Room Aero CO2 & CO2 combos

Wall mount sensor for carbon dioxide (CO2), relative humidity (RH) & temperature (T)

PRODUCT INSTALLATION DATA

GENERAL

High quality wall mount CO2 with Relative Humidity and Temperature sensor in the streamlined Aero enclosure. These room sensors are available as a CO2 only or as a combination sensor with available CO2/RH/temperature measurements.

Available with preset onboard DIP switches that enable user to select analog output signal of 0-5V, 0-10V and 4-20mA for CO2 and RH sensing. Digital or fixed analog outputs also available on request.

Dual channel technology and a solid state infrared source ensures long lifetime, excellent accuracy and repeatability with low drift and quick start up.

FEATURES

- **Wide sensing range**

- **Accurate CO2 measurement from 400-10,000ppm CO2 and 2% RH from 10-90%.**

- **High airflow and fast response**

SPECIFICATION
Measured Values

Carbon Dioxide (4...20mA, 0...5V, or 0...10V)
Sensing Technology:	Dual beam infrared (NDIR)
Measurement Range:	0 to 2000 ppm, 0-5000ppm, 0-10,000ppm
Accuracy:	±30ppm +3%
Operating Range:	0 to 50°C / 32 to 122°F
Response Time:	≤ 2 minutes, diffusion
Warm Up Time:	< 1 minute (@ full specs < 15 minutes)

Relative humidity (4...20mA, 0...5V, or 0...10V)
Working range	10…90% %RH (non-condensing)
Accuracy (active sensor)	±2 or 3%RH (10…90% RH) at 20 °C, otherwise ±5% (0…100% RH)
Temperature dependency	typically ±0.05% RH / °C
Typical response time	< 180s

(Measured Values Cont.)

Temperature
Passive Signal:	NTC thermistor, 2-wire
	RTD Pt100, Pt1000, 2-wire
	RTD Ni1000-891, Ni1000-TC5, 2wire

General Specifications

Supply Voltage:	24 VAC +/-20%; 18-35 VDC Max
Power Consumption:	3VA for 24VAC, 3W for 24VDC (peak);
Output Signal:	Analog: 0-5 VDC, 0-10 VDC, 4-20 mA
	Digital: Modbus RS-485 (available on request)
Connection	Spring-loaded terminals, max.1.5mm^2
Housing material	Injection-molded ABS UL 94 HB
Cover	Quick snap, injection-molded ABS
Mounting	Direct mounting with quick snap faceplate. Fits standard single gang box or mounts directly to wall. Built-in level for accurate installation.
EMC	EN61326-1, EN61326-2-3; FCC Part 15, Class B; ind. environment: ICES-003 Issue 5 Class B
Working conditions	0…50°C / 32...122°F
	0…95% RH (non-condensing)
Storage conditions	-25…+60 °C (-13…+140 °F), 20…80% RH
Dimensions	See Fig 1.
Mounting	wall or space
Approvals	CE / RoHS

Outputs

Analog output RH	0…5/10V or 4...20mA ≡ 0…100%
Passive temp. sensor	2-wire, passive sensor; wire resistance (terminal-sensor), typ. 0.5 W; temp. unit: °C

WIRING

wiring run	maximum length
sensor to controller	200 m (660 ft)

NOTE: Installation of the sensor near high EMI-emitting devices may lead to faulty measurements.

Use shielded wiring in areas with high EMI.

Keep 15 cm (6'') min. distance between sensor lines and 230 Vac power lines.
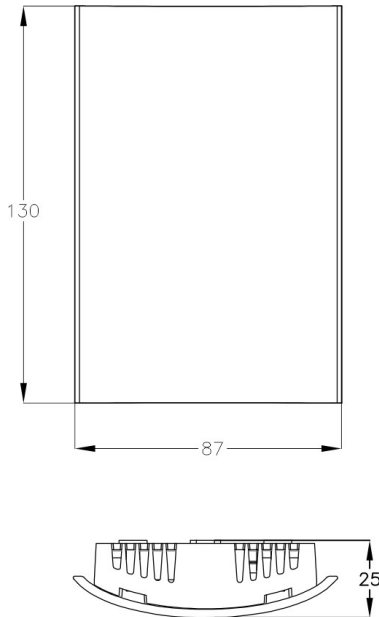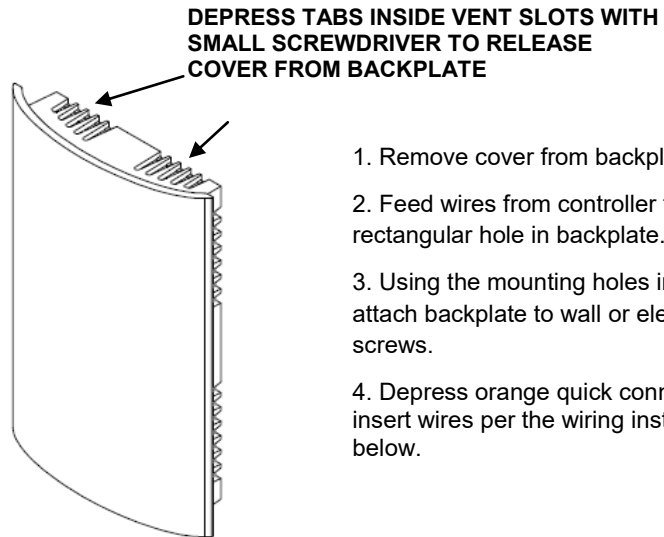
DIMENSIONS

