

PolyGard® Refrigerant Gas Transmitter ADT-D3 20XX with Infrared Sensor

DESCRIPTION

Refrigerant gas transmitter with two-beam infrared sensor for the continuous monitoring of the ambient air to detect hydrochlorofluorocarbon (HCFC) and hydrofluorocarbon (HFC) refrigerants. 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 leak detection in cooling systems with refrigerant gases (HCFC and HFC) as cooling agents, and also within a wide range of commercial and industrial applications. Due to the standard analog output signal and the RS-485 serial interface the refrigerant transmitter is compatible to the PolyGard gas controller series by MSR-E as well as to any other controller or automation system.



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
- 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	Refrigerant gases
Sensor element	Two-beam infrared (NDIR)
Measuring range	0 - 2000 ppm
Accuracy	< 2 % of measuring range
Repeatability	< 2 % of measuring range
Response time	$t_{90} < 30$ sec
Resolution	10 ppm
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	< 3 % 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 $\leq 500 \Omega$,
Selectable: Current / tension	(0) 2 - 10 V, load $\geq 50 \text{ k} \Omega$
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, min. 0.25 mm ² (24 AWG) max. 2.5 mm ² (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

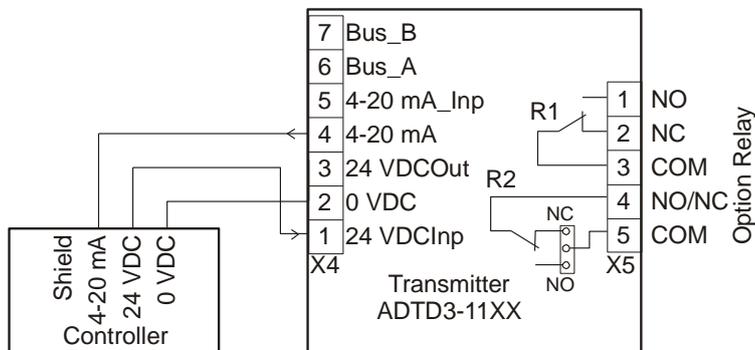
One year on material (without sensor)

*For further enclosure types see datasheet ADT Enclosure.

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 ±2°C (37.5 °F ± 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

CONNECTING DIAGRAM



ORDERING INFORMATION

ADT-D3-20XX-X-XXXXXXXX

Options

1XXXXXXXX	Relay output ²
X1XXXXXXXX	Buzzer int.
X2XXXXXXXX	Flashlight (LED)
X3XXXXXXXX	Warning buzzer and flashlight
XX1XXXXXXXX	Heating
XXXX1XXXX	RS- 485 protocol for DGC-05 series
XXXX2XXXX	RS- 485 protocol ModBUS
XXXX3XXXX	RS- 485 protocol customers' specification
XXXXX2XXX	Manual calibration & tool addressing
XXXXX4XXX	Manual calibration & addressing
XXXXXX1XX	LCD display ³
XXXXXX2XX	LED status indicator ^{2,3}
XXXXXXXX1X	4 – 20 mA analog input
XXXXXXXXX1	Factory calibration 0 - 1000 ppm
XXXXXXXXX2	Factory calibration 0 - 2000 ppm

Enclosure¹

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

Refrigerant Gas Type

2064	R 123
2065	R 125
2070	R 22
2077	R 134a
2078	R 404a
2083	R 407a
2080	R 407c
2068	R410a
2069	R507
2063	R1234yf

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: Refrigerant IR transmitter R 134a, stainless housing, manual calibration & tool addressing, factory calibration 0 - 2000 ppm

Ordering No.: ADT-D3-2077-5-XXXXX2XX2