

Datasheet: ANDKAC02/LQ/T/F-MD

Modbus duct sensor for CO₂, VOC, temperature and humidity measurement

Application

Depending on requirements, for measuring CO₂, VOC / mixed gases, temperature and relative humidity in ventilation ducts of HVAC systems.

Technical Data

General information	
Power supply	12...34 V AC/DC
Connection	5- wired-connection
Connection clamp	Screw clamps, max 1.5 mm ²
Output	Modbus RTU/ASCII via RS-485
Power consumption	10...20mA

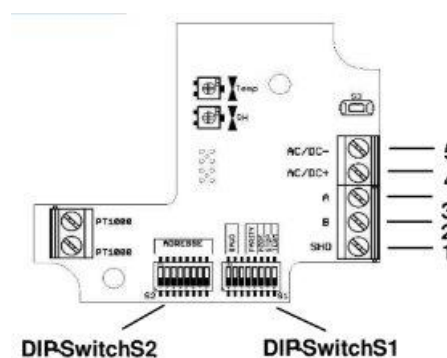
Casing	
Dimensions	75x69x44 mm
Material	PA6, similar RAL 9010
Cable inlet	M16x1.5 for wire diameter 4...10 mm
Admissible environmental conditions	0...+50 °C; 10...95% RH
Protection class	IP65

Special sensor models available on demand.



Sensor	
Sensor (CO ₂)	NDIR with Auto-calibration
CO ₂ accuracy:	±50 ppm + 2% of reading at 25°C and 1013 mbar
Measuring range CO ₂	0...2,000 ppm
Sensor (r.h. / °C)	Digital
Tolerance r.h.	25 °C: +/- 2 % r.h. (20...80 %) + 2% f.s.
Tolerance °C	+/- 0.3 °K (5...60 °C) + 1% f.s.
Sensor (°C)	Digital
Sensor (VOC / LQ)	VOC / mixed-gas sensor with auto-calibration
Measuring range	0...500 VOC Index

Electrical connections



Type Modbus	
Pin	Assignment
1	SHD
2	B
3	A
4	+Ub
5	GND

Addressing DIP-Switch S2

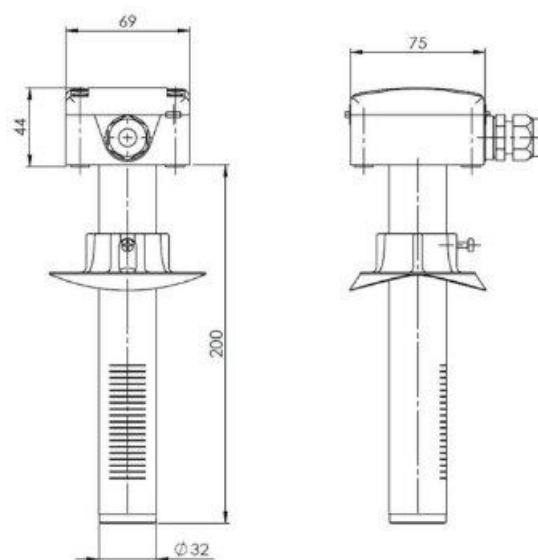
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ON		Schalter oben: ON Switches up: ON
OFF		

Register address of sensors

Address of measurands		
Measurands	Modbusregister	Gain
VOC / Air Quality		
VOC Index	30	
CO2 Carbon Dioxide		
ppm	10	-
Temperature / Humidity		
°C	20	10
%rH	21	10
kg/m3	22	10
Dewpoint °C	23	10
Enthalpy J	24	10

