GENERAL MONITORS
Protection for life.

Catalytic Sensors and Accessories

Features

- Extra Strong Support Post
- Large Active Bead Surface Area
- Precious Metals Used for All Components Mounted in Teflon Body
- Active and Reference Beads Matched by Size and Resistance
- Teflon Barrier Protects Active and Reference Beads
- Ultra Poison Resistant Active Bead
- Glass Coated Reference Bead

Benefits

- Protects beads from shock and vibration, avoiding damage
- Large signal-to-noise ratio for stable performance and long sensor life
- Functions well in corrosive and aggressive environments
- Eliminates signal drift due to temperature and humidity changes
- Eliminates heat transfer maximizing output signal
- Long sensor life in poisonous atmospheres
- Eliminates open drift due to reference bead detecting gas

Description

General Monitors' electrocatalytic gas sensors are supplied as original equipment on all of our products worldwide. The sensor's sensitivity, reliability and longevity make it the first choice for most users of the catalytic oxidation gas detection principle.

The electrocatalytic sensor forms one half of a Wheatstone Bridge circuit where the change in resistance of a platinum coil within a catalyst-impregnated ceramic bead indicates the presence of flammable gas. It achieves the measurement by a proportional change in the resistance of the coil as the coil temperature rises. The other arm of the Bridge circuit is part of the control electronics; (either control card or field transmitter type) so it is important that the two arms be carefully matched. It is therefore our policy to supply our catalytic sensors, and our replacement sensors, only for General Monitors' equipment. Failure to adhere to this policy can lead to incorrect use and could cause devastating equipment malfunctions.

Every component of our catalytic sensors is manufactured in-house to ensure optimum performance. Careful matching of the active and reference elements ("beads") result in a sensor that has negligible zero drift with respect to changes in humidity, pressure and temperature. Consequently, we can offer sensors which maintain base-line stability over a temperature range of -65°F to 400°F (-55°C to 200°C) and have negligible zero drift over a 12-month period.

The key design features, with the corresponding benefits, are summarized above. There are small design differences according to the approval type and junction box used, but all General Monitors plants and sales offices can provide all types on demand. All have the same outstanding properties and a typical operational life of 3-5 years.

Approvals range from FM to CSA in North America to CENELEC/ATEX and Gosstandart for Europe and Russia. Sensor bodies are in corrosion resistant aluminum alloy or a 316 grade stainless steel. A wide variety of accessories are available to provide additional protection against airborne contaminants or for mounting in ducts or sample lines.

Applications

- Gas Processing Plants
- Oil and Gas Exploration and Production
- Ethylene Processes
- Vinyl Chloride Monomer Processes
- Hydrogen Detection
- Compressor Stations
- LNG Plants
- Sewage and Water Treatment Plants
- Gas Turbines
- Solvent Extraction Plants

Catalytic Bead Sensors

Selection of Correct Sensor Technology

General Monitors' offices and their authorized representatives and distributors can offer helpful suggestions as to the most appropriate detector technology to select. Although Infrared technology works well in many environments, it cannot cope with severe environments (such as high temperature, wind blown dusts, strong vibrations), nor detect the broad range of gases that catalytic detection can. Both types of detection technology are necessary in today's applications.

Combustible Gas Sensors			
Sensor P/N	**Description**	**Sensor P/N**	**Description**
10001-1	General Purpose, Aluminum body, CSA, FM approved	10102-1	Sensor Simulator
10001-1R	General Purpose, Poison Resistant, Aluminum body, CSA, FM approved	10164-1	Hydrogen specific, Aluminum body, CSA approved
10014-1	General Purpose, High temperature to 400°F (200°C), Aluminum body, CSA, FM approved	11159-1	Stainless steel body, (max. 120°C) ATEX, GOST, CSA approved.
10014-1R	General Purpose, Poison Resistant, High temperature to 400°F (200°C), Aluminum body. CSA, FM	11159-2	Stainless steel body , (max. 180°C) High temperature. ATEX, GOST, CSA approved.
10015-1	Aluminum body, High temperature (max. 120°C) CSA approved	11159-3	Stainless steel body, (max. 120°C) Super poison resistant. ATEX, GOST, CSA approved.
10022-1	Aluminum body, sintered. CSA approved, Group A	11159-1L	Stainless steel body, (max. 120°C) ATEX, GOST, CSA approved. (With lugs)
10058-1	Stainless steel body, CSA approved	11159-2L	Stainless steel body, (max. 180°C) High temperature. ATEX, GOST, CSA approved. (With lugs)
10058-1R	Stainless steel body, Poison Resistant, CSA approved	11159-3L	Stainless steel body, (max. 120°C) super poison resistant. ATEX, GOST, CSA approved. (W/lugs)

Measuring range: 0-100% LEL

Type: Continuous diffusion, low temperature catalytic bead; hydrocarbon sensors; high temperature hydrocarbon sensors

Response Time: Typically 6-second time constant when exposed to 50% LEL of methane gas. (CSA)
T50 < 10 seconds for ATEX & European Flame Arrester type.

