

Combustible Analog Gas Transmitters



DESCRIPTION

Microprocessor-based 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
- (0)4-20 mA, (0)2-10 VDC output, selectable
- Polarity protected
- Two-stage relay output control, optional
- Catalytic bead pellistor, long-life
- Temperature compensated
- Performance tested sensor to UL 2075
- Easy plug-in sensor
- Modular plug-in technology
- High-impact polycarbonate enclosure, NEMA 4X
- Easy maintenance



NRTL Performance Tested & Certified
Conforms to STD UL 2075

Combustible Gases/Vapors		% v/v*
Acetone	(CH ₃) ₂ CO	2.6
Ammonia	NH ₃	15.0
Benzene	C ₆ H ₆	1.2
Ethylene	C ₂ H ₄	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

SPECIFICATIONS

Electrical

Power supply	24 VAC ± 15%, 50/60 Hz, or 17-28 VDC, polarity protected
Power consumption	50 mA (1.3 VA), max.
- w/relay package	65 mA (1.6 VA), max.
- w/heater	250 mA (6 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
Detection limit	0.5% LEL
Accuracy	± 1% of reading
Repeatability	± 2% of reading
Long term zero point drift	< 0.5% LEL _{methane} /month
Long term sensitivity drift	< 2% LEL _{methane} /month
Response time	t ₉₀ < 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
Analogue output	(0)4-20 mA, load < 500 Ω; (0)2-10 VDC, load > 50K Ω; jumper selectable, polarity protected (2) relays, potential free
Optional contact outputs	

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	5 to 95% RH, non-condensing
- working pressure	Atmospheric ± 10%

SPECIFICATIONS

Physical

Enclosure, standard	
- material	Polycarbonate, UL 94-HB, fire-retardant
- conformity	UL 50
- color	Light gray
- protection	NEMA 4X(IP65)
- enclosure approval	UL Listed, E208470 CSA Certified, E208470
- installation	Wall (surface) mounted, or single gang electrical box
Dimensions (H x W x D)	5.12 x 3.70 x 2.25 in. (130 x 94 x 57 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
Wire size	Min. 24 AWG (0.25 mm ²), max. 14 AWG (2.5 mm ²)
Wire distance	Max. loop resistance 450 Ω. (= wire resistance plus controller input resistance)
Weight	0.7 lbs. (0.3 kg)
Calibration	Adjustment via onboard zero and gain potentiometers
Approvals/Listings	
- unit rating [▲]	NRTL Performance Tested & Certified Conforms to STD ANSI/UL 2075 CE EMV-Compliance 2004/108/EWG, low voltage directives 73/23/EWG
Warranty	Two years material and workmanship

OPTIONS

Enclosures

Wall mounted "0"	NEMA1 (IP42), general purpose Galvanized steel w/zinc coating, corrosion resistant
- material	Light gray
- color	Wall (surface) mounted, or single gang electrical box
- installation	5.59 x 5.59 x 2.48 in. (142 x 142 x 63 mm)
- dimensions (H x W x D)	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
- cable entry	NEMA 3 (IP45)
Duct mounted "1"	7/8 in. (22 mm) diameter and 7.16 in. (182 mm) length
- w/probe*	1 hole for 1/2 in. conduit
- cable entry	NEMA 4X (IP65), w/splash guard ABS UL94V0
Wall mounted "4"*	Light gray
- material	Wall (surface) mounted
- color	4.80 x 4.72 x 3.42 in. (122 x 120 x 87 mm)
- installation	(1) PG 13.5 compression fitting, removeable, hole fits 1/2 in. conduit conductor
- dimensions (H x W x D)	
- cable entry	

