

# TG UL Series Wall & Duct Dual Combustible Gas Sensor/Controller



Analog and BACnet/Modbus protocol options  
Field replaceable calibrated sensing elements  
Detect combustibles and CO in one unit  
Integrated LED indicators and audible alarm



## DESCRIPTION

Senva TG Series sensors can be ordered as individual sensors or as any dual combination of CO/NO<sub>2</sub>/Propane/Methane sensor in a shared enclosure. Detect Methane/Propane leaks and monitor for elevated CO levels, all in one unit.

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, programmable fan and alarm relays, LED indicators,

## 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
- Monitor multiple combustible gases with one mounted unit
- Alert occupants of elevated gas levels
- Directly control exhaust fans

## FEATURES

### Cost-effective dual gas sensing and control

- Integrated display, LED indicators, audible alarm
- Order as individual CO, NO<sub>2</sub>, Propane, Methane, Hydrogen, or Oxygen sensor, or specify any two sensing elements in one enclosure

### Flexibility of analog output model

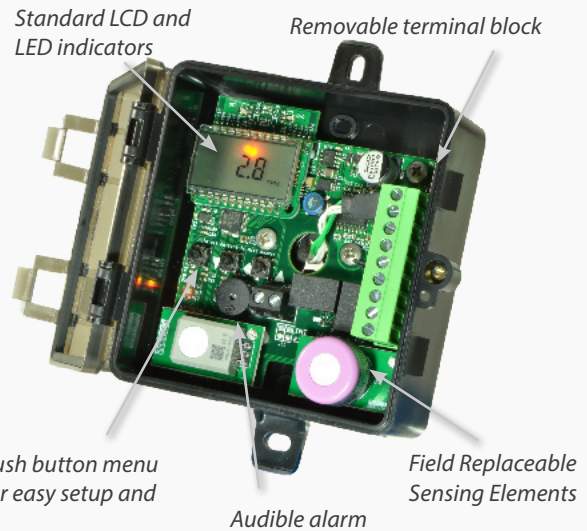
- Menu selectable 0-5/10V, 1-5V and 4-20mA outputs (0-10V default)
- Dual outputs support daisy chain wiring to cost-effectively sense and control large areas

### Versatility with BACnet/Modbus model

- Supports BACnet MS/TP and Modbus RTU networks
- Auto-configuration detects network baud rate, serial format, protocol type and self-addresses

### High reliability reduces call backs

- Temperature compensated elements for maximum accuracy
- UL2034 recognized electrochemical CO sensing element
- Warning indicators alert occupants when element's lifecycle is near end for replacement
- 7-year limited warranty on electronics; 2-year on elements



### Easy to install

- Through the back wiring
- Test mode speeds up field commissioning for verifying warning indicators and relay functions
- Push buttons and LCD to navigate



7 year limited warranty

## ORDERING

	Pkg	Out	Gas1	Gas2	Temp	Lid
<b>TG</b>	<input type="text"/>	-	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

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

**Output Type**  
 A = Analog  
 B = BACnet/Modbus

**Gas Type 1**  
 C = Carbon Monoxide (CO)  
 N = Nitrogen Dioxide (NO<sub>2</sub>)  
 M = Methane (CH<sub>4</sub>)  
 P = Propane (C<sub>3</sub>H<sub>8</sub>)  
 H = Hydrogen (H<sub>2</sub>)  
 O = Oxygen (O<sub>2</sub>)

**Gas Type 2**  
 N = Nitrogen Dioxide (NO<sub>2</sub>)  
 M = Methane (CH<sub>4</sub>)  
 P = Propane (C<sub>3</sub>H<sub>8</sub>)  
 H = Hydrogen (H<sub>2</sub>)  
 O = Oxygen (O<sub>2</sub>)  
 X = No second gas

**Temperature Output**  
 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

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

## Replacement Elements

- TGS-CO-UL = Carbon Monoxide
- TGS-NO<sub>2</sub>-UL = Nitrogen Dioxide
- TGS-CH<sub>4</sub>-UL = Methane
- TGS-C<sub>3</sub>H<sub>8</sub>-UL = Propane
- TGS-O<sub>2</sub>-UL = Oxygen
- TGS-H<sub>2</sub>-UL = Hydrogen



## SPECIFICATIONS

Power Supply	15-30VDC/24VAC <sup>(1)</sup> , 4W max, 160mA max.	
Analog Outputs	2 programmable outputs	
	CO output scaling	0-10V (default), 0-5V, 1-5V and 4-20mA (menu selectable)
	NO <sub>2</sub> output scaling	0-200ppm (default), 0-1000ppm (menu selectable)
	Methane/Propane/Hydrogen scaling	0-10ppm (default), 0-30ppm (menu selectable)
	Oxygen scaling	0-50% LEL (default), 0-50% LEL (menu selectable)
Temperature output scaling	0-25% Volume (default), 0-25% Vol (menu selectable)	
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)
Alarm Relay	Alarm relay characteristics	N.C. 1A@24/30VDC (50/60Hz) (no mains connection)
Display	3-1/2 digit LCD	Indicates ppm or % LEL or % Vol (menu selectable)
LEDs	Green, Yellow, Red	Green = Normal, Yellow = Relay, Red = Alarm
Audible Alarm Exposure	85dB Piezo transducer	30 minutes above alarm setpoint per UL2034 (menu selectable)
CO Sensor Performance	Type	Electrochemical
	Accuracy	±5% of default range <sup>(2)</sup> ±5% of reading above 200ppm
	Resolution	1ppm
	Certifications	UL2034 Listed Component
	Life expectancy	>7 years
NO <sub>2</sub> Sensor Performance	Coverage Area	5000-7500 square feet
	Type	Electrochemical
	Accuracy	±5% of default range <sup>(3)</sup> ±5% of reading above 20ppm
	Resolution	0.1ppm
	Life expectancy	>7 years
Methane/Propane/Hydrogen Sensors Performance	Coverage Area	5000-7500 square feet
	Type	Catalytic
	Detection Range	0-50% LEL (Lower Explosive Limit)
	Accuracy	5% of range
	Resolution	1%LEL
Oxygen Sensor Performance	Life expectancy	>5 years
	Coverage Area	Methane/Hydrogen 5000-7500 sq ft; Propane 5000 sq ft
	Type	Electrochemical
	Detection Range	0-25% Volume
	Accuracy	±5% of range
Operating Environment	Resolution	0.1 %
	Life expectancy	5 years
	Coverage Area	5000-7500 square feet
	Temperature, continuous	-20 to 50°C
	Humidity	15-95% continuous, 0-95% intermittent
Enclosure (Wall & Duct)	Max Elevation	2000m
	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

(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) Carbon Monoxide full scale is 1000ppm.

(3) Nitrogen Dioxide full scale is 30ppm