cGas-SC Self Contained Detector

Critical Environment Technologies

FIXED SYSTEMS

APPLICATIONS

»Parking Garages / Car Parks
»Refrigeration / Chiller Rooms
»Recreational Facilities
»Battery Charging Rooms
»Wineries / Breweries
»Horticulture and Greenhouses
»Manufacturing Plants
»Maintenance Facilities
» ... and many more

TECHNICAL DRAWING

The cGas-SC Self-Contained Controller is a versatile gas detector that offers up to 3 channels for monitoring toxic, combustible and refrigerant gases in commercial and light industrial, non-hazardous (non-explosion rated) environments.

It can be used as a standalone monitoring device or part of a larger gas detection system. It accepts 4-20 mA analog inputs and all models feature field configurable BACnet® or Modbus® output for communicating with a controller or a BAS.

Sensor configurations include combinations of internal and/or remote sensors, including one internal sensor with two remote sensors. Plug & Play Smart Sensor technology makes replacing the pre-calibrated sensors quick and easy.

Standard features include two high voltage SPDT dry contact relays with field configurable time delays and trigger levels, one horn and strobe connection, a field selectable internal audible alarm, an LCD display with LED indicators for channel alarm status and fault conditions and an intuitive menu system with password protection. Enhanced logic control with 8 priorities/zoning capabilities allows flexibility in configuration and operation.

Specialized optional features include two 4 - 20 mA outputs that can be used for VFD control, RH and temperature monitoring, low temperature operation, side mounted strobe, extra loud or water tight, side mounted buzzer and wash-down / water spray protection. Including Option -DV upgrades the standard model to support dual voltage inputs by adding line voltage capability.
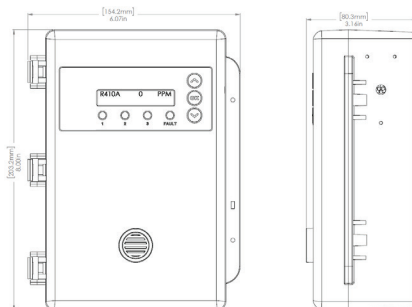
KEY FEATURES

» Up to 3 gas channels with flexible internal and / or remote sensor configurations
» Pre-calibrated Plug & Play Smart Sensor replacement at end of life
» 2x16 character LCD display with LED indicators
» Easy access push buttons on the front of the enclosure for configuration and calibration
» 24 VDC or VAC power (ground reference), supports dual voltage inputs by adding Option -DV: Line voltage capability
» Field configurable BACnet® MS/TP RS-485 or Modbus® RTU RS-485 digital output signal to controller or BAS
» Field selectable 4 - 20 mA outputs, 0 - 10V or 2 - 10V output
» Two SPDT dry contact relays 5A @240 VAC
» USB port for configuration changes and firmware upgrades
» Standard water / dust tight, corrosion resistant enclosure (drip proof); IP54 rated with optional splash guard installed
» Optional low temperature operation package
» Optional RH & Temperature sensor
» Optional side mounted strobe
» Optional factory installed splash guard
» Optional side mounted extra loud or water tight buzzer

TECHNICAL SPECIFICATIONS

MECHANICAL

Enclosure	ABS / Polycarbonate IP54 rated with splash guard
Weight	750 g / 1.65 lbs 1 kg / 2.2 lbs (with line voltage)
Size	20.3 x 15.4 x 8 cm / 8 x 6.07 x 3.16 in

USER INTERFACE

Display	LCD display 2 x 16 characters with LED panel indicating alarm status 1, 2 and 3 for any channel and FAULT
Push Buttons	Initiate calibration and menu options with UP, DOWN and OK push buttons
USB Port	Internal port for USB memory stick for configuration changes and firmware upgrades

INPUT / OUTPUT

Input	4-20 mA analog
Outputs	• Up to two 4 - 20 mA analog outputs for VFD control • Jumper selectable 0 - 10 volts, 2 - 10 volts output • User selectable BACnet® MS/TP • (version 1 rev 14) RS-485 or Modbus® RTU (version 1.1b3) RS-485 • Horn/strobe output terminal
Internal Relays	2 SPDT dry contact relays, rated 5 amps @ 240 VAC
RH & Temperature	User selectable (°C or °F) RH & Temp sensor (optional), not available with all models

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Audible Alarm	Standard internal buzzer Optional loud, side mounted buzzer, rated 90 dB @ 30 cm (1 ft) Optional water tight, side mounted buzzer, rated 85 dB @ 60.96 cm (2 ft) Temporal 4 sound pattern

