TG Series UL Wall & Duct

Dual Combustible Gas Sensor/Controller

UL2075 recognized combustible gas sensing elements
Individual sensors or as any dual combination of gases
Detect Methane/Propane leaks and monitor for elevated CO levels
Operates as stand-alone sensor or local controller

DESCRIPTION

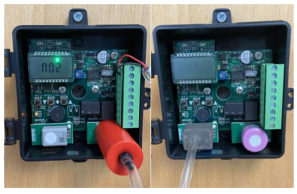
Senva TG Series sensors can be ordered as individual CH4 sensor, C3H8 sensor, H2 sensor, O2 sensor, H2S sensor, or specify two sensing elements in one enclosure including CO and NO2. The analog output model features 2 outputs that support daisy chain wiring - multiple sensors may be used in a parallel 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

- Boiler rooms
- Commercial kitchens
- Battery Rooms
- Compressed Gas storage
- Residential and commercial heating and water heating
- Vehicle bays and garages for natural gas (LNG) or petroleum gas (LPG) vehicles
- Waste facilities

TG Metal LED or Solid Enclosure Available

TG ABS Enclosure - Available with Tinted or Solid Lid Options



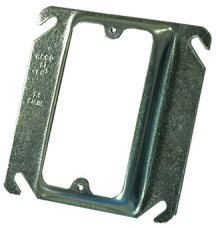
Gas shrouds secure over respective sensing elements for calibration

