### H2S Sensors and Accessories

**General Monitors Worldwide**

**H2S**

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e-mail: genmon@gmpacific.a.com.sg

**Specifications**

<table>
<thead>
<tr>
<th>Regulator</th>
<th>Flow Rate: 200 milliliters per minute (12.2 cubic inches per minute)</th>
</tr>
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<tbody>
<tr>
<td>Temperature</td>
<td>-40°F to 130°F (-40°C to 54°C)</td>
</tr>
<tr>
<td>Storage Humidity</td>
<td>5% to 100% RH non-condensing</td>
</tr>
<tr>
<td>Weight</td>
<td>Assembly 5 lbs., Cylinder 3 lbs., Case 4 lbs.</td>
</tr>
<tr>
<td>Cylinder</td>
<td>Length: 13.5 inches</td>
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<tr>
<td>Diameter</td>
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</table>

**Description**

General Monitors’ hydrogen sulfide (H2S) sensor is a solid state semiconductor, diffusion, adsorption device, designed and manufactured to the highest quality standards. It is specifically sensitive to H2S and remains unaffected by high concentrations of other gases such as methane and hydrogen, which are often present in the same areas. A high tolerance to ambient temperature variations (temperature range of -40°F to +195°F (-40°C to +90°C)) and extremely humidity conditions is an outstanding feature of this sensor, as is the ability to withstand exposure to extremely high H2S concentrations without any harmful effects.

The operating principle is based on the fact that the semiconductor will preferentially adsorb H2S, in which the resistance across its surface is reduced at a rate proportional to the concentration present. This signal is fed to the controller where it is linearized to drive a display and provide alarm outputs. The substrate is maintained at an elevated temperature by means of a thermistor and a potted temperature control circuit, thus negating any effects caused by variations in ambient temperature and humidity.

Often called a “MOS” (metal oxide semiconductor) sensor, it is the key part of all General Monitors’ smart and control card-based H2S detection systems. With many advantages over the alternative electrochemical cell-based instruments, it is the heart of plant safety systems throughout the world. The sensor is safely and conveniently calibrated using a single ampoule method provided. Disposable canisters of pre-mixed H2S with air are also available.

**Features**

- Solid-state, non wet cell, operation
- Highly selective to H2S
- Long service life, typically 3 to 5 years
- Not affected by over-range exposure or continuous exposure to H2S
- Temperature controlled well above ambient
- Robust mechanical design

**Benefits**

- Functions in the harshest environments
- Low risk of false alarms
- Maximum reliability and low cost of ownership
- Durable in all applications
- Copes with low temperatures and high humidity
- Vibration and shock resistant

**Applications**

- Oil Refining
- Oil and Gas Exploration and Production
- Sulfur Recovery Plants
- Chemical Plants
- Compressor Stations
- LNG Plants
- Sewage and Water Treatment Plants
- Gas Turbines

**Specifications subject to change without notice.**

**Represented by:**
### H2S Sensors

**Sensor P/N** | **Description**
---|---
50445-1 | 0-100 ppm, aluminum body, CSA, FM
50445-5 | 0-50 ppm, aluminum body, CSA, FM
50445-9 | 0-20 ppm, aluminum body, CSA, FM
50448-1HT | 0-100 ppm, stainless steel body, CSA, FM
50448-5HT | 0-50 ppm, stainless steel body, CSA, FM
50448-9HT | 0-20 ppm, stainless steel body, CSA, FM
51457-1 | 0-100 ppm, sintered screen, stainless steel body, ATEX, CSA, GOST*
51457-5 | 0-50 ppm, sintered screen, stainless steel body, ATEX, CSA, GOST*
51457-9 | 0-20 ppm, sintered screen, stainless steel body, ATEX, CSA, GOST*

### Measuring Range: 0-20, 0-50, 0-100 ppm

**Type:** Continuous diffusion, adsorption type

**Response Time:** Wire screen flame arrestor version: T50 < 1 min. of full scale with full scale concentration applied

*With sintered stainless steel flame arrestor: T50 < 2 min. of full scale with full scale concentration applied

