

TGR Series

Recessed Dual Toxic Gas Sensor/Controller

Choose from 14 gases: CO/NO2, combustibles, refrigerants and most A2L & A3 gasses

Choose Modbus RTU and BACnet MS/TP protocols or Analog output

Field replaceable factory-calibrated sensing elements

Integrated LED indicator, audible alarm, and two configurable relay outputs



DESCRIPTION

Senva UL Listed TG Series sensors can be ordered as individual CO or NO2 sensors or as a combination CO/NO2 sensor in a shared enclosure. The analog output model features 2 outputs that support daisy chain wiring - multiple sensors may be used in a parallel sequence (0-10V) for cost effective coverage of large areas. The unit can also act as a stand alone controller, utilizing the relay for exhaust fan operation or the output for direct control of a VFD. The BACnet/Modbus model supports BACnet MS/TP & Modbus network communication in one unit. Standard features include network auto-configuration, a programmable fan relay, LED indicators, integrated display and audible alarm.

APPLICATIONS

- Monitor and alert occupants of dangerous air
- Ensure adequate air flow in occupied spaces
- Alert occupants of elevated gas levels
- Directly control exhaust fans
- Parking lot CO/NO2 combo
- Leak detection for VRV refrigerant systems
- Monitor spaces heated by gas RTUs



IP54 enclosure (protected from dust and splashing water)



Magnetic calibration adaptor available

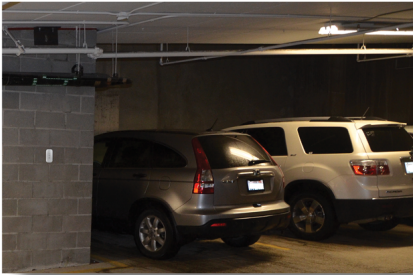


Made in the USA

FEATURES

- NEW! Configure and update firmware with the SenvaSync app
- Single or dual sensors on each unit. (refrigerant sensors may only be single element units)
- Choose from up to two gases, supporting CO, CO₂, NO₂, CH₄, C₃H₈, H₂, O₂, H₂S, NH₃, refrigerants and most A2L & A3 gasses
- Field-replaceable, digital factory-calibrated elements automatically adjust set-point and alarm thresholds for easy installation
- Dual analog outputs support daisy chain wiring to cost-effectively sense and control large areas
- Standard setpoint relay for direct fan control or daisy chain for central alarm activation eliminates need for costly controllers
- Rugged enclosure is unobtrusive, and tamper resistant for both surface or recessed j-box
- 7-year limited warranty on electronics; 2-years on sensor elements
- Calibration certificate included with every sensing element to facilitate fast commissioning
- UL listing for element only, UL2034 recognized electrochemical CO sensing element

Applications



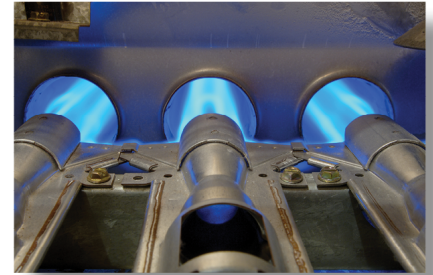
Detect exhaust in parking garages with CO/NO₂

- Low profile design fits standard j-box



Monitor VRV/VRF systems by sensing any standard refrigerant

- Built-in buzzer alerts occupants of leaks; hidden capacitive reset



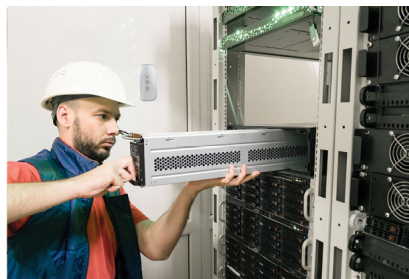
Combine CO/CO₂ for classrooms with gas RTUs

- Meet requirements for CO sensing in classrooms while also measuring CO₂ for occupancy and ventilation control



Protect commercial kitchens with CO/Methane sensing

- Meet NFPA 720 with an IP54 rated device for the most challenging environments



Safeguard battery storage rooms with H₂ detection

- Meet NFPA 111 requirements for H₂ detection in battery rooms. UPS' can be dangerous if not properly monitored



Sense excess O₂ levels in compressed gas storage rooms

- Sense for too much or too little O₂; both can signal a problem

ORDERING

TGR -

Output Type

- A = Analog
- B = BACnet/Modbus

Gas Type 1

- C = Carbon Monoxide (CO)
- D = Carbon Dioxide (CO₂)
- E = Dual Channel CO₂
- N = Nitrogen Dioxide (NO₂)
- M = Methane (CH₄)
- P = Propane (C₃H₈)
- H = Hydrogen (H₂)
- O = Oxygen (O₂)
- S = Hydrogen Sulfide (H₂S)
- A = Ammonia
- 2 = R22*
- 3 = R134A* (Multi-Gas)
- 4 = R410A*
- 5 = R404A*
- 6 = R407C*
- 7 = R449A
- 8 = R513A
- 9 = 1233ZDE

