FIRE SENTRY CORP.

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Semiconductor Fabrication Clean Room Specialized Fire Detection Applications Including Wet Benches

SPECIFICATIONS

FSC Model No.

FS7-2173-2RP

FLAME DETECTOR

STAND-ALONE, DIGITAL, ELECTRO-OPTICAL FLAME DETECTOR WITH WIDE BAND IR™

- **Wide 120 Degree Field-of-View – Horizontal and Vertical.**
- **Two-stage fire ALERT / ALARM.**
- **Dry Contact Relay Outputs for fire ALERT, ALARM and FAULT.**
- **Relay Outputs Connect Directly to Fire Suppression Panels.**
- **IP-67 Rated Leak-Proof, Heat-Sealed Polypropylene Housing.**
- **24 Volt DC Operation at 50mA.**
- **Optional PC Interface Unit for Retrieving FirePic™**

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FS7-2173-2RP FLAME Detector

1.0 OVERVIEW

The Leak-Proof, Stand-alone, Digital, Electro-Optical FS7-2173-2RP Flame Detector, with Pigtailed Cable, is specifically designed for use in the semiconductor clean room such as combustible Wet Benches and Tools. The Alert criterion is programmed for a 3 kW polypropylene pool fire. The Alarm criterion is programmed for 13 kW. The Detector Housing is rated IP67, dust tight, and watertight to 1 meter. The Detector is warranted for two (2) years against defects in materials or workmanship.

The FS7-2173-2RP Detector, which contains a multi-spectral sensor array consisting of Wide Band IR™, Near Band IR™, and Visible Band™ sensors. The Detector is designed to see all types of hydrocarbon and non-hydrocarbon fires, including polypropylene and IPA fires. The Detector features a wide 120 degree circular Field-of-View. The Detector's microcomputer, with digital signal processing algorithms, continuously monitors its circuitry and verifies proper operation. When a fire is detected, the ALERT relay is activated at 3 kW, and Alarm at a 13 kW polypropylene pool fire criteria. The Detector has a non-latching relay and automatically resets the Fire Signal Relays after 5 seconds, once the threat extinguishes.

2.0 SPECIFICATIONS

2.1 Electrical Input Power Requirements

Voltage: +24 VDC, 18 V min., 28 Vmax.

Current: 50 mA nominal; in Normal Operation, 80 mA max; in ALERT and ALARM.

2.2 Fire Sensitivity

1 sq. foot Isopropyl Alcohol (IPA) pool fire:	ALARM within 5 seconds at 16 feet
1 sq. foot Isopropyl Alcohol (IPA) pool fire:	ALERT within 5 seconds at 32 feet
4" dia. Polypropylene pool fire (3 kW):	ALERT within 5 seconds at 6 feet
8" dia. Polypropylene pool fire (13 kW):	ALARM within 5 seconds at 8 feet
8" dia. Isopropyl Alcohol (IPA) pool fire:	ALARM within 5 seconds at 8 feet
Field of View:	120 degrees, horizontal and vertical.

2.3 Relay Outputs

ALERT Output Relay:

There is one normally de-energized 24 volt, 1 amp, Fire Alert Signal Output Relay for interfacing to Alarm panels.

ALARM Output Relay:

There is one normally de-energized 24 volt, 1 amp, Fire Alarm Signal Output Relay for interfacing to Alarm panels.

FAULT Signal Relay:

There is one 24 volt, 1 amp Fault Signal Output Relay for interfacing to Alarm panels. During Normal Operation, the Fault Relay is energized with closed contacts. If a Fault occurs, the Fault relay will de-energize and the relay contacts will open. When the Fault is cleared, the relay will energize and the contacts will close.

2.4 Detector Status LED Indicators

ON: LED blinks ON every 10 seconds.

ALERT: LED blinks ON, continuously.

ALARM: LED steady ON, continuously.

FAULT: LED blinks ON every 10 seconds with a Status Code**.**

2.5 Environmental Range

Operating Temperature: **0 to +55** degrees Celsius (32 to 131 degrees Fahrenheit)

Storage Temperature: **-25 to +77** degrees Celsius (-13 to 141 degrees Fahrenheit)

Humidity: **0 to 100 %**

2.6 Physical Description

IP67 rated leak-proof Detector housing made of acid resistant polypropylene with liquid-tight, heat-sealed seam. The Detector housing attaches using screws or heat weld to surface with included chassis mount slide bracket. The Detector has a 20 foot cable of 15 “pigtailed” Teflon wires with a PVC outer sheath, and a 72” x 5/16 Teflon Sleeve.

2.7 Diagnostics

Self-test: The Detector automatically performs a self-test every 10 minutes to check the integrity of operation.

FirePic™: Stores digital spectral data information of six (6) fire events in the non-volatile memory, each eight (8) second in duration.

Event Log: The Detector maintains an internal history log of up to 200 events such as fires, faults, resets, etc.

Figure 1: Detector Housing Dimensions