

# PolyGard® Carbon Monoxide CO Transmitter AT03 1110

## Description

CO transmitter including digital measurement value processing and temperature compensation for the continuous monitoring of the ambient air to detect carbon monoxide concentrations (CO). Comfortable calibration routine with selective access release is integrated in the transmitter. The AT-03 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 carbon monoxide (CO) within a wide range of commercial applications such as underground garages, tunnels, engine repair shops, loading bays, engine test benches, shelters, go-kart race courses etc. Due to the standard analog signal the CO transmitter is compatible to the PolyGard series MGC by MSR-E as well as to any other electronic control or automation system.



www.msr-electronic.de

Stainless steel housing

## Features

- Digital measurement value processing 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
- Manual calibration via potentiometer (option)
- Manual addressing for RS-485 mode (option)
- 4 – 20 mA analog input for external AT transmitter (optional)
- Relay output (optional)
- Integrated buzzer (optional)
- LCD display (optional)
- Heating (optional)
- Duct mounting (optional)
- IP65 protected (optional)

## Specifications

<b>Sensor Performance</b>			
Detected gas	Carbon monoxide (CO)		
Sensor element	Electrochemical, diffusion		
Measuring range	0 – 300 ppm (factory set) adjustable from 0-150 to 0 - 300ppm		
Accuracy	± 3 ppm		
Repeatability	± 3 % of reading		
Long term zero-point drift	< 5% signal loss/year		
Response time	$t_{90} \leq 50$ s		
Sensor life expectancy	5 years, normal operating environment		
Mounting height	1,5 to 1,8 m (5 – 6 ft.)		
Humidity range: Continuous	15 – 90 % RH non-condensing		
Short-time	0 – 99 % RH non-condensing		
Working temp.: Continuous	-10 °C to + 50 °C (14 °F to 122 °F)		
Short-time	-20 °C to + 50 °C (-4 °F to 122 °F)		
Storage temperature	5 °C to 40 °C (41 °F to 104 °F)		
Storage time	6 months		
Pressure range	Atmospheric ± 10 %		
Cross sensitivity*	Concentration (ppm)	Reaction (ppm)	
	Acetone, C <sub>3</sub> H <sub>8</sub> O	1000	0
	Acetylene, C <sub>2</sub> H <sub>2</sub>	40	80
	Ammonia, NH <sub>3</sub>	100	0
	Carbon dioxide, CO <sub>2</sub>	5000	0
	Chlorine, Cl <sub>2</sub>	2	0
	Ethanol, C <sub>2</sub> H <sub>5</sub> OH	2000	5
	Hydrogen, H <sub>2</sub>	100	20
	Hydrogen Sulphide, H <sub>2</sub> S	25	0
	Iso Propanol, C <sub>3</sub> H <sub>8</sub> O	200	0
	Nitric oxide, NO	50	8
	Nitrogen dioxide, NO <sub>2</sub>	50	-1,0
	Sulphur dioxide, SO <sub>2</sub>	50	< 0,5
<b>Electrical</b>			
Power supply	18 - 28 VDC/AC, (reverse polarity protected)		
Power consumption (without options)	22 mA, max. (0,6 VA)		
<b>Output signal</b>			
Analog output signal Selectable: Current / tension Starting point 0 / 20 %	(0) 4 – 20 mA, load ≤ 500 Ω, (0) 2 - 10 V; load ≥ 50 k Ω proportional, overload and short-circuit proof		
<b>Serial interface</b>			
Transceiver	RS 485 / 19200 Baud		

\* Die 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.

<b>Physical characteristics</b>	
Enclosure material*	Stainless steel V2A
Enclosure colour*	Natural, brushed
Dimensions * (HxWxD)	113 x 135 x 45 mm (5.35 x 4.5 x 1.8 in.)
Weight*	approx. 0,5 kg (1.1 lbs.)
Protection class*	IP 55
Mounting*	Wall mounted, pillar mounted
Cable entry	Standard 1 x M 20
Wire connection	Screw type terminal, 0,25 to 2,5 mm <sup>2</sup> 24 to 14 AWG
Wire distance	Current signal: ca. 500 m (1500 ft) Voltage signal: ca. 200 m (600 ft.)
<b>Certificate</b>	
	VDI 2053 German air treatment systems for car parcs (Pending)
<b>Guidelines</b>	
	EMC Directive 89/336/EEC
	CE
<b>Warranty</b>	
	One year on material (without sensor)
<b>Optionen</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, each 16 characters
Power consumption	10 mA, (max 0,3 VA)
<b>Heating</b>	
Temperature controlled	3 °C ±2°C (37.5 °F ± 35,5 °F)
Ambient temperature	- 40 °C (- 40 °F)
Power supply	18 - 28 VDC/AC
Power consumption	0,5 A; 12 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. 50 mA

\*For option "stainless steel" and further enclosure types see datasheet AT-DT Enclosure.

## Ordering Information

AT-03-1110-X-XXXXXXXXXX

### Options

1XXXXXXXX	Relay output
X1XXXXXXXX	Buzzer int.
XX1XXXXXXXX	Heating
XXX1XXXXX	RS- 485 protocol for DGC-05 series
XXX2XXXXX	RS- 485 protocol ModBUS
XXX3XXXXX	RS- 485 protocol customers' specification
XXXX1XXX	Calibration / addressing mode tool
XXXX2XXX	Manual calibration
XXXX3XXX	Manual calibration / addressing
XXXXX0XX	LCD display – language German
XXXXX1XX	LCD display – language English
XXXXX1X	4 – 20 mA analog input
XXXXXXX1	Factory calibration 0 - 300 ppm
XXXXXXX2	Factory calibration 0 - 150 ppm
XXXXXXX3	Factory calibration 0 - 200 ppm
XXXXXXX4	Factory calibration 0 - 100 ppm
XXXXXXX5	Factory calibration 0 - 50 ppm
XXXXXXX6	Factory calibration 0 - 400 ppm
XXXXXXX7	Factory calibration 0 - 500 ppm
XXXXXXX8	Factory calibration 0 - 1000 ppm
XXXXXXX9	Factory calibration 0 - 2000 ppm

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

0	Plastic enclosure
1	Duct mounting
2	Steel, galvanised
3	Aluminium
4	IP65 protected
5	Stainless steel

<sup>1</sup> See Data sheet „PolyGard AT/DT Enclosure”

**Example:** CO transmitter, stainless housing, tool calibration mode, factory calibration 0- 300 ppm

**Ordering No.:** AT-03-1110-5-XXXXX1XX1

## Connecting Diagram

