



40/40I Triple IR (IR3) Flame Detector



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

Description

The 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 1ft² (0.1m²) gasoline pan fire at 215 ft (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.

General Specifications

Spectral Response:

Three IR Bands

Detection Range: at highest Sensitivity Setting for 1ft.² (0.1m²) pan fire

Fuel:

n-Heptane	215 ft (65m)
Gasoline	215 ft (65m)
Diesel Fuel	150 ft (45m)
JP5	150 ft (45m)
Kerosene	150 ft (45m)
Ethanol 95%	135 ft (40m)
Methanol	115 ft (35m)
IPA (Isopropyl Alcohol)	135 ft (40m)
Methane*	100 ft (30m)
LPG*	100 ft (30m)
Polypropylene Pellets	16 ft (5m)
Office Paper	33 ft (10m)

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

Response Time: Typically 5 seconds.

Adjustable Time Delay: Up to 30 seconds

Sensitivity Ranges:

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):

Automatic (and Manual)

Temperature Range:

Operating:

-67°F (-55°C) to +167°F (+75°C)

Option:

-67°F (-55°C) to +185°F (+85°C)

Storage:

-67°F (-55°C) to +185°F (+85°C)

Humidity:

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

Heated Optics:

To eliminate condensation and icing on the window

Electrical Specifications

Operating Voltage:

24 VDC nominal (18-32 VDC)

Power Consumption:

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

Alarm: Max. 150mA (200mA 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:

EMI/RFI protected to EN50130-4

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

0-20mA (stepped):

Sink (source option) configuration

Fault: 0 +1mA

BIT Fault: 2mA ±10%

Normal: 5mA ±10%

Warning: 10mA ±5%

Alarm: 15mA ±5%

Resistance Loop: 100-600 ohms

HART Protocol:

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

RS-485:

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

Mechanical Specifications

Materials:

Enclosure Options

- Stainless Steel 316L with electro polish finish

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

Mounting:

Stainless Steel 316L with electro polish finish

Dimensions:

Detector 3.5"x 4.5"x 6.1" (90 x114 x156mm)

Weight:

Detector (St.St.) 5.5 lb (2.5kg)

Detector, aluminum 2.5 lb (1.2kg)

Tilt Mount 2.2 lb (1.0kg)

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 and IECEx

Ex II 2 GD

Ex de IIB+H2 T5 (-55°C to +75°C)

Ex tD A21 IP66/X7 T 95°C

Ex de IIB+H2 T4 (-55°C to +85°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

Performance:

EN54-10 (LPCB)

FM-3260 (FM)

DNV Marine Approval

Reliability:

IEC61508 - SIL2 (TUV)

Accessories

Fire Simulator: 20/20-310

Tilt Mount: 40/40-001

Weather Protector: 777163

Air Shield: 777161

Laser Pointer: 777166
(Detector area coverage)