

# DIGITAL GAS DETECTORS DATASHEET

## cGas Detector Digital Transmitter



The cGas Detector is a digital transmitter that offers great flexibility at a lower cost with customized sensor combinations and specialized options for adding only the functionality you need. It can be configured with one or two gas sensors and is ideal for monitoring toxic, combustible and refrigerant gases in commercial and light industrial, non-hazardous (non-explosion rated) environments.

BACnet® or Modbus® output for communicating with a Controller or a Building Automation System is user selectable in the field. Pre-calibrated sensors with true Plug & Play Smart Sensor technology makes replacing sensors quick and easy. Powered by 24 VDC or ground reference AC, the digital cGas Detector has an LCD display, temperature compensation and the firmware and configuration can be upgraded in the field using the USB connection. Optional features include, RH and temperature monitoring, low temperature operation, relay and wash-down / water spray protection. The digital cGas Detector comes in a standard water / dust tight, corrosion resistant ABS / polycarbonate enclosure with a hinged, secured door. With the optional, factory installed splash guard (Option -S) the enclosure is IP54 rated and provides protection in water spray or wash down applications.

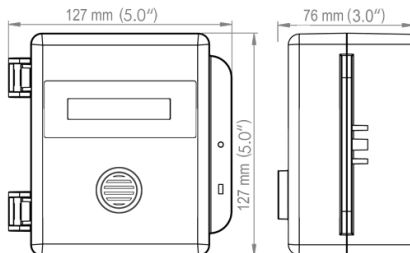
### KEY FEATURES

- » Up to 2 gas channel configurations
- » Field configurable BACnet® MS/TP RS-485 or Modbus® RTU RS-485 digital output signal
- » Easy Plug & Play Smart Sensor replacement at end of life
- » Bright LCD display
- » USB port for configuration changes and firmware upgrades
- » Internal 2A SPDT dry contact relay with or without internal buzzer (Option -RBZ or Option -RLY)
- » Optional RH & Temperature sensor (Option -RHT)
- » Optional low temperature operation package (Option -LT)
- » Standard water / dust tight, corrosion resistant enclosure (drip proof); IP54 rated with optional splash guard installed.
- » Sensor Calibration Extending Firmware (CEF) for parking applications
- » RoHS compliant circuit board

### APPLICATIONS

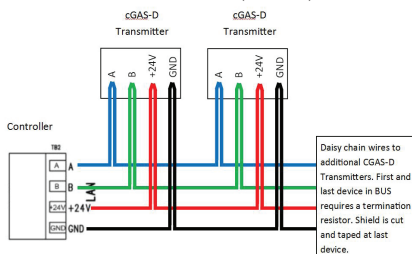
- » Parking Garages/Car Parks
- » Vehicle Repair Shops
- » Ice Arenas
- » Commercial Pools
- » Battery Charging Rooms
- » Manufacturing Plants
- » Maintenance Facilities
- » ... and many more

### TECHNICAL DRAWING

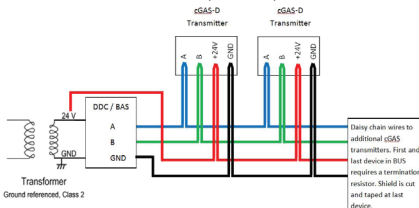


### WIRING DIAGRAMS

CGAS-D connected to an FCS Controller (4-wire VDC)



CGAS-D Connected to a BAS/DDC (4-wire VAC)



### TECHNICAL SPECIFICATIONS

#### TARGET GAS

Electrochemical - Ammonia, Carbon monoxide, Chlorine, Ethylene, Ethylene oxide, Fluorine, Formaldehyde, Hydrogen, Hydrogen chloride, Hydrogen cyanide, Hydrogen fluoride, Hydrogen sulphide, Nitric oxide, Nitrogen dioxide, Oxygen, Ozone, Silane, Sulfur dioxide

Combustibles (catalytic) - Ammonia, Hydrogen, Methane, Propane, Ethanol or Dimethyl ether, Methanol

