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Designing Your System

Whether you are designing a new system or retrofitting an old system, installing a GasGuardian gas detection system can be done all at once, or easily expanded in stages to meet your budget requirements. Our application engineers have many years of experience in the food industry, and will be happy to help you custom tailor a system to meet your needs.

The example schematic below complies with IIAR, ASHRAE and other regulatory codes.

Ammonia detection system layout example

**Refrigerated Spaces** (Freezers, Coolers, Docks, Production areas, Air Handlers, etc.)

- GG-NH3-100-ST Sensor 0/100 ppm
- GG-NH3-100-ST Sensor 0/100 ppm
- GG-NH3-100 Sensor 0/100 ppm
- GG-NH3-100 Sensor 0/100 ppm
- UPS-1000VA-LCD Battery Backup
- SHA-24 Horn/Strobe (25 ppm) Audio/Visual at controller
- GG-6 Controller
- GG-XM Expansion Module
- GG-NH3-2% Sensor 0/2%
- SHA-24 Horn/Strobe (25 ppm)
- Output (25 ppm) Liquid feed and hot gas solenoid valve shut off
- Output (25 ppm) Alarm to monitored location
- Output (150 ppm) Emergency Ventilation
- Output (20,000 ppm) Compressor Room shutdown
- GG-VL-NH3 Sensor 0/1%
- GG-NH3-250 Sensor 0/250 ppm
- GG-NH3-250 Sensor 0/250 ppm
- GG-NH3-100-ST Sensor 0/100 ppm
- GG-NH3-100-ST Sensor 0/100 ppm
- SHA-24 Horn/Strobe (25 ppm)
Single, Dual and Multi-Channel Control Panels

From single-channel readouts to thirty-channel stand-alone safety systems, the GasGuardian controller line has you covered. 2 year warranty on all controllers.

**GG-6**
GasGuardian-6. 6-Channel Gas Monitor (expandable to 30 channels). Includes graphic LCD display, six 10A relay outputs, time-weighted averaging, event logging, three adjustable setpoints per channel, and 6.5A power supply (does not include sensors). System configuration through user friendly menu-driven LCD operator interface. Weatherproof NEMA 4X fiberglass enclosure safe for outdoors & washdown areas. Can accommodate up to three expansion modules for a total of 30 sensors. Power requirements: 110 VAC, 2 A. ETL listed to UL and CSA standards.

** GG-6 Startup **
Startup includes factory trained technician on-site for one day providing controller configuration, sensor calibration, alarm output verification, training, and report to satisfy OSHA PSM documentation requirements for the gas detection system. Includes all travel expenses - continental United States. System to be installed by others prior to arrival.

** GG-6-AOB **
Six-channel 4/20 mA Analog Output Board. Provides six individual analog outputs, powered by the GG-6 controller.

** GG-6-APS **
Auxiliary 6.5A, 24VDC power supply for the GG-6 controller. Includes mounting bracket and wire leads. Designed to handle the power requirements of multiple horn/strobe installations.

** GG-6-GE-M **
GG-6 Ethernet Modbus gateway module, with mounting bracket.

** GG-6-GE-E **
GG-6 Ethernet EtherNet/IP gateway module, with mounting bracket.

** GG-6-GE-B **
GG-6 Ethernet BACnet/IP gateway module, with mounting bracket.

** GG-6-GR-B **
GG-6 RS-485 BACnet gateway module, with mounting bracket.

** GG-6-GR-M **
GasGuardian 6 RS-485 Modbus gateway module, with mounting bracket.

** GG-XM **
GasGuardian-6 Expansion Module. Adds eight channels to the GG-6. Includes expansion module with harness interconnect, eight 10A relay outputs, 6.5A power supply, and weatherproof enclosure (does not include sensors). Simple setup and configuration through menu on GG-6 control panel. Power requirements: 110 VAC, 2 A. ETL listed to UL and CSA standards.

** GG-XM-AOB **
Eight-channel 4/20 mA Analog Output Board. Provides eight individual analog outputs, powered by the GG-XM.
Single, Dual and Multi-Channel Control Panels

From single-channel readouts to thirty-channel stand-alone safety systems, the GasGuardian controller line has you covered. 2 year warranty on all controllers.

**GG-RD1**

GasGuardian-6 Remote Display. Adds remote display capability to GasGuardian-6 via MODBUS RTU protocol on RS-485. Silenceable onboard buzzer provides audible alarm indication. Can be installed up to 1000ft from GasGuardian-6. Mirrors display of GasGuardian-6 and powered by 24VDC from GasGuardian-6. $1,100

**GG-2**

GasGuardian-2. 2-Channel Gas Monitor (does not include sensors). Includes graphic LCD display, six 10A relay outputs, event logging, dual adjustable setpoints per channel, two analog outputs, and 2.2A power supply. System configuration through user friendly menu-driven LCD operator interface. NEMA 4X fiberglass enclosure safe for outdoors and washdown. Power requirements: 110 VAC, 2 A. ETL listed to UL and CSA standards. $1,595

**GG-EM**

GasGuardian Entrance Monitor. Single-Channel (does not include sensor). Includes 10-segment LED bargraph display and 10A relay output with adjustable setpoint. Can be used as feed-through device for remote display/relay, or as a stand-alone application. NEMA 4X polycarbonate enclosure safe for outdoors and washdown areas. 24 VDC, 120 mA. ETL listed to UL and CSA standards. $420

**GG-EM-PS**

Add-on power supply bolts inside the GasGuardian-EM enclosure. 110 VAC input. 24 VDC, 0.625 A output. Provides DC power for GasGuardian-EM, GasGuard sensor, and up to two Horn/Strobes. $145
Ammonia Sensors

Over twenty years of ammonia detection experience is designed into the GasGuard NH3 sensor line. Innovative food industry sensors for any tough environment. 2 year warranty on all sensors.

**GG-NH3**
GasGuard NH3, electrochemical ammonia sensor, environmentally adaptive heated enclosure. Ammonia specific electrochemical sensor technology. Circuit board is completely sealed in potting compound, protecting sensitive electronic components and copper tracing. Weather, corrosion, and chemical resistant polycarbonate sensor enclosure. Designed to adapt to any harsh environment from -50°F to +120°F. No more guesswork – one sensor, any environment, period. Industry standard linear 4/20 mA output. Power requirements: 24 VDC, 350 mA. ETL listed to UL and CSA standards.

<table>
<thead>
<tr>
<th>Sensor</th>
<th>Range</th>
<th>Price</th>
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<tbody>
<tr>
<td>GG-NH3-100</td>
<td>0-100 ppm</td>
<td>$935</td>
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<tr>
<td>GG-NH3-250</td>
<td>0-250 ppm</td>
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<tr>
<td>GG-NH3-300</td>
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<tr>
<td>GG-NH3-500</td>
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</tr>
<tr>
<td>GG-NH3-1000</td>
<td>0-1000 ppm</td>
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</table>

**GG-NH3 with Stainless Steel Enclosure**
18 gauge, 304 stainless enclosure, #3 finish, hinged lid, with captive screw.

<table>
<thead>
<tr>
<th>Sensor</th>
<th>Range</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>GG-NH3-100-ST</td>
<td>0-100 ppm (standard)</td>
<td>$1,110</td>
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<tr>
<td>GG-NH3-250-ST</td>
<td>0-250 ppm</td>
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</tr>
<tr>
<td>GG-NH3-500-ST</td>
<td>0-500 ppm</td>
<td></td>
</tr>
<tr>
<td>GG-NH3-1000-ST</td>
<td>0-1000 ppm</td>
<td></td>
</tr>
</tbody>
</table>

**GG-NH3-2%**
GasGuard NH3-2%, high-range ammonia sensor, 0/2% range. Ammonia specific catalytic bead sensor technology. Circuit board is completely sealed in potting compound, protecting electronic components and copper tracing from corrosion. Designed for installation in ammonia compressor rooms where E-stop or electrical shunt trip is desired. Use with GasGuard NH3 low-range sensor for complete compressor room protection. Industry standard linear 4/20 mA output. Power: 24 VDC, 250 mA. ETL listed to UL and CSA standards.

<table>
<thead>
<tr>
<th>Sensor</th>
<th>Range</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>GG-NH3-2%-EXP</td>
<td>0-2% range, with explosion-proof enclosure</td>
<td>$1,480</td>
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</table>

**GG-NL-NH3**
GasGuard Vent Line, solid-state ammonia sensor, range 0-1%, includes mounting kit. Continuous monitoring of refrigeration system relief valves. Circuit board is completely sealed in potting compound, protecting sensitive electronic components and copper tracing from corrosion. 18 gauge 304 Stainless steel enclosure. Innovative sensor housing allows for simple and low cost sensor replacement. Industry standard linear 4/20 mA output. Power requirements: 24 VDC, 250 mA. ETL listed to UL and CSA standards.

<table>
<thead>
<tr>
<th>Sensor</th>
<th>Range</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>GG-NL-NH3</td>
<td>0-1%</td>
<td>$980</td>
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</tbody>
</table>
Ammonia Sensors

Entrance Display

The GasGuardian Entrance Monitor is a great solution for providing a visual display at all entrances into Compressor Rooms and other potentially hazardous areas. They simply connect in series between the sensor and the control panel, re-transmitting the analog signal from the sensor back to the control panel. Up to ten Entrance Monitors can be used on a single channel. An adjustable alarm setpoint and 10A relay are included for use with horn/strobes or ventilation activation.

High Performance Sensor Design

Our product designs are a culmination of decades of experience dealing with harsh, wet, and cold environments in the food industry. A few key features that come standard on the GasGuard sensor product line are intelligent temperature and moisture control, and potting-encapsulated circuit boards. Stainless steel and explosion proof enclosures are also available if your application requires them.

Sensor Redundancy in Compressor Rooms

With the Compressor Room posing the biggest risk of an ammonia leak; multiple sensors are required to maintain sufficient leak detection. In a typical compressor room two low-range sensors (e.g., 0-250 ppm) provide early detection and can compensate for air flow conditions which may draw the gas away from one sensor. Adding a high-range 0-2% (0-20,000 ppm) sensor doubles as a last line of defense against catastrophic failure, providing automatic E-stop or electrical shunt trip to prevent an explosion. This high-range sensor should duplicate the low-range sensors’ alarm functions for added safety and redundancy.
Toxic, Combustible and Air Quality Sensors

GasGuard diffusion-style sensors for many applications. 2 year warranty on all sensors.

**GG-CO2** ................................................................. $1,195
GasGuard CO2, infrared sensor. Carbon Dioxide specific infrared sensor technology. Sensor board is completely sealed in potting compound, protecting electronic components and copper tracing from corrosion. Weather, corrosion, and chemical resistant polycarbonate sensor enclosure suitable for all locations from -60° to +120°F, including freezer, washdown, and outdoors. Industry standard linear 4/20 mA output. Power requirements: 24 VDC, 350 mA. ETL listed to UL and CSA standards.

- **GG-CO2-1%**: 0-1%
- **GG-CO2-3%**: 0-3% (standard)
- **GG-CO2-5%**: 0-5%

**GG-R** ........................................................................................................... $1,195
GasGuard R, infrared refrigerant sensor. Standard factory range 0-500 PPM, rugged temperature controlled polycarbonate enclosure suitable for all locations from -15° to +120°F, including freezer, washdown, and outdoors. Industry standard linear 4/20 mA output. 0-500 ppm, 0-1,000 ppm and 0-3,000 ppm ranges available. Other gases also available. Power requirements: 24 VDC, 1A. ETL listed to UL and CSA standards.

- **GG-R22-500**
- **GG-R134a-500**
- **GG-R404a-500**
- **GG-R507a-500**

**GG-VL-R** .............................................................................................................. $980

- **GG-VL-R22**
- **GG-VL-R404**
- **GG-VL-R507a**

**GG-O2-C** ................................................................................................................ $855
GasGuard O2, electrochemical oxygen sensor, 0-25% and 15/25% ranges available. Gas specific electrochemical sensor technology. Circuit board is completely sealed in potting compound, protecting sensitive electronic components and copper tracing from corrosion. Weather, corrosion, and chemical resistant polycarbonate sensor enclosure. Industry standard linear 4/20 mA output. Power requirements: 24 VDC, 250 mA. ETL listed to UL and CSA standards.

- **GG-O2-C0 (0-25%)**
- **GG-O2-C15 (15-25%)**

**GG-CO** ................................................................................................................... $935
GasGuard diffusion-style sensors for many applications. 2 year warranty on all sensors.

**GG-H2S**
- GasGuard H2S, electrochemical hydrogen sulfide sensor, 0-50 ppm.

**GG-H2-EC**
- GasGuard H2, electrochemical hydrogen sensor for ranges (0-10,000 ppm (0-25% LEL) and 0-2000 ppm H2). Designed for battery rooms and charging stations for ventilation activation. Hydrogen selective electrochemical sensor technology. Weather, corrosion, and chemical resistant polycarbonate sensor enclosure. Industry standard linear 4/20 mA output. Power requirements: 24 VDC, 250 mA. ETL listed to UL and CSA standards.

**GG-LEL**
- GasGuard LEL, high-range sensor, explosion-proof housing. Catalytic bead sensor technology. 0/100% LEL calibrated to the target gas. Industry standard linear 4/20 mA output. Power requirements: 24 VDC, 100 mA. Other gases also available.

**GG-CL2**
- GasGuard CL2, electrochemical chlorine sensor, 0-5 ppm, environmentally adaptive heated polycarbonate enclosure. Gas specific electrochemical sensor technology. Circuit board is completely sealed in potting compound, protecting sensitive electronic components and copper tracing from corrosion. Weather, corrosion, and chemical resistant polycarbonate sensor enclosure. Industry standard linear 4/20 mA output. Power requirements: 24 VDC, 350 mA.

**Temp Sensor TS2**
- Temperature sensor for ranges -60°F to +160°F (-51°C to +71°C). 2-wire transmitter with RTD probe easily adapts to GasGuardian controllers. Watertight enclosure designed for washdown areas and outdoors. Industry standard linear 4/20 mA output. Power requirements: 24 VDC, 25 mA.

**Stainless Steel adder**
- 18 gauge 304 Stainless steel enclosure with #3 finish, hinged lid, with captive screw. Custom vented enclosure designed with internal splash-guard to re-direct water from washdown hose-hits towards bottom of enclosure.
GasGuard sensor replacement cells and sensor elements. 2-year warranty on all elements.

<table>
<thead>
<tr>
<th>Product Code</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>GG-NH3-RC</td>
<td>Replacement extended life electrochemical cell for ammonia sensor model GG-NH3; also compatible with ECF2 / ECF9 / ECFX transmitters</td>
<td>$289</td>
</tr>
<tr>
<td>GG-NH3-HR-RC</td>
<td>Replacement extended life high-range (0-1,000 ppm) electrochemical cell for ammonia sensor model GG-NH3; also compatible with ECF2 / ECF9 / ECFX transmitters</td>
<td>$289</td>
</tr>
<tr>
<td>GG-NH3-RC-EXP</td>
<td>Replacement explosion-proof electrochemical cell for ammonia</td>
<td>$369</td>
</tr>
<tr>
<td>GG-O2-RC</td>
<td>Replacement electrochemical cell for oxygen sensor model GG-O2</td>
<td>$270</td>
</tr>
<tr>
<td>GG-O2-RC-SP1</td>
<td>Replacement electrochemical cell for oxygen sensor model GG-O2-SP1</td>
<td>$270</td>
</tr>
<tr>
<td>GG-O2-C-RC</td>
<td>Replacement electrochemical cell for oxygen sensor model GG-O2-C (ranges 0-25% and 15-25%)</td>
<td>$270</td>
</tr>
<tr>
<td>GG-CO-RC</td>
<td>Replacement electrochemical cell for carbon monoxide sensor model GG-CO</td>
<td>$304</td>
</tr>
<tr>
<td>GG-CL2-RC</td>
<td>Replacement electrochemical cell for chlorine sensor model GG-CL2</td>
<td>$304</td>
</tr>
<tr>
<td>GG-H2S-RC</td>
<td>Replacement electrochemical cell for hydrogen sulfide sensor model GG-H2S</td>
<td>$304</td>
</tr>
<tr>
<td>GG-NO2-RC</td>
<td>Replacement electrochemical cell for nitrogen dioxide sensor model GG-NO2</td>
<td>$304</td>
</tr>
<tr>
<td>GG-H2-EC-RC</td>
<td>Replacement electrochemical cell for hydrogen sensor model GG-H2-EC (ranges 0-2,000 and 0-10,000 ppm)</td>
<td>$304</td>
</tr>
<tr>
<td>GG-VL-NH3-RS</td>
<td>Replacement vent line sensor for ammonia sensor model GG-VL-NH3</td>
<td>$185</td>
</tr>
<tr>
<td>GG-NH3-2%-RS</td>
<td>Replacement catalytic bead sensor for ammonia sensor model GG-NH3-2%</td>
<td>$295</td>
</tr>
<tr>
<td>GG-H2-1%-RS</td>
<td>Replacement catalytic bead sensor for hydrogen sensor model GG-H2-1%</td>
<td>$295</td>
</tr>
<tr>
<td>GG-LEL-NH3-RS</td>
<td>Replacement catalytic bead sensor for ammonia sensor model GG-LEL-NH3</td>
<td>$295</td>
</tr>
<tr>
<td>GG-LEL-CH4-RS</td>
<td>Replacement catalytic bead sensor for methane sensor model GG-LEL-CH4</td>
<td>$295</td>
</tr>
<tr>
<td>GG-LEL-H2-RS</td>
<td>Replacement catalytic bead sensor for hydrogen sensor model GG-LEL-H2</td>
<td>$295</td>
</tr>
</tbody>
</table>
Replacement Cells and Sensor Elements

Other common replacement cells and sensor elements. Call us if your part is not listed.

- **EC-F2-NH3-RC** .......................................................... $304
  Replacement electrochemical cell for ammonia

- **SS-NH3-RS** .............................................................. $185
  Replacement solid-state sensor for ammonia

- **CGT-F2-H2-RS** .......................................................... $295
  Replacement catalytic bead sensor element for hydrogen combustible sensor
  White, yellow and pink wires (pre-2004 transmitter)
Certified Calibration Gas

Kits and gas work with most manufacturers’ gas sensors. N.I.S.T traceable. Custom mixes available.

Cal Kit 17L
Calibration Kit includes regulator for 17 liter bottles, tubing, calibration cups to fit all GasGuard sensors and rugged carrying case that holds two bottles (gas not included).

17 Liter Bottle, 240 psi

<table>
<thead>
<tr>
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<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>RB17L-NH3/25</td>
<td>25 ppm ammonia (air balance)</td>
<td>$99</td>
</tr>
<tr>
<td>RB17L-NH3/50</td>
<td>50 ppm ammonia (air balance)</td>
<td></td>
</tr>
<tr>
<td>RB17L-NH3/100</td>
<td>100 ppm ammonia (air balance)</td>
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</tr>
<tr>
<td>RB17L-NH3/150</td>
<td>150 ppm ammonia (air balance)</td>
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</tr>
<tr>
<td>RB17L-NH3/250</td>
<td>250 ppm ammonia (air balance)</td>
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</tr>
<tr>
<td>RB17L-NH3/300</td>
<td>300 ppm ammonia (air balance)</td>
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</tr>
<tr>
<td>RB17L-NH3/500</td>
<td>500 ppm ammonia (air balance)</td>
<td></td>
</tr>
<tr>
<td>RB17L-NH3/1000</td>
<td>1000 ppm ammonia (air balance)</td>
<td></td>
</tr>
<tr>
<td>RB17L-NH3/1%</td>
<td>1.0% ammonia (air balance)</td>
<td></td>
</tr>
<tr>
<td>RB17L-NH3/2%</td>
<td>2.0% ammonia (air balance)</td>
<td></td>
</tr>
<tr>
<td>RB17L-CO2/1%</td>
<td>1.0% carbon dioxide (N2 balance)</td>
<td></td>
</tr>
<tr>
<td>RB17L-CO2/3%</td>
<td>3.0% carbon dioxide (N2 balance)</td>
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</tr>
<tr>
<td>RB17L-CO2/5%</td>
<td>5.0% carbon dioxide (N2 balance)</td>
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<tr>
<td>RB17L-O2/2/</td>
<td>15% oxygen (N2 balance)</td>
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<tr>
<td>RB17L-O2/20.9%</td>
<td>20.9% oxygen (N2 balance)</td>
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<tr>
<td>RB17L-N2</td>
<td>100% nitrogen</td>
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<tr>
<td>RB17L-ZA</td>
<td>Zero air (20.9% O2, N2 balance)</td>
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<tr>
<td>RB17L-CO/50</td>
<td>50 ppm carbon monoxide (air balance)</td>
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<td>RB17L-CO/200</td>
<td>200 ppm carbon monoxide (air balance)</td>
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<tr>
<td>RB17L-CH4/1.0%</td>
<td>1.0% methane (20%LEL) (air balance)</td>
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<td>2.5% methane (50%LEL) (air balance)</td>
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<tr>
<td>RB17L-H2/2000</td>
<td>2000 ppm hydrogen (air balance)</td>
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<tr>
<td>RB17L-H2/1%</td>
<td>1.0% hydrogen (25%LEL) (air balance)</td>
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<tr>
<td>RB17L-R22/500</td>
<td>500 ppm R22 (air balance)</td>
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<td>1000 ppm R22 (air balance)</td>
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<td>RB17L-R507a/3000</td>
<td>3000 ppm R507a (air balance)</td>
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</tr>
<tr>
<td>RB17L-ISOB/100</td>
<td>100 ppm Isobutylene (air balance)</td>
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</tr>
</tbody>
</table>

CK-REG-17L
0.8 LPM valve/regulator with pressure gauge for 17L bottles. 3 ft Norprene tubing and calibration cups included for use with all GasGuard sensors.
Certified Calibration Gas

Kits and gas work with most manufacturers’ gas sensors. N.I.S.T traceable. Custom mixes available.

**Cal Kit 29L** .......................................................... $225
Calibration Kit includes regulator for 29 liter bottles, tubing, calibration cups to fit all GasGuard sensors and rugged carrying case that holds two bottles (gas not included).

