

MSR-Sensitron Transmitter Series XT-21-11XX for Toxic Gases for Zone 1 and 2

Description


Microprocessor based analog gas transmitter with 4 – 20 mA output signal for monitoring the ambient air and detecting toxic gases and vapours by means of electro-chemical cells or an infrared sensor. The calibration for types without LCD display is possible via the handheld calibration keypad XT.S/CKD. The types with LCD display have a non intrusive magnetic calibration feature for easy calibration without opening the instrument and declassifying the area. The gas transmitter is available with EEx-d protection for Ex zone 1 and 2, or with EEx-n protection for Ex zone 2, the keypad offers an intrinsic safety protection EEx-iA.



Application

The gas transmitter series XT-21-11XX are designed for the detection of toxic gases within a wide range of industrial applications. Due to the 4 to 20 mA analog output signal the transmitter is compatible to any electronic analog control, DDC/PLC control or automation system (e.g. PolyGuard series MGC and DGC by MSR-E).

Optionally the MSR-Sensitron Transmitter is available with LCD display, relay or open collector board and RS 485 serial interface.

EEx-n  EEx-d



With LCD display

Features

- ATEX certifications
- Continuous monitoring
- 10 bit microprocessor
- Self diagnostic procedure
- Zero point tracking
- Watch dog switch
- Easy calibration (zero, span and 4-20mA adjustment)
- 4 to 20mA proportional or three-step (0, 10 and 20 mA) output
- Reverse polarity protected
- Overload-proof
- LCD display with status LED (optional)
- One-relay board (optional)
- Three-relay board (optional)
- Open collector board (optional)
- RS 485 serial bus (optional)

Specifications

Electrical	
Power supply	12 - 24 VDC -20% +15%
Power consumption (at 12 VDC)	90 mA, max. 130 mA
Output signal	4 to 20 mA proportional on 200 Ω or 0-10-20 mA
Control unit	Microprocessor 10 bit (resolution 1024 points)
Digital filter	Variable average on the sampled values
Visual indications	Flashing LED
LCD display (optional)	4 digits; 5 status LED
Serial output (optional)	Serial RS-485
One-relay output (optional)	Max. 24 VAC/DC, 1 A
Three-relay output (optional)	Max. 24 VAC/DC, 1 A
Two open collectors (optional)	Max. 24 VDC, 20 mA
Sensor Performance	
Detected gases	Toxic gases
Sensor element	Electro-chemical cells / infrared sensor for CO ₂
Measuring range	0-100 % full scale, 0-25% or 0-30% oxygen
Response time	t ₉₀ ≤ 120 sec. according to the cell being employed
Accuracy	± 5 % of range or 10 % of reading
Repeatability	± 5 % of range
Warm-up time	300 sec.
Stabilisation time	120 sec.
Zero-point drift	Auto zero drift compensation
Operating environment	
Humidity	20 to 90 % RH / 40 °C (104 °F)
Operating temperature	-10 °C to + 50 °C (14 °F to + 122 °F)
Storage temperature	-25 °C to + 60 °C (-13 °F to + 140 °F)
Pressure range	800 to 1100 mBar (80 to 110 kPa)
Air velocity	< 6m/sec.
Physical characteristics	
Enclosure material / color	Metal / Blue
Dimensions EEx-d (HxWxD)	200 x 105 x 110 mm (7.87 x 4.13 x 4.33 In.)
Dimensions EEx-n (HxWxD)	180 x 106 x 62 mm (7.09 x 4.17 x 2.44 In.)
Weight (without options)	EEx-d: 1,4 kg (3.06 lbs.) EEx-n: 0,8 kg (1.8 lbs.)
Protection class	EEx-d: IP65 EEx-n: IP55
Mounting	Wall mounting (sensor head downwards)
Cable entry	1 x NPT ¼ In.
Wire connection	Screw type, min. 0.25(24 AWG) max. 2.5 mm ² (14 AWG)
Wire length	Max. working resist. 200 Ω (= wire resistance+ controller input resistance)
ATEX Marking	CE 722 ^{Ex} II 2G EEx d IIC T6 CE 722 ^{Ex} II 3G EEx nA IIC T6
EC Type Certification	CESI 01ATEX053 (Electrical Safety Requirements EEx-d vers.) CESI 03ATEX339 (Electrical Safety Requirements EEx-n vers.) CESI 02ATEX084 (Performances; flammable gas version)
Sensor head	CESI 01ATEX013U or CESI 01ATEX066U
Guidelines	EN50014, E50018; EN50021 (Electr. Saf. Req. EEx-d and -n) EN 61779-1/4 (Performances)
Warranty	One year on material and workmanship (without sensor)



Ordering Information

XT21-11XX-XXX-XXX

Options

- 1XX One-relay board
- 2XX Open collector board
- 3XX RS-485 bus
- X1X Three-relay board*
- XX1 Factory calibration

Type / Protection

- EXX Electro-chemical cells
- IXX Infrared sensor only for CO₂
- XDX EEx-d (zone 1) protection
- XNX EEx-n (zone 2) protection
- XXL LCD display**

* Not available with LCD display

** Not available with three-relay board

Gas type

10	Carbon monoxide	CO	0-500 ppm
25	Ammonia	NH ₃	0-200 ppm
26	Ammonia	NH ₃	0-1000 ppm
29	Nitrogen oxide	NO	0-100 ppm
30	Nitrogen dioxide ¹	NO ₂	0-20 ppm
60	Carbon dioxide	CO ₂	0-2 % Vol
61	Carbon dioxide	CO ₂	0-5 % Vol
88	Hydro cyanic acid ³	HCN	0-50 ppm
89	Hydrochloric acid ⁴	HCL	0-100 ppm
90	Ethylene ²	C ₂ H ₄	0-200 ppm
93	Chlorine ¹	CL ₂	0-20 ppm
95	Oxygen	O ₂	0-25 % Vol
96	Sulfur dioxide ¹	SO ₂	0-20 ppm
97	Hydrogen sulfide	H ₂ S	0-50 ppm

¹ EEx-d protection on request

² Not available with EEx-d protection and with LCD display

³ Only available with EEx-d protection and without LCD display

⁴ Only available without LCD display

Example: Transmitter for Carbon monoxide detection, EEx-d protection, LCD display, one-relay board, factory calibration

Ordering Number: XT21-1110-EDL-101

Connecting Diagram