BACnet

Modbus

Analog

Analog and BACnet/Modbus protocol options

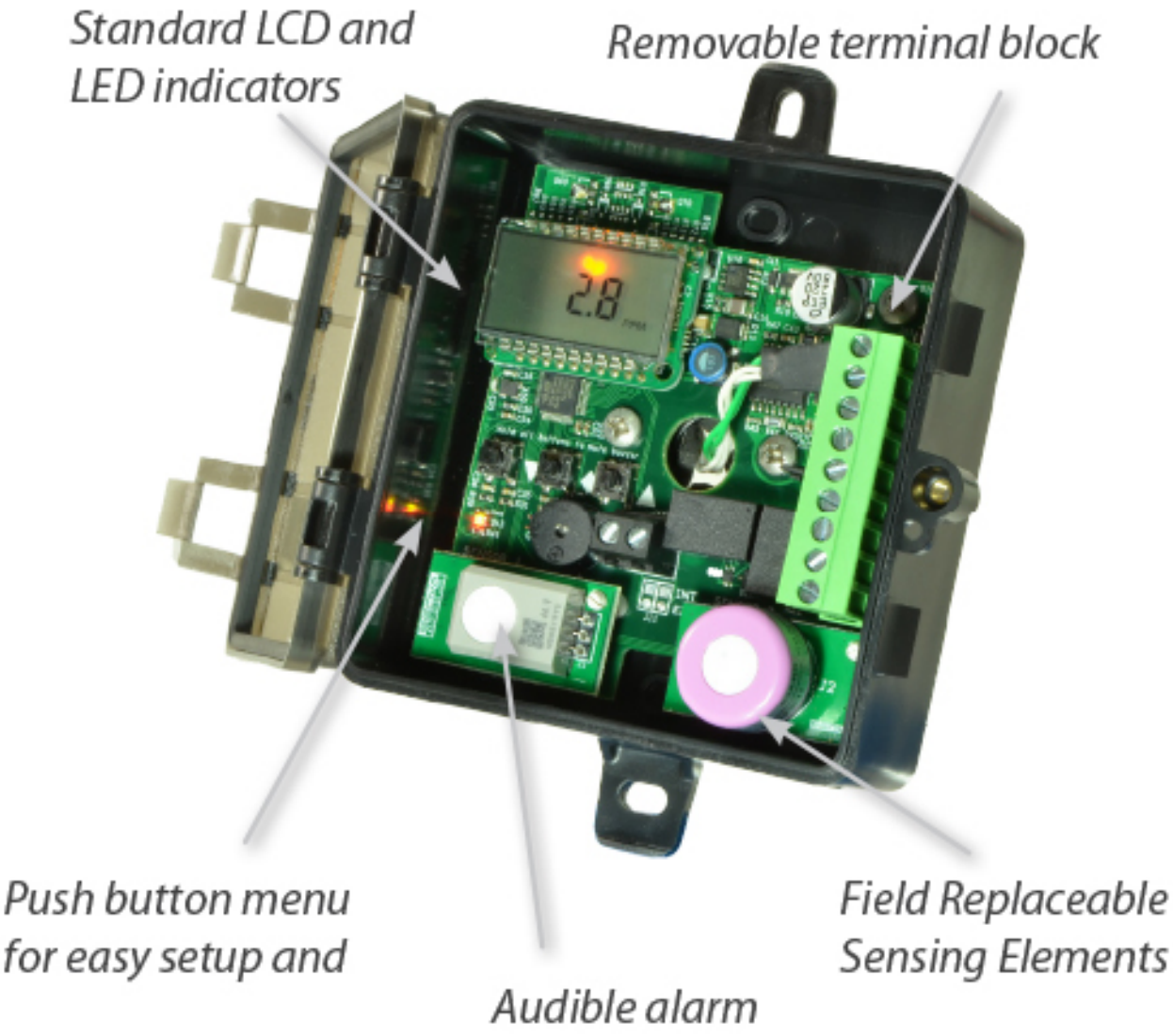


ABS version comes with handy conduit box adapter

Buy American Act Certfified

FEATURES

- NEW! UL2075 Recognized Propane and Methane elements.
- 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
- UL2075 recognized catalytic sensing element
- Warning indicators alert occupants when element's lifecycle is near 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)
- Compliant with NFPA 111, NFPA 820, and NFPA 1, Fire Code, Chapter 38.6
- 7-year limited warranty on electronics; 2-year on elements
- Sense in two locations
- Plug-and-play; provided with pre-cut CAT-5 cable
- Single power source, single location for RS-485/analog/relay connections
- Single BACnet device; reduce devices/points on your network
- Through-the-back wiring makes junction-box-mounting easy
- No programming necessary
- Order dual hydrogen sensors - great for modular battery energy storage system


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

ORDERING

TG [ ] - [ ] [ ] [ ] - [ ] [ ]

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

Output Type
A = Analog
B = BACnet/Modbus

Gas Type 1*
C = Carbon Monoxide (CO)
N = Nitrogen Dioxide (NO_2)
D = Carbon Dioxide (CO_2)
E = Dual Channel CO_2
M = Methane (CH_4)
P = Propane (C_3H_8)
H = Hydrogen (H_2)
O = Oxygen (O_2)
S = Hydrogen Sulphide (H_2S)
A = Ammonia (NH_3)
2 = R22
3 = R134A (Multi-Refrigerant)
4 = R410A
5 = R404A
6 = R407C
7 = R449A
8 = R513A
9 = 1233ZDE

Gas Type 2*
X = No second gas
N = Nitrogen Dioxide (NO_2)
D = Carbon Dioxide (CO_2)
E = Dual Channel CO_2
M = Methane (CH_4)
P = Propane (C_3H_8)
H = Hydrogen (H_2)
O = Oxygen (O_2)
S = Hydrogen Sulphide (H_2S)
A = Ammonia (NH_3)

Temperature
A = None
C = 100Pt RTD
D = 1000Pt RTD
E = 10K Type 2
F = 10K Type 3
G = 10k w/11k
H = 3k
I = 2k2
J = 1k8
K = 20k

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

*Refrigerant sensors may not be paired with CH4, C3H8, or H2, or paired together.