**29 Liter Bottle, 500 psi** ................................................ $199

<table>
<thead>
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<th>Part Number</th>
<th>Description</th>
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<tbody>
<tr>
<td>RB29L-NH3/25</td>
<td>25 ppm ammonia (air balance)</td>
</tr>
<tr>
<td>RB29L-NH3/50</td>
<td>50 ppm ammonia (air balance)</td>
</tr>
<tr>
<td>RB29L-NH3/100</td>
<td>100 ppm ammonia (air balance)</td>
</tr>
<tr>
<td>RB29L-NH3/150</td>
<td>150 ppm ammonia (air balance)</td>
</tr>
<tr>
<td>RB29L-NH3/250</td>
<td>250 ppm ammonia (air balance)</td>
</tr>
<tr>
<td>RB29L-NH3/300</td>
<td>300 ppm ammonia (air balance)</td>
</tr>
<tr>
<td>RB29L-NH3/500</td>
<td>500 ppm ammonia (air balance)</td>
</tr>
<tr>
<td>RB29L-NH3/1000</td>
<td>1000 ppm ammonia (air balance)</td>
</tr>
<tr>
<td>RB29L-NH3/1%</td>
<td>1.0% ammonia (air balance)</td>
</tr>
<tr>
<td>RB29L-NH3/2%</td>
<td>2.0% ammonia (air balance)</td>
</tr>
<tr>
<td>RB29L-CO2/1%</td>
<td>1.0% carbon dioxide (N2 balance)</td>
</tr>
<tr>
<td>RB29L-CO2/3%</td>
<td>3.0% carbon dioxide (N2 balance)</td>
</tr>
<tr>
<td>RB29L-CO2/5%</td>
<td>5.0% carbon dioxide (N2 balance)</td>
</tr>
<tr>
<td>RB29L-O2/15%</td>
<td>15% oxygen (N2 balance)</td>
</tr>
<tr>
<td>RB29L-O2/20.9%</td>
<td>20.9% oxygen (N2 balance)</td>
</tr>
<tr>
<td>RB29L-N2</td>
<td>100% Nitrogen</td>
</tr>
<tr>
<td>RB29L-ZA</td>
<td>Zero air (20.9% O2, N2 balance)</td>
</tr>
<tr>
<td>RB29L-CO/50</td>
<td>50 ppm carbon monoxide (air balance)</td>
</tr>
<tr>
<td>RB29L-CO/200</td>
<td>200 ppm carbon monoxide (air balance)</td>
</tr>
<tr>
<td>RB29L-CH4/1.0%</td>
<td>1.0% methane (20%LEL) (air balance)</td>
</tr>
<tr>
<td>RB29L-CH4/2.5%</td>
<td>2.5% methane (50%LEL) (air balance)</td>
</tr>
<tr>
<td>RB29L-H2/2000</td>
<td>2000 ppm hydrogen (air balance)</td>
</tr>
<tr>
<td>RB29L-H2/1%</td>
<td>1.0% hydrogen (25%LEL) (air balance)</td>
</tr>
<tr>
<td>RB29L-R22/500</td>
<td>500 ppm R22 (air balance)</td>
</tr>
<tr>
<td>RB29L-R22/1000</td>
<td>1000 ppm R22 (air balance)</td>
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<tr>
<td>RB29L-R22/3000</td>
<td>3000 ppm R22 (air balance)</td>
</tr>
<tr>
<td>RB29L-R134a/500</td>
<td>500 ppm R134a (air balance)</td>
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<tr>
<td>RB29L-R134a/1000</td>
<td>1000 ppm R134a (air balance)</td>
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<tr>
<td>RB29L-R134a/3000</td>
<td>3000 ppm R134a (air balance)</td>
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<tr>
<td>RB29L-R404a/500</td>
<td>500 ppm R404a (air balance)</td>
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<td>RB29L-R404a/1000</td>
<td>1000 ppm R404a (air balance)</td>
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<tr>
<td>RB29L-R404a/3000</td>
<td>3000 ppm R404a (air balance)</td>
</tr>
<tr>
<td>RB29L-R507a/500</td>
<td>500 ppm R507a (air balance)</td>
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<tr>
<td>RB29L-R507a/1000</td>
<td>1000 ppm R507a (air balance)</td>
</tr>
<tr>
<td>RB29L-R507a/3000</td>
<td>3000 ppm R507a (air balance)</td>
</tr>
<tr>
<td>RB29L-4gas-B</td>
<td>25 ppm H2S, 100 ppm CO, 50% LEL CH4, 18% O2</td>
</tr>
</tbody>
</table>

**CK-REG-29L** .......................................................................................................................... $145
0.8 LPM valve/regulator with pressure gauge for 29L & 58L bottles. 3 ft Norprene tubing and calibration cups included for use with all GasGuard sensors.

**CK-CUP & HOSE** .................................................................................................................. $25
3 ft Norprene tubing and two sensor adaptors to fit all GasGuard sensors.
Accessories

Accessorize your gas detection system with these popular items.

**SHA-24** ................................................................. $180
Horn/Strobe, 24 VDC. Weatherproof enclosure for washdown and outdoor locations. Separate horn and strobe circuits allow for multiple wiring configurations. High intensity flash with field selectable buzzer tones. All units labeled “Ammonia” unless otherwise specified.

SHA-24-Blue
SHA-24-Amber
SHA-24-Red
SHA-24-Clear

**SHA-120** ................................................................. $180
Horn/Strobe, 120 VAC. Weatherproof housing and backplate for washdown and outdoor locations. Horn and strobe trigger simultaneously. High intensity flash with field selectable buzzer tones. All units labeled “Ammonia” unless otherwise specified.

SHA-120-Blue
SHA-120-Amber
SHA-120-Red
SHA-120-Green
SHA-120-Clear

**StackLight**
24 VDC stacklight assembly with 100 dB buzzer. LED technology for zero maintenance. 1/2” conduit mount adaptor. All light modules flash (except green light) for high visibility. Weatherproof for indoor/outdoor mounting. Custom configurations available.

SL-F-24-R-B ................................................................. $475
SL-F-24-AR-B ............................................................. $630
SL-F-24-GAR-B .......................................................... $785
SL-F-24-BWAR-B ....................................................... $940

**SHA-PAX-110dB** ................................................. $525
Horn/Strobe, 110dB, 120VAC or 24VDC. Weatherproof housing for washdown and outdoor locations. Horn and strobe trigger simultaneously or independently. 110dB horn and 80 field selectable tones. All units labeled “Ammonia” unless otherwise specified.

SHA-PAX-110-24-Blue
SHA-PAX-110-24-Amber
SHA-PAX-110-24-Red
SHA-PAX-110-120-Blue
SHA-PAX-110-120-Amber
SHA-PAX-110-120-Red

**UPS-1000VA-LCD** ................................................. $199
1000 VA uninterruptible power supply with status and diagnostics LCD.

**AD-400** ................................................................. $695
Auto phone Dialer with 4 contact closure inputs, 1 relay output, temperature sensor, AC power monitor. Dials up to 4 phone numbers.

**DMK-1** ................................................................. $210
Duct mount kit for use with any GasGuard sensor (polycarbonate enclosure). For detection of toxic gases in HVAC ducts.
Accessories

Accessorize your gas detection system with these popular items.

**GG-EM-PS**
Add-on power supply for the GasGuardian-EM. Bolts inside the GG-EM enclosure. 110 VAC input. 24 VDC, 0.625 A output. Provides DC power for GasGuardian-EM, GasGuard sensor, and up to two Horn/Strobes.

$145

**PS-24-3200**
Power Supply, 24 VDC, 3.2 Amp, NEMA 4X polycarbonate enclosure. 7" x 5" x 2.2" deep. 110 VAC input.

$235

**PS-24-6500**
Power Supply, 24 VDC, 6.5 Amp, NEMA 12 powder-coated steel enclosure. 12" x 6" x 4" deep. 110 VAC input.

$354

**Instrumentation Cable**
3-conductor, shielded, stranded cable, 300Vrms, PVC jacket, with copper drain wire. Minimum order 100 ft. Maximum spool size 1000 ft.

**Cable-GC-20/3**
20 AWG, General Cable C2525A (Belden equivalent).

$0.45/ft

**Cable-GC-18/3**
18 AWG, General Cable C2525A (Belden equivalent).

$0.50/ft

**Cable-BE-20/3**
20 AWG, Belden 8772.

$1.10/ft

**Cable-BE-18/3**
18 AWG, Belden 8770.

$1.25/ft

**SB-EV1**
Emergency ventilation

$345

**SB-ES1**
Emergency stop

$345

**SB-R1**
Reset switch, momentary NO contacts, LED ring, mounting plate, 24VDC. NEMA 4X polycarbonate enclosure safe for outdoors and washdown areas. For use for GG-6 controller remote reset function.

$255

**RM420-LR**
Relay Module, 4/20 mA feed-through design maintains signal output function while providing relay output with dry contacts. Connects to GasGuard sensor enclosures. LR rigid conduit body allows for outdoor or wash-down installation.

$150
Portable Gas Detection

Single and multi-gas portable gas detectors. 1 year warranty on all models.

**NH3 Responder**
Portable ammonia monitor (0 to 150,000 ppm NH3). Specially configured BW MicroSPID portable ammonia detector with two sensor technologies to cover NH3 response ranges. VOC photo-ionization 0-1000ppm NH3, LEL 0-100%/LEL NH3. Includes integral motorized sampling pump, sampling wand, tubing, AA battery pack, spare AA battery set, manual, and rugged carrying case.

M5-RBC ................................. $150
Rechargeable lithium polymer battery and charging cradle

**CO2 Responder**
Portable carbon dioxide monitor (0 to 50,000 ppm CO2). Infrared sensor technology. Range 0-5% Carbon Dioxide. BW Micro5IR platform. Includes integral motorized pump, AA battery pack, spare AA battery set, hose, wand, manual, and rugged carrying case.

M5-RBC ................................. $150
Rechargeable lithium polymer battery and charging cradle

**4-Gas Responder**
Portable 4-Gas monitor for detection of CO, H2S, O2, and LEL. Detection ranges of 0-30% O2, 0-500ppm CO, 0-500ppm H2S, and 0-100% LEL. BW Micro5 platform. Includes integral motorized pump, AA battery pack, spare AA battery set, hose, wand, manual and rugged carrying case.

M5-RBC ................................. $150
Rechargeable lithium polymer battery and charging cradle

**BW-GAXT-A2-DL**
GasAlert Extreme portable ammonia detector, range 0-400 ppm, with datalogger capability (IR datalink USB adaptor required). Compact design and alligator clip make this unit easy to wear.

BW-MCXL ........................................ $595
GasAlert MicroClip XL portable confined space monitor. Detects Oxygen (O2), Carbon Monoxide (CO), Hydrogen Sulfide (H2S), & Combustibles (LEL).

**BW-MCXL-CSEK**
GasAlert MicroClip XL portable confined space monitor with confined space entry kit.
Kit includes calibration gas, carrying case, 0.8 lpm regulator, and 3ft tubing.

$490

$945
Portable Gas Detection

Replacement sensor elements for portable gas detectors. 1 year warranty.

**NH3 Responder Replacement Cells**

- **BW-M5-PID-RS** ................................................................. $850
  Replacement PID sensor 0-1,000 ppm. BW p/n SR-Q07

- **BW-M5-ES** ........................................................................ $35
  Replacement PID sensor Electrode Stack, kit of 2. BW p/n M5PID-ES-1

- **BW-GA-LEL-RS** ............................................................... $170
  Replacement LEL sensor 0-100 %LEL. BW p/n SR-W04

**CO2 Responder Replacement Cell**

- **BW-M5-CO2-RS** .............................................................. $1,000
  Replacement CO2 IR sensor 0-5%. BW p/n SR-B04

**4-Gas Responder Replacement Cells**

- **BW-GA-TwinTox-RC** ....................................................... $350
  Replacement Duo-Tox cell, CO and H2S. BW p/n D4-RHM04

- **BW-GA-LEL-RS** ............................................................... $170
  Replacement LEL sensor 0-100% LEL. BW p/n SR-W04

- **BW-O2-RC** ................................................................. $165
  Replacement Oxygen cell. BW p/n SR-X10-C1

**GasAlert Extreme Replacement Cell**

- **BW-GAXT-A2-RC** ........................................................... $350
  Replacement ammonia cell. 0-400 ppm. BW p/n SR-A204

**GasAlert MicroClip XL Replacement Cells**

- **BW-MCXL-LEL-RC** ......................................................... $120
  Replacement combustible (%LEL) sensor. BW p/n SR-W-MP75C

- **BW-O2-RC** ................................................................... $165
  Replacement Oxygen cell. BW p/n SR-X10-C1

- **BW-MCXL-H2S-RC** ......................................................... $120
  Replacement Hydrogen Sulfide cell. BW p/n SR-H-MC

- **BW-MCXL-CO-RC** ........................................................... $120
  Replacement Carbon Monoxide cell. BW p/n SR-M-MC
The perfect full-feature controller for medium to large gas detection systems provides a Stand-Alone Safety System for up to 30 sensors.

The GG-6 can interface to, but operate independently of plant control systems for a reliable stand-alone safety system. The GG-6 comes standard with six onboard relays, as well as an onboard buzzer. One relay is dedicated to fault relay, the other four relays are user programmable to trigger upon any event for any sensor or group of sensors.

The GG-XM expansion module accommodates an additional eight sensors for each module, and up to three modules for a total of 30 sensors. Each GG-XM comes equipped with eight 4-20 mA inputs, eight programmable relays, and its own power supply. Analog output boards can be added on to the controller and expansion modules, and can be connected to your plant PLC or other 4-20 mA control panel.

The watertight fiberglass reinforced enclosure will stand up to corrosive washdown, temperature swings, and any other harsh environment encountered in the food industry. The GG-XM’s connect to the GG-6 and/or each other via a 24” wire harness. Since the alarm log holds 10,000 events, yesterday’s events will not go unnoticed.

Applications

- Engine Rooms
- Tank Rooms
- Mechanical Rooms
- Sea Vessels
- Refrigeration Systems
- Perimeter Monitoring
- Heat Treatment
- Refineries
- Chemical Plants

Benefits

- Full-featured
- Expandable
- Easy configuration

Key Features

- Simultaneously monitor 6 sensors - up to 30 with expansion modules
- Six onboard relays standard – eight more relays per expansion module
- 3 alarm setpoints per channel, in addition to TWA & STEL alarms
- Alarm Log records and stores every event
- Industry standard linear 4-20 mA input
- Simple menu-driven programming through the LCD operator interface
- 6.5A power supply can be used to power many external horn/strobes
- Watertight enclosure designed for washdown areas and outdoors
- Horn relay silenceable from front-panel Silence key
- TWA and STEL time-weighted averaging with alarm setpoints
The GG-6 controller utilizes a user-friendly LCD operator interface for all readout information and alarm function control. Out of the box, the controller and expansion modules are configured with default setpoints loaded in the software. Easily enter the zone location names and adjust alarm setpoints as necessary.

The backlit LCD displays real-time status of gas sensor concentrations and allows for custom programming via a user-friendly menu system. The GG-6 and expansion modules are compatible with all gas sensors with industry standard 4-20 mA inputs. The power supplies are powerful enough to power all connected sensors and external 24Vdc horn/strobes.

All wiring is safely enclosed inside and easily accessed from the hinged lids. Each expansion module connects to the GG-6 in a daisy-chain configuration. Wiring is simply plugging in a wiring harness. All human interfacing is performed via the waterproof membrane keys on the outside of the GG-6, for non-intrusive operation.

### Ordering Information

The GasGuardian-6 is delivered ready to install. Use either the default setpoints or choose your own. Use the model numbers below to order.

**Order #:**  
**GG-6** (does not include sensors). Six channel controller includes LCD operator interface, power supply, and 6 relay outputs.  
**GG-XM** (does not include sensors). Eight channel expansion module includes power supply and 8 relay outputs.  
*The GG-6 can accommodate up to three GG-XM’s*

**Options:**  
**GG-6-AOB** (Six channel analog output board)  
**GG-XM-AOB** (Eight channel analog output board)  
**GG-6-APS** (Auxiliary 24VDC power supply, 6.5A)  
**GG-6 Startup** (Contact us for details)  
**GG-6-GE-M** (Ethernet Modbus gateway module)  
**GG-6-GE-E** (Ethernet EtherNet/IP gateway module)  
**GG-6-GE-B** (Ethernet BACnet/IP gateway module)  
**GG-6-GR-B** (RS-485 BACnet gateway module)  
**GG-6-GR-M** (RS-485 Modbus gateway module)

6 channels, 14 channels, 22 channels or 30 channels. Get what you need now…expand later.

### SPECIFICATIONS

Due to ongoing research and product improvement, specifications are subject to change.

**Input Power Requirements:**  
120/240 VAC, 3 A, 50/60 Hz (GG-6)  
120/240 VAC, 3 A, 50/60 Hz (each add-on GG-XM)

**Output DC Power:**  
24 VDC, 4 A (GG-6/GG-XM)

**Dimensions:**  
15.8" high x 14" wide x 7” deep (GG-6/GG-XM)

**Weight:**  
14 lbs (GG-6/GG-XM)

**Enclosure:**  
Fiberglass Reinforced Polyester NEMA 4X, IP 65, with neoprene gasket. Continuous stainless steel hinge. Captive screws in lid. For non-classified areas

**Temperature Range:**  
0°F to +122°F (-17°C to +50°C)

**Humidity Range:**  
0-95% RH condensing (100% intermittent), with proper conduit seals

**Relay Outputs:**  
SPDT, Form C dry contacts  
8A @ 24 VDC or 10 A @ 120 VAC  
Adjustable On/Off delays  
Selectable to Latch/Non-Latch  
Status LEDs show relay state

**GG-6 (Six Relays)**  
(6) Programmable Relays  
Programmable to trigger upon any event for any sensor or group of sensors

**GG-XM (Eight Relays)**  
(8) Programmable Relays  
Programmable to trigger upon any event for any sensor or group of sensors

**Analog Outputs:**  
(6) Individual 4-20 mA outputs (GG-6)  
(8) Individual 4-20 mA outputs (GG-XM)

**Horn:**  
PCB mount Piezo buzzer (GG-6 only)

**Terminal Block Plugs (Field Wiring):**  
12-26 AWG, torque 4 lbs-in

**Controller Functions:**  
LCD, backlit, graphics display (GG-6 only)  
8 lines x 22 characters  
Waterproof membrane switches, alpha-numeric keys  
Non-volatile memory  
Real-Time Status Display: Displays gas concentrations and any current alarm conditions. TWA / STEL trending selectable  
Adjustable Warning, Alarm 1, Alarm 2, TWA and STEL Setpoints  
Alarm Log: Records and stores 10,000 events for easy recall  
Calibration Mode: Locks relay outputs for sensor calibration or maintenance  
Relay Test Function: Allows for easy testing of relay output functions  
Downscale Alarm Setting for Oxygen Monitoring  
Horn Silence Button Clears Horn Relay

**Certification:**  
ETL listed to UL standard 61010-1, and CSA standard C22.2 No. 61010-1-12

**Warranty:**  
2 years
The remote display solution for your GasGuardian gas detection system.

The GasGuardian RD (GG-RD) is a remote display slave module designed to accept data from the GasGuardian 6 (GG-6) master controller. The GG-RD provides continuous real-time monitoring of each sensor via Modbus RTU protocol on RS-485 mirroring the GG-6 controller display. The backlit LCD display provides an at-a-glance status of gas concentrations and alarms. An 80 dB buzzer on the front panel provides audible indication of any programmed event. Once the Modbus address is set, there are no user configurable settings on the GG-RD, as all other settings are configured on the GG-6 master controller.

The GG-RD is assembled into a wall mounted enclosure designed for non-classified locations, and can be installed outdoors and in washdown areas. The NEMA 4X fiberglass enclosure will stand up to corrosive washdown, temperature swings, and other harsh environments encountered in the food industry.

Applications
- Guard Shacks
- Maintenance and Refrigeration Offices
- Mechanical Room Entrances
- Anywhere a Remote Display is Needed

Benefits
- Economical
When only one GG-RD is installed, the model required is the **GG-RD1**. When two or more are being daisy-chained, one **GG-RD1** is still required, but all other remote displays will need to be model **GG-RD2**. Think of the **GG-RD1** as the end-of-line termination unit, with up to sixty **GG-RD2** remote displays in between it and the GG-6 master controller.

The GG-RD series readouts utilize a user-friendly LCD operator interface for all readout and alarm information. The backlit LCD displays real-time status of gas sensor concentrations.

All wiring is safely enclosed inside and easily accessed from the hinged lid. All human interfacing is performed via the waterproof membrane keys on the outside, for non-intrusive operation.

The GG-RD is compatible with GG-6 controllers version 4.00 and higher. Older version GG-6 controllers can be field-upgraded. Contact Calibration Technologies for details.

**Ordering Information**

The *GasGuardian-RD1* is delivered ready to install. Use the model number below to order.

**Order #:**

- **GG-RD1**
- **GG-RD2** (for applications using more than 1 remote display)

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**SPECIFICATIONS**

Due to ongoing research and product improvement, specifications are subject to change.

**Input Power Requirements:**
24 VDC, 0.25A (21 Vdc to 27 Vdc)

**Dimensions:**
11.3” high x 9.3” wide x 7” deep

**Weight:**
5 lbs

**Enclosure:**

**Temperature Range:**
0°F to +122°F (-17°C to +50°C)

**Humidity Range:**
0-95% RH condensing (100% intermittent), with proper conduit seals

**Buzzer:**
80 dB, with volume attenuator shutter. Silenceable from keypad on front panel

**Terminal Block Plugs (Field Wiring):**
12-26 AWG, torque 4 lbs-in

**User Interface:**
LCD, backlit, graphics display
8 lines x 22 characters
Sealed membrane switches, alpha-numeric keys
Non-volatile memory

**Real-Time Status Display:**
Displays gas concentrations and any current alarm conditions

**Power Wiring:** (from GG-6)
Use 18/2 stranded cable for distances up to 1,000’

**Communication Wiring:** (from GG-6)
Use Cat5 shielded twisted pair (STP) or foiled twisted pair (FTP) low capacitance cable for distances up to 1,000’. Distances up to 4,000’ can be achieved using RS-485 compliant cable.

**Warranty:**
2 years
**GasGuardian-2**

**2-Channel Controller**

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**Key Features**
- Simultaneously monitor two sensor locations
- Six onboard relays standard
- Alarm Log records and stores every events
- Industry standard linear 4/20 mA input
- Simple menu-driven programming through the LCD operator interface
- Power supply can also drive external horn/strobes
- Watertight enclosure designed for washdown areas and outdoors
- Configurable for GasGuard sensor line and any other 4/20 mA gas sensor
- Horn relay silenceable from front-panel Silence key

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The perfect controller for small gas detection systems provides a Stand-Alone Safety System for any 2-sensor application.

The GasGuardian-2 can interface to, but operate independently of plant control systems for a reliable stand-alone safety system. Multiple digital and analog outputs provided on the GasGuardian-2.

The GasGuardian-2 has a total of 6 relay outputs, including one warning and one alarm relay per channel, one common fault relay, and one common horn relay. An onboard buzzer works in tandem with the common horn relay. Analog outputs are standard, which can be sent to a plant PLC or other 4/20 mA control panel.

The watertight fiberglass enclosure will stand up to corrosive washdown, temperature swings, and any other harsh environment encountered in the food industry. The alarm log holds 10,000 events, so yesterday’s events will not go unnoticed.

