

PolyGard® Hydrogen Cyanide HCN Transmitter ADT53 1183

DESCRIPTION

HCN transmitter including digital measurement value processing and temperature compensation for the continuous monitoring of the hydrogen cyanide gas concentration in the ambient air. A comfortable calibration routine with selective access release is integrated in the transmitter. 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 hydrogen cyanide gas within a wide range of industrial and commercial applications. Due to the standard output signal and the RS-485 interface the HCN transmitter is compatible to the PolyGard series MGC and DGC by MSR-E as well as to any other electronic control or automation system.



Standard enclosure

FEATURES

- Digital measurement value processing incl. temperature compensation.
- Continuous monitoring
- Low zero-point drift
- Poisoning stable
- 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 – 20mA analog input for 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)



SPECIFICATIONS

General sensor performance

Detected gas	Hydrogen cyanide (HCN)	
Sensor element	Electrochemical, diffusion	
Measuring range	0 – 50 ppm (factory-set), adjustable from 0 – 20 ppm to 0 – 100 ppm	
Temperature range	-10 °C to + 45 °C (14 °F to 113°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	Under the ceiling	
Accuracy	0.2 ppm	
Repeatability	< 2 % of reading	
Long term output drift	< 2% signal loss/month	
Response time	$t_{90} \leq 20$ s	
Sensor life expectancy	> 2 years, normal operating environment	
Cross sensitivity ¹	Concentration (ppm)	Reaction (ppm)
Carbon monoxide, CO	100	~ 2
Ethylene, C ₂ H ₄	100	0
Hydrogen, H ₂	100	~ 2
Nitrogen dioxide, NO ₂	5	~ -12
Nitric oxide, NO	35	0
Sulphur dioxide, SO ₂	20	~ 38
Hydrogen sulphide H ₂ S	15	~ 25

Electrical

Power supply 16 - 28 VDC/AC, reverse polarity protected (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 $\leq 500 \Omega$,
Selectable: Current / tension (0) 2 – 10 V, load $\geq 50 \text{ k} \Omega$
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 A² 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 mm² (24 AWG) max. 2.5 mm² (14 AWG)

Mounting² Wall mounted, pillar mounted

Wire distance Current signal: ca. 500 m (1500 ft)
Voltage signal: ca. 200 m (600 ft.)

GAS ALARM SYSTEMS

Guidelines	EMC Directives 2004/108/EC EN 61010-1:2010 ANSI/UL 61010-1 CAN/CSA-C22.2 No. 61010-1 CE
Warranty	One year on material (without sensor)
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, each 16 characters
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. 50 mA

¹ The table doesn't claim to be complete. Other gases can have an influence on the sensitivity, too. The mentioned cross sensitivity data are only reference values valid for new sensors.

² For further enclosure types see datasheet "ADT Enclosures".

ORDERING INFORMATION

ADT-53-1183-X-XXXXXXXX

Options	
1XXXXXXXX	Relay output ²
X1XXXXXXXX	Buzzer integrated
X2XXXXXXXX	Flashlight (LED)
X3XXXXXXXX	Warning buzzer and flashlight
XX1XXXXXX	Heating
XXXX1XXXX	RS- 485 protocol for DGC-05 series
XXXX2XXXX	RS- 485 protocol ModBUS
XXXX3XXXX	RS- 485 protocol customers' specification
XXXXX1XXX	Calibration / addressing mode tool
XXXXX2XXX	Manual calibration
XXXXX3XXX	Manual addressing
XXXXX4XXX	Manual calibration / addressing
XXXXXX1XX	LCD display ³
XXXXXX2XX	LED status display ^{2,3}
XXXXXX1X	4 – 20 mA analog input
XXXXXXX1	Factory calibration 0 – 50 ppm
XXXXXXX2	Factory calibration 0 – 20 ppm
XXXXXXX3	Factory calibration 0 – 100 ppm

Enclosure ¹	
A	Plastic enclosure
B	Duct mounting
5	Stainless steel

¹ See Data sheet "PolyGard ADT Enclosure"

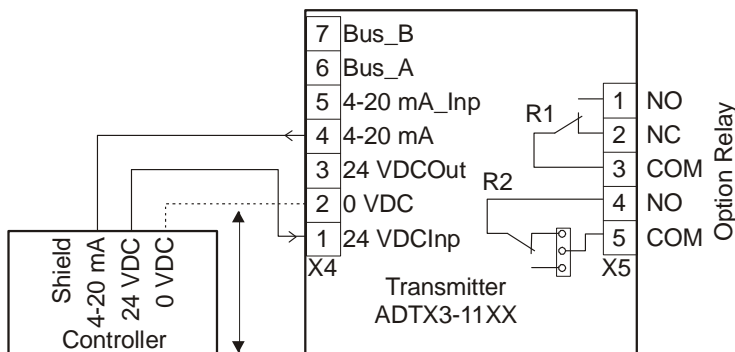
² Please indicate thresholds for low and high alarm when ordering.

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

Example: Hydrogen cyanide transmitter, stainless steel housing, calibration tool, factory calibration 0 – 50 ppm

Ordering No.: ADT-53-1183-5-XXXXX1XX1

CONNECTING DIAGRAM



0 VDC: Only with options