

# Triple IR (IR3) Flame Detector Superior performance, reliability and immunity to false alarms

The 3600-I Triple IR (IR3) Flame Detector detects fuel and gas fires at long distances with the highest immunity to false alarms. The 3600-I IR3 can detect a  $1f\ell$  (0.1 $m^2$ ) gasoline pan fire at 215 ft (65m) in less than 5 seconds.

The 3600-I is the most durable and weather resistant flame detector currently on the market. Its 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-I Series is approved to IEC 61508 Safety Integrity requirements of SIL2 (TUV).



### **Features & Benefits**

- Triple Spectrum Design for long distance detection and high false alarm immunity
- Sensitivity Selection to ensure no zone crossover detection
- 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)
  - DNV Marine Approval

\* Option

## **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

## **Ordering Information**

Model Number	Туре	Wiring Config (Table1)	Temperature	Elec Entry	Housing	EX Approval
3600	- I = IR3	- 1 - 2 - 3 - 4 - 5	- 1 = 75C std - 2 = 85C	- 1 = M25 - 2 = 3/4" NPT	- S = SS - A = AL	- F = FM - C = ATEX/IIECEx

### **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	Χ	NC	NO	NO
5	Χ	NO	NO	NO

Model 3600-I IR3 Flame Detector

Kerosene: 150 ft (45m)

Ethanol 95%: 135 ft (40m)

Methane\*: 100 ft (30m)

Office Paper: 33 ft (10m)

Polypropylene Pellets: 16 ft (5m)

LPG\*: 100 ft (30m)

Specifications:

Spectral Response Three IR Bands

**Detection Range** n-Heptane: 215 ft (65m)

(at highest Sensitivity Setting for 1 ft2

Gasoline: 215 ft (65m) (0.1m2) pan fire)

Diesel Fuel: 150 ft (45m) Methanol: 115 ft (35m)

IPA (Isopropyl Alcohol): 135 ft (40m) JP5: 150 ft (45m)

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

Response Time Typically 5 seconds Adjustable Time Delay Up to 30 seconds

Sensitive Range 4 Sensitive Ranges for 1 ft2 (0.1m2) n-heptane pan fire from 50 ft (15m) to 215 ft (65m)

Field of View 100° horizontal, 95° 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 (2.5mm<sup>2</sup> - 0.3mm<sup>2</sup>) **Electrical Input Protection** According to MIL-STD-1275B

**Electromagnetic Compatibility** EMI/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

Optional HART communication on the 0-20mA analog current (FSK) - used for maintenance, configuration changes and asset HART Protocol

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

Stainless Steel 316L with electro polish finish Mounting Dimensions Detector: 4" x 4.6" x 6.18" (101.6 x 117 x 157 mm)

Weight Aluminum: 2.8 Lb (1.3 Kg)

Stainless Steel 316L: 6.1 Lb (2.8 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 II/III Div. 1, Groups E, F & G

EN54-10 (LPCB) Performance FM-3260 (FM)

**DNV Marine Approval** IEC61508 - SIL-2 (TUV)

Reliability Accessories

(Detector area coverage)

Fire Simulator 20/20-310 Tilt Mount 3600-01 Weather Protector 777163 Air Shield 777161 Mini Laptop Kit 777820 **USB RS485 Harness Kit** 794079-5

\* Contact Sierra Monitor Laser Pointer 777166

Specifications subject to changes without notice

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