

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.



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)
- Relay output (optional)
- Integrated buzzer (optional)
- LCD display (optional)
- Heating (optional)
- Duct mounting (optional)

SPECIFICATIONS

General sensor performance

Detected gas	Ethylene (C ₂ H ₄)
Sensor element	Electrochemical, diffusion
Measuring range	0 - 10 ppm (factory set) adjustable from 0 - 5 to 0 - 10 ppm
Temperature range	-20 °C to + 50 °C (-4 °F to 122 °F)
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
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)
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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 Directive 2004 / 108 / EEC

CE

Warranty

1 year on material (without sensor)

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 AT-DT 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
LCD Display	
LCD	Two lines, 16 characters each
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	- 30 °C (-22 °F)
Power supply	18 - 28 VDC/AC
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-XXXXXXXX

Version

1XXXXXXXX	Relay output
X1XXXXXXXX	Buzzer int.
XX1XXXXXXXX	Heating
XXXX1XXXX	RS - 485 protocol for DGC-05 series
XXXX2XXXX	RS - 485 protocol Modbus
XXXX3XXXX	RS - 485 protocol customer-specific
XXXXX1XXX	Calibration/ addressing mode tool
XXXXX2XXX	Manual calibration
XXXXX3XXX	Manual addressing
XXXXX4XXX	Manual calibration/ addressing
XXXXXX1XX	LCD display
XXXXXXX1X	4 - 20 mA analog input
XXXXXXXXX1	Factory calibration 0 – 10 ppm
XXXXXXXXX2	Factory calibration 0 – 5 ppm

Enclosure³

A	Plastic enclosure
B	Duct mounting
2	Steel, galvanised
5	Stainless steel

³ See datasheet "PolyGard AT/DT Enclosure"

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

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

CONNECTING DIAGRAM