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**Applications**
- Engine Rooms
- Tank Rooms
- Mechanical Rooms
- Sea Vessels
- Refrigeration Systems
- Perimeter Monitoring
- Heat Treatment
- Refineries
- Chemical Plants

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**Benefits**
- Low cost solution for small systems
- Simple setup
- Alarm log

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The GasGuardian-2 controller utilizes a user-friendly LCD operator interface for all readout information and alarm function control. The controller is configured and ready to go out of the box with default setpoints loaded in the software. Simply enter the zone location names and adjust the alarm setpoints if necessary.

The backlit LCD displays real-time status of gas sensor concentrations and allows for custom programming via the user-friendly menu system. The GasGuardian-2 is compatible with all gas sensors with its industry standard 4/20 mA inputs. The power supply is also powerful enough to power external 24Vdc horn/strobes.

All wiring is safely enclosed inside and easily accessed from the hinged lid. All human interfacing is performed via the waterproof membrane keys on the outside, for non-intrusive operation.

### Ordering Information

The GasGuardian-2 is delivered ready to install. Use either the default setpoints or choose your own. Use the model number below to order.

**Order #: GG-2**

### SPECIFICATIONS

**Due to ongoing research and product improvement, specifications are subject to change**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Input Power Requirements:</strong></td>
<td>100-240 VAC, 1.3 A, 50/60 Hz</td>
</tr>
<tr>
<td><strong>Output DC Power:</strong></td>
<td>24 VDC, 1.2 A</td>
</tr>
<tr>
<td><strong>Dimensions:</strong></td>
<td>11.3” high x 9.3” wide x 7” deep</td>
</tr>
<tr>
<td><strong>Weight:</strong></td>
<td>6 lbs</td>
</tr>
<tr>
<td><strong>Enclosure:</strong></td>
<td>Fiberglass Reinforced Polyester NEMA 4X, IP 65, with neoprene gasket. Continuous stainless steel hinge. Captive screws in lid. For non-classified areas</td>
</tr>
<tr>
<td><strong>Temperature Range:</strong></td>
<td>0°F to +122°F (-17°C to +50°C)</td>
</tr>
<tr>
<td><strong>Humidity Range:</strong></td>
<td>0-95% RH condensing (100% intermittent), with proper conduit seals</td>
</tr>
<tr>
<td><strong>Relay Outputs: (6)</strong></td>
<td>SPDT, Form C dry contacts</td>
</tr>
<tr>
<td></td>
<td>8A @ 24 VDC or 10 A @ 120/240 VAC</td>
</tr>
<tr>
<td></td>
<td>Selectable to Latch/Non-Latch</td>
</tr>
<tr>
<td></td>
<td>Status LEDs show relay state</td>
</tr>
<tr>
<td>(1) Common Horn Relay</td>
<td>Selectable to trigger upon warn or alarm, or both</td>
</tr>
<tr>
<td>(1) Common Fault Relay</td>
<td>Normally energized De-activated upon power loss or 1 mA signal</td>
</tr>
<tr>
<td>(2) Individual Warn Relays</td>
<td>Programmable setpoints</td>
</tr>
<tr>
<td>(2) Individual Alarm Relays</td>
<td>Programmable setpoints</td>
</tr>
<tr>
<td><strong>Analog Outputs:</strong></td>
<td>(2) Individual 4-20 mA outputs</td>
</tr>
<tr>
<td><strong>Terminal Block Plugs (Field Wiring):</strong></td>
<td>12-26 AWG, torque 4 lbs-in</td>
</tr>
<tr>
<td><strong>Controller Functions:</strong></td>
<td>LCD, backlit, graphics display (GG-6 only)</td>
</tr>
<tr>
<td></td>
<td>8 lines x 22 characters</td>
</tr>
<tr>
<td></td>
<td>Waterproof membrane switches, alpha-numeric keys</td>
</tr>
<tr>
<td></td>
<td>Non-volatile memory</td>
</tr>
<tr>
<td></td>
<td>Real-Time Status Display: Displays gas concentrations and any current alarm conditions</td>
</tr>
<tr>
<td></td>
<td>Alarm Log: Records and stores 10,000 events for easy recall</td>
</tr>
<tr>
<td></td>
<td>Calibration Mode: Locks relay outputs for sensor calibration or maintenance</td>
</tr>
<tr>
<td></td>
<td>Relay Test Function: Allows for easy testing of relay output functions</td>
</tr>
<tr>
<td></td>
<td>Adjustable Warning and Alarm Setpoints</td>
</tr>
<tr>
<td></td>
<td>Adjustable Relay Latch/Non-Latch</td>
</tr>
<tr>
<td></td>
<td>Downscale Alarm Setting for Oxygen Monitoring</td>
</tr>
<tr>
<td></td>
<td>Horn Silence Button Clears Horn Relay</td>
</tr>
<tr>
<td><strong>Certification:</strong></td>
<td>ETL listed to UL standard 61010-1, and CSA standard C22.2 No. 61010-1-12</td>
</tr>
<tr>
<td><strong>Warranty:</strong></td>
<td>2 years</td>
</tr>
</tbody>
</table>
Key Features

- At-a-glance visual indication of gas concentrations before room entry
- For stand-alone or feed-through applications
- Onboard 10A relay with adjustable alarm setpoint
- 10-segment LED bargraph display of gas concentration
- Electronics completely potted to protect against water damage and corrosion
- Status LEDs display gas concentration, sensor power, alarm, and fault conditions
- Industry standard linear 4/20 mA input
- Calibration mode allows alarm inhibiting during maintenance or calibration
- Watertight NEMA 4X enclosure designed for washdown areas and outdoors
- Use with GasGuard sensor line or any other 4/20 mA gas sensor

Applications

- Compressor Room Entrances
- Rooftop Air Handling Units
- Stand Alone Gas Detection
- Oxygen Deficiency Monitoring
- Remote Relay Activation and Readout

Benefits

- Low cost solution
- Remote gas concentration display
- Remote relay output

What’s lurking behind your doors?

Protect your personnel from entering potentially dangerous areas.

The Gas-Guardian EM provides plant personnel an at-a-glance visual indication before entering potentially dangerous areas. Features include a ten-segment LED bargraph display; power, alarm and fault indication; and one relay output with a simple alarm setpoint adjustment. Great for engine rooms, air handlers, and stand-alone applications.

The GasGuardian EM can be used as a stand-alone monitor, or in series with the sensor signal to provide remote display / remote relay operation. As a feed-through device, the sensor signal is re-transmitted back to any industry standard 4/20 mA device such as a PLC or gas detection control panel.

The watertight polycarbonate enclosure will stand up to corrosive washdown, temperature swings, and any other harsh environment encountered in the food industry. The electronics are completely potted to protect against corrosion, allowing for installation in washdown areas and outdoors.
The **GasGuardian EM** is a low cost solution that provides multiple configurations to meet many needs for remote display and alarm applications. Use the GG-EM as a stand-alone device, or a feedthrough device to provide remote display and alarm output capability located at or near the sensor.

Since sensors often end up in wet harsh environments, an onboard relay is not always ideal. The **GasGuardian EM** provides alarm activation remote of the sensor, in a safe enclosure out of harm’s way. The onboard relay is rated at 8A @ 24VDC or 10A @ 120VAC.

The **GasGuardian EM** provides an at-a-glance indication of dangerous gas concentrations with a 10-segment LED. An alarm indication is displayed by a flashing status LED. A 10-position rotary switch allows for easy setpoint selection in 10% increments. Calibration mode is selected via an onboard switch, and prevents relay activation during maintenance or calibration. The analog output signal is also held at 4 mA to prevent alarm conditions at the control panel or PLC.

**Ordering Information**

The **GasGuardian EM** is delivered ready to install. Use the model numbers below to order. The GG-EM-PS option allows the unit to be hardwired for 120VAC power.

**Order #:**  
- **GG-EM** (does not include sensor or power supply)  
- **GG-EM-PS** (24VDC, 0.625A power supply mounts inside of GG-EM for stand-alone or OEM installations)

### SPECIFICATIONS

DUE TO ONGOING RESEARCH AND PRODUCT IMPROVEMENT, SPECIFICATIONS ARE SUBJECT TO CHANGE

**Power Requirements:**  
24 VDC, 125mA (does not include other connected devices)

**Signal Input:**  
4/20 mA, 100 Ohm input impedance

**Dimensions:**  
5.1” high x 4.2” wide x 4” deep

**Weight:**  
1 lb

**Enclosure:**  
Polycarbonate NEMA 4X, with neoprene gasket. Hinged lid with dual clasps. For non-classified areas

**Temperature Range:**  
-40°F to +122°F (-40°C to +50°C)

**Humidity Range:**  
0-100% RH, condensing

**Sensor Inputs:**  
(1) 4/20 mA, 100 Ohm input impedance

**Alarm Level Setting:**  
10% increments by 10-position rotary switch. Downscale alarm mode provides a precise 19.5% alarm setpoint for 0-25% and 15-25% O2 sensor ranges

**Relay Output:**  
(1) SPDT relay, Form C contacts, 8A @ 24 VDC or 10A @ 120/240 VAC  
10 Second On/Off delays  
Non-Latching  
Status LED shows relay state  
Normally energized  
An alarm condition, fault condition, or loss of power will de-energize the relay

**Terminal Block Plugs (Field Wiring):**  
12-26 AWG, torque 4 lbs-in

**Wiring Connections:**  
3 conductor, shielded, stranded, 20 AWG cable (Belden 8772 or equivalent) up to 1500 ft (for sensor and analog output wiring).

**Analog Output:**  
4/20 mA (max input impedance: 700 Ohms)

**Monitor Functions:**  
- **Calibration Mode:** Locks relay outputs for sensor calibration or maintenance
- **Relay Test Function:** Allows for easy testing of relay output functions
- **Adjustable Alarm Setpoint**  
  - Downscale Alarm Setting: for Oxygen Monitoring
- **Real-Time Status Display:** Displays gas concentrations and any current alarm conditions

**Certification:**  
ETL listed to UL standard 61010-1, and CSA standard C22.2 No. 61010-1-12

**Warranty:**  
2 years
Ammonia Sensors

GASGUARD NH₃ AMMONIA SENSOR

Key Features

• 2-year warranty, including replacement sensor element
• Electronics are potted to completely eliminate corrosion in wet environments
• Ammonia specific electrochemical sensor technology. Absolutely no false alarms
• No more special-order guesswork or added costs for heated enclosures
• Industry standard linear 4/20 mA output
• Corrosion, weather, and chemical resistant polycarbonate sensor enclosure
• Intelligent-design temperature controlled enclosure for improved cell life
• Sensor designed to adapt to any harsh environment from -50°F to +140°F
• Accurately monitor OSHA’s PEL, STEL and IDLH setpoints
• Real-time continuous monitoring for early leak detection
• Any sensor can be field calibrated to any range listed

Finally, one sensor designed to perform in all environments.
The intelligently adaptive GasGuard NH₃ goes anywhere.

The GasGuard NH3 utilizes proven electrochemical sensor technology for fast and accurate leak detection. The standard detection range of the GasGuard NH3 provides real-time continuous monitoring of ammonia concentrations accurately down to 5 ppm, with no false alarms.

Every GasGuard NH3 sensor comes equipped with an intelligent internal temperature control designed to perform in the harshest areas. The controlled environment provides optimum moisture control for extended cell life. The high-quality injection-molded polycarbonate enclosure offers excellent chemical corrosion protection and high impact resistance.

The GasGuard NH3 provides an industry standard linear 4/20 mA output signal compatible with most gas detection systems and PLCs. The output signal is not affected by drastic temperature variations such as washdowns, defrost cycles, etc.

Applications

• Food Processing areas
• Cold Storage
• Compressor Rooms
• Tank Rooms
• Ventilation Ducts
• Sea Vessels
• Refrigeration Systems
• Perimeter Monitoring
• Pulp and Paper
• Heat Treatment
• Breweries
• Chemical Plants

Benefits

• Versatile for any application
• Easy to order
• Low cost
• Simple operation
• Rugged and reliable
One sensor for any environment (low cost & easy ordering)

The standard GasGuard NH3 sensor is designed to work anywhere, and at a lower base-model price than most competing models. With only one electrochemical sensor for any application; designing, ordering, and maintaining your ammonia detection system is easy. We typically recommend a 0/100 ppm range for all personnel and product protection areas. Higher ranges (0/250, 0/500, 0/1000) are an option to suit higher alarm setpoint areas such as engine rooms.

Designed “Food Industry” tough

From -50°F blast cells to +140°F engine rooms, to chemical washdowns of processing areas, the GasGuard NH3 is prepared to survive in just about any harsh industrial condition. Every circuit board is sealed forever in potting compound, protecting electronic components and copper tracing from corrosion. A specially vented chemical-resistant polycarbonate enclosure protects the sensor from accidental damage, weather, and even direct hose-hits from clean-up crews. Stainless steel enclosures are available for applications which require them.

Ordering Information

The GasGuard NH3 is delivered calibrated and ready to install. Use the model numbers below to specify your factory calibrated range. Keep in mind, each sensor can be field calibrated to any range listed below.

Order #:  
GG-NH3-100  (standard)  
GG-NH3-250  
GG-NH3-500  
GG-NH3-1000  
GG-NH3-xxx-ST  (stainless enclosure)  
GG-NH3-RC  (replacement cell)

### SPECIFICATIONS

Due to ongoing research and product improvement, specifications are subject to change.

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input Power:</td>
<td>+24 VDC, 350 mA</td>
</tr>
<tr>
<td>Detection Principle:</td>
<td>Electrochemical</td>
</tr>
<tr>
<td>Detection Method:</td>
<td>Diffusion</td>
</tr>
<tr>
<td>Gases:</td>
<td>Ammonia (NH3)</td>
</tr>
</tbody>
</table>
| Ranges: | 0/100 ppm (standard)  
0/250 ppm  
0/500 ppm  
0/1000 ppm  
Custom ranges available. Call for more information |
| Range Drift: | Less than 0.1% of full-scale per month, non-cumulative |
| Response Time: | T50 = less than 20 seconds  
T90 = less than 60 seconds |
| Accuracy: | +/- 5% of value, but dependant on calibration gas accuracy and time since last calibration |
| Linearity: | +/- 1% of full-scale |
| Linearity: | +/- 1% of full-scale |
| Humidity Range: | 5% to 100% condensing |
| Temperature Range: | -50°F to +140°F (-46°C to +60°C) |
| Wiring Connections: | 3 conductor, shielded, stranded, 20 AWG cable (General Cable C2525A or equivalent) up to 1500 ft |
| Terminal Block Plugs (Field Wiring): | 12-26 AWG, torque 4 lbs-in |
| Enclosure: | Injection-molded NEMA 12 Washdown-Duty polycarbonate housing with hinged lid and captive screw. For non-classified areas. Optional 18 GA NEMA 3RX Washdown-Duty stainless steel housing with hinged lid and captive screw. For non-classified areas |
| Dimensions: | 7.5" high x 6.5" wide x 3.75" deep |
| Weight: | 3 lbs |
| Certification: | ETL listed to UL standard 61010-1, and CSA standard C22.2 No. 61010-1-12 |
| Warranty: | 2 years (including replacement cell) |
Key Features

- Ammonia selective catalytic bead sensor technology
- Useful for activation of electrical shunt-trip or E-stop up to 20,000 ppm
- Low cost compared to infrared type ammonia sensors
- Industry standard linear 4/20 mA output
- Absolutely no zero drift compared to other catalytic bead type sensors
- Sensing element designed for long life in harsh industrial environments
- Designed to perform in temperatures of -40°F to +150°F
- Accurately monitor explosive NH3 levels for emergency response situations
- Real-time continuous monitoring
- 2-year warranty, including replacement sensor element

Ammonia compressor room explosion prevention.
High-range sensor at a low-range price.

The GasGuard NH3-2% is designed to detect and monitor potentially explosive levels of ammonia vapors in the event of a catastrophic failure. Codes specify an electrical shunt-trip of the mechanical room at a level not higher than 25% LEL to remove potential ignition sources in the event of a serious ammonia leak. The GasGuard NH3-2% allows for an earlier trip level of 12.5%LEL.

The GasGuard NH3-2% utilizes an ammonia selective catalytic bead sensor technology with a matched pair of detector elements. When ammonia vapors enter the sensor, the passive bead remains un-changed while the active detector bead catalyzes the oxidation of gas, generating heat and changing its resistance. The resulting change in resistance is accurately measured across the bridge circuit.

The GasGuard NH3-2% provides an industry standard linear 4/20 mA output signal proportional to 0-2% (0-20,000 ppm) ammonia. The potted transmitter is compatible with most gas detection systems and PLCs. Long sensor life with minimal span adjustment can be expected in most mechanical room applications. The sensor element is designed for simple calibration and is field replaceable.

Applications

- Compressor Rooms
- Tank Rooms
- Cold Storage
- Electrical Shutdown
- Sea Vessels
- Pulp and Paper
- Heat Treatment
- Refrigeration System
- Breweries
- Chemical Plants

Benefits

- Low cost explosion protection
- Long sensor life (5+ yrs typical)
- Simple operation & calibration
Since low-range sensors can’t detect high enough and high-range sensors can’t detect accurately at low levels, the use of the GasGuard NH3-2% sensor in conjunction with low-range GasGuard NH3 sensors ensures a second-stage line of defense in the event of a serious ammonia leak. Intended for electrical shutdown, the GasGuard NH3-2% provides protection against potentially explosive situations.

From hot mechanical rooms, to acid washdowns of processing areas, the GasGuard NH3-2% is prepared to survive in just about any harsh industrial condition. Every circuit board is sealed forever in potting compound, protecting sensitive electronic components and copper tracing from corrosion. A specially vented chemical-resistant polycarbonate enclosure protects the sensor from accidental damage, weather, and direct hose-hits from clean-up crews.

Typical sensor life is 5-7 years, with minimal to no cross-sensitivity to most other gases. Field replaceable sensor element keeps long term maintenance simple and low cost.

### Ordering Information

The GasGuard NH3-2% is delivered calibrated and ready to install. The assembly includes sensor and potted transmitter mounted inside the hinged polycarbonate enclosure. Use the model numbers below to order.

**Order #:**

- GG-NH3-2%
- GG-NH3-2%-RS (replacement sensor)

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**SPECIFICATIONS**

- **Input Power:** +24 VDC, 250 mA
- **Detection Principle:** Catalytic Bead
- **Detection Method:** Diffusion
- **Gases:** Ammonia (NH3)
- **Ranges:** 0-2% (20,000 ppm)
- **Output Signal:** Linear 4/20 mA (max input impedance: 700 Ohms)
- **Linearity:** +/- 0.5% of full-scale
- **Repeatability:** +/- 1% of full-scale
- **Response Time:**
  - T50 = less than 30 seconds
  - T90 = less than 90 seconds
- **Accuracy:** +/- 5% of value, but dependant on calibration gas accuracy
- **Zero Drift:** Less than 0.01% of full-scale per month, non-cumulative
- **Span Drift:** Application dependant, but generally less than 2% per month
- **Temperature Range:** -40°F to +150°F (-40°C to +66°C)
- **Humidity Range:** 5% to 100% condensing
- **Wiring Connections:** 3 conductor, shielded, stranded, 20 AWG cable (General Cable C2525A or equivalent) up to 1500 ft
- **Terminal Block Plugs (Field Wiring):**
  - 12-26 AWG, torque 4 lbs-in
- **Enclosure:** Injection-molded NEMA 12 Washdown-Duty polycarbonate housing with hinged lid and captive screw. For non-classified areas. Optional 18 GA NEMA 3RX Washdown-Duty stainless steel housing with hinged lid and captive screw. For non-classified areas
- **Dimensions:** 7.5” high x 6.5” wide x 3.75” deep
- **Weight:** 3 lbs
- **Certification:** ETL listed to UL standard 61010-1, and CSA standard C22.2 No. 61010-1-12
- **Warranty:** 2 years (including replacement sensor)
Key Features

- Explosion-proof enclosure for classified areas
- 0/2% (20,000 ppm) range
- No zero signal drift
- Electronics potted to eliminate internal corrosion
- Ammonia selective catalytic bead sensor technology
- Industry standard 24VDC, linear 4/20 mA output
- Operating temperature from -40°F to +120°F
- Accurately monitor explosive NH3 levels for emergency response situations
- Real-time continuous monitoring for early leak detection.
- Sensing element designed for long life in harsh industrial environments

High-range ammonia detection. Explosion-proof design.

The GasGuard NH3-2%-EXP is designed to detect and monitor potentially explosive levels of ammonia vapors in the event of a catastrophic failure. Most codes specify an electrical shunt-trip at a level not higher than 25% LEL to remove potential ignition sources in the event of a serious ammonia leak. The GasGuard NH3-2%-EXP allows for an earlier trip level of 12.5% LEL.

The GasGuard NH3-2%-EXP utilizes an ammonia selective catalytic bead sensor technology with a matched pair of detector elements. When ammonia vapors enter the sensor, the passive bead remains unchanged while the active detector bead catalyzes the oxidation of gas, generating heat and changing its resistance. The resulting change in resistance is accurately measured across the bridge circuit.

The GasGuard NH3-2%-EXP provides an industry standard linear 4/20 mA output signal proportional to 0-2% (20,000 ppm) of ammonia. Long sensor life with minimal span adjustment can be expected in most mechanical room applications. The sensor is designed for simple calibration and the sensor head is easily field replaceable.

Applications

- Compressor Rooms
- Emergency Stop
- Heat Treatment
- Tank Rooms
- Sea Vessels
- Refrigeration System
- Cold Storage
- Pulp and Paper
- Breweries
- Refineries
- Chemical Plants

Benefits

- Low cost explosion protection
- Long sensor life (5-7 yrs typical)
- Simple operation & calibration
Since low-range sensors can’t detect high enough and high-range sensors can’t detect accurately at low levels, the use of the GasGuard NH3-2%-EXP sensor in conjunction with low-range GasGuard NH3 sensors ensures a second-stage line of defense in the event of a serious ammonia leak. Intended for emergency stop of all compressors, pumps and normally closed valves, the GasGuard NH3-2%-EXP provides protection against potentially explosive situations.

Typical sensor life is 5-7 years, with minimal to no cross-sensitivity to most other gases. Field replaceable sensor elements keeps long term maintenance simple and low cost. Every circuit board is potted to completely eliminate corrosion to the electronic components and copper tracing on the circuit board. An explosion-proof aluminum enclosure houses the transmitter.

Ordering Information

The GasGuard NH3-2%-EXP is delivered calibrated and ready to install. The assembly includes sensor and potted transmitter mounted inside an explosion-proof enclosure. Use the model numbers below to order.

