

PolyGard®



Ammonia NH₃ Transmitter ADT-23-1125

NH₃ transmitter including digital measurement value processing and temperature compensation for the continuous monitoring of the ambient air to detect nitrogen monoxide concentrations. Integrated in the transmitter there is a comfortable calibration routine with selective access release. The ADT-X3 possesses a standard analog output (0) 4- 20 mA or (0) 2– 10 V DC, and an RS-485 interface. Two relays with adjustable switching thresholds are available as an option.

APPLICATION

For detecting leakages in refrigeration plants with ammonia as refrigerant, and also within a wide range of commercial and industrial applications. Due to the standard analog signal and the RS-485 serial interface the NH₃ transmitter is compatible to the PolyGard gas controller series MGC and DGC by MSR-E as well as to any other controllers or automation systems.

FEATURES

- Digital processing of the measurement values incl. temperature compensation
- Continuous monitoring
- Low zero point drift
- Good stability to poisoning
- Long-life sensor
- Modular plug-in technology
- Easy maintenance
- 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
- Manual calibration via potentiometer (option)
- Manual addressing for RS-485 mode (option)
- 4 – 20 mA analog input for an external 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)
- LED status display (optional)
- Heating (optional)
- Duct mounting (optional)
- 2-wire mode (not in connection with options: relay output, bus interface, heating, warning buzzer and/ or flashlight)



Standard Housing



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Up-to-date data sheets and user manuals can be found in the download area on www.msr-24.com.
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SPECIFICATIONS

General sensor performance

Gas type	Ammonia (NH ₃)
Sensor element	Electrochemical, diffusion
Measuring range	0 - 300 ppm / 0 - 1000 ppm / 0 - 100 ppm
Pressure range	Atmosphere ± 15 %
Humidity	15 – 90 % RH non condensing
Storage temperature range	0 °C to 30 °C (32 °F to 86 °F)
Storage time	Max. 6 months
Accuracy	± 30 ppm (meas. range 300/ 1000 ppm)
Accuracy	± 5 ppm (meas. range 100 ppm)
Repeatability	< 10 % of reading
Zero-point drift	<± 50 ppm / year (meas. range 300/ 1000 ppm)
Zero-point drift	<± 10 ppm / year (meas. range 100 ppm)
Long-term output drift	< 2 % signal loss/month
Response time	t ₉₀ < 120 sec. (meas. range 300/ 1000 ppm)
Response time	t ₉₀ < 90 sec. (meas. range 100 ppm)
Temperature range	-10 °C to +50 °C (14 °F to 122 °F) w/o heating
Life expectancy	> 2 years/normal operating environment

	Concentration (ppm)	Reaction (ppm)	
		MB 100 ppm	300/1000 ppm
Chlorine, Cl ₂	10 ppm		0
Ethylene, C ₂ H ₄	1000 ppm		0
Carbon monoxide; CO	200 ppm		0
Methane, CH ₄	5000 ppm		0
Hydrogen, H ₂	1000 ppm	< -10	< -150
Sulphur dioxide, SO ₂	10 ppm	< 15	< 12
Hydrogen sulphide, H ₂ S	10 ppm	< 30	< 30
Nitrate monoxide, NO	20 ppm		0
Nitrogen dioxide, NO ₂	20 ppm	< 2	0
Ethanol, C ₂ H ₆ O	100 ppm		0
Carbon dioxide, CO ₂	5000 ppm		0

Electrical

Power supply	18 - 28 VDC/AC, reverse polarity protected
Power consumption (without options)	22 mA, max. (0.6 VA)

Output signal

Analog output signal	(0) 4 – 20 mA, load ≤ 500 Ω,
Selectable: Current / tension	(0) 2 - 10 V; load ≥ 50 k Ω
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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* The table doesn't claim to be complete. Other gases, too, can have an influence on the sensitivity. The mentioned cross sensitivity data are only reference values valid for new sensors.



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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	1 year on sensor (not if poisoned or overloaded) 2 years on device

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)

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 VDC max. 50 mA

*For further enclosure types see datasheet ADT Enclosure.



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ORDER INFORMATION

ADT-23-1125- X- XXXXXXXXX

Options

- 1XXXXXXXX Relay output²
- X1XXXXXXXX Buzzer int.
- X2XXXXXXXX Flashlight (LED)
- X3XXXXXXXX Warning buzzer and flashlight
- XX1XXXXXX Heating
- XXX1XXXXX RS- 485 protocol for DGC-05 series
- XXX2XXXXX RS- 485 protocol ModBUS
- XXX3XXXXX RS- 485 protocol customers' specification
- XXXX1XXXX Calibration / addressing mode tool
- XXXX2XXXX Manual calibration
- XXXX3XXXX Manual addressing
- XXXX4XXXX Manual calibration / addressing
- XXXXX2XX LED status display^{2,3}
- XXXXXX1X 4 – 20 mA analog input
- XXXXXXX1 Factory calibration 0 - 300 ppm
- XXXXXXX2 Factory calibration 0 - 1000 ppm
- XXXXXXX7 Factory calibration 0 - 100 ppm
- XXXXXXXD Factory calibration 0 - 500 ppm

Housing¹

- A Plastic housing
- B Duct mounting
- 5 Stainless steel

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

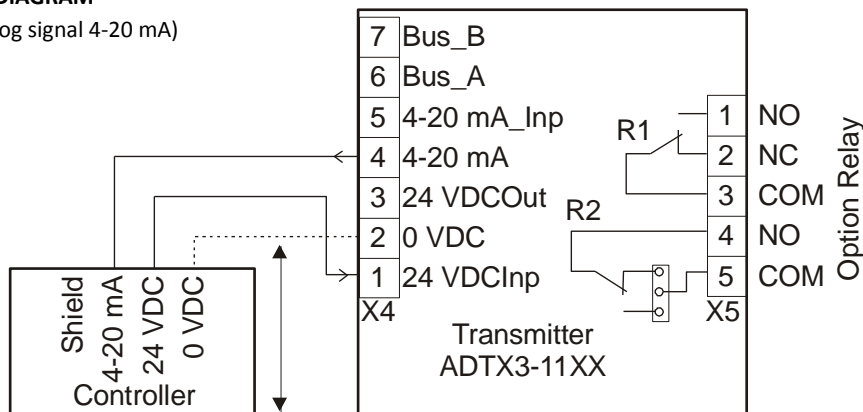
EXAMPLE

Ammonia transmitter, stainless steel housing, tool mode, measuring range 0 – 300 ppm

Order Number: ADT-23-1125-5-000001001

CONNECTION DIAGRAM

(Example: Analog signal 4-20 mA)



0 VDC: Only with options



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