Relay Package

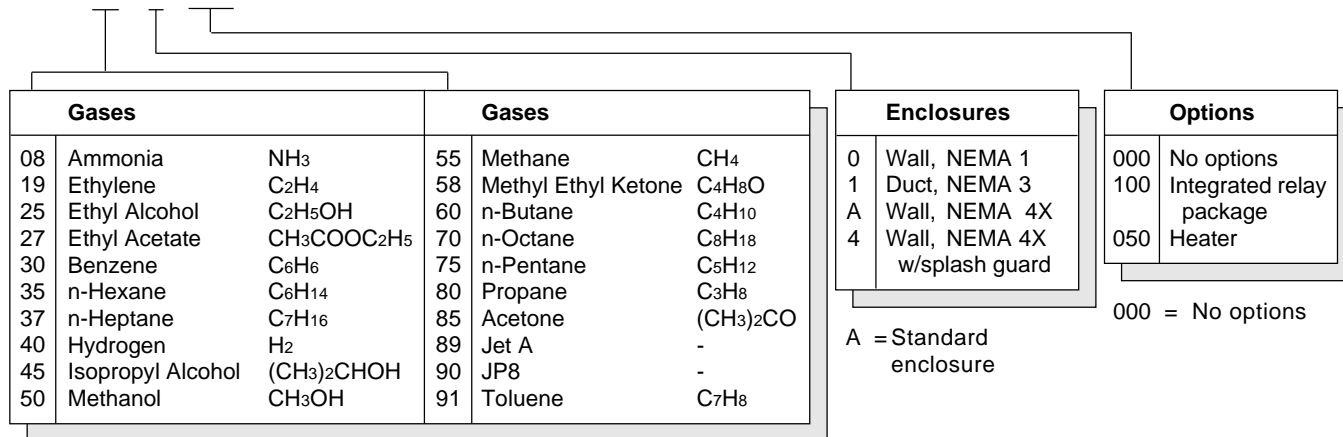
Type	(1) SPDT (R1), and (1) SPST-NC or SPST-NO (R2), jump er selectable
Contact rating	30 VAC/VDC, 0.5 A max.
Setpoint (factory set)	Lo / SPDT = 20% LEL* Hi / SPST = 40% LEL*
Switching differential (factory set)	5% LEL* * other values on special request at time of ordering
Relay mode	De-energized for each relay, energized (fail-safe) mode on special request
Status indicator	(2) LEDs, one for each relay
Heater, built-in	For low temperature environment
Ambient temperature	-40°F (-40°C)
Power consumption	0.2 A (5 VA), max.
Thermostatic control	32°F (0°C) ± 5°F (3°C)

(▲) Performance tested with Methane and Propane gases

(*) Duct's probe element and enclosure type "4" are not a part of the NRTL STD 2075 Certification

ORDERING INFORMATION

AT-3300 - A - 000 - 0 (Product label "AT-33xx-x-xxx-0 V3")



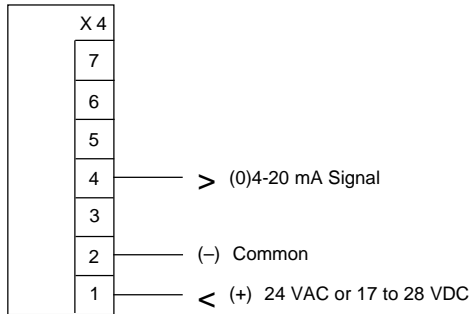
Standard sensor transmitter, ordering part number:

AT - 3355 - A - 000 - 0 , Analog Methane sensor/transmitter, w/wall NEMA 4X enclosure, 0-100% LEL range, no options

WIRING CONFIGURATION

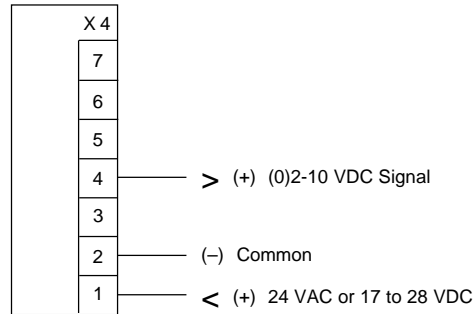
AT-3300

(0)4-20 mA signal, 3-wire, 24 VAC or 24 VDC**



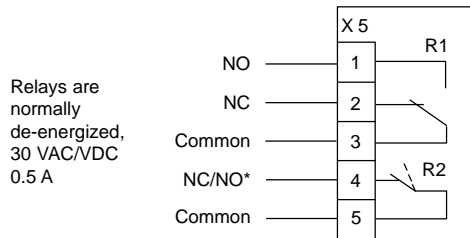
AT-3300

(0)2-10 VDC signal, 3-wire, 24 VAC or 24 VDC



Optional relay package

(0)4-20 mA signal, 3-wire, 24 VAC or 24 VDC**



*Jumper SPST relay NC/NO selector:

- NC Covers top two pins = SPST-NC
- NO Covers bottom two pins = SPST-NO

Note: When using AT-3300 transmitter w/relay package as a stand-alone unit (no connection to a controller), pins on jumpers "V-A" and "0-20%" must be covered. See Jumper output signal range selectors.

Jumper output signal range selectors:

- V-A Over both pins = VDC
Pins not covered = mA
- 0-20% Over both pins = 4-20 mA / 2-10 VDC
Pins not covered = 0-20 mA / 0-10 VDC

Notes:

2-wire loop-powered wire configuration allow only 4-20 mA signal.

Signal range jumper selection:

- V-A Pins not covered
- 0-20% Pins both covered

** For (0)4-20 mA signal with optional relay package and/or heater, the 3-wire configuration must be applied.

Twisted, shielded wire is recommended for 2- or 3-wire configurations.

Shield should be grounded only at the controller. DO NOT ground shield at both ends!

With optional heater:

The wiring must be sized appropriately for a power of 0.3 A, 24 VDC.