SharpEye™ QTF-045/050

UV/IR Flame Detector

The SharpEye UV/IR Optical Flame Detectors QTF-045 and QTF-050 (which includes a BIT function) are an improved version of the well-proven Spectrex Ultra Violet/Infra Red (UV/IR) optical flame detectors featuring modern microprocessors and detection algorithms that provide excellent detection sensitivity combined with enhanced immunity to false alarms.

These enhanced models were developed in light of our highly successful experience in high-speed flame detection technology for both military and commercial industrial applications.

Both models are designed to detect hydrocarbon-based fuel fires, hydroxy and hydrogen fires as well as metal and inorganic fires.

The UV/IR flame detector senses energy in the short wave section of both the ultraviolet and infrared portions of the electromagnetic spectrum.

The sensor band pass has been carefully selected to ensure the greatest degree of spectral matching to the radiant energy emissions of fire, and the lowest degree of matching to non-fire stimuli.

The UV sensor incorporates a special logic circuit that helps prevent false alarms caused by solar radiation.

The IR sensor is sensitive to radiation over the range of 2.5 to 3.0 microns. The signals from both sensors are analyzed for frequency, intensity and duration. Simultaneous matching of radiant energy in both the UV and IR sensors triggers an alarm signal.

Main Features

- UV/IR Dual-Sensor
- High-Speed Response
- 20 msec Response to Saturated Signal
- User Programmable Configuration
- Immune to False Alarms (solar blind)
- Automatic and Manual Built-In-Test (BIT) - 050
- Standard 4-wire Connection
- 4-20mA source (3-4 wires) configuration
- MTBF Minimum 100,000 Hours
- 3-Year Warranty
- FM, CSA, ATEX/Cenelec & Gost R Approved

Applications

- **Aerospace Industry** - Hydroxy fuels, Hydrogen and Hydrazine fuels
- **Aircraft Hangars** - landing gear pits, under-wing and over-wing protection
- **Automotive** - manufacturing, paint spray booths
- **Chemical Industry** - production, storage, transportation
- **Explosives & Munitions** - handling and storage
- **Paint** - manufacturing facilities
- **Petrochemicals** - production, storage, shipping facilities
- **Pharmaceutical Industry**
- **Polymers and Glue** - manufacturing and curing
- **Power Generation Facilities** - pump areas, generator rooms, unmanned stations, gas-fired and coal-fired reactors
- **Printing Industry** - solvent handling, presses, drying processes
- **Warehouses** - storage facilities for flammable materials

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SharpEye™ QTF-045/050

General Specifications

Spectral Response	UV: 0.185 - 0.260 microns. IR: 2.5 - 3 microns.
Detection Range	Gasoline fire at 50 ft (15m) N-Heptane fire at 50 ft (15m) Alcohol 95% fire at 37 ft (11m) Diesel Fuel fire at 37 ft (11m) JP4 fire at 37 ft (11m) Kerosene fire at 37 ft (11m) Methane* fire at 15 ft (4.5m) Propane* fire at 15 ft (4.5m) ** 0.5m plume fire*
Response Time	Typical 5 sec.
Adjustable Time Delay	Up to 30 sec. (up to 20 sec. in compliance with FM requirements)
Field of View	90° horizontal, 90° vertical
Built-in-Test	Manual and Automatic BIT (in model 20/20LB only)
Temperature Range	Operating: -40°F (-40°C) to 160°F (70°C) Operating Option: -40°F (-40°C) to 185°F (85°C) Storage: -65°F (-55°C) to 185°F (85°C)
Humidity	Up to 95%

Electrical Specifications

Power Supply	Operating Voltage: 18-32 VDC
Power Consumption	Max. 100mA in stand-by Max. 150mA in alarm
Electrical Connection	2 x 3/4" - 14NPT conduits or 2 x M25 x 1.5 mm ISO
Electrical Input Protection	According to MIL-STD-1275A
Electromagnetic Compatibility	EMI/RFI protected CE Marked

Outputs

Relays	Alarm - 2A at 30 VDC, 0.5A at 250 VAC Fault and Accessory - 5A at 30 VDC and 250 VAC Fault relay normally closed, others normally open
4-20mA	Source configuration Fault: 0 +0.5mA BIT Fault: 2mA ±10% Normal: 4mA ±5% IR Detection: 8mA ±5% UV Detection: 12mA ±5% Warning: 16mA ±5% Alarm: 20mA ±5% Resistance Loop: 100-600 Ω

Mechanical Specifications

Dimensions	4.7" x 5.2" x 5.2" (120 x 132 x 132 mm)
Weight	Aluminum: 8.1Lb (3.7 Kg) St.St 316L: 14.3Lb (6.5 Kg)
Enclosure	Aluminum, heavy-duty copper free (less than 1%), white epoxy enamel finish. Optional - Stainless Steel 316L with electro polish finish.
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

Hazardous Area Approvals

ATEX / Cenelec	EX II 2G, EExd IIB + H_2 T5 (70°C) ,T4 (85°C) EX II 2G, EExde IIB + H_2 T5 (70°C)
FM / CSA	Class I Div. 1, Groups B, C & D Class II Div. 1, Groups E, F & G
GOST R	1ExdIIBT5/H_2

Accessories

Fire Simulator	20/20-311
Swivel Mount	20/20-003 (St. St. 316L)