Draft



Configuration DIP-Switch S1

Configuration DIP-Switch S1								
DIP-Setting	1	2	3	4	5	6	7	8
Baudrate								
9600	OFF	OFF	-	-	-	-	-	-
19200	OFF	ON	-	-	-	-	-	-
38400	ON	OFF	-	-	-	-	-	-
57600	ON	ON	-	-	-	-	-	-
Termination								
none	-	-	-	-	-	-	-	OFF
120Ω	-	-	-	-	-	-	-	ON
Parity								
Even Parity	-	-	-	OFF	OFF	-	-	-
Odd Parity	-	-	-	OFF	ON	-	-	-
No Parity	-	-	-	ON	OFF	-	-	-
No Parity	-	-	-	ON	ON	-	-	-
Modus								
RTU						OFF	-	-
ASCII						ON	-	-
Stop Bits								
1	-	-	-	-	-	-	OFF	-
2	-	-	-	-	-	-	ON	-

Mounting advise



Install the sensor in the ventilation duct with the ventilation openings facing upstream, against the airflow direction. The cable gland indicates the position of the ventilation openings.

Ensure that the sensor is installed in a representative airflow area and is not exposed to condensation, water ingress or aggressive gases. Installation and electrical connection must be carried out by qualified personnel.

Auto-calibration CO2 sensor

The automatic self-calibration (ASC) algorithm independently generates a reference value by analyzing the measured CO2 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 CO2 sensor is regularly exposed to fresh air = 400 ppm at least 1 time per day for at least 30 minutes. The CO2 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.

Auto-calibration VOC sensor

Due to the composition and diversity of VOC gases, neither an exact ppm value nor the type of gas can be determined. Therefore, the sensor provides a VOC Index rather than an absolute VOC concentration.

The sensor has an automatic calibration process lasting approximately 72 hours. During this period, it measures the gas concentration and sets the determined reference value to VOC Index 100. This value represents the typical gas composition during the previous 72 hours.

Values from 0 to 100 indicate improved air quality compared with the reference condition. Values from 100 to 500 indicate deteriorated air quality.

For reliable long-term operation, the sensor should be exposed to fresh air at least once per day.

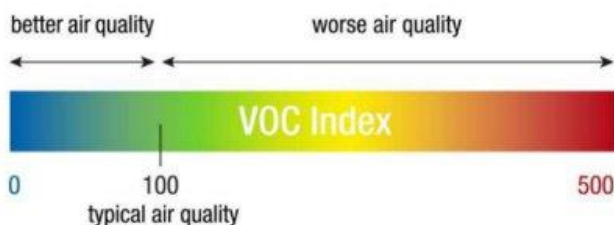
Standards

EU-Richtline 2014/30/EU

DIN EN 61326-2-1:2013

Installation/Guarantee

The installation of the devices should be done only by qualified personnel. - The device may only be connected with the power off. - The safety of the VDE, the states, the TÜV and the local energy supply company must be observed. - The EMC directives must be observed. It must be shielded connecting lines, laying parallel with current-carrying - Lines should be avoided. - Operation in the vicinity of equipment that do not comply with EMC directives may adversely affect the functioning - The buyer has to ensure compliance with the relevant building and safety guidelines - This product should not be used for safety-related tasks, such as the protection of persons as an emergency stop switch on equipment. - Improper use of any defects and damages are excluded from the warranty and liability. - Consequential damages caused by a fault in this device are excluded from warranty or liability. - Solely the technical data and connecting conditions of the mounting and operating instructions supplied with the instrument. Changes are possible at any time in the sense of technical progress and the improvement of products. - Changes of the device by the user, all warranty claims.



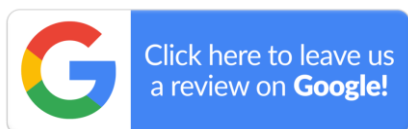
Product Web Links:

EN <https://www.andivi.com/sensors/modbus-sensors/modbus-co2-and-air-quality-sensors/modbus-duct-sensor-for-carbon-dioxide-measurements/>

SI <https://www.andivi.si/senzorji-tipala/modbus-senzorji/modbus-senzorji-kvalitete-zrake/modbus-kanalsko-tipalo-za-merjenje-ogljikovega-dioksida/>

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