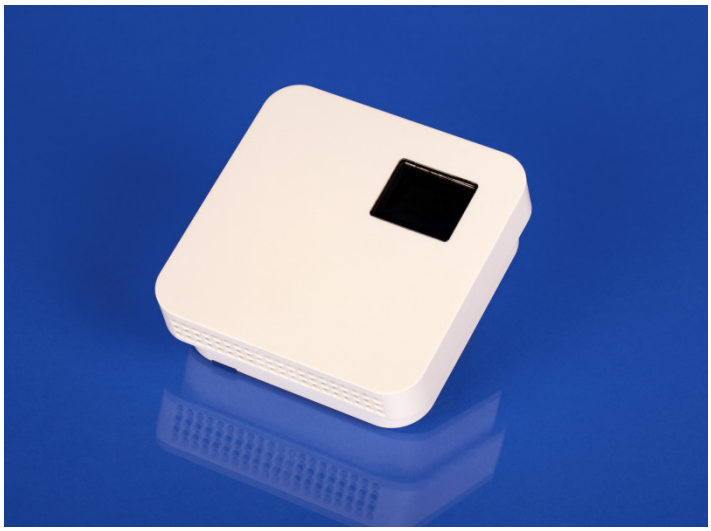
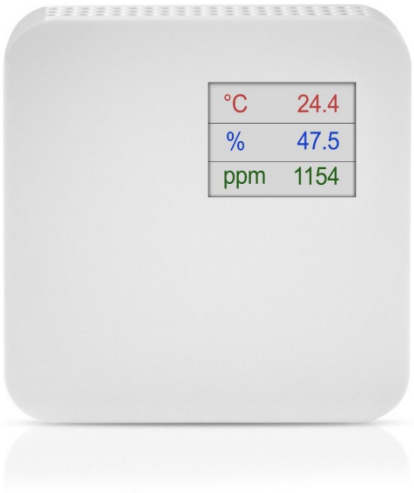
RCD 010 THD

Carbon Dioxide (CO_2) + Humidity (rH) + Temperature (T) transmitter with colored LCD Display for room mounting



RCD 010 THD CE



RCHT 010 THD have colored display to show actual value of each parameter CO2+T+rH.

Features

- **Carbon Dioxide (CO_2) output 0-10 Vdc**
- **Humidity (rH) output 0-10 Vdc**
- **Temperature (T) output 0-10 Vdc**
- **LCD display (colored)**
- **Carbon Dioxide (CO_2) sensor NDIR Sensor with auto calibration**
- **Carbon Dioxide (CO_2) selectable ranges with DIP switches 0-2000 ppm or 0-5000 ppm**
- **Carbon Dioxide (CO_2) accuracy ±60 ppm for range 0-2000 ppm ± 2% f.s ±150 ppm for range 0-5000 ppm ± 2% f.s**
- **Selectable Humidity and Temperature ranges with DIP switches**
- **Temperature (T) accuracy ± 0.3°K (+5°C to +60°C) +2.5% f.s.**
- **Humidity (rH) accuracy ± 2% (20 to 80% rH) +2% f.s.**
- **DIP switch on pcb to select:**
  - **Relative Humidity,**
  - **Absolute Humidity,**
  - **Dew Point or**
  - **Enthalpy**
- **Passive temperature sensing element PT1000, PT100, NTC 10K, NTC 20K, NTC 1.8K , NI1000 etc as option**
- **See all the different types on last page.**
- **VOC sensor output on request**

Technical data

Carbon Dioxide (CO_2) output	0-10 Vdc
Humidity output	0-10 Vdc
Temperature output	0-10 Vdc
Power supply with 0-10 Vdc output:	12-24 Vac/dc
Power consumption	40-100 mA
Sensor setting time	60 min.
Display version	LCD
Passive temperature sensing element	PT1000, PT100, NTC 10K, NTC 10K, NTC 1.8K , NI1000 etc (option)
Carbon Dioxide (CO_2) sensor	NDIR Sensor with auto calibration
Carbon Dioxide (CO_2) accuracy	±60 ppm ± 2% f.s for range 0-2000 ppm ±150 ppm ± 2% f.s for range 0-5000 ppm
Humidity and Temperature sensor	Capacative
Temperature accuracy	± 0.3°K (+5°C to +60°C) +2.5% f.s.
Humidity accuracy	± 2%.(20 to 80% rH) +2% f.s.
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Connection	Screw clamps 1,5 mm²
Casing	Material ABS, Colour RAL 9010
Dimensions Housing (L x W x H):	87,5 x 87,5 x 30 mm
Protection class:	IP30
Admissible Environmental conditions	0 to 50°C, 0 to 98% r.H.
Carbon Dioxide (CO_2) ranges	see configuration page 4
Temperature ranges	see configuration page 4
Relative humidity measuring range:	see configuration page 4
Absolute humidity measuring ranges:	see configuration page 4
Dew point measuring ranges :	see configuration page 4
Enthalpy range:	see configuration page 4
Directive	
Electromagn. EMC	2014/30/EU
Low voltage LVD	2014/35/EU
Standards	EN 60730-1 2011 EN 60730-2-9 2011 EN14597

