

## RTM-CO<sub>2</sub>

## Room temperature and CO<sub>2</sub> sensor



RTM-CO<sub>2</sub>

RTM-CO<sub>2</sub>-2S

### Summary

The RTM-CO<sub>2</sub> is a room temperature and CO<sub>2</sub> sensor for universal use in the HVAC sector. Output signal is analogue signal 2x 0...10 V DC.

### Applications

- HVAC systems – room temperature and CO<sub>2</sub> measuring

### Functions

The CO<sub>2</sub> content in the air is determined by a two-ray NDIR sensor (non-dispersive infrared technology) in the range of 0...2000 ppm.

The temperature sensor has a range of 0...50 °C (pro RTM-CO<sub>2</sub>, RTM-CO<sub>2</sub>-A) and 5...40 °C (pro RTM-CO<sub>2</sub>-2S).

The sensors are intended for operating in a normal and chemically non-aggressive environment. It is absolutely necessary to choose the device mounting position so that the air stream “presses” into the sensor’s enclosure. Otherwise, the reaction of the device to changes in CO<sub>2</sub> concentration may appear with a delay.

The sensors are mounted with 4 screws on wall or on a flush-mounted junction box with 55 mm in diameter.

This unit must not be used as safety-relevant device!

### Technical data

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Power supply	24 V AC/DC
Output	0...10 V
Operating range: temperature	0...50 °C (RTM-CO <sub>2</sub> , RTM-CO <sub>2</sub> -A) 5...40 °C (RTM-CO <sub>2</sub> -2S)
CO <sub>2</sub>	0...2000 ppm RTM-CO <sub>2</sub> -2S the operating mode can be switched per pushbutton: automatic, manual (steps 1 and 2) and OFF (see table below)
Protection type	IP30 (according to EN 60529)

Protection class	III (according to EN 60730)
Deviation: temperature CO <sub>2</sub>	± 0,8 K at 20°C ± 70 ppm + 5 % of measured value
CO <sub>2</sub> pressure dependence	± 1.6 % / kPa (referred to standard pressure)
Terminals	screw terminals for wires 0,14 – 1,5 mm <sup>2</sup>
Cover	ABS, RAL9010, optional stainless steel (only RTM-CO <sub>2</sub> )
Long-term stability	± 1% per year
Dimensions	see below
Gas exchange	by diffusion

## Sensor types

Type	Output	Features
RTM-CO <sub>2</sub>	2x 0...10 V	
RTM-CO <sub>2</sub> -A	2x 0...10V	5-LED-indicator (traffic light)
RTM-CO <sub>2</sub> -2S	2x 0...10V	3-LED-indicator (traffic light) 2x NO contact

### Traffic light indication

#### RTM-CO<sub>2</sub>-A

#### LED

#### CO<sub>2</sub> content (ppm)

Green 1

< 500

Green 2

500 - 800

Yellow

800 - 1200

Red 1

1200 - 1600

Red 2

>1600

### Traffic light indication

#### RTM-CO<sub>2</sub>-2S

#### LED

#### CO<sub>2</sub> content (ppm)

Green

< 800

Yellow

800 - 1200

Red

> 1200

## Terminals

### RTM-CO<sub>2</sub>, RTM-CO<sub>2</sub>-A

#### Terminals

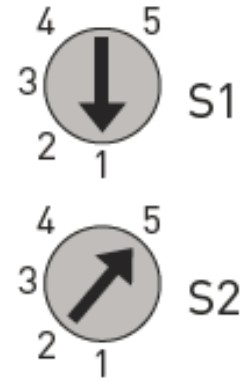
1	UB+ 24V AC/DC
2	UB- 24V AC/DC
3	Free
4	Free
5	GND
6	Free
7	Free
8	Output CO <sub>2</sub> content in ppm 0-10V
9	Output temperature in °C 0-10V

## RTM-CO<sub>2</sub>-2S

### Terminals

1	UB+ 24V AC/DC
2	UB- GND
3	NC
4	NC
5	GND
6	Output 0-10V temperature in °C
7	GND
8	Output 0-10V CO <sub>2</sub> content in ppm
9	Step 2 (normally open contact) 50A/250V~
10	Step 2 (normally open contact) 50A/250V~
11	Step 1 (normally open contact)
12	Step 1 (normally open contact)

