GENERAL MONITORS

Protection for life.

MODELS FL3100H / FL3101H

UV/IR and UV Unitized Flame Detectors

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' Models FL3100H and FL3101H 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 FL3100H 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 FL3101H detects in only the ultraviolet (UV) spectral range for optimized speed of response.

Other features of the FL3100H and FL3101H 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
• Aircraft Hangars
• Chemical Plants
• Compressor Stations
• Drilling and Production Platforms
• Electrostatic Paint Spray Booths
• Fuel Loading Facilities
• Gas Turbines
• LNG/LPG Processing and Storage Facilities

MODELS FL3100H / FL3101H

System Specifications

Wave Lengths: 185 to 260 nm (UV)
4.35 microns (IR)

Field of View: 120° max. conical (FL3100H)
140° max. conical (FL3101H)

Sensitivity: Approved performance specifications –
50 feet (15.2m) distance for a 1 sq. ft
(0.092m²) heptane fire.

**Typical Response
Time:** < 3sec @ 50 ft. (FL3100H)
< 1sec @ 50 ft. (FL3101H)

**Minimum Sensor
Response Time:** UV/IR – FL3100H = 500 ms
UV – FL3101H = 100 ms

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, FM, ATEX, IECEx, HART registered
SIL 3 suitable, FM approved to IEC 61508

Patent Number: 5,914,489

Environmental Specifications

Operating Temperature Range:
-40°F to +185°F (-40°C to +85°C)

Storage Temperature Range:
-40°F to +185°F (-40°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)

* 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

**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

**Wireless
Communication:** Available with ELPRO
Technologies wireless devices

**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-1-5-1-3-1-1-1
FL3101H-1-5-1-3-1-1-1

Specifications subject to change without notice.

Represented by: