

PolyGard® Phosphine PH₃ Transmitter ADT53 1187

DESCRIPTION

Phosphine transmitter including digital measurement value processing and temperature compensation for the continuous monitoring of the ambient air to detect phosphine (PH₃) concentrations. Integrated in the transmitter there is a comfortable calibration routine with selective access release. The ADT-53 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 the detection of phosphine within a wide range of industrial and commercial applications. Due to the standard output signal and the RS-485 interface the phosphine transmitter is compatible to the PolyGard Gas Controller series by MSR-E as well as to any other electronic control or automation system.



Standard enclosure



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 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)
- LED status display (optional)
- Heating (optional)
- Duct mounting (optional)

SPECIFICATIONS

General sensor performance

Detected gas	Phosphine (PH ₃)	
Sensor element	Electrochemical, diffusion	
Measuring range	0 - 5 ppm	
Pressure range	Atmospheric ± 10 %	
Humidity range	15 – 90 % RH non-condensing	
Storage temperature	5 °C to 30 °C (41 °F to 86 °F)	
Storage time	Max. 6 months	
Mounting height	0.8 m (2.5 ft.)	
Accuracy	± 0.03 ppm	
Repeatability	< 2 % of reading	
Long-term output drift	< 2% signal loss/month	
Response time	t ₉₀ ≤ 25 sec.	
Sensor life expectancy	> 2 years/normal operating environment	
Temperature range - continuous	-10 °C to + 45 °C (14 °F to 113 °F) w/o heating	
Cross sensitivity ¹	Concentration (ppm)	Reaction (ppm PH ₃)
Carbon monoxide, CO	100	0
Silane, SiH ₄	10	5
Sulphur dioxide, SO ₂	100	25
Hydrogen sulphide, H ₂ S	34	~ 8
Nitrogen oxide, NO	100	0
Nitrogen dioxide, NO ₂	100	~ - 30
Hydrogen, H ₂	100	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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Physical characteristics

Enclosure Plastic Type A ²	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

¹ 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.

² 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

LED display

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

Heating

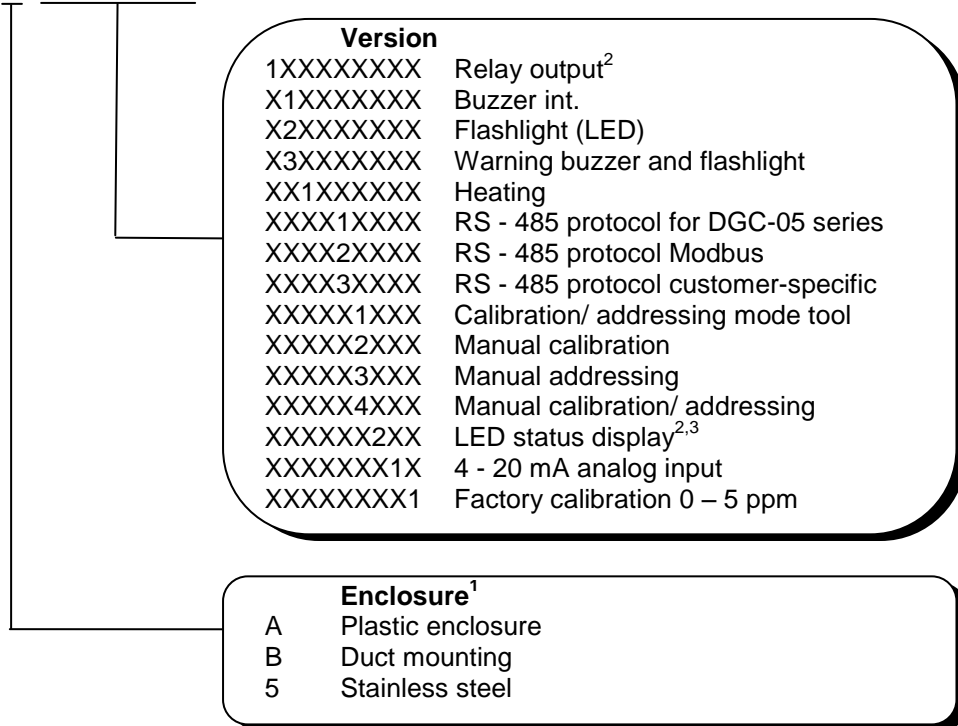
Temperature controlled	3 °C \pm 2°C (37.4 °F \pm 3.6 °F)
Ambient temperature	- 40 °C (-40 °F)
Power consumption	0.3 A; 7.5 VA

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. load 50 mA

ORDERING INFORMATION

ADT-53-1187-X-XXXXXXXX



¹ See Data sheet "PolyGard ADT Enclosure"

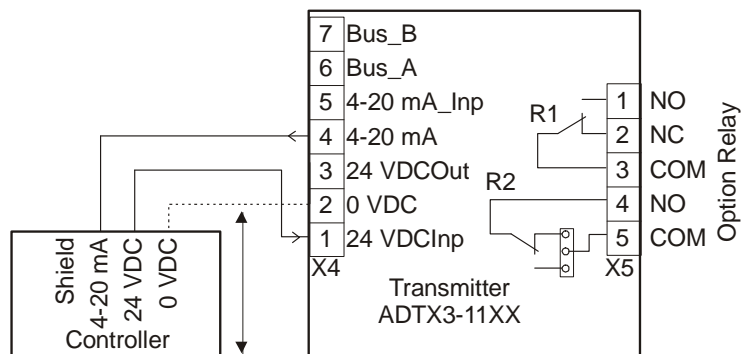
² Please indicate thresholds for low and high alarm when ordering.

³ Not in connection with stainless steel housing, not in connection with option Relay or RS-485 interface

Example: Phosphine PH₃ transmitter, stainless steel housing, calibration tool, factory calibration 0- 5 ppm

Ordering No.: ADT-53-1187-5-000001001

CONNECTING DIAGRAM



0 VDC: Two-wire operation only with 4- 20 mA output signal!