

# features

- Superior performance, reliability and immunity to false alarms
- 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

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 0.1m<sup>2</sup> 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.

## 40/40I Triple IR (IR3) Flame Detector

# Data Sheet



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# applications

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

# specifications

## General

Spectral Response: Three IR Bands  
Detection Range: (at highest Sensitivity Setting for 0.1m<sup>2</sup> pan fire)

Fuel	m
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: Typically 5 seconds  
Adjustable Time Delay: Up to 30 seconds  
Sensitivity Ranges: 4 Sensitive ranges for 0.1m<sup>2</sup> n-heptane pan fire from 15m to 65m

Field of View: Horizontal 100°; Vertical 95°  
Built-in-Test (BIT): Automatic (and Manual)

Temperature Range:  
Operating: -55°C to +75°C  
Option: -55°C to +85°C  
Storage: -55°C to +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

## Electric

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 (2.5mm<sup>2</sup> - 0.3mm<sup>2</sup>)  
Electrical Input Protection: According to MIL-STD-1275B  
Electromagnetic Compatibility: EMI/RFI protected to EN50130-4  
Electrical Interface: The detector includes 12 terminals with 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  
Warning: 10mA +/- 5%  
BIT Fault: 2mA +/- 10%  
Alarm: 15mA +/- 5%  
Normal: 5mA +/- 10%  
Resistance Loop: 100-600 Ω  
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

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 90 x 114 x 156 mm  
Weight: Detector (St.St.) 2.5 kg  
Detector, aluminum 1.2 kg  
Tilt mount 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 and IECEx:

Ex II 2 GD  
Ex de IIB+H2 T5 (-55°C to +75°C)  
Et x 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

Performance

EN54-10 (LPCB)  
FM-3260 (FM)4

Reliability

DNV Marine Approval  
IEC61508 - SIL2 (TUV)

# certification

CPD

0832-CPD-0972

# references

40/40I

Triple IR (IR3) Flame Detector

40/40-ADD-ST

supplement for stainless steel housing

40/40-ADD-85

supplement for calibration to 85°C

## Accessories

40/40-001

Tilt mount

40/40-777161

Air Shield (Detector area coverage)

40/40-777163

Weather Protector

40/40-777166

Laser Pointer

20/20-310

Fire Simulator

40/40-789260-2

Pole mount (U-BOLT) - 2"

40/40-789260-1

Pole mount (U-BOLT) - 3"

40/40-777820

Handheld Pocket PC diagnostics kit

40/40-794079-5

USB connection cable for PC (includes software)

# local distributor

Every care has been taken in the preparation of this data sheet but no liability can be accepted for the use of the information therein. Design features may be changed or amended without prior notice.

