



## CTHRC(-D)

CO<sub>2</sub>, humidity and temperature transmitters with communication

A range of room transmitters for measuring carbon dioxide concentration in indoor environments. The unit also has built-in measurement of temperature and relative humidity.

- ✓ Output signal Modbus
- ✓ Modbuskommunikation
- ✓ CO<sub>2</sub> concentration, 0...2000 ppm
- ✓ Temperature, 0...50°C
- ✓ Humidity, 10...90 % RH
- ✓ Good long-term stability
- ✓ RCBC algorithm

### Function

Transmitters with automatic calibration combining measurement of CO<sub>2</sub> level, temperature and relative humidity 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<sub>2</sub> sensor

The CO<sub>2</sub> 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 sensor

The unit has a built-in temperature sensor, working range 0...50°C.

#### Relative humidity

The transmitters have a capacitive thin-film element that provides a signal proportional to the relative humidity. The measuring element responds quickly to changes in humidity and has excellent long-term stability.

#### RCBC algorithm

The transmitter is equipped with a function that can be activated to get a more stable CO<sub>2</sub> level in a room that is not used for parts of a day.

#### Display (-D models)

Display models have an LCD display showing carbon dioxide concentration, temperature and humidity 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.

## Communication via Modbus

The transmitters communicate via Modbus and are to be integrated into a network.

### Technical data

Supply voltage	24 V AC/DC (21.6...26.4 V AC / 15...35 V DC)
Output signal	Modbus
Power consumption	< 2.5 W
Energy consumption	< 0.5 Wh
Transformer power	5 VA
Electrical connection	Screw terminals max. 1.5 mm <sup>2</sup> (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

### Technical data, CO<sub>2</sub> sensor

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

### Technical data, temperature sensor

Working range	0...50°C
Accuracy	±0.2°C

### Technical data, humidity sensor

Working range	10...90 % RH
Accuracy at 20°C	±3 %

## Communication

Type	Modbus RTU
Baud rate	4800, 9600, 19200, 38400 bits/s
Default baud rate	19200 bits/s
Default parity	Even
Default address of unit	1

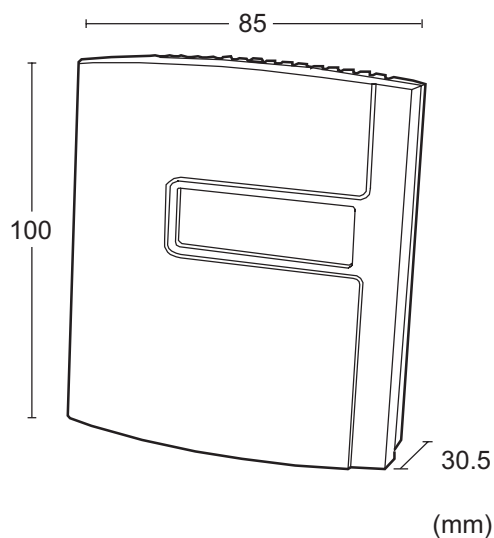
## Models

Article	Description
CTHRC	CO <sub>2</sub> , humidity and temperature transmitter for Modbus communication
CTHRC-D	CO <sub>2</sub> , humidity and temperature transmitter for Modbus communication with display

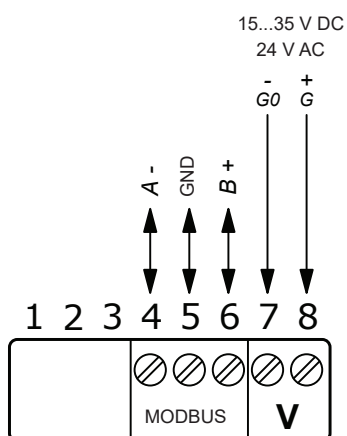
## CE

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

## Dimensions



## Wiring



## Product documentation

All documentation can be downloaded from [www.regincontrols.com](http://www.regincontrols.com).