

Self Contained - GAS DETECTION DATASHEET

GEM-II Multi-Purpose Gas Detector



GEM-II multi-purpose gas detector represents excellent value for the end user. They are available in one or two channel configurations accommodating accurate “smart” sensors and providing a wide range of features. These features include CSA, UL and C-Tick certifications, RoHS compliant circuit boards, two 5-amp dry contact relays, electronic adjustable set points, audible alarm, time delays, analog output, pluggable wiring terminal, rugged polycarbonate enclosure with hinged door, Lexan label, and optional 4-digit display.

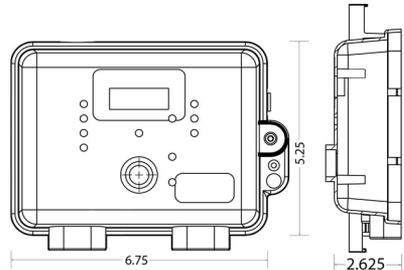
KEY FEATURES

- » Single or dual channel operation
- » Network multiple units
- » Integral or remote sensors
- » Integral plug and play “smart” sensors
- » 4 - 20 mA linear output signal
- » Three conduit entry ports
- » Thermal resetting fuse
- » LED light indicators
- » Two 5-amp SPDT relays
- » RoHS compliant circuit boards
- » Economical
- » CSA & UL certified

APPLICATIONS

- » Parking Garages
- » Repair Shops
- » Ice Cleaning Machine Rooms
- » Manufacturing Plants
- » ... and many more

TECHNICAL DRAWING



SAMPLE ENGINEERING SPECIFICATIONS

Vehicle Exhaust Detection System for Carbon Monoxide & Nitrogen Dioxide
Supply a dual channel, self-contained gas detection system, model GEM-EEOC-END, for the monitoring of carbon monoxide (gas engine exhaust) and nitrogen dioxide (diesel engine exhaust), housed in a rugged, wall mount, drip-proof PVC enclosure with hinged, secured door. System power shall be 24 VAC nominal. The system shall have two integral electrochemical sensors, one CO with measurement range of 0 - 200 ppm CO in air and one NO_x with measurement range of 0 - 10 ppm NO_x in air. Area of monitoring coverage is up to 5,000 - 7,000 ft² per sensor.

The monitor shall provide an LED indicating light for power, low alarm, high alarm, and fault condition plus channel indication LEDs, one audible alarm with silence push-button and two SPDT dry contact alarm relays, each rated 5 A at 240 VAC. The system must be accurate enough to measure to government workplace hazardous gas exposure standards. The system shall also provide field adjustable time delays for “delays on make” and “delays on break” for each sensor to allow custom configuration of fan control by the system relays, if desired.

The controller shall provide a circuit test button to allow the user to confirm system operation and exhaust fan control from the panel. The controller shall also provide a push-button to allow the user to override the system control and operate exhaust fans continuously for 15-minute segments to evacuate air from specific parts of the parking garage. Installation height for the gas detection controller with integral CO & NO_x sensors is 4 - 6 ft from the floor.

System operation shall be as follows: System relays are normally energized in non-gas-alarm state so they act in failsafe operation. Upon detection of 25 ppm CO in air or 0.5 ppm NO_x in air, the system shall illuminate the Low alarm LED (amber) and the low gas alarm relay shall de-energize activating single-speed exhaust fans or low speed of two-speed exhaust fans plus make up air fans. Upon detection of 100 ppm CO in air or 2 ppm NO_x, the system shall illuminate the High alarm LED (red), the system audible alarm will be activated and the high gas alarm relay shall deenergize activating high speed of two-speed exhaust fans or remote alarm devices. Audible alarm can be silenced from the front panel push button. In the event of a fail condition, the system audible alarm shall be activated and the fail LED on the front panel shall illuminate red.

The contractor shall provide all wiring, conduit and interconnection required for a successful installation. System should be tested and commissioned after installation, with a report provided after the site visit.

More specification samples are available at www.critical-environment.com.