Order #: GG-NH3-2%-EXP
GG-NH3-2%-RS-EXP (replacement sensor)

SPECIFICATIONS

Due to ongoing research and product improvement, specifications are subject to change

| Input Power: | +24 VDC, 80 mA |
| Detection Principle: | Catalytic Bead |
| Detection Method: | Diffusion |
| Gases: | Ammonia (NH3) |
| Ranges: | 0-2% (20,000 ppm) |
| Output Signal: | Linear 4/20 mA (max input impedance: 700 Ohms) |
| Linearity: | +/- 0.5% of full-scale |
| Repeatability: | +/- 1% of full-scale |
| Response Time: | T50 = less than 30 seconds
T90 = less than 60 seconds |
| Accuracy: | +/- 5% of value |
| Zero Drift: | Less than 0.1% of full-scale per month, non-cumulative |
| Span Drift: | Less than 2% per month |
| Temperature Range: | -40°F to +120°F (-40°C to +48°C) |
| Humidity Range: | 5% to 100% condensing |
| Wiring Connections: | 3 conductor, shielded, stranded, 20 AWG cable (General Cable C2525A or equivalent) up to 1500 ft |
| Terminal Block Plugs (Field Wiring): | 26-12 AWG, torque 4 lbs-in |
| Dimensions: | 6.75” high x 5.25” wide x 4.5” deep |
| Weight: | 3.75 lbs |

Enclosure:
Copper-free aluminum body, epoxy powder coat finish, neoprene gasket, for hazardous areas.

NEC/CEC:
- Class I, Division 2, Groups B, C, D
- Class II, Division 1, Groups E, F, G
- Class II, Division 2, Groups F, G
- Class III

NEMA/EEMAC: 3, 4, 4X, 7BCD, 9EFG

UL Standard: 1203

CSA Standard: C22.2 No. 30

FM Classification No.: 3615

ATEX Certificate KEMA 02 ATEX 2265U

IEC Standards EN:60079-0, EN:60079-1, EN:60529

Sensor Head:
Stainless steel flameproof enclosure constructed with an integral stainless steel sinter filter for the safe entry of the atmosphere being detected.

ATEX Certificate CESI 01 ATEX 066 U

Warranty:
2 years (including replacement sensor)
Key Features

- Continuous monitoring of refrigeration system relief valves
- Industry standard linear 4/20 mA output
- Durable and long life solid-state sensor
- Corrosion, weather, and chemical resistant transmitter enclosure
- Sensor designed for harsh environments from -46°F to +140°F
- Sensor and preamp in one assembly - only one cable required
- Ability to detect “weeping valves” to prevent refrigerant loss over time
- Innovative sensor housing allows for simple & low cost sensor replacement

From unlikely high-pressure releases to the inevitable “weepers”, the GasGuard Vent Line sensor will notify you … before your neighbors do.

The GasGuard Vent Line utilizes a rugged solid-state sensor technology for fast leak detection and long life. The standard detection range of the GasGuard Vent Line provides real-time continuous monitoring of ammonia concentrations in your high-pressure relief vent header. High concentrations of ammonia gases in your vent line are usually indications of a leaking valve or system overpressure. This could mean costly repairs or plant downtime, not to mention loss of refrigerant. Early detection can save money and protect equipment and personnel.

The GasGuard Vent Line sensor provides an industry standard linear 4/20 mA output signal compatible with most gas detection systems and PLCs. Expect long sensor life and virtually zero signal drift over time. Minimum maintenance requirements include only a response check twice per year.

Applications

- Ammonia Refrigeration System Vent Lines (outdoor installations only)

Benefits

- Low cost
- Rugged and reliable
- Simple sensor replacement
- Typical sensor life 5 to 7 years
The **GasGuard Vent Line** sensor is designed for outdoor mounting. We recommend that the sensor be mounted 3' to 5' above the roofline on the relief discharge to atmosphere. The 1/2" pipe nipple of the supplied mounting kit should be welded to the relief discharge. The innovative mounting kit with union allows for easy and low cost sensor replacement.

**Reliable & robust**

The stainless steel enclosure provides the ultimate protection against any type of weather and will stay corrosion free. Every transmitter circuit board is sealed forever in potting compound, protecting electronic components and copper tracing from corrosion. Since the solid-state sensor is designed to endure the coldest of winters and hottest of summers, the output signal is not affected by extreme temperature variations. The life of the sensor is not affected by exposure to ammonia gases.

***Ordering Information***

The **GasGuard Vent Line** sensor kit is delivered calibrated and ready to install. The kit includes the transmitter/sensor assembly and mounting kit. Use the model numbers below to order.

**Order #:**

- **GG-VL-NH3**
- **GG-VL-NH3-RS** (replacement sensor)

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### SPECIFICATIONS

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Input Power:</strong></td>
<td>+24 VDC, 250 mA</td>
</tr>
<tr>
<td><strong>Detection Principle:</strong></td>
<td>Solid-state</td>
</tr>
<tr>
<td><strong>Detection Method:</strong></td>
<td>Diffusion</td>
</tr>
<tr>
<td><strong>Gases:</strong></td>
<td>Ammonia (NH₃)</td>
</tr>
<tr>
<td><strong>Ranges:</strong></td>
<td>0/1% (10,000 ppm)</td>
</tr>
<tr>
<td><strong>Output Signal:</strong></td>
<td>Linear 4/20 mA (max input impedance: 700 Ohms)</td>
</tr>
<tr>
<td><strong>Linearity:</strong></td>
<td>+/- 5% of full-scale</td>
</tr>
<tr>
<td><strong>Repeatability:</strong></td>
<td>+/- 5% of full-scale</td>
</tr>
<tr>
<td><strong>Response Time:</strong></td>
<td>T90 = less than 30 seconds</td>
</tr>
<tr>
<td><strong>Accuracy:</strong></td>
<td>+/- 5% of full-scale, but dependant on calibration gas accuracy and time since last calibration</td>
</tr>
<tr>
<td><strong>Zero Drift:</strong></td>
<td>Less than 1% of full-scale per month, non-cumulative</td>
</tr>
<tr>
<td><strong>Span Drift:</strong></td>
<td>Less than 1% of full-scale per month, non-cumulative</td>
</tr>
<tr>
<td><strong>Temperature Range:</strong></td>
<td>-48°F to +140°F (-43°C to +60°C)</td>
</tr>
<tr>
<td><strong>Humidity Range:</strong></td>
<td>5% to 100% condensing</td>
</tr>
<tr>
<td><strong>Wiring Connections:</strong></td>
<td>3 conductor, shielded, stranded, 20 AWG cable (General Cable C2525A or equivalent) up to 1500 ft</td>
</tr>
<tr>
<td><strong>Terminal Block Plugs (Field Wiring):</strong></td>
<td>12-26 AWG, torque 4 lbs-in</td>
</tr>
<tr>
<td><strong>Enclosure:</strong></td>
<td>NEMA 4X stainless steel gasketed housing. Captive screw in hinged lid. For non-classified areas</td>
</tr>
<tr>
<td><strong>Dimensions:</strong></td>
<td>4.8” high x 4.72” wide x 3.35” deep</td>
</tr>
<tr>
<td><strong>Weight:</strong></td>
<td>5 lbs (includes mounting kit)</td>
</tr>
<tr>
<td><strong>Certification:</strong></td>
<td>ETL listed to UL standard 61010-1, and CSA standard C22.2 No. 61010-1-12</td>
</tr>
<tr>
<td><strong>Warranty:</strong></td>
<td>2 years (including replacement sensor)</td>
</tr>
</tbody>
</table>
Key Features

- CO2 specific infrared sensor technology
- Industry standard linear 4/20 mA output
- Corrosion, weather, and chemical resistant sensor enclosures
- Sensor designed to adapt to any harsh environment from -60°F to +120°F
- Accurately monitor OSHA’s PEL and STEL setpoints for personnel protection
- Real-time continuous monitoring
- 0-3% range (0/30,000 ppm) allows setpoints at both critical levels (0.5% & 3.0%)
- 2 year warranty

Industrial strength CO2 monitoring…for any harsh environment

The GasGuard CO2 utilizes proven infrared sensor technology for fast and accurate leak detection. With no moving parts and no cells to replace, the GasGuard CO2 provides real-time continuous monitoring and inexpensive long term operating costs.

The GasGuard CO2 is carbon dioxide specific, so false alarms from floor cleaners and food off-gassing is non-existent. The output signal is also not affected by moisture or drastic temperature variations such as washdowns, defrost cycles, etc.

The GasGuard CO2 provides an industry standard linear 4/20 mA output signal compatible with most gas detection systems and PLCs. The high-quality polycarbonate or optional stainless steel enclosures offer excellent chemical corrosion protection and high impact resistance.

Applications

- Wineries
- Food Processing areas
- Indoor Air Quality
- Bottling Plants
- Breweries
- Refrigeration Systems
- Perimeter Monitoring
- Chemical Plants

Benefits

- Versatile for any application
- Low cost
- Simple operation
- Rugged and reliable

GASGUARD CO2
CARBON DIOXIDE SENSOR
The standard GasGuard CO₂ sensor comes equipped with a corrosion proof enclosure and adaptive temperature control designed to work anywhere. With only one sensor for any application; designing, ordering, and maintaining your CO₂ monitoring system is easy. The 0/3% range (0/30,000 ppm) is broad enough to handle OSHA’s recommended alarm levels (0.5% and 3.0%), providing plenty of upper range detection for high output systems.

**Designed “Food Industry” tough**

The GasGuard CO₂ is prepared to survive in just about any harsh industrial condition. Every sensor circuit board is sealed forever in potting compound, which protects electronic components and copper tracing from corrosion. A specially vented chemical-resistant polycarbonate enclosure protects the sensor from accidental damage, weather, and direct hose-hits from clean-up crews. An 18 ga stainless steel sensor enclosure is also available for applications that require it.

### Ordering Information

The GasGuard CO₂ is delivered calibrated and ready to install. Use the model numbers below to order.

**Order #:**

- GG-CO₂-1%
- GG-CO₂-3% (standard)
- GG-CO₂-5%
- GG-CO₂-100%
- GG-CO₂-3%-ST (stainless Steel)

**SPECIFICATIONS**

Due to ongoing research and product improvement, specifications are subject to change.

**Input Power:**

+24 VDC, 350 mA

**Detection Principle:**

(NDIR) Non-Dispersive Infrared

**Detection Method:**

Diffusion

**Gas:**

Carbon Dioxide (CO₂)

**Range:**

<table>
<thead>
<tr>
<th>0/1%</th>
<th>0/3% (standard)</th>
<th>0/5%</th>
<th>0/100%</th>
</tr>
</thead>
</table>

**Output Signal:**

Linear 4/20 mA (max input impedance: 700 Ohms)

**Linearity:**

+/- 3% of full-scale

**Repeatability:**

+/- 3% of full-scale

**Response Time:**

T50 = less than 30 seconds
T90 = less than 60 seconds

**Accuracy:**

+/- 5% of value, but dependant on calibration gas accuracy

**Zero Drift:**

Less than 1% of full-scale per month, non-cumulative

**Span Drift:**

Less than 1% of full-scale per month, non-cumulative

**Temperature Range:**

-60°F to +120°F (-51°C to +49°C)

**Humidity Range:**

5% to 100% condensing

**Wiring Connections:**

3 conductor, shielded, stranded, 20 AWG cable (General Cable C2525A or equivalent) up to 1500 ft

**Terminal Block Plugs (Field Wiring):**

12-26 AWG, torque 4 lbs-in

**Enclosure:**

Injection-molded NEMA 12 Washdown-Duty polycarbonate housing with hinged lid and captive screw. For non-classified areas. Optional 18 GA NEMA 3RX Washdown-Duty stainless steel housing with hinged lid and captive screw. For non-classified areas

**Dimensions:**

7.5” high x 6.5” wide x 3.75” deep

**Weight:**

3 lbs

**Certification:**

ETL listed to UL standard 61010-1, and CSA standard C22.2 No. 61010-1-12

**Warranty:**

2 years
**GASGUARD R**  REFRIGERANT SENSOR

**Key Features**
- R22, R134a, R404a, R507a, R422d and other refrigerant gases detected
- Gas-specific infrared sensor technology
- Industry standard linear 4-20 mA output
- Corrosion, weather, and chemical resistant sensor enclosure
- Sensor designed to adapt to any harsh environment from -50°F to +120°F
- Real-time continuous monitoring
- 0-500 ppm, 0-1000 ppm, and 0-3,000 ppm ranges available
- Self-diagnostics of sensor elements for fail-safe operation
- Meets California Air Resources Board specifications with 0-500 ppm range

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**Industrial strength refrigerant leak detector**

The GasGuard R utilizes proven infrared sensor technology for fast and accurate leak detection. With no moving parts and no cells to replace, the GasGuard R provides real-time continuous monitoring and inexpensive long-term operating costs.

The GasGuard R is refrigerant gas specific, so false alarms from floor cleaners and food off-gasing is non-existent. The output signal is not affected by EMI/RFI, or moisture.

The GasGuard R provides an industry standard linear 4/20 mA output signal compatible with most gas detection systems and PLCs. The high-quality polycarbonate enclosure offer excellent chemical corrosion protection and high impact resistance.

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**Applications**
- Refrigeration Systems
- Food Processing areas
- Perimeter Monitoring
- Bottling Plants
- Breweries
- Ice Rinks
- Supermarkets
- Rack Houses
- Compressor Rooms
- Pharmaceuticals
- Sea Vessels

**Benefits**
- Extremely long life
- Low cost of ownership
- Simple operation
- Rugged and reliable
- Versatile for any application
GasGuard R

The standard GasGuard R sensor comes equipped with a corrosion proof enclosure. With only one sensor for any application; designing, ordering, and maintaining your refrigerant monitoring system is simple. The 0-500 ppm model provides the highest accuracy and lowest leak detection ability starting at 10 ppm, to meet the California Air Resources Board specifications.

The GasGuard R is available for two different target gas classes. The R8 model operates at approximately 8 microns wavelength and detects R134a, R404a, R410a, R507a, and other HFC gases. The R9 model operates at approximately 9 microns wavelength and detects R22, R11, and other CFC/HCFC gases.

The adaptive temperature control system allows the GasGuard-R to automatically adjust to temperature fluctuations. Each circuit board is sealed forever in potting compound, protecting electronic components and copper tracing from corrosion. A specially vented chemical-resistant polycarbonate enclosure protects the sensor from accidental damage, weather, and direct hose-hits from clean-up crews.

Ordering Information

The GasGuard R is delivered calibrated and ready to install. Use the model numbers below to order.

<table>
<thead>
<tr>
<th>Order #</th>
<th>0-500 ppm</th>
<th>0-1000 ppm</th>
<th>0-3000 ppm</th>
</tr>
</thead>
<tbody>
<tr>
<td>GG-R134a-500</td>
<td>GG-R134a-1000</td>
<td>GG-R134a-3000</td>
<td></td>
</tr>
<tr>
<td>GG-R404a-500</td>
<td>GG-R404a-1000</td>
<td>GG-R404a-3000</td>
<td></td>
</tr>
<tr>
<td>GG-R410a-500</td>
<td>GG-R410a-1000</td>
<td>GG-R410a-3000</td>
<td></td>
</tr>
<tr>
<td>GG-R507a-500</td>
<td>GG-R507a-1000</td>
<td>GG-R507a-3000</td>
<td></td>
</tr>
</tbody>
</table>

Other gases available. Contact us if your target gas is not listed.

Input Power:
+24 VDC, 1A

Detection Principle:
NDIR (Non-Dispersive Infrared)

Detection Method:
Diffusion

Gases:
R8 model: R123, R125, R134a, R404a, R410a, R422d, R434a, R507a
R9 model: R11, R22, R401a, R402a
Contact us for more HFC / CFC / HCFC gases

Ranges:
0-500 ppm (standard)
0-1,000 ppm
0-3,000 ppm
Contact us for custom ranges

Output Signal:
Linear 4/20 mA (max input impedance: 700 Ohms)

Linearity:
+/- 3% of full-scale

Repeatability:
+/- 1% of full-scale

Response Time:
T50 = less than 30 seconds
T90 = less than 60 seconds

Accuracy:
+/- 2% of full-scale

Zero Drift:
Less than 1% of full-scale per month, non-cumulative

Span Drift:
Less than 1% of full-scale per month, non-cumulative

Temperature Range:
-50°F to +120°F (-45°C to +49°C)

Humidity Range:
5% to 100% condensing

Enclosure:
Injection-molded NEMA 12 Washdown-Duty polycarbonate housing with hinged lid and captive screw. For non-classified areas. Optional 18 GA NEMA 3RX Washdown-Duty stainless steel housing with hinged lid and captive screw. For non-classified areas.

Wiring Connections:
3 conductor, shielded, stranded, with drain wire. Temperatures down to -10°F (max cable run):
1000 ft: 18 AWG cable (General Cable C2535A)
1700 ft: 16 AWG cable (General Cable C2536A)
Temperatures down to -40°F (max cable run):
500 ft: 18 AWG cable (General Cable C2535A)
800 ft: 16 AWG cable (General Cable C2536A)
1300 ft: 14 AWG cable (General Cable C2538A)
Contact us for cable recommendations for other temperatures.

Terminal Block Plugs (Field Wiring):
26-12 AWG, torque 4.5 lbs-in

Dimensions:
7.5” high x 6.5” wide x 3.75” deep

Weight:
3 lbs

Certification:
ETL listed to UL standard 61010-1, and CSA standard C22.2 No. 61010-1-12

Warranty:
2 years
GASGUARD VENT LINE  REFRIGERANT SENSOR

Key Features

- Detects R22, R134a, R404a, R507a, and other CFC / HFC / HCFC gases
- Continuous monitoring of refrigeration system relief valves
- Industry standard linear 4/20 mA output
- Durable and long life solid-state sensor
- Corrosion, weather, and chemical resistant transmitter enclosure
- Sensor designed for harsh environments from -46°F to +140°F
- Sensor and preamp in one assembly - only one cable required
- 0-1% (0-10,000ppm) allows for wide range of alarm setpoints
- Ability to detect "weeping valves" to prevent refrigerant loss over time
- Innovative sensor housing allows for simple & low cost sensor replacement

From unlikely high-pressure releases to the inevitable “weepers”, the GasGuard Vent Line sensor will notify you … before your neighbors do.

The GasGuard Vent Line utilizes a rugged solid-state sensor technology for fast leak detection and long life. The standard detection range of the GasGuard Vent Line provides real-time continuous monitoring of refrigerant concentrations in your high-pressure relief vent header.

High concentrations of refrigerant gases in your vent line are usually indications of a leaking valve or system overpressure. This could mean costly repairs or plant downtime, not to mention loss of refrigerant. Early detection can save money and protect equipment and personnel.

The GasGuard Vent Line sensor provides an industry standard linear 4/20 mA output signal compatible with most gas detection systems and PLCs. Expect long sensor life and virtually zero signal drift over time. Minimum maintenance requirements include only a response check twice per year.

Applications

- Refrigeration System Vent Lines (outdoor installations only)

Benefits

- Low cost
- Rugged and reliable
- Simple sensor replacement
- Typical sensor life 5 to 7 years

Refrigeration System Vent Lines (outdoor installations only)
## GasGuard Vent Line R

The GasGuard Vent Line sensor is designed for outdoor mounting. The sensor is recommended to be mounted 3' to 5' above the roofline on the relief discharge to atmosphere. The 1/2" pipe nipple of the supplied mounting kit should be welded to the relief discharge. The innovative mounting kit with union allows for easy and low cost sensor replacement.

### Reliable & Robust

The stainless steel enclosure provides the ultimate protection against any type of weather and will stay corrosion free. Every transmitter circuit board is sealed forever in potting compound, protecting electronic components and copper tracing from corrosion. Since the solid-state sensor is designed to endure the coldest of winters and hottest of summers, the output signal is not affected by extreme temperature variations. The life of the sensor is not affected by exposure to refrigerant gases.

### Ordering Information

The GasGuard Vent Line sensor kit is delivered calibrated and ready to install. The kit includes the transmitter/sensor assembly and mounting kit. Use the model numbers below to order.

**Order #:**
- **GG-VL-R22**
- **GG-VL-R134a**
- **GG-VL-R404a**
- **GG-VL-R507a**
- **GG-VL-Rxxx-RS** (replacement sensor)

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### SPECIFICATIONS

Due to ongoing research and product improvement, specifications are subject to change

#### Input Power:
+24 VDC, 250 mA

#### Detection Principle:
Solid-state

#### Detection Method:
Diffusion

#### Gases:
R22, R134a, R404a, and R507a
Other gases available. Call for more information

#### Ranges:
0/1% (10,000 ppm)

#### Output Signal:
Linear 4/20 mA (max input impedance: 700 Ohms)

#### Linearity:
+/- 5% of full-scale

#### Repeatability:
+/- 5% of full-scale

#### Response Time:
T90 = less than 30 seconds

####Accuracy:
+/- 5% of full-scale, but dependent on calibration gas accuracy and time since last calibration

#### Zero Drift:
Less than 1% of full-scale per month, non-cumulative

#### Span Drift:
Less than 1% of full-scale per month, non-cumulative

#### Temperature Range:
-46°F to +140°F (-43°C to +60°C)

#### Humidity Range:
5% to 100% condensing

#### Wiring Connections:
3 conductor, shielded, stranded, 20 AWG cable (General Cable C2525A or equivalent) up to 1500 ft

#### Terminal Block Plugs (Field Wiring):
12-26 AWG, torque 4 lbs-in

#### Enclosure:
NEMA 4X stainless steel gasketed housing. Captive screw in hinged lid. For non-classified areas

#### Dimensions:
4.8" high x 4.72" wide x 3.35" deep

#### Weight:
5 lbs (includes mounting kit)

#### Certification:
ETL listed to UL standard 61010-1, and CSA standard C22.2 No. 61010-1-12

#### Warranty:
2 years (including replacement sensor)
The GasGuard O2-C utilizes a proven oxygen sensor with a typical life-span of 3 years. With a large capacity electrolyte reservoir for exceptional cell life, the GasGuard O2-C electrochemical cell is designed with excellent chemical durability and is not affected by pressure changes or interference gases such as carbon dioxide.

Every GasGuard O2-C sensor comes equipped with an internal temperature control designed to perform in the harshest of areas. The controlled environment provides temperature and moisture control for extended cell life. The high-quality injection-molded polycarbonate enclosure offers excellent chemical corrosion protection and high impact resistance.

The GasGuard O2-C provides an industry standard linear 4/20 mA output signal compatible with most gas detection systems and PLCs. The output signal is not affected by drastic temperature variations such as washdown and defrost cycles, and is minimally affected by barometric pressure changes.