Description

RCD 010 THD is a room combined Carbon Dioxide (CO2) + Humidity (rH) + Temperature (T) transmitter with colored LCD display to show actual value of each parameter CO2+rH+T.

The combined Carbon Dioxide (CO2) + Humidity (rH) + Temperature (T) transmitter RCD 010 THD have 3 analogue outputs, i.e. one 0-10 Vdc output for each parameter CO2+rH+T.

The RCD 010 THD combined Carbon Dioxide (CO2) + Humidity (rH) + Temperature (T) transmitter to be used in air conditioning, ventilation and clean room technology, interior rooms such as residential rooms, offices, hotels, technical rooms, meeting rooms and convention centres.

RCD 010 THD can be connected with DDC/PLC controller or other automation system such BAS, BMS, BEMS etc

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Configuration

RCD 010 T / RCD 420 T (with and without display)

Temperature-Ranges

Range	1	2	3	4	5	6
-100… 50 °C	OFF	OFF	OFF	OFF	OFF	N/A
-50…0 °C	ON	OFF	OFF	OFF	OFF	N/A
-50…50 °C	OFF	ON	OFF	OFF	OFF	N/A
-50… 150 °C	ON	ON	OFF	OFF	OFF	N/A
-30 … 20 °C	OFF	OFF	ON	OFF	OFF	N/A
-30…60 °C	ON	OFF	ON	OFF	OFF	N/A
-30…70 °C	OFF	ON	ON	OFF	OFF	N/A
-20…50 °C	ON	ON	ON	OFF	OFF	N/A
-20…80 °C	OFF	OFF	OFF	ON	OFF	N/A
-20…120 °C	ON	OFF	OFF	ON	OFF	N/A
-20…150 °C	OFF	ON	OFF	ON	OFF	N/A
-10…15 °C	ON	ON	OFF	ON	OFF	N/A

Range	1	2	3	4	5	6
-10…120 °C	OFF	OFF	ON	ON	OFF	N/A
0…40 °C	ON	OFF	ON	ON	OFF	N/A
0…50 °C	OFF	ON	ON	ON	OFF	N/A
0…70 °C	ON	ON	ON	ON	OFF	N/A
0…100 °C	OFF	OFF	OFF	OFF	ON	N/A
0…150 °C	ON	OFF	OFF	OFF	ON	N/A
0…160 °C	OFF	ON	OFF	OFF	ON	N/A
0…200 °C	ON	ON	OFF	OFF	ON	N/A
0…250 °C	OFF	OFF	ON	OFF	ON	N/A
0…400 °C	ON	OFF	ON	OFF	ON	N/A
0…600 °C	OFF	ON	ON	OFF	ON	N/A
10…35 °C	ON	ON	ON	OFF	ON	N/A

Setting CO2-Ranges

Setting	7	8
Range CO2		
0… 2000 ppm	OFF	
0… 5000 ppm	ON	
Auto-Calibration		
OFF		ON
ON		OFF

