PROTECTOWIRE®
FireSystems

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 Manufacturer's Warranty

- User Programmable via HART or RS-485

- Ex approved for Zone 1 hazardous area location
  - ATEX
  - IECEx
  - FM/FMC
  - CSA

- 3rd party Performance Tested
  - EN54-10 (LPCB)
  - FM3260 (FM for Spectrex, Inc.)

Description

The SharpEye™ 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 4.5µm 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 Spectrex Manufacturer's Warranty period for the 40/40 Series has been extended to 5 years and is SIL2 *(TUV)* approved to IEC 61508.

General Specifications

Spectral Response:
Single band IR: 4.4-4.6 μm

Detection Range: at highest Sensitivity Setting for 1ft.^{2} (0.1m^2) pan fire

Fuel:

n-Heptane	50 ft (15m)
Gasoline	50 ft (15m)
Diesel Fuel	37 ft (11m)
JP5	37 ft (11m)
Kerosene	37 ft (11m)
Ethanol 95%	25 ft (7.5m)
Methanol	25 ft (7.5m)
IPA (Isopropyl Alcohol)	25 ft (7.5m)
Methane*	16 ft (5m)
LPG*	16 ft (5m)
Polypropylene Pellets	10 ft (3m)
Office Paper	20 ft (6m)

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

Response Time: Typically 5 seconds.

Adjustable Time Delay: Up to 30 seconds

Sensitivity Ranges:
2 ranges,1 ft^2 (0.1m^2) n-heptane pan fire from 15 ft (5m) or 50 ft (15m)

Field of View: 90° horizontal, 90° 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.90mA (110mA with heated window)

Alarm: Max. 130mA (160mA 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 EN61326-3 & EN61000-6-3

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:	4mA ±10%
Warning:	16mA ±5%
Alarm:	20mA ±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

Enclosure Options:
- Stainless Steel 316L with electro polish finish
- Heavy duty copper free aluminum (less than 1%), red epoxy enamel finish - ATEX approved models only

Mounting:
Stainless Steel 316L with electro polish finish

Dimensions:
Detector 4"x 4.6"x 6.1" (102 x117 x157mm)

Weight:

Detector (St.St.)	6.1 lb	(2.8kg)
Detector, aluminum	2.8 lb	(1.3kg)
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)

Reliability:
IEC 61508 - SIL2 (TUV)

Accessories

Fire Simulator:	20/20-312
Tilt Mount:	40/40-001
Weather Protector:	777163
Air Shield:	777650
Laser Pointer:	777166

(Detector area coverage)

U-Bolt/Pole Mount: 789260-2 (2" pole)
789260-1 (3" pole)