ELECTRICAL

Power Requirement	Low Voltage (standard) 16-30VDC / 12-28 VAC, 50/60 Hz, 10W add Line Voltage (Option -DV) 100-240V AC +/-10%, 50/60 Hz, 10W, 1-phase to upgrade the standard model to support dual voltage inputs
Power Consumption	Internal echem sensor uses 1.5 watts Internal CO_2 sensor uses 1.9 watts ESH-A remote sensor uses 1.6 watts LPT or CGAS -A transmitter uses 1 - 3 watts CXT-A transmitter uses 6.5 watts
Wiring	Low Voltage: 24 VDC or 24 VAC 2-conductor, 18 awg stranded within conduit Line Voltage: VAC 3-conductor (Line, Neutral, Ground), 18 awg stranded within conduit Digital Communication: 4-conductor, 16 AWG, stranded within conduit
Distance of Remote Devices	Maximum 61 m/ 200 ft between CGAS-SC controller and ESH-A Remote Sensor using minimum 18 awg stranded within conduit For maximum distances to maintain for remote 4-20 mA transmitters reference the transmitter Operation Manual
Fuse(s)	Thermal, resetting

ENVIRONMENTAL (sensor dependant)

Operating Temperature	0°C to 40°C (32°F to 104°F) temperatures below 0°C / 32°F require low temperature package (Option-LT)
Humidity	15 - 95% RH non-condensing

CERTIFICATIONS

Complies with: CSA-C22.2 No 61010-1, UL 61010-1 (Edition 3)
Complies with Part 15 of the FCC Rules.
[1]CO sensor and NO2 sensor UL2075 Listed
Listed by BTL
RoHS compliant circuit boards

PRODUCT CODES

Single Channel: No Internal Sensor

CGAS-SC-RS	Add one ESH-A remote sensor or one analog transmitter

Single Channel - 4 Series Electrochemical Sensors		Lifespan
CGAS-SC-CO[1]	Carbon Monoxide (CO) sensor (0 - 200 ppm)	~3yr
CGAS-SC-CL2	Chlorine (Cl_2) sensor (0 - 5 ppm)	~3yr

Single Channel: No Internal Sensor

CGAS-SC-RS	Add one ESH-A remote sensor or one analog transmitter

Single Channel - 4 Series Electrochemical Sensors		Lifespan
CGAS-SC-CO[1]	Carbon Monoxide (CO) sensor (0 - 200 ppm)	~3yr
CGAS-SC-CL2	Chlorine (Cl_2) sensor (0 - 5 ppm)	~3yr
CGAS-SC-H2S	Hydrogen Sulphide (H_2S) sensor (0 - 50 ppm)	~2yr
CGAS-SC-NO	Nitric Oxide (NO) sensor (0 - 100 ppm)	~2yr
CGAS-SC-NO2[1]	Nitrogen Dioxide (NO_2) sensor (0 - 10 ppm)	~3yr
CGAS-SC-O2	Oxygen (O_2) sensor (0 - 25% volume)	~3yr
CGAS-SC-SO2	Sulphur Dioxide (SO_2) sensor (0 - 20 ppm)	~2yr

Single Channel - 7 Series Electrochemical Sensors		Lifespan
CGAS-SC-7CO	Carbon Monoxide (CO) sensor (0 - 200 ppm)	~5yr
CGAS-SC-7C2H4	Ethylene (C_2H_4) sensor (0 - 200 ppm)	~3yr
CGAS-SC-7H2S	Hydrogen Sulphide (H_2S) sensor (0 - 50 ppm)	~5yr
CGAS-SC-7NO2	Nitrogen Dioxide (NO_2) sensor (0 - 10 ppm)	~5yr

Single Channel - Internal Carbon Dioxide (CO_2) Sensors		
CGAS-SC-CO2-2K	Carbon Dioxide (CO_2) sensor (0 - 2,000 ppm)	~8yr
CGAS-SC-CO2-5K	Carbon Dioxide (CO_2) sensor (0 - 5,000 ppm)	~8yr
CGAS-SC-CO2-5%	Carbon Dioxide (CO_2) sensor (0 - 5.0% vol)	~8yr
CGAS-SC-CO2-100%	Carbon Dioxide (CO_2) sensor (0 - 100 %vol)	~8yr

Dual Channel - No Internal Sensors

CGAS-SC-2RS	Add ESH-A remote sensors and/or analog transmitters. Maximum of 2.

