



PolyGard®

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

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.

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)



Standard Housing





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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	$t_{90} < 30 \text{ sec}$
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 2014/30/EU
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.





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Options

Relay output

Alarm relay 1	30 V AC/DC, 0.5 A, potential-free, SPDT
Alarm relay 2	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, each 16 characters
Power consumption	10 mA, (max 0.3 VA)

LED display

Green-yellow-red	Supply, low alarm, high alarm
Power consumption	10 mA, (max. 0.3 VA)

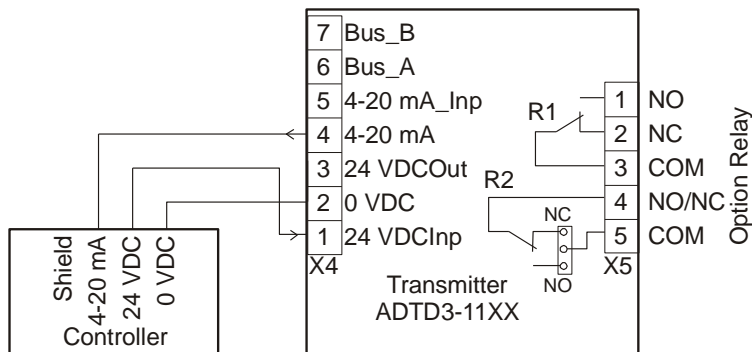
Heating

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 V DC max. charge 50 mA

CONNECTION DIAGRAM





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ORDERING INFORMATION

ADT-D3-20 XX- X- XXXXXXXXXX

Version

- 1XXXXXXXX Relay output²
- X1XXXXXXXX Warning buzzer int.
- X2XXXXXXXX Flashlight (LED)
- X3XXXXXXXX Warning buzzer and flashlight
- XX1XXXXXXXX Heating
- XXXX1XXXX RS - 485 protocol for DGC-05 series
- XXXX2XXXX RS - 485 protocol for ModBUS
- XXXX3XXXX RS - 485 protocol for customers' specifications
- XXXXX2XXX Manual calibration
- XXXXX4XXX Manual calibration / addressing
- XXXXX5XXX Manual calibration / tool addressing
- XXXXXX1XX LCD display³
- XXXXXX2XX LED status display^{2,3}
- XXXXXX1X 4 - 20 mA analog-input
- XXXXXXX1 Factory calibration 0 – 1000 ppm
- XXXXXXX2 Factory calibration 0 – 2000 ppm

Enclosure¹

- A Plastic enclosure
- B Duct mounting
- 5 Stainless steel (only available from 100 pcs. / lot)

Refrigerant gas type⁴

- 2061 R 23
- 2064 R 123
- 2065 R 125
- 2068 R 410a
- 2069 R 507
- 2070 R 22
- 2077 R 134a
- 2078 R 404a
- 2080 R 407c
- 2083 R 407a
- 2087 R 452a

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 gas IR transmitter R134a, stainless steel housing, manual calibration / tool addressing, range 0- 2000 ppm

Order Number: ADT-D3-2077-5-000005002

