HK INSTRUMENTS
USER-FRIENDLY MEASURING DEVICES

CARBON DIOXIDE TRANSMITTERS
CDT2000 SERIES

Multifunctional, wall mount CO_2 transmitters for building automation systems

The CDT2000 series air quality transmitters are engineered for building automation systems in the HVAC/R industry. The CDT2000 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 CDT2000 series devices are available with large touchscreen display making the configuration of the device quick and easy.

The CDT2000 series transmitters calibrate themselves automatically using ABC^{TM} logic. The ABC^{TM} logic requires that the space in which the transmitter is used needs to to be unoccupied for four hours per day so that the indoor CO_2 concentration drops to the outside level. CDT2000-DC is a dual channel model with a measuring channel and a reference channel that makes a continuous comparison and the necessary adjustment accordingly. CDT2000-DC is also suitable for buildings that are continuously occupied.

CDT2000 series devices include:
- Separate field configurable output for each measurement parameter (CO_2, rH, T).
- Proportional output options including: voltage (0–10 V, 2–10 V) and current (4–20 mA).

CDT2000 series device options offer:
- 2" x 3" touchscreen display
- Field configurable relay for any of the three parameters
- Modbus configuration

APPLICATIONS

CDT 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
- CDT2000-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

Description	CDT2000 Model	Product code	Description	CDT2000-rH Model	Product code
Carbon dioxide transmitter for room	CDT2000	301.001.001	Carbon dioxide and humidity transmitter for room	CDT2000-rH	301.003.001
- with display	CDT2000-D	301.001.002	- with display	CDT2000-rH-D	301.003.002
- with relay and display	CDT2000-1R-D	301.001.003	- with relay and display	CDT2000-1R -rH-D	301.003.003
- with Modbus configuration and display	CDT-MOD-2000-D	301.001.004	- with Modbus conguration and display	CDT-MOD-2000-rH-D	301.003.004
- with Modbus configuration, relay and display	CDT-MOD-2000-1R-D	301.001.005	- with Modbus conguration, relay and display	CDT-MOD-2000-1R-rH-D	301.003.005
- with dual channel sensor	CDT2000-DC	301.005.001	- with dual channel sensor	CDT2000-DC-rH	301.006.005
- with dual channel sensor and display	CDT2000-DC-D	301.005.002	- with dual channel sensor and display	CDT2000-DC-rH-D	301.006.001
- with dual channel sensor, relay and display	CDT2000-DC-1R-D	301.005.005	- with dual channel sensor, relay and display	CDT2000-DC-1R-rH-D	301.006.002
- with Modbus configuration, dual channel sensor and display	CDT-MOD-2000-DC-D	301.005.003	- with Modbus configuration, dual channel sensor and display	CDT-MOD-2000-DC-rH-D	301.006.003
- with Modbus configuration, dual channel sensor, relay and display	CDT-MOD-2000-DC-1R-D	301.005.004	- with Modbus configuration, dual channel sensor, relay and display	CDT-MOD-2000-DC-1R-rH-D	301.006.004

CARBON DIOXIDE TRANSMITTERS
CDT2000 SERIES

SPECIFICATIONS

Performance
Measurement ranges:
CO_2: 400–2000 ppm
Temperature: 0...50 °C
Relative humidity: 0–100 %
Accuracy:
CO_2: ±40 ppm + 2 % 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
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, CO_2, rH, T)
    0.2–1.5 mm² (12–24 AWG)
Relay out:
    3-screw terminal block
    (NC, COM, NO)
    0.2–1.5 mm² (12–24 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

CO_2 output signal:
    0–10 V, R>1 kΩ
    2–10 V, R>1 kΩ
    4–20 mA, R<500 Ω
Temperature output signal:
    0–10 V, R>1 kΩ
    2–10 V, R>1 kΩ
    4–20 mA, R<500 Ω
Relative humidity output signal:
    0–10 V, R>1 kΩ
    2–10 V, R>1 kΩ
    4–20 mA, R<500 Ω
Relay out:
    SPDT Relay, 250 VAC / 30 VDC / 6 A
    Adjustable switching point and hysteresis

Conformance
Meets requirements for CE marking:
EMC Directive 2014/30/EU
RoHS Directive 2011/65/EU
LVD Directive 2014/35/EU
WEEE Directive 2012/19/EU

COMPANY WITH MANAGEMENT SYSTEM CERTIFIED BY DNV GL
= ISO 9001 = ISO 14001 =

CE

RoHS 2
2011/65/EU

HOW TO GENERATE A MODEL?

Example: CDT2000-1R-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	
			Duct	Duct mount (not available with relay or relative humidity sensor)	
				Relay (only for wall mount model)	
				-1R	With relay
					Without relay
					Relative humidity sensor (only for wall mount model)
				-rH	With relative humidity sensor
					Without relative humidity sensor
					Display
				-D	With display
					Without display
Model	CDT2000		-1R		-D