

# Refrigerant Gas Analog Transmitters



**PolyGard  
AT-2000 V3**



NRTL Certification to STD  
**UL 61010-1**

## DESCRIPTION

Refrigerant gas transmitter with two-beam infrared sensor continuously monitors ambient air for the presence of hydrochlorofluorocarbon (HCFC) and hydrofluorocarbon (HFC) refrigerants. Integrated temperature and drift compensation yield high long-term stability and accuracy as well as target gas selectivity, with a recommended calibration interval of 5 years. Three-wire "sourcing" transmitter, field configurable for a current (0/4-20 mA) or voltage (0/2-10V) output, with overload and short circuit protection. NEMA 4X rating provides maximum protection from dust and water damage.

## APPLICATION

For leak detection in commercial and industrial cooling systems, with refrigerant gases (HCFC and HFC) as cooling agents. Flexible 18-28 VAC/DC power and industry standard current or voltage output signals, for easy installation and connection to local controllers, annunciators, or building automation systems.

## FEATURES

- *Continuous monitoring*
- *Dual-beam, non-dispersive infrared (NDIR) sensor for high selectivity and long-term reliability*
- *± 20 ppm accuracy (± 40 ppm for 0-2000 ppm range)*
- *AC or DC powered*
- *(0)4-20 mA, (0)2-10 VDC output, selectable*
- *Life expectancy > 10 yrs.*
- *Calibration interval > 5 yrs.*
- *Modular plug-in technology*
- *NEMA 4X, high-impact polycarbonate enclosure, provides protection from dirty and wet environments*
- *1/2" conduit adapter included*
- *Two-stage relay output control, optional*

## SPECIFICATIONS

### Electrical

Power supply 18-28 VAC/DC, polarity protected  
Power consumption 45 mA (1.1 VA), max.

### Sensor Performance

Gas detected R22, R123, R125, R134a, R404a, R407a (factory configured)

Sensor element Dual-beam, non-dispersive infrared (NDIR)

Measuring range 0-500 ppm for R123 only;  
0-1000 ppm;  
0-2000 ppm

### Accuracy

- 0-500 / 0-1000 ppm ± 20 ppm, max.  
- 0-2000 ppm ± 40 ppm, max.

Response time  $t_{90} < 30$  sec.

Long-term zero-point drift < 2% f.s. range/year

Long-term output drift < 3% f.s. range/year

Sensor life expectancy > 10 years

Recommended cal. interval > 5 years

### Type of Control

General Continuous analog output proportional to sensor measurement input

Analog output (0)4-20 mA, load ≤ 500 Ω, or (0)2-10 VDC, load ≥ 50 kΩ

Optional contact outputs (2) relays, potential free

### Environmental

Permissible ambient

- working temperature 14°F to 104°F (-10°C to 40°C)

- storage temperature -4°F to 104°F (-20°C to 40°C)

- humidity 0 to 95% RH, non condensing

- working pressure 1 bar -20%/+10%

### Physical

Enclosure, standard

- material Polycarbonate, UL 94 V2, fire-retardant

- color Light gray

- protection NEMA 4X (IP65)

- installation Wall (surface) mounted

- enclosure approval UL Listed, E208470

CSA Certified, E208470

Dimensions (H x W x D) 5.12 x 3.70 x 2.25 in.

(130 x 94 x 57 mm)

Cable entry 1/2 in. conduit adapter included

Wire connection Terminal blocks, screw type for lead wire

Wire size Min. 24 AWG (0.25 mm<sup>2</sup>),

Max. 14 AWG (2.5 mm<sup>2</sup>)

Wire distance

- mA output approx. 1500 ft. (500 m)

- VDC output approx. 600 ft. (200 m)

## SPECIFICATIONS

### Physical (cont...)

Weight 1.1 lbs. (0.5 kg)  
**Calibration** Adjustment via onboard zero push-button and gain potentiometer

### Approvals/Listings

- unit rating NRTL Certification to STD ANSI/UL 61010-1 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

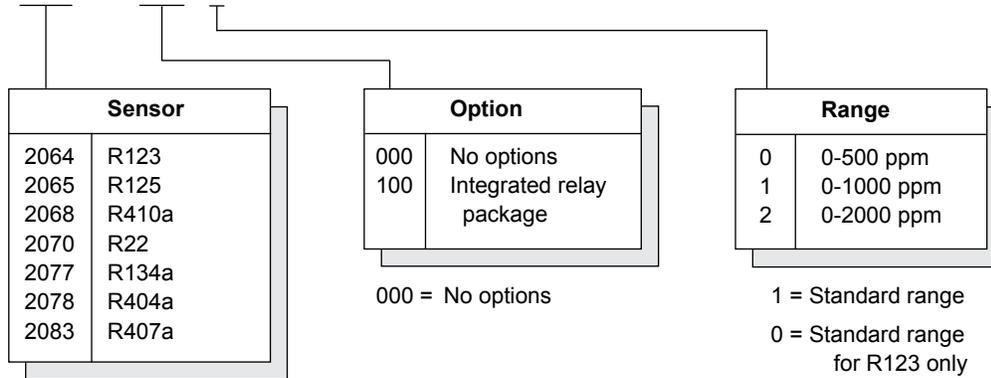
## OPTION

### 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 = 50 ppm\*  
 Hi/SPST = 100 ppm\*  
 Switching differential (factory set) 15 ppm\*  
 \* 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

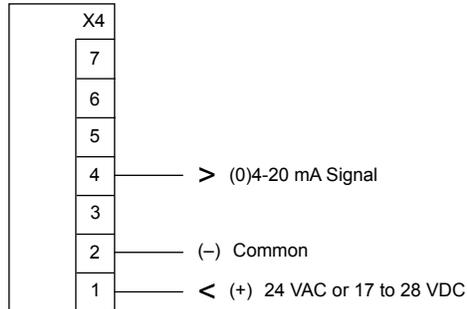
## ORDERING INFORMATION

**AT- 2000 - A - 000 - 0** (Product label "AT-20xx-A-000-0 V3")

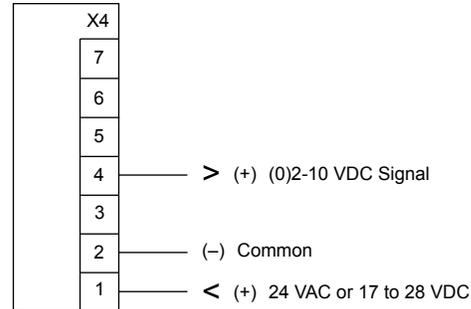


## WIRING CONFIGURATION

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



**AT-20xx**  
**(0)2-10 VDC signal, 3-wire, 24 VAC or 24 VDC**

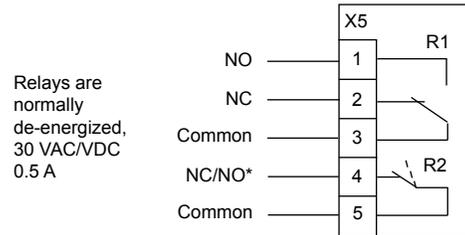


Jumper output signal range selectors:

- 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:** *Twisted, shielded wire is recommended.*  
*Shield should be grounded only at the controller. DO NOT ground shield at both ends!*  
*Conduit should be "sealed" to prevent condensation from dripping into transmitter enclosure.*

### Optional relay package



\*Jumper SPST relay NC/NO selector:

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

**Note:** *When using AT-XXXX 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.*