

μ -Gard[®] Analog Transmitter

DESCRIPTION

Analog transmitter for the continuous monitoring of gases and vapours in the ambient air. Used in garages, chiller rooms and heating systems, the μ -Gard MA series analog transmitter is a reliable gas detector.

APPLICATION

For the detection of gases within a wide range of commercial applications. Due to the 4 – 20 mA or 2 - 10 V analog signal the transmitter is compatible to the μ -Gard gas controller series ADC of MSR-E.

FEATURES

- Continuous monitoring
- Easy maintenance / calibration
- Reverse polarity protected
- Overload and short-circuit protected
- Long life sensor
- Low zero point drift
- Poisoning stable
- 4 – 20 mA analog signal output (standard)
- 2 - 10 V analog signal (selectable)



CONNECTING DIAGRAM

MA-X_Transmitter	
1	24 VDC
2	4..20 mA/2-10V DC
3	0 VDC

SPECIFICATIONS

	MA-0 CO	MA-9 O ₂	MA-9 NO	MA-2 NO ₂	MA-5 SO ₂	MA-2 NH ₃	MA-2 Ex	MA-2 NH ₃	MA-3 NH ₃	MA-4 Freon	MA-4 Ex	MA-3 ETO	
Sensor element	Electrochemical, diffusion						Catalytic bead (Pellistor)	Semiconductor sensor					
Response time t ₉₀ (s)	≤ 50	≤ 15	≤ 45	≤ 25	≤ 15	≤ 120	≤ 10 (Methane)	≤ 100	≤ 50	≤ 30 Meth.	≤ 50		
Stability & resolution	± 3 ppm	± 0,1 vol. %	± 0,2 ppm	± 0,2 ppm	0,2 ppm	<± 20 ppm	± 1% of reading	---	---	---	---	---	
Repeatability (% of reading)	± 3 %	---	---	± 2 %	± 2 %	---	---	---	---	---	---	---	
Long term zero point drift of reading/ year	< 5%	---	< 0,3 ppm	< 0,2 ppm	< 0,2 ppm	---	± < 6% LEL (Methane)	---	---	---	---	---	
Long term sensitivity drift (% reading/month)	---	< 4% /12	< 5% /12	< 2% /1	< 2% /1	< 2% /1	± < 1,5% Methane	---	---	---	---	---	
Sensor life expectancy (normal operating environment) in years	≥ 5	≥ 2	≥ 2	≥ 2	≥ 2	≥ 2	≥ 3	≥ 5					
Max. storage time	6 months							12 months					
Operating Environment													
Humidity non-condensing	15 – 90 % RH						15 – 90 % RH		15 – 95 % RH				
Temperature													
Working temperature	-10 to + 50 °C					-30 to + 50 °C	-15 to + 50 °C			-15 to + 50 °C			
Storage temperature	5 °C to + 40 °C						0 to + 50 °C			0 to + 50 °C			
Pressure range	Atmospheric ±10%												
Electrical													
Power supply	18 - 28 VDC (reverse polarity protected)												
Power consumption	Electrochemical sensor: 22 mA, max. 0,6 VA Pellistor/ Semiconductor sensor: 35 mA, max. 0.85 VA												
Physical characteristics													
Enclosure type A	Polycarbonate												
Flammability	UL 94: V2												
Enclosure color	RAL 7032 (light grey)												
Dimensions	(W x D x H) 94 x 130 x 57 mm												
Weight	Approx. 0.3 kg												
Protection class	IP 65												
Installation	Wall or pillar mounting												
Cable entry	Standard 1 x M20												
Wire connection	Screw type terminal, min. 0.25 mm ² (24 AWG) max. 2.5 mm ² (14 AWG)												
Wire distance	Max. loop resist. 500 Ω (= wire resistor + controller input resistor)												
Output signal													
Analog output signal													
Standard: 4-20 mA	Proportional, 4 – 20 mA, load ≤ 500 Ω overload and short-circuit proofed												
Selectable: 2-10 V	Proportional, 2 – 10 V, load ≥ 50 kΩ overload and short-circuit proofed												
Guidelines	EMC- Directive 2004/108/EEC, CE												
Warranty	12 months on material (without sensor)												

GAS ALARM SYSTEMS

ORDERING INFORMATION

MA-X-XXXX-F-X

Version

- 4 Factory calibration 0 – 20 ppm ^{5, 6}
- 6 Factory calibration 0 – 50 ppm ^{1, 5, 8}
- 7 Factory calibration 0 – 100 ppm ¹
- 8 Factory calibration 0 – 150 ppm ¹
- 9 Factory calibration 0 – 200 ppm ¹
- A Factory calibration 0 – 250 ppm ¹
- B Factory calibration 0 – 300 ppm ^{1, 2, 19 to 24}
- C Factory calibration 0 – 400 ppm ¹
- D Factory calibration 0 – 500 ppm ¹
- E Factory calibration 0 – 1000 ppm ^{1, 2}
- F Factory calibration 20 – 2000 ppm ^{12 to 25, 34}
- K Factory calibration 0 – 25 vol % ⁷
- L Factory calibration 0 – 50% LEL ³⁶
- M Factory calibration 0 – 100 % LEL ^{3, 30, 31, 35}
- Q Factory calibration 30 – 300 ppm ⁴

Enclosure

- F Plastic enclosure (87 x 45.5 mm) IP43
- F1 Plastic enclosure (87 x 45,5 mm) IP44
- A Plastic enclosure (130 x 94 x 57 mm) IP65
- D Plastic enclosure (65 x 94 x 57 mm) IP43
- D1 Plastic enclosure (65 x 94 x 57 mm) IP54
- 5 Stainless steel enclosure

Gas

- ¹ 0-1110 Carbon monoxide CO
- ² 5-1120 Ammonia NH₃ El.Chem.
- ³ 2-1120 Ammonia NH₃ Pellistor
- ⁴ 3-1120 Ammonia NH₃ Semiconductor sensor
- ⁵ 9-1129 Nitrogen monoxide NO
- ⁶ 2-1130 Nitrogen dioxide NO₂
- ⁷ 9-1195 Oxygen O₂
- ⁸ 5-1196 Sulphur dioxide SO₂
- ¹² 4-2070 Freon R 22
- ¹³ 4-2071 Freon R 401a
- ¹⁴ 4-2072 Freon R 401b
- ¹⁵ 4-2073 Freon R 402a
- ¹⁶ 4-2074 Freon R 402b
- ¹⁷ 4-2075 Freon R 408a
- ¹⁸ 4-2076 Freon R 409a
- ¹⁹ 4-2077 Freon R 134a
- ²⁰ 4-2078 Freon R 404a
- ²¹ 4-2079 Freon R 416a
- ²² 4-2069 Freon R 507
- ²³ 4-2068 Freon R 410a
- ²⁴ 4-2067 Freon R 411a
- ²⁵ 4-2064 Freon R 123
- ³⁰ 2-3400 Methane CH₄
- ³¹ 2-3480 Propane C₃H₈
- ³⁶ 4-3H55 Methane CH₄ (Semiconductor sensor)
- ³⁵ 4-3H80 Propane/ LPG C₃H₈ (Semiconductor sensor)
- ³⁴ 3-2089 Ethylene C₂H₄ (Semiconductor sensor)

Example: Freon Transmitter for R 134 a, plastic enclosure, factory calibration 20 – 2000 ppm
Order number: MA-4-2077-F-F