Gas Type 2

- X = No second gas
- D = Carbon Dioxide (CO₂)
- E = Dual Channel (CO₂)
- N = Nitrogen Dioxide (NO₂)
- M = Methane (CH₄)
- P = Propane (C₃H₈)
- H = Hydrogen (H₂)
- O = Oxygen (O₂)
- S = Hydrogen Sulfide (H₂S)
- A = Ammonia



*Refrigerant gas sensors can ONLY be ordered as a stand-alone single element.

Scan here for TG UL Sensor Placement and Coverage Area



Scan here for Refrigerant Cross-Sensitivities

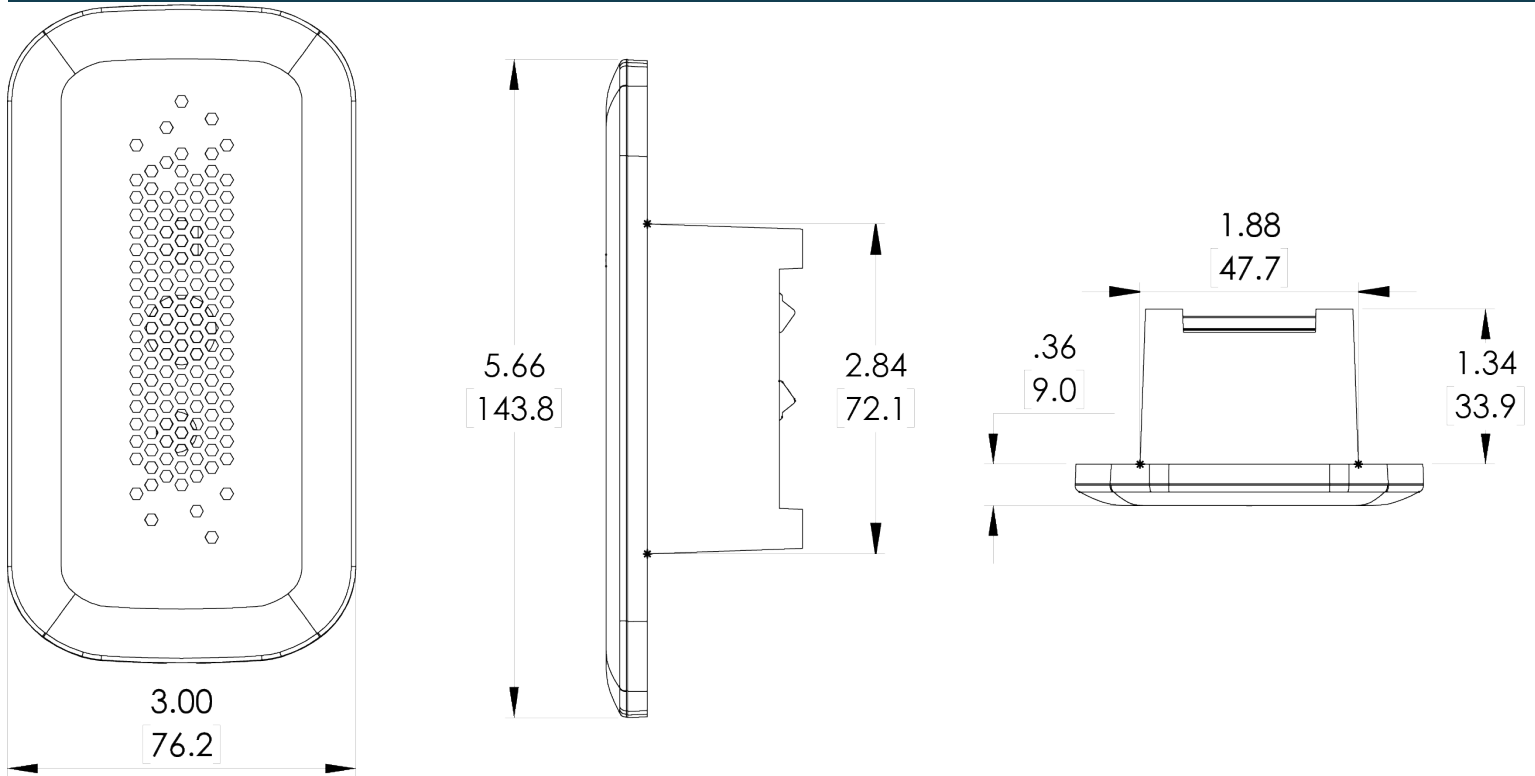


Scan here for Understanding Cross-Sensitivities



Warning: Applications of sensor combinations appropriateness should be considered when specifying a sensor and it's placement. Always comply with all national and local codes.

