Room CO$_2$ and air quality sensor

SACV

Description

The SACV CO$_2$ and VOC sensor measures the presence of carbon dioxide and mixed gases in the room in the range between 0...2000 or 0...5000 ppm. The measurement of CO$_2$ 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 V DC or 4 ... 20 mA outputs.

Technical specifications

Measurement range	0...2000 / 0...5000 ppm
Accuracy CO$_2$	±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
Housing	ABS RAL9010
Weight	ca. 70 g
Protection type	IP 30
Working range RH	0...98% RH in contaminant-free, non-condensing air
Working temperature °C	0...+50°C
Standards	CE, RoHs compliance

Model	Temperature	Humidity	Output
SACVV	-	-	0...10 V DC
SACVxV	Passive sensor (*)	-	0...10 V DC
SACVTV	●	-	0...10 V DC
SACVTHV	●	●	0...10 V DC
SACVC	-	-	4...20 mA
SACVxC	Passive sensor (*)	-	4...20 mA
SACVTC	●	-	4...20 mA
SACVHC	-	●	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

SACV

Electrical wirings
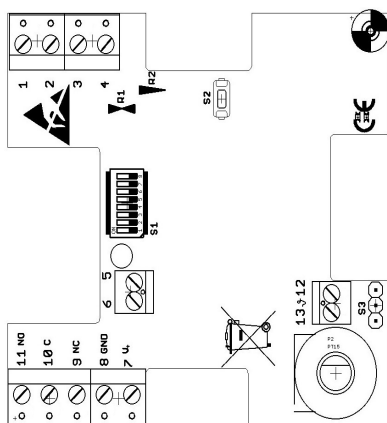
	Output 0...10 V			Output 4...20 mA	
PIN	VOC/CO$_2$	VOC/CO$_2$/T	VOC/CO$_2$/T/H	PIN	VOC/CO$_2$
1	(VOC)	temp	temp	1	
2	ppm	(VOC)	humidity	2	
3	-	ppm	(VOC)	3	(VOC)
4	-	-	ppm	4	ppm
5	(passive poti)				
6	(passive poti)				
7	V+				
8	GND				
9	(relay NC)				
10	(relay C)				
11	(relay NO)				
12	(passive sensor)				
13	(passive sensor)				
S3	polarity R3				
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	OFF	ON
	0...+50°C	ON	OFF
	0...+100°C	ON	ON

Humidity range selection	Range	3	4	5	6
	Relative humidity				
	0...100%	OFF	OFF	OFF	OFF
	Absolute humidity				
	0 g/m^3...30g/m^3	ON	OFF	OFF	OFF
	0 g/m^3...50g/m^3	ON	ON	OFF	OFF
	0 g/m^3...80g/m^3	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 selection / setting	Range	7	8
	CO$_2$		
	0...2000 ppm	OFF	OFF
	0...5000 ppm	ON	OFF
	0...10000 ppm	OFF	ON

Autocalibration CO$_2$ sensor: The sensor must be mounted with the ventilation slots against the flow direction. The screw connector shall be installed in the direction of the ventilation slots.
The sensor shall be exposed to fresh air at least once a day, otherwise it will give incorrect readings on long term.
The sensor requires 15 days of calibration to be adapted to the real values.

Dimension (mm)