



# DETECTORS INCORPORATED

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## D381 3 IR +UV (0.3 Sec) / UV - MULTI - SPECTRUM FLAME DETECTOR

### PRODUCT DESCRIPTION

The Detectors Incorporated Model D381 UV/3-IR Multi -Spectrum Flame Detector is the most advanced optical flame detector designed to respond to Hydrocarbon, Non-Hydrocarbon, and Hydrogen fires while rejecting False Alarm sources. The D381 detectors sense UV radiation in the Ultraviolet spectrum and Infrared radiation in 3 discrete bands of IR spectrum for detecting fires. Flame response and false source rejection for the D381 models is accomplished by utilizing the Convolution Method and Advanced DSP (Digital Signal Processing) in conjunction with hard coded algorithms identifying specific wavelengths of energy. The detector is able to respond to Hydrocarbon and Non-Hydrocarbon fires at a distance of 80+ feet. All this while rejecting False sources.

The D381 detector is designed for a multitude of applications. The detector will respond to a 1 ft. x 1 ft. n-Heptane or IPA fires from 200 feet within approximately 3-5 seconds. The Model D381 is a high-speed flame detector designed specifically for liquid spray paint and powder coating applications or anywhere a fast detection time is required. The Models D381 series are stand-alone fire & flame detectors in watertight NEMA 4 (IP66/67) Aluminum enclosure. The detectors feature automatic self-test for continuously checking the optical path integrity while monitoring the electronics to ensure utmost reliable operation and fault reporting.

The detectors are supplied with Alarm / Auxiliary / Fault relays, and RS485 outputs. They can store 200 events and 6 FireGraphs in their FRMA memory. Heater and 0-20 mA analog outputs are options available.

### APPLICATIONS

- ❖ Airports & Aircraft Hangars
- ❖ Warehouse & Storage Facilities
- ❖ Manufacturing & Food Processing
- ❖ Diesel Generators & Fuel Storage
- ❖ Battery Rooms & Charging Facilities
- ❖ Compressor Stations
- ❖ Paint & Solvent Storage Facilities
- ❖ Recycling Centers
- ❖ Power Plants

### FEATURES AND BENEFITS

- ❖ Multi-Spectrum 3IR + UV design
- ❖ Detects Hydrocarbon, Non-Hydrocarbon, and Hydrogen fires with the highest false alarm immunity.
- ❖ Standard outputs: Warning / Alarm / Fault / Auxiliary relays and RS-485 ModBus
- ❖ 200 event history log & 6 FireGraphs®
- ❖ Adjustable Time/Verification Delay up to 20 seconds.
- ❖ Automatic Self-Test checking electronic circuitry and Optical Path Integrity test with OptiRadar®
- ❖ Copper free aluminum enclosure, powder coated finish.
- ❖ Test Mode for manual testing
- ❖ Screw Terminal Block for easy connections
- ❖ Solar Blind
- ❖ Heater Option to avoid condensation and icing.
- ❖ 0-20mA Output Option is Available
- ❖ High False Alarm immunity to external non-fire sources
- ❖ Manufactured in the USA with a 5-year warranty.
- ❖ RFI & EMC compliant
- ❖ Meets SIL 2 requirements
- ❖ FM/CFM/CSFM Approved
- ❖ NEMA 4 (IP66/67) Enclosure



# MODEL D381 FLAME DETECTOR TECHNICAL DATA

## GENERAL

Field-of-View:	90° Horizontal and Vertical
Spectral Sensitivity	UV: 180-260 nanometers IR: 2-5 microns (3 discrete bands)
Detection Range:	12"x12" n-Heptane fire – 40 ft (24.4 m) (FM) 12"x12" n-Heptane fire – 200 ft (61 m) (DI)
Response time	Typically 3-5 seconds

## ELECTRICAL

Operating Voltage:	24 VDC nominal (18-31), Regulated.
Power Consumption:	Standby: 60 mA @ 24 VDC Alarm: 90 mA @ 24 VDC
Heater Option:	120 mA additional
Output Relays:	Alarm / Auxiliary / Fault SPDT—contacts rated 2A @ 24 VDC Alarm & Auxiliary relays: De-Energized Fault relay: Energized
Adjustable Time/ Verification Delay	Aux relay setting .3, 3, 10, 20 seconds
Analog Output:	0-20 mA Stepped - Source
Communication:	RS485 ModBus
Visual Indications:	Green LED - Normal Red LED - Alarm Amber LED - Fault
Conduit Entries:	Standard: (1) M25
Wiring:	12 AWG (3.3 mm <sup>2</sup> ) - 22 AWG (.33mm <sup>2</sup> )

## MECHANICAL

Enclosure Material:	360 Copper-Free Aluminum, Powder Coated Red
Weight:	2.5 lbs. (1.1 kg)
Mounting:	Stainless steel swivel arm – order separately DA-002 6.6 lbs. (3 kg)

## ENVIRONMENTAL

Humidity Range:	5 to 95% Relative humidity, Non-Cond.
Temperature Range:	-40° to +185° F (-40° to +85°C) FM -55° to +185°F (-48.3° to + 85°C) with Heater Option
Vibration:	In compliance with FM 3260-2003, Meets or Exceeds MIL-STD 810C
Enclosure Type:	NEMA 4, IP66/IP67

## APPROVALS & CLASSIFICATIONS



CE Mark

Meets or exceeds MIL-STD 810C. In  
compliance with FM3260-2003

## ORDERING INFORMATION

D381	3IR + UV Multi -Spectrum Flame Detector in an aluminum enclosure. See Price List for option/ordering guide.
D381 Basic	3IR + UV Multi -Spectrum Flame Detector in an aluminum enclosure. Standard outputs: Alarm / Fault / Auxiliary relays and RS-485 ModBus only. See Price List for option/ordering guide.
DA-002	316 SS Mounting Arm
DA-003	Air Purge Kit for D383
DA-007	Weather Shield
DA-008	Detector Key Test Station
DA-010	Non-Isolated 0-20 mA Stepped analog Output
DA-011	Heater Pad Option

Installation Recommendations: Please refer to our User Manual for mounting and wiring instructions.

The installation of Detectors Incorporated® flame detectors should be executed in accordance with the recognized national or international standards and codes of practice.

Specifications and wiring information are provided for information only and are believed to be accurate. Detectors Incorporated assumes no responsibility for their use. Data and design are subject to change without notice. Installation and wiring instructions are shipped with the products and should always be used for actual installation. For more information, contact your Sales Representative.

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