



The SharpEye UV/IR Optical Flame Detectors 20/20L and 20/20LB (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) - LB
- Standard 4-wire Connection
- 4-20mA source (3-4 wires) configuration
- MTBF Minimum 100,000 Hours
- 3-Year Warranty
- FM, CSA, ATEX, Gost R and Gost K 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

# SharpEye™ 20/20L-LB

## GENERAL SPECIFICATIONS

<b>Spectral Response</b>	UV: 0.185 - 0.260 microns. IR: 2.5 - 3 microns.			
<b>Detection Range</b> (Highest Sensitivity Setting for 1 ft <sup>2</sup> (0.1m <sup>2</sup> ) pan fire)	Gasoline	50 ft (15m)	Methanol	25 ft (7.5m)
	n-Heptane	50 ft (15m)	Methane*	16.5 ft (5m)
	Diesel Fuel	37 ft (11m)	LPG (Propane)*	16.5 ft (5m)
	JP5	37 ft (11m)	Hydrogen*	16.5 ft (5m)
	Kerosene	37 ft (11m)	Silane***	16.5 ft (5m)
	Alcohol (Ethanol)	25 ft (7.5m)	Polypropylene Pellets**	16.5 ft (5m)
	IPA (Isopropyl Alcohol)	25 ft (7.5m)	Office Paper	12 ft (4m)
	<i>*20" (0.5m) plume fire, **8" (0.2m) Diameter, ***12" (0.3m) plume fire</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>Field of View</b>	90° horizontal, 90° vertical			
<b>Built-in-Test</b>	Manual and Automatic BIT (in model 20/20LB only)			
<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. 100mA in stand-by Max. 150mA 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>	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

<b>Dimensions</b>	4.7" x 5.2" x 5.2" (120 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 + H <sub>2</sub> T5 (70°C), T4 (85°C) EX II 2G, EExde IIB + H <sub>2</sub> 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>	20/20-311
<b>Swivel Mount</b>	20/20-003 (St. St. 316L)