

PolyGard® Ammonia NH₃ Transmitter ADT33 1120 with Semiconductor Sensor

DESCRIPTION

Ammonia (NH₃) transmitter with semiconductor sensor for the continuous monitoring of the ambient air to detect ammonia concentrations. The semiconductor typical, non-linear signal is translated into a linear, temperature-compensated output signal. A comfortable calibration routine is integrated in the transmitter. The ADT-33 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 to assure the compliance with the requirements according to EN 378-3, 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 by MSR-E as well as to any other controllers or automation systems.



Standard enclosure

FEATURES

- Digital measurement value processing incl. temperature compensation
- Linear output signal
- Continuous monitoring
- Low zero-point drift
- Good stability to poisoning
- Long-life semiconductor sensor
- Modular plug-in technology
- Comfortable calibration
- 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 (optional)
- LED status display (optional)
- Heating (option)
- Duct mounted (option)



SPECIFICATIONS

General sensor performances	
Gas type	Ammonia (NH ₃)
Sensor element	Semiconductor sensor
Measuring range	30 - 300 ppm/ 30 - 1000 ppm/ 30 - 3000 ppm
Response time	t ₉₀ ≤ 100 sec.
Oxygen concentration	21 % (standard) 18 % minimum level
Humidity	15 – 95 % RH non condensing
Temperature - working	-20 °C to + 50 °C (-4 °F to 122 °F) w/o heating
Temperature - storage	0 °C to + 40 °C (32 °F to 104 °F)
Pressure range	Atmosphere ± 10 %
Storage time	6 months
Life expectancy	> 5 years/ normal operating environment
Recommended mounting height	Under the ceiling
Cross sensitivity	Reaction
Ethanol, C ₂ H ₅ O	< 1
Iso butane, C ₄ H ₁₀	> 1
Hydrogen, H ₂	> 1
Electrical	
Power supply	16 - 28 VDC/AC, reverse polarity protected
Power consumption (without options)	45 mA, max. (1.10 VA)
Output signal	
Analog output signal, linear	(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 for ModBus)
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 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 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)

* For other housing versions see data sheet „ADT Enclosures“

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)
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

ORDERING INFORMATION

ADT-33-1120-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
XXXXX2XXX	Manual calibration
XXXXX4XXX	Manual calibration / addressing
XXXXX5XXX	Manual calibration / tool addressing
XXXXXX1XX	LCD display ³
XXXXXX2XX	LED status display ^{2,3}
XXXXXX1X	4 - 20 mA analog input
XXXXXXXX1	Factory calibration 30 – 300 ppm
XXXXXXXXY	Factory calibration 30 – 1000 ppm
XXXXXXXXO	Factory calibration 30 – 3000 ppm

Housing¹

A	Plastics
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, manual calibration/ tool addressing, factory calibration 30- 300 ppm

Ordering number: ADT-33-1120-5-XXXXX5XX1

CONNECTION DIAGRAM