**Applications**

- Air Quality Monitoring
- Refrigeration Systems
- Confined Space
- Tank Rooms
- Food Processing
- Breweries

**Benefits**

- Low cost of ownership
- Simple operation
- Rugged and reliable
**GASGUARD O₂ C**

**Durability and long life**

The standard GasGuard O₂-C sensor is designed to work anywhere, and at a lower base-model price than most competing models. With the rugged extended life cell, the GasGuard O₂-C sensor will give you years of trouble-free operation resulting in an extremely low cost of ownership. Typical alarm set-points include a 19.5% alarm setpoint for oxygen deficiency monitoring for personnel protection, and 23.5% for oxygen enrichment situations.

**Designed “Food Industry” tough**

From hot mechanical rooms, to acid washdowns of processing areas, the GasGuard O₂-C is prepared to survive in just about any harsh industrial condition. Every circuit board is sealed forever in potting compound, protecting electronic components and copper tracing from corrosion. A specially vented chemical-resistant polycarbonate enclosure protects the sensor from accidental damage, weather, and direct hose-hits from clean-up crews. A stainless steel enclosure is also available for applications that require it.

**Ordering Information**

The GasGuard O₂-C is delivered calibrated and ready to install. Use the model numbers below to order.

**Order #:**

- **GG-O2-C0** (0/25%) (standard)
- **GG-O2-C15** (15/25%)
- **GG-O2-C-xxx-ST** (stainless enclosure)
- **GG-O2-C-RC** (replacement cell)

**SPECIFICATIONS**

Due to ongoing research and product improvement, specifications are subject to change

<table>
<thead>
<tr>
<th>Input Power:</th>
<th>+24 VDC, 350 mA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detection Principle:</td>
<td>Electrochemical</td>
</tr>
<tr>
<td>Detection Method:</td>
<td>Diffusion</td>
</tr>
<tr>
<td>Gases:</td>
<td>Oxygen (O₂)</td>
</tr>
<tr>
<td>Ranges:</td>
<td>0/25% (volume) 15/25% (volume)</td>
</tr>
<tr>
<td>Output Signal:</td>
<td>Linear 4/20 mA (max input impedance: 700 Ohms)</td>
</tr>
<tr>
<td>Pressure Limits</td>
<td>0.5 to 1.5 Atmosphere</td>
</tr>
<tr>
<td>Linearity:</td>
<td>+/- 1% of full-scale</td>
</tr>
<tr>
<td>Repeatability:</td>
<td>+/- 1% of full-scale</td>
</tr>
<tr>
<td>Response Time:</td>
<td>T50 = less than 30 seconds T90 = less than 60 seconds</td>
</tr>
<tr>
<td>Accuracy:</td>
<td>+/- 2% of value, but dependant on calibration gas accuracy and time since last calibration</td>
</tr>
<tr>
<td>Zero Drift:</td>
<td>Less than 0.1% of full-scale per month, non-cumulative</td>
</tr>
<tr>
<td>Span Drift:</td>
<td>Application dependant, but generally less than 3% per month</td>
</tr>
<tr>
<td>Temperature Range:</td>
<td>-30°F to +125°F (-34°C to +52°C)</td>
</tr>
<tr>
<td>Humidity Range:</td>
<td>5% to 100% condensing</td>
</tr>
<tr>
<td>Wiring Connections:</td>
<td>3 conductor, shielded, stranded, 20 AWG cable (General Cable C2525A or equivalent) up to 1500 ft</td>
</tr>
<tr>
<td>Terminal Block Plugs (Field Wiring):</td>
<td>12-26 AWG, torque 4 lbs-in</td>
</tr>
<tr>
<td>Enclosure:</td>
<td>Injection-molded NEMA 12 Washdown-Duty polycarbonate housing with hinged lid and captive screw. For non-classified areas. Optional 18 GA NEMA 3RX Washdown-Duty stainless steel housing with hinged lid and captive screw. For non-classified areas</td>
</tr>
<tr>
<td>Dimensions:</td>
<td>7.5” high x 6.5” wide x 3.75” deep</td>
</tr>
<tr>
<td>Weight:</td>
<td>3 lbs</td>
</tr>
<tr>
<td>Certification:</td>
<td>ETL listed to UL standard 61010-1, and CSA standard C22.2 No. 61010-1-12</td>
</tr>
<tr>
<td>Warranty:</td>
<td>2 years (including replacement cell)</td>
</tr>
</tbody>
</table>
GasGuard CO
Carbon Monoxide Sensor

Key Features
- CO specific electrochemical sensor technology. No false alarms
- 5 years cell life average in most applications
- Industry standard linear 4/20 mA output
- Corrosion, weather, and chemical resistant polycarbonate sensor enclosure
- Intelligent-design enclosure temperature control for improved cell life
- Sensor designed to adapt to any harsh environment from -20°F to +120°F
- Accurately monitor OSHA's PEL, STEL and IDLH setpoints for
- Real-time continuous monitoring for early warning.
- Detection range of 0-200 ppm Carbon Monoxide

Long cell life. Simple operation.
Rugged enough to survive the harshest industrial environments.

The GasGuard CO utilizes proven electrochemical sensor technology for fast and accurate leak detection. The standard detection range of the GasGuard CO provides real-time continuous monitoring of carbon monoxide concentrations accurately down to 10 ppm, with no false alarms.

Each GasGuard CO sensor comes equipped with an intelligent internal temperature control designed to perform in the harshest of areas. The controlled environment provides optimum moisture control for extended cell life. The high-quality injection-molded polycarbonate enclosure offers excellent chemical corrosion protection and high impact resistance.

The GasGuard CO provides an industry standard linear 4/20 mA output signal compatible with most gas detection systems and PLCs. The output signal is not affected by drastic temperature variations such as washdowns, defrost cycles, etc. Expect an average of 5 years cell life for most applications.

Applications
- Food Processing areas
- Warehouses
- Air Quality Monitoring
- Tank Rooms
- Ventilation Ducts
- Breweries
- Parking Garages
- Modified Atmosphere Packaging
- Bottling Plants
- Chemical Manufacturing

Benefits
- Low cost
- Simple operation
- Rugged and reliable
Easy ordering

The standard GasGuard CO sensor is designed to work anywhere, and at a lower base-model price than most competing models. With only one sensor for any application; designing, ordering, and maintaining your carbon monoxide monitoring system is simple.

Designed “Food Industry” tough

Developed for chemical washdowns of processing areas, the GasGuard CO is prepared to survive in just about any harsh industrial condition. Each circuit board is sealed forever in potting compound, protecting electronic components and copper tracing from corrosion. A specially vented chemical-resistant polycarbonate enclosure protects the sensor from accidental damage, weather, and even direct hose-hits from clean-up crews.

Ordering Information

The GasGuard CO is delivered calibrated and ready to install. Use the model numbers below to order.

Order #: GG-CO-200 (standard)
GG-CO-200-ST (stainless enclosure)
GG-CO-RC (replacement cell)

SPECIFICATIONS

Due to ongoing research and product improvement, specifications are subject to change

Input Power:
+24 VDC, 350 mA

Detection Principle:
Electrochemical

Detection Method:
Diffusion

Gases:
Carbon Monoxide (CO)

Ranges:
0/200ppm (standard)
Custom ranges available. Call for more information

Output Signal:
Linear 4/20 mA (max input impedance: 700 Ohms)

Linearity:
+/- .5% of full-scale

Repeatability:
+/- 1% of full-scale

Response Time:
T50 = less than 10 seconds
T90 = less than 20 seconds

Accuracy:
+/- 5% of value, but dependent on calibration gas accuracy and time since last calibration

Zero Drift:
Less than 0.1% of full-scale per month, non-cumulative

Span Drift:
Application dependent, but generally less than 2% per month

Temperature Range:
-20°F to +120°F (-28°C to +49°C)

Humidity Range:
5% to 100% condensing

Wiring Connections:
3 conductor, shielded, stranded, 20 AWG cable (General Cable C2525A or equivalent) up to 1500 ft

Terminal Block Plugs (Field Wiring):
12-26 AWG, torque 4 lbs-in

Enclosure:
Injection-molded NEMA 12 Washdown-Duty polycarbonate housing with hinged lid and captive screw. For non-classified areas. Optional 18 GA NEMA 3RX Washdown-Duty stainless steel housing with hinged lid and captive screw. For non-classified areas

Dimensions:
7.5” high x 6.5” wide x 3.75” deep

Weight:
3 lbs

Certification:
ETL listed to UL standard 61010-1, and CSA standard C22.2 No. 61010-1-12

Warranty:
2 years (including replacement cell)
Key Features

- H2S specific electrochemical sensor technology. Absolutely no false alarms
- Industry standard linear 4/20 mA output
- Corrosion, weather, and chemical resistant polycarbonate sensor enclosure
- Intelligent-design enclosure temperature control for improved cell life
- Temperature compensated
- Sensor designed to adapt to any harsh environment from -40°F to +120°F
- Accurately monitor OSHA’s PEL, STEL, and setpoints for personnel protection
- Real-time continuous monitoring for early warning
- Detection range of 0-50ppm H2S

Long cell life. Simple operation.
Rugged enough to survive the harshest industrial environments.

The GasGuard H2S utilizes proven electrochemical sensor technology for fast and accurate leak detection. The standard detection range of the GasGuard H2S provides real-time continuous monitoring of carbon monoxide concentrations accurately down to 10 ppm, with no false alarms.

Every GasGuard H2S sensor comes equipped with an intelligent internal temperature control designed to perform in the harshest of areas. The controlled environment provides optimum moisture control for extended cell life. The high-quality injection-molded polycarbonate enclosure offers excellent chemical corrosion protection and high impact resistance.

The GasGuard H2S provides an industry standard linear 4/20 mA output signal compatible with most gas detection systems and PLCs. The output signal is not affected by drastic temperature and humidity variations during washdown. Expect an average of 4 years cell life for most applications.

Applications

- Sewer Gas Monitoring
- Paper Mills
- Petroleum Refineries
- Tanneries

Benefits

- Low cost
- Simple operation
- Rugged and reliable
Easy ordering

The standard **GasGuard H2S** sensor is designed to work anywhere, and at a lower price than most competing models. With only one sensor for any application; designing, ordering, and maintaining your hydrogen sulfide monitoring system is simple.

Developed for corrosive environments, the **GasGuard H2S** is prepared to survive in almost any harsh industrial condition. Every circuit board is sealed forever in potting compound, protecting electronic components and copper tracing from corrosion. A specially vented chemical-resistant polycarbonate enclosure protects the sensor from accidental damage, weather, and direct hose-hits from clean-up crews.

**Ordering Information**

The **GasGuard H2S** is delivered calibrated and ready to install. Use the model numbers below to order.

**Order #:**
- **GG-H2S-50** (standard)
- **GG-H2S-50-ST** (stainless enclosure)
- **GG-H2S-RC** (replacement cell)

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**SPECIFICATIONS**

Due to ongoing research and product improvement, specifications are subject to change.

**Input Power:**
+24 VDC, 350 mA

**Detection Principle:**
Electrochemical

**Detection Method:**
Diffusion

**Gases:**
Hydrogen Sulfide (H2S)

**Ranges:**
0/50 ppm

**Output Signal:**
Linear 4/20 mA (max input impedance: 700 Ohms)

**Linearity:**
+/- 0.5% of full-scale

**Repeatability:**
+/- 1% of full-scale

**Response Time:**
T50 = less than 10 seconds
T90 = less than 30 seconds

**Accuracy:**
+/- 5% of value, but dependant on calibration gas accuracy and time since last calibration

**Zero Drift:**
Less than 0.1% of full-scale per month, non-cumulative

**Span Drift:**
Application dependant, but generally less than 2% per month

**Temperature Range:**
-40°F to +120°F (-40°C to +49°C)

**Humidity Range:**
5% to 100% condensing

**Wiring Connections:**
3 conductor, shielded, stranded, 20 AWG cable (General Cable C2525A or equivalent) up to 1500 ft

**Terminal Block Plugs (Field Wiring):**
12-26 AWG, torque 4 lbs-in

**Enclosure:**
Injection-molded NEMA 12 Washdown-Duty polycarbonate housing with hinged lid and captive screw. For non-classified areas. Optional 18 GA NEMA 3RX Washdown-Duty stainless steel housing with hinged lid and captive screw. For non-classified areas

**Dimensions:**
7.5” high x 6.5” wide x 3.75” deep

**Weight:**
3 lbs

**Certification:**
ETL listed to UL standard 61010-1, and CSA standard C22.2 No. 61010-1-12

**Warranty:**
2 years (including replacement cell)
Key Features

- Hydrogen specific electrochemical sensor technology. Absolutely no false alarms
- Industry standard linear 4/20 mA output
- Corrosion, weather, and chemical resistant polycarbonate sensor enclosure
- Intelligent-design enclosure temperature control for improved cell life
- Sensor designed to adapt to any harsh environment from -40°F to +120°F
- Real-time continuous monitoring for early detection of explosive concentrations
- Detection ranges of 0-10,000 ppm (25% LEL) and 0-2,000 ppm (5% LEL) H2
- 2 year warranty

Energy savings plus prevention of explosive hydrogen gas build-up.

The perfect solution for battery room ventilation.

The GasGuard H2-EC utilizes proven electrochemical sensor technology for fast and accurate detection. The standard detection range provides real-time continuous monitoring of hydrogen concentrations accurately down to 200 ppm (0-2,000 ppm range), with no false alarms.

The intelligent internal temperature control of the GasGuard H2-EC provides optimum temperature control for extended cell life. The high-quality injection-molded polycarbonate enclosure offers excellent chemical corrosion protection and high impact resistance.

The GasGuard H2-EC provides an industry standard linear 4/20 mA output signal compatible with most gas detection systems and PLCs. The output signal is not affected by drastic temperature variations or other atmospheric conditions.

Applications

- Battery Charging Rooms
- Steel Industry
- Refineries
- Perimeter Monitoring
- Heat Treatment
- Sea Vessels

Benefits

- Simple operation
- Energy savings
- Rugged and reliable
The International Fire Code section 608.6.1 states “the ventilation system shall be designed to limit the maximum concentration of hydrogen to 1% (25%LEL) of the total volume of the room” or “continuous ventilation shall be provided at a rate of not less than 1 cfm per square foot of floor area in the room”.

When using the GasGuard H2-EC in combination with any of our GasGuardian controller line (or any other 4/20 mA input device), exhaust fan activation will prevent dangerous accumulation of explosive hydrogen gas concentrations. Since continuous ventilation in refrigerated areas can add up to huge costs, activating exhaust fans only when necessary can amount to thousands of dollars a year in energy savings for your company.

Every circuit board is sealed forever in potting compound, protecting electronic components and copper tracing from corrosion. A specially vented chemical-resistant polycarbonate enclosure protects the sensor from accidental damage, weather, and direct hose-hits from clean-up crews.

Ordering Information

The GasGuard H2-EC is delivered calibrated and ready to install. Use the model numbers below to order.

Order #: GG-H2-EC-10,000 (standard)  
GG-H2-EC-2,000  
GG-H2-EC-xxxx-ST (stainless enclosure)  
GG-H2-EC-RC (replacement cell)

SPECIFICATIONS

Due to ongoing research and product improvement, specifications are subject to change

Input Power: +24 VDC, 350 mA

Detection Principle: Electrochemical

Detection Method: Diffusion

Gases: Hydrogen (H2)

Ranges: 0/2,000 ppm (0.2% Vol (5% LEL))  
0/10,000 ppm (1.0% Vol (25% LEL))

Output Signal: Linear 4/20 mA (max input impedance: 700 Ohms)

Linearity: +/- 0.5% of full-scale

Repeatability: +/- 1% of full-scale

Response Time: T50 = less than 10 seconds  
T90 = less than 30 seconds

Accuracy: +/- 5% of value, but dependant on calibration gas accuracy and time since last calibration

Zero Drift: Less than 0.1% of full-scale per month, non-cumulative

Span Drift: Application dependant, but generally less than 3% per month

Temperature Range: -40°F to +120°F (-40°C to +49°C)

Humidity Range: 5% to 100% condensing

Wiring Connections: 3 conductor, shielded, stranded, 20 AWG cable (General Cable C2525A or equivalent) up to 1500 ft

Terminal Block Plugs (Field Wiring): 12-26 AWG, torque 4 lbs-in

Enclosure: Injection-molded NEMA 12 Washdown-Duty polycarbonate housing with hinged lid and captive screw. For non-classified areas. Optional 18 GA NEMA 3RX Washdown-Duty stainless steel housing with hinged lid and captive screw. For non-classified areas. Explosion-proof enclosure optional

Dimensions: 7.5” high x 6.5” wide x 3.75” deep

Weight: 3 lbs

Certification: ETL listed to UL standard 61010-1, and CSA standard C22.2 No. 61010-1-12

Warranty: 2 years (including replacement cell)
**GasGuard LEL**  
**Combustible Gas Sensor**

### Key Features
- Useful for activation of electrical shunt-trip, ventilation, or fuel supply shutoff
- Industry standard linear 4/20 mA output
- Calibrated for desired combustible gas 0-100% LEL (specify target gas)
- Sensing element designed for long life in harsh industrial environments
- Class I, Div 1, Groups B, C, and D explosion-proof housing
- Designed to perform in temperatures of -40°F to +150°F
- Real-time continuous monitoring

---

**Explosion prevention.**

The GasGuard LEL is the last line of defense against catastrophic failure.

---

The GasGuard LEL utilizes catalytic-bead sensor technology with a matched pair of detector elements. When combustible vapors enter the sensor, the passive bead remains unchanged while the active detector bead catalyzes the oxidation of gas, generating heat and changing its resistance. The resulting change in resistance is accurately measured across the bridge circuit.

The GasGuard LEL sensor provides an industry standard linear 4/20 mA output signal proportional to 0-100% LEL of the target gas. The transmitter is compatible with most gas detection systems and PLCs. Long sensor life with minimal span adjustment can be expected in most applications. The sensor is designed for simple calibration and is field replaceable.

---

### Applications
- Mechanical Rooms
- Boiler Rooms
- Heat Treatment
- Tank Rooms
- Refrigeration Systems
- Cold Storage
- Pulp and Paper
- Chemical Plants
- Breweries
- Refineries
- Maintenance Garages

### Benefits
- Low cost explosion protection
- Long sensor life (5 yrs typical)
- Simple operation & calibration
The **GasGuard LEL** is designed to detect and monitor potentially explosive levels of combustible gas vapors in air within the range of 0-100% LEL.

A ¾” NPT threaded conduit entrance is provided on the side of the transmitter housing for mounting and support of the **GasGuard LEL**. Long sensor life can be expected in most mechanical room applications with a typical sensor life of 5 years. Field replaceable sensor element keeps long term maintenance simple and low cost.

**Measureable gases:**
- Methane (CH4)
- Hydrogen (H2)
- Propane (C3H8)
- Butane (C4H10)
- Ethane (C2H6)
- Ethanol (C2H6O)
- Methanol (CH4O)
- Isopropyl Alcohol (C3H8O)

**Ordering Information**

The **GasGuard LEL** is delivered calibrated 0-100% LEL for your target gas and ready to install. The assembly includes sensor and transmitter mounted inside the explosion proof housing. Use the model numbers below to order.

**Order #**:
- **GG-LEL-xxxx** (specify target gas)
- **GG-LEL-RS** (replacement sensor)

---

**Input Power:**
+24 VDC, 100 mA

**Detection Principle:**
Catalytic-Bead

**Detection Method:**
Diffusion

**Gases:**
Methane, n-Butane, Ethane, Propane, Hydrogen, Methanol, Ethanol, Isopropyl Alcohol, Acetone, Benzene, Toluene, Di-ethyl Ether, n-Pentane, and n-Hexane

**Range:**
0/100% LEL

**Output Signal:**
Linear 4/20 mA (max input impedance: 700 Ohms)

**Linearity:**
+/- 0.5% of full-scale

**Repeatability:**
+/- 1% of full-scale

**Response Time:**
T50 = less than 5 seconds
T90 = less than 15 seconds

**Accuracy:**
+/- 5% of value, but dependant on calibration gas accuracy and time since last calibration

**Zero Drift:**
Less than 0.3% of full-scale per month, non-cumulative

**Span Drift:**
Application dependant, but generally less than 3% per month

**Temperature Range:**
-40°F to +150°F (-40°C to +66°C)

**Humidity Range:**
5% to 100% condensing

**Repeatability:**
+/- 1% of full-scale

**Response Time:**
T50 = less than 5 seconds
T90 = less than 15 seconds

**Accuracy:**
+/- 5% of value, but dependant on calibration gas accuracy and time since last calibration

**Zero Drift:**
Less than 0.3% of full-scale per month, non-cumulative

**Span Drift:**
Application dependant, but generally less than 3% per month

**Temperature Range:**
-40°F to +150°F (-40°C to +66°C)

**Humidity Range:**
5% to 100% condensing

---

**SPECIFICATIONS**

**Input Power:**
+24 VDC, 100 mA

**Detection Principle:**
Catalytic-Bead

**Detection Method:**
Diffusion

**Gases:**
Methane, n-Butane, Ethane, Propane, Hydrogen, Methanol, Ethanol, Isopropyl Alcohol, Acetone, Benzene, Toluene, Di-ethyl Ether, n-Pentane, and n-Hexane

**Range:**
0/100% LEL

**Output Signal:**
Linear 4/20 mA (max input impedance: 700 Ohms)

**Linearity:**
+/- 0.5% of full-scale

**Repeatability:**
+/- 1% of full-scale

**Response Time:**
T50 = less than 5 seconds
T90 = less than 15 seconds

**Accuracy:**
+/- 5% of value, but dependant on calibration gas accuracy and time since last calibration

**Zero Drift:**
Less than 0.3% of full-scale per month, non-cumulative

**Span Drift:**
Application dependant, but generally less than 3% per month

**Temperature Range:**
-40°F to +150°F (-40°C to +66°C)

**Humidity Range:**
5% to 100% condensing

**Repeatability:**
+/- 1% of full-scale

**Response Time:**
T50 = less than 5 seconds
T90 = less than 15 seconds

**Accuracy:**
+/- 5% of value, but dependant on calibration gas accuracy and time since last calibration

**Zero Drift:**
Less than 0.3% of full-scale per month, non-cumulative

**Span Drift:**
Application dependant, but generally less than 3% per month

**Temperature Range:**
-40°F to +150°F (-40°C to +66°C)

**Humidity Range:**
5% to 100% condensing

---

**Wiring Connections:**
3 conductor, shielded, stranded, 20 AWG cable (General Cable C2525A or equivalent) up to 1500 ft

**Terminal Block Plugs (Field Wiring):**
12-26 AWG, torque 4 lbs-in

**Enclosure:**
Explosion proof. Class 1, Div 1, Groups B, C, & D CSA, UL approved

**Dimensions:**
7.5” high x 6.5” wide x 3.75” deep

**Weight:**
3 lbs

**Warranty:**
2 years (including replacement cell)
GasGuard Cl₂ Chlorine Sensor

Key Features
- Chlorine specific electrochemical sensor technology. Absolutely no false alarms
- Electronics completely potted to prevent corrosion in harsh environments
- Industry standard linear 4/20 mA output
- Corrosion, weather, and chemical resistant polycarbonate sensor enclosure
- Intelligent-design enclosure temperature control for improved cell life
- Sensor designed to adapt to any harsh environment from -20°F to +120°F
- Real-time continuous monitoring for early detection of toxic concentrations
- Accurately monitor OSHA’s PEL, STEL, and IDLH setpoints
- Detection range of 0-5 ppm Cl₂

Toxic chlorine gas detection designed ‘food industry’ tough

The GasGuard Cl₂ utilizes proven electrochemical sensor technology for fast and accurate detection. The standard detection range of the GasGuard Cl₂ provides real-time continuous monitoring of chlorine concentrations accurately down to 0.5 ppm, with no false alarms.

