



The SharpEye Triple IR (IR3) Optical Flame Detector QTF-010 is a self-contained, triple-spectrum flame detector. The optical sensors and filters have 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 patented Triple IR (IR3) circuit design scans for oscillating IR radiation (1 to 10 Hz) in the spectral bands ranging from 4.0 to 5.0 microns. This highly advanced detector uses programmable algorithms which check the ratio and correlation of data received by the three sensors.

The microprocessor design allows for unique field programmability not found in similar detectors, making the QTF-010 highly immune to false alarms.

The detector has applications in a wide range of industrial and commercial facilities, where the threat of accidental fire involves hydrocarbon fuels, such as gasoline, kerosene, diesel fuel, aviation jet fuels like



JP-4, JP-5, JP-8, hydraulic fluids, paints and solvents, hydrocarbon gases like ethylene and polyethylene, natural gas (LNG), town gas, liquefied petroleum gas (LPG), methane, ethane, propane, etc.

The patented Triple IR design offers two to three times the detection distance of any conventional IR or UV/IR detector.

MAIN FEATURES

- Triple Spectrum Design
- Sensitivity Selection
- User Programmable Configuration
- Highly Immune to False Alarms
- Automatic and Manual Built-In Test (BIT)
- Standard 4-wire Connection
- 4-20mA sink or source (3-4 wires) configuration
- RS-485 Interface
- MTBF Minimum 100,000 Hours
- 3-Year Warranty
- FM, CSA, ATEX/Cenelec & Gost R Approved

APPLICATIONS

- **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
- **Oil & Gas** - exploration, production, storage and offloading
- **Offshore Platforms** - fixed rigs and floating vessels FPSO
- **Onshore** - refineries, loading terminals, pipelines
- **Paint** - manufacturing facilities
- **Petrochemicals** - production, storage, shipping facilities
- **Pharmaceutical Industry**
- **Power Generation Facilities** - pump areas, generator rooms, unmanned stations, gas-fired and coal-fired reactors
- **Printing Industry** - solvent handling, presses, drying processes
- **Tank Farms** - floating-roof and fixed-roof tank areas
- **Warehouses** - storage facilities for flammable materials
- **Waste Disposal Facilities** - incineration, processing and storage of flammable waste materials (solids, liquids, gases)

GENERAL SPECIFICATIONS

Spectral Response	Three IR Bands	
Detection Range (Highest Sensitivity Setting for 1 sq.ft. pan fire)	Gasoline fire at 200 ft (60m) N-Heptane fire at 200 ft (60m) Alcohol 95% fire at 150 ft (45m) Diesel Fuel fire at 140 ft (42m)	JP4 fire at 150 ft (45m) Kerosene fire at 150 ft (45m) Methane* fire at 60 ft (18m) Propane* fire at 60 ft (18m) <i>* 0.5m plume fire</i>
Response Time	Typical 5 sec.	
Adjustable Time Delay	Up to 30 sec. (up to 20 sec. in compliance with FM requirements)	
Sensitive Range	4 Sensitive Ranges for 1 ft ² (0.1m ²) gasoline pan fire from 50 ft (15m) to 200 ft (60m)	
Field of View	90° horizontal, 90° vertical	
Built-in-Test	Manual and Automatic BIT	
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. 150mA in stand-by Max. 200mA 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	Sink (source option) configuration Fault: 0 +0.5mA Normal: 5mA ±10% Warning: 10mA ±10% Alarm: 15mA ±10% Resistance Loop: 100-600 Ω
RS-485	The detector is equipped with an RS-485 proprietary communication protocol link that can be used in installations with computerized controllers.

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	20/20-310
Swivel Mount	20/20-003 (St. St. 316L)