**Temperature Range:**
- Standard Sensor: -65°F to +167°F (-55°C to +75°C)
- High Temperature Sensor: +195°F (90°C)

**FM Approved:** -40°F to +140°F (-40°C to +60°C)

**Life:** Three to five years, normal service

**Electrical Classification:** FM and CSA, Class I, Div. 1, Groups B, C and D; or ATEX and GOST

Ex d IIC T6

**Warranty:** Two years

### Sensor Locations

There are no standard rules for sensor placement, since the optimum sensor location is different for each application. Evaluation of facility conditions should make this determination. Generally, sensors should be:

- Mounted pointing down to prevent water build-up on the sensor head.
- Located near possible sources of gas leaks.
- Easily accessible for calibration checks.
- Located where prevailing air currents contain the maximum concentration of gas.
- Placed away from where it may be coated by contaminating substances.
- Located away from concentrated sources of heat based on its temperature specifications.

### Accessories

**Splash Guard (P/N 10395-1)**

The Splash Guard prevents water from entering the sensor cavity and affecting the element response and also acts as an effective windscreen. Constructed of rugged ABS plastic and threaded for simple screw-on installation, the Splash Guard has a series of internal baffles to deflect water down and away from the sensor.

**Dust Guard (P/N 10110-1)**

The General Monitors Dust Guard Assembly prevents dust and other particulate matter from reaching the sensor flame arrestor and affecting the sensor response. The Dust Guard is also available in a kit with twelve disposable screens (P/N 10044-1).

**Ampoules of H2S**

These glass ampoules are manufactured under strict quality control for use with the field calibrator and are available in a range of concentrations.

**Sintered Stainless Steel Dust Guard (P/N 1800822)**

The General Monitors Sintered Stainless Steel Dust Guard protects the sensor from fine particulates. It should be used only in dry environments because the sintered disc has a tendency to absorb water and act as a gas diffusion barrier until it dries out. For accurate calibration, the sensor should be calibrated with the guard in position.

**Sensor Flow Chamber (P/N 10066)**

The Sensor Flow Chamber is constructed of aluminum (optional stainless steel) and is designed to be inserted into a sampling system.

**Duct Mounting Plate (P/N 10041-x)**

The Duct Mounting Plate is ideally suited to mount sensors for the monitoring of ducted air for living quarters in large offshore modules.

**Field Calibrator (P/N 50000)**

The General Monitors Field Calibrator (also referred to as a breaker bottle) provides a simple and efficient means of calibrating H2S in the field. It consists of a plastic jar fitted with a removable lid and a seal which fits over the sensor. After an H2S ampoule is placed in the ampoule holder, the screw assembly acts as a vice and breaks the ampoule releasing the gas for calibration purposes.
**H₂S Sensors**

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**Specifications**

**Regulator**
- Flow Rate: 200 milliliters per minute
- Temperature Range: -40°F to 130°F (-40°C to 54°C)
- Storage Humidity Range: 5% to 100% RH non-condensing

**Weight**
- Assembly 5 lbs.
- Cylinder 3 lbs.
- Case 4 lbs.

**Cylinder**
- Length: 13.5 inches
- Diameter: 3.5 inches

**Note:** General Monitors recommends using ampoules for calibrating H2S gas detection instruments. The H2S Portable Purge Calibrator is available for applications where a high-level output of H2S is needed and the possibilities of error in field calibration.

**Portable Purge Calibrator (P/N 1400250-x)**
The H2S Portable Purge Calibrator is a compact, practical, accurate and safe system for field calibration of H2S sensors. The cylinder is filled with an H2S in air mixture in one of seven separate parts per million (ppm) levels of concentration (10, 20, 25, 35, 50, 70 or 100). Using a known air/gas mixture reduces the possibility of error in field calibration.

The Portable Purge Calibrators are lightweight devices that are easy to carry. However, an optional carrying case is available for those desiring to carry more than 1 assembly at a time. The case can hold up to 2 complete assemblies and facilitates transporting them in the field.

**Specifications**

- Cylinder Length: 3.5 inches
- Cylinder Diameter: 3.5 inches

**Specifications subject to change without notice.**

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**Protection for life.**

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- Sewage and Water Treatment Plants
- LNG Plants
- Compressor Stations
- Chemical Plants
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