



The SharpEye Triple IR (IR3) Optical Flame Detector (20/20I) 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 20/20I 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, Gost R and Gost K 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

<b>Spectral Response</b>	Three IR Bands			
<b>Detection Range</b> (Highest Sensitivity Setting for 1 ft <sup>2</sup> (0.1m <sup>2</sup> ) pan fire)	Gasoline	200 ft (60m)	IPA (Isopropyl Alcohol)	150 ft (45m)
	n-Heptane	200 ft (60m)	Methanol	100 ft (30m)
	Diesel Fuel	140 ft (42m)	Methane*	60 ft (20m)
	JP5	150 ft (45m)	LPG (Propane)*	60 ft (20m)
	Kerosene	150 ft (45m)	Polypropylene Pellets**	16 ft (5m)
	Alcohol (Ethanol)	150 ft (45m)	Office Paper	60 ft (20m)
	<i>*20" (0.5m) plume fire, **8" (0.2m) diameter</i>			
<b>Response Time</b>	Typical 5 sec.			
<b>Adjustable Time Delay</b>	Up to 30 sec. (up to 20 sec. in compliance with FM requirements)			
<b>Sensitive Range</b>	4 Sensitive Ranges for 1 ft <sup>2</sup> (0.1m <sup>2</sup> ) gasoline pan fire: from 50 ft (15m) to 200 ft (60m)			
<b>Field of View</b>	100° horizontal, 100° vertical			
<b>Built-in-Test</b>	Manual and Automatic BIT			
<b>Temperature Range</b>	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)		
<b>Humidity</b>	Up to 95%			

## ELECTRICAL SPECIFICATIONS

<b>Power Supply</b>	Operating Voltage: 18-32 VDC
<b>Power consumption</b>	Max. 150 mA in stand-by
	Max. 200 mA in alarm
<b>Electrical Connection</b>	2 x 3/4" - 14NPT conduits or 2 x M25 x 1.5 mm ISO
<b>Electrical Input Protection</b>	According to MIL-STD-1275A
<b>Electromagnetic Compatibility</b>	EMI/RFI protected CE Marked

## OUTPUTS

<b>Relays</b>	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	
<b>4-20mA</b>	Sink (source option) configuration	
	Fault:	0 +0.5mA
	Normal:	5mA ±10%
	Warning:	10mA ±10%
	Alarm:	15mA ±10%
	Resistance Loop:	100-600 Ω
<b>RS-485</b>	The detector is equipped with an RS-485 proprietary communication protocol link that can be used in installations with computerized controllers.	

## MECHANICAL SPECIFICATIONS

<b>Dimensions</b>	4.7" x 5.2" x 5.2" (100 x 132 x 132 mm)
<b>Weight</b>	Aluminum: 8.1Lb (3.7 Kg)
	St.St 316L: 14.3Lb (6.5 Kg)
<b>Enclosure</b>	Aluminum, heavy-duty copper free (less than 1%), white epoxy enamel finish. Optional - Stainless Steel 316L with electro polish finish.
<b>Environmental Standards</b>	Meets MIL-STD-810C for Humidity, Salt & Fog, Vibration, Mechanical Shock, High Temp, Low Temp
<b>Water and Dust</b>	IP66 and IP67 per En60529 NEMA 250 6P

## HAZARDOUS AREA APPROVALS

<b>ATEX</b>	EX II 2G, EExd IIB + H2 T5 (70°C), T4 (85°C) EX II 2G, EExde IIB + H2 T5 (70°C)
<b>FM / CSA</b>	Class I Div. 1, Groups B, C & D Class II Div. 1, Groups E, F & G
<b>GOST R</b>	1ExdIIBT5/H <sub>2</sub>

## ACCESSORIES

<b>Fire Simulator</b>	20/20-310
<b>Swivel Mount</b>	20/20-003 (St. St. 316L)

Specifications subject to changes

DS-F-IR3, May 2005

For more information view manual or website [www.spectrex-inc.com](http://www.spectrex-inc.com)