

Features

- Triple IR spectrum design
- Sensitivity selection
- User programmable configuration
- Automatic and manual built-in test
- Explosion-proof
- Standard 4 wire connection
- FM, CSA and CENELEC Approved



IR³ Flame Detector SharpEye™ 20/20I

Description

The SharpEye 20/20I 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 20/20I incorporates both Automatic and Manual BIT (Built In Test).

The patented triple IR 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 and correlation of data received by the three sensors. Only detection of radiation emissions matching the spectral fingerprint of fire will produce an alarm, making the 20/20I highly immune to false alarms.

The SharpEye 20/20I is extremely sensitive. It can detect a 1x1 sq. ft. gasoline pan fire at 200 ft. in less than 3 seconds. The sensitivity is user-programmable, offering 4 ranges of detection. The patented triple IR design offers two to three times the detection distance of any conventional IR or UV/IR detector.

A 4-20 mA and RS-485 interface as well as the standard alarm, accessory and fault relays make the 20/20I the most diverse detector available.

The 20/20I utilizes Mil-spec. electronic components and materials. The MTBF (Mean Time Between Failures) is calculated to be 100,000 hours (11+ years). This outstanding performance permits a 3-year manufacturer's warranty on the entire detector, not just the sensors.

General Specifications:

Spectral response:

Three IR band channels.

Detection range:

1 sq. ft. gasoline fire at 200 ft. (60 m.)*

1 sq. ft. diesel oil fire at 100 ft. (30 m.)*

1 sq. ft. alcohol fire at 100 ft. (30 m.)*

2 sq. ft. JP4 fire at 100 ft. (30 m.)*

*Highest sensitivity setting.

Response time:

Typical 2 seconds.

Adjustable time delay up to 30 seconds.

Field of view:

90° horizontal. 90° vertical

Electrical:

Operating voltage: 18-32 VDC

Power consumption:

150 mA in standby

200 mA in alarm

Electrical interface: Standard 4-wire connection with cascading capability. Complete electrical interface protection.

Available outputs: 4-20 mA, RS-485

Electrical connection:

Standard 3/4 in. 14NPT conduit

Dry contact relays:

Alarm:

2 Amps at 30 VDC

2 Amps at 250 VAC

Fault & Accessory:

5 Amps at 30 VDC

5 Amps at 250 VAC

Environmental tests:

MIL-STD-810C

High temp. - Method 501.1 Proc. II

Low temp. - Method 502.1 Proc. I

Humidity - Method 507.1 Proc. IV

Salt Fog - Method 509.1 Proc. I

Dust - Method 510.1 Proc. I

Vibration - Method 514.2 Proc. VIII

Mechanical Shock - Method 516 Proc. I

Temperature range:

Operating:

-40°F (-40°C) to 160°F (70°C)

Storage:

-65°F (-55°C) to 185°F (85°C)

Explosion-proof enclosure:

NFPA

Class I Div. 1, Groups B*, C and D

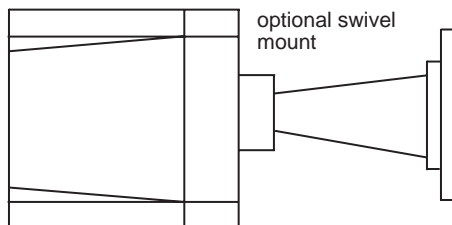
Class II Div. 1, Groups E, F and G

*Requires seal at detector.

Provides for installation of a swivel mount

Flame proof per:

CENELEC EExd II + H₂ T6



Physical design:

The standard detector housing is a heavy duty copper-free aluminum housing casting. The housing finish is epoxy enamel. The detector housing is also available in Stainless Steel** upon request. Total detector weight is 7.8 lbs. (3.5 Kg). The viewing window and back cover are each sealed with a special "O" ring to prevent intrusion of dust, salt spray, and foam/water fire fighting agents. The circuit boards are conformally coated and shock mounted to minimize damage from mechanical vibration and impact. The detector is explosion-proof and meets NEMA 250 for type 6P and tested per MIL-STD-810-C.

Applications:

The 20/20I IR³ flame detector has been designed as a general-purpose flame detector. It has applications in a wide range of industrial and commercial facilities, where the threat of accidental fire involves hydrocarbon fuels such as gasoline, hydraulic fluid, paint, various solvents, aviation fuel, natural gas, propane, acetylene, etc.

Field applications include:

Automotive manufacturing
Munitions handling
Petrochemical facilities
Printing
Power generation
Warehousing of flammable liquids and gases

**carries an additional charge

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