Infrared - Please refer to the cGas DETECTOR IR Refrigerant Transmitter Datasheet or the cGas Detector CO<sub>2</sub> Transmitter Datasheet

Solid State - R134A, R22, R32, R402A, R404A, R407C, R407F, R410A, R422A, R422D, R427A, R438A, R448A, R449A, R450A, R452A, R454B, R507A, R513A, R514A, TVOC

PID - TVOC

### TECHNICAL SPECIFICATIONS

#### MECHANICAL

Enclosure	ABS / Polycarbonate, IP54 rated with splash guard installed, copper coated interior to reduce RF interference
Weight	400 g / 14 oz
Size	127 x 127 x 76 mm / 5.0 x 5.0 x 3.0 inches

#### USER INTERFACE

Display (standard)	2-line by 16 character graphic LCD Operating Temp: 0°C to 40°C / 32°F to 104°F
Display (low temp) (Option LT)	2-line by 16 character OLED display Operating Temp: -40°C to 40°C / -40°F to 104°F
Push Buttons	Initiate calibration and menu options with internal UP, DOWN and ENTER push buttons
USB Port	Internal port for USB memory stick for field configuration updated / firmware upgrades

#### INPUT / OUTPUT

Output (user configurable)	BACnet® MS/TP (version 1 rev 14) RS-485 or Modbus® RTU (version 1.1b3) RS-485
RH & Temperature (Option RHT)	User selectable units DegC, DegF
Relay & Buzzer (standard and Option -RBZ)	1 SPDT relay rated 30 volts, 2 amp max with internal buzzer rated 90 dB @ 10 cm / 4 in, enable/disable
Relay (Option -RLY)	1 SPDT relay rated 30 volts, 2 amp max

#### ELECTRICAL

Power Requirement	16-30 VDC, 3W*, Class 2 12-27 VAC, 50-60 Hz, 3 VA*, Class 2 *dependent on sensor type
Wiring	VDC or VAC (ground referenced) 4-conductor shielded, 16 AWG stranded within conduit, network wiring (daisy-chain)
Fuse(s)	Automatic resetting thermal

#### ENVIRONMENTAL

Operating Temperature	0°C to 40°C (32°F to 104°F) temperatures below 0°C / 32°F require Option-LT
Operating Humidity	15 - 90% RH non-condensing

#### CERTIFICATION

Conforms to: CSA-C22.2 No. 205-12, UL508 (Edition 18):2018
Conforms to: EMC Directive 2014/30/EU EN 50270:2015, Type 1, EN61010
*CO sensor and NO <sub>2</sub> sensor UL2075 Listed
Conforms to: FCC. This device complies with Part 15 of the FCC Rules.
Listed by BTL

### PRODUCT CODES

#### Single Channel - 4 Series Electrochemical Sensors Lifespan

If a relay is needed, you must add Option -RBZ or Option -RLY

CGAS-D-CO <sup>1</sup>	Carbon Monoxide (CO) sensor (0 - 200 ppm)	~3yr
CGAS-D-CO-100 <sup>1</sup>	Carbon Monoxide (CO) sensor (0 - 100 ppm)	~3yr
CGAS-D-CO-250 <sup>1</sup>	Carbon Monoxide (CO) sensor (0 - 250 ppm)	~3yr
CGAS-D-CO-300 <sup>1</sup>	Carbon Monoxide (CO) sensor (0 - 300 ppm)	~3yr
CGAS-D-CO-500 <sup>1</sup>	Carbon Monoxide (CO) sensor (0 - 500 ppm)	~3yr
CGAS-D-C2H4 <sup>2</sup>	Ethylene (C <sub>2</sub> H <sub>4</sub> ) sensor (0 - 200 ppm)	~2yr
CGAS-D-EETO	Ethylene Oxide (C <sub>2</sub> H <sub>4</sub> O) sensor (0 - 20 ppm)	~2yr
CGAS-D-CH2O	Formaldehyde (CH <sub>2</sub> O) sensor (0 - 5 ppm)	~2yr
CGAS-D-EH2	Hydrogen (H <sub>2</sub> ) sensor (0 - 2,000 ppm)	~2yr
CGAS-D-H2S	Hydrogen Sulphide (H <sub>2</sub> S) sensor (0 - 50 ppm)	~2yr
CGAS-D-NO	Nitric Oxide (NO) sensor (0 - 100 ppm)	~2yr
CGAS-D-NO2 <sup>1</sup>	Nitrogen Dioxide (NO <sub>2</sub> ) sensor (0 - 10 ppm)	~3yr
CGAS-D-O2	Oxygen (O <sub>2</sub> ) sensor (0 - 25 %volume)	~3yr
CGAS-D-SO2	Sulphur Dioxide (SO <sub>2</sub> ) sensor (0 - 20 ppm)	~2yr

