PolyGard® Indoor Air Quality VOC and Temperature Transmitter / Controller

DESCRIPTION

The indoor air quality transmitter is a low-cost, high-quality 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 CO_2 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_2 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.

Enclosure with different options

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: 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)

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	450 – 4000 ppm VOC
Response time (T1/e)	< 30 sec. < 3 min. diffusion time
Repeatability	± 95% (testing gas 20 ppm CO)
Accuracy	± 300 ppm
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	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
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.

ORDERING INFORMATION

IAQA–X–XXXXXX-XXX

Function

XXX	Depending on version, is completed by MSR

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

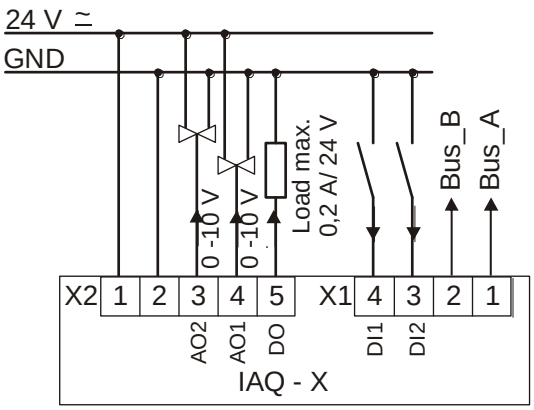
R	Standard housing
S	Housing with set-point setter
T	Housing with set-point setter and switch

[1] OEM sensor: please specify the type
[2] Digital input: not in conjunction with the passive temperature sensor
[3] BacNet: Protocoll not possible in Combination with Relais Outputs

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

Order Number: IAQA-T-010212-XXX

ELECTRICAL CONNECTION (EXAMPLE)



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