CTDT2

CO_2 and temperature transmitter for duct mounting

Transmitter for measuring carbon dioxide concentration and temperature in air. Measuring range 0…2000 ppm and CO_2 output signal 0…10 V DC or 4…20 mA (settable). Passive PT1000 output and 0…10 V DC for temperature.

- ✓ Combined CO_2 and temperature transmitter
- ✓ Infrared technology (NDIR)
- ✓ CO_2 concentration 0…2000 ppm measuring range
- ✓ Excellent long-term stability
- ✓ Easy installation and service-friendly housing
- ✓ Probe only 12 mm
- ✓ Automatic CO_2 calibration

Application

CTDT2 can be used to control ventilation in residential and office areas.

The carbon dioxide level gives a direct indication of the indoor air quality. This information can be used to control ventilation with high precision and improve the air quality.

By increasing the air exchange only when it is necessary, it is possible to minimise energy costs.

Function

CTDT2 has a probe in the shape of a so-called venturi tube with two air channels. The CO_2 sensor element is mounted in the cover part of the casing and the temperature sensor element is located inside the probe.

The air in the ventilation duct is transported to the CO_2 sensor element through one half of the probe and then back to the duct through the other half. The temperature sensor is located inside the probe. (see *Fig. 1*)

Installation

To ensure proper function, make sure that the cover is properly fastened and that the cable gland makes a tight seal around the cable.

Place the transmitter in the air flow direction of the ventilation duct according to the marks on the cover.

The air flow direction is either from right to left (as in *Fig. 1*) or from left to right.

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REGIN THE CHALLENGER

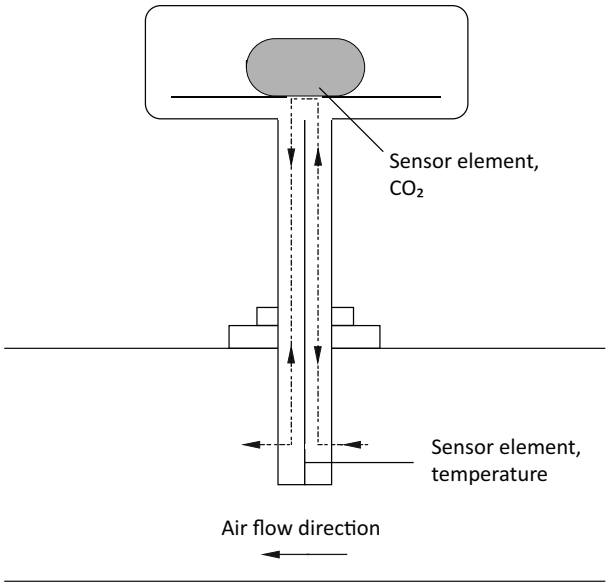

Fig. 1 Example of installation

Measuring principle

The CO_2 concentration is measured using infrared light.

This technique has many advantages:

- ✓ Very high accuracy
- ✓ Exact identification of the detected gas
- ✓ Low risk of contamination
- ✓ Short response time
- ✓ Excellent long-term stability

Automatic calibration

CTDT2 has automatic CO_2 calibration, which means that manual recalibration is not required during the lifetime of the transmitter.

Settable CO_2 output signal

Flipping an internal DIP-switch inside CTDT2 will change the CO_2 output signal from 0…10 V to 4…20 mA. This change will not affect the CO_2 output range.