#### Single Channel - 4 Series Sticky Gas Sensors Lifespan

All models **cannot** have a relay or buzzer. Order 7 series models if relay and buzzer are required.

CGAS-D-CL2	Chlorine (Cl <sub>2</sub> ) sensor (0 - 5 ppm)	~3yr
CGAS-D-CL2-10	Chlorine (Cl <sub>2</sub> ) sensor (0 - 10 ppm)	~3yr
CGAS-D-F2	Fluorine (F <sub>2</sub> ) sensor (0 - 1ppm)	~2yr
CGAS-D-HF	Hydrogen Fluoride (HF) sensor (0 - 10.0 ppm)	~2yr
CGAS-D-O3	Ozone (O <sub>3</sub> ) sensor (0 - 1 ppm)	~2yr

#### Single Channel - 7 Series Electrochemical Sensors Lifespan

All models come standard with internal relay and buzzer

CGAS-D-7NH3	Ammonia (NH <sub>3</sub> ) sensor (0 - 500 ppm)	~5yr
CGAS-D-7CO	Carbon Monoxide (CO) sensor (0 - 200 ppm)	~5yr
CGAS-D-7CL2	Chlorine (Cl <sub>2</sub> ) sensor (0 - 5 ppm)	~5yr
CGAS-D-7CL2-10	Chlorine (Cl <sub>2</sub> ) sensor (0 - 10 ppm)	~5yr
CGAS-D-7HCL	Hydrogen Chloride (HCl) sensor (0 - 30 ppm)	~3yr
CGAS-D-7HCN	Hydrogen Cyanide (HCN) sensor (0 - 30 ppm)	~3yr
CGAS-D-7HF	Hydrogen Fluoride (HF) sensor (0 - 10.0 ppm)	~3yr
CGAS-D-7H2S	Hydrogen Sulphide (H <sub>2</sub> S) sensor (0 - 50 ppm)	~5yr
CGAS-D-7NO2	Nitrogen Dioxide (NO <sub>2</sub> ) sensor (0 - 10 ppm)	~5yr
CGAS-D-7O3	Ozone (O <sub>3</sub> ) sensor (0 - 1 ppm)	~4yr

<sup>2</sup>Not recommended for ripening room applications.



### PRODUCT CODES

#### Single Channel - Internal Catalytic Sensors Lifespan

If a relay is needed, you must add Option -RBZ or Option -RLY

CGAS-D-NH3-3% <sup>*</sup>	Ammonia (NH <sub>3</sub> ) sensor (0 - 3 %LEL)	~3yr
CGAS-D-CC4H10-100	Butane (C <sub>4</sub> H <sub>10</sub> ) sensor (0 - 100 %LEL)	~5yr
CGAS-D-CC2H6-100	Ethane (C <sub>2</sub> H <sub>6</sub> ) sensor (0 - 100 %LEL)	~5yr
CGAS-D-CC2H6O-100	Ethanol or Dimethyl Ether (C <sub>2</sub> H <sub>6</sub> O) sensor (0 - 100 %LEL)	~5yr
CGAS-D-CH2-100	Hydrogen (H <sub>2</sub> ) sensor (0 - 100 %LEL)	~5yr
CGAS-D-CCH4-100	Methane (CH <sub>4</sub> ) sensor (0 - 100 %LEL)	~5yr
CGAS-D-CCH4O-100	Methanol (CH <sub>3</sub> O) sensor (0 - 100 %LEL)	~5yr
CGAS-D-CC3H8-100	Propane (C <sub>3</sub> H <sub>8</sub> ) sensor (0 - 100 %LEL)	~5yr

