Model **FL3100H – Hydrogen**

UV/ IR Hydrogen Flame Detector

General Monitors

Applications

- Chemical plants
- Hydrogen gas generators
- Hydrogen refilling stations
- Hydrogen storage facilities
- Hydrogen test facilities
- Locations with hydrogen fuel cells
- Refineries
- Rocket fabrication, test, and launch facilities
- Semiconductor facilities

Features & Benefits

- Wide field of view for greater fire detection coverage.
- Event logging stores fault and alarm history.
- 4-20 mA stepped output is industry standard for remote alarm and fault indication.
- Modbus and HART user interface provides complete status and control capability in the control room.
- Wide operating temperature range permits operation at higher ambient temperature.
- Continuous Optical Path Monitoring (COPM) checks optical path integrity and detector's electronic circuitry once every minute.
- Three SPDT high current programmable relay outputs allow for immediate and time-delayed relay outputs for alarm, warning and fault conditions.

Description

The General Monitors FL3100H-Hydrogen is an ultraviolet/infrared flame detector designed to detect hydrogen fires.

The FL3100H-Hydrogen detects fires by monitoring in both the ultraviolet and infrared (UV and IR) spectral ranges, making it highly immune to false alarms caused by lightning, arc welding, hot objects and other sources of radiation.

Other features of the FL3100H-Hydrogen include three alarm/fault relays and an RS-485 serial output with Modbus RTU protocol for linking up to 128 detectors in series or 247 with repeaters. RS-485 and HART outputs provide status, alarm, fault and other information for operation, troubleshooting or programming of units. HART allows this feature without rewiring.

COPM (Continuous Optical Path Monitoring) self test feature checks optical path integrity (window cleanliness) and the detector's electronic circuitry once every minute.

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General Monitors by MSA

System Specifications	
SPECTRAL RANGE	2.7 to 3.2 microns (IR)
FIELD OF VIEW	120° horizontal
TYPICAL RESPONSE TIME	< 3 sec @ 15 ft
ACCESSORIES	Swivel elbow union, mounting bracket, test lamp
CLASSIFICATION	Class I, Div 1 & 2, Groups B, C & D; Class II, Div 1 & 2, Groups E, F& G; Class III, Type 4X, IP 66/67 Ex db IIC T5 Gb; Ex tb IIIC T100°C Db
WARRANTY	2 years
APPROVALS	CSA, ATEX, IECEx, Inmetro, HART registered
PATENT NUMBER	5,914,489
Environmental Specifications	
OPERATING TEMPERATURE RANGE	-40°F to +185°F (-40°C to +85°C)
STORAGE TEMPERATURE RANGE	-58°F to +185°F (-50°C to +85°C)
OPERATING HUMIDITY RANGE	0% to 95% RH, non-condensing
Mechanical Specifications	
HOUSING	Aluminum (stainless steel optional)
DIAMETER	6 inches (152 mm)
LENGTH	5.5 inches (140 mm)
WEIGHT	5 lbs (2.3 kg) – aluminum 16 lbs (7.3 kg) – stainless steel
MOUNTING	3/4" NPT (2 ports) or surface mounting (ATEX)
CABLE ENTRY	2 x 3/4" NPT or 2 x 25 mm ISO

Electrical Specifications	
INPUT POWER	20-36 VDC 24 VDC @ 150 mA max. (3.6 W max.)
ANALOG SIGNAL	0 – 20 mA (600 Ohms maximum)
FAULT MODE	0 – 0.2 mA*
COPM FAULT	2 mA, ± 0.2 mA**
READY SIGNAL	4 mA, ± 0.2 mA
IR SIGNAL	8 mA, +0.2 mA (FL3100H only)
UV SIGNAL	12 mA, +0.2 mA (FL3100H only)
WARN SIGNAL	16 mA, ± 0.2 mA
ALARM SIGNAL	20 mA, ± 0.2 mA
RELAY CONTACT RATING:	8A 250 VAC, 8A @ 30 VDC resistive (North America). 8A @ 30 V RMS/42.4 V peak, 8A @ 30 VDC resistive max. (Europe)
DIP SWITCH SELECTABLE OPTIONS:	Sensitivity: 100%, 75%, 50% Alarm time delay: 2, 4, 8 or 10 seconds Warn & alarm relays: Latching/non-latching Energized/de-energized
RS-485 OUTPUT	Modbus RTU, suitable for linking up to 128 units or up to 247 units with repeaters. Optional – dual Modbus.
BAUD RATE	2400, 4800, 9600, or 19200 BPS
HART *(optional)*	Fully HART foundation compliant
EMC PROTECTION	Complies with EN 50130-4, EN 61000-6-4
CABLE REQUIREMENTS	Screened or screened and armored to BS5308 Part 2, Type 2 or equivalent.
STATUS INDICATOR	2 LEDs with status, fault and alarm indication
FAULTS MONITORED	Memory checksum, reset line shorted, optics failure / blockage, internal voltages, and low supply voltage
STANDARD CONFIGURATION	**FL3100H-1-5-1-3-3-1-1** Single Modbus, relays, hydrogen, 100% sensitivity, 4 second delay, aluminum housing

** Under HART, current values can be either 3.5 mA or 1.25 mA, depending on user selection*
*** Under HART, current value can be either 3.5 mA or 2.0 mA, depending on user selection*

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