DIMENSIONS



Warning: The datasheet is designed for reference only. Refer to installation instructions that accompany the product and heed all safety instructions. Product improvement is a continuing process at Senva. Changes may occur to products without prior notice.

SPECIFICATIONS

Power Supply	Comms	16-30VDC/24VAC(1), 5W max, 200mA max.
	Analog	12-30VDC/24VAC(1), 5W max, 200mA max.
Analog Outputs	2 programmable outputs	0-10V, 0-5V, and 4-20mA(2) (selectable)
BACnet /Modbus	Protocol RS-485	BACnet MS/TP, Modbus RTU
	Baud Rates	9600, 19200, 38400, 57600, 76800, 115200
Fan Relay	Relay characteristics	N.C. 1A@24/30VDC (50/60Hz) (no mains connection)
LED	Green, Yellow, Red	Green = Normal, Yellow = Warning, Red = Alarm
Audible Alarm	85dB Piezo transducer	30 minutes above alarm setpoint per UL2075; tamper-proof silence/reset button
Exposure		(menu selectable)
CO Sensor Performance	Type	Electrochemical
	Accuracy	±5% of default range(3) ±5%of reading above 200ppm
	Resolution	1ppm
	Certifications	UL2075 Listed Component
	Life expectancy	>7 years
NO2 Sensor Performance	Type	Electrochemical
	Accuracy	±5% of default range(4) ±5%of reading above 20ppm
	Resolution	0.1ppm
	Life expectancy	>7 years
Carbon Dioxide (CO2)	Type	Non-Dispersive Infrared (NDIR)

	Accuracy(5)	±(30ppm +3% of reading) (400-2000ppm), @-10-50°C ±(50ppm +5% of reading) Standard (2000-5000ppm), ±(50ppm+3% of reading) Dual Channel (2000-5000ppm)
	Resolution	1 ppm
	Life expectancy	15 years
Methane/Propane/Hydrogen Sensors Performance	Type	Catalytic
	Detection Range	0-50% LEL (Lower Explosive Limit)
	Accuracy	5% of range
	Resolution	1%LEL
	Life expectancy	>5 years
Oxygen Sensor Performance	Type	Electrochemical
	Detection Range	0-25% Volume
	Accuracy	±5% of range
	Resolution	0.1 %
	Life expectancy	5 years
H2S Sensor Performance	Type	Electrochemical
	Detection Range	0-100 ppm
	Accuracy	±5% of range
	Resolution	1 ppm
	Life expectancy	5 years
Ammonia Sensor Performance	Type	Electrochemical
	Accuracy	±5% of default range
	Resolution	0.1ppm
	Life expectancy	5 years
Refrigerant Sensor Performance	Type	MOS(6)
	Detection Range	0-1000 ppm
	Resolution	1 ppm
	R134A Sensitivity(6)	@300ppm test gas: 450 ppm R410A, 425 ppm R407C, 400 ppm R404A, 370 ppm R22, 300 ppm R134A
	Other detectable gases(8)	R407A, R407F, R427A, R452B, R507, R448A, R449A, R422A, R422D, R452A, R513A, R514A, R32
	Life expectancy	> 10 years (typical life expectancy for MOS sensors)
	Max Elevation(9)	2629 m (8625 ft)
Enclosure	Material	ABS/Polycarbonate
	Dimensions	5.7”h x 3.0” x 1.8”d
	Rating	IP20
Agency	Compliance	RoHS

(1) One side of transformer secondary is connected to signal common. Dedicated transformer is recommended. No mains circuit connection allowed. In addition, it is required to use an isolated power supply that is certified by a national or international standard (i.e. UL). Use of a Class 2 LPS power supply or greater is required.

(2) Extreme temperatures may affect accuracy when using 4-20mA outputs.

(3) Carbon Monoxide full scale is 1000ppm.

(4) Nitrogen Dioxide full scale is 30ppm.

(5) Accuracy of CO2 reading may be reduced at temperatures below 14°F (-10°C).

- (6) Refrigerant sensor may only be ordered as a single element sensor. It cannot be combined with other sensors.
- (7) R134A sensor is factory calibrated to R134A gas but may be used as a general purpose refrigerant sensor. Sensitivity to some other gases can be found in the installation manual. Actual response may vary depending on installation. For more accurate response to a specific gas, a unit may be field calibrated.
- (8) These gases may be detected by the sensor but sensitivity curves are not available at this time.
- (9) Refrigerant sensors have been tested to perform at this altitude. To maintain accuracy spec, a field calibration is recommended.

** Product improvement is a continual process at Senva and product features and specification may change without prior notice. Refer to instructions that accompany the product for installation and wiring.*