Oxygen (O_2) Analog Gas Transmitters

DESCRIPTION

Microprocessor-based analog gas transmitters for the detection of oxygen (O_2) in the ambient air.

PolyGard
AT-1195 V3

APPLICATION

To sense oxygen (O_2), depletion or escalation, in a wide variety of commercial and industrial applications such as unoccupied mechanical or chiller rooms, laboratories, food production areas and ventilation systems, etc. 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*
- *Digital display, optional*
- *Electrochemical gas sensor, gas specific*
- *Temperature compensated*
- *Easy plug-in sensor*
- *RFI/EMI protected*
- *Modular plug-in technology*
- *Easy maintenance*

CE

NRTL Certification to STD
UL 61010-1
"Pending"

SPECIFICATIONS

Electrical	
Power supply	24 VAC ± 15%, 50/60 Hz, or 17-28 VDC, polarity protected
Power consumption	22 mA (0.6 VA), max.
- w/relay package	35 mA (1.0 VA), max.
- w/heater	235 mA (6 VA), max.
RFI/EMI protection	5.0 W @ 1 ft. (0.31 m) radiated
Sensor Performance	
Gas detected	Oxygen (O_2)
Sensor element	Electrochemical, diffusion
Range	0-25%, air by volume
Accuracy / Resolution	0.1%
Repeatability	< 0.1% of reading
Long term output drift	< 5% of reading/year
Response time	t_{90} < 15 sec.
Sensor life expectancy	2 years, normal operating environment
Sensor coverage	2,500 sq. ft., max. 5,000 sq. ft. (232 m², max. 464 m²) under "ideal conditions"
Installation Location	
Mounting height	5 to 6 ft. (1.5 to 1.8 m) above floor
Type of Control	
General	Continuous proportional analog sensor signal output
Analog output	(0)4-20 mA, load < 500 Ω; (0)2-10 VDC, load > 50K Ω; jumper selectable, polarity protected
Optional contact outputs	(2) relays, potential free
Environmental	
Permissible ambient	
- working temperature	-4°F to 122°F (-20°C to 50°C)
- storage temperature	23°F to 86°F (-5°C to 30°C)
- humidity	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	NEMA 1 (IP 42), general purpose
- installation	Wall (surface) mounted, or single gang electrical box
Dimensions (H x W x D)	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 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 450 Ω (= wire resistance plus controller input resistance)

SPECIFICATIONS

Physical (cont...)	
Weight	0.7 lbs. (0.3 kg)
Calibration	Adjustment via onboard zero and gain potentiometers
Approvals/Listings	
- unit rating	NRTL Certification to STD ANSI/UL 61010-1 – "Pending" CE EMV-Compliance 2004/108/EWG, low voltage directives 73/23/EWG
Warranty	Two years material and workmanship 12 months normal exposure for sensor element

OPTIONS

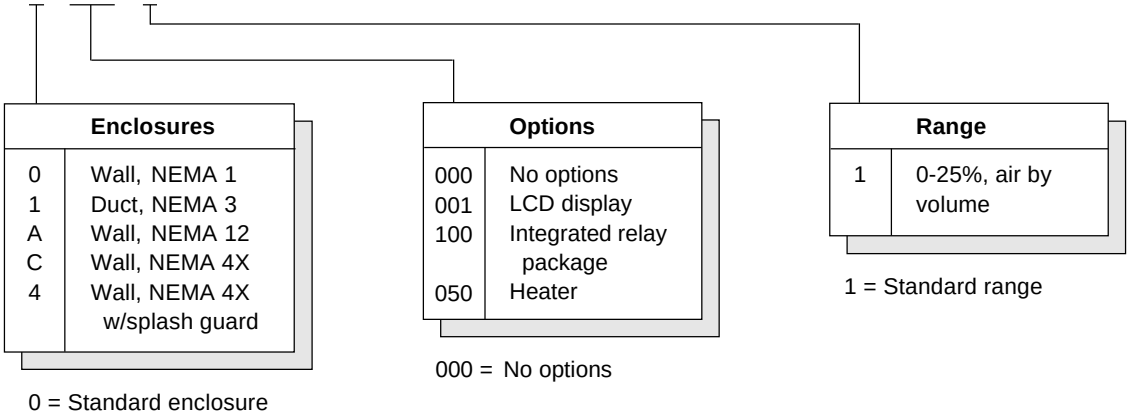
Digital Display	Liquid crystal display "LCD", w/o backlight, two lines, 16 characters, 1/10 digit resolution
Display	O_2 % values
Permissible ambient	
- working temperature	-4°F to 158° (-20°C to 70°C)
Enclosures	
Duct mounted "1"	NEMA 3 (IP45)
- w/probe	7/8 in. (22 mm) diameter and 7.16 in. (182 mm) length
- cable entry	1 hole for 1/2 in. conduit
Wall mounted "A"	NEMA 12 (IP55)
- material	Polycarbonate, UL 94-HB, fire-retardant
- conformity	UL 50
- color	Light gray
- 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 mounting
- enclosure approval	UL Listed, E208470 CSA Certified, E208470

