Ambient air sensor CO$_2$

GIRA

2381 ..

GIRA

Device description

The ambient air sensor CO$_2$ is for monitoring the concentration of carbon dioxide (CO$_2$) in the ambient air.

The invisible and odourless gas CO$_2$ exists naturally with a nominal concentration of approx. 380 ppm (0.038%) in the air. It is created by the burning of fossil fuels, by human exhalation and other factors. An excessive concentration of CO$_2$ in ambient air negatively affects ability to concentrate and perform.

The ambient air sensor CO$_2$ helps identify a high CO$_2$ concentration, which is optically and/or acoustically indicated.

The control of devices such as fans must be implemented via external actuators.

Important

The zero-voltage contact is only to be used as a control output.

The direct connection of consumers is not permissible.
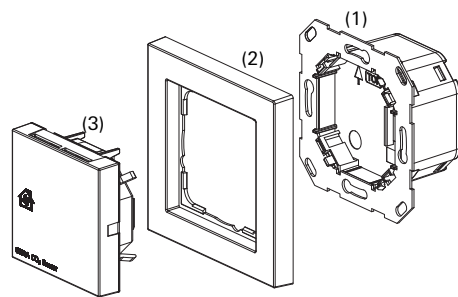

Fig. 1: Device components
(1)   Flush-mounted insert
(2)   Frame
(3)   Top unit

Installation

Electrical devices may only be mounted and connected by qualified electricians!

DANGER

Serious injury (e.g. caused by an electric shock), fire, or material damage are possible if mounted improperly.

• In order to avoid electric shock, de-energize cables when working on the ambient air sensor CO$_2$ (switch off circuit breaker).

Recommended installation height: 1.10 m

Select the installation location so that the device is exposed to the room's normal air circulation.

Unfavourable installation locations may lead to corruption of measurement results!

Do not mount the device within shelf walls or behind curtains or similar coverings. Avoid outside walls and draughts!
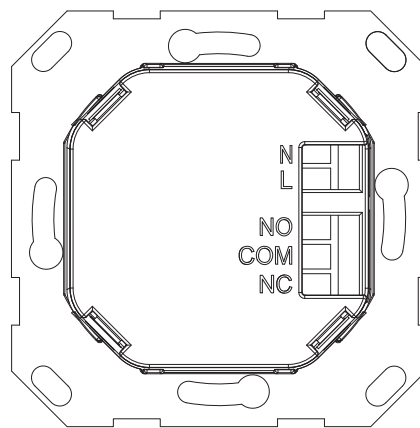

Fig. 2: Rear of flush-mounted insert

• Apply 230 V AC power supply to the L and N terminals on the rear of the flush-mounted insert (see figure 2).

• Actuators are connected via the terminals NO / COM / NC on the rear of the flush-mounted insert (see figure 2 and the 'Zero-voltage contact' section).

Observe alignment of the device when being inserted into the flush-mounted box.

Arrows and 'TOP' point upwards, see figure 1, flush-mounted insert (1).

• Screw insert to the flush-mounted box.

• Before the device top unit with the frame is applied to the flush-mounted insert, carry out settings to the measuring module (on the device top unit) if required. See the 'Settings' section, figure 4.

Function

Observe the initialisation time!

The device requires approx. 5 minutes after voltage application before it can begin with measurement of ambient air.

The LED lights up green when the device is in normal system state. Normal system state is defined according to the set limit value. If CO$_2$ concentration is detected above the settable limit value (800 - 1500 ppm) the LED changes to red and a signal sound is heard (if set) - the device is in alarm state.

As long as the CO$_2$ concentration is above the set limit value the device remains in alarm state (red LED and signal sound). If the CO$_2$ concentration reduces below the limit value the device switches back to normal system state (green LED).

The LED display (green with normal system state) and the signal sound with an alarm can be deactivated: see the 'Settings' section.

Device states

Normal system state

LED:	Green (delivered state)
Signal sound	Off
Relay contact	NC / COM closed
	NO / COM open

Alarm state

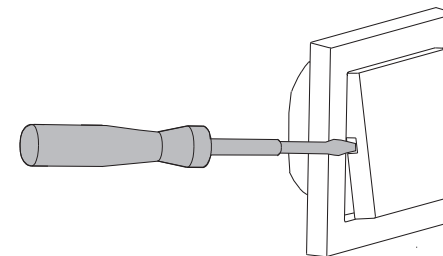|	
LED:	Red
Signal sound	On (delivered state)
Relay contact	NC / COM open
	NO / COM closed

Settings

Fig. 3: Removing the device top unit

To carry out settings to the device the top unit must be pulled out of the flush-mounted insert. Setting possibilities are then located on the rear of the device top unit. See figure 4.

• Apply a screwdriver to the slot intended for this purpose and carefully lever up the cover with the top unit.
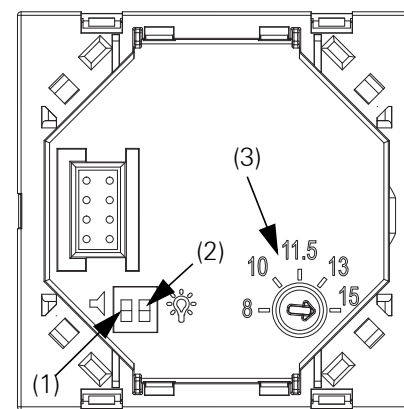
Fig. 4: Device top unit (rear)

• The DIP switch (1), designated with a loudspeaker symbol, enables the alarm sound to be switched on or off.

• The DIP switch (2), designated with a light symbol, enables the green LED (lit in normal system state) to be switched on or off.

• The CO$_2$ limit value, by which the device changes from normal state to alarm state, can be adjusted with a screwdriver at the potentiometer. The values (8 - 15) on the scale specify the CO$_2$ limit value when multiplied by 100.

"ppm" stands for parts per million.

1000 ppm CO$_2$ corresponds to 0.1% CO$_2$ content in the air.

Zero-voltage contact

The ambient air sensor CO$_2$ has a zero-voltage contact to which an actuator must be connected. The connection terminals of the zero-voltage contact are located on the rear of the flush-mounted insert (see figure 2).

The zero-voltage switching contacts can be used for controlling ventilation or for forwarding information to an air-conditioning monitoring system for example.

Technical data

Operating voltage:	230 - 240 V AC / 50 - 60 Hz
Power consumption:	approx. 2.5 W
Ambient temperature:	-5 °C to +50 °C
Storage temperature:	-25 °C to +75 °C
Humidity:	max. 90 %
Protection type:	IP 20
Connection terminals:	Ø to 2.5 mm^2
Rated surge voltage:	4 kV
Max. switching current	4 A at 250 V
Sensor sensitivity for CO$_2$:	350 - 2000 ppm
Limit value range for alert can be steplessly adjusted:	800 - 1500 ppm
Measurement precision:	+/- 100 ppm
Type of action:	1.C
Software class and structure:	A
Pollution severity:	2
Mounting:	Flush-mounted box (deep box recommended)

Warranty

We provide a warranty in accordance with the statutory requirements.

Please send the device postage paid with error description via the specialist trade to our central customer service centre.