SAEVU

BY SPACE AGE ELECTRONICS

D171 1IR+UV Multi-Spectrum Flame Detector

PRODUCT DESCRIPTION

The D171 1IR+UV Multi-Spectrum Flame Detector is the most advanced optical flame detector designed and optimized to respond to hydrocarbon based fires while rejecting false alarm sources. The D171 model senses UV radiation in the ultraviolet spectrum and infrared radiation in one discrete band of the IR spectrum for detecting fires. Flame response and false source rejection for the D171 model 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 fires at distances of 100+ feet, all while rejecting false sources.

The D171 is a stand-alone fire & flame detector in a watertight NEMA 4X (IP66, 67) and explosion-proof stainless steel enclosure designed for indoor/outdoor Class I, Div. 1 (Zone 1) Installations. The detector is supplied with Alarm / Auxiliary / Fault relays, 4-20 mA analog and RS485 outputs. The detector can store 200 events and 6 FireGraphs in its FRAM memory.

APPLICATIONS

- Onshore & offshore Oil and Gas facilities
- Refineries and Cogeneration plants
- Compressor Stations
- Chemical and Hydrogen Plants
- Crude Oil and Products Tank Farms LPG /
- LNG Facilities
- Fuel Terminals
- Marine Fuel Loading & Unloading
- Airports & Aircraft Hangars
- Industrial Warehouses
- Battery Rooms & Charging Facilities Paint
- Solvent Storage Facilities Incinerators
- Waste Disposal Facilities
- Power Plants

FEATURES AND BENEFITS

- Multi-Spectrum design for detecting Hydrocarbon fires with highest false alarm immunity
- Standard outputs: Alarm/Fault/Auxiliary relays, 4-20 mA, and RS485 ModBus
- 200 Event Logs and 6 FireGraphs each 6 seconds long
- Multiple selectable sensitivity levels
- Automatic Self-Test for checking electronic circuitry, and Optical Path Integrity test with OptiRadar®
- Standard 316 Stainless Steel enclosure
- Test Mode for manual testing
- Encased electronics module for easy field installation and removal
- Pluggable connectors for ease of wiring and installation
- Separate (isolated) field wiring compartment
- Manufactured in USA with a 5 - Year Warranty RFI & EMC compliant
- Meets SIL 2 requirements
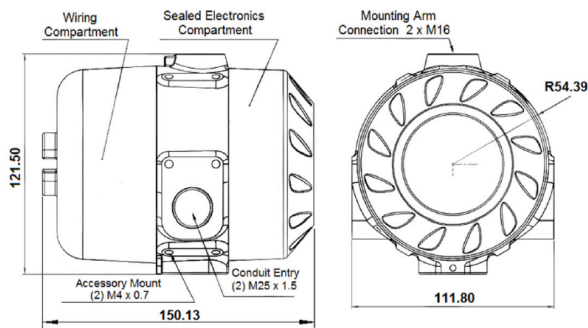
GENERAL

Field-of-View:	90° Field-of-View
Spectral Sensitivity:	UV: 180-260 nanometers IR: 4.3 - 4.6 microns (1 discrete band)
Sensitivity Range:	Low, High
Response Time:	Alarm: 3-5 Seconds
Detection Range:	1' x 1' n-Heptane fire: Model D171: 100 ft. (30.5 m)

ELECTRICAL

Operating Voltage:	24 VDC nominal (18-31), Regulated
Power Consumption:	Standby: 60 mA @ 24 VDC Alarm: 90 mA @ 24 VDC Heater: Optional, 120 mA additional
Output Relays:	Alarm / Auxiliary / Fault SPDT—contacts rated 2A @ 24 VDC Alarm & Auxiliary relays: De-Energized Fault relay: Energized Aux. relay settings: .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: (2) M25 Optional M25 x 3/4" NPT adapter
Wiring:	12 AWG (3.3 mm^2) - 22 AWG (.33mm^2)

MECHANICAL

Enclosure Material:	316 Stainless Steel, Standard
Weight:	10 lbs. (4.5 kg)
Mounting:	Stainless Steel Swivel Arm—Optional 6.6 lbs. (3 kg)

Dimensions in mm

ENVIRONMENTAL

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

APPROVALS & CLASSIFICATIONS

US FM APPROVED	**Certification No: FM17US0336X** Class I, Div. 1, Groups A, B, C and D; Ta = -40°C to +110°C Class II/ III, Groups E, F and G; T4, -40°C to +85°C T4 = -40°C to +85°C, T5 = -40°C to +75°C, T6 = -40°C to +60°C Class I, Zone 1 AEx db eb IIC T4 Gb, Ta = -40°C to +110°C AEx tb IIIC 135°C Db T4, Ta = Ta = -40°C to +110°C T4 = -40°C to +85°C, T5 = -40°C to +75°C, T6 = -40°C to +60°C Type 4X and IP66/IP67
Canada FM c	**Certification No: FM17CA0120X** Class I, Div. 1, Groups A, B, C and D; T4, Ta = -40°C to +110°C Class II/ III, Groups E, F and G; T4, Ta = -40°C to +110°C T4 = -40°C to +85°C, T5 = -40°C to+75°C, T6 = -40°C to +60°C Class I, Zone 1 Ex db eb IIC T4 Gb, Ta = -40°C to +110°C Ex tb IIIC 135°C Db T4, Ta = Ta = -40°C to +110°C T4 = -40°C to +85°C, T5 = -40°C to +75°C, T6 = -40°C to +60°C Type 4X and IP66.IP67
Ex	**Certificate No: FM17ATEX0101X** (II 2 G) Ex db eb IIC T4 Gb, Ta = -40°C to +110°C (II 2 D) Ex tb IIIC T135°C Db, Ta = -40°C to +110°C T4 = -40°C to +85°C, T5 = -40°C to +75°C, T6 = -40°C to +60°C IP66/IP67
IEC IECEx	**Certificate Number: IECEx FMG 17.0034X** (II 2 G) Ex db eb IIC T4 Gb, Ta = -40°C to +110°C (II 2 D) Ex tb IIIC T135°C Db, Ta = -40°C to +110°C T4 = -40°C to +85°C, T5 = -40°C to +75°C, T6 = -40°C to +60°C IP66/IP67
CE Mark	Meets or Exceeds MIL-STD 810C. In Compliance with FM3260-2003

ORDERING INFORMATION AND ACCESSORIES:

D171	1IR+UV Detector with Relays Relays, 4-20mA, Modbus, No Heater, Normally De-Energized Non-Latching, Normally Energized, Non-Latching, Redundent Alarm, (2) x M25, FM (US) - ATEX - IECEx - FM Canada Divisions and Zones, 110 Feet, FOV 90 Degrees, Hydrocarbon
DA-001	Mounting and Alignment Bracket