

ENGINEERING QUALITY AND RELIABILITY

# F120 TRIPLE-MODE UV/IR

## FLAME DETECTOR

SELF-CONTAINED AND EXPLOSION-PROOF



### FEATURES & BENEFITS

- UV/IR flame detector
- Solar blind
- Not blinded by dense smoke
- Discriminates against arc welding, radioactive sources (x-ray), sunlight, lightning, or black body radiation
- Automatic and Manual Optical Path Checking
- Automatic Self-Test Diagnostics for electronics and sensor elements
- Multiple user selectable modes of operation, Triple-Mode UV/IR, UV only mode, Dual IR mode or IR only mode
- Watertight and corrosion resistant enclosure for use in Hazardous applications Class I Groups B, C, D; Class I Zone I Group IIA, IIB + H<sub>2</sub>
- Analogue output and high current relays for control or shutdown of external equipment
- Available with wireless transmitter as an accessory with text, e-mail notifications feature
- 5 Year Warranty
- Made in USA

The SST Model F120 Triple Mode UV/IR optical flame detector uses the latest state of the art processor and circuitry, eliminating the shortcomings of currently available UV/IR detectors which are subject to false or nuisance alarms caused by either EMI, lighting, x-rays, gamma radiation, arc welding, reflected sunlight, or any light sources such as mercury or quartz iodine flood lights. Outputs are either voted automatically, or can be manually selected by the customer. Selected outputs can either be for UV only, IR only, Temperature, or any two out of three combination. This "voting" capability is what sets this detector apart from any other UV/IR detector. This detector will see a fire, while other manufacturer's detectors may not. To insure reliable operation, the detector is equipped with an automatic Optical Self-Checking feature which continuously checks the optical viewing window for cleanliness and confirms operation of the detection circuits.

The Model F120 is self-contained in a two-piece explosion proof copper-free aluminum housing finished in a deep red color for rapid identification as a flame detector and is suitable for use in "classified" areas where ignitable concentrations of flammable gas normally exists. A protective coating permits use in harsh environments, such as offshore platforms, without degradation. An optional stainless steel housing is also available.

### APPLICATIONS

- Aircraft Hangars
- Chemical Plants
- CNG Refueling Stations
- Compressor Stations
- Fertilizer Plants
- Gas Turbines
- Hydrogen Vehicle Refueling Stations
- LNG and LPG storage and distribution facilities
- Refineries
- Offshore Oil & Gas Facilities
- Onshore Oil & Gas Facilities
- Oil and Gas Depots
- Petrochemical Plants
- Pipelines
- Power Generation Facilities
- Transportation Facilities



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MODEL F120 TRIPLE-MODE UV/IR FLAME DETECTOR

SYSTEM SPECIFICATIONS

**Spectral Response:** UV: 185 to 245 nm  
 IR: 4.3 microns (Hydrocarbon CO<sub>2</sub> spike)

**Detection Range:** Reliably detects a one square foot n-Heptane fire at a distance of 70 feet / 20 m

**Response Time:** < 5 seconds

**Adjustable Time Delay:** 3 or 6 seconds

**Detection Modes:** Triple-mode UV/IR (UV, IR flicker, Temperature, voted any two out of three sensors)  
 UV only mode  
 Dual IR mode  
 IR mode

**Field of View:** 90° Horizontal and 100° Vertical

**Optical Self-Test:** Automatic continuous optical path

**Warranty:** 5 years

**Approvals:** UL, c-UL File E162517  
 Type 4X Enclosure  
 Watertight, Corrosion Resistant  
 For Use in Hazardous Locations  
 Class I Groups B, C, D  
 Class I Zone 1 Group IIA, IIB+H2  
 Class II Groups E, F, G

ENVIRONMENTAL SPECIFICATIONS

**Operating Temperature:** -40°F to 185°F (-40°C to 85°C)

**Operating Humidity:** 0-100% RH, non-condensing

**Ingress Protection:** IP66

MECHANICAL SPECIFICATIONS

**Dimensions:** 4.40 x 5.25 inches (112x133 mm)

**Weight:** 4.0 lbs. (1.8 kg) Aluminum;  
 10.0 lbs (4.5 kg) Stainless Steel

**Housing:** Aluminum or Stainless Steel 316



Specifications subject to change without notice.

ELECTRICAL SPECIFICATIONS

**Input Power:** 20-35 VDC, 125 mA standby, 230 mA alarm @ 24 VDC

**Relay Contact Ratings:** 2 amps @ 28 VDC or 300 VAC resistive  
 1/8 HP @ 120/240 VAC

**Analog Signal:** Standard 0-20 mA, self-powered  
 Malfunction 0-2 mA  
 Ready 4 mA  
 UV Alarm (special order) 8 mA  
 Alarm 12 mA  
 Delayed Alarm 20 mA

**Relay Outputs:** Alarm (instantaneous, non-latching);  
 Delayed Alarm (3 or 6 seconds, latching or non-latching; Malfunction

**Alarm Reset:** Automatic or manual when flame is no longer detected

**Visual Indicators:** Detector Ready (Green LED); Malfunction (Yellow LED); Alarm/Delayed Alarm (Red LED)

**Field Connections:** 0-20 mA output - three-wire shielded cable  
 All other connections: 18 AWG (.35 mm<sup>2</sup>) to 14 AWG (2.5 mm<sup>2</sup>)

**Wireless Communication:** Available with optional wireless transmitter with text, e-mail notification features

ORDERING INFORMATION

Part No.	Description
120-01	Model F120 UV/IR Flame Detector in Aluminum Housing

Accessories

190-01	Swivel mount assembly for use with 3/4 inch conduit
191-01	Wall mount swivel bracket
194-1	Portable UV/IR Flame Detector Test Device with 120 volt battery charger
194-2	Portable UV/IR Flame Detector Test Device, standard D cell batteries
194-3	Portable UV/IR Flame Detector Test Device, with 240 volt battery charger

