

PolyGard® Ethylene C₂H₄ Transmitter ADT53 1189

DESCRIPTION

C₂H₄ transmitter including digital measurement value processing and temperature compensation for the continuous monitoring of the ambient air to detect ethylene 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 monitoring ethylene concentrations caused by the maturation of fruits during transportation or storage. Due to the standard output signal and the RS-485 interface the C₂H₄ transmitter is compatible to the PolyGard Gas Controller series MGC and DGC by MSR-E as well as to any other electronic control or automation system.

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)



Standard enclosure



SPECIFICATIONS

General sensor performance	
Detected gas	Ethylene (C ₂ H ₄)
Sensor element	Electrochemical, diffusion
Measuring range	0 - 5 ppm, 0 - 10 ppm, 0 – 200 ppm
Temperature range	-20 °C to + 50 °C (-4 °F to 122 °F) w/o heating
Pressure range	Atmospheric ± 15 %
Humidity range	15 – 90 % RH non-condensing
Storage temperature	5 °C to 30 °C (41 °F to 86 °F)
Storage time	Max. 3 months
Mounting height	1.5 to 1.8 m (5 to 6 ft.)
Accuracy	0.1 ppm, 1.0 ppm for range 0 - 200 ppm
Repeatability	< 1 % of reading
Long-term output drift	< 5% signal loss/year
Zero-point range	0 + 1 ppm
Response time	t ₉₀ < 60 sec.
Sensor life expectancy	> 2 years/normal operating environment
Cross sensitivity ¹	Reaction (%)
Carbon monoxide; CO	> 60
Electrical	
Power supply	18 - 28 VDC/AC, reverse polarity protected (for 2- wire mode only VDC)
Power consumption (without options)	
- Analog mode	22 mA, max. (0.6 VA)
- Bus mode	12 mA, max. (0.3 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)
Protocol	Depending on version
Physical characteristics	
Enclosure Plastic Type A ²	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 (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
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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

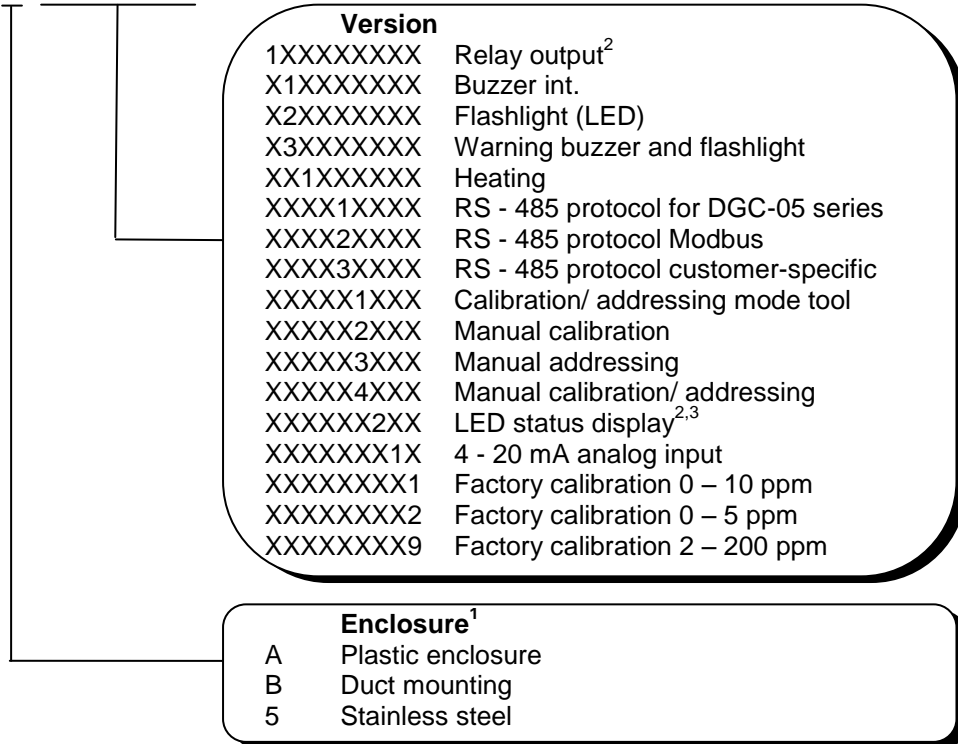
Temperature controlled	3 °C ±2°C (37.4 °F ± 3.6 °F)
Ambient temperature	- 40 °C (- 40 °F)
Power consumption	0.3 A; 7.5 VA

Analog Input

Only for RS-485 mode	4 – 20 mA overload and short-circuit proof, input resistance 200 Ω
Power supply for external transmitter	24 VDC max. load 50 mA

ORDERING INFORMATION

ADT-53-1189-X-XXXXXXXXXX



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: Ethylene transmitter, stainless steel housing, manual calibration, measuring range 0- 10 ppm

Ordering No.: ADT-53-1189-5-XXXXX2XX1

CONNECTING DIAGRAM

