



# REGIN CTD2 CO2 and Temperature Sensor Instructions

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**REGIN CTD2 CO2 and Temperature Sensor**



## Product Information and Usage Instructions

**Function:** The CTD2T2 is a device that measures the amount of CO<sub>2</sub> in the air and provides an output signal of 0-10 V DC with -1mA.

### Technical Data:

- **Supply Voltage:** The CTD2T2 requires a supply voltage of 2 VA, 15 mA, max. 0.5 A for 0.3 s.
- **Ambient Temperature:** The CTD2T2 can operate within an ambient temperature range.
- **Storage Temperature:** The CTD2T2 can be stored within a temperature range.
- **Ambient Humidity:** The CTD2T2 can operate within an ambient humidity range of 0 to 95% RH, non-condensing.
- **Long-term Stability:** The CTD2T2 has a typical long-term stability of 20 ppm per year.
- **Protection Class:** The CTD2T2 has an IP65 protection class when the probe is facing downwards, otherwise it has an IP20 protection class.

### Usage Instructions:

- **Step 1:** Before using the product, read and understand the instruction manual carefully.
- **Step 2:** Ensure that the installation of the product complies with local safety regulations.
- **Step 3:** Before installation or maintenance, disconnect the power supply.
- **Step 4:** Installation or maintenance of this unit should only be carried out by qualified personnel. The manufacturer is not responsible for any eventual damage or injury caused by inadequate skills during installation, or through removal of or deactivation of any security devices.
- **Step 5:** Once the CTD2T2 is installed and powered on, it will measure the amount of CO<sub>2</sub> in the air and provide an output signal of 0-10 V DC with -1mA.

**Caution!** Read and understand the instruction before using the product.

**Caution!** Ensure that the installation complies with local safety regulations.

**Caution!** Before installation or maintenance, the power supply should first be disconnected. Installation or maintenance of this unit should only be carried out by qualified personnel. The manufacturer is not responsible for any eventual damage or injury caused by inadequate skills during installation, or through removal of or deactivation of any security devices

## Function

- CTD2 is a transmitter for measuring carbon dioxide concentration and temperature.
- The transmitter has a probe in the shape of a so-called venturi tube with two air channels. The CO<sub>2</sub> sensor element is mounted in the housing and the temperature sensor element is located inside the probe.
- The air in the ventilation duct is transported to the CO<sub>2</sub> 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 Figure 1)

## Technical Data

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

## CO<sub>2</sub>

<b>Output signal</b>	0...10 V DC, -1 mA < I <sub>L</sub> < 1 mA 4...20 mA, R <sub>L</sub> < 500 $\Omega$
<b>Measurement principle</b>	NDIR (Non-Dispersive Infrared Technology)
<b>Measuring range</b>	0...2000 ppm
<b>Accuracy (at 25 °C)</b>	< $\pm$ (50 ppm + 2 % of the measured value)
<b>Time constant (re- sponse time)</b>	< 100 s at 3 m/s air speed in the duct
<b>Temperature dependance</b>	Typ. 1 ppm CO <sub>2</sub> / °K (-20...+45 °C)
<b>Warm-up time</b>	< 5 min

## Temperature

<b>Output signal</b>	0...10 V DC, -1 mA <IL <1 mA
<b>Working range</b>	0-10 V: 0...50 °C PT1000: -20...+60 °C
<b>Accuracy (at 20°C)</b>	±0.3 °C
<b>Time constant (re- sponse time)</b>	< 50 s

## Installation

Mount CTDT2 at a place in the duct where it can be expected to give a representative reading. It should be placed at least 4 duct diameters from a bend or other obstacle, e.g. a damper, for minimal turbulence.

1. Unscrew the spring-loaded screws to open the cover and access the terminals
2. Place the transmitter in the airflow direction of the ventilation duct according to the marks on the cover. The air flow direction is either from right to left (as in Figure 1) or from left to right. The hole in the duct should measure 13 mm in diameter.
3. Connect the wires to the terminals according to the wiring diagram.
4. Screw the cover back on and ensure that it is properly fastened and that the cable gland makes a tight seal around the cable.

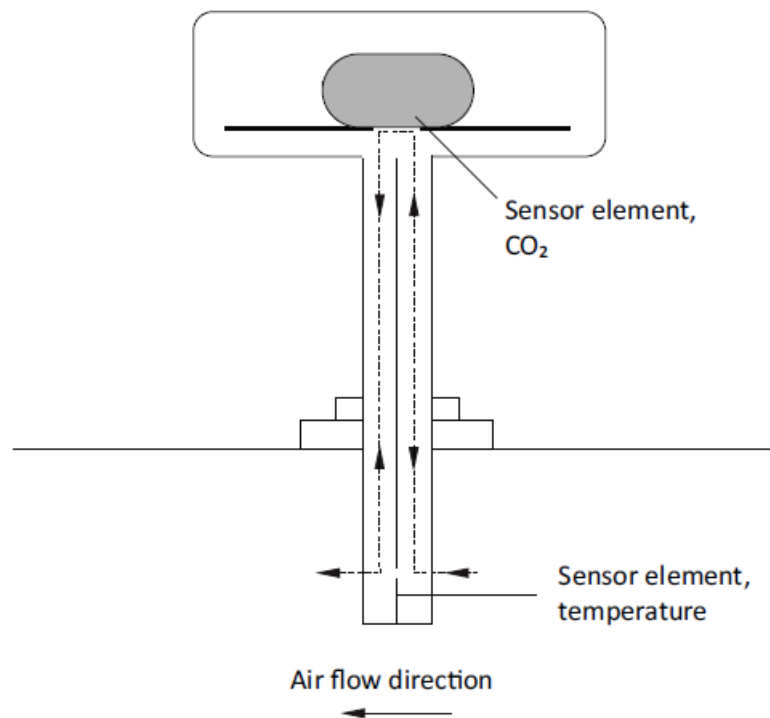


Figure 1 The airflow direction is either from right to left (as in the example) or from left to right

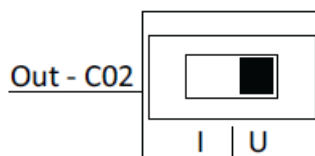
## Wiring

1	Supply voltage 24 V AC or 15...35 V DC
2	System neutral
3	Signal neutral
4	CO2 output 0...10 V DC or 4...20 mA
5	Temperature output 0...10 V DC
6	Temperature output PT1000
7	Temperature output PT1000

**Note!** System neutral and signal neutral are internally connected

## Settings

Flipping the internal DIP-switch located at the lower right-hand side of the circuit board will change the CO2 output signal from 0...10 V ("U") to 4...20 mA ("I"). This change will not affect the CO2 output range



## Calibration

CTDT2 is factory calibrated before delivery and does not need to be calibrated at installation. It has automatic CO2 calibration, which means that manual recalibration is not required during the lifetime of the transmitter.

## Start-up

After applying power to CTDT2, it will take a few minutes for it to show correct values

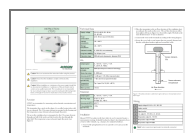
This product carries the CE-mark. More information is available at [www.regincontrols.com](http://www.regincontrols.com).

## Contact

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## Documents / Resources



**REGIN CTDT2 CO2 and Temperature Sensor** [pdf] Instructions

CTDT2, CTDT2 CO2 and Temperature Sensor, CO2 and Temperature Sensor, Temperature Sensor, Sensor

## References

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Manuals+.