

# Models FL3110/FL3111

UV/IR and UV Unitized Flame Detectors



General Monitors



## 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

## Features & Benefits

- Wide field of view offers greater coverage for detecting fires while using fewer detectors
- LED status indication status is clearly visible from front
- Continuous Optical Path Monitoring (COPM) checks optical path integrity and detector's electronic circuitry once every minute
- Stainless steel construction provides high level of corrosion resistance for use in marine environments
- EExe wiring for compartment offers ease of field wiring connection
- 5 output configurations for flexibility and economy of purchase

## Description

The General Monitors FL3110 and FL3111 are UV/IR and UV-only flame detectors designed to detect unwanted fires and provide alarm outputs directly from the detector while maintaining false alarm immunity. These detectors complement the existing FL3112 multi-IR detector, completing the "family".

The FL3110 detects fires by monitoring in both 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. The FL3111 detects in only the ultraviolet (UV) spectral range for optimized speed of response.

The detectors' electronics are integral within an explosionproof housing, allowing detector information to be processed at point of detection. The electronics are fully separated from the Exe wire compartment, offering protection during installation and service. The FL3110 and FL3111 are available in these output configurations:

- 4-20mA stepped output + single serial communications port
- Dual serial communications ports
- Warning, alarm and fault relays
- Alarm & fault relays with on-board EOL and alarm resistor
- 4-20mA stepped output only

The serial communication port(s) allows 128 units (247 using repeaters) to be linked up to a host computer using Modbus RTU protocol. The communication registers provide alarm status, fault and other information for operation, trouble shooting or programming the unit. The COPM (Continuous Optical Path Monitoring) self-test feature checks optical path integrity (window cleanliness) and the detector's electronic circuitry once every minute.



*Because every life has a purpose...*

| System Specifications               |   |
|-------------------------------------|---|
| <b>WAVE LENGTHS</b>                 | 185 to 260nm (UV)<br>4.35 microns (IR)  |
| <b>FIELD OF VIEW</b>                | 120° maximum conical  |
| <b>SENSITIVITY</b>                  | Approved performance specifications–<br>50 feet (15.2m) distance for a 1sq. ft.<br>(0.092m <sup>2</sup> ) gasoline fire       |
| <b>TYPICAL RESPONSE TIME</b>        | <3 seconds @ 50 ft. (FL3110)<br><1 seconds @ 50 ft. (FL3111)  |
| <b>MINIMUM SENSOR RESPONSE TIME</b> | UV/IR-FL3110 <500 ms<br>UV-FL3111 <100 ms   |
| <b>ACCESSORIES</b>                  | Programming card  |
| <b>CLASSIFICATION</b>               | EExed – IIC T4 T135 -40°C to +90°C<br>(-40°F to +194°F)<br>EExed – IIC T5 T100 -40°C to +75°C<br>(-40°F to +167°F)<br>IP66/67 |
| <b>WARRANTY</b>                     | 2 years   |
| <b>APPROVALS</b>                    | ATEX and CE Marking<br>Bureau Veritas (FL3110 only)   |
| Mechanical Specifications           |   |
| <b>HOUSING</b>                      | Stainless steel   |
| <b>DIAMETER</b>                     | 84mm (3.3 inches)   |
| <b>LENGTH</b>                       | 136 mm (5.3 inches)   |
| <b>WEIGHT</b>                       | 2.5 kg (5.5 lbs)  |
| <b>CABLE ENTRIES</b>                | 2 x M20   |
| <b>MOUNTING</b>                     | Adjustable surface mount bracket<br>included  |

| Environmental Specifications       |   |
|------------------------------------|---|
| <b>OPERATING TEMPERATURE RANGE</b> | -40°C to +90°C (-40°F to +194°F)  |
| <b>STORAGE TEMPERATURE RANGE</b>   | -40°C to +90°C (-40°F to +194°F)  |
| <b>OPERATING HUMIDITY RANGE</b>    | 0% to 100% RH, non-condensing   |
| Electrical Specification           |   |
| <b>INPUT POWER</b>                 | 20-36 VDC<br>24VDC @ 150mA max. (3.6w max.)   |
| <b>ANALOG SIGNAL</b>               | 4-20mA (600 ohms max.)  |
| <b>FAULT SIGNAL</b>                | 0mA   |
| <b>COPM FAULT</b>                  | 2.0mA ± 0.2mA   |
| <b>READY SIGNAL</b>                | 4.0mA ± 0.2mA   |
| <b>WARN SIGNAL</b>                 | 16.0mA ± 0.2mA  |
| <b>ALARM SIGNAL</b>                | 20.0mA ± 0.2mA  |
| <b>RELAY CONTACT RATING</b>        | 30 VRMS, 42.2 VPK, 1A max   |
| <b>SELECTABLE OPTIONS</b>          | Sensitivity: 100%, 75%, 50%<br>Alarm time delay: 2, 4, 8 or 10 seconds<br>Warn & alarm relays:<br>Latching/non-latching<br>Energized/de-energized |
| <b>SERIAL COMMUNICATIONS</b>       | Modbus RTU, suitable for linking up to<br>128 units and 247 with repeaters  |
| <b>EMC PROTECTION</b>              | Complies with EN50270, Type 2   |
| <b>EXE TERMINAL</b>                | 0.75 – 2.5mm <sup>2</sup> (12-22 AWG)   |
| <b>STATUS INDICATORS</b>           | 2 LEDs with status and fault cues   |
| <b>FAULT MONITORING</b>            | RAM, EPROM and EEPROM checksum<br>errors, optics failure/blockage and<br>low supply voltage   |
| <b>STANDARD CONFIGURATION</b>      | <b>FL3110-1-5-1-3-1</b><br><b>FL3111-1-5-1-3-1</b>  |

Note: This Bulletin contains only a general description of the products shown. While uses and performance capabilities are described, under no circumstances shall the products be used by untrained or unqualified individuals and not until the product instructions including any warnings or cautions provided have been thoroughly read and understood. Only they contain the complete and detailed information concerning proper use and care of these products. Specifications subject to change without notice.



ID 1466-06-MC / June 2017

© MSA 2017 Printed in U.S.A.