

Combustible Analog Gas Transmitters

Specifications subject to change without notice. | USA 200131 | Page 1 of 2



ITS-1710

DESCRIPTION

Analog gas transmitters for the detection of combustible gases and vapors in the ambient air.

APPLICATION

To sense a wide variety of combustible gases and vapors in commercial applications such as boiler rooms (i.e. Methane), dry cell battery rooms (i.e. Hydrogen), gas/fuel spill locations (i.e. Gasoline, Hexane), laboratories and industries (i.e. Butane, Propane) and transmit to any compatible electronic analog control, DDC/PLC control or automation system.



FEATURES

- Continuous monitoring
- 4-20 mA analog signal output
- Long-life sensor
- Polarity protected
- RFI/EMI protected
- Modular plug-in technology
- Enclosure, NEMA 4X, 7, 9
- Easy maintenance

SPECIFICATIONS

Electrical

Power supply 24 VDC (12-30 VDC)
Power consumption 125 mA max.

Sensor Performance

Gas detected Combustible gases, refer to section "Ordering Information"
Sensor element Catalytic bead (pellistor), diffusion
Range 0 - 100% LEL
Accuracy ± 1% LEL methane
Repeatability ± 1% LEL methane
Zero drift < 2% of full scale/month at 68°F (20°C)
Long term sensitivity drift < 2% LEL.methane/month
Response time $t_{50} < 10 \text{ sec.methane}$
 $t_{90} < 30 \text{ sec.methane}$

Calibration

- interval recommended 3 to 12 months, dependent on combustible gas type
- adjustment Simple 2-point settings, applying calibration gas standards

Sensor life expectancy 3-5 yrs. normal operating environ
Sensor coverage 2,500 sq. ft., max. 4,000 sq. ft. (233 m², max. 372 m²)

Installation Location

Mounting height Refer to table "Mounting Height"

Type of Control

General Continuous proportional analog sensor signal output
Analog output
4-20 mA, mA DC into 700 Ω
at 24 VDC, 3-wire configuration

Environment

Permissible ambient
- working temperature -40°F to 104°F (-40°C to 40°C)
- storage temperature 41°F to 104°F (5°C to 40°C)
- humidity, continuous 15 to 90% RH, non-condensing
- humidity, intermitted 0 to 99% RH, non-condensing
- working pressure Atmospheric ± 10%

Physical

Enclosure, explosion proof
- enclosure material Cast aluminum, epoxy coated
- sensor material Stainless steel .316
- color Blue
- protection NEMA 4X, 7, 9
rated Class 1, Div. 1, Groups A, B, C and D
- installation Wall (surface) mounted

Combustible Gases/Vapors		% v/v*
Acetone	(CH ₃) ₂ CO	2.6
Acetylene	C ₂ H ₂	2.5
Benzene	C ₆ H ₆	1.2
Cyclohexane (Gasoline)	C ₆ H ₁₂	1.3
Ethylene	CH ₂	2.3
Ethane	C ₂ H ₆	3.0
Ethyl Acetate	CH ₃ COOC ₂ H ₅	2.2
Ethyl Alcohol	C ₂ H ₅ OH	3.3
Fuel Oil Vapor	-	1.2
Hydrogen	H ₂	4.0
Isopropyl Alcohol	(CH ₃) ₂ CHOH	2.2
JP8	-	0.9
Methane	CH ₄	5.0
Methanol	CH ₃ OH	6.7
n-Butane	C ₄ H ₁₀	1.8
n-Heptane	C ₇ H ₁₆	1.05
n-Hexane	C ₆ H ₁₄	1.1
n-Octane	C ₈ H ₁₈	0.95
n-Pentane	C ₅ H ₁₂	1.4
Propane	C ₃ H ₈	2.1

* x% v/v = 100% LEL
LEL = Lower Explosive Limit
v/v = Volume by Volume

SPECIFICATIONS

Physical (cont...)