Replacement Elements
TGS-CO-UL = Carbon Monoxide
TGS-NO2-UL = Nitrogen Dioxide
TGS-CH4-UL = Methane
TGS-C3H8-UL = Propane
TGS-O2-UL = Oxygen
TGS-H2-UL = Hydrogen
TGS-S-UL = Hydrogen Sulfide
Call for more options

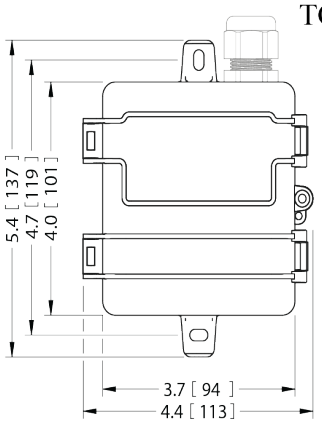
TG [ ] - **REM** - [ ]

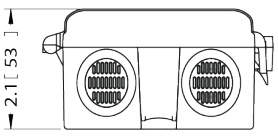
Package
W = Wall Mount
M = Metal

Cable Length
5 = 5 feet
10 = 10 feet
15 = 15 feet
20 = 20 feet

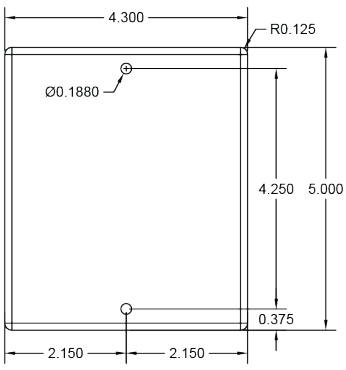
DIMENSIONS

TGW

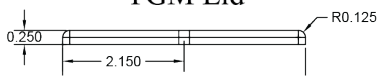




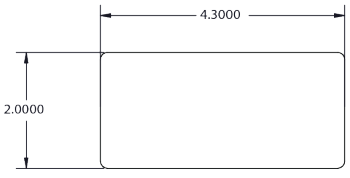
TGM Base



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.
	TG-REM	Powered through CAT-5 cable, no separate power required.
Wiring	Conductor	14-24 AWG, Minimum 600V, 75°C
	Terminal Torque	0.5 N-m
Analog Outputs	2 programmable outputs	0-10V (default), 0-5V, 1-5V, 4-20mA (menu selectable)
	CO Output Scaling	0-200ppm (default), 0-1000ppm (menu selectable)
	NO_2 Output Scaling	0-10ppm (default), 0-30ppm (menu selectable)
	CO_2 Output Scaling	0-10,000ppm (default), 0-10,000 (menu selectable)
	Propane/Methane / Hydrogen Output Scaling	0-50% LEL (default), 0-50% LEL (menu selectable)
	Oxygen Output Scaling	0-25% Vol (default), 0-25% Vol (menu selectable)
	Refrigerant Output Scaling	0-1000ppm (default), 0-1000ppm (menu selectable)
	H2S Output Scaling	0-100ppm (default), 0-100ppm (menu selectable)
	Ammonia NH3 Output Scaling	0-100ppm (default), 0-100ppm (menu selectable)
	Temperature Output Scaling (optional)	-20° to 85°C
BACnet /Modbus	Protocol RS-485	BACnet MS/TP, Modbus RTU, Modbus ASCII
	Baud Rates	9600, 19200, 38400, 57600, 76800, 115200
	RS-485 Loading	1/4 unit
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 conenction)
	Alarm relay setpoint	600 ppm (default), 0-1000 ppm (menu selectable)
Display	3-1/2 digit LCD	Indicates CO ppm, NO2 ppm, Temp (menu selectable)
LEDs	Green, Yellow, Red	Green = Normal, Yellow = Relay, Red = Alarm
Audible Alarm	85dB Piezo transducer	30 minutes above alarm setpoint (menu selectable)
CO Sensor Performance (4)	Type	Electrochemical
	Accuracy	±5% of Default Range, ±5% of Reading Above 200 ppm
	Resolution	1 ppm
	Certifications	UL2075 Recognized component
	Life Expectancy	7 years
	Recommended Calibration	Annual
	Recommended Height and Coverage Area	3 to 6 feet, coverage 5000 to 7500 sq. ft.
NO_2 Sensor Performance (5)	Type	Electrochemical
	Accuracy	±5% of Default Range, ±5% of Reading Above 20 ppm
	Resolution	0.1 ppm
	Certifications	UL2075 Recognized component
	Life Expectancy	7 years
	Recommended Calibration	Annual
	Recommended Height and Coverage Area	3 to 6 feet, coverage 5000 to 7500 sq. ft.
Oxygen Sensor Performance	Type	Electrochemical
	Detection Range	0-25% Volume

