

Single IR Flame Detector

A low cost solution in a durable, high spec package

The 3600-R Single IR Flame Detector detects hydrocarbon-based fuel and gas fires using advanced flame analysis tools. The detector provides early warning of flaming fires working at 4.5µm for maximum sensitivity, and immunity to false alarms from IR sources such as sunlight and IR projectors.

The 3600-R is the most durable and weather resistant single IR flame detector currently on the market. Its new features include a heated window, to eliminate condensation and icing; HART capabilities, for digital communications; lower power requirements; and a compact, lighter design.

Due to increased reliability, the 3600-R Series is approved to IEC 61508 Safety Integrity requirements of SIL2 (TUV).



Features & Benefits

- Sensitivity Selection
- Automatic and Manual Built-In-Test (BIT) - to assure continued reliable operation
- Heated window - for operation in harsh weather conditions (snow, ice, condensation)
- Multiple output options for maximum flexibility and compatibility
 - Relays (3) for Alarm, Fault and Auxiliary
 - 0-20mA (stepped)
 - HART Protocol for maintenance and asset management
 - RS-485, Modbus Compatible
- High Reliability - MTBF - minimum 150,000 hours
- Approved to Safety Integrity Level 2 (SIL2-TUV)
- 2-Year Warranty
- User Programmable via HART or RS-485
- Ex approved for Zone 1 hazardous area location
 - ATEX
 - IECEx
 - FM *
 - CSA *
- 3rd party Performance Tested
 - EN54-10 (LPCB)
 - FM3260 (FM)

* Option

Applications

- Offshore Oil & Gas installations
- Onshore Oil & Gas installations and pipelines
- Chemical plants
- Petrochemical plants
- Storage Tank farms
- Waste Disposal facilities
- Power Generation facilities
- Pharmaceutical industry
- Printing industry
- Warehouses
- Automotive industry

Ordering Information

Model Number	Type	Wiring Config (Table1)	Temperature	Elec Entry	Housing	EX Approval
3600	- R = IR	- 1 - 2 - 3 - 4 - 5	- 1 = 75C std - 2 = 85C	- 1 = M25 - 2 = 3/4" NPT	- S = SS - A = AL	- F = FM - C = ATEX/IECEX

Table 1: Wiring Options

All units are provided with RS-485 and HART enabled if mA output is used

Option	4-20mA	Fault Relay	Aux Relay	Alarm Relay
1 default	Sink	NC	--	NO
2	Source	NC	--	NO & NC
3	Source	NO	--	NO & NC
4	X	NC	NO	NO
5	X	NO	NO	NO

Model 3600-R

IR Flame Detector

Specifications:

Spectral Response

Single band IR (4.4 - 4.6 micron)

Detection Range

(at highest Sensitivity Setting for 1 ft² (0.1m²) pan fire)

n-Heptane: 50 ft (15m)

Gasoline: 50 ft (15m)

Diesel Fuel: 37 ft (11m)

JP5: 37 ft (11m)

*20" (0.5m) high, 8" (0.2m) with plume fire

Typically 5 seconds

Up to 30 seconds

Kerosene: 37 ft (11m)

Ethanol 95%: 25 ft (7.5m)

Methanol: 25 ft (7.5m)

IPA (Isopropyl Alcohol): 25 ft (7.5m)

Methane*: 16 ft (5m)

LPG*: 16 ft (5m)

Polypropylene Pellets: 10 ft (3m)

Office Paper: 20 ft (6m)

Response Time

Adjustable Time Delay

Sensitive Range

2 Sensitive Ranges for 1 ft² (0.1m²) n-heptane pan fire from 15 ft (5m) to 50 ft (15m)

Field of View

90° horizontal, 90° vertical

Built-in-Test (BIT)

Manual and Automatic

Temperature Range

Operating: -67°F to +167°F (-55°C to +75°C)

Operating Option: -67°F to +185°F (-55°C to +85°C)

Storage: -67°F to +185°F (-55°C to +85°C)

Humidity

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

Heated Options

To eliminate condensation and icing on the window

Electrical Specifications

Operating Voltage

24 VDC nominal (18-32 VDC)

Power consumption

Standby: Max. 90mA (110mA with heated window)

Alarm: Max. 130mA (160mA with heated window)

Cable Entries

2 x 3/4" - 14NPT conduits or 2 x M25 x 1.5 mm ISO

Wiring

12 - 22AWG (2.5mm² - 0.3mm²)

Electrical Input Protection

According to MIL-STD-1275B

Electromagnetic Compatibility

EM/RFI protected to EN61326-3 and EN61000-6-3

Electrical Interface

The detector includes twelve (12) terminals with five (5) wiring options (factory set)

Outputs

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 +1mA

Warning: 16mA ±5%

BIT Fault: 2mA ±10%

Alarm: 20mA ±5%

Normal: 4mA ±10%

Resistance Loop: 100-600 ohms

HART Protocol

Optional HART communication on the 0-20mA analog current (FSK) - 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

Mechanical Specifications

Materials

- Stainless Steel 316L with electro polish finish

Enclosure Options

- Heavy-duty copper free aluminum (less than 1%), red epoxy enamel finish

Mounting

Stainless Steel 316L with electro polish finish

Dimensions

Detector: 4" x 4.6" x 6.18" (101.6 x 117 x 157 mm)

Weight

Aluminum: 6.1 Lb (2.8 Kg)

Stainless Steel 316L: 2.8 Lb (1.3 Kg)

Tilt mount: 2.2 Lb (1.0 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

Approvals

Hazardous Area

ATEX & IECEx

Ex II 2 GD,

Ex de IIB + H2 T5 (-55°C to + 75°C)

Ex de IIB + H2 T4 (-55°C to + 85°C)

Ex tD A21 IP66/X7 T 95°C

Ex tD A21 IP66/X7 T 105°C

FM / CSA*

Class I Div. 1, Groups B, C & D

Class I/III Div. 1, Groups E, F & G

Performance

EN54-10 (LPCB)

FM-3260 (FM)

Reliability

IEC61508 - SIL-2 (TUV)

Accessories

Fire Simulator

20/20-312

Tilt Mount

3600-01

Weather Protector

777163

Air Shield

777161

Mini Laptop Kit

777820

USB RS485 Harness Kit

794079-5

Laser Pointer

777166

(Detector area coverage)



* Contact Sierra Monitor

Specifications subject to changes without notice

Sierra Monitor Corp 1991 Tarob Court Milpitas, CA 95035 USA (408) 262-6611 (800) 727-4377 Fax: (408) 262-9042

Visit our Web site: www.sierramonitor.com

E-Mail: sales@sierramonitor.com

© 2010 Sierra Monitor Corporation
Rev. A1-12/10