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Dual Channel: One Internal Sensor and 1 Remote Sensor

To order with 7 series sensors use the 7 series gas code.
For example CGAS-SC-7CO-RS

CGAS-SC-CO-RS[1]	
CGAS-SC-NO2-RS[1]	Add one ESH-A Remote Sensor or one analog transmitter
CGAS-SC-H2S-RS	
CGAS-SC-O2-RS	

Dual Channel - Two Internal Electrochemical Sensors

CGAS-SC-CO-NO2[1]	Carbon Monoxide (CO) sensor (0 - 200 ppm) & Nitrogen Dioxide (NO_2) sensor (0 - 10 ppm)	~3yr
CGAS-SC-CO-O2[1]	Carbon Monoxide (CO) sensor (0 - 200 ppm) & Oxygen (O_2) sensor (0 - 25% vol)	~3yr
CGAS-SC-CO-C2H4[1]	Carbon Monoxide (CO) sensor (0 - 200 ppm) & Ethylene (C_2H_4) sensor (0 - 200 ppm)	~3yr ~2yr
CGAS-SC-CO-H2S[1]	Carbon Monoxide (CO) sensor (0 - 200 ppm) & Hydrogen Sulphide (H_2S) sensor (0 - 50 ppm)	~3yr ~2yr
CGAS-SC-CO-NO[1]	Carbon Monoxide (CO) sensor (0 - 200 ppm) & Nitric Oxide (NO) sensor (0 - 100 ppm)	~3yr ~2yr

Three Channel: One Internal Electrochemical Sensor and 2 Remote Sensors, includes one analog output

Add -2RS to any Single Channel 4 Series Electrochemical Sensor part number. For example: CGAS-SC-CO-2RS. Specify 2 remote sensors.

NOTE: Three channel configurations cannot have internal 7 series echem or CO2 sensors. Three channel configurations come with 1 analog output and cannot have Option -2AO added to them.

Three Channel: Two Internal Electrochemical Sensors and 1 Remote Sensor, includes one analog output

Add -RS to any Dual Channel Electrochemical Sensor part number. For example: CGAS-SC-CO-NO2-RS. Specify the remote sensor.

Three Channel - No internal sensors

CGAS-SC-3RS	Add ESH-A remote sensors and/or analog transmitters. Maximum of 3. Comes with 1 analog output and cannot have Option -2AO added to them.

ESH-A Remote Sensors

ESH-A-CC2H2-100	Catalytic combustible Acetylene (C_2H_2) ESH-A Remote Sensor (0 - 100% LEL)	~5yr
ESH-A-CH2-100	Catalytic combustible Hydrogen (H_2) sensor (0 - 100% LEL)	~5yr
ESH-A-CCH4-100	Catalytic combustible Methane (CH_4) sensor (0 - 100% LEL)	~5yr
ESH-A-CC3H8-100	Catalytic combustible Propane (C_3H_8) sensor (0 - 100% LEL)	~5yr
ESH-A-SPL	TVOC PID sensor (0 - 30 ppm)	
ESH-A-SPH	TVOC PID sensor (0 - 300 ppm)	
ESH-A-JET	Infrared Propane (C_3H_8) sensor (0 - 100% LEL)	~8yr

Analog Transmitters - Product Lines

CGAS-A Analog Gas Detector
CGAS-AP Analog Indoor Public Space Gas Detector
CXT2-A Analog Explosion Proof Transmitter
LPT Low Power Transmitter

OPTIONS (Factory installed only) Add at the end of the Part Number

2AO	Two 4-20 mA analog outputs, supports VFD control, jumper selectable 0-10 volts, 2-10 volts output. Cannot be added to three gas channel models.
A	Side mounted, loud buzzer rated 90 dB @ 30 cm (1 ft)
DV	Adds Line Voltage 90 - 240 VAC, 50 - 60 Hz, 10 W to upgrade the standard model to support dual voltage inputs
L2	Side mounted strobe with audible, 40 mm / 2 in dia, 80 flashes per min, siren volume 85 dB, drip proof
LT	Low temperature package with OLED display and internal heater for cold environment applications down to -40°C / -40°F
RHT	RH & Temperature sensor (°C or °F) (not available with all models)
S	Splash guard for non-sticky gases
SN	Splash Guard for configurations with internal NO2 sensor
WA	Side mounted, water tight buzzer rated 85 dB @ 60.96 cm

REPLACEMENT GUIDE

	Replaces:
CGAS-SC-CO-DV	SCC-A-TCO
CGAS-SC-NO2-DV	SCC-D-NO2B
CGAS-SC-CO-DV-RS	SCC-D-TCO-R
CGAS-SC-CO-NO2-DV	SCC-E-TCO-NO2
CGAS-SC-CO-2AO-DV	DCC-A-TCO
CGAS-SC-NO2-2AO-DV	DCC-A-NO2B
CGAS-SC-2AO-DV-RS	DCC-B-R
CGAS-SC-CO-NO2-2AO-DV	DCC-E-TCO-NO2B