

SENSALERT[®] IR

Infrared Sensor Datasheet

Nitrogen Trifluoride (NF₃)

OPERATION / DESCRIPTION

SensAlert IR is a complete self-contained optical gas detector. The sensing and reference elements are self-compensating for optical integrity and other signal inhibitors. The industry standard 4 - 20 mA analog output provides remote alarm, fault and calibration signals.

FEATURES

- Reliable infrared sensing technology
- Virtually maintenance free
- Low cost of ownership, over ten years operating life
- Immune to poisoning and etching
- Designed for harsh environments
- Explosion proof
- Fast response time
- Smart calibration
- Self-compensating optics, pressure and temperature
- No moving parts
- Heated optical chamber
- Low power consumption
- Operates in constant target gas background
- Operates in anaerobic atmospheres
- Fault indications for all failure states
- Routine calibrations are not required
- 4 to 20 mA output enabled
- Digital Display option available

APPLICATIONS

The Sensalert IR detectors for **Nitrogen Trifluoride (NF₃)** are designed to be used as an upgrade in the same applications where electrochemical sensors have been applied, such as:

- Semiconductor Fabrication
- Bulk Gas Infrastructure



SENSALERT IR

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Nitrogen Trifluoride (NF3)

SensAlert IR – Sensor Specifications

Model:	Nitrogen Trifluoride (NF3) infrared gas detector
Part Numbers and Ranges:	
Part Number	Range
820-9907-20	0-250 PPM without HART
Detection Method:	Diffusion
Output (analog):	4-20 mA (Source type) max. 1000 Ohm load at 24 VDC supply voltage (including field wiring)
Response Time:	T50 < 18 sec. T90 < 38 sec.
Construction:	Anodized aluminum
Accuracy:	+/- 5% of value or 1% of full scale
Repeatability:	+/- 2% of value
Operating Temperature Rating:	-40° to +50°C at 0 to 99% RH (non-condensing)
Operating Range:	18-32 VDC measured at detector head
Power Consumption:	5 Watts Max
Current Draw: (at 24VDC)	
Average: 210 mA	Peak: 400 mA
Installation Category:	Cat. I, Pollution Degree 2
Dimensions:	Length 11" Diameter 2.75" Weight 3 lbs.

ULTRA-RUGGED INFRARED SENSORS

The fixed-point Hydrocarbon NDIR gas detector is designed for harsh and hazardous environments. It uses a solid-state, collimated infrared light source and heated optics that adjust automatically. The detector is housed in durable, explosion-proof anodized aluminum, with optics protected from dirt and water. It has a quick response time, thanks to its optical path of over 100 mm.

This SensAlert IR Infrared gas detector works reliably even with the presence of silicone and other substances that usually poison catalysts. It also functions well without oxygen or in environments with continuous target gas exposure. The sensor technology is unaffected by any known poisons. The advanced electronics are securely sealed with no need for user adjustments. Maintenance is recommended once a year.

Output Signals

Current Output	Status
4-20 mA	Normal measuring mode
0.0 mA	Unit Fault
0.2 mA	Reference channel fault
0.4 mA	Analytical channel fault
0.8 mA	Unit warm up
1.0 mA	Optics fault
1.2 mA	Zero drift fault
1.6 mA	Calibration fault
2.0 mA	Unit spanning
2.2 mA	Unit Zeroing
4.0 mA	Zero gas level
5.6 mA	10% of Sensor full-scale range
8.0 mA	25% of Sensor full-scale range
12 mA	50% of Sensor full-scale range
16 mA	75% of Sensor full-scale range
20 mA	100% of Sensor full-scale range
>20.1 mA	Over range

