



GENERAL MONITORS
Protection for life.

MODELS S104/S106A

Smart Sensors for Combustible Gas Detection



Features

- Digital Display
- 4-20mA Output
- Smart Sensor Calibration
- Fault Diagnostics
- Single-point, Single-person Calibration

Benefits

- Displays gas concentrations in LEL, fault codes for troubleshooting and calibration prompts
- Industry standard output for remote alarm and fault indication
- Automatic calibration adjustment sequence requiring no tools or area de-classification
- Easier troubleshooting resulting in less maintenance time
- Lower calibration costs

Description

The General Monitors Models S104 and S106A Smart Sensors are microprocessor-based smart transmitters, designed for use with General Monitors' catalytic bead sensors. Both the S104 and S106A are designed to monitor combustible gases and vapors within the lower explosive limit (LEL) and provide status indication and alarm outputs.

All of the S104 and S106A electronics are contained within an explosion-proof housing allowing the processing of sensor information at the sensor site. The S104 and S106A provide a 4-20 mA signal which is proportional to the 0 to 100% LEL gas concentration at the sensor. In addition, the S106A includes warning, alarm and fault relay contacts that can be used to indicate an alarm or fault condition.

The S104 and S106A include a digital display on the sensor housing (optional for the S104). This local digital display continuously indicates gas concentrations during normal operation or in the calibration check mode, calibration prompts during calibration mode, display codes during the relay options mode (S106A only) and nine fault codes. The S104 without digital display utilizes a magnetic LED switch to indicate calibration prompts and faults through unique blinking patterns.

The S104 and S106A contain microprocessor-based electronics which provide up to four different operating modes. First, the calibration mode for calibration. Second, the calibration check mode which allows the user to apply a gas and check the sensor response while alarm outputs are inhibited. Third, a relay options mode which allows the user to set or change relay operations (S106A). Finally, a program review mode which allows the user to verify relay options (S106A).

Applications

- Refineries
- Drilling Platforms & Rigs
- Gas Collection & Distribution Facilities
- Gas & Oil Production Platforms
- Solvent Vapors
- LPG/LNG Processing & Storage
- Chemical Plants
- Wastewater Treatment Facilities



MODELS S104/S106A

System Specifications

Sensor Type:	Continuous diffusion, low temperature catalytic bead
Sensor Life:	3 to 5 years typical
Accuracy:	± 3% LEL up to 50% LEL ± 5% LEL ≥ 51% LEL
Zero Drift:	Less than 5% of full scale per year
Response Time:	T50 < 10 seconds T90 < 30 seconds with 100% LEL methane applied
Measuring Range:	0-100% LEL
Modes:	Calibration, calibration check, relay options, program review
Electrical Classification:	Class I, Division 1, Groups B, C & D EExd IIB T5
Warranty:	Two years
Approvals:	Certified to CSA 22.2 No. 152-M1984, FM, CENELEC and CE Marking

Environmental Specifications

Operating Temperature Range:	<i>Electronics</i> -40°F to +140°F (-40°C to +60°C) <i>Standard Sensor</i> -65°F to +200°F (-55°C to +93°C) <i>High Temp Sensor</i> -65°F to +400°F (-55°C to +200°C)
Storage Temperature Range:	-58°F to +158°F (-50°C to +70°C)
Operating Humidity Range:	10% to 95% RH, non-condensing

Mechanical Specifications

Length:	6.4 inches (161mm)
Height:	3.4 inches (86mm)
Width:	4.1 inches (104mm)
Weight:	5.5 lbs. (2.5 kg)
Mounting Holes:	5.0 inches (127mm) (center to center)

Electrical Specifications

Input Power:	24 VDC nominal, 20 to 35 VDC 250mA nominal (1A during start-up)
Relay Ratings:	5A @ 250 VAC/5A @ 30 VDC res. max. <i>S106A only</i> (3x) SPDT - Warning, Alarm & Fault
Analog Signal:	0-20mA (300 ohms max. load) Malfunction 0mA Calib/Check 1.5mA (0mA option) <i>S106A</i> Relay option/review modes 1.5mA Zero reading 4mA±0.2mA 0-100% scale 4-20mA Over-range 20-22mA
Status Indicators:	<i>S104, No Display</i> LED indicator with flashing sequences <i>S104 w/display and S106A</i> Digital display with gas concentration, calibration prompts, fault codes, and relay options (S106A only)
Faults Monitored:	Calibration errors, sensor, low DC supply, EEPROM, negative zero drift, calibration check time exceeded
Cable Requirements:	3 wire shielded cable. Max. distance between S106A and power source @ 24 VDC nominal (20 ohm loop): 14 AWG - 4500 ft. (1372m) Max. distance for analog output (300 ohms max): 14 AWG - 9000 ft. (2740m)
Standard Configuration:	S104-01-1-1 (no display) S104-01-2-1 (w/display) S106A-1-01-2-1

Specifications subject to change without notice.

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