TG Series UL Wall & Duct
Refrigerant Sensor/Controller

Analog and BACnet/Modbus protocol options
Rugged ABS or Metal enclosure options
Operates as a stand-alone sensor or local controller
Standard LCD with intuitive set-up menu

DESCRIPTION

Senva TG Series refrigerant sensors are a great solution for refrigerant leak detection in many applications. It can be ordered as individually calibrated R134A or R410A sensors or any combination with CO or NO2 sensors. Buy pre-calibrated for R134A or R410A or factory calibrate to any refrigerant including R134A, R410A, R407C, R404A, R22, R123. 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 one unit of MS/TP & Modbus network communication. Standard features include network auto-configuration, a programmable fan relay, LED indicators, an integrated display, and an audible alarm.
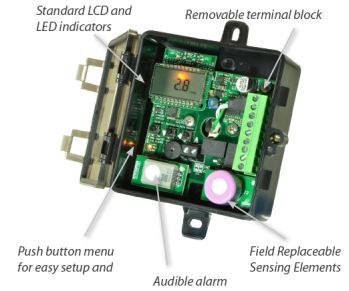
APPLICATIONS

- Refrigerant leak detection in mechanical rooms
- Pre-calibrated for R134A or R410A or factory calibrate to any refrigerant including R134A, R410A, R407C, R404A, R22, R123
- Monitor multiple gases with one mounted unit
- Alert occupants of elevated gas levels
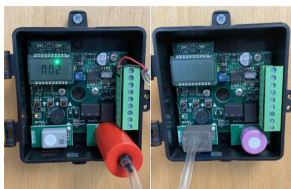- Directly control exhaust fans
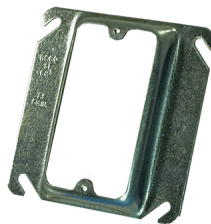

TG Metal Enclosure Available

TG ABS Enclosure - Available with Tinted or Solid Lid Options

Standard LCD and LED indicators
Removable terminal block
Push button menu for easy setup and
Audible alarm
Field Replaceable Sensing Elements

Two sensing elements, buzzer, three color LEDs, and LCD for setup and calibration

Gas shrouds secure over respective sensing elements for calibration

ABS comes with conduit box adapter

Designed and manufactured in America
World-class quality backed by seven year limited warranty

Buy American Act Certified

FEATURES

- Integrated display, LED indicators, audible alarm
- Menu selectable 0-5/10V, 1-5V and 4-20mA outputs (0-10V default)
- BACnet supports BACnet MS/TP and Modbus RTU networks with auto-configuration for network baud rate, serial format, protocol type, and self-addressing
- Dual outputs support daisy chain wiring to cost-effectively sense and control large areas
- UL2034 recognized electrochemical CO sensing element

- Warning indicators alert occupants when the element's lifecycle is near the end for replacement
- Installer-friendly circuit board makes through-the-back wiring simple
- Test mode speeds up field commissioning for verifying warning indicators and relay functions
- Push buttons and LCD to navigate setting parameters
- UL Listed (UL61010-1)
- 7-year limited warranty on electronics; 2-year on elements

ORDERING

TG ☐ - ☐ ☐ ☐ - ☐ ☐

Package
W = Wall Mount
M = Metal
D = Duct Mount

Output Type
A = Analog
B = BACnet/
    Modbus

Gas Type 1
A = Ammonia
2 = R22
3 = R134A
    (Multi-Gas)
4 = R410A
5 = R404A
6 = R407C
7 = R449A
8 = R513A
9 = 1233ZDE
M = Methane
P = Propane (C₃H8)
E = NDIR Dual Channel (CO2)

Gas Type 2
X = No second gas
2 = R22
3 = R134A
4 = R410A
5 = R404A
6 = R407C
7 = R449A
8 = R513A
9 = 123ZDE

Temperature
A = None
E = 10K Type 2
F = 10K Type 3
K = 20K

Enclosure Lid
Blank = Clear/ Tinted
S = Solid/Opaque
W = All White Solid

Replacement Elements
TGS-A-UL = Ammonia
TGS-3-UL = R134A (multi-gas)
TGS-4-UL = R410A
Consult factory for more.

Scan here to see refrigerant cross-sensitivities

*Refrigerant gas sensors may be paired with all other TG gas offerings, except Methane, Propane, and Hydrogen. See combustibles ordering table for a list of gas options.

