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

Senva 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 accoding 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

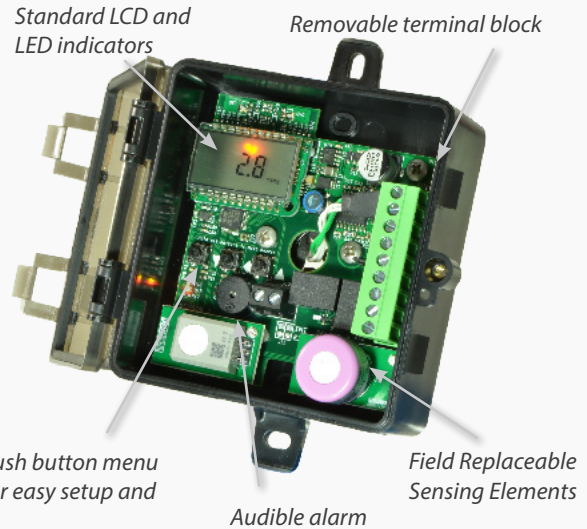### Flexibility of analog output model

- 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

Standard LCD and LED indicators

Removable terminal block

Push button menu for easy setup and

Audible alarm

Field Replaceable Sensing 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

PROUDLY MADE IN USA

7 year limited warranty

ORDERING

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        Pkg   Out   Gas1  Gas2  Temp  Lid

   TG  [  ] - [  ] [  ] [  ] [  ] [  ]
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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 = Carboon Dioxide (CO2)
E = Dual Channel CO2

Gas Type 2
N = Nitrogen Dioxide (NO2)
D = Carboon 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

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

warranty

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 provice redundancy and peace of mind.

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)
	NO2 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)
	NO2 fan relay setpoint	1ppm (default), 0-30ppm (menu selectable)
Alarm Relay	Alarm relay characteristics	N.C. 1A@24/30VDC (50/60Hz) (no mains conenction)
	CO alarm relay setpoint	100ppm (default), 0-1000 ppm (menu selectable)
	NO2 alarm relay setpoint	3ppm (default), 0-30ppm (menu selectable)
Display	3-1/2 digit LCD	Indicates CO ppm, NO2 ppm (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[2] ±5%of reading above 200ppm
	Resolution	1ppm
	Certifications	UL2034 Listed Component
	Life expectancy	>7 years
	Coverage Area	5000-7500 square feet
NO2 Sensor Performance	Type	Electrochemical
	Accuracy	±5% of default range[3] ±5%of reading above 20ppm
	Resolution	0.1ppm
	Life expectancy	>7 years
	Coverage Area	5000-7500 square feet
Carbon Dioxide (CO2)	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
	Coverage Area	5000-7500 square feet
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
	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) 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).