# features

- 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)
- 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)

The new 40/40R 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 4.5 µm for maximum sensitivity, and immunity to false alarms from IR sources such as sunlight and IR projectors.

The new design is the most durable and weather resistant single IR flame detectors 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.

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## by Honeywell

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# 40/40R
# Single IR Flame Detector



# Data Sheet

# applications

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

# specifications

## General

| Spectral Response: | Single band IR 4.4-4.6 µm |
| Detection Range: | (at highest Sensitivity Setting for 0.1m² pan fire) |

| Fuel | m |
| --- | --- |
| n-Heptane | 15 |
| Kerosene | 11 |
| Methane* | 5 |
| Gasoline | 15 |
| Ethanol 95% | 7.5 |
| LPG * | 5 |
| Diesel Fuel | 11 |
| Methanol | 7.5 |
| Polypropylene Pellets | 3 |
| JP5 | 11 |
| IPA (Isopropyl Alcohol) | 7.5 |
| Office Paper | 6 |

* 0.5m high, 0.2m width plume fire

| Response Time: | Typically 5 seconds |
| Adjustable Time Delay: | Up to 30 seconds |
| Sensitivity Ranges: | 2 ranges; 0.1m² n-heptane pan fire from 5m or 15m |
| Field of View: | Horizontal 90º; Vertical 90º |
| Built-in-Test (BIT): | Automatic (and Manual) |

Temperature Range:
| Operating: | -55ºC to +75ºC |
| Option: | -55ºC to +85ºC |
| Storage: | -55ºC to +85ºC |
| 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 (2.5mm² - 0.3mm²) |

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: | - 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 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 |

# references

## Approvals

Hazardous Area:

ATEX and
IECEx:
Ex II 2 GD,
Ex de IIB+H2 T5 (-55ºC to + 75ºC);
Ex de IIB+H2 T4 (-55ºC to + 85ºC)
Ex tD A21 IP66/X7 T 95ºC
Ex tD A21 IP66/X7 T 105ºC

FM / CSA:
Class I Div. 1, Groups B, C & D
Class II/III Div. 1, Gr. E, F & G

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

Reliability:
IEC61508 - SIL2 (TUV)

## Certification

CPD:
0832-CPD-0978

| | |
|---|---|
| 40/40R | Single IR 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