DIMENSIONS

TGW

TGM Base

TGM Lid

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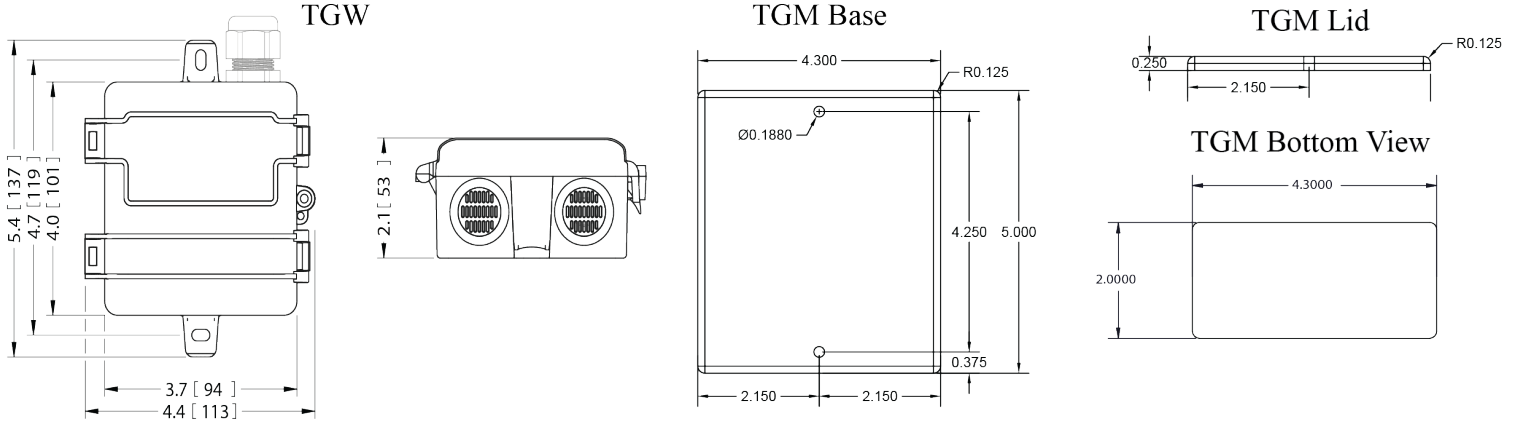
⚠️ **Warning:** The datasheet is designed for reference only. Refer to installation instructions that accompany the product and heed all safety instructions. Product improvement is a continuing process at Senva. Changes may occur to products without prior notice

SPECIFICATIONS

Power Supply		15-30VDC/24VAC(1), 4W max, 160mA max.
Analog Outputs	2 programmable outputs	0-10V (default), 0-5V, 1-5V, 4-20mA (menu selectable)
	Output scaling	Menu selectable; see installation manual for ranges
BACnet /Modbus	Protocol RS-485	BACnet MS/TP, Modbus RTU, Modbus ASCII
	Baud Rates	9600, 19200, 38400, 57600, 76800, 115200
Fan Relay	Fan relay characteristics	N.C. 1A@24/30VDC (50/60Hz) (no mains connection)
	Fan relay setpoint	300 ppm (default), 0-1000 ppm (menu selectable)
Alarm Relay	Alarm relay characteristics	N.C. 1A@24/30VDC (50/60Hz) (no mains connection)
	Alarm relay setpoint	600 ppm (default), 0-1000 ppm (menu selectable)
Display	3-1/2 digit LCD	Indicates gas concentration in ppm (menu selectable)
LEDs	Green, Yellow, Red	Green = Normal, Yellow = Relay, Red = Alarm
Audible Alarm	85dB Piezo transducer	30 minutes above alarm setpoint (menu selectable)
General Purpose Sensor Performance	Type	MOS
	Detection Range	0-1000 ppm
	Resolution	1 ppm
	Listed Gas types 2-9	Factory calibrated for respective gas
	R134A Sensitivity(2)	@300ppm test gas: 450 ppm R410A, 425 ppm R407C, 400 ppm R404A, 370 ppm R22, 300 ppm R134A, R134
	Other detectable gases(3)	R407A, R407F, R427A, R452B, R507, R448A, R422A, R422D, R452A, R514A, R32
	Life expectancy	>10 years (typical life expectancy for MOS sensors)
	Coverage Area	5000-7500 square feet (placed within 50' apart from a Senva TG sensor. Click for details)
Ammonia Sensor Performance	Type	Electrochemical
	Accuracy	±5% of default range
	Resolution	0.1ppm
	Life expectancy	5 years
	Coverage Area	5000-7500 square feet (placed within 50' apart from a Senva TG sensor. Click for details)
Carbon Dioxide (CO2)	Type	Non-Dispersive Infrared (NDIR)
	Accuracy(4)	±(30ppm +3% of reading) (400-2000ppm), @-10-50°C
	Resolution	1 ppm
	Life expectancy	15 years

	Coverage Area	5000-7500 square feet (placed within 50' apart from a Senva TG sensor. Click for details)
Methane/Propane Sensors Performance	Type	Catalytic
	Detection Range	0-50% LEL (Lower Explosive Limit)
	Accuracy	5% of range
	Resolution	1%LEL
	Life expectancy	>5 years
	Coverage Area	Methane/Hydrogen 5000-7500 sq ft; Propane 5000 sq ft (placed within 50' apart from a Senva TG sensor. Click for details)
Operating Environment	Temperature, Operational(4)	-30 to 50oC (-22 to 122oF)
	Humidity	15-95% continuous, 0-95% intermittent
	Max Elevation	2000m, Refrigerant 2629 m (8625 ft) (4)
Enclosure (Wall & Duct)	Material	ABS/Polycarbonate
	Dimensions	4.0"h x 4.4"w x 2.1"d
	Conduit Opening	Tapped 1/2" NPT
	Rating	IP20
Enclosure (Metal)	Material & Enclosure Rating	Powder-coated steel/acrylic, NEMA 3R
	Dimensions	5.0"h x 4.3"w x 2.25"d
	Opening	Dual air vents on bottom of enclosure
	Mounting	Pre-drilled for 2x4" electrical box
	Rating	IP20
Agency	Compliance	UL61010-1 Listed UL, cUL, CE

(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) 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.
(3) These gases may be detected by the sensor, but sensitivity curves are not available at this time.

(4) 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 as Senva and product features and specification may change without prior notice. Refer to instructions that accompany the product for installation and wiring.