

## PolyGard® Ethylene C<sub>2</sub>H<sub>4</sub> Transmitter ADT53 1189

### DESCRIPTION

C<sub>2</sub>H<sub>4</sub> 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 C<sub>2</sub>H<sub>4</sub> 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)
- LCD display (optional)
- LED status display (optional)
- Heating (optional)
- Duct mounting (optional)



Standard enclosure



## SPECIFICATIONS

<b>General sensor performance</b>	
Detected gas	Ethylene (C <sub>2</sub> H <sub>4</sub> )
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 <sub>90</sub> < 60 sec.
Sensor life expectancy	> 2 years/normal operating environment
Cross sensitivity <sup>1</sup>	Reaction (%)
Carbon monoxide; CO	> 60
<b>Electrical</b>	
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)
<b>Output signal</b>	
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
<b>Serial interface</b>	
Transceiver	RS 485 / 19200 Baud (9600 at Mod_Bus)
Protocol	Depending on version
<b>Physical characteristics</b>	
Enclosure Plastic Type A <sup>2</sup>	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 <sup>2</sup> (24 AWG) max. 2.5 mm <sup>2</sup> (14 AWG)
Wire distance	Current signal ca. 500 m (1500 ft.) Voltage signal ca. 200 m (600 ft.)
<b>Guidelines</b>	EMC Directives 2004/108/EC EN 61010-1:2010 ANSI/UL 61010-1 CAN/CSA-C22.2 No. 61010-1 CE
<b>Warranty</b>	1 year on material (without sensor)

<sup>1</sup> 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.

<sup>2</sup> 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

### 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
Power supply for external transmitter	24 VDC max. load 50 mA

## ORDERING INFORMATION

**ADT-53-1189-X-XXXXXXXX**

### Version

1XXXXXXXX	Relay output <sup>2</sup>
X1XXXXXXXX	Buzzer int.
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 customer-specific
XXXXX1XXX	Calibration/ addressing mode tool
XXXXX2XXX	Manual calibration
XXXXX3XXX	Manual addressing
XXXXX4XXX	Manual calibration/ addressing
XXXXXX1XX	LCD display <sup>3</sup>
XXXXXX2XX	LED status display <sup>2,3</sup>
XXXXXXX1X	4 - 20 mA analog input
XXXXXXXX1	Factory calibration 0 – 10 ppm
XXXXXXXX2	Factory calibration 0 – 5 ppm
XXXXXXXX9	Factory calibration 2 – 200 ppm

### Enclosure<sup>1</sup>

A	Plastic enclosure
B	Duct mounting
5	Stainless steel

<sup>1</sup> See Data sheet "PolyGard ADT Enclosure"

<sup>2</sup> Please indicate thresholds for low and high alarm when ordering.

<sup>3</sup> 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

