EN 60529)
CE conformity according to	EMC Directive 2014/30/EU	EN 60730-1 (mode of operation 1, residential premises)
	RoHS Directive 2011/65/EU	EN 50581
Overview of types		
Type	Description	
EGQ281F031	Room transducer, CO ₂ ; 0...10 V, recessed	

Description of operation

Room transducer for measuring the CO₂ concentration in residential premises, offices etc.

¹⁾ NDIR: Non-dispersive infrared sensor

The CO₂ measuring principle is based on the dual-beam reference measuring process. As the CO₂ concentration in the air increases, more infrared light is absorbed. The electronics unit calculates the CO₂ concentration from this and converts it to a 0-10 V signal. Along with the actual CO₂ measurement on the first channel, a reference is also measured on a second channel. The CO₂ signal is offset against this reference signal. This compensates in real time for any ageing or contamination effects. The CO₂ sensor does not require any fresh outside air for repeated calibration and is therefore not affected by outside climatic conditions or air pollution. The maximum measuring accuracy is reached after 30 minutes. It is important that the air flows along the wall up through the device at a speed of 0.15 m/s. The CO₂ output signal is not activated until after the standby phase. During the warm-up-phase, the CO₂ output signal is not available.



The CO₂ sensor operates in pulse mode. This means its power consumption is not constant. To prevent measurement errors, it is very important to carefully connect the ground wire. (See the note in the fitting instructions)

Intended use

This product is only suitable for the purpose intended by the manufacturer, as described in the "Description of operation" section.

All related product regulations must also be adhered to. Changing or converting the product is not admissible.

This product is not suitable for safety applications.

Engineering and fitting notes



CAUTION!

Damage to device!

► Electrical devices may only be installed and fitted by a qualified electrician!

When you are running the cables, note that electrical interference can affect the measurements. These effects increase the longer the cable and the smaller the conductor cross-section. In high-interference environments, we recommend using shielded cables.

On devices with controlling units (signal generators, transmitters etc.), it must be ensured that the device receiving the signal (actuator or other equipment) does not enter a damaged or dangerous state as a result of faulty signals during assembly and configuration of the control unit. Completely disconnect the signal receiver from the power supply if necessary.

Information on room air quality and CO₂

DIN EN 13779 defines various classes for room air quality in non-residential buildings:

Category	CO ₂ concentration above concentration in outside air in ppm		Description
	Usual range	Standard value	
IDA1	< 400 ppm	350 ppm	High room air quality
IDA2	400...600 ppm	500 ppm	Medium room air quality
IDA3	600...1000 ppm	800 ppm	Moderate room air quality
IDA4	> 1000 ppm	1200 ppm	Low room air quality



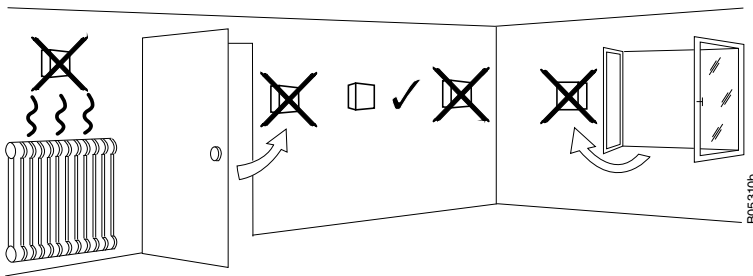
Note

Too much dust in the air can impair the air circulation in the CO₂ sensor and cause measurement errors.

Fitting

The EGQ 281 is suitable for recessed mounting. For further information, see the fitting instructions. Incorrect fitting can result in incorrect measuring results. Therefore, always observe the fitting instructions. The place of installation must also be chosen carefully to ensure reliable measurement of the CO₂ concentration. Cold outer walls and fitting above heat sources (radiators, for example) and right next to doors with draughts must be avoided, as well as direct sunlight. Furnishings, such as curtains, cabinets or shelves, can hinder the flow of room air to the sensor and thereby cause discrepancies in

the measurements. Heating pipes inside the walls can also affect the CO₂ measurement. Do not use silicone or similar materials to seal the pipes in the wall.

