Overview

Sierra Monitor offers two versions of the new 3600 Series UV/IR Flame Detectors:

Model 3600-L (& LB) provides a combination of UV and IR sensor, where the IR sensor operates at a wavelength of 2.5-3.0 μm, and can detect hydrocarbon-based fuel and gas fires, hydroxyl and hydrogen fires, as well as metal and inorganic fires.

Model 3600-L4 (& L4B) is identical to the 3600-L except that the IR sensor works at a wavelength of 4.5 μm and is only suitable for hydrocarbon based fires.

The UV/IR flame detector senses radiant energy in the short wave section of both the ultraviolet and infrared portions of the electromagnetic spectrum. The signals from both sensors are analyzed for frequency, intensity and duration. Simultaneous detection of radiant energy in both the UV and IR sensors triggers an alarm signal.

The UV sensor incorporates a special logic circuit that helps prevent false alarms causes by solar radiation. Due to increased reliability, the 3600-L Series is approved to IEC 61508 Safety Integrity requirements of SIL2 (TUV).

Applications

- Offshore Oil & Gas installations
- Onshore Oil & Gas installations and pipelines
- Chemical plants
- Petrochemical plants
- Storage Tank Farms
- Aircraft hangers
- Power Generation facilities

- Pharmaceutical industry
- Printing industry
- Warehouses
- Automotive industry
- Explosives & Munitions
- Waste Disposal facilities
- Aerospace industry
- Paint, Polymer and Glue processes

Features and Benefits

- UV/IR Dual-Sensor
- Heated window- for operation in harsh weather conditions (snow, ice, condensation)
- Approved to Safety Integrity Level 2 (SIL2-TUV)
- Multiple output options for maximum flexibility and compatibility:
  -Relays for Alarm, Fault and Auxiliary
  -0-20 mA (stepped)
  -Optional HART protocol for maintenance and asset management
  -RS-485, Modbus Compatible

- High Reliability-MTBF- minimum 150,000 hours
- 2-Year Warranty

- User Programmable via HART or RS-485
- 3rd party Performance tested
  - EN54-10 (LPCB)   -   FM3260 (FM)
- Ex approved for Zone 1 hazardous area location
  - ATEX   - FM
  - IECEx   - CSA
- Solar blind
- Automatic Built-In-Test (BIT) and Manual

Specifications*

Spectral Response
3600-L/LB UV: .185-.26 micron IR 2.5-3 micron
3600-L4/L4B UV: .185-.26 micron IR: 4.4-4.6 micron

L/LB Detection Range
n-Heptane: 50 ft (15 m)   **Kerosene:** 37 ft (11 m)
Methane*: 26 ft (8 m)   **Gasoline:** 50 ft (15 m)
Alcohol 95%: 25 ft (7.5 m)   **LPG*:** 43 ft (13 m)
Diesel Fuel: 37 ft (11 m)   **Methanol:** 25 ft (7.5 m)
Polypropylene Pellets: 33 ft (10 m)
Hydrogen* **: 33 ft (10 m)   **IPA:** 25 ft (7.5 m)
Office Paper: 16 ft (5 m)   **JP5:** 37 ft (11 m)
* 30" (.75 m) high, 10" (.25 m) w/plume fire
** 3600-L/LB only; find L4/L4B ranges in manual

Response Time
Typically 5 seconds, High speed 150 msec response

Adjustable Time Delay
Up to 30 seconds

Sensitivity Range
1ft^2 n-heptane pan fire from 50 ft (15m)

Field of View
100° horizontal, 95° vertical

Built-in-Test (BIT)
Manual and Automatic

Heated Options
To eliminate condensation and icing on window

Temperature Range
Operating: -67 to 167°F (-55 to 75°C)
Operating Option: -67 to 185°F (-55 to 85°C)
Storage: -67 to 185°F (-55 to 85°C)

