



PolyGard®

Analog / Digital Transmitter ADT-C3 1160 for Air Quality / VOC

Simple, low-cost and low-maintenance air quality transmitter based on modern semi-conductor technology.

The transmitter detects the VOC content in air and emits a proportional, linear, analog 4 - 20 mA / 0 - 10 V or digital RS 485/ModBus signal. The different housing versions make the ATC3-1160 available to almost any application or environment. In case of restart/voltage breakdown a signal of 80 % is output for 20 minutes for maximum ventilation. During this time the 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 for diseases and overexertion like the sick building syndrome. Beyond measurement of CO₂ concentration the IAQ Transmitter detects the air quality similar to human sensation. That's why VOC measurement is the perfect method to define air quality.

The VOC transmitter is suitable for nearly all application ranges. Furthermore there are a lot of integrated options for measurement and regulation of the temperature.



APPLICATION

The ADT-C3-1160 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.).





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FEATURES

- Measurement range: 0 - 4000 ppm VOC
- Internal automatic self-diagnostics with auto adjustment
- High accuracy, selectivity and reliability
- Automatic drift and temperature compensation
- Good resistance to poisoning
- Life expectancy > 10 years
- Maintenance interval > 5 years
- Reverse polarity protected, overload and short-circuit proof
- (0) 4 - 20 mA / (0) 2 – 10V analog signal output selectable
- IP65 protected
- Modular plug-in technology
- Approved according to EN 61010-1; ANSI/UL 61010 1; CAN/CSA-C22.2 No. 61010-1
- Serial interface RS-485 (optional)
- Manual addressing for RS-485 mode (optional)
- 4 – 20 mA analog input for external transmitter (optional)
- Relay output (optional)
- Integrated buzzer (optional)
- LCD display (optional)
- Heating (optional)
- Duct mounting (optional)

SPECIFICATIONS

Electrical

Power supply	24 VAC/VDC±20%, 50 Hz (half-wave rectifier input)
Power consumption	< 1 Watt (average)

Sensor data*

Gas type	*VOC (alcohols, aldehydes, aliphatic hydrocarbons, amines, aromatic hydrocarbons, carbon monoxides, methane, LPG, ketones and organic acids)
Sensor technique	Bio-semi-conductor
Measuring range	0 – 4000 ppm VOC
Accuracy	± 150 ppm
Repeatability	± 5 % of reading
Response time	t90 < 60 s
Warm-up time	20 min.
Sensor life expectancy	> 10 years / normal ambient conditions

Output Signal

OUT1 linear	4-20 mA / 0 -10 VDC / 0 - 4000 ppm VOC
D/A resolution	10 Bit, 10 mV
Electrical parameters	ROUT < 100 Ohm, RLOAD > 5 kOhm

* Sensor data only valid for circulating air





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Environmental Conditions

Humidity	5 to 95% RH non-condensing
Working temperature	0 °C to +50 °C (32 °F to 122 °F) w/o heating
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 plastic type A	Polycarbonate
Flammability	UL 94 V2
Colour	RAL 7032 (light gray)
Dimension	(W x H x D) 94 x 130 x 57 mm
Weight	0.5 kg (1 lbs.)
Protection class	IP 65
Installation	Wall mounting
Cable inlet	Standard 1 x M 20
Connection	Screw-type terminals min. 0.25 max. 2.5 mm ²

Guideline

	EMC Directives 2004/108/EC
	EN 61010-1:2010
	ANSI/UL 61010-1
	CAN/CSA-C22.2 No. 61010-1
	CE

Warranty	1 year / material
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Options

Relay output

Alarm relay 1 (threshold 700ppm VOC)	30 V AC/DC, 0.5 A, potential-free, SPDT
Alarm relay 2 (threshold 1200ppm VOC)	30 V AC/DC, 0.5 A, potential-free, SPNO/SPNC
Power consumption	30 mA, (max 0.8 VA)

Warning buzzer

Acoustic pressure	85 dB (distance 300 mm) (1 ft)
Frequency	3.5 kHz
Power consumption	30 mA, (max 0.8 VA)

LCD Display

LCD	Two lines, 16 characters each, not illuminated
Power consumption	10 mA, (max 0.3 VA)

Heating

Temperature controlled	3 °C ± 2 °C (37.4 °F ± 3.6 °F)
Ambient temperature	- 30 °C (-22 °F)
Power supply	18 - 28 VDC/AC
Power consumption	0.3 A; 7.5 VA

Analog Input

Only for RS-485 mode	4 – 20 mA overload and short-circuit proof, input resistance 200 Ω
Power supply for external transmitter	24 VDC, depending on power supply, max. 50 mA





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ORDERING INFORMATION

ADT-C3-1160-X-XXX0XXXX1

OPTIONS

- 1XX0XX0X1** Relay output¹
- X1X0XXXX1** Buzzer int.
- XX10XXXX1** Heating
- XXX01X0X1** RS- 485 protocol for DGC-05 series
- XXX02X0X1** RS- 485 protocol ModBUS
- XXX03X0X1** RS- 485 protocol customers' specification
- XXX0X1XX1** Mode addressing tool
- XXX0X3XX1** Manual addressing
- 0XX00X1X1** LCD display²
- XXX0XXX11** 4 – 20 mA analog-input
- XXX0XXXX1** 0 – 4000 ppm VOC

HOUSING VERSIONS

- A** Standard enclosure (plastic)
- B** Option duct mounting
- 5** Stainless steel housing

¹ Please indicate thresholds for low and high alarm when ordering.

² Not in connection with stainless steel housing, not in connection with option Relay or RS-485 interface

EXAMPLE 1

VOC transmitter incl. factory calibration 0 - 4000 ppm, standard enclosure, MODBus protocol

Order number: ADT-C3-1160-A-000020001

ELECTRICAL CONNECTION

