



- Senses up-to-five discreet infrared wavelengths for early fire prevention
- Fire Event Analysis (FEA) algorithm for superior false-alarm immunity
- 90° field of view and 200ft long range detection
- Automatic through-the-lens diagnostic self-test
- Weather and explosion proof enclosure

Overview

The model 3976 multi-spectrum infrared flame detector is designed to detect unwanted fires and output appropriate alarm information. In a breakthrough technological advance, the model 3976 senses infrared radiation in five discreet infrared wavelengths for early fire detection.

The multi-spectrum sensor information, combined with the sophisticated algorithm, enables the model 3976 the ability to quickly detect hydrocarbon and non-hydrocarbon fueled fires. The model 3976 also features an automatic self-test function to monitor the detector's ability to sense fires and report a fault condition when impaired. Typical applications for the model 3976 are refineries, pipelines, production platforms, turbine enclosures, power plants, compressor stations, LNG facilities, LPG facilities, tank farms, hangars, and petrochemical plants.

Features & Benefits

- Fire Event Analysis (FEA) algorithm for superior false-alarm immunity.
- Field of view 90 degrees.
- Robust, weatherproof enclosure for indoor or outdoor applications (Type 4X).
- Advanced through-the-lens diagnostic self-test.
- Field configurable relays and sensitivity.
- High intensity, localized indication of fire or fault.
- Five-year warranty on sensors from date of delivery. Three-year warranty on components or manufacturing defects from date of delivery.
- Long range detection.
- FM, CSA, IECEx, ATEX, SIL2, EMC, LVD.
- Self-contained, explosion-proof enclosure.
- State-of-the-art microprocessor control.

Specifications*

Performance Ratings

Normal sensitivity

- 1 sq. ft. gasoline fire at 75 ft. in <1 sec
- 1 sq. ft. n-Heptane fire at 75 ft. in <1 sec

Enhanced sensitivity

- 1 sq. ft. gasoline fire at 100 ft. in <1 sec
- 1 sq. ft. n-Heptane fire at 100 ft. in <1 sec

Long distance sensitivity

- 1 sq. ft. gasoline fire at 200 ft. in <1 sec
- 1 sq. ft. n-Heptane fire at 200 ft. in <1 sec
- 4 sq. ft. JP-5 fire at 200 ft. in <5 sec

Operating Temperature Range

-40° to 185°F (-40° to 85°C)

Mechanical Specifications

Weight (aluminum): 2.4 kg (5 lbs)

Weight (steel): 6.3 kg (13 lbs)

Height x width x depth: 114 x 140 x 125 mm
(4.5 x 5.5 x 4.9 in)

Conduit entry: ¾-14 NPT or M20-1.5

Spectral Response

Infrared peak sensitivities of 2.2 µm, 2.9 µm, 3.7 µm, 4.4 µm, 5.8 µm

Detector Inputs

Inputs:

Nominal Voltage 24 VDC (ripple voltage <240mV)
Range 20 to 30 VDC

Power consumption:

Standby 80 mA
Alarm 100 mA
Auto and manual test 160 mA

Detector Outputs

Relay:


Relays (2) fire, trouble, dry contacts, hermetically sealed
Rated 2 A at 28 VDC. User selectable NO or NC
Fire relay user selectable latching or non-latching

Current loop (standard version): 0 to 20 mA output

- 20 mA = Fire
- 16 mA = Warning fire IR
- 5 mA = Warning ref IR
- 3 mA = Fire relay coil fault
- 1.5 mA = Exceedance fault
- 2.5 mA = Block fault
- 1 mA = Self-test fault
- 0 mA = Current loop fault
- 4 mA = Normal

RS-485 Serial

Environmental Ratings

Class I, Division 1, Groups B, C & D (explosion proof)
Class II, Division 1, Groups E, F & G (dust ignition proof)
Type 4X weatherproof, dust-tight, watertight
CE0081  II 2 G/D
Ex db IIB+H₂ T5 Gb for gas
Ex tb IIIC T100°C Db IP66 for dust

Standard housing is copper-free aluminum conversion coated to MIL-C-5541C, Class 3 (white).

Optional stainless steel housing available with passive finish per MIL-S-5002C, Type 1.



*Specifications subject to change without notice

Ordering Information: The following part number is essential in selection of the correct product. Please build up the desired part by inserting the code for each element into the appropriate space (i.e. 3976-0-0-1-0-0).

Model	Fire Type -X	Enclosure -X	Test Feature -X	Fire Relay Configuration -X	Approval -X
3976	↓	↓	↓	↓	↓
- 0 = Hydrocarbon/ Non-Hydrocarbon		- 0 = Aluminum, ¾-14NPT(white) - 2 = Stainless Steel, ¾-14 NPT - 3 = Aluminum, M20-1.5 (white) - 5 = Stainless Steel, M20-1.5	- 1 = Auto Self-Test	- 0 = Latching - 1 = Non-Latching	- 0 = FM, CSA, IECEx, ATEX, EMC, LVD, SIL2

Accessories:

3900-01	SS Tilt Mount for Aluminum Enclosures	3900-02	SS Tilt Mount for Stainless Steel Enclosures
3900-03	Air Shield Model # 3976	3900-05	SS Sun Shade/Rain Guard
3900-07	Universal Tester Multi IR & UV/IR #3966, 3976, 3986	3900-08	Battery Pack for Tester # 3900-06 & # 3900-07
3900-09	Charger for Tester # 3900-06 & # 3900-07	3900-14	2" Pole Mount Kit for # 3900-01 Bracket
3900-15	2" Pole Mount Kit for # 3900-02 Bracket		