The intelligent internal temperature control of the GasGuard Cl₂ provides optimum temperature control for extended cell life. The high-quality injection-molded polycarbonate enclosure offers excellent chemical corrosion protection and high impact resistance.

The GasGuard Cl₂ provides an industry standard linear 4/20 mA output signal compatible with most gas detection systems and PLCs. The output signal is not affected by drastic temperature variations or other atmospheric conditions.

Applications
- Process Areas
- Tank Storage
- Injection Systems
- Semiconductor
- Santizing Systems
- Air Monitoring

Benefits
- Low cost
- Simple operation
- Rugged and reliable
One sensor for any environment
= low cost & easy ordering

The standard GasGuard Cl2 sensor is designed to work anywhere, and at a lower base-model price than most competing models. With only one electrochemical sensor for any application; designing, ordering, and maintaining your chlorine detection system is simple.

Designed “Food Industry” tough

The GasGuard CI2 is prepared to survive in just about any harsh industrial condition, including acid washdown of processing areas. Every circuit board is sealed forever in potting compound, protecting electronic components and copper tracing from corrosion. A special- ly vented chemical-resistant polycarbonate enclosure protects the sensor from accidental damage, weather, and direct hose-hits from clean-up crews.

Ordering Information

The GasGuard Cl2 is delivered calibrated and ready to install. Use the model numbers below to order.

Order #: GG-CL2 (standard)
GG-CL2-ST (stainless enclosure)
GG-CL2-RC (replacement cell)

SPECIFICATIONS

Due to ongoing research and product improvement, specifications are subject to change

Input Power:
+24 VDC, 350 mA

Detection Principle:
Electrochemical

Detection Method:
Diffusion

Gases:
Chlorine (CL2)

Ranges:
0/5ppm

Output Signal:
Linear 4/20 mA (max input impedance: 700 Ohms)

Linearity:
+/- 0.5% of full-scale

Repeatability:
+/- 1% of full-scale

Response Time:
T50 = less than 60 seconds
T90 = less than 120 seconds

Accuracy:
+/- 5% of value, but dependant on calibration gas accuracy and time since last calibration

Zero Drift:
Less than 0.1% of full-scale per month, non-cumulative

Span Drift:
Application dependant, but generally less than 3% per month

Temperature Range:
-20°F to +120°F (-29°C to +49°C)

Humidity Range:
5% to 100% condensing

Wiring Connections:
3 conductor, shielded, stranded, 20 AWG cable (General Cable C2525A or equivalent) up to 1500 ft

Terminal Block Plugs (Field Wiring):
12-26 AWG, torque 4 lbs-in

Enclosure:
Injection-molded NEMA 12 Washdown-Duty polycarbonate housing with hinged lid and captive screw. For non-classified areas. Optional 18 GA NEMA 3RX Washdown-Duty stainless steel housing with hinged lid and captive screw. For non-classified areas

Dimensions:
7.5” high x 6.5” wide x 3.75” deep

Weight:
3 lbs

Warranty:
2 years (including replacement cell)
TEMPERATURE SENSOR  4-20mA RTD

Key Features

• -60°F to +160°F range (-51°C to +71°C)
• 2-wire transmitter with RTD probe
• 24VDC, industry standard linear 4-20 mA output
• Easily adapted to GasGuardian line gas detection controllers
• Great for engine room ventilation control and refrigerated areas
• Watertight enclosure designed for washdown areas and outdoors
• Long term accuracy/stability of 0.1% of span/year

Use in conjunction with GasGuard sensors for a complete engine room ventilation system package

The Temp Sensor TS2 was designed for indoor/outdoor temperature monitoring. The IP65 aluminum enclosure can withstand washdown areas and other harsh environments. A fast-acting RTD reacts quickly to temperature changes and features a very long expected life with no change in accuracy.

This sensor is used for measuring indoor air temperature. Typical applications are mechanical rooms, refrigerated rooms, etc. Installation should be about 6 ft off the floor, and not located near a cooling or heat source, or directly in front of air blowing channels.

The Temp Sensor TS2 connects to any 24Vdc, 4-20mA controller via 2-conductor cable. The weatherproof powder-coated enclosure will easily stand up to harsh environments.

Applications

• Engine Rooms
• Refrigerated areas
• Mechanical Rooms
• Sea Vessels
• Chemical Plants
• Heat Treatment

Benefits

• Easy integration
• Long-term reliability
The Temp Sensor TS2 is an easy solution for ventilation or temperature control and integrates nicely with the GasGuardian line controllers.

This simple 2-wire device mounts almost anywhere and can be installed side-by-side with gas sensors to provide temperature and gas detection monitoring points at each location.

The Temp Sensor TS2 is shipped with a factory calibration that should not require calibration for 5-10 years. Checking against a calibrated standard is recommended on an annual basis.

**Installation Information**
- Use 2 or 3-conductor, insulated, stranded, shielded copper cable.
- Do not pull sensor wiring with AC power cables. This can cause electrical interference.
- Ground the shield at the main control panel. Connect the shield wire to the sensor chassis.
- Should be easily accessible for calibration and maintenance.
- Take air movement and ventilation patterns into account.

**ORDERING INFORMATION**
The Temp Sensor TS2 is delivered ready to install. Use the model number below to order.

**Order #:** Temp Sensor TS2

---

**SPECIFICATIONS**

Due to ongoing research and product improvement, specifications are subject to change.

**Input Power:**
24 VDC, 25 mA

**Output Signal:**
Linear 4/20 mA (max input impedance: 700 Ohms)

**Linearity:**
+/- 0.1% of full-scale

**Repeatability:**
+/- 1% of full-scale

**Accuracy:**
+/- 1% of full-scale

**Zero Drift:**
Less than 0.1% of full-scale per month, non-cumulative

**Span Drift:**
Less than 0.1% of full-scale per year

**Temperature Range:**
-60°F to +160°F (-51°C to +71°C)

**Humidity Range:**
0-95% RH condensing (100% intermittent), with proper conduit seals

**Temperature Range:**
-60°F to +160°F (-51°C to +71°C)

**Humidity Range:**
0-95% RH condensing (100% intermittent), with proper conduit seals

**Wiring Connections:**
2-conductor, shielded, stranded, ≥ 20 AWG cable up to 1500 ft

**Terminal Block (Field Wiring):**
16-26 AWG, torque 4 lbs-in

**Enclosure:**
Powder-coated aluminum NEMA 4X, Captive screws in lid. For non-classified areas

**Dimensions:**
4.6” high x 3.4” wide x 1.75” deep

**Weight:**
1 lb

**Warranty:**
2 years
CALIBRATION KIT

Key Features
- One year shelf life for most certified gases
- Large stock of most popular concentrations
- Custom mixes available
- Replacement regulators and cylinders available
- Pressure gauge on all regulators
- Sensor calibration manuals included
- Custom flow rate regulators available

Calibration kit and calibration gas bottles for use with most makes and models of gas detectors

Calibration Technologies gas sensor calibration kits and replacement cylinders allow for field calibration of most fixed and portable gas detectors. The disposable certified gas cylinders are N.I.S.T. traceable. After initial purchase, replacement cylinders can be ordered at any time.

Applications
- Periodic sensor calibration requirements
- OSHA PSM compliance
- Regulatory and insurance requirements
- Safety system verification

Accessories Included
- Hard carrying case (holds two cylinders)
- 0.8 LPM regulator with pressure gauge
- Case holds (2) calibration gas bottles
- Norprene tubing and calibration cups
- Calibration manual for GasGuard sensors

Standard cylinder sizes include either 17 or 29 liters. The 17L cal kit will include a regulator (female fitting) for use with the CGA600 outlet fitting (male fitting) of the 17L cylinder. The 29L cal kit will include a regulator (male fitting) for use with the C-10 outlet fitting (female fitting) of the 29L cylinder. Each regulator is preset for 0.8 liters per minute with an easy on/off valve and includes a cylinder pressure gauge. The Calibration Kit also includes 3’ of Norprene tubing and flexible calibration cups designed to fit all GasGuard sensors, and most standard size gas cells and sensors. All kit accessories are enclosed in a durable hard carrying case with foam inserts.
## Ordering Information

### 17L Calibration Kit

<table>
<thead>
<tr>
<th>Part number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cal Kit 17L</td>
<td>Calibration Kit with regulator for 17 liter bottles, calibration cups for all GasGuard sensors, and rugged carrying case that holds two bottles (gas not included)</td>
</tr>
</tbody>
</table>

#### 17L Calibration Gas Bottles

<table>
<thead>
<tr>
<th>Part number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RB17L-NH3/25</td>
<td>25 ppm ammonia</td>
</tr>
<tr>
<td>RB17L-NH3/50</td>
<td>50 ppm ammonia</td>
</tr>
<tr>
<td>RB17L-NH3/100</td>
<td>100 ppm ammonia</td>
</tr>
<tr>
<td>RB17L-NH3/250</td>
<td>250 ppm ammonia</td>
</tr>
<tr>
<td>RB17L-NH3/500</td>
<td>500 ppm ammonia</td>
</tr>
<tr>
<td>RB17L-NH3/1000</td>
<td>1000 ppm ammonia</td>
</tr>
<tr>
<td>RB17L-NH3/1%</td>
<td>1.0% ppm ammonia</td>
</tr>
<tr>
<td>RB17L-NH3/2%</td>
<td>2.0% ppm ammonia</td>
</tr>
<tr>
<td>RB17L-ZA</td>
<td>Zero air (20.9% O2)</td>
</tr>
<tr>
<td>RB17L-CO2/1%</td>
<td>1.0% carbon dioxide</td>
</tr>
<tr>
<td>RB17L-CO2/3%</td>
<td>3.0% carbon dioxide</td>
</tr>
<tr>
<td>RB17L-CO2/5%</td>
<td>5.0% carbon dioxide</td>
</tr>
<tr>
<td>RB17L-O2/15%</td>
<td>15% oxygen</td>
</tr>
<tr>
<td>RB17L-N2</td>
<td>100% nitrogen</td>
</tr>
<tr>
<td>RB17L-CO/200</td>
<td>200 ppm carbon monoxide</td>
</tr>
<tr>
<td>RB17L-CH4/1.0%</td>
<td>1.0% methane</td>
</tr>
<tr>
<td>RB17L-CH4/2.5%</td>
<td>2.5% methane</td>
</tr>
<tr>
<td>RB17L-H2/1%</td>
<td>1.0% hydrogen (25% LEL)</td>
</tr>
<tr>
<td>RB17L-R2/22</td>
<td>500 ppm R22</td>
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<tr>
<td>RB17L-R2/22/1000</td>
<td>1000 ppm R22</td>
</tr>
<tr>
<td>RB17L-R2/22/2000</td>
<td>2000 ppm R22</td>
</tr>
<tr>
<td>RB17L-R134a/500</td>
<td>500 ppm R134a</td>
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<tr>
<td>RB17L-R134a/1000</td>
<td>1000 ppm R134a</td>
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<td>RB17L-R134a/3000</td>
<td>3000 ppm R134a</td>
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<tr>
<td>RB17L-R404a/500</td>
<td>500 ppm R404a</td>
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<td>RB17L-R404a/1000</td>
<td>1000 ppm R404a</td>
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<tr>
<td>RB17L-R404a/3000</td>
<td>3000 ppm R404a</td>
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<tr>
<td>RB17L-R507a/500</td>
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<tr>
<td>RB17L-R507a/1000</td>
<td>1000 ppm R507a</td>
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<tr>
<td>RB17L-R507a/3000</td>
<td>3000 ppm R507a</td>
</tr>
<tr>
<td>RB17L-ISOB/100</td>
<td>100 ppm Isobutylene</td>
</tr>
</tbody>
</table>

### 29L Calibration Kit

<table>
<thead>
<tr>
<th>Part number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cal Kit 29L</td>
<td>Calibration Kit with regulator for 29 liter bottles, calibration cups for all GasGuard sensors, and rugged carrying case that holds two bottles (gas not included)</td>
</tr>
</tbody>
</table>

#### 29L Calibration Gas Bottles

<table>
<thead>
<tr>
<th>Part number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RB29L-NH3/25</td>
<td>25 ppm ammonia</td>
</tr>
<tr>
<td>RB29L-NH3/50</td>
<td>50 ppm ammonia</td>
</tr>
<tr>
<td>RB29L-NH3/100</td>
<td>100 ppm ammonia</td>
</tr>
<tr>
<td>RB29L-NH3/250</td>
<td>250 ppm ammonia</td>
</tr>
<tr>
<td>RB29L-NH3/500</td>
<td>500 ppm ammonia</td>
</tr>
<tr>
<td>RB29L-NH3/1000</td>
<td>1000 ppm ammonia</td>
</tr>
<tr>
<td>RB29L-NH3/1%</td>
<td>1.0% ppm ammonia</td>
</tr>
<tr>
<td>RB29L-NH3/2%</td>
<td>2.0% ppm ammonia</td>
</tr>
<tr>
<td>RB29L-ZA</td>
<td>Zero air (20.9% O2)</td>
</tr>
<tr>
<td>RB29L-CO2/1%</td>
<td>1.0% carbon dioxide</td>
</tr>
<tr>
<td>RB29L-CO2/3%</td>
<td>3.0% carbon dioxide</td>
</tr>
<tr>
<td>RB29L-CO2/5%</td>
<td>5.0% carbon dioxide</td>
</tr>
<tr>
<td>RB29L-O2/15%</td>
<td>15% oxygen</td>
</tr>
<tr>
<td>RB29L-N2</td>
<td>100% nitrogen</td>
</tr>
<tr>
<td>RB29L-CO/200</td>
<td>200 ppm carbon monoxide</td>
</tr>
<tr>
<td>RB29L-CH4/1.0%</td>
<td>1.0% methane</td>
</tr>
<tr>
<td>RB29L-CH4/50%</td>
<td>50% methane</td>
</tr>
<tr>
<td>RB29L-CO2/1%</td>
<td>1.0% carbon dioxide</td>
</tr>
<tr>
<td>RB29L-CO2/3%</td>
<td>3.0% carbon dioxide</td>
</tr>
<tr>
<td>RB29L-CO2/5%</td>
<td>5.0% carbon dioxide</td>
</tr>
<tr>
<td>RB29L-O2/15%</td>
<td>15% oxygen</td>
</tr>
<tr>
<td>RB29L-N2</td>
<td>100% nitrogen</td>
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<tr>
<td>RB29L-CO2/1000</td>
<td>2000 ppm carbon monoxide</td>
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<tr>
<td>RB29L-R22/500</td>
<td>500 ppm R22</td>
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<tr>
<td>RB29L-R22/1000</td>
<td>1000 ppm R22</td>
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<tr>
<td>RB29L-R22/2000</td>
<td>2000 ppm R22</td>
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<tr>
<td>RB29L-R134a/500</td>
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<td>RB29L-R134a/1000</td>
<td>1000 ppm R134a</td>
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<td>RB29L-R134a/3000</td>
<td>3000 ppm R134a</td>
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<td>RB29L-R404a/500</td>
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<td>RB29L-R507a/1000</td>
<td>1000 ppm R507a</td>
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<tr>
<td>RB29L-R507a/3000</td>
<td>3000 ppm R507a</td>
</tr>
<tr>
<td>RB29L-4GAS-B</td>
<td>O2, CH4, CO, H2S (18%, 50% LEL, 100 ppm, 25 ppm)</td>
</tr>
</tbody>
</table>
Key Features

- Weatherproof design for outdoor or washdown installations
- 24 VDC operation (16-33V range)
- Separate horn and strobe circuits allow for multiple wiring configurations
- High intensity intermittent strobe flash
- Blue, amber, or red strobe lenses available
- Field selectable horn tone – continuous, temporal, or chime pattern
- Corrosion, weather, and chemical resistant enclosure for washdown areas
- Labeled for ammonia, but sticker can be removed for use with other gases

High visibility in a weather-proof package.
The perfect addition to your gas detection system.

The SHA series horn/strobe is designed to provide audible/visual signal for life safety and property protection. The SHA-24 meets or exceeds NFPA/ANSI standards and UL464/UL1638.

The horn provides either a continuous tone or a temporal pattern tone. The horn and strobe can be connected independently or in unison. The horn can be silenced while the strobe remains flashing.

The SHA series horn/strobe is housed in a durable poly enclosure, able to withstand weather and washdown environments. A weatherproof mounting backbox is included.

SPECIFICATIONS

Due to ongoing research and product improvement, specifications are subject to change

<table>
<thead>
<tr>
<th>Specification</th>
<th>SHA-24-Blue</th>
<th>SHA-24-Amber</th>
<th>SHA-24-Red</th>
<th>SHA-24-Clear</th>
</tr>
</thead>
<tbody>
<tr>
<td>STROBE INTENSITY</td>
<td>65 Candela</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOUND OUTPUT</td>
<td>99 dB @ 10 ft</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FLASH RATE</td>
<td>1 flash per second</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SUPPLY VOLTAGE</td>
<td>+24 VDC (16-33V) @ 150 mA using default settings</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OPERATING TEMPERATURE</td>
<td>-40°F to +150°F</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DIMENSIONS</td>
<td>6” X 7” X 5” (H x W x D)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENCLOSURE RATING</td>
<td>IP65 / NEMA 4X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>APPROVALS</td>
<td>UL1638</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Designated to meet or exceed ANSI/NFPA

Order #: SHA-24-Blue
SHA-24-Amber
SHA-24-Red
SHA-24-Clear
Wiring Diagram
The SHA-24 can be wired to operate the horn and strobe together or as two individual circuits.

**Figure 1**
Strobe and Horn to operate together
(with dipswitches 1 and 2 ON)

**Figure 2**
Strobe and Horn to operate independently
(with dipswitches 1 and 2 OFF)

Dipswitch Settings
The SHA-24 is shipped with default settings for 4-wire operation and optimal horn settings. The following describes the dipswitch settings.

**Horn/strobe operation:**
1 and 2 ON = Horn/strobe on 2 wires
1 and 2 OFF = Horn and Strobe on 4 wires

**Volume:**
6 ON = High
6 OFF = Low

Tone Settings

<table>
<thead>
<tr>
<th>Tone</th>
<th>Switch Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mechanical Temporal 3</td>
<td>ON ON ON</td>
</tr>
<tr>
<td>Mechanical Continuous</td>
<td>OFF ON ON</td>
</tr>
<tr>
<td>2400 Hz - Temporal 3</td>
<td>ON OFF ON</td>
</tr>
<tr>
<td>2400 Hz 0 Continuous</td>
<td>ON ON OFF</td>
</tr>
<tr>
<td>Chime - Terminal 3</td>
<td>OFF ON OFF</td>
</tr>
<tr>
<td>Chime - Continuous</td>
<td>OFF ON OFF</td>
</tr>
<tr>
<td>Whoop</td>
<td>ON OFF OFF</td>
</tr>
<tr>
<td>Whoop</td>
<td>OFF OFF OFF</td>
</tr>
</tbody>
</table>

*100 dB based on anechoic rating using default switch settings as shown. Anechoic dBA is measured on axis in a non-reflective (free field) test room using fast meter peak response. Reverberant dBA is a minimum UL rating based on sound power measurements in a reverberant test room.
**HORN / STROBE**

**SHA-120**

---

**Key Features**
- 120 VAC, two-wire connection
- Horn and strobe activate together
- Blue, amber, red, or green strobe lens covers available
- Field selectable horn tone – continuous or temporal pattern
- Field selectable candela settings – low to high intensity flash
- Corrosion, weather, and chemical resistant enclosure for washdown areas
- Weatherproof backbox included for outdoor installation
- -40°F to 150°F, NEMA 4X
- Labeled for ammonia, but sticker can be removed for use with other gases

---

**High visibility in a weather-proof package.**

The perfect addition to your toxic gas alert system.

---

The SHA-120 series horn/strobe is designed to provide audible/visual signal for life safety and property protection. The SHA-120 meets or exceeds NFPA/ANSI standards and UL464/UL1638.

The horn provides either a continuous tone or a temporal pattern tone, with a 3-position volume switch. A slide switch allows for several candela settings from low to high intensity.

The SHA-120 series horn/strobe is housed in a durable poly enclosure, able to withstand weather and washdown environments. A 120VAC adaptor plate and weather-proof mounting backbox is included.

---

**SPECIFICATIONS**

Due to ongoing research and product improvement, specifications are subject to change

**STROBE INTENSITY:** 15 to 185 Candela

**SOUND OUTPUT:** 99 dB @ 10 ft

**FLASH RATE:** 1 flash per second

**SUPPLY VOLTAGE:** 120VAC, 150 mA max

**OPERATING TEMPERATURE:** -40°F to +150°F

**DIMENSIONS:** 6” X 7” X 5” (H x W x D)

**APPROVALS:** UL listed

Designed to meet or exceed ANSI/NFPA standards and ADA accessibility guideline

---

**Configurations**

All units labeled “Ammonia” unless otherwise specified.

