

PolyGard® Carbon Dioxide CO₂ Transmitter ADT-D3 1164 with Infrared Sensor

DESCRIPTION

CO₂ transmitter with two-beam infrared sensor for the continuous monitoring of the ambient air to detect carbon dioxide concentrations. The infrared measuring method with integrated temperature and drift compensation stands for highest accuracy, selectivity and reliability despite of the calibration interval of 3 years. The ADT-D3 possesses a standard analog output (0) 4- 20 mA or (0) 2– 10 V DC, and an RS-485 interface. 2 relays with adjustable switching thresholds as well as an integrated display are available as options.

APPLICATION

For detecting leakages in refrigeration plants with carbon dioxide as refrigerant, and also within a wide range of commercial and industrial applications. The measuring range 2000/ 5000 ppm is provided for the indoor air quality control. Due to the standard analog signal and the RS-485 serial interface the CO₂ transmitter is compatible to the PolyGard gas controller series by MSR-E as well as to any other controllers or automation systems.



Standard enclosure

FEATURES

- Two-beam infrared gas sensor (NDIR)
- High accuracy, selectivity and reliability
- Automatic drift and temperature compensation
- Good resistance to poisoning
- Life expectancy > 10 years
- Maintenance periods 3 years
- Comfortable calibration with selective access release
- Reverse polarity protected, overload and short-circuit proof
- (0) 4 - 20 mA / (0) 2 – 10V analog signal output selectable
- Serial interface RS-485
- IP65 protected
- Housing fire-resistant according to UL 94V2
- Modular plug-in technology
- Manual addressing for RS-485 mode (optional)
- 4 – 20 mA analog input for external AT transmitter (optional)
- Approved according to EN 61010-1; ANSI/UL 61010 1; CAN/CSA-C22.2 No. 61010-1
- Relay output (optional)
- Integrated buzzer (optional)
- LED flashlight (optional)
- LCD display (optional)
- LED status display (optional)
- Heating (optional)
- Duct mounting (optional)



SPECIFICATIONS

General sensor performance

Detected gas	Carbon dioxide (CO ₂)
Sensor element	Two-beam infrared (NDIR)
Measuring ranges (5)	0- 2000 ppm to 0 – 20 Vol%
Accuracy	< 2 % of measuring range
Repeatability	< 2 % of measuring range
Response time	t ₉₀ < 30 sec
Resolution	0.01 Vol.-%
Temperature range	-10 °C to + 40 °C (14 °F to 104 °F) w/o heating
Long-term zero-point drift	< 2 % of measuring range/year
Long-term output drift	< 2 % of measuring range/year
Pressure range	800 -1100 hPa
Humidity range	0 – 95 % RH non-condensing
Life expectancy	> 10 years
Recommended calibration interval	3 years
Storage temperature	0 °C to 50 °C (32 °F to 122 °F)
Storage time	Max. 6 months

Electrical

Power supply	18 - 28 VDC/AC, (reverse polarity protected)
Power consumption (without options)	45 mA, max. (1.1 VA)

Output signal

Analog output signal	(0) 4 – 20 mA, load ≤ 500 Ω, Resolution 0.02 mA
Selectable: Current / tension	(0) 2 - 10 V, load ≥ 50 k Ω, Resolution 0.02 V
Starting point 0 / 20 %	proportional, overload and short-circuit proof

Serial interface

Transceiver	RS 485 / 19200 Baud (9600 at Mod_Bus)
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Physical characteristics

Enclosure plastic type A*	Polycarbonate
Flammability	UL 94 V2
Enclosure colour	RAL 7032 (light grey)
Dimensions (W x H x D)	94 x 130 x 57 mm (3.7 x 5.12 x 2.24 inch.)
Weight	Approx. 0.5 kg (1.1 lbs.)
Protection class	IP 65
Installation	Wall mounting
Cable entry	Standard 1 x M 20
Wire connection	Screw type terminal, 0.25 - 2.5 mm ² (24 - 14 AWG)
Wire distance	Current signal: ca. 500 m (1500 ft) Voltage signal: ca. 200 m (600 ft.)

Guidelines

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

Warranty

One year on material (without sensor)

GAS ALARM SYSTEMS

Options	
Relay output	
Alarm relay 1	30 VAC/DC, 0.5 A, potential-free, SPDT
Alarm relay 2	30 VAC/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, each 16 characters
Power consumption	10 mA, (max 0.3 VA)
LED Indicator	
Green-yellow-red	Power supply, Low Alarm, High Alarm
Power consumption	10 mA, (max. 0.3 VA)
Heating	
Temperature controlled	3 °C \pm 2° C (37.5 °F \pm 3.6 °F)
Ambient temperature	- 40 °C (- 40 °F)
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 max. charge 50 mA

*For further enclosure types see datasheet ADT Enclosures.

ORDERING INFORMATION

ADT-D3-1164-X-XXXXXXXXXX

Options

1XXXXXXXXX	Relay output ²
X1XXXXXXXX	Warning buzzer integrated
X2XXXXXXXX	Flashlight (LED)
X3XXXXXXXX	Warning buzzer and flashlight
XX1XXXXXXXX	Heating
XXXX1XXXXX	RS-485 protocol for DGC-05 series
XXXX2XXXXX	RS-485 protocol ModBus
XXXX3XXXXX	RS-485 protocol customers' specifications
XXXXX2XXX	Manual calibration & tool addressing
XXXXX4XXX	Manual calibration & addressing
XXXXXX1XX	LCD display ³
XXXXXX2XX	LED status indicator ^{2,3}
XXXXXX1X	4 - 20 mA analog input (for RS-485 mode)
XXXXXXX4	Factory calibration 0 – 2000 ppm
XXXXXXX5	Factory calibration 0 – 5000 ppm
XXXXXXX8	Factory calibration 0 – 20 Vol%

Enclosures¹

A	Plastic enclosure
B	Duct mounting
5	Stainless steel- only available for >100 pcs/lot

¹ See Data sheet "PolyGard ADT Enclosure"

² Please indicate thresholds for low and high alarm when ordering.

³ Not in connection with stainless steel housing, not in connection with option Relay or RS-485 interface

Example: Carbon dioxide IR transmitter, stainless steel housing, manual calibration & tool addressing, factory calibration 0 – 2000 ppm

Ordering number: ADT-D3-1164-5-XXXXX2XX4

CONNECTION DIAGRAM

