



The SharpEye UV/IR High-Speed Optical Flame Detector (20/20F) is the new derivative of our well-known military detector used in Armored Vehicle Explosion Suppression System (The SAFE System).

This flame detector is designed to meet two important requirements:

- fast response time (less than 5 milliseconds)
- high reliability (immune to false alarms)

Over 20,000 of these flame detectors have been protecting armored vehicles and other military applications, with proven performance, durability and reliability, over the past 10 years.

The 20/20F Flame Detector is an industrial version of the military detector that is housed in an Explosion Proof (EX) housing, and is produced and tested to the highest standards of performance. The



detector is sensitive to radiation in two frequency ranges of the electromagnetic spectrum: the infra red (IR) and the ultraviolet (UV). Only simultaneous sensing within these two ranges of radiation will result in a detector output pulse.

The ultra high-speed detector has been tested by the US Air Force Fire Research Laboratory at Tyndall A/F Base and the following test results have been recorded:

Material	Description	Time to Detection
RS41	Incendiary Composition	2-5 msec.
M206	IR Flare Composition	3-4 msec.
M14	Propellant	12-41 msec.

MAIN FEATURES

- UV/IR Dual-Sensor
- Less than 5 msec Response Time
- Immune to False Alarms
- Standard 4-wire Connection
- MTBF Minimum 100,000 Hours
- 3-Year Warranty
- Designed and Built to MIL Spec
- ATEX/Cenelec Approved

APPLICATIONS

- **Aerospace Industry** - Hydroxy fuels, Hydrogen and Hydrazine fuels
- **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

GENERAL SPECIFICATIONS

Spectral Response	UV: 0.185 - 0.260 microns. IR: 2.5 - 3 microns.
Detection Range	Gasoline fire at 20 ft (6m) N-Heptane fire at 20 ft (6m) Alcohol 95% fire at 15 ft (4.5m) Diesel Fuel fire at 15 ft (4.5m) JP4 fire at 15 ft (4.5m) Kerosene fire at 15 ft (4.5m)
Response Time	Max. 5 msec for 5" (13cm) ø gasoline pan fire at a distance of 1 ft (30cm). Typical 5 sec for 1 ft ² (0.1m ²) gasoline pan fire at 20 ft (6m).
Field of View	90° horizontal, 70° vertical
Temperature Range	Operating: -40°F (-40°C) to 160°F (70°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. 70mA in stand-by Max. 130mA 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 (comply to CE requirements)

OUTPUTS

Relays	Alarm and Fault - 5A at 30 VDC and 250 VAC Fault relay normally closed, others normally open
Analog Output	4.0 - 4.7 VDC

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) EX II 2G, EExde IIB + H ₂ T5 (70°C)
FM / CSA (designed to meet)	Class I Div. 1, Groups B, C & D Class II Div. 1, Groups E, F & G

ACCESSORIES

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