CARBON DIOXIDE TRANSMITTERS CDT-MOD-2000 SERIES

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

5 YEAR WARRANTY

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 (CO_2), 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 CO_2 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 (CO_2, rH, T)
- Offset feature enabling field calibration for each measurement parameter (CO_2, 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:

- CO_2 and humidity levels in offices, public spaces, meeting rooms and classrooms
- CO_2 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

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CDT-MOD-2000 SERIES

SPECIFICATIONS

Performance

Measurement ranges:
CO_2: 400–2000 ppm
Temperature: 0...50 °C
Relative humidity: 0–100 %
Accuracy:
CO_2: ±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:
CO_2: 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

UK CA CE RoHS COMPLIANT

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