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Technical data

Supply voltage	24 V AC ±20 %, 50…60 Hz 15…35 V DC
Power consumption	2 VA, 15 mA, max. 0.5 A for 0.3 s
Ambient temperature	-20…+60 °C
Storage temperature	-20…+60 °C
Ambient humidity	0…95 % RH, non-condensing
Long-term stability	Typ. 20 ppm / year
Protection class	IP65 with probe downwards, otherwise IP20

CO_2

Output signal	0…10 V DC, -1 mA <I_L <1 mA 4…20 mA, R_L <500 Ω
Measurement principle	NDIR (Non-Dispersive Infrared Technology)
Measuring range	0...2000 ppm
Accuracy (at 25 °C)	< ± (50 ppm + 2 % of the measured value)
Time constant (response time)	< 100 s at 3 m/s air speed in the duct
Temperature dependance	Typ. 1 ppm CO_2/ °K (-20...+45 °C)
Warm-up time	< 5 min

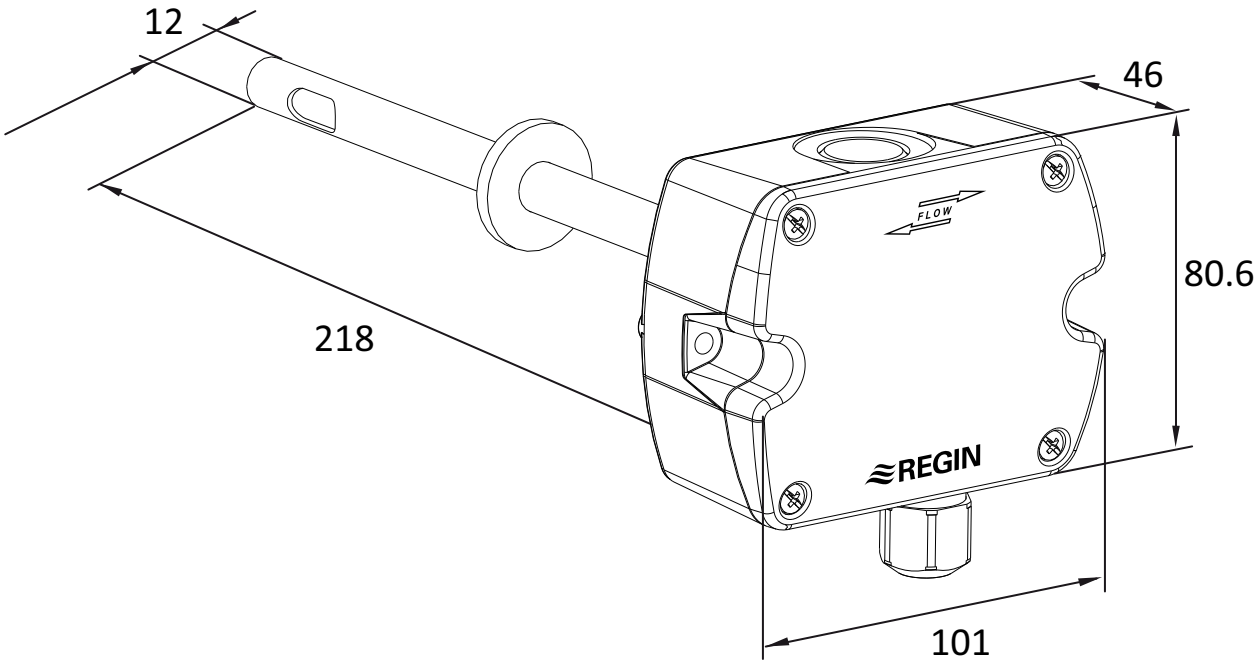
Temperature

Output signal	0…10 V DC, -1 mA <I_L <1 mA
Working range	0-10 V: 0…50 °C PT1000: -20…+60 °C
Accuracy (at 20°C)	±0.3 °C
Time constant (response time)	< 50 s

CE

This product carries the CE-mark. More information is available at www.regincontrols.com.

Dimensions



[mm]

Wiring

1	Supply voltage 24 V AC or 15…35 V DC
2	System neutral
3	Signal neutral
4	CO_2 output 0…10 V DC or 4…20 mA
5	Temperature output 0…10 V DC
6	Temperature output PT1000
7	Temperature output PT1000

Documentation

All documentation can be downloaded from www.regincontrols.com.