	Accuracy	±5% of range
	Resolution	0.1%
	Life expectancy	5 years, with Annual Calibration
	Recommended Calibration	6 months
	Recommended Height and Coverage Area	3 to 6 feet off the ground; coverage of 5000-7500 square feet
Ammonia Sensor (NH_3) Performance	Type	Electrochemical
	Accuracy	±5% of default range
	Resolution	0.1 ppm
	Life expectancy	5 years
	Recommended Calibration	6 months
	Recommended Height and Coverage Area	0.5 to 1 foot from ceiling; coverage 5000-7500 square feet (Click for details)
Carbon Dioxide (CO_2)	Type	Non-Dispersive Infrared (NDIR)
	Accuracy[6]	±(30ppm +3% of reading) (400-2000ppm), @-10-50°C
		±(50ppm +5% of reading) Standard (2000-5000ppm), @-10-50°C
		±(30ppm +3% of reading) Dual Channel (2000-5000ppm), @-10-50°C
	Drift with ABC disabled [7]	35 ppm/month [8] (Standard), 5 ppm/month [8] (Dual Channel)
	Range	0-2000/5000 ppm; Programmable up to 10,000 ppm
	Resolution	1 ppm
	Life expectancy	15 years
	Response Time	30s
	Sample Response	1s
	Recommended Height and Coverage Area	3 to 6 feet, coverage 5000-7500 square feet (Click for details)
Methane/Propane/Hydrogen Sensors Performance	Type	Catalytic
	Detection Range	0-50% LEL (Lower Explosive Limit)
	Accuracy	5% of range
	Certifications	UL2075 Recognized Component for Methane and Propane
	Resolution	1%LEL
	Ceritifications	UL2075 Recognized Component
	Life expectancy	>5 years
	Response Time	<10s to 90%
	Recommended Height and Coverage Area	6 inches above floor; no more than 18 inches above lowest level of equipment location for leak detection; Coverage: Methane/Hydrogen 5000-7500 sq ft; Propane 5000 sq ft (Click for details)
Hydrogen Sulphide (H2S) Sensor Performance	Type	Electrochemical
	Detection Range	0-100 ppm
	Accuracy	±5% of Range
	Resolution	1 ppm
	Life expectancy	5 years with 6 month calibration
	Recommended Calibration	6 months
	Recommended Height and Coverage Area	3 to 6 foot above the ground; coverage of 5000-7500 square feet
Operating Environment	Temperature, Operational ()	-20 to 50°C (-4 to 122°F) (CO_2 versions rated to -40°C)
	Humidity	15-95% continuous, 0-95% intermittent
	Max Elevation	2000m
Enclosure	Material	ABS/Polycarbonate
(Wall & Duct)	Dimensions	4.0”h x 4.4”w x 2.1”d

	Conduit Opening	Tapped 1/2" NPT
	Rating	IP43 or NEMA 3R
Enclosure (Metal)	Material & Enclosure Rating	Powder-coated steel/acrylic
	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	IP41 or NEMA 3R
Agency	Compliance	UL61010-1 Listed UL, cUL, CE, UL 2075 Recognized Propane/Methane/Hydrogen/Nitrogen Dioxide/Carbon Monoxide sensor

(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) Carbon Monoxide full scale is 1000 ppm.

(5) Nitrogen Dioxide full scale is 30 ppm.

(6) CO_2 sensor is equipped with a heater to account for temperatures down to -40°C.

(7) It is not recommended to de-activate ABC (auto-calibration) except for continuously occupied spaces or greenhouses. Drift ratings may vary based on environment.
(8) Combination CO/Mathane, CO/Propane, or CO/Refrigerant sensors should be mounted according to Propane/Methane/Refrigerant recommendations. Consult factory for other combinations. Mounting height recommendations may be adjusted according to installation. Ensure sensor is accessible for maintenance and target gas has unobstructed access to sensor. Mount in accordance with ANSI/NFPA 70 and NEC or CEC.

** 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.*