#### Single Channel - Internal PID Sensors

If a relay is needed, you must add Option -RBZ or Option -RLY

CGAS-D-SPL	TVOC sensor (0 - 30 ppm)	
CGAS-D-SPH	TVOC sensor (0 - 300 ppm)	

#### Single Channel - Internal Solid State Sensors

If a relay is needed, you must add Option -RBZ or Option -RLY

CGAS-D-SR134A	R134A sensor (0-2,000 ppm)	~5yr
CGAS-D-SR22	R22 sensor (0-2,000 ppm)	~5yr
CGAS-D-SR32	R32 sensor (0-2,000 ppm)	~5yr
CGAS-D-SR402A	R402A sensor (0-2,000 ppm)	~5yr
CGAS-D-SR404A	R404A sensor (0-2,000 ppm)	~5yr
CGAS-D-SR407C	R407C sensor (0-2,000 ppm)	~5yr
CGAS-D-SR407F	R407F sensor (0-2,000 ppm)	~5yr
CGAS-D-SR410A	R410A sensor (0-2,000 ppm)	~5yr
CGAS-D-SR422A	R422A sensor (0-2,000 ppm)	~5yr
CGAS-D-SR422D	R422D sensor (0-2,000 ppm)	~5yr
CGAS-D-SR427A	R427A sensor (0-2,000 ppm)	~5yr
CGAS-D-SR438A	R438A sensor (0-2,000 ppm)	~5yr
CGAS-D-SR448A	R448A sensor (0-2,000 ppm)	~5yr
CGAS-D-SR449A	R449A sensor (0-2,000 ppm)	~5yr
CGAS-D-SR450A	R450A sensor (0-2,000 ppm)	~5yr
CGAS-D-SR452A	R452A sensor (0-2,000 ppm)	~5yr
CGAS-D-SR454B	R454B sensor (0-2,000 ppm)	~5yr
CGAS-D-SR507A	R507A sensor (0-2,000 ppm)	~5yr
CGAS-D-SR513A	R513A sensor (0-2,000 ppm)	~5yr
CGAS-D-SR514A	R514A sensor (0-2,000 ppm)	~5yr
CGAS-D-STVOC	TVOC sensor (0-500 ppm)	

#### Single Channel - Remote Detection

If a relay is needed, you must add Option -RBZ or Option -RLY

CGAS-D-R	No internal sensor, add ESH-A Remote Sensor	
CGAS-D-RT	No internal sensor, add remote analog transmitter	

<sup>\*</sup>This is not a life safety device. This is a backup redundancy detector for monitoring potentially high levels of Ammonia.

#### Single Channel - RH and Temperature Sensor

If a relay is needed, you must add Option RBZ or Option RLY

CGAS-D-RHT	Internal Relative Humidity and Temperature sensor	
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#### Dual Channel - Two Internal Electrochemical Sensors

If a relay is needed, you must add Option -RBZ

CGAS-D-CO-NO2 <sup>1</sup>	Carbon Monoxide (CO) sensor (0 - 200 ppm) & Nitrogen Dioxide (NO <sub>2</sub> ) sensor (0 - 10 ppm)	~3yr
CGAS-D-CO-O2 <sup>1</sup>	Carbon Monoxide (CO) sensor (0 - 200 ppm) & Oxygen (O <sub>2</sub> ) sensor (0 - 25 %vol)	~3yr
CGAS-D-CO-C2H4 <sup>1</sup>	Carbon Monoxide (CO) sensor (0 - 200 ppm) & Ethylene (C <sub>2</sub> H <sub>4</sub> ) sensor (0 - 200 ppm)	~3yr ~2yr
CGAS-D-CO-H2S <sup>1</sup>	Carbon Monoxide (CO) sensor (0 - 200 ppm) & Hydrogen Sulphide (H <sub>2</sub> S) sensor (0 - 50 ppm)	~3yr ~2yr
CGAS-D-CO-NO <sup>1</sup>	Carbon Monoxide (CO) sensor (0 - 200 ppm) & Nitric Oxide (NO) sensor (0 - 100 ppm)	~3yr ~2yr