**Order #:**
- SHA-120-Blue
- SHA-120-Amber
- SHA-120-Red
- SHA-120-Green
- SHA-120-Clear
**HORN / STROBE**

### Wiring Diagram

#### Multiple Devices
- Black/hot from 120V horn/strobe relay terminal
- White/neutral

#### Single Device
- Black/hot from 120V horn/strobe relay terminal
- White/neutral

### Components / Assembly

### Dimensions
- **4.7”**
- **5.6”**
- **4.5”**

### Horn Tones

<table>
<thead>
<tr>
<th>Switch Position</th>
<th>Sound Pattern</th>
<th>dB Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>*1</td>
<td>Temporal</td>
<td>High</td>
</tr>
<tr>
<td>2</td>
<td>Temporal</td>
<td>Medium</td>
</tr>
<tr>
<td>3</td>
<td>Temporal</td>
<td>Low</td>
</tr>
<tr>
<td>4</td>
<td>Non-Temporal</td>
<td>High</td>
</tr>
<tr>
<td>5</td>
<td>Non-Temporal</td>
<td>Medium</td>
</tr>
<tr>
<td>6</td>
<td>Non-Temporal</td>
<td>Low</td>
</tr>
<tr>
<td>7</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>

### Candela Rating

<table>
<thead>
<tr>
<th>Strobe Output (cd)</th>
<th>*15</th>
</tr>
</thead>
<tbody>
<tr>
<td>15/75</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td></td>
</tr>
<tr>
<td>75</td>
<td></td>
</tr>
<tr>
<td>95</td>
<td></td>
</tr>
<tr>
<td>110</td>
<td></td>
</tr>
<tr>
<td>115</td>
<td></td>
</tr>
<tr>
<td>135</td>
<td></td>
</tr>
<tr>
<td>150</td>
<td></td>
</tr>
<tr>
<td>177</td>
<td></td>
</tr>
<tr>
<td>185</td>
<td></td>
</tr>
</tbody>
</table>

*indicates default settings
Stacklight

Key Features

- 24VDC with low power consumption (120VAC available upon request)
- LEDs provide 50,000 hours working life for zero maintenance
- Flashing colored light modules display at-a-glance alarm status
- User selectable horn tone – continuous or temporal pattern
- Fluted light modules allow for easy viewing even in sunlight
- Separate horn and light circuits allow for multiple wiring configurations
- Corrosion, weather, and washdown area safe
- Custom configurations available

At-a-glance information for the ultimate in personnel protection.
A must-have for any toxic gas alert system.

The Omni-directional LED lights and horn provide vital life-safety information to protect your personnel. The differentiated colors also provide crucial indications as to the severity of the leak situation.

Housed in durable polycarbonate modules, the bright LEDs provide over 50,000 work hours of maintenance free life. The 100dB horn comes standard and has selectable settings for continuous tone or a temporal pattern tone.

The Stack Light casing has a sealant rating of IP55 (total ingress protection from dust and water spray from any direction). The two mounting adaptors allow easy panel mount or ½” EMT conduit mount installation.

SPECIFICATIONS

Due to ongoing research and product improvement, specifications are subject to change

OPERATING TEMPERATURE: -10°F to 125°F
SOUND OUTPUT: 100 dB @ 10 ft
SOUND FREQUENCY: 2500 to 2900 Hz (temporal or steady)
FLASH TYPE: Flashing (84 fpm) (Green LED module is non-flashing)
POWER: +24 VDC, (40 mA max each LED module; 180 mA buzzer)
MATERIAL: polycarbonate
PROTECTION DEGREE: IP 64
UL LISTED

Configurations

Order #: SL-24-F-R-B (red module)
SL-24-F-AR-B (amber and red modules)
SL-24-F-GAR-B (green, amber, and red modules)
SL-24-F-BWAR-B (blue, white, amber, and red modules)
SL-24-F-BGAR-B (blue, green, amber, and red modules)
SL-24-F-GWAR-B (green, white, amber, and red modules)
Stacklight

The audible LED stack lights are designed for visual and audible signaling in order to display the real-time status of the gas detection system. Up to 7 modules can be combined into one stacklight assembly.

Below is an example configuration:

**Green Light On** (optional)
Steady on. No leaks detected. Gas concentration is below the low alarm level. Workplace assumed safe for personnel. Turns off upon alarm.

**Amber Light Flashing**
Low alarm level reached. Gas concentration may require limited time allowable for personnel. Emergency ventilation if possible.

**Red Light Flashing**
High alarm level reached. Gas concentration dangerous. Evacuation and equipment shutdown may be required.

**Audible Alarm**
High alarm level reached. Gas concentration dangerous. Evacuation and equipment shutdown may be required.

**Audible Alarm**
High alarm audio signaling buzzer temporal or steady

**LED Module**
High-alarm visual indicator, red Flashing

**LED Module**
Low-alarm visual indicator, amber Flashing

**LED Module**
System normal visual indicator, green Steady

**Wiring Module**
Contains screw terminals and wiring

**Mounting Adaptors Included**
7/8" threaded male adaptor for panel mount and ½" EMT conduit compression fitting included.

Wiring Module
“C” terminal is Common to all connected modules.
Numbers 1 through 7 refer to the modules, from the base to the top.

C = Common (power supply ground)
1 = +24VDC for first module
2 = +24VDC for second module
3 = +24VDC for third module
4 = +24VDC for fourth module
5 = +24VDC for fifth module
6 = +24VDC for sixth module
7 = +24VDC for seventh module

90 degree mount available upon request
SHA-PAX High Output Horn/Strobe

Key Features

- IP66 Weatherproof design for outdoor or washdown installations
- Available for 120VAC or 24VDC
- 110 dB horn
- Separate horn and strobe circuits allow for multiple wiring configurations
- High intensity intermittent Xenon strobe flash
- Blue, amber, and red strobe lenses available
- 80 Field selectable tones - with 4 inputs to control 4 different tones
- 360˚ visible field for strobe
- Labeled for ammonia, custom labels available upon request
- 2 year warranty

High output horn with strobe in a weatherproof package.

The SHA-PAX horn/strobe is designed to provide audible/visual signal for life safety and property protection. The SHA-PAX is available in both 120VAC and 24VDC versions, and is listed with UL, cUL, and CE.

The SHA-PAX features a 110dB horn, and can be wired with the horn and strobe operating simultaneously, or independently of each other. There are 80 field selectable tones for the horn, and the strobe is visible from 360˚.

The SHA-PAX is housed in a UV resistant Polycarbonate/ABS enclosure, able to withstand weather and washdown environments from -40°F to 130°F.

SPECIFICATIONS

Due to ongoing research and product improvement, specifications are subject to change

OPERATING TEMPERATURE: -40°F to 130°F
SOUND OUTPUT: 110 dB
FLASH RATE: 1 flash per second (1 Hz)
FLASH ENERGY: 10 Joules
POWER: 24 VDC or 120 VAC (specify)
MATERIAL: UV resistant Polycarbonate/ABS
PROTECTION DEGREE: IP 66
CURRENT DRAW: 1040 mA @ 24VDC / 450 mA @120 VAC
DIMENSIONS: 10.6” x 8.4” x 6.1”
LISTING: UL, cUL, CE

Order #:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(110dB</td>
<td>120VAC</td>
<td>Blue)</td>
</tr>
<tr>
<td>SHA-PAX-110-24-Blue</td>
<td>SHA-PAX-110-24-Red</td>
<td>SHA-PAX-110-24-Amber</td>
</tr>
<tr>
<td>(110dB</td>
<td>24VDC</td>
<td>Blue)</td>
</tr>
</tbody>
</table>

All units labeled “Ammonia” unless otherwise specified.
Horn/Strobe

Terminal for operating voltage - Sounder-beacon combination:

Figure 1
Strobe and horn operate together (default setting)

Figure 2
Strobe and horn operate independently

Hole pattern inside of housing
Key Features
- 40 mm push/pull latching mushroom pushbutton switch
- Tamper-proof clear switch cover
- IP66/NEMA 4 weatherproof design for outdoors or washdown environments
- 120 VAC or 24 VDC
- 1.5 Amp normally open and normally closed contacts
- Circuit board with terminal block for wire landings
- Mounting flanges for wall mounting
- Solution for compressor room E-stop / E-vent applications
- 2 year warranty

Indoor / Outdoor compressor room pushbutton switches

Emergency pushbutton switches are an important part of any control system. They are ideal for protecting personnel and property, allowing the user to press the buttons for emergency stop / ventilation control, in addition to triggering the relays through the gas detection system.

The E-Stop and E-Vent switches can be used with 24 VDC or 120 VAC, and have two sets of 1.5A contacts (one set of NO, and one set of NC). The Tamperproof flip-cover meets most new codes, including IIAR-2 2014.

The switches are housed in a durable NEMA 4 polycarbonate enclosure, able to withstand weather and washdown environments for indoor or outdoor mounting applications. A terminal block for wire landings, and mounting flanges are also included for easy installation.

SPECIFICATIONS
Due to ongoing research and product improvement, specifications are subject to change

CONTACTS RATING: 1.5A, 120VAC or 24VDC
ENCLOSURE: Polycarbonate, NEMA 4
OPERATING TEMPERATURE: -40°F to +150°F
MOUNTING PLATE: Anodized aluminum
CONTACTS: 1NO + 1NC
ACTUATOR: Pull to release, mushroom 40 mm
MECHANICAL DURABILITY: 500,000 cycles
ILLUMINATION: Non-Illuminated
DIMENSIONS: 5.1” high x 4.2” wide x 4” deep
LISTING: UL, CE

Configurations
- All pushbutton switches are pre-installed and wired in their enclosures
- Order #: SB-ES1 Emergency Stop pushbutton switch, tamperproof flip-cover, NEMA 4 enclosure
- SB-EV1 Emergency Ventilation pushbutton switchbox, tamperproof flip-cover, NEMA 4 enclosure
ANSI / IIAR 2-2014:

6.12 Emergency Control Switches

6.12.1 Emergency Stop Switch. A clearly identified emergency shut-off switch with a tamper-resistant cover shall be located outside and adjacent to the designated principal machinery room door. The switch shall provide off-only control of refrigerant compressors, refrigerant pumps, and normally closed automatic refrigerant valves located in the machinery room. The function of the switch shall be clearly marked by signage near the controls.

6.12.2 Emergency Ventilation Control Switch. A clearly identified control switch for emergency ventilation with a tamper-resistant cover shall be located outside the machinery room and adjacent to the designated principal machinery room door. The switch shall provide “ON/AUTO” override capability for emergency ventilation. The function of the switch shall be clearly marked by signage near the controls.

Wiring Diagram

Circuit board wiring terminal

+24 and GND terminals not used.

Use appropriate cable rated for required voltage
Key Features

- Stainless steel 22 mm momentary pushbutton switch
- LED ring backlit for higher visibility
- IP66/NEMA 4 weatherproof design for outdoors or washdown environments
- 24 VDC rated (provided by GasGuardian-6 control panel)
- 1.5 Amp normally open and normally closed contacts
- Circuit board with terminal block for wire landings
- Mounting flanges for wall mounting
- Solution for compressor room ventilation remote reset application
- 2 year warranty

GasGuardian-6 compressor room remote reset switch

The Remote Reset switch allows the GasGuardian-6 control panel to be located outside of the compressor room with the reset switch located inside the compressor room for easy access.

The reset switch is connected to the GasGuardian-6 controller via three wires and has wire terminals on the circuit board for optional switch lighting.

Reset switch housed in a durable polycarbonate enclosure, able to withstand weather and washdown environments for indoor or outdoor mounting applications. A terminal block for wire landings, and mounting flanges are also included for easy installation.

SPECIFICATIONS

Due to ongoing research and product improvement, specifications are subject to change

ENCLOSURE: Polycarbonate, NEMA 4
OPERATING TEMPERATURE: -40°F to +150°F
MOUNTING PLATE: Anodized aluminum
CONTACTS: 1NO
ACTUATOR: Momentary
MECHANICAL DURABILITY: 300,000 cycles
ILLUMINATION: Non-Illuminated
CURRENT RATING: 1.5A (24VDC)
DIMENSIONS: 5.1” high x 4.2” wide x 4” deep

Configurations

All pushbutton switches are pre-installed and wired in their enclosures

Order #: SB-R1 GasGuardian-6 Reset pushbutton switchbox, LED, momentary, NEMA 4 enclosure
ANSI / IIAR 2-2014:
6.13 Ammonia Detection and Alarm
6.13.2.3 Detection of ammonia concentrations equal to or exceeding 150 ppm (1/2 IDLH) shall activate visual indicators and an audible alarm and shall activate emergency ventilation, where required, in accordance with Section 6.14.7. Once activated, emergency ventilation shall continue to operate until manually reset by a switch located in the machinery room.

Wiring Diagram

Remote Reset Switch

NO-2 terminal is connected to +24 VDC on the backside of the circuit board.
Use 20 AWG 3-conductor cable (ground required for LED ring backlight.)

GG-6 power supply

Backside of GG-6 operator interface
The Relay Module is an economical solution to adding a fail-safe relay output to any 4-20 mA device. It can be directly mounted and wired to any GasGuard sensor to provide equipment shutdown such as rooftop AHU’s, solenoid valves, etc. The relay module can also be used with a horn strobe to provide audio visual notification at the sensor location.

The 4-20 mA analog signal feeds through the relay module to maintain the existing function of the gas sensor or output device. The alarm setpoint is adjusted via rotary switches in 1% of increments for varying alarm setpoints between 1-99% of full scale. The relay will trip once the signal reaches the setpoint on the relay module.

The circuit board of the Relay Module is potted inside the conduit body to completely prevent corrosion due to water or moisture, and is able to withstand harsh weather and washdown environments. This allows the relay module to be used in any environment you place your GasGuard detector. A 10” 3-wire pigtail is built in for easy wiring to the gas detector.

**SPECIFICATIONS**

- **POWER REQUIREMENTS:** 24VDC, 20mA (plus 1A max current draw of attached device)
- **ANALOG INPUT IMPEDENCE:** 10 Ohms
- **RELAY:** (1) SPDT relay, Form C contacts, 8A @ 24VDC, 8A @ 120VAC, normally energized, non latching, Status LED shows relay state
- **RELAY TIME DELAY:** 2 second on, 10 seconds off
- **FAIL SAFE FUNCTION:** Sensor fault (0.5 mA) or loss of power will de-energize the relay
- **FAULT SETPOINT:** 1 mA
- **ALARM DIRECTION:** Upscale only
- **ENCLOSURE:** Powder coated aluminum, LR conduit body
- **OPERATING TEMPERATURE:** -40°F to +122°F
- **OPERATING HUMIDITY:** 0-100% RH, condensing
- **WARRANTY:** 2 years

**Order #:** RM420-LR  Relay Module 4-20mA, LR Configuration

Due to ongoing research and product improvement, specifications are subject to change.
Relay Module

The Relay Module can be used as a stand-alone device or feed-through, either terminating the 4-20mA signal, or passing it through to a controller input.

Precise alarm setpoints in 1% of full-scale increments are achieved using the two rotary switches. For example, setting the switches to positions 2 and 5 (from left to right), equates to 25% of full-scale (or 8 mA). The relay will trip once the signal reaches the setpoint. The fail-safe design also de-energizes the relay upon loss of power or sensor fault.

To test the relay, turn both rotary switches to 0. This will instantaneously de-energize the relay and allow verification of the relay output. To clear the relay, adjust the switches back to their intended alarm positions.

1" NPT female threaded inlet with 1/2" NPT insert
Terminal block for SPDT relay connection (Form C contacts)
8A relay (24VDC or 120VAC)
Alarm setpoint rotary switches for easy adjustment (1-99% full-scale)
Sensor cable terminal block (to controller)
1/2" NPT conduit nipple and nut
10" 3-wire pigtail to sensor (included)

Wiring Diagram

*Place 1/4 Watt 100Ω terminating resistor between signal and ground

**Figure 1**
Feed-through configuration

**Figure 2**
Stand-alone configuration
**NH₃ RESPONDER  AMMONIA LEAK DETECTOR**

### Key Features
- Smaller and 50% lighter than competitive instruments
- Water-resistant design in an integral concussion-proof enclosure
- Large LCD allows for easy-to-read monitoring
- Integral motorized pump for remote sampling and fast response
- AA battery powered for easy replacement (rechargeables available)
- 95 dB alarm tone, bright LED alarm bars, & internal vibrating alarm
- Auto backlight activates in low light & when in alarm
- Four alarm levels: instantaneous Low Alarm, High Alarm, TWA, and STEL
- Records TWA, STEL, and max gas exposures (displays readings on command)
- Datalogger with programmable sampling intervals
- Full function self-test of sensor, battery, circuit integrity, and audible/visual alarms

With full-range detection from 0 ppm to 100% LEL, it’s the only portable ammonia detector you’ll ever need.

The NH3 Responder utilizes two sensor technologies to cover the ranges of interest in an ammonia response operation. The low-level sensor PID sensor detects ammonia concentration readings within the range of 0-1,000 ppm for the 35 ppm PEL and 300 ppm IDLH decision making points. At concentrations over 3,000 ppm, the PID sensor will display “OL” and the LEL sensor takes over, giving you 2-100% LEL readings for the explosive-levels decision making range. Most response trainers are recommending leaving the area at 10%LEL. Additionally, the PID sensor has an extremely fast response time and is useful for finding small ammonia leaks. Think of it as an “electronic sulfur stick.” Refrigeration technicians will find this a useful tool for locating difficult-to-find leaks by “sniffing” around valve packing, sight glasses, shaft seals, etc.

### Applications
- Compressor Rooms
- Tank Rooms
- Vent Lines
- Air Monitoring
- Sea Vessels
- Food Processing
- Chemical Plants
- Refrigeration Systems
- Emergency Response

### Accessories Included
- Integral Motorized Pump
- Sampling Wand
- Sampling Tube
- AA Alkaline Battery Pack
- Hand Carrying Case
- User Manual
Equipped with one of the largest LCD’s on the market, the NH3 Responder is still smaller and lighter than competitors’ models. The special low-temp LCD is designed to stay readable at temperatures down to -10 °F, so looking for leaks in freezers no longer requires many short-term sessions or “insulating” the instrument.

The NH3 Responder comes equipped with an integral motorized pump. Audible, visual and vibrator alarms activate in the event of a low, high, TWA or STEL alarm condition. Other standard features include automatic calibration, datalogger, full function self-test, user selectable confidence beep, stealth mode, backlight options, selectable ppm resolution, STEL / TWA measurement choice, combustible correction factor options, user-settable calibration gas concentrations, and multi-language support.

AA alkaline or hot-swappable battery pack options allow for battery installation in the field.

Ordering Information

The NH3 Responder is delivered ready for use with PID and LEL sensors, integral motorized pump, AA alkaline battery set, spare AA battery set, sampling wand and hose (3 ft), stainless steel alligator belt clip, instructions, and a rugged hard-shell carrying case.

Order #: NH3 Responder
M5-RBC (rechargeable battery and charging cradle)
BW-M5-PID-RS (replacement PID sensor)
BW-M5-ES (replacement Electrode Stack)
BW-GA-LEL-RS (replacement LEL sensor)

SPECIFICATIONS

Due to ongoing research and product improvement, specifications are subject to change

Battery:
10 hours runtime on three AA alkaline cells
8 hours on rechargeable lithium polymer battery (run-time dependent on backlight usage)

Pump:
Integral motorized rotary pump. Tubing length up to 100 ft. / 30 m (50 ft. / 15 m standard) with user options

Sensors:
Plug-in, PID (VOC) 10.6 eV lamp; catalytic (LEL)

Ranges:
PID (0/10,000 ppm); LEL (2/100% LEL or 3,000/150,000 ppm)

Calibration Due Date:
Days remaining until next calibration displayed on start-up

LCD:
Continuous, alphanumeric gas readout and status display advises

Tests:
Full function self-test, sensor integrity, circuitry, battery and audible/visual alarms on activation

Alarm Indicators:
Clearly advises alarm conditions with audible, visual, and internal vibrator alarms

Visual alarms: Two flashing alarm bars visible from all angles. LCD indicates gas present and alarm levels encountered

Audible alarm: Typically 95 dB at 1 ft. / 30 cm variable pulsed audible alarm

Vibrator alarm: Pulses warning in gas alarm conditions, or for any status alarms

Status alarms: Low battery, over range, multiple gas, pump and failed or missing sensor

Alarm Levels:
Instantaneous Low Alarm; Instantaneous High Alarm; TWA (time-weighted average) and STEL (short-term exposure limit)

Alarm setpoints: Displayed on activation and on demand

Calibration Schedule:
6-month intervals

Enclosure:
Rugged, composite material; two-shot molded polymer case with integral anti-shock boot. Highly water resistant and dust proof

Humidity:
0 - 95% RH (non-condensing)

Dimensions:
5.7 x 2.9 x 1.5 in

Weight:
13.1 oz

Gas concentration:
Simultaneously and continuously displays gas concentration(s) for all sensors (in ppm or % LEL). Peak (max)/STEL/TWA ppm or %; Records exposes and displays on demand

User field options:
Confidence beep, set STEL period, force calibration on start-up, enable / disable sensor, pass code protection, latching alarms, span level, passed calibration user-lockout option, “SAFE” display function, stealth mode, fast pump, alarm only backlight mode, LCD language option, STEL calculation choice, TWA calculation choice, PID / combustible correction factor options, and user-settable calibration gas level

Warranty:
1 year (including sensors)
**CO₂ RESPONDER**  
**CARBON DIOXIDE LEAK DETECTOR**

**Key Features**
- Smaller and 50% lighter than competitive instruments
- Water-resistant design in an integral concussion-proof enclosure
- Large LCD allows for easy-to-read monitoring
- Integral motorized pump for remote sampling and fast response
- AA battery powered for easy replacement (rechargeables available)
- 95 dB alarm tone, bright LED alarm bars, & internal vibrating alarm
- Auto backlight activates in low light & when in alarm
- Four alarm levels: instantaneous Low Alarm, High Alarm, TWA, and STEL
- Records TWA, STEL, and max gas exposures (displays readings on command)
- Datalogger with programmable sampling intervals
- Full function self-test of sensor, battery, circuit integrity, and audible/visual alarms

**Industrial strength CO₂ detection from 0 to 50,000 ppm.**  
**Infrared. Lightweight. Reliable.**

The CO₂ Responder utilizes infrared sensor technology for accurate and reliable performance. The highly selective infrared sensor guarantees only CO₂ gas is detected with no chance of false readings from interference gases.

The compact and lightweight CO₂ Responder comes loaded with features. Auto-backlit LCD, four alarm levels and max exposure levels to name a few. The display is user configurable to display CO₂ readings in either PPM or %.

With its motorized integral sampling pump, response times are extremely fast. The CO₂ Responder can be a useful tool for indoor air quality monitoring and CO₂ leak detection for quickly determining dangerous levels of CO₂.

**Applications**
- Food Processing
- Wineries
- Breweries
- Bottling Plants
- Greenhouses
- Indoor Air Quality
- Industrial Hygiene
- Refrigeration Systems
- Produce Storage

**Accessories Included**
- Integral Motorized Pump
- Sampling Wand
- Sampling Tube
- AA Alkaline Battery Pack
- Hand Carrying Case
- User Manual
**SPECIFICATIONS**

Due to ongoing research and product improvement, specifications are subject to change.