GEM-II Multi-Purpose Gas Detector

TECHNICAL SPECIFICATIONS

GAS TYPE

Carbon Monoxide (CO)	ECO
Combustibles (solid state)	SCB
Methane (CH ₄)	SCB
Nitrogen Dioxide (NO ₂)	END
Nitric Oxide (NO)	ENO
Oxygen (O ₂)	E02
Propane (C ₃ H ₈)	SCB
Refrigerants (R12, R22, R134A, R401A, R402A, R404A, R407C, R410A, R422A, R422D, R438A, R507)	SR2
Sulphur Dioxide (SO ₂)	ESO
TVOCs (solid state)	SOS

MECHANICAL

Enclosure	General purpose PVC
Weight	600 g (1.2 lb)
Size	5.3" x 6.8" x 2.6" (135 mm x 173 mm x 66 mm)

ELECTRICAL

Power Requirement	15 - 30 VDC or 12 - 28 VAC
Current Draw	Approximately 125 mA
Wiring	VDC three-conductor shielded VAC four-conductor shielded
Fuse	Automatic resetting thermal

INPUT / OUTPUT

Outputs	Linear 4 - 20 mA (single)
Relay	Dry contact relays (2) rated 5 amps @ 240 VAC SPDT

ENVIRONMENTAL (sensor dependent)

Operating Temperature	-20°C to 50°C (-5°F to 120°F)
Humidity	15 - 90% RH non-condensing

CERTIFICATION

CSA	Certified
UL	Certified

PRODUCT CODES

SINGLE CHANNEL MODEL

Integral sensor, carbon monoxide (CO)	GEM-AECO
Integral sensor, nitrogen dioxide (NO ₂)	GEM-AEND
Integral sensor, nitric oxide (NO)	GEM-AENO
Integral sensor, sulphur dioxide (SO ₂)	GEM-AESO
Integral sensor, oxygen (O ₂)	GEM-AE02
Remote sensor	GEM-B
Remote sensor, combustible gases (solid state)	GEM-BSCB
Remote sensor, methane (CH ₄)	GEM-BSCB
Remote sensor, propane (C ₃ H ₈)	GEM-BSCB
Remote sensor, refrigerants (solid state)	GEM-BSR2
Remote sensor, TVOCs (solid state)	GEM-BSOS

DUAL CHANNEL MODEL

Integral carbon monoxide (CO), remote combustible	GEM-DECO-SCB
Integral carbon monoxide (CO), remote methane (CH ₄)	GEM-DECO-SCB
Integral carbon monoxide (CO), remote propane (C ₃ H ₈)	GEM-DECO-SCB
Integral & remote sensors, carbon monoxide (CO)	GEM-DECO-ECO
Integral carbon monoxide (CO), remote nitrogen dioxide (NO ₂)	GEM-DECO-END
Integral carbon monoxide (CO), remote nitric oxide (NO)	GEM-DECO-ENO
Integral & remote sensors, oxygen (O ₂)	GEM-DE02-E02
Integral & remote sensors, nitrogen dioxide (NO ₂)	GEM-DEND-END
Integral & remote sensors, nitric oxide (NO)	GEM-DENO-ENO
Integral, carbon monoxide (CO) & nitrogen dioxide (NO ₂)	GEM-EECO-END
Integral, carbon monoxide (CO) & nitric oxide (NO)	GEM-EECO-ENO
Integral, carbon monoxide (CO) & oxygen (O ₂)	GEM-EECO-E02
Integral, carbon monoxide (CO) & sulphur dioxide (SO ₂)	GEM-EECO-ESO
Integral, nitrogen dioxide (NO ₂) & sulphur dioxide (SO ₂)	GEM-EEND-ESO

OPTIONS (to be added to the end of the product code)

LED digital display	N
120 VAC powered version	J
Enclosed external transformer, 120 - 22 VAC	TIB-2250

ACCESSORIES

Calibration kit, 17, 34, 58, 74, 103 L cylinders, 0.5 LPM flow regulator & adapter to fit 17 L cylinder	CET-715A-CK1
Metal protective guard, large, 16 gauge, galvanized metal guards for controllers	SCS-8000-SPG

