

FS7 Electro-Optical Fire Detection Systems For The Semiconductor Industry

FS7



FEATURES

- Multi-Spectral digital electro-optical radiant energy infrared fire detector
- Unique two-stage fire detection response
- Immune to false alarm sources
- NOT affected by absorbing smoke, gasses, or chemical vapors
- NOT sensitive to background radiant energy from electric heaters and ovens
- Detects hydrocarbon and non-hydrocarbon fires
- Rugged leak-proof, heat-sealed, acid-resistant, injection-molded polypropylene housing
- Wide 120 degrees field-of-view
- Digital communication with RS-485 interface
- **FirePic™**: Time and date-stamped digital fire signatures
- Built-in Detector automatic self-test

APPLICATIONS INCLUDE:

- Open Areas of Clean Room
- Wet Bench Working Surface
- Wet Bench Subsurface (Plenum)
- Pumps and Equipment Located Behind the Wet Bench Area
- Under-floor Areas

OPERATION

Fire Sentry's Model FS7-2173 electro-optical radiant energy fire detection technology, with Multi-Spectral Wide Band IR, Near Band IR and Visible Band infrared fire detection is designed specifically for semiconductor Clean Room fire protection applications. The FS7 fire detector provides an intelligent two-stage response to semiconductor wet bench fires:

Stage 1, Alert: This is first-stage response to a small fire with a heat energy output of 3 kW (the equivalent of a 4-inch diameter polypropylene pool fire). This allows time for the fire to self-extinguish. **Stage 2, Alarm:** If the fire does not self-extinguish, and grows to the Factory Mutual specified heat energy threshold of 13 kW (the equivalent of an 8-inch diameter polypropylene pool fire), the second stage response is activated.

Model FS7-2173 Detector is used with Fire Sentry Controller FS7-130-SX or Control Panel FSWB. Controller and Control Panel supply power to Detectors, monitor the status of all Detectors, and communicate with the Detectors via the digital RS-485 communication channel. FS7-2173 Detector is supplied with a standard 20 foot cable connector. Detectors are connected to Controller or Control Panel using the self-locking connectors and Fire Sentry junction boxes. This allows for fast and easy connections eliminating wiring problems. Each Detector can store up to six time and date stamped **FirePics™** (pre-event multi-spectral sensor array data) in non-volatile memory. Controller and Control Panel can also store Event History Table in the non-volatile memory which contains the time and date stamped Alert, Alarm, and Fault histories. **FirePics™** and Event Histories can be retrieved from Controller or Control panel.



WORLD LEADER IN ELECTRO-OPTICAL DIGITAL FIRE DETECTION TECHNOLOGY



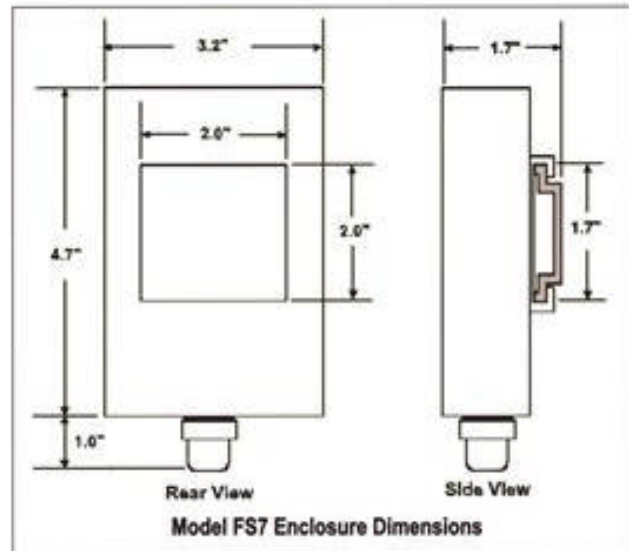
ISO 9001

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FM & CE Approved

FS7 Detector Specifications

Response Time	Alert: 4" dia. Polypropylene pool fire (3 kW) within 5 sec. Alarm: 8" dia. Polypropylene pool fire (13 kW) within 5 sec.
Field of View	120 Degrees horizontal & vertical
Spectral Sensitivity	Wide Band IR: 0.7 to 3.5 microns Near Band IR: 0.7 to 1.1 microns Visible: 400 to 900 nanometers
Input Power	10-12 VDC from FSC Controller
Power Consumption	30 mA @ 