#### Dual Channel - One Internal Electrochemical Sensor + Remote Detection

If a relay is needed, you must add Option -RBZ

CGAS-D-CO-R <sup>1</sup>	Internal Carbon Monoxide (CO) sensor (0 - 200 ppm), add ESH-A Remote Sensor	
CGAS-D-NO2-R	Internal Nitrogen Dioxide (NO <sub>2</sub> ) sensor (0 - 10 ppm), add ESH-A Remote Sensor	
CGAS-D-CO-RT <sup>1</sup>	Internal Carbon Monoxide (CO) sensor (0 - 200 ppm), add remote analog transmitter	
CGAS-D-NO2-RT	Internal Nitrogen Dioxide (NO <sub>2</sub> ) sensor (0 - 10 ppm), add remote analog transmitter	

#### ESH-A Remote Sensors

ESH-A-CC2H2-100	Catalytic combustible Acetylene (C <sub>2</sub> H <sub>2</sub> ) ESH-A Remote Sensor (0 - 100% LEL)	~5yr
ESH-A-CH2-100	Catalytic combustible Hydrogen (H <sub>2</sub> ) sensor (0 - 100% LEL)	~5yr
ESH-A-CCH4-100	Catalytic combustible Methane (CH <sub>4</sub> ) sensor (0 - 100% LEL)	~5yr
ESH-A-CC3H8-100	Catalytic combustible Propane (C <sub>3</sub> H <sub>8</sub> ) 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 <sub>3</sub> H <sub>8</sub> ) sensor (0 - 100% LEL)	~8yr

#### OPTIONS (Factory installed)

-LT*	Low temperature package with OLED display and internal heater for cold environment applications down to -40°C / -40°F	
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### PRODUCT CODES

-RBZ*	1 SPDT dry contact relay rated 30 volts, 2 amps max with internal audible alarm rated 90 dB @ 10 cm / 4 in
-RLY*	1 SPDT dry contact relay, rated 30 volts, 2 amps max
-RHT	RH & Temperature sensor (°C or °F)
-S	Splash Guard for non sticky gases, factory installed
-SN	Splash Guard for sticky gases (Cl <sub>2</sub> , O <sub>3</sub> ) and configurations with internal NO <sub>2</sub> sensor, factory installed

### \*IMPORTANT NOTES ON OPTIONS:

The -LT option is not available with CGAS-D-EETO.

The -RBZ or -RLY Options can be added to all single channel:

- 4 series electrochemical toxic gas sensors
- Combustible gas, solid state refrigerant or PID TVOC sensors

All 4 series sticky gas models cannot have a relay or buzzer.

All 7 series electrochemical gas sensors (including sticky gases) come standard with the relay and buzzer.

### ACCESSORIES

CET-SGC	Calibration Adapter Clip for Option -S
CET-715A-CK1	Calibration Kit for 17, 34, 58, 74, 100 L cylinders, 0.5 LPM flow regulator & adapter to fit 17 L cylinder
DUCT KIT 301A	Metal probe assembly for fixed system, two lengths of 1.23 m / 4 ft tubing, adapter plug and dust filter (available for use with select gases)
SCS-8000-RSG	Small, 16 gauge protective guard
SCS-8000-WSG	Small, 16 gauge protective splash guard

**NOTE:** Please refer to the respective datasheet for information on the cGas Detector Digital Transmitter with:

- Infrared Refrigerant sensors
- Carbon Dioxide (CO<sub>2</sub>) sensors