### Potentiometers



### Switching thresholds

#### Lower limit S1

1	500 ppm
2	600 ppm
3	700 ppm
4	800 ppm
5	900 ppm

### RTM-CO<sub>2</sub>-2S

#### Upper limit S2

1	1100 ppm
2	1200 ppm
3	1300 ppm
4	1400 ppm
5	1500 ppm

## Calibration CO<sub>2</sub>

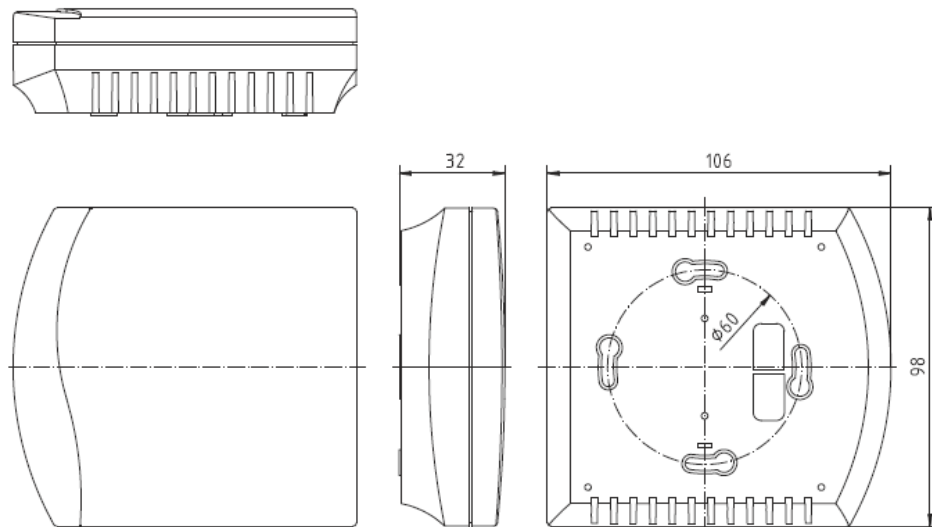
The automatic calibration follows approximately each 7 days. For its correct execution, it is necessary that the sensor is exposed to fresh air (300...400 ppm CO<sub>2</sub>) at least 10 minutes each 7 days. The sensor registers the minimum measured value and after 7 days assigns to this value the CO<sub>2</sub> concentration of 350 ppm. This also affects the output signal.

## Putting in operation

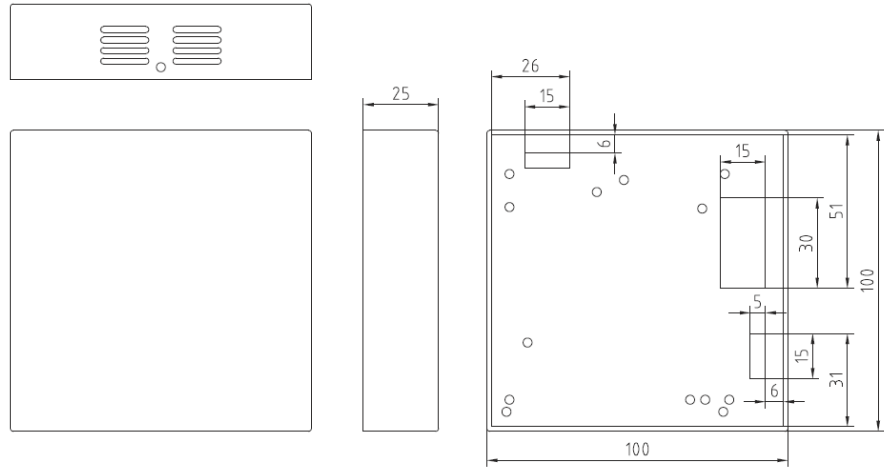
After switching on the device, a self-test and tempering period follows. This procedure takes 3 to 5 minutes, depending on ambient conditions. During this time, the output analogue voltage differs from the actual measured value.

## Dimensions

All dimensions are in *mm*.



ABS, plastic, standard enclosure



Stainless steel, optional enclosure (only RTM-CO<sub>2</sub>)