Electrical Specifications
Operating Voltage: 24VDC nominal (18-32 VDC)
Power Consumption:
Standby Max 90 mA (110 mA w/heated window)
Alarm: Max 130 mA (160 mA w/heated window)
Cable Entries: 2 x ¾" – 14 NPT conduits
Or 2 x M25 x 1.5 mm ISO
Wiring: 12-22 AWG (2.5 mm^2- 0.3 mm^2)
Electrical Input Protection: MIL-STD-1275B
Electromagnetic Compatibility: EMI/RFI protected to EN61326-3 and EN61000-6-3
Electrical Interface: The detector includes 12 terminals w with 5 wiring options (factory set)

Mechanical Specifications
Materials: Heavy duty copper free aluminum (<1%), red epoxy enamel finish (ATEX approval only)
Enclosure Options: Stainless steel 316L with electro polish finish (FM* or ATEX approval)
Mounting: Stainless Steel 316 L with electro polish finish
Dimensions: Detector: 4" x 4.6" x 6.18"
(101.6 x 117 x 157 mm)
Weight: Aluminum 2.8 lb (1.3 Kg) SS 316 L:6.1lb (2.8 Kg)
Tilt mount: 2.2 lb (1 kg)
Environmental Standards: Meets MIL-STD-810C for Humidity, Salt & Fog, Vibration, Mechanical Shock, High Temp, Low Temp
Water and Dust: IP66 and IP67 per En60529, NEMA 250 6P

Humidity
Up to 95% non-condensing (withstands up to 100% RH for short periods)

Output
Relays: Alarm, Fault and Auxiliary
SPST volt-free contacts rated 5A at 30 VDC or 250 VAC
4-20mA (stepped): Sink (source option) configuration
Fault: 0 + 1 mA   Warning: 16 mA ±5%
BIT Fault: 2 mA ±10%   Alarm 20 mA ±5%
Normal: 4 mA ± 10%   Resistance Loop: 100-600 ohms
HART Protocol: Optional Hart Communication on the 0-20 mA analog current used for maintenance, configuration changes and asset management, available in MA source output wiring options
RS-485: Rs-485 Modbus compatible communication Link that can be used in computer control installations

Approvals
ATEX & IECEx*: Ex II 2 GD
Ex de IIB + H2 T5 (-55 to 75°C) Ex tD A21 IP66/X7 T 95°C
Ex de IIB + H2 T4 (-55 to 85°C) Ex tD A21 IP66/X7 T 105°C
FM/CSA*: Class I Div1 Groups B, C & D
Class II/III Div. 1 Groups E, F, & G
Performance: EN54-10 (LPCB)* FM-3250 (FM)
DNV Marine Approval
Reliability: IEC61508-SIL-2 (TUV)

*Specifications subject to change without notice

Ordering Information: The following part number is essential in selection of the correct product. Please build up the desired part by inserting the code for each element into the appropriate space (ie. 3600-L-1-1-2-S-C).

Model	Type	Wiring Config. (Table 1)	Temperature	Elec Entry	Housing	EX Approval
3600						- C
↓	↓	↓	↓	↓	↓	↓
	- L = UV/IR	- 1 = std	- 1 = 75C std	- 1 = M25	- S = SS	- C = ATEX
	- LB = UV/IR w/BIT	- 2	- 2 = 85C	- 2 = 3/4" NPT	- A = AL	
	- L4 = UV/IR (IR @ 4.5mm)	- 3				
	- L4B = UV/IR (4.5mm) w/BIT	- 4				
		- 5				

Accessories

FS-1200	Fire Simulator		3600-01	Tilt Mount
777163	SS. Sunshade		777650	Air Shield
777820	Mini Laptop Kit		794079-5	USB RS485 Harness Kit
777166	Laser Pointer (Detector area coverage)			

Table 1: Wiring Options					
Option	**4-20mA**	**HART**	**Fault Relay**	**AUX Relay**	**Alarm Relay** **
1 Default	Sink	X	NC	-	NO
2	Source	✓	NC	-	NO/NC
3	Source	✓	NO	-	NO/NC
4	X	X	NC	NO	NO
5	X	X	NO	NO	NO

RS-485 available on all options   ** Relays shown in non-alarm state

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2/17