

# features

- Triple-spectrum design
- 80% less power consumption
- Highly immune to false alarms
- Sensitivity selection
- User-programmable configuration
- Automatic & manual built-in test
- Standard 4-wire connection
- M.T.B.F. minimum 100,000 hours

The model 20-20 MI is a high-performance and high-reliability, self-contained, triple spectrum flame detector. This detector is specially designed for industrial applications with the highest immunity to false alarms. The patented triple IR design offers two to three times the detection distance of any conventional IR or UV/IR detector.

The patented triple IR scans for oscillating IR radiation (1 to 10 Hz) in the spectral bands ranging from 4.0 to 5.0 microns. Each sensor band pass has been 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. This highly advanced detector uses a programmed algorithm, which checks 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 20-20 MI immune to false alarms.

The M.T.B.F. (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 MI triple IR (IR<sup>3</sup>) 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 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 & solvents, monomers & polymers like ethylene & polyethylene, natural gas (LNG), town gas & liquefied petroleum gas (LPG), hydrocarbon gases like methane, ethane, propane, butane, acetylene, propylene, etc.

**MORLEY**



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## SharpEye 20/20 MI Industrial IR<sup>3</sup> Flame Detector

# Data Sheet



# mechanical

Dimensions:	122 x 100 x 65 mm
Weight:	Aluminium: 0.5 Kg **Stainless Steel: 1.2 Kg
Spectral response:	Three IR band channels
Detection range:	1 sq.ft. gasoline fire @ 40m* 1 sq.ft. n-heptane fire @ 40m* 1 sq.ft. diesel oil fire @ 25m* 1 sq.ft. 95% alcohol fire @ 30m* 1 sq.ft. JP4 fire @ 25m* * <i>Highest sensitivity setting.</i>
Response time:	Typical 5 seconds. Adjustable time delay up to 30 seconds.
Sensitivity range:	Four sensitivity ranges set by software for gasoline pan fire of 1x1 sq.ft.:

Sensitivity range	Detection range
1	33ft. (10m)
2	66 ft. (20m)
3	100ft. (30m)
4	133ft. (40m)

Field of view:	100° horizontal, 100° vertical.
Built-in-test:	Manual & automatic BIT.
Temperature range:	Operating: - 40°F to 160°F Storage: - 65°F to 185°F
Humidity:	Relative humidity of up to 90% for the operational temperature.

\*\* carries additional charge.

# electrical

Operating voltage:	18-32 Vdc
Power consumption:	Max. mA in standby Max. mA in alarm

## Electrical connection:

12-wire electrical connector (suitable connector will be supplied).

Option 12-wire cable (for junction box connection).

## Electrical input protection:

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

## Electrical outputs:

Connection pin no.	Function
1	+ 24Vdc
2	RTN
3	4-20mA (In)
4	4-20mA (Out)
5	Fault relay C
6	Fault relay N.O.
7	Alarm relay C
8	Alarm relay N.O.
9	RS-485 -
10	RS-485 +
11	Manual BIT
12	GND

## Electromagnetic compatibility:

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

Electrostatic discharge (ESD):	IEC801-2:1984
Conducted emission:	EN55022 Class A
Radiated emission:	EN55022 Class A
Radiated immunity:	IEC 801-3:1984
EFT/B:	IEC801-4:1988

## Outputs:

### Dry contact relays:

Alarm:	2 Amps @ 30 Vdc
Fault:	0.5 Amps @ 250 Vac

### 4-20mA current output:

The 4-20mA is sink.

Fault:	0 ± 0.5 mA
BIT fault:	2 ± 0.5 mA
Normal:	5 ± 0.5 mA
Warning:	10 ± 1 mA
Alarm:	15 ± 1 mA
Resistance loop:	100 - 600 Ohms

## RS484 communication:

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

# part numbers

<b>20-20 MI</b>	IR <sup>3</sup> Flame Detector
<b>20-20-005</b>	Swivel mounting base
<b>20-20-310</b>	Fire simulator test unit
<b>20-20-190</b>	Beam collimator for extending test unit range