



PolyGard®

Air Quality VOC & Temperature Transmitter / Control

High-quality, 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 of 80 % is output for a 20-minute ventilation. During this time the VOC transmitter adopts the current VOC value as zero-point. In case of improvement of the air quality an automatic correction of the zero-point is performed.

The normal CO₂ 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 CO₂ concentration the VOC transmitter detects the air quality similar to human sensation. That's why VOC measurement is the perfect method to define air quality.

Additionally the VOC transmitter is suitable for almost all application areas. Furthermore there are a lot of integrated options for measurement and regulation of the temperature.

APPLICATION

The VOC 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 - 4000 ppm VOC or control signal)
- Approved according to EN 61010-1; ANSI/UL 61010 1; CAN/CSA-C22.2 No. 61010-1
- Option: Analog output (OUT 2) 0 - 10 V (0 - 30 °C)
- Option: Analog output (OUT 3) 0 - 10 V (0 - 100 % RH)
- 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.)
- Option: Sequence control (max. three-level e.g. heating / damper / cooling)
- Option: Measuring range 0 - 2000 ppm VOC





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SPECIFICATIONS

Electrical

Power supply	24 V AC/DC \pm 20 %, 50 Hz (half-wave rectified input)
Current consumption	Approx. 30 mA

Sensor data* VOC

Sensor technique	Bio-semi-conductor
Measuring range	450 – 4000 ppm VOC
Response time (T1/e)	< 30 sec.

< 3 min. diffusion time

Repeatability	\pm 95 % (testing gas 20 ppm CO)
Accuracy	\pm 150 ppm
Sensor life expectancy	> 10 years
Maintenance interval	> 5 years

Sensor data temperature

Measuring range	0 – 30 °C
Accuracy	\pm 0.5 °C

Sensor data humidity

Measuring range	0 – 100 % RH non-condensing
Accuracy	\pm 7 % RH

Output Signal

OUT1 linear	0 -10 V DC / 0 - 4000 ppm VOC
OUT2 linear	0 -10 V DC / 0 – 30 °C
OUT3 linear	0 -10 V DC / 0 – 100 % RH
D/A resolution	10 Bit, 10 mV
Electrical parameters	$R_{OUT} < 100 \text{ Ohm}$, $R_{LOAD} > 5 \text{ kOhm}$

Environmental Conditions

Humidity	0 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
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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 Directives 2004/108/EC
 Low Voltage Directive 2006/95/EC
 EN 61010-1:2010
 ANSI/UL 61010-1
 CAN/CSA-C22.2 No. 61010-1
 CE
 EN 60730

Warranty

1 year / material

* Sensor data only valid for circulating air.





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ORDERING INFORMATION

IAQA- X- XXXXXXX- XXX

FUNCTION

XXX Depending on version, is completed by MSR

OPTIONS

- 10XXXXX Passive temperature sensor OEM¹
- 20XXXXX Passive temperature sensor OEM¹ + potentiometer
- 01XXXXX 1 x digital input²
- 02XXXXX 2 digital input²
- XX1XXXX ModBUS
- XX2XXXX BACNet³
- XXXAXXX 1 x 0-10 V (active temp.)
- XXX1XXX 1 x 0-10 V (VOC)
- XXXBXXX 1 x 0-10 V (VOC) + int. pot. for P band
- XXX2XXX 2 x 0-10 V (VOC + active temp.)
- XXX3XXX 2 x 0-10 V (VOC + active temp./pot.)
- XXX4XXX 1 x 0-10 V (VOC) + 1 x digital output
- XXX5XXX 1 x 0-10 V (VOC) + 2 x digital output
- XXX6XXX 2 x 0-10 V (VOC + active temp.) +1 digital output
- XXX7XXX 2 x 0-10 V (VOC + active temp./pot.) + 1 digital output
- XXXCXXX 3 x 0-10 V (VOC + temp. + humidity)
- XXX8XXX 1 x digital output
- XXX9XXX 2 x digital output
- XXX1XX 3-stage switch
- XXXXX1X With 1 LED
- XXXXX2X With 2 LED⁴
- XXXXXX1 Measuring range 0 - 4000 ppm VOC
- XXXXXXF Measuring range 0 - 2000 ppm VOC

HOUSING VERSIONS

- 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: Accessory unit required

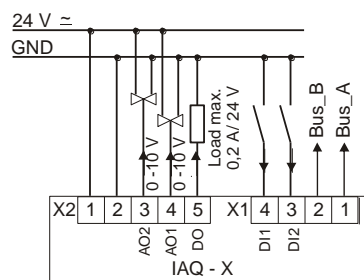
⁴ Not for version 3 x analog output

EXAMPLE

VOC transmitter, 0 - 4000 ppm, active temperature sensor with control, 1 digital input, 2 analog outputs, switch with 2 LEDs

Order number: IAQ-T-0102121-XXX

ELECTRICAL CONNECTION



AO1 = 0 - 10 V (0 - 4000 ppm VOC)
AO2 = 0 - 10 V (0- 30 °C)