OPTIONS

Wall mounted "C"	NEMA 4X (IP65)
- material	Polycarbonate, UL 94-HB, fire-retardant
- conformity	UL 50
- color	Light gray
- gas inlet	Special moisture filter protection
- installation	Wall (surface) mount
- dimensions (H x W x D)	5.12 x 5.12 x 2.95 in. (130 x 130 x 75 mm)
- cable entry	(1) PG 13.5 compression fitting, removeable, hole fits 1/2 in. conduit conductor
- enclosure approval	UL Listed, E208470 CSA Certified, E208470
Wall mounted "4"	NEMA 4X (IP65), w/splash guard
- material	ABS UL94 V0
- color	Light gray
- installation	Wall (surface) mount
- dimensions (H x W x D)	4.80 x 4.72 x 3.42 in. (122 x 120 x 87 mm)
- cable entry	(1) PG 13.5 compression fitting, removeable, hole fits 1/2 in. conduit conductor
Relay Package	
Type	(1) SPDT (R1), and (1) SPST-NC or SPST-NO (R2), jumper selectable
Contact rating	30 VAC/VDC, 0.5 A, max.
Setpoint (factory set)	Lo/SPDT = 19%* Hi/SPST = 17%*
Switching differential (factory set)	1%* * other values on special request at time of ordering
Relay mode (factory set)	De-energized for each relay, energized (fail-safe) mode on special request
Status indicator	(2) LEDs, one for each relay
Relay approval	UL Recognized, E41515 CSA, C22.2 No. 0, No. 14 (File No. LR31928)
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)

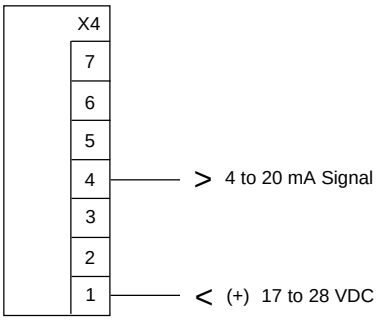
ORDERING INFORMATION

AT-1195 - 0 - 000 - 1 *(Product label "AT-1195-x-xxx-1 V3")*

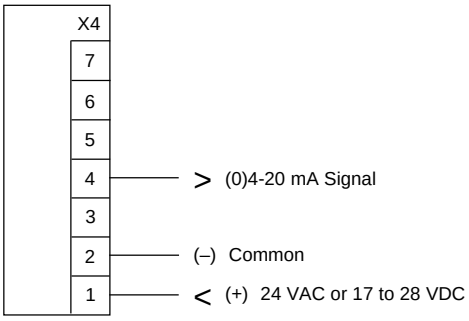


WIRING CONFIGURATION

AT-1195
4-20 mA signal, 2-wire, loop-powered, 24 VDC

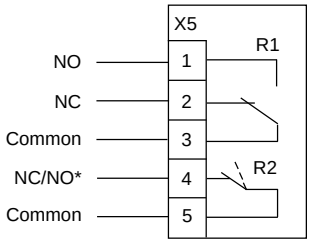


AT-1195
(0)4-20 mA signal, 3-wire, 24 VAC or 24 VDC**



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

Relays are normally de-energized, 30 VAC/VDC 0.5 A



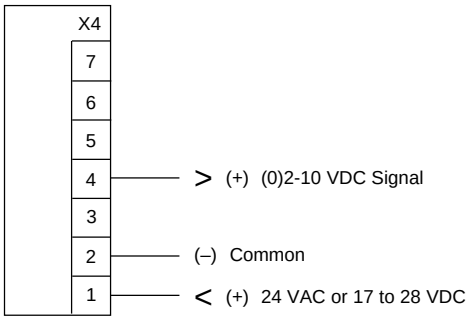
*Jumper SPST relay NC/NO selector:

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

Note: When using AT-1195 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**.*

AT-1195
(0)2-10 VDC signal, 3-wire, 24 VAC or 24 VDC



Jumper output signal range selectors:

Over both pins = VDC
Pins not covered = mA

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

Notes:

<u>2-wire loop-powered</u> wire configuration allow only 4-20 mA signal.

<u>Signal range jumper selection:</u>

Pins not covered

Pins both covered

0-20%

*** For (0)4-20 mA signal with optional relay package, LCD 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.