

Indoor Air Quality VOC Analog / Digital Transmitter

DESCRIPTION

The indoor air quality detector is a simple, low-cost and low-maintenance VOC transmitter based on modern bio-semi-conductor technology.

The transmitter detects the VOC content in air and emits a proportional, linear, analog 0-10 V or digital RS 485/ModBus signal.

In case of restart/voltage breakdown a signal output is set to 100 % for 20minutes of maximum ventilation.

During this time the QRM adopts the current VOC value as 450 ppm basic value (CO2 equivalent).

Due to the thereby outputted signal of 1,25V there is a basic ventilation (basic value) of approx. 11 %. In case of improvement of the air quality an automatic correction of the basic value is effected.

The normal CO2 values are not causing any problems in closed areas but different gases like VOC can be responsible for symptoms like eye irritations, headaches, febleness, dizziness, as well as diseases and accordingly overexertion like sick-building –syndrome.

Beyond measurement of CO2 concentration the QRM Transmitter detects the air quality similar to human sensation.

That's why VOC measurement is the perfect method to define air quality.

Additionally the QRM is suitable for almost all application areas.

Furthermore there are a lot of integrated options for measurement and regulation of the temperature.

Enclosure with
different options

APPLICATION

The QRM detector is designed for measuring and controlling the indoor air quality (VOC) and the temperature in offices, living spaces etc. It is also possible to control the indoor air quality with three sequences (heating, ventilation, cooling etc.).

FEATURES

- Measuring range:0 - 4000 ppm VOC
- Internal automatic self-diagnostics with auto adjustment
- Maintenance interval > 5 years

- Analog output (OUT 1) 0 - 10 V (0 - 4 000 ppm VOC)
- Option: Analog output (OUT 2) 0 - 10 V (0 – 30°C)
- Option: Thermometry active or passive (OEM temperature sensor)
- Option: Two digital outputs
- Option: Temperature control with potentiometer
- Option: Digital interface RS 485 (ModBus) , BacNet
- Option: Status LED
- Option: Operation mode switch (Eco – night – off etc.)
- Sequence control (max. three-level e.g. heating/ damper/ cooling)

TECHNICAL DATA

Electrical	
Power supply	24 VAC/VDC±20%, 50 Hz (half-wave rectified input)
Current consumption	approx. 30mA
Sensor	
Sensor technique	Bio-semi-conductor
Measuring range	0 – 4000 ppm VOC
Response time (T1/e)	< 30 sec. < 3 min. diffusion time
Repeatability	± 95% (testing gas 20 ppm CO)
Accuracy	± 300 ppm
Pressure dependence	+ 1.6 % reading per kPa deviation from normal pressure 100 kPa
Sensor life expectancy	> 10 years
Maintenance interval	> 5 years
Output Signal	
OUT1 linear	0 -10 VDC / 0 - 4000 ppm VOC
OUT 2 linear	0 -10 VDC / 0 - 30°C
D/A resolution	10 Bit, 10 mV
Electrical parameters	R _{OUT} < 100 Ohm, R _{LOAD} > 5 kOhm
Environmental Conditions	
Humidity	5 to 95% RH non-condensing
Working temperature	0 °C to + 50 °C (32 °F to 122 °F)
Storage temperature	-10 °C to + 50 °C (14 °F to 122 °F)
General Information	
Operating environment	Residential, commercial and industrial ranges
Warm-up time	1 min. (@ full specs 15 minutes)
Enclosure	
Enclosure material	ABS
Colour	RAL 9010 (white)
Dimension	(W x H x D) 78,3 x 83,4 x 25,5 mm
Weight	0.130 kg (0.25 lbs.)
Protection class	IP 30
Installation	Wall mounting
Cable inlet	Back side
Connection	Screw-type terminals min. 0,25, max. 1,5 mm ²
Guideline	EMC Directive 2004/108/EEC CE
Warranty	1 year / material

*sensor data is only valid for circulating air

ORDERING INFORMATION

QRM - X - XXXXXX-XXX

Function

XXX Depending on version, is completed by AP

Options

1XXXXX	Passive temperature sensor OEM ¹
2XXXXX	Passive temperature sens. OEM ¹ + Potentiometer
X1XXXX	1 digital input ²
X2XXXX	2 digital inputs ²
XX1XXX	ModBUS
XX2XXX	BACNet ³
XXX1XX	1 x 0-10V (VOC)
XXX2XX	2 x 0-10V (VOC + active Temp.)
XXX3XX	2 x 0-10V (VOC + active Temp/Poti.)
XXX4XX	1 x 0-10V (VOC)+ 1 digital output
XXX5XX	1 x 0-10V (VOC)+ 2 digital outputs
XXX6XX	2 x 0-10V (VOC + active Temp.)+ 1 digital output
XXX7XX	2 x 0-10V (VOC + active Temp/Poti)+ 1 digital output
XXX8XX	1 digital output
XXX9XX	2 digital outputs
XXXX1X	3-stage switch
XXXXX1	with 1 LED
XXXXX2	with 2 LED

Version

R	Standard housing
S	Housing with set-point setter
T	Housing with set-point setter and switch

¹ OEM sensor: please specify the type

² Digital input: not in conjunction with the passive temperature sensor

³ BacNet: additional equipment necessary

ELECTRICAL CONNECTION (EXAMPLE)