Dimensions (H x W x D) 7.0 x 5.0 x 3.0 in. (178 x 127 x 89 mm)

Cable entry 1 hole for 3/4 in. conduit for wall (surface) mounting

Wire connection Terminal blocks, screw type for lead wire

Wire size Min. 24 AWG (0.25 mm²), max. 14 AWG (2.5 mm²)

Wire distance Max. loop resistance 500 Ω. (= wire resistance plus controller input resistance)

Weight 5.0 lb (2.3 kg)

Approvals/Listings

- enclosure rating UL Listed, CSA Certified, FM, Ex CSA, C22.2

- unit

Warranty

Limited two years, 12 months sensing element

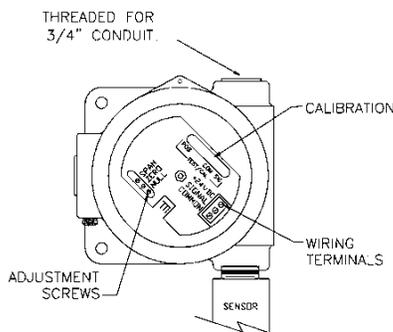
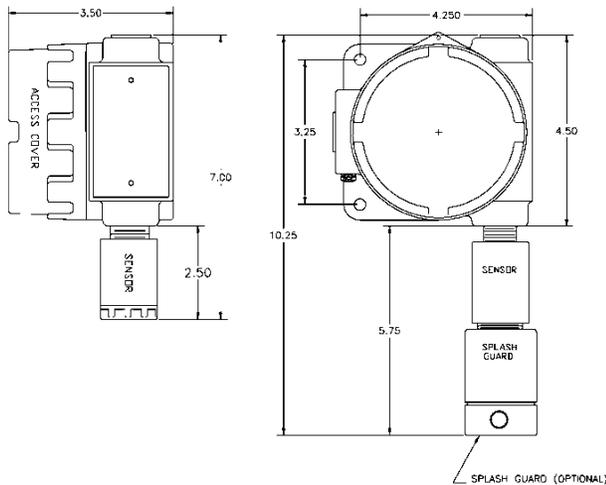
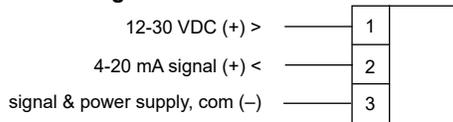
ORDERING INFORMATION

ITS-171X1 - SXX

Gases			Options	
0	Methane	CH ₄	D	Duct mount
1	Acetylene	C ₂ H ₂	F	Remote Calibration adapter
2	Ethane	C ₂ H ₆	W	Conformal coating
3	Propane	C ₃ H ₈	P	Protective sensor guard
4	n-Butane	C ₄ H ₁₀	X	Non-standard calibration
5	n-Pentane	C ₅ H ₁₂		
6	n-Octane	C ₈ H ₁₈		
7	Hydrogen	H ₂		
8	Cyclohexane	C ₆ H ₁₂ (Gasoline)		
9	Others on request			

WIRING CONFIGURATION

ITS-171X1-S
24 VDC, 3-wire configuration



Sample, ordering part number:

ITS-17171-S

Combustible gas transmitter, 0-100% LEL (2.1% v/v) hydrogen range, for power supply 24 VDC, 4-20mA output signal, surface mount, NEMA 4x, 7, 9 enclosure

Mounting Height "Recommended"

- Above Floor = A.F.
- Below Ceiling = B.C.

Methane	= B.C. 1 ft (0.3 m)
Acetylene	= A.F. 5 ft (1.5 m)
Ethane	= A.F. 5 ft (1.5 m)
Propane	= A.F. 1 ft (0.3 m)
n-Butane	= B.C. 1 ft (0.3 m)
n-Pentane	= A.F. 1 ft (0.3 m)
n-Octane	= A.F. 1 ft (0.3 m)
Hydrogen	= B.C. 1 ft (0.3 m)
Cyclohexane (Gasoline)	= B.C. 1 ft (0.3 m)

"Install sensor pointing downward"

