CO_2 duct sensor

SDC

Description

The SDC CO2 sensor measures air quality through the presence of carbon dioxide in air ducts in the range between 0...2000 ppm / 0...5000 ppm. The measurement of CO2 concentration happens through a NDIR sensor that operates on an infrared basis and which compensates the presence of any impurity. The product can be provided with humidity or humidity/temperature sensor.
Output 0 ... 10 Vdc or 4 ... 20 mA outputs.

Technical specifications

Measurement range CO2	0...2000 / 0...5000 ppm
Accuracy CO2	±60 ppm (0...2000 ppm) ±2% FS ±150 ppm (0...5000 ppm) ±2% FS
Accuracy temperature	± 0,3K (5...60°C) + 1% FS
Accuracy humidity	25°C ± 2% RH (20...80%RH) + 2% FS
Power supply	12...34 V AC/DC (20...34 V AC/DC with relay)
Power consumption	40...100 mA
Sensor setting up time	60 min.
Working resistance at 0...10 V DC	10...100 kOhm
Working resistance at 4...20 mA	50...500 Ohm
CO2 sensitive element	NDIR self adjusting
Sensible element	Self-calibrating NDIR
Electrical connection	Screw terminal for cables 1,5 mm^2
Cable gland	M16 x 1.5 for cables ø 4 ... 10 mm
Protection type	IP65
Housing	PA6
Working range RH	0 ... 98% RH in clean, non-condensed air
Working temperature °C	0 ... + 50 ° C
Installation	PVC mounting flange (included)
Standards	CE, RoHs compliance

Models	Temperature	Humidity	Output
SDCV	-	-	0...10 V DC
SDCT(x)V*	•	-	0...10 V DC
SDCTH(x)V*	•	•	0...10 V DC
SDCC	-	-	4...20 mA
SDCTC	•	-	4...20 mA
SDCHC	-	•	4...20 mA

Optional: suffix “D” version with display and/or suffix “R” relay version

(*) Replace “**X**” with the number of selected passive sensor:

“X“	Type of passive sensor
1	Pt100 (DIN EN 60751 Cl. B)
3	Ni1000 (TK6180)
5	NTC20k (±1%)
6	NTC10k (±1%) BETA 3435K

The sensor must comply with the ventilation slots against the flow direction the measured medium are attached. An external indication of the location of ventilation slits offers inappropriate gland, which always towards the vents shows.
Generally the sensor should be supplied at least once per day with fresh air, as he regularly calibrates itself to this. This procedure prevents a long-term drift whereby the sensor is very stable.
The sensor requires 15 days of calibration time, during which time it adapts to the real values.

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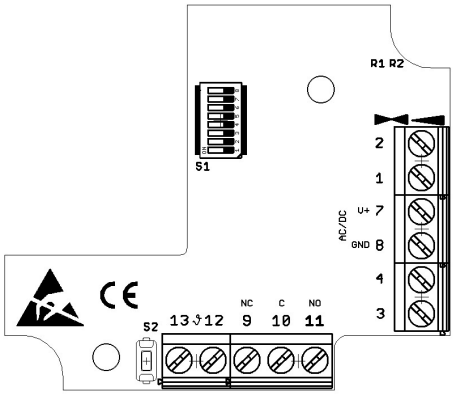
Electrical wirings



	Output 0...10 Vdc			Output 4...20 mA			
PIN	CO_2	CO_2/T	CO_2/T/H	PIN	CO_2	CO_2/T	CO_2/H
1	ppm	temp	temp	1	-	-	-
2	-	ppm	humidity	2	-	-	-
3	-	-	ppm	3	ppm	temp	humidity
4	-	-	-	4		ppm	ppm
7	V+						
8	GND						
12	passive sensor						
13	passive sensor						
S2	CO_2 Manual adjustment to 400 ppm						

Dip-switch setting

Temperature range selection

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

Humidity range selection

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...+50°C	OFF	ON	ON	OFF
-50...+100°C	ON	OFF	OFF	ON
-20...+80°C	OFF	ON	OFF	ON
Enthalpy				
0 kj/kg...85kj/kg	ON	ON	ON	ON

CO_2 range settings

Range	7	8
CO_2 ranges		
0...2000 ppm	OFF	
0...5000 ppm	ON	
Auto-calibration		
Not activated		ON
Activated		OFF

The automatic self-calibration (ASC) algorithm independently generates a reference value by analyzing the measured CO_2 concentration over a certain period of time (approx. 7 days). This reference value is used to update the calibration curve.
For correct use, it is necessary that the CO_2 sensor is regulary exposed to fresh air = 400 ppm at least 1 time per day for at least 30 minutes. The Co_2 sensor must be operated in continuous measurement mode during (ASC), switching it off will delay (ASC).
To exclude gross calibration errors, the reference value is only accepted when the values are found to be plausible by the internal plausibility check of the sensor.

Dimensions (mm) and installation