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:** (optional) HART 6, HART Device 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.*

*Represented by:*

** 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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**General Monitors Worldwide**

**www.generalmonitors.com**

**Lake Forest, CA**
26776 Simpatica Circle
Lake Forest, California 92630
Tel: +1-949-581-4464
Fax: +1-949-581-1151
Email: info@generalmonitors.com

**Houston, TX**
9776 Whithorn Drive
Houston, Texas 77095
Tel: +1-281-855-6000
Fax: +1-281-855-3290
Email: gmhou@generalmonitors.com

**Ireland**
Ballybrit Business Park
Galway
Republic of Ireland
Tel: +353-91-751175
Fax: +353-91-751317
Email: info@gmil.ie

**Singapore**
No. 2 Kallang Pudding Road
#09-16 Mactech Building
Singapore 349307
Tel: +65-6748-3488
Fax: +65-6748-1911
Email: genmon@gmpacifica.com.sg

**United Arab Emirates**
P.O. Box 61209
Jebel Ali
Dubai
United Arab Emirates
Tel: +971-4-8143814
Fax: +971-8-4480051
Email: gmme@generalmonitors.ae

**United Kingdom**
Heather Close
Lyme Green Business Park
Macclesfield, Cheshire
United Kingdom, SK11 0LR
Tel: +44-1625-619583
Fax: +44-1625-619098
Email: info@generalmonitors.co.uk