<table>
<thead>
<tr>
<th>Battery:</th>
<th>10 hours runtime on three AA alkaline cells (run-time dependent on backlight usage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pump:</td>
<td>Integral motorized rotary pump. Tubing length up to 100 ft. / 30 m (50 ft. / 15 m standard) with user options</td>
</tr>
<tr>
<td>Sensors:</td>
<td>Plug-in, IR (infrared) Carbon Dioxide</td>
</tr>
<tr>
<td>Range:</td>
<td>(0-5%) (0-50,000 ppm)</td>
</tr>
<tr>
<td>Calibration Due Date:</td>
<td>Days remaining until next calibration displayed on start-up</td>
</tr>
<tr>
<td>LCD:</td>
<td>Continuous, alphanumeric gas readout and status display advises</td>
</tr>
<tr>
<td>Tests:</td>
<td>Full function self-test, sensor integrity, circuitry, battery and audible/visual alarms on activation</td>
</tr>
<tr>
<td>Alarm Indicators:</td>
<td>Clearly advises alarm conditions with audible, visual, and internal vibrator alarms</td>
</tr>
<tr>
<td>Visual alarms:</td>
<td>Two flashing alarm bars visible from all angles. LCD indicates gas present and alarm levels encountered</td>
</tr>
<tr>
<td>Audible alarm:</td>
<td>Typically 95 dB at 1 ft. / 30 cm variable pulsed audible alarm</td>
</tr>
<tr>
<td>Vibrator alarm:</td>
<td>Pulses warning in gas alarm conditions, or for any status alarms</td>
</tr>
<tr>
<td>Status alarms:</td>
<td>Low battery, over range, multiple gas, pump and failed or missing sensor</td>
</tr>
<tr>
<td>Alarm Levels:</td>
<td>Instantaneous Low Alarm; Instantaneous High Alarm; TWA (time-weighted average) and STEL (short-term exposure limit)</td>
</tr>
<tr>
<td>Alarm setpoints:</td>
<td>Displayed on activation and on demand</td>
</tr>
<tr>
<td>Calibration Schedule:</td>
<td>6-month intervals</td>
</tr>
<tr>
<td>Enclosure:</td>
<td>Rugged, composite material; two-shot molded polymer case with integral anti-shock boot. Highly water resistant and dust proof</td>
</tr>
<tr>
<td>Humidity:</td>
<td>0 - 95% RH (non-condensing)</td>
</tr>
<tr>
<td>Dimensions:</td>
<td>5.7 x 2.9 x 1.5 in</td>
</tr>
<tr>
<td>Weight:</td>
<td>13.1 oz</td>
</tr>
<tr>
<td>Gas concentration:</td>
<td>Simultaneously and continuously displays gas concentration(s) for all sensors (in ppm or % LEL). Peak (max)/STEL/TWA ppm or %: Records exposures and displays on demand</td>
</tr>
<tr>
<td>User field options:</td>
<td>Confidence beep, set STEL period, force calibration on start-up, enable / disable sensor, pass code protection, latching alarms, span level, passed calibration user-lockout option, “SAFE” display function, stealth mode, fast pump, alarm only backlight mode, LCD language option, STEL calculation choice, TWA calculation choice, PID / combustible correction factor options, and user-settable calibration gas level</td>
</tr>
<tr>
<td>Warranty:</td>
<td>1 year (including sensors)</td>
</tr>
</tbody>
</table>

**Ordering Information**

The CO2 Responder is delivered ready for use with IR (infrared) sensors, integral motorized pump, AA alkaline battery set, spare AA battery set, sampling wand and hose (3 ft), stainless steel alligator belt clip, instructions, and a rugged hard-shell carrying case.

Order #: **CO2 Responder**
- M5-RBC (rechargeable battery and charging cradle)
- BW-M5-CO2-RS (replacement IR sensor)

**CO2 RESPONDER**

Equipped with one of the largest LCD’s on the market, the CO2 Responder is still smaller and lighter than competitors’ models.

The CO2 Responder comes equipped with an integral motorized pump. Audible, visual and vibrator alarms activate in the event of a low, high, TWA, or STEL alarm condition. Other standard features include automatic calibration, full function self-test, user selectable confidence beep, stealth mode, backlight options, selectable ppm resolution, STEL / TWA measurement choice, user-settable calibration gas concentrations, and multi-language support.
4-Gas Responder

Key Features

- Smaller and 50% lighter than competitive instruments
- Water-resistant design in an integral concussion-proof enclosure
- Large LCD allows for easy-to-read monitoring
- Integral motorized pump for remote sampling and fast response
- AA battery powered for easy replacement (rechargeables available)
- 95 dB alarm tone, bright LED alarm bars, & internal vibrating alarm
- Auto backlight activates in low light & when in alarm
- Four alarm levels: instantaneous Low Alarm, High Alarm, TWA, and STEL
- Records TWA, STEL, and max gas exposures (displays readings on command)
- Datalogger with programmable sampling intervals
- Full function self-test of sensor, battery, circuit integrity, and audible/visual alarms

An essential tool for all confined space entry. Simultaneously monitors up to five gases to keep you safe.

The 4Gas-Responder utilizes four sensors for monitoring and detection of carbon monoxide (CO), hydrogen sulfide (H2S), oxygen (O2), and combustible gases (LEL). The sensors can be custom selected with a maximum of 5 gases per unit.

With preset and user adjustable alarm setpoints, dangerous gas levels are instantly made aware by audible and visual alarms, as well as vibration; ensuring that personnel are aware of potential hazards

Additionally, the 4Gas-Responder can accommodate a fifth sensor for custom monitoring: SO2, PH3, NO2, HCN, CI2, CI02, O3, & NH3. The integral pump provides personnel the ability to draw a sample from the space prior to entry.

Applications

- Compressor Rooms
- Tank Rooms
- Vent Lines
- Air Monitoring
- Sea Vessels
- Food Processing
- Chemical Plants
- Refrigeration Systems
- Emergency Response

Accessories Included

- Integral Motorized Pump
- Sampling Wand
- Sampling Tube
- AA Alkaline Battery Pack
- Hand Carrying Case
- User Manual
The **4-Gas Responder** has one of the largest LCD's on the market, and comes equipped with an integral motorized pump.

Audible, visual and vibrator alarms activate in the event of a low, high, TWA, or STEL alarm condition. Other standard features include automatic calibration, datalogger, full function self-test, user-selectable confidence beep, stealth mode, backlight options, selectable ppm resolution, STEL / TWA measurement choice, combustible correction factor options, user-settable calibration gas concentrations, and multi-language support.

### Ordering Information

The **4-Gas Responder** is delivered ready for use with CO, H2S, O2, & LEL sensors, integral motorized pump, AA alkaline battery set, spare AA battery set, sampling wand and hose (3 ft), stainless steel alligator belt clip, instructions, and a rugged hard-shell carrying case.

Order #: **4-Gas Responder**
- M5-RBC (rechargeable battery and charging cradle)
- BW-GA-TwinTox-RC (replacement cell CO/H2S)
- BW-GA-LEL-RS (replacement LEL sensor)
- BW-O2-RC (replacement O2 sensor)

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**SPECIFICATIONS**

Due to ongoing research and product improvement, specifications are subject to change

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**Battery:**
10 hours runtime on three AA alkaline cells (run-time dependent on backlight usage)

**Pump:**
Integral motorized rotary pump. Tubing length up to 100 ft. / 30 m (50 ft. / 15 m standard) with user options

**Sensors:**
Plug-in, electrochemical (EC) and catalytic (LEL)

**Ranges:**
CO (0-100 ppm), H2S (0/25 ppm), O2 (0/25%), LEL 0/100%

**Calibration Due Date:**
Days remaining until next calibration displayed on start-up

**LCD:**
Continuous, alphanumeric gas readout and status display advises

**Tests:**
Full function self-test, sensor integrity, circuitry, battery and audible/visual alarms on activation

**Alarm Indicators:**
Clearly advisers alarm conditions with audible, visual, and internal vibrator alarms

**Visual alarms:**
Two flashing alarm bars visible from all angles. LCD indicates gas present and alarm levels encountered

**Audible alarm:**
Typically 95 dB at 1 ft. / 30 cm variable pulsed audible alarm

**Vibrator alarm:**
Pulses warning in gas alarm conditions, or for any status alarms

**Status alarms:**
Low battery, over range, multiple gas, pump and failed or missing sensor

**Alarm Levels:**
Instantaneous Low Alarm; Instantaneous High Alarm; TWA (time-weighted average) and STEL (short-term exposure limit)

**Alarm setpoints:**
Displayed on activation and on demand

**Calibration Schedule:**
6-month intervals

**Enclosure:**
Rugged, composite material; two-shot molded polymer case with integral anti-shock boot. Highly water resistant and dust proof

**Humidity:**
0 - 95% RH (non-condensing)

**Dimensions:**
5.7 x 2.9 x 1.5 in

**Weight:**
13.1 oz

**Gas concentration:**
Simultaneously and continuously displays gas concentration(s) for all sensors (in ppm or % LEL). Peak (max)/STEL/TWA ppm or %: Records exposures and displays on demand

**User field options:**
Confidence beep, set STEL period, force calibration on start-up, enable / disable sensor, pass code protection, latching alarms, span level, passed calibration user-lockout option, “SAFE” display function, stealth mode, fast pump, alarm only backlight mode, LCD language option, STEL calculation choice, TWA calculation choice, PID / combustible correction factor options, and user-settable calibration gas level

**Warranty:**
1 year (including sensors)
**Key Features**
- Smaller and lighter than competitive instruments
- Water-resistant design in an integral concussion-proof enclosure
- Real-time readings on large LCD
- Compact and comfortable to wear
- 1.5 year battery life
- Internal vibrating alarm for high noise areas
- Bright wide-angled visual alarm bars
- Auto backlight activates in low light & when in alarm
- Four alarm levels: instantaneous Low Alarm, High Alarm, TWA, and STEL

---

**Ammonia personnel protector 0-400 ppm**

The GasAlert Extreme utilizes electrochemical sensor technology to cover a range of 0-400 ppm ammonia. Ideal for personnel protection with use of alligator belt clip for working on ammonia systems.

At concentrations between 0-400 ppm ammonia, the GasAlert Extreme provides audio/visual alarms at customizeable low and high alarm set-points, as well as TWA and STEL alarms.

The electrochemical sensor offers real time readings of the ammonia concentrations in the atmosphere. Refrigeration technicians will find this a useful tool for monitoring ammonia levels while working in industrial environments involving dangerous ammonia gas.

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**Applications**
- Compressor Rooms
- Tank Rooms
- Personnel Protection
- Air Monitoring
- Sea Vessels
- Food Processing
- Chemical Plants
- Refrigeration Systems
- Emergency Response

---

**Accessories Included**
- Long Life Battery
- User Manual
- Alligator Belt Clip
The **GasAlert Extreme** has a large LCD offering real-time concentrations of ammonia gas.

Audible, visual and vibrator alarms activate in the event of a low, high, TWA, or STEL alarm condition. Other standard features include automatic O2 calibration, full function self-test, stealth mode, confidence beep, backlight options, STEL / TWA measurement choice, user-settable calibration gas concentrations, calibration due lockout, and multi-language support.

**GasAlert Extreme** detectors come standard with a datalogging feature and include a built-in IR COM port for automatic data transfer to a computer through the optional IR Datalink (sold separately). Up to 8 months of continuous data is automatically stored at 5 second intervals (based on a normal work week). Sampling rate can be adjusted in the user options. When full, wraparound memory feature replaces oldest data with most recent data.

## Specifications

### Battery:
- Replaceable 3v Lithium battery with 1.5 year battery life

### Sensors:
- Electrochemical NH3

### Ranges:
- 0-400 ppm NH3

### Calibration Due Date:
- Days remaining until next calibration displayed on start-up

### LCD:
- Continuous, alphanumeric gas readout and status display advises

### Tests:
- Sensor integrity, circuitry, battery and audible/visual alarms on activation, and battery (continuous)

### Datalogger:
- All readings and events, 5-second interval sampling, adjustable from 1 second to 60 seconds.

### Alarm Indicators:
- Clearly advises alarm conditions with audible, visual, and internal vibrator alarms

- **Visual alarms:** Two flashing alarm bars visible from all angles. LCD indicates gas present and alarm levels encountered

- **Audible alarm:** Typically 95 dB at 1 ft. / 30 cm variable pulsed audible alarm

- **Vibrator alarm:** Pulses warning in gas alarm conditions, or for any status alarms

- **Status alarms:** Low battery, calibration due

### Alarm Levels:
- Instantaneous Low Alarm; Instantaneous High Alarm; TWA (time-weighted average), and STEL (short-term exposure limit)

### Alarm setpoints:
- Customizable and displayed on activation

### Calibration Schedule:
- 6-month intervals

### Enclosure:
- Rugged, composite material; Highly water resistant and dust proof, with built-in concussion-proof boot

### Humidity:
- 0 - 95% RH (non-condensing)

### Dimensions:
- 1.1 x 2.0 x 3.75 in

### Weight:
- 2.9oz

### Gas concentration:
- Continuously displays gas concentration

### User field options:
- Confidence beep, latching alarms, stealth mode, passcode protection, automatic O2 calibration, automatic backlight, user-settable calibration gas level, calibration past due locked, and 5 language choices

### Warranty:
- 1 year (including sensors)

**Ordering Information**

The **GasAlert Extreme** is delivered ready for use with a 0-400 ppm electrochemical sensor, long life battery, stainless steel alligator belt clip, instructions, and calibration adapter.

Order #:  **BW-GAXT-A2-DL**  
**BW-GAXT-A2-RC** (replacement NH3 cell)  
**BW-GA-USB2-IR** (IR datalink)
Key Features

- Confined Space detection for O₂, CO, H₂S, and LEL
- Compact, lightweight, and easy to wear
- IntelliFlash™ verifies operation and compliance
- Continuous LCD shows real-time concentrations
- One-button operation reduces training time
- Audible, visual, and vibrating alarms
- Simple automatic calibration procedure
- 10 hr battery life - recharges in less than 4 hours
- Built-in concussion boot and alligator clip
- Optional kit includes everything necessary for bump testing and calibration

Portable detector for O₂, CO, H₂S, and LEL.
Compact and easily wearable for use in confined spaces.


The optional confined space entry kit (BW-MCXL-CSEK) includes the MicroClip XL monitor, hard carrying case, charger, calibration gas, hose, and calibration adapter. The kit provides the equipment necessary to bump test the unit before each use and calibrate in 6 month intervals. The 34L bottles provides enough gas for many bump tests and calibrations.

The MicroClip XL has a light and compact design for wearing comfortably. The case is water resistant, and is surrounded by a concussion-proof rubberized boot with a built in alligator clip. This monitor provides continuous visual confirmation of detector operation and compliance with the IntelliFlash™ Feature.

Applications

- Confined Space
- Tank Rooms
- Vent Lines
- Air Monitoring
- Sea Vessels
- Food Processing
- Chemical Plants
- Refrigeration Systems
- Emergency Response

Accessories Included

- Rechargeable Battery & Charger
- User Manual
- Calibration Adapter
- Carrying case (optional)
- calibration gas (optional)
- Regulator and hose (optional)
Equipped with a continuous LCD offering real time readings of gas concentrations, the MicroClip XL is compact and lightweight for wearing in confined spaces. The monitor provides continuous visual confirmation of detector operation and compliance for detection of O2, CO, H2S, and Combustibles (LEL).

User options include: Confidence beep, auto zero on startup, O2 auto calibration, calibration lock option, stealth mode, latching alarms, language options and more.

**Ordering Information**

The MicroClip XL is delivered ready for use with O2, CO, H2S, and LEL sensors, rechargeable battery and charger, stainless steel alligator belt clip, and instruction manual.

The confined space entry kit (BW-MCXL-CSEK) includes the MicroClip XL, carrying case, calibration gas, regulator, and calibration tubing.

**Order #:**
- **BW-MCXL**
- **BW-MCXL-CSEK** (includes confined space entry kit)
- **BW-MCXL-LEL-RC** (replacement LEL sensor)
- **BW-O2-RC** (replacement O2 cell)
- **BW-MCXL-H2S-RC** (replacement H2S cell)
- **BW-MCXL-CO-RC** (replacement CO cell)

**SPECIFICATIONS**

**Battery:**
- Single Lithium polymer; 10 hours runtime; recharge in less than 4 hours

**Sensors:**
- H2S: Electrochemical; 1 ppm resolution
- CO: Electrochemical; 1 ppm resolution
- O2: Electrochemical; 0.1% resolution
- LEL: Catalytic; 1% resolution

**Ranges:**
- H2S: 0-100 ppm
- CO: 0-500 ppm
- O2: 0-30%
- LEL: 0-100%

**Calibration Due Date:**
- Days remaining until next calibration displayed on start-up

**LCD:**
- Continuous alphanumeric gas readout and status display advises

**Tests:**
- Full function self-test, sensor integrity, circuitry, battery, and audible/visual alarms on activation

**Alarm Indicators:**
- Clearly advises alarm conditions with audible, visual, and internal vibrator alarms
- Visual alarms: Two flashing alarm bars visible from all angles. LCD indicates gas present and alarm levels encountered
- Audible alarm: Typically 95 dB at 1 ft. / 30 cm variable pulsed audible alarm
- Vibrator alarm: Pulses warning in gas alarm conditions, or for any status alarms
- Status alarms: Low battery, and failed or missing sensor

**Alarm Levels:**
- Instantaneous Low Alarm; Instantaneous High Alarm; TWA (time-weighted average), and STEL (short-term exposure limit)
- Alarm setpoints: Displayed on activation and on demand

**Calibration Schedule:**
- 6-month intervals

**Enclosure:**
- Rugged, composite material; two-shot molded polymer case with integral anti-shock boot. Highly water resistant and dust proof

**Humidity:**
- 0 - 95% RH (non-condensing)

**Dimensions:**
- 4.4 x 2.4 x 1.1 in

**Weight:**
- 6 oz

**Gas concentration:**
- Simultaneously and continuously displays gas concentration(s) for all sensors (in ppm or % LEL). Peak (max)/STEL/TWA ppm or %: Records exposures and displays on demand

**User field options:**
- Confidence beep, set STEL interval, enable / disable sensor, latching alarms, passed calibration user-lockout option, stealth mode, LCD language option, force calibration when overdue, Intelliflash interval, low alarm acknowledge, and user-settable calibration gas level

**Warranty:**
- 1 year (including sensors)
## Summary of Ammonia Detection Code Requirements

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Alarm signal to monitored location</strong></td>
<td>25 ppm</td>
<td></td>
<td>YES</td>
<td>“approved location”</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Machine Room De-energize compressors, pumps, NC valves</strong></td>
<td>40,000 PPM or upper limit of detector</td>
<td>40,000 PPM or upper limit of detector</td>
<td>40,000 PPM or upper limit of detector</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Machine Room Audio Visual Alarms inside room and outside each entrance</strong></td>
<td>25 PPM</td>
<td>1,000 PPM Manual reset inside machine room</td>
<td>1,000 PPM</td>
<td>25 PPM* “Approved Locations”</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Machine Room activate emergency ventilation</strong></td>
<td>150 PPM</td>
<td>1,000 PPM</td>
<td>1,000 PPM</td>
<td>1,000 PPM</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Power and Supervision</strong></td>
<td>Dedicated branch, UPS or backup generator. Trouble signal indicating fault to monitored location</td>
<td>Dedicated branch, 24 hour UPS or backup generator. Trouble signal indicating fault in system</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Machine Room Concentration Display</strong></td>
<td></td>
<td></td>
<td>Suggested</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Refrigerated Areas</strong></td>
<td>25 PPM, alarm to monitored location</td>
<td>1,000 PPM</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Packaged systems</strong></td>
<td>25 PPM, audio visual and alarm to monitored location</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Machinery under 100 HP not in Machinery Room, and Equipment Pits</strong></td>
<td>25 PPM, alarm to monitored location, close liquid feed and hot gas solenoid valves, audio/visual devices inside the area, activate emergency exhaust and de-energize all pumps, motors, and non-emergency fans</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Ammonia Detection System Design Specifications

<table>
<thead>
<tr>
<th>Room</th>
<th>Sensor</th>
<th>Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compressor Room (minimum 2 sensors)</td>
<td>GG-NH3-250</td>
<td>25 ppm - Alarm to monitored location 25 ppm - Horn Strobe outside each entrance and inside engine room 150 ppm - Emergency Ventilation</td>
</tr>
<tr>
<td>Compressor Room (minimum 1 sensor)</td>
<td>GG-NH3-2%</td>
<td>10,000 ppm - Redundant Emergency Ventilation 20,000 ppm - De-energize pumps, compressors, and normally closed valves</td>
</tr>
<tr>
<td>Vent Line</td>
<td>GG-VL-NH3</td>
<td>1% - Alarm to monitored location</td>
</tr>
<tr>
<td>Refrigerated Areas</td>
<td>GG-NH3-100</td>
<td>25 ppm - Alarm to monitored location 35 ppm - Close liquide and hot gas solenoid valves</td>
</tr>
<tr>
<td>Packaged Systems</td>
<td>GG-NH3-100</td>
<td>25 ppm - Alarm to monitored location 35 ppm - Horn Strobe inside room</td>
</tr>
<tr>
<td>Machinery under 100 HP and equipment Pits (not in machine rooms)</td>
<td>GG-NH3-100</td>
<td>25 ppm - Alarm to monitored location 25 ppm - Close liquide and hot gas solenoid valves 25 ppm - Horn Strobe inside room 25 ppm - De-energize pumps, motors, and non-emergency fans 25 ppm - Emergency Ventilation</td>
</tr>
</tbody>
</table>

Table 1: System Overview

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>GG-6</td>
<td>Six channel controller</td>
<td>Monitor gas detection system</td>
</tr>
<tr>
<td>GG-XM</td>
<td>Eight channel expansion module</td>
<td>Additional monitoring capability</td>
</tr>
<tr>
<td>GG-RD1</td>
<td>Remote display for GG-6</td>
<td>Remote monitoring of gas detection system</td>
</tr>
<tr>
<td>GG-EM</td>
<td>Entrance monitor</td>
<td>Outside compressor room doorways</td>
</tr>
<tr>
<td>UPS-1000VA-LCD</td>
<td>Uninterruptible power supply</td>
<td>Backup Power for GG-6</td>
</tr>
<tr>
<td>SHA-24-BLUE</td>
<td>Strobe/Horn assembly 24vdc</td>
<td>Audio Visual</td>
</tr>
<tr>
<td>GG-NH3-100</td>
<td>0/100 ppm electrochemical sensor</td>
<td>Refrigerated Area</td>
</tr>
<tr>
<td>GG-NH3-250</td>
<td>0/250 ppm electrochemical sensor</td>
<td>Compressor Room</td>
</tr>
<tr>
<td>GG-NH3-2%</td>
<td>0/2% catalytic bead sensor</td>
<td>Compressor Room shutdown</td>
</tr>
<tr>
<td>GG-VL-NH3</td>
<td>0/1% vent line sensor</td>
<td>HP relief header, above roofline</td>
</tr>
<tr>
<td>GG-CO2-3%</td>
<td>0/3% infrared sensor</td>
<td>CO2 refrigeration systems</td>
</tr>
</tbody>
</table>

Table 2: Equipment Table
Let us help you with all of your gas detection needs

866-394-5861
sales@ctiengineering.com

Due to ongoing product improvements, specifications are subject to change. Visit our website for up-to-date brochures and manuals