

features

- Triple-spectrum design
- Sensitivity selection
- User-programmable configuration
- Highly immune to false alarms
- Automatic & manual built-in-test
- Explosion-proof
- Standard 4-wire connection
- MTBF minimum 100,000 hours
- FM, Cenelec/ATEX approved options

The Spectrex SharpEye 20-20 I is a self-contained, triple-spectrum flame detector. 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 microprocessor design allows for unique field programmability not found in similar detectors.

The 20-20 I incorporates both automatic & manual BIT (built-in-test).

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 programmed algorithms which check the ratio & correlation of data received by the three sensors. Only detection of radiated emissions matching the spectral fingerprint of fire will produce an alarm, making the 20-20 I highly immune to false alarms.

The SharpEye 20-20 I is extremely sensitive. It can detect a 1x1 sq.ft. gasoline pan fire at 200 ft. in less than 10 seconds. The sensitivity is user-programmable, offering 4 ranges of detection.

The outputs 4-20 mA & RS-485 interface, as well as the standard alarm, accessory & fault relays, make the 20-20 I the most diverse detector available.

The 20-20 I utilizes Mil-spec. electronic components & materials. The MTBF (Mean time between failures) is calculated to be 100,000 hours (11+ years). This outstanding performance permits a 3-year warranty on the entire detector, not just the sensors.

The 20-20 I IR³ Flame Detector has been designed as a general-purpose flame detector with special emphasis on immunity to false alarms. It has applications in a wide range of industrial & 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, & solvents, monomers & polymers like ethylene & polyethylene, natural gas (LNG), town gas & liquefied petroleum gases like methane, ethane, propane, butane, acetylene, propylene, etc.

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SharpEye 20/20I IR³ Flame Detector

Data Sheet

290 (12-02)

approvals

**FM approved	For use in hazardous (classified) locations. Class I Div. 1 Groups B, C & D Class II Div. 1 Groups E, F & G
CENELEC approved	EExd IIB + H2 T5 (70°) T4 (85°) Per En 50014 & 50018 **EExde IIB + H2 T5 (70°) Per 50014, 50018, & 50019
**ATEX approved	ATEX 1163 & 1164 Per CE 0518 Ex II 2G

mechanical

Dimensions:	120 x 132 x 132 mm
Weight:	Aluminium 3.7 Kg Base 1.7Kg
Spectral response:	Three IR band channels.
Detection range:	1 sq.ft.gasoline fire @ 200 ft.* 1 sq.ft.n-heptane fire @ 200 ft.* 1 sq.ft.diesel oil fire @ 150 ft.* 1 sq.ft 95% alcohol fire @ 150 ft.* 4 sq.ft.JP4 fire @ 150 ft.* <i>* Highest sensitivity setting</i>
Response time:	Typical 5 seconds. Adjustable time delay up to 30 secs.
Sensitivity range:	Four sensitivity ranges set by dip-switch for gasoline pan fire 1x1 sq.ft.
Field of view:	90° horizontal, 90° vertical.
Built-in-test:	Manual & automatic BIT.
Temperature range:	Operating: -40°F to 160°F Operating option: -40°F to 185°F Storage: -65°F to 185°F
Humidity:	Relative humidity of up to 95% for the operational temperature.

electrical

Operating voltage:	18-32 Vdc.
Power consumption:	Max. 150 mA in standby. Max. 200 mA in alarm.
Electrical connection:	Standard two ¾" 14 NPT cable entries. Optional two M25 x 1.5 cable entries.

Electrical input protection:

Complete electrical interface protection against reversed polarity voltage, surges, and spikes according to MIL-STD-1275.

Electromagnetic compatibility:

The detector is designed and approved according to the following EMC requirements:

Electrostatic discharge	IEC801-2:1984
Conducted emission	EN55022 Class A
Radiated emission	EN55022 Class A
Radiated Immunity	IEC801-3:1984
EFT/B	IEC801-4: 1988

Outputs:

Dry contact relays;

Alarm:	2 Amps @ 30 Vdc 0.5 Amps @ 250 Vac
Accessory:	5 Amps @ 30 Vdc & 250 Vac
Fault:	5 Amps @ 30 Vdc & 250 Vac

** 4-20 mA current output:

The 4-20mA is sink and can be supplied as source.

Fault:	0 ± 0.5 mA
Normal:	5 ± 0.5 mA
Warning:	10 ± 1 mA
Alarm:	15 ± 1 mA

Resistance loop: 100-600 Ohms

** RS-485 communication:

The detector is equipped with an RS-485 communication link that can be used in installation with computerized controllers.

*** optional, carries an additional charge.*

part numbers

Part No.	Description
20-20 I	3 band IR flame detector
20-20-003	Swivel mounting base
20-20-920	Air Shield
20-20-310	Fire simulator test unit
20-20-190	Beam collimator for extending test unit range