Version without temperature output DIP 1 … 6 are N/A

RCD 010 TH / RCD 420 TH (with and without display, for example the RCD 010 THD

Temperature-ranges

Range	1	2
0°C … +50°C	OFF	OFF
0°C … +100°C	ON	OFF
-20°C … +80°C	OFF	ON
-30°C … +70°C	ON	ON

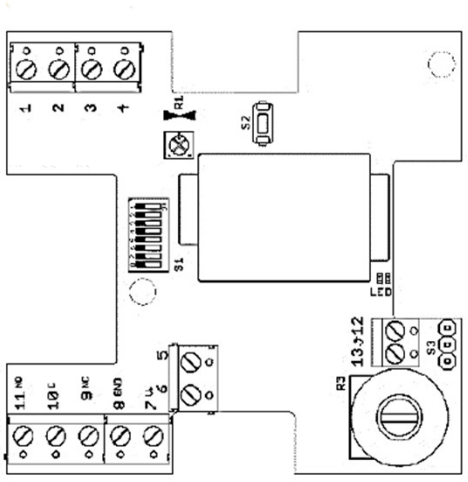
Humidity-Ranges

Range	3	4	5	6
Relative humidity				
0 % … 100%	OFF	OFF	OFF	OFF
Absolute humidity				
0 g/m³ … 30g/m³	ON	OFF	OFF	OFF
0 g/m³ … 50g/m³	ON	ON	OFF	OFF
0 g/m³ … 80g/m³	ON	ON	ON	OFF
Mix ratio				
0 g/kg … 30g/kg	OFF	OFF	OFF	ON
0 g/kg … 50g/kg	OFF	OFF	ON	ON
0 g/kg … 80g/kg	OFF	ON	ON	ON
Dew point				
0°C … +50°C	OFF	ON	ON	OFF
-50°C … +100°C	ON	OFF	OFF	ON
-20°C … +80°C	OFF	ON	OFF	ON
Enthalpy				
0 kj/kg … 85kj/kg	ON	ON	ON	ON

Setting CO2-Ranges

Setting	7	8
Range CO2		
0… 2000 ppm	OFF	
0… 5000 ppm	ON	
Auto-Calibration		
OFF		ON
ON		OFF

