



## MODELS FL3100/FL3101

### UV/IR and UV Unitized Flame Detectors



#### Features

- Wide Field of View
- 4-20mA Stepped Output
- RS-485 MODBUS RTU Serial Communications
- Wide Operating Temperature Range
- Continuous Optical Path Monitoring (COPM)
- Three SPDT High Current Programmable Relay Outputs

#### Benefits

- Greater fire detection coverage
- Industry standard for remote alarm and fault indication
- Provides addressable communication link with redundancy for design specifics
- 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' Models FL3100 and FL3101 are Ultraviolet/Infrared and Ultraviolet-only flame detectors designed to detect unwanted fires and provide alarm outputs directly from the detector while maintaining false alarm immunity.

The Model FL3100 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. The Model FL3101 detects in only the ultraviolet (UV) spectral range for optimized speed of response.

There is also a FL3100 detector that specifically detects hydrogen fires. All the existing features of the FL3100 remain, but the detector now has a shorter wavelength of 2.7 - 3.2 micrometers in order to sense unwanted Hydrogen fires, issuing alarm outputs directly, without compromising false alarm immunity, but providing reliable protection of people, equipment and Hydrogen facilities.

Other features of the FL3100 and FL3101 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 output provides status, alarm, fault and other information for operation, trouble-shooting or programming of the units.

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

- Refineries
- Drilling and Production Platforms
- Fuel Loading Facilities
- Compressor Stations
- Electrostatic Paint Spray Booths
- LNG/LPG Processing and Storage Facilities
- Gas Turbines
- Chemical Plants
- Aircraft Hangars



## MODELS FL3100/FL3101

### System Specifications

**Wave Lengths:** 185 to 260nm (UV)  
4.35 microns (IR)  
*Hydrogen FL3100:* 2.7 to 3.2 microns (IR)

**Field of View:** 120° horizontal  
115° vertical (FL3100)  
140° horizontal  
135° vertical (FL3101)

**Sensitivity:** Approved performance specifications - 50 feet (15.2m) distance for a 1 sq. ft (0.092m<sup>2</sup>) gasoline fire. For H<sub>2</sub>, contact factory.

**Typical Response Time:** <3sec @ 50 ft. (FL3100)  
<1sec @ 50 ft. (FL3101)

**Minimum Sensor Response Time:** UV/IR -FL3100<500 ms  
UV-FL3101<100ms

**Accessories:** Swivel elbow union, mounting bracket, air shield, test lamp

**Classification:** Class I, Division 1, Groups B, C & D; Class II, Groups E, F & G; Class III, Type 4X, EE xd IIB, T6, IP66/67

**Warranty:** Two years

**Approvals:** CSA approved. ULC, CENELEC and CE Marking pending.

### 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 @ 150mA max. (3.6w max.)

**Analog Signal:** 4-20mA (600 Ohms max.)

**Fault Signal:** 0mA

**COPM Fault:** 2mA, ± 0.2mA

**Ready Signal:** 4mA, ± 0.2mA

**IR Signal:** 8mA, ±0.2mA (FL3100 only)

**UV Signal:** 12mA, ±0.2mA (FL3100 only)

**WARN Signal:** 16mA, ± 0.2mA

**ALARM Signal:** 20mA, ± 0.2mA

**Relay Contact Rating:** 8A 250 VAC, 8A @ 24 VDC resistive (North America)  
8A @ 30 VDC resistive (Europe)

**Dip Switch Selectable Options:** Sensitivity: 100%, 75%, 50%  
Alarm Time Delay: 1, 2, 4, or 8 seconds  
Warn & Alarm Relays:  
Latching/Non-Latching  
Energized/De-Energized

**RS-485 Output:** MODBUS RTU, suitable for linking up to 128 units in series and up to 247 units with repeaters. Optional - Dual MODBUS

**Baud Rate:** 2400, 4800, 9600 or 19200 BPS

**RFI/EMI Protection:** Complies with EN50081-2, EN50082-2

**Cable Requirements:** Max. distance between detector and power source @ 24 VDC nominal (20 ohm loop), 14 AWG - 3000ft (930 m)  
Terminal Blocks – 12-22 AWG

**Status Indicator:** LED with status, fault and alarm indication

**Faults Monitored:** EPROM and EEPROM checksum errors, optics failure/blockage 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 (2.27kg) - Aluminum  
16 lbs (7.26kg) - Stainless Steel

**Mounting:** 3/4" NPT (2 ports) or surface mounting (CENELEC)

**Cable Entry:** 2 x 3/4" NPT or  
2 x m25 or  
2 x m20

**Standard Configuration:** FL3100-321-100-121  
FL3100-321-100-123 (Hydrogen)  
FL3101-321-100-121

*Specifications subject to change without notice.*

*Represented by:*

### General Monitors Worldwide



[www.generalmonitors.com](http://www.generalmonitors.com)

#### Lake Forest, CA

26776 Simpatica Circle  
Lake Forest, California 92630  
Tel: +1-949-581-4464  
Fax: +1-949-581-1151  
Email: [sales@generalmonitors.com](mailto:sales@generalmonitors.com)

#### Houston, TX

9776 Whithorn Drive  
Houston, Texas 77095  
Tel: +1-281-855-6000  
Fax: +1-281-855-3290  
Email: [gmlhou@worldnet.att.net](mailto:gmlhou@worldnet.att.net)

#### Ireland

Ballybrit Business Park  
Galway  
Republic of Ireland  
Tel: +353-91-751175  
Fax: +353-91-751317  
Email: [postmaster@gmil.ie](mailto:postmaster@gmil.ie)

#### Singapore

No. 2 Kallang Pudding Road  
#09-16 Mactech Building  
Singapore 349307  
Tel: +65-748-3488  
Fax: +65-748-1911  
Email: [genmon@singnet.com.sg](mailto:genmon@singnet.com.sg)

#### United Arab Emirates

P.O. Box 61209  
Jebel Ali  
Dubai  
United Arab Emirates  
Tel: +971-4-8815751  
Fax: +971-4-8817927  
Email: [gmme@emirates.net.ae](mailto:gmme@emirates.net.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](mailto:info@generalmonitors.co.uk)