



# SD-QRM

*Air Quality Transmitter*



**SENSOR DATA**

# SD-QRM

## Air Quality Transmitter

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

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



### FEATURES

- Air Quality (VOC) transmitter  
VOC = Volatile Organic Compounds
- Measuring range 0-4000 ppm VOC
- Output 0-10 Vdc
- Internal automatic self-diagnostics with auto adjustment
- Maintenance interval > 5 years

### OPTIONS

- Temperature analog output 0-10 Vdc (0-30°C)
- Thermometry active or passive (OEM temperature sensor)
- Two digital outputs
- Temperature control with potentiometer
- Status LED
- Operation mode switch (Eco – night – off etc.)

### DETECTABLE GASSES

- Cigarette smoke
- Automobile exhaust
- Breath air
- Carbon dioxide (CO<sub>2</sub>)
- Carbon monoxide (CO)
- Solvent fumes
- Alcohol fumes
- Acetone
- Acrylonitrile
- Ammonia
- Benzene
- Chlorine
- Dimethyl amine
- Ethane
- Ethylene
- Ethylene oxide
- Formaldehyde
- Hydrogen
- Hydrogen sulfide
- Isobutane
- Methane
- Methanol
- Methyl chloride
- Methylene chloride
- Methy ether
- Methyl acetate
- Methyl ethyl ketone
- n-Hexane 2
- n-Petane
- Propane
- R-11
- R-12
- R-502
- R-123
- Sulfur dioxide
- Vinyl chloride

## Technical data

### ELECTRICAL

Power supply	24 Vac/dc±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	ROUT < 100 Ohm, RLOAD > 5 kOhm
Environmental Conditions	
Humidity	5 to 95% RH non-condensing
Working temperature	0 °C to + 50 °C
Storage temperature	-10 °C to + 50 °C

### 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
Protection class	IP 30
Installation	Wall mounting
Cable inlet	Back side
Connection	Screw-type terminals min. 0.25, max. 1.5 mm <sup>2</sup>
Guideline	EMC Directive 2004/108/EEC CE

## Order Codes

Type no.	Description
SD-QRM D1	Air quality transmitter for room mounting 0-10 VDC, 0-4000 ppm

QRM-D1 is standard version, see page 3 for options

## Description

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

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

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

During this time the QRM adopts the current VOC value as 450 ppm basic value (CO<sub>2</sub> equivalent).

Due to the thereby output signal of 1,125V 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 CO<sub>2</sub> values are not causing any problems in closed areas but different substances like VOC can be responsible for symptoms like eye irritations, headaches, feebleness, dizziness, as well as diseases and accordingly overexertion like sick-building-syndrome.

Beyond measurement of CO<sub>2</sub> 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.

## Options

- A1 Passive temperature sensor OEM\*
- A2 Passive temperature sensor OEM\* + Potentiometer
- B1 1 digital input\*\*
- B2 2 digital inputs\*\*
- D2 2 x 0-10 Vdc  
(VOC + active temperature transmitter)
- D3 2 x 0-10 Vdc  
(VOC + active temperature transmitter/  
potentiometer)
- D4 1 x 0-10 Vdc (VOC) + 1 digital output
- D5 1 x 0-10 Vdc (VOC) + 2 digital outputs
- D6 2 x 0-10 Vdc  
(VOC + temperature transmitter/  
+ 1 digital output)
- D7 2 x 0-10 Vdc  
(VOC + temperature transmitter/Potentiometer)  
+ 1 digital output
- D8 1 digital output
- D9 2 digital outputs
- E1 3-stage switch
- F1 with 1 LED
- F2 with 2 LED's

\* OEM sensor: please specify the type.

\*\* Digital input: not in conjunction with the passive temperature sensor.

### Example:

VOC transmitter, 0-4000 ppm, active temperature sensor with control, 1 digital input, 2 analog outputs, 3-stage switch with 2 LED's  
Type number: QRM B1D2E1F2

## APPLICATIONS

- Offices
- Hotels
- Meeting rooms
- Convention centers
- Schools
- Airports
- Apartments
- Stores
- Restaurants, etc.

## Wiring

