CTRT2A

CO_2 and temperature transmitters

A range of room transmitters for measuring carbon dioxide concentration in indoor environments. The transmitter has a built-in CO_2 sensor with working range 0...2000 ppm and output signal 0...10 V, as well as built-in 0...10 V and PT1000 temperature sensors (working range 0...50°C).

Transmitters with automatic calibration combining measurement of CO_2 level and temperature in the same casing. The sensors are mounted in the cover-part of the casing. The cover is easy to detach from the back by means of snap-in grips and detachable terminals. This makes mounting easier. Furthermore, no cables have to be disconnected, simplifying service and replacement.

The transmitters are intended for wall mounting in HVAC systems.

CO_2 sensor
The CO_2 concentration is measured using infrared light, a technique that measures the absorption in gases. It has a reference measuring system that compensates values in relation to changes in light intensity. 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
The transmitters have automatic calibration, which means that manual recalibration is not required during the lifetime of the transmitter.

Temperature sensors
The unit has built-in 0…10 V and PT1000 temperature sensors, working range 0...50°C.

Note! The PT1000 sensor is not compensated for internal warm-up. The passive temperature output must be calibrated with a controller.

Short facts about CTRT2A
- Output signal CO_2, 0...10 V DC referring to 0...2000 ppm
- Temperature sensors, 0...10 V DC referring to 0...50°C and PT1000 class DIN B
- CO_2 concentration, 0...2000 ppm
- Temperature, 0...50°C
- Good long-term stability

Supply voltage
The transmitter uses a supply voltage of 24 V AC ±10 %, 50...60 Hz or 15...35 V DC. It automatically detects and adapts to the supply voltage connected.

Display (-D models)
Display models have an LCD display showing carbon dioxide concentration and temperature in an alternating series.

Applications
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 supply air only when necessary, it is possible to minimise energy costs.

The transmitter is especially suited for environments such as cinemas, schools, hospitals, conference rooms, assembly halls, etc.

Models

Model	Description
CTRT2A	CO_2 and temperature transmitter
CTRT2A-D	CO_2 and temperature transmitter with display

Technical data

Supply voltage	24 V AC ±10 %, 50...60 Hz or 15...35 V DC
Power consumption	< 2.5 W
Energy consumption	< 0.5 Wh
Transformer power	5 VA
Electrical connection	Screw terminals max. 1.5 mm² (AWG 16)
Ambient temperature	0...50°C
Ambient humidity	10...90 % RH non-condensing
Storage temperature	-25...+60°C
Protection class	IP30
Dimensions (WxHxD)	85 x 100 x 30.5 mm

CO_2

Output signal CO_2	0...10 V DC referring to 0...2000 ppm
Working range	0...2000 ppm
Accuracy at 20°C	< ± (50 ppm + 2 % of the measured value)
Temperature dependance	Typically 5 ppm / K
Long-term stability	Typically 20 ppm / year
Time constant	< 90 s
Warmup time	< 5 min

Temperature (0...10 V)

Temperature sensor	0...10 V DC referring to 0...50°C
Working range	0...50°C
Accuracy	±0.4°C

Temperature (PT1000)

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Temperature sensor	PT1000 class DIN B
Working range	0...50°C
Accuracy	±0.3°C

$C\epsilon$ **EMC emissions & immunity standards:** This product conforms to the requirements of the EMC Directive 2004/108/EC through product standards EN 61000-6-1 and EN 61000-6-3.
RoHS: This product conforms to the Directive 2011/65/EU of the European Parliament and of the Council.

Wiring and dimensions

15...35 V DC
24 V AC

GND
0...10 V
SENS
SENS

1 2 3 4 5 6 7 8

CO_2 T T V
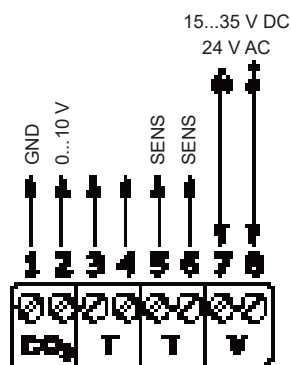
GND and G0 are internally connected.

85

100

30.5
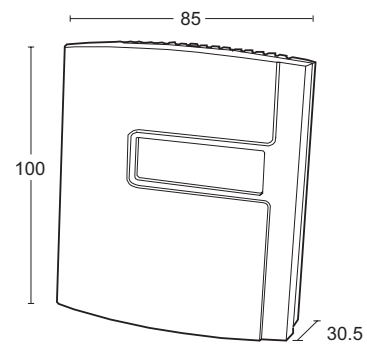
(Measurements in mm.)

Product documentation

Document	Type
S-49336_inst	Instruction for the transmitter range

systemair