

FLAME DETECTORS

40/40I IR³ FLAME DETECTOR



40/40I TRIPLE IR FLAME DETECTOR

Superior performance, reliability and immunity to false alarms

DESCRIPTION

The new 40/40I Triple IR (IR3) Flame Detector detects fuel and gas fires at long distances with the highest immunity to false alarms. The 40/40I IR3 can detect a 0.1m² gasoline pan fire at 65m in less than 5 seconds.

The 40/40I is the most durable and weather resistant 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 40/40 Series warranty period has been extended to 5 years and is approved to IEC 61508 Safety Integrity requirements of SIL2.

APPLICATIONS

- ¢ Offshore Oil & Gas
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- ¢ Power Generation facilities
- ¢ Pharmaceutical Industry
- ¢ Printing Industry
- ¢ Warehouses
- ¢ Chemical plants
- ¢ Automotive Industry
- ¢ Petrochemicals plants
- ¢ Explosives & Munitions
- ¢ Storage Tank farms
- ¢ Waste Disposal facilities
- ¢ Aircraft hangars

FEATURES

- ¢ 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)
- ¢ 5-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

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SPECIFICATIONS

Spectral Response

Detection Range

(Highest sensitivity setting for 0.1m² pan fire)

Three IR Bands

	<u>m</u>	<u>Fuel</u>	<u>m</u>	<u>Fuel</u>	<u>m</u>
n-Heptane	65	Kerosene	45	Methane*	30
Gasoline	65	Ethanol 95%	40	LPG *	30
Diesel Fuel	45	Methanol	35	Polypropylene Pellets	5
JP5	45	IPA (Isopropyl Alcohol)	40	Office Paper	10

* 0.5m high, 0.2m width plume fire

Response Time

Time Delay

Sensitivity Range

Field of View

Built-in-Test

Temperature Range

Typically 5 sec

Up to 30 seconds

4 Sensitive Ranges for 0.1m² n-heptane pan fire from 15m to 65m

100°horizontal, 95°vertical

Manual and Automatic BIT

Operating: -55°C to +75°C

Option: -55°C to +85°C

Storage: -55°C to +85°C

Humidity

Heated Optics

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

To eliminate condensation and icing on the window

ELECTRICAL SPECIFICATIONS

Operating Voltage:

Power Consumption

Electrical Input Protection

Electromagnetic Compatibility

Electrical Interface

24 VDC nominal (18-32 VDC)

Standby: Max. 100mA (150mA with heated window)

Alarm: Max. 150mA (200mA with heated window)

According to MIL-STD-1275B

EMI/RFI protected to EN50130-4

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

OUTPUTS

Relays

0-20mA (stepped)

HART Protocol

RS-485

Alarm and Fault and Auxilliary

SPST volt-free contacts rated 5A at 30 VDC 250 VAC

Sink (source option) configuration

Fault: 0 +1mA

Warning: 10mA +- 5%

BIT Fault: 2mA +- 10%

Alarm: 15mA +- 5%

Normal: 5mA +- 10%

Resistance Loop: 100-600 N

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

RS-485 Modbus compatible communication link that can be used in computer controlled installations

MECHANICAL SPECIFICATIONS

Materials

Enclosure options

Mounting

Dimensions

Weight

Environmental Standards

Water and Dust

Stainless Steel 316L with electro polish finish

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

Stainless Steel 316L with electro polish finish

Detector 90mm x 114mm x 156mm

Detector (St.St.) 2.5kg Detector, aluminium 1.2kg Tilt mount 1.0kg

Meets MIL-STD-810C for Humidity, Salt & Fog, Vibration, Mechanical Shock, High Temp, Low Temp

IP66 and IP67 per EN60529, NEMA 250 6P

APPROVALS

Hazardous Area

Performance

Reliability

ATEX and IECEx

Ex II 2 GD,

Ex de IIB+H2 T5 (-55°C to 75°C)

Ex tD A21 IP66/X7 T 95°C

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

Ex de IIB+H2 T4 (-55°C to + 85°C)

Ex tD A21 IP66/X7 T 105°C

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

FM / CSA

EN54-10 (LPCB)

FM3260 (FM)

DNV Marine Approval

IEC61508 - SIL2 (TUV)

