

PolyGard® Ammonia NH₃ Transmitter ADT23 1125

DESCRIPTION

NH₃ transmitter including digital measurement value processing and temperature compensation for the continuous monitoring of the ambient air to detect ammonia concentrations. A comfortable calibration routine with selective access release is integrated in the transmitter. The ADT-23 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 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 measurement value processing incl. temp. 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 - 10 V analog signal output selectable
- Serial interface RS-485
- IP 65 protected
- Manual calibration via potentiometer (option)
- Manual addressing for RS-485 mode (option)
- 4 – 20 mA analog input for an external transmitter (option)
- Approved according to EN 61010-1; ANSI/UL 61010 1; CAN/CSA-C22.2 No. 61010-1
- Relay output (option)
- Integrated buzzer (option)
- LED flashlight (optional)
- LCD display (option)
- LED status display (optional)
- Heating (option)
- Duct mounted (option)



Standard enclosure



SPECIFICATIONS

General sensor performances

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

Cross sensitivity*

	Concentration	Reaction	
		MB 100 (ppm)	300/1000
Chlorine, Cl ₂	10 ppm	0	0
Ethylene, C ₂ H ₄	1000 ppm	0	0
Carbon monoxide; CO	200 ppm	0	0
Methane, CH ₄	5000 ppm	0	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	0
Nitrogen dioxide, NO ₂	20 ppm	< 2	0
Ethanol, C ₂ H ₆ O	100 ppm	0	0
Carbon dioxide, CO ₂	5000 ppm	0	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
-------------	---------------------

* 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.

GAS ALARM SYSTEMS

Physical	
Enclosure Plastic Type A**	Polycarbonate
Flammability	UL 94 V2
Enclosure color	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 lb)
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 Voltage signal ca. 200 m
Guidelines	
	EMC Directives 2004/108/EC EN 61010-1:2010 ANSI/UL 61010-1 CAN/CSA-C22.2 No. 61010-1 CE
Warranty	
	1 year on material (without sensor)
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)
Frequency	3.5 kHz
Power consumption	30 mA, max. 0.8 VA
LCD display	
LCD	Two lines, 16 characters each
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 (37.4 °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
Tension for external analog transmitter	24 VDC max. load 50 mA

** Standard version, for other housing versions see data sheet „ADT Enclosures“

ORDERING INFORMATION

ADT-23-1125-X-XXXXXXXX

Options

1XXXXXXXX	Relay output ²
X1XXXXXXXX	Warning buzzer integrated
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' specifications
XXXXX1XXX	Calibration/ addressing mode tool
XXXXX2XXX	Manual calibration
XXXXX3XXX	Manual addressing
XXXXX4XXX	Manual calibration / addressing
XXXXXX1XX	LCD display ³
XXXXXX2XX	LED status display ^{2,3}
XXXXXXX1X	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

Enclosure¹

A	Plastic enclosure
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, calibration tool, measuring range 0-300 ppm

Ordering number: ADT-23-1125-5-XXXXX1XX1

CONNECTION DIAGRAM

(Example: Analog signal 4-20 mA)