Zero Drift: Less than 5% per year

Temperature: -65°F to +200°F (-55°C to +93°C) High temperature sensor to +400°F (200°C) (CSA)
-40°F to + 248°F (-40°C to + 120°C) High temperature sensor up to + 356°F (+180°C). ATEX

Sensor Drive: 300mA DC

Life: Three to five years, normal service

Electrical Classification: NEC and CSA, Class I, Div. 1, Groups B, C and D; or ATEX IIG EEx d IIC

Warranty: Two years

Sensor Housings:

P/N 10252-1, CSA, explosion-proof housing

P/N 10252-3, CSA, high temperature housing

P/N B13-020, ATEX, polyester housing

P/N B13-021, ATEX, high temperature housing

Accessories

Portable Purge Calibrator (P/N 1400150-x)

The Portable Purge Calibrator is a compact, accurate and safe system containing no explosive gas. The lecture bottle is filled with a gas/air mixture below the Lower Explosive Limit (Standard mixture is 50% LEL). Using a known gas/air mixture reduces the possibility of error in field calibration, and the hose and cup adapter permits calibration without removing sensors or their attachments. Please refer to the appropriate General Monitors Instruction Manual for calibration procedures. The following pre-mixed calibration gases at approximately 50% LEL are available at 1200 psia, 8.3 MPa maximum pressure.

Butadiene (BD)	C_4H_6
Ethane (E)	C_2H_6
Hydrogen (H)	H_2
Methane (M)	CH_4
Propane (PR)	C_3H_8

Other gases and concentrations are also available. Please consult your local General Monitors representative for further information.

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. This allows a sample to be drawn to the sensor when it is not possible to mount it directly in the monitored area. Reasons include: high temperature, pressure, fast air flow or inaccessibility.

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. Comprising a simple threaded stainless steel cylinder with a wire screen at one end, the dust guard assembly is easily removed for cleaning or replacement of the disposable screen. The Dust Guard is also available in a kit with twelve disposable screens (P/N 10044-1). It can act as a wind-screen and is recommended for corrosive, windy or high temperature environments, with typical applications being in areas surrounding vinyl chloride plants or drying ovens.

Sintered Stainless Steel Dust Guard (P/N 1800822)

The General Monitors Sintered Stainless Steel Dust Guard protects the sensor from fine particulates and is designed for use in windy conditions. It should, however, 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. In construction, the sintered stainless steel Dust Guard, is similar to the Dust Guard Assembly, but has a 3mm thick sintered stainless steel disc at one end with the other end threaded for easy installation.

Splash Guard (P/N 10395-1)

The General Monitors Splash Guard prevents water, in the form of rain or equipment washes, from entering the sensor cavity and affecting the element response and also acts as an effective windscreen. It is recommended for use in any outside environment involving high winds or rain or where frequent hosedowns are practiced, as on offshore platforms. 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.

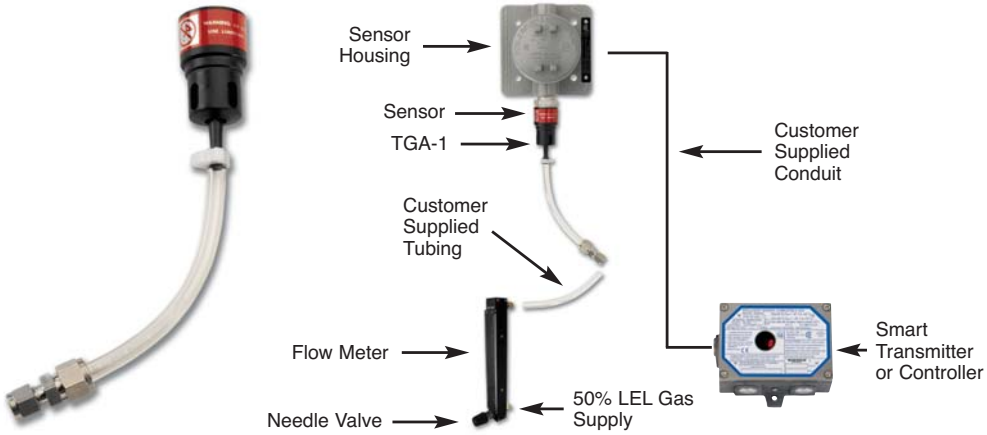
Duct Mounting Plate (P/N 10041-x)

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

Accessories

Remote Test Gas Applicator (P/N 10460-2)

The remote test gas applicator, TGA-1, is designed to be permanently installed on a combustible gas sensor. The TGA-1 provides protection from outside elements, and it allows the user to apply a test gas to the sensor from a remote source.



Portable Calibration Chamber (P/N 10543-1)

The Portable Calibration Chamber is a practical and safe instrument for the field calibration of combustible gas monitoring systems. Sensors can be calibrated in place with a known liquid/air mixture, reducing the possibility of calibration error. The Portable Calibration Chamber is a 3-liter sample chamber with an intrinsically safe battery powered mixing fan. For our catalytic bead sensors, a porthole allows the chamber to be placed on the sensor for calibration.

Represented by:

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