

# Model GC800 Combustible Gas Sensor



Part No. 800-3 Gas Sensor  
with junction box and  
transmitter

- **Poison resistant catalytic sensing element**
- **Stainless steel construction**
- **BASEEFA approved explosion proof housing and sensor**
- **24 volt DC nominal operating voltage**
- **Sensor/Transmitter combination is suitable for connection to any 4-20 mA input device, including SST NOVA-5000 modules, PLC's, SCADA or distributed control systems**

The SST Model GC800 series of Combustible Gas Sensors are used to determine the concentration of gas accumulated in a protected area and transmit this information to a central control point. The SST sensors use the "catalytic" method of gas detection. Located inside a stainless steel flameproof housing, the sensing element is exposed to the detected gas through a sintered stainless steel flame arrestor. The actual detector consists of a matched pair of elements, each consisting of a fine platinum wire embedded in a bead of alumina material. Flammable gases in low concentrations will not burn by themselves, but when in contact with a suitable catalyst, it is possible to burn (or oxidize) any concentration of gas. One of the element pairs in the SST sensor is treated with such a catalyst, while the other element is protected with a similar, non-catalytic material. The platinum wires within the elements are heated by passing a suitable current through them. When the gas is oxidized on the surface of the catalyst, additional heat is released, which causes a temperature rise on the catalytic surface. This change in temperature is measured and converted to determine the amount of gas present.

The SST Combustible Gas Sensor has been designated with a special "poison-resistant" sensing material, and provides accurate measurements in atmospheres where traces of silicone or other poisoning agents may be present. Readings are unaffected by humidity or carbon dioxide. The concentration of combustible gas is measured in terms of the Lower Explosive Limit (LEL).

The Model GC800 Combustible Gas Sensor requires an electronic "transmitter", which may be installed in the associated explosion proof junction box, or located at the control monitoring point. This transmitter converts the signal from the catalytic element to a standard 4-20 mA signal. This signal may be connected to a suitable SST NOVA-5000 Gas Detection Module, or to any other device with a standard 4-20 mA input. Connections to the combustible gas are normally made with 3 conductor shielded cable. The Model GC800 is suitable for the most demanding applications. A large body mass ensures excellent vibration characteristics when used in large machinery applications. Corrosion resistant materials permit uses in most environments, including offshore oil platforms.



Class I Group A,B,C,D



EEx d IIC T6



## ARCHITECT'S AND ENGINEER'S SPECIFICATIONS

Combustible gas sensing capability shall be provided by poison-resistant catalytic gas sensors, contained in stainless steel explosion proof housings. The sensor shall be installed with a transmitter card which converts the measured gas concentration in percent LEL to the industry standard 4-20 mA signal. The sensor shall be suitable for offshore use, and the manufacturer's data shall so state. Three conductors shall be required between the sensor/transmitter and the associated control device. Safety Systems Technology Model GC800 Combustible Gas Sensor, complete with part number 860 Transmitter Card and part number 850 Junction Box, or approved equivalent, shall be supplied.

## TECHNICAL SPECIFICATIONS

Power Supply:	24 volts DC nominal Applies when installed with SST transmitter. Will operate within specifications at any supply voltage between 16 and 32 volts.
Sensor Current:	300 mA Typical average sensor current, supplied by sensor transmitter.
Sensor Voltage:	2.0 ± 0.1 volts Maximum Power consumption 0.75 watts
Response time:	5 seconds typical Time required for measured concentration to reach one half of the final concentration. Measured at 50% LEL.
Operating Temperature:	-40 °F to +176 °F, -20 °C to +80 °C
Sensitivity:	0.16 mA per %LEL Adjusted by calibrating controls on associated transmitter
Typical Gasses:	Methane, Propane, Hydrogen Almost all detectable combustible gasses produce a similar 4-20 mA output
Size:	7.09 inches wide, 4.5 inches high, 3.23 inches deep Includes sensor and associated junction box
Weight:	5.75 Pounds
Agency Approvals:	CSA files LR 65986-2 or LR 103143

## ORDERING INFORMATION

PART NO.	DESCRIPTION
800-3	Model GC800 Combustible Gas Sensor complete with 860-1 transmitter installed in 850-1 junction box. Rated for groups B,C,D.
800-1	Model GC800 Combustible Gas Sensor only
850-1	Junction Box, copper free aluminum with epoxy finish. With ¾ inch NPT conduit outlet and plug-in connector for 860-1 transmitter card. Rated for groups B,C,D.
850-2	Junction Box, copper free aluminum with epoxy finish. With ¾ inch NPT conduit outlet, terminal block for sensor wires. Use only when installing sensor with SST Model 5400 transmitter, or other remotely located transmitter. Rated for groups B,C,D.
860-1	4-20 mA Transmitter Card. Installs in 850-1 Junction Box. 24 VDC input, 4-20mA output
35400	Model 5400 Dual Channel Transmitter for installation at remote control point. 24 VDC input, 4-20 mA output. Connects two GC800 Sensors to 4-20 mA equipment.



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