



GENERAL MONITORS
Protection for life.

MODEL FL3100H - HYDROGEN

UV/IR Hydrogen Flame Detector



Features

- Wide field of view
- Event logging
- 4-20 mA stepped output
- Modbus and HART user interface
- Wide operating temperature range
- Continuous Optical Path Monitoring (COPM)
- Three SPDT high current programmable relay outputs

Benefits

- Greater fire detection coverage
- Stores fault and alarm history
- Industry standard for remote alarm and fault indication
- Provides complete status and control capability in the control room
- Permits operation at higher ambient temperature
- Checks optical path integrity and detector's electronic circuitry once every minute
- Immediate and time delayed relay outputs for alarm, warn and fault conditions

Description

General Monitors' Model FL3100H-Hydrogen is an Ultraviolet/Infrared flame detector designed to detect unwanted hydrogen fires.

The Model FL3100H-Hydrogen detects fires by monitoring in both the ultraviolet and infrared (UV & 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. The RS-485 and HART outputs provide status, alarm, fault and other information for operation, troubleshooting or programming of the units. HART allows this feature without rewiring.

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

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



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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, Ex d IIC, T5, IP66

Warranty: Two years

Approvals: CSA, ATEX, IECEx
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 100% RH, non-condensing

Electrical Specifications

Input Power: 20-36 VDC
24 VDC @ 150 mA max. (3.4 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: 4.05 mA, ± 0.05 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 VDC resistive (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: HART 6, HART Device
(optional) Description Language available.
AMSAware

RFI/EMI Protection: Complies with EN 50130-4,
EN 61000-6-4

Cable Requirements: Max. distance between detector and power source @ 24 VDC nominal (20 Ohm loop), 14 AWG – 4500 ft (1370 m)
Terminal Blocks – 14-22 AWG

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

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 or 2 x 20 mm ISO or 2 x 13.5 PG

Standard Configuration: FL3100H-1-5-1-3-3-1-1
Single Modbus, relays, hydrogen, 100% sensitivity, 4 second delay, aluminum housing

Specifications subject to change without notice.

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* 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