130

87

25

Fig. 1 : Dimensions (mm)

PART# THCRPCB 1 / 2
REV- A

TEMP 1
TEMP 2

GND

POW -
POW +

CO2 +
CO2 -

RH +
RH -

5V/1

14U

SCL   SDA

SCD

SDA SCL

Rx Tx

2

OFF
U I×20†st
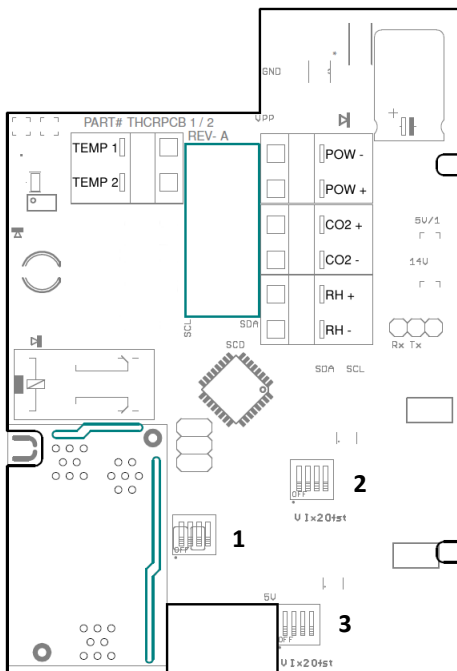
1

OFF

5V

3

OFF
U I×20†st

Fig. 2 : PCB Map

NOTE: For non-RH modles, DIP #2 controls the CO2 output (current or voltage)

MOUNTING INSTRUCTIONS

DEPRESS TABS INSIDE VENT SLOTS WITH SMALL SCREWDRIVER TO RELEASE COVER FROM BACKPLATE

1. Remove cover from backplate.

2. Feed wires from controller through rectangular hole in backplate.

3. Using the mounting holes in backplate, attach backplate to wall or electrical box with screws.

4. Depress orange quick connect tabs to insert wires per the wiring instructions below.

WIRING TERMINATION

TEMP1	Temperature Sensor (if equipped) Resistance output (non-polar)
TEMP2	Temperature Sensor (if equipped) Resistance output (non-polar)
POW-	Supply Power Ground connection
POW+	Supply Power Positive connection
CO2+	Carbon Dioxide Sensor Output Signal connection
CO2-	Carbon Dioxide Sensor Output Ground connection
RH+	Relative Humidity Sensor (if equipped) Output Signal connection
RH-	Relative Humidity Sensor (if equipped) Output Ground connection

CONFIGURATION

DIP #1 Switch 1 & 2 control the CO2 measurement range. Switches 3 & 4 are unsued.
See Fig. 2 for DIP location(s).

Switch 1	Switch 2	Switch 3	Switch 4	
Off	Off	Off	Off	0-2000 ppm range/normally open relay/auto reset Enabled
Off	On	Off	Off	0-5000 ppm range/normally open relay/auto reset Enabled
On	Off	Off	Off	0-10000 ppm range/normally open relay/auto reset Enabled

DIP #2 Controls the RH output (on models where equipped) and DIP #3 controls the CO2 output. For non-RH modes, DIP #2 controls the CO2 output (current or voltage).
See Fig. 2 for DIP location(s).

Switch 1	Switch 2	Switch 3	Switch 4	Function
Off	Off	Off	Off	INVALID! - Switches 1 and 2 cannot be both On or both Off
Off	On	Off	Off	Current output - 0-10mA = 0-100%RH range or 0-MAX ppm range
Off	On	On	On	Current output - 4-20mA = 0-100%RH range or 0-MAX ppm range
On	On	Off	Off	INVALID! - Switches 1 and 2 cannot be both On or both Off
Off	On	On	Off	Current output - 0-20mA = 0-100%RH range or 0-MAX ppm range
On	Off	Off	Off	Voltage output - 0-5V = 0-100% RH range or 0-MAX ppm range
On	Off	On	Off	Voltage output - 0-10V = 0-100% RH range or 0-MAX ppm range