

CARBON DIOXIDE TRANSMITTERS CDT-MOD-2000 SERIES



Multifunctional, wall mount CO₂ transmitters for building automation systems that use Modbus serial communication protocol

The CDT-MOD-2000 series air quality transmitters are engineered for building automation systems in the HVAC/R industry. The CDT-MOD-2000 series measures carbon dioxide (CO₂), utilizing the industry standard NDIR measurement principle, and temperature (T). Optional relative humidity (rH) measurement is also available in the same device. The CDT-MOD-2000 series devices have large touchscreen display making the configuration of the device quick and easy. Configuration is also possible via Modbus network.



The CDT-MOD-2000 series transmitters calibrate themselves automatically using ABC™ logic. The ABC™ logic requires that the space in which the transmitter is used needs to be unoccupied for four hours per day so that the indoor CO₂ concentration drops to the outside level. CDT-MOD-2000-DC is a dual channel model with a measuring channel and a reference channel that makes a continuous comparison and the necessary adjustment accordingly. CDT-MOD-2000-DC is also suitable for buildings that are continuously occupied.

CDT-MOD-2000 series devices include:

- Separate field configurable Modbus output for each measurement parameter (CO₂, rH, T)
- Offset feature enabling field calibration for each measurement parameter (CO₂, rH, T)
- One analog output for selected measurement: voltage (0/2-10 V) or current (4-20 mA)
- 2" x 3" touchscreen display
- Optional relay output

APPLICATIONS

- CDT-MOD-2000 series devices are commonly used to monitor:
- CO₂ and humidity levels in offices, public spaces, meeting rooms and classrooms
 - CO₂ levels of return air in ventilation systems
 - incoming air and return air humidity levels in ventilation system
 - humidity in various industrial applications
 - temperatures in HVAC/R environment
 - CDT-MOD-2000-DC series devices can also be used in applications where there is a constant source of carbon dioxide present (for example hospitals and greenhouses)

MODEL SUMMARY

CDT-MOD-2000			CDT-MOD-2000-rH		
Description	Model	Product code	Description	Model	Product code
Carbon dioxide transmitter for room with Modbus configuration and display	CDT-MOD-2000-D	301.001.004	Carbon dioxide and humidity transmitter for room with Modbus configuration and display	CDT-MOD-2000-rH-D	301.003.004
- with relay	CDT-MOD-2000-1R-D	301.001.005	- with relay	CDT-MOD-2000-1R-rH-D	301.003.005
- with dual channel sensor	CDT-MOD-2000-DC-D	301.005.003	- with dual channel sensor	CDT-MOD-2000-DC-rH-D	301.006.003
- with dual channel sensor and relay	CDT-MOD-2000-DC-1R-D	301.005.004	- with dual channel sensor and relay	CDT-MOD-2000-DC-1R-rH-D	301.006.004

CARBON DIOXIDE TRANSMITTERS

CDT-MOD-2000 SERIES

SPECIFICATIONS

Performance

Measurement ranges:

CO₂: 400–2000 ppm
 Temperature: 0...50 °C
 Relative humidity: 0–100 %

Accuracy:

CO₂: ±40 ppm + 3 % of reading, DC model: 75 ppm or 10 % of reading (whichever is greater)
 Temperature: <0.5 °C
 Relative humidity: ±2...3 % at 0...50 °C and 10–90 % rH
 Total error band includes accuracy, hysteresis and temperature effect over 5...50 °C and 10–90 % rH.

Technical Specifications

Media compatibility:

Dry air or non-aggressive gases

Measuring units:

ppm, °C and % rH

Measuring element:

CO₂: Non-dispersive infrared (NDIR)
 Temperature: Pt1000 (models without rH-measurement)
 Integrated (models with rH-measurement)

Relative humidity: Thermoset polymer capacitive sensing element

Calibration:

Automatic self-calibration ABC Logic™ or continuous comparison (DC)

Environment:

Operating temperature: 0...50 °C
 Storage temperature: -20...70 °C
 Humidity: 0 to 95 % rH, non condensing

Physical

Dimensions:

Case: 99 x 90 x 32 mm

Weight:

150 g

Mounting:

3 screw holes slotted, 3.8 mm

Materials:

Case: ABS

Protection standard:

IP20

Display (Optional):

Touchscreen

Size: 77.4 x 52.4 mm

Electrical connections:

Power supply:

5-screw terminal block
 (24 V, GND)
 0.2–1.5 mm² (16–24 AWG)

Relay out:

3-screw terminal block
 (NC, COM, NO)
 0.2–1.5 mm² (16–24 AWG)

Electrical

Input:

24 VAC or VDC, ±10 %
 Current consumption: max 90 mA (at 24 V) + 10 mA for each voltage output or 20 mA for each current output

Relay out:

SPDT Relay, 250 VAC / 30 VDC / 6 A
 Adjustable switching point and hysteresis

One analog output for selected media:

0/2*–10 VDC, Load R minimum 1 kΩ
 *(2–10 VDC display models only) or
 4–20 mA, maximum load 500 Ω

Communication

Protocol: MODBUS over Serial Line

Transmission Mode: RTU

Interface: RS485

Byte format (11 bits) in RTU mode:

Coding System: 8-bit binary

Bits per Byte:

1 start bit
 8 data bits, least significant bit sent first
 1 bit for parity
 1 stop bit

Baud rate: selectable in configuration

Modbus address: 1–247 addresses selectable in configuration menu

Conformance

Meets requirements for:

	CE:	UKCA:
EMC:	2014/30/EU	S.I. 2016/1091
RoHS:	2011/65/EU	S.I. 2012/3032
LVD/EESR:	2014/35/EU	S.I. 2016/1101
WEEE:	2012/19/EU	S.I. 2013/3113

COMPANY WITH
 MANAGEMENT SYSTEM
 CERTIFIED BY DNV
 ISO 9001 • ISO 14001



HOW TO GENERATE A MODEL?

Example: CDT-MOD-2000-1R-D	Product series	
	CDT2000	Carbon dioxide transmitter, analog configurations
	CDT-MOD-2000	Carbon dioxide transmitter, Modbus configuration
	Calibration	
		ABC logic™, Automatic Background Calibration
	-DC	Dual channel, for continuously occupied space
	Mounting	
		Wall mount
	Relay	
	-1R	With relay
		Without relay
	Relative humidity sensor	
	-rH	With relative humidity sensor
		Without relative humidity sensor
Display		
-D	With display	
	Without display	
Model	CDT-MOD-2000	-1R -D