

μ-Gard[®] Digital Transmitter

DESCRIPTION

Digital transmitter with serial interface and integrated CO sensor for the carbon monoxide detection. The additional two 4 - 20 mA inputs allow the connection of analog gas transmitters.

The communication to the Digital Gas Controller is done via the serial RS 485 interface (Modbus optional).

Commissioning is confined to setting the transmitter address via a service tool.

Comfortable calibration is also carried out with a service tool without any further special tool.

APPLICATION

The Digital Gas Transmitter MD is used for the monitoring of the ambient air to detect carbon monoxide gases in order to protect health. The two analog inputs enable the low-cost monitoring of other gases, like e.g. NO₂ and LPG, at the measuring point. The transmitter is used for example in underground garages, engine repair shops, loading bays, tunnels, engine test stations, shelters, go-kart race courses etc.

FEATURES

- Continuous monitoring
- Low zero-point drift
- Long-life sensor (UL certification 2075)
- Easy maintenance/ calibration
- Temperature compensation
- Reverse polarity protected
- Overload protected and short-circuit protection
- Serial 4-wire bus (standard)
- Serial 3-wire bus (option)
- Two 4 – 20 mA inputs for external analog transmitters (option)
- Stainless steel housing (option)



SPECIFICATIONS

Electrical

Power supply	15 - 28 VDC reverse polarity protected
Power consumption (without external transmitter)	10 mA (0,24 W)
Analog Input	4 to 20 mA, overload and short-circuit protected, input resistor 200 Ω
Power supply for external transmitter	24 VDC, max. charge 50 mA

Sensor Performance

Detected gas	Carbon monoxide (CO)	
Sensor element	Electrochemical, diffusion	
Measuring range	0 – 300 ppm	
Accuracy	± 3 ppm	
Repeatability	± 3 % of reading	
Long term zero-point drift	< 5% signal loss / year	
Response time	t ₉₀ ≤ 50 s	
Sensor life expectancy	5 years/ normal operating environment	
Mounting height	1.5 to 1.8 m (5 to 6 ft.)	
Sensor reach	465 m ² to 930 m ² under best conditions	
Cross sensitivity*	Concentration (ppm)	Reaction (ppm CO)
Acetone, C ₃ H ₆ O	1000	0
Acetylene, C ₂ H ₂	40	80
Ammonia, NH ₃	100	0
Chlorine, Cl ₂	2	0
Ethanol, C ₂ H ₅ OH	2000	5
Iso Propanol, C ₃ H ₈ O	200	0
Carbon dioxide, CO ₂	5000	0
Nitrogen dioxide, NO ₂	50	- 1,0
Nitrogen oxide, NO	50	8
Sulphur dioxide, SO ₂	50	< 0,5
Hydrogen, H ₂	100	20

Environmental conditions

Humidity range - continuous	15 – 90 % RH, non condensing
- short-time	0 – 99 % RH, not condensing
Working temperature - continuous	-10 °C to + 50 °C (14 °F to 122 °F)
- short-time	-20 °C to + 50 °C (-4 °F to 122 °F)
Pressure range	Atmospheric ±10%
Storage temperature	5 °C to + 40 °C (41 °F to 104 °F)
Storage time	6 months

Communication

Transceiver	RS 485 / 19200 Baud
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GAS ALARM SYSTEMS

Physical characteristics

Enclosure	Type A	Type 5
Enclosure material	Polycarbonate	V2A, 1mm, material 1.4301
Flammability	UL 94 V2	
Enclosure color*	RAL 7032 (light grey)	Natural, brushed
Dimensions (W x H x D)	94 x 130 x 57 mm (3.7 x 5.12 x 2.24 inch.)	113 x 135 x 45 mm (4.45 x 5.31 x 1.77 inch.)
Weight	Approx. 0.3 kg (0.66 lbs.)	Approx. 0.5 kg (1.1 lbs.)
Protection class	IP 65	IP 55
Installation	Wall or pillar mounting, duct mounting as option	
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)	

Approvals/Listings

	EMC Directive 2004/108/EEC
	CE
	VDI 2053, Air Treatment Systems for Garages and Tunnels (in preparation)
Sensor certification	UL recognized

Warranty

One year on material (without sensor)

ORDERING INFORMATION

MD-1-11XX-X-XXXX

1XXX
2XXX
X1XX
XX1X
XX2X
XX3X
XXXB
XXX6
XXX7
XXX8
XXX9
XXXA
XXXC
XXXD
XXXE

Options

One analog input 4 - 20 mA (option)
Two analog inputs 4 - 20 mA (option)
Manual calibration (option)
DGC-05 protocol
MODBus protocol (option)
D-Bus protocol (option)
Factory calibration 0 - 300 ppm
Factory calibration 0 - 50 ppm (option)
Factory calibration 0 - 100 ppm (option)
Factory calibration 0 - 150 ppm (option)
Factory calibration 0 - 200 ppm (option)
Factory calibration 0 - 250 ppm (option)
Factory calibration 0 - 400 ppm (option)
Factory calibration 0 - 500 ppm (option)
Factory calibration 0 - 1000 ppm (option)

Enclosures

A Plastic enclosure (130 x 94 x 57 mm), IP65
B Duct mounting
5 Stainless steel

Gas type

1110 Carbon monoxide CO

Example: Transmitter for CO detection, plastic enclosure, 1 x analog input, DGC-05 protocol, factory calibration 300 ppm

Order Number: MD-1-1110-A-101B

WIRING CONFIGURATION

	Analog_Inp_2 (option)
6	Analog_Inp_1 (option)
5	Bus_B
4	Bus_A
3	0 VDC
2	24 VDC_Inp
1	
Transmitter MD-1-1110	