

## PolyGard® Hydrogen Chloride HCL Transmitter ADT53 1186

### DESCRIPTION

HCL transmitter including digital measurement value processing and temperature compensation for the continuous monitoring of the ambient air to detect hydrogen chloride 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 hydrogen chloride within a wide range of industrial and commercial applications. Due to the standard output signal and the RS-485 interface the HCL 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 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)
- LCD display (optional)
- LED status display (optional)
- Heating (optional)
- Duct mounting (optional)



Standard enclosure



## SPECIFICATIONS

### General sensor performance

Detected gas	Hydrogen chloride (HCL)	
Sensor element	Electrochemical, diffusion	
Measuring range	0 - 20 ppm 0 - 200 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	0.3 to 0.8 m (1 to 2.5 ft.)	
Accuracy	0.2 ppm	
Repeatability	< 2 % of reading	
Long-term output drift	< 2% signal loss/month	
Response time	t <sub>90</sub> < 60 sec.	
Sensor life expectancy	> 2 years/normal operating environment	
Cross sensitivity <sup>1</sup>	Concentration (ppm)	Reaction (ppm SiH <sub>4</sub> )
Carbon monoxide; CO	1000	0
Hydrogen; H <sub>2</sub>	1 %	0
Ethylene; C <sub>2</sub> H <sub>4</sub>	100	0
Sulphur dioxide; SO <sub>2</sub>	100	0
Hydrogen sulphide; H <sub>2</sub> S	20	31
Nitrogen oxide; NO	25	0
Nitrogen dioxide; NO <sub>2</sub>	20	0

### 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 <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.)

# GAS ALARM SYSTEMS

<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)
<b>Options</b>	
<b>Relay output</b>	
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
<b>Warning buzzer</b>	
Acoustic pressure	85 dB (distance 300 mm) (1 ft.)
Frequency	3.5 kHz
Power consumption	30 mA, max. 0.8 VA
<b>LCD Display</b>	
LCD	Two lines, 16 characters each
Power consumption	10 mA, max. 0.3 VA
<b>LED display</b>	
Green-yellow-red	Supply, low alarm, high alarm
Power consumption	10 mA, (max. 0.3 VA)
<b>Heating</b>	
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
<b>Analog Input</b>	
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

<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.

## ORDERING INFORMATION

**ADT-53-1186-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
XXXXXXX1	Factory calibration 0 – 20 ppm
XXXXXXX2	Factory calibration 0 – 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

**Example:** Hydrogen chloride transmitter, stainless steel housing, RS-485 protocol for DGC-05 series, calibration tool, measuring range 0- 20 ppm

**Ordering No.:** ADT-53-1186-5-XXXX11XX1

## CONNECTING DIAGRAM

