

TG UL Series Wall & Duct Dual Toxic Gas CO/NO₂ Sensor/Controller

Analog and BACnet/Modbus protocol options
Field replaceable calibrated sensing elements
Standard LCD with intuitive set up menu
Integrated LED indicators and audible alarm



DESCRIPTION

Sena TG Series sensors can be ordered as individual CO or NO₂ sensors or as any dual combination of 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, programmable fan and alarm relays, LED indicators, integrated display and audible alarm.

APPLICATIONS



- Control exhaust in parking garages according to International Mechanical Code
- Ensure adequate air flow in occupied spaces
- Monitor multiple toxic 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 or NO₂ sensor, or specify any two sensing elements in one enclosure

Flexibility of analog output model

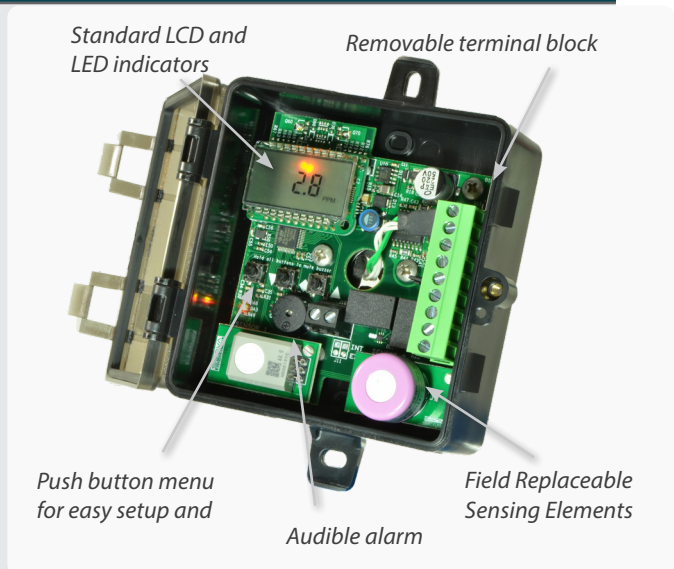
- Menu selectable 0-5/10V, 1-5V and 4-20mA outputs (0-10V default)
- Dual outputs support daisy chain wiring to cost-effectively sense and control large areas

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
- 7 year life expectancy on CO and NO₂ elements
- 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 setting parameters



ORDERING

TG - -

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 (NO₂)
 D = Carbon Dioxide (CO₂)
 E = Dual Channel CO₂

Gas Type 2
 N = Nitrogen Dioxide (NO₂)
 D = Carbon Dioxide (CO₂)
 E = Dual Channel CO₂
 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

SPECIFICATIONS

Power Supply		15-30VDC/24VAC ⁽¹⁾ , 4W max, 160mA max.
Analog Outputs	2 programmable outputs	0-10V (default), 0-5V, 1-5V and 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)
	Temperature output scaling	-20 to 85°C
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)
	CO fan relay setpoint	25ppm (default), 0-1000 ppm (menu selectable)
	NO ₂ fan relay setpoint	1ppm (default), 0-30ppm (menu selectable)
Alarm Relay	Alarm relay characteristics	N.C. 1A@24/30VDC (50/60Hz) (no mains connection)
	CO alarm relay setpoint	100ppm (default), 0-1000 ppm (menu selectable)
	NO ₂ alarm relay setpoint	3ppm (default), 0-30ppm (menu selectable)
Display	3-1/2 digit LCD	Indicates CO ppm, NO ₂ ppm (menu selectable)
LEDs	Green, Yellow, Red	Green = Normal, Yellow = Relay, Red = Alarm
Audible Alarm Exposure		30 minutes above alarm setpoint per UL2034 (menu selectable)
	85dB Piezo transducer	
CO Sensor Performance	Type	Electrochemical
	Accuracy	±5% of default range ⁽²⁾ ±5% of reading above 200ppm
	Resolution	1ppm
	Certifications	UL2034 Listed Component
	Life expectancy	>7 years
NO ₂ Sensor Performance	Coverage Area	5000-7500 square feet
	Type	Electrochemical
	Accuracy	±5% of default range ⁽³⁾ ±5% of reading above 20ppm
	Resolution	0.1ppm
	Life expectancy	>7 years
Carbon Dioxide (CO ₂)	Coverage Area	5000-7500 square feet
	Type	Non-Dispersive Infrared (NDIR)
	Accuracy ⁽⁴⁾	±(30ppm +3% of reading) (400-2000ppm), @-10-50°C ±(50ppm +5% of reading) Standard (2000-5000ppm), ±(50ppm+3% of reading) Dual Channel (2000-5000ppm), ±(100ppm+10% of reading) (5000-10000ppm)
	Resolution	1 ppm
	Life expectancy	15 years
Operating Environment	Temperature, continuous	-20 to 50°C
	Humidity	15-95% continuous, 0-95% intermittent
	Max Elevation	2000m
Enclosure (Wall & Duct)	Material	ABS/Polycarbonate
	Dimensions	4.0" h x 4.4" w x 2.1" d (+6.8" probe for duct version)
	Conduit Opening	Tapped 1/2" NPT
Enclosure (Metal)	Rating	NEMA 3R, NEMA 4X (Duct)
	Material	Powder coated steel/acrylic
	Dimensions	5.0" h x 4.3" w x 2.25" d
Agency	Opening	Dual air vents on bottom of enclosure
	Mounting	Pre-drilled for 2x4" electrical box
	Rating	NEMA 3R
Compliance	UL61010-1 Listed UL, cUL, CE	

Replacement Elements

TGS-CO-UL = Carbon Monoxide
 TGS-NO₂-UL = Nitrogen Dioxide



Pair it with a fan relay

See Senva pilot and power relays for ordering information.



Duct Applications

See Senva's Duct Mount Gas sensing application note to learn about the use of duct-mounted sensors to provide redundancy and peace of mind.



Warning: Refer to installation instructions that accompany product and heed all safety instructions.

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