

40/40R Single IR Flame Detector



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)

General

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.

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 0.1m ² 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; 0.1m ² n-heptane pan fire from 5m or 15m
Field of View:	Horizontal 90°; Vertical 90°
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 ² - 0.3mm ²)
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 \pm 5%
BIT Fault:	2mA \pm 10%
Alarm:	15mA \pm 5%
Normal:	5mA \pm 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

Approvals

Hazardous Area:	ATEX and 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
Performance:	EN54-10 (LPCB) FM-3260 (FM)
Reliability:	IEC61508 - SIL2 (TUV)

Certification

CPD:	0832-CPD-0978
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Product references

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)

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