

Combustible Analog Gas Transmitters



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
- Two-stage relay output control, optional
- Easy plug-in sensor
- Long-life sensor
- Polarity protected
- RFI/EMI protected
- Modular plug-in technology
- Easy maintenance

SPECIFICATIONS

Electrical

Power supply 18 to 28 VAC or VDC, polarity protected

Power consumption 55 mA (1.4 VA), max.

- w/relay package 70 mA (1.7 VA), max.

RFI/EMI protection 5.0 W @ 1 ft. (0.31 m) radiated

Sensor Performance

Gas detected Combustible gases and vapors (refer to table)

Sensor element Catalytic bead (pellistor), diffusion

Range 0 - 100% LEL; linear 0-60% LEL

Detection limit 0.5% LEL

Combustible Gases/Vapors		% v/v*
Acetone	(CH ₃) ₂ CO	2.6
Ammonia	NH ₃	15.0
Benzene	C ₆ H ₆	1.2
Carbon Monoxide	CO	12.5
Ethylene	CH ₂	2.3
Ethyl Acetate	CH ₃ COOC ₂ H ₅	2.2
Ethyl Alcohol	C ₂ H ₅ OH	3.3
Hydrogen	H ₂	4.0
Isopropyl Alcohol	(CH ₃) ₂ CHOH	2.2
Jet A	-	1.4
JP8	-	0.9
Methane	CH ₄	5.0
Methanol	CH ₃ OH	6.7
Methyl Ethyl Ketone	C ₄ H ₈ O	1.9
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
Toluene	C ₇ H ₈	1.2

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

PolyGard Combustible AT-3300



City of Los Angeles Approved

Accuracy ± 1% of reading

Repeatability ± 2% of reading

Long term zero point drift < 2.5% LEL_{methane}/year

Long term sensitivity drift < 2% LEL_{methane}/month

Response time t₉₀ < 10 sec._{methane}

Sensor life expectancy 3 yrs. normal operating environ.

Sensor coverage Dependent on the target gas

Installation Location

Mounting height Dependent on the target gas

Type of Control

General Continuous proportional analog sensor signal output

Analog output 4-20 mA < 500 Ω, linear

Optional contact outputs 0-60% LEL, polarity protected

(2) relays, potential free

Environment

Permissible ambient

- working temperature 14°F to 122°F (-10°C to 50°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, standard

- material Galvanized steel w/zinc coating, corrosion resistant
- color Light gray
- protection NEMA1 (IP 42), general purpose
- installation Wall (surface) mounted, or single gang electrical box

Dimensions 5.59 x 5.59 x 2.48 in. (142 x 142 x 63 mm)

Cable entry 1 hole for 1/2 in. conduit for wall (surface) mounting and 1 hole on back side of base plate for single gang electrical box

Wire connection Terminal blocks, screw type for lead wire

SPECIFICATIONS

Physical (cont...)

Wire size	Min. 24 AWG (0.25 mm ²), max. 14 AWG (2.5 mm ²)
Wire distance	Max. loop resistance 500 Ω. (= wire resistance plus controller input resistance)
Weight	0.7 lbs. (0.3 kg)
Approvals/Listings	UL Recognized and CSA Certified combustible sensor City of Los Angeles CE EMV-Compliance 89/336/EWG, low voltage directives 73/23/EWG
Warranty	Two years material and workmanship

- cable entry	1 hole for 1/2 in. conduit
Wall mounted	NEMA 4X w/splash guard (IP 65)
- material	ABS UL94V0
- color	Light gray
- dimensions	4.80 x 4.72 x 3.42 in. (122 x 120 x 87 mm)

Relay Package	
Type	(1) SPDT (R9), (1) SPST (R10)
Contact rating	30 VAC/VDC, 0.5 A max.
Setpoint	Adjustable setting for each relay within 10 to 90% of full range
Factory set	Lo = 10% LEL, Hi = 20% LEL
Switching differential	5% or 10% of full range, jumper selectable
Relay mode	Jumper selectable, de-energized or energized (fail-safe) for each relay

OPTIONS

Enclosures

Duct mounted	NEMA 3 (IP 44)
- w/probe	7/8 in. (22 mm) diameter and 7.16 in. (182 mm) length

Status indicator	(2) LEDs, one for each relay
Heater, built-in	For low temperature environment
Ambient temperature	-40°F (-40°C)
Power supply	24 VAC/VDC ± 5%, 50/60 Hz
Power consumption	1.0 A (24 VA), max.
Thermostatic control	32°F (0°C) ± 5°F (3°C)

ORDERING INFORMATION

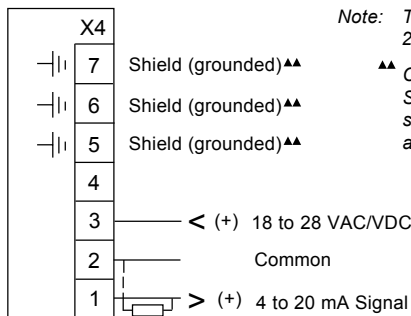
AT-3300 - 0 - 000 - 0 (Product label "AT-33xx-x-xxx-0 V2")

Gases			Gases			Enclosures		Options	
08	Ammonia	NH ₃	55	Methane	CH ₄	0	Wall, NEMA 1	000	No options
10	Carbon Monoxide	CO	58	Methyl Ethyl Ketone	C ₄ H ₈ O	1	Duct, NEMA 3	100	Integrated relay package
19	Ethylene	CH ₂	60	n-Butane	C ₄ H ₁₀	4	Wall, NEMA 4X w/splash guard	050	Heater
25	Ethyl Alcohol	C ₂ H ₅ OH	70	n-Octane	C ₈ H ₁₈				
27	Ethyl Acetate	CH ₃ COOC ₂ H ₅	75	n-Pentane	C ₅ H ₁₂				
30	Benzene	C ₆ H ₆	80	Propane	C ₃ H ₈				
35	n-Hexane	C ₆ H ₁₄	85	Acetone	(CH ₃) ₂ CO				
37	n-Heptane	C ₇ H ₁₆	89	Jet A	-				
40	Hydrogen	H ₂	90	JP8	-				
45	Isopropyl Alcohol	(CH ₃) ₂ CHOH	91	Toluene	C ₇ H ₈				
50	Methanol	CH ₃ OH							

0 = Standard enclosure
Example: AT-3355-0-000-0
Analog Methane sensor/transmitter,
w/wall NEMA 1 enclosure,
0-100% LEL range, no options

WIRING CONFIGURATION

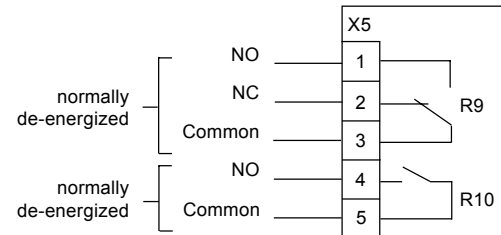
AT-3300
24 VAC/VDC , 3-wire configuration



Note: Twisted, shielded wire is recommended for 2- or 3-wire configurations.
** Connect Shield to either terminal 5, 6 or 7. Shield should be grounded at either the sensor or controller. DO NOT ground Shield at both ends.

* 220...330 Ω resistor required for stand-alone operation w/relay

AT-3300
relay connection applies to standard
24 VAC/VDC, 3-wire configuration



AT-3300 w/heater