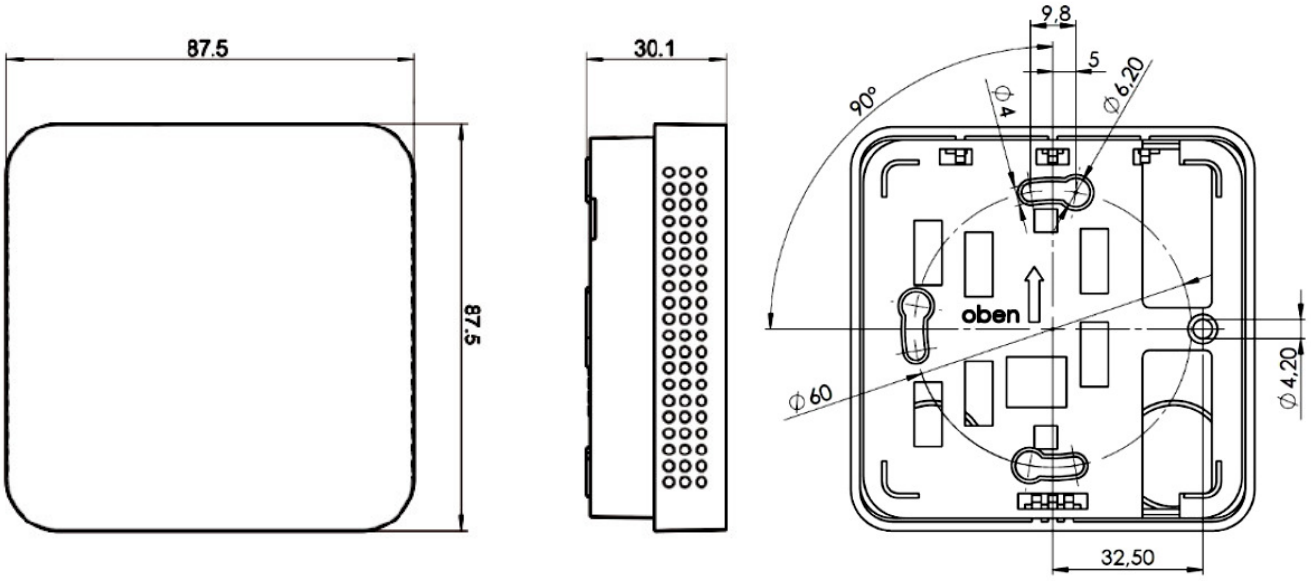
Electrical connection



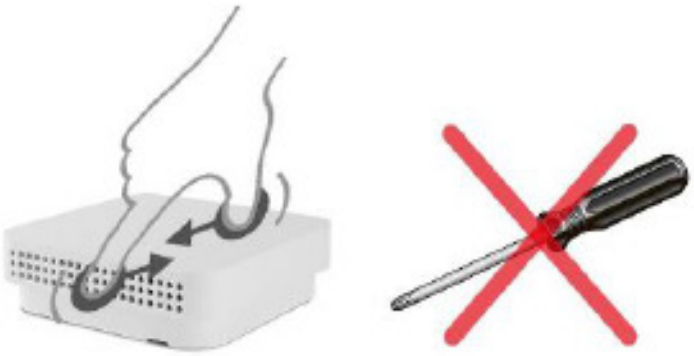
Electrical connection

Pin	(0-10 V) CO2	(0-10 V) CO2/°C	(0-10 V) CO2/°C/rF	(4-20 mA) CO2/°C	(4-20 mA) CO2	(4-20 mA) CO2/rF
1	ppm	temp	temp	-	-	-
2	(VOC)	ppm	humidity	-	-	-
3	-	(VOC)	ppm	temp	ppm	humidity
4	-	-	(VOC)	ppm	(VOC)	ppm
5	(passive poti)					
6	(passive poti)					
7	V+					
8	GND					
9	(relay NC)					
10	(relay C)					
11	(relay NO)					
12	(passive sensor)					
13	(passive sensor)					
R1	-	temp. Adjustment			-	
S3	polarity R3					
S2	CO2 Manual adjustment to 400 ppm					

Dimensions



Mounting



The convection must be aligned at the bottom to ensure a flow of air up (see marking back of the housing).

The sensor should always be mounted on the opposite wall of the radiator.

Ideal mounting height: 1.5 m above the floor.

The heating-up phase takes about 15 minutes, until the sensor emits a signal.
Meanwhile the sensor should be exposed to fresh air, since it takes this as a reference.
If you take away the supply voltage, described process repeats.

Generally the sensor should at least once per day to be sup-plied with fresh air, as he regularly calibrates itself to this.
This procedure prevents a long-term drift whereby the sensor is very stable.

The RCD sensor unit is designed for normal ambient conditions (ambient air), aggressive gases can destroy the RCD sensor unit.

The location has a decisive effect on the measurement accuracy. Windows (cold outer wall) or near door (drafts) should be avoided

Ordering

Type no.	CO_2 Output	Temperature Output	Humidity Output	Display	Direct Temp. Temperature
RCD 010	0-10 Vdc	No	No	No	No
RCD 010 T	0-10 Vdc	0-10 Vdc	No	No	No
RCD 010 TH	0-10 Vdc	0-10 Vdc	0-10 Vdc	No	No
RCD 010 D	0-10 Vdc	No	No	Yes	No
RCD 010 TD	0-10 Vdc	0-10 Vdc	No	Yes	No
RCD 010 THD	0-10 Vdc	0-10 Vdc	0-10 Vdc	Yes	No
RCD 010 XXX	0-10 Vdc	No	No	No	Yes
RCD 010 T XXX	0-10 Vdc	0-10 Vdc	No	No	Yes
RCD 010 TH XXX	0-10 Vdc	0-10 Vdc	0-10 Vdc	No	Yes
RCD 010 D XXX	0-10 Vdc	No	No	Yes	Yes
RCD 010 TD XXX	0-10 Vdc	0-10 Vdc	No	Yes	Yes
RCD 010 THD XXX	0-10 Vdc	0-10 Vdc	0-10 Vdc	Yes	Yes
RCD 420	4-20 mA	No	No	No	No
RCD 420 T	4-20 mA	4-20 mA	No	No	No
RCD 420 D	4-20 mA	No	No	Yes	No
RCD 420 TD	4-20 mA	4-20 mA	No	Yes	No
RCD 420 XXX	4-20 mA	No	No	No	Yes
RCD 420 T XXX	4-20 mA	4-20 mA	No	No	Yes
RCD 420 D XXX	4-20 mA	No	No	Yes	Yes
RCD 420 TD XXX	4-20 mA	4-20 mA	No	Yes	Yes

XXX = Passive sensor
PT100, PT100 1/3 DIN,
PT1000, PT1000 1/3 DIN,
NI1000, NI1000/TK5000,
NTC 1.8K, NTC 5K, NTC 10K, NTC 20K, KTY81-210

Example: **RCD 010 THD PT1000**

RCD 010 THD is the standard type, all other types are manufactured and supplied on request

LED display on request
Green 0-800 ppm
Orange 800-1600 ppm
Red 1600-2000 ppm

VOC sensor output on request