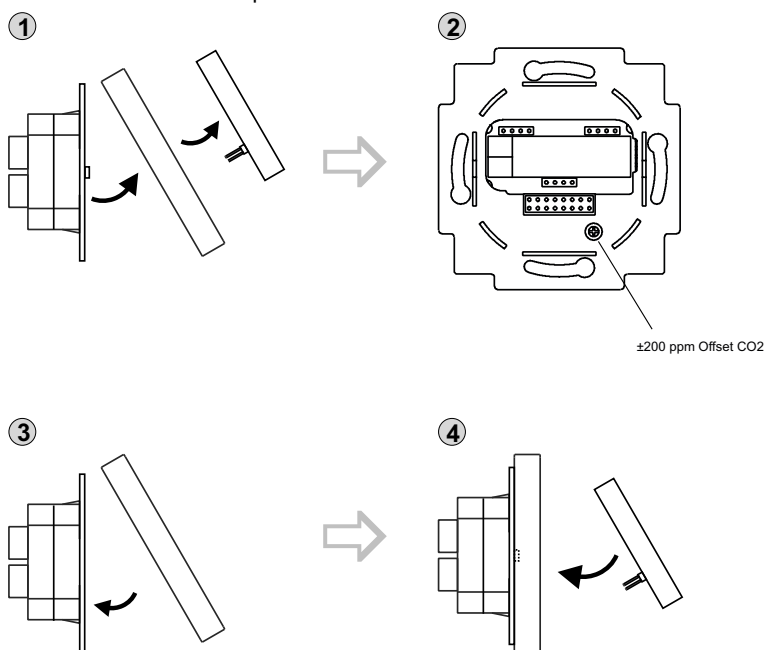


The cable is connected to the device by a screw terminal. The screw terminal can be pulled off the device for preliminary wiring. It is advisable to use deep mounting boxes to allow more space for the wiring.

Offset adjustment

Offset adjustment procedure

1. Remove the measuring elements - the most recently measured CO₂ value is transmitted via the output.
2. Adjust the offset using the potentiometer.
3. Install the measuring elements again. After a few seconds, the currently measured CO₂ value is transmitted via the output.



Notes for users

Under normal operating conditions, the devices age very gradually. CO₂ sensors age more quickly if they are used in very contaminated air or corrosive gases. These factors affecting the device depend on the concentration of the aggressive media and can cause the sensor to drift.

All gas sensors are subject to component-induced drift, which generally means that the installed gas sensors require regular recalibration. With dual-beam technology, SAUTER offers automatic self-calibration for different areas of sensor use. This means sensors can also be used in applications that are operated round the clock, seven days a week.

No manual recalibration of the sensors is required.

In applications with very contaminated air, the warranty does not cover the premature replacement of the entire sensor.



NOTE

Damage to device!

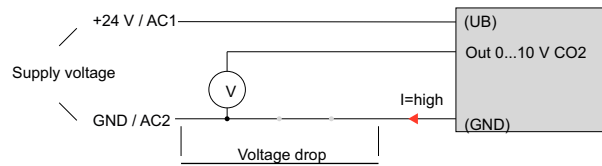
► Switch off any defective or damaged devices.

Disposal

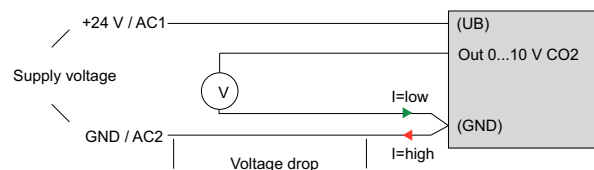
When disposing of the product, observe the currently applicable local laws. More information on materials can be found in the Declaration on materials and the environment for this product.

Connection diagram

1 GND-wire for short connection wires



2 GND-wires for long connection wires



1	2	3	4	5	6	7	8	9	10
			GND	Uv 15-24 V=/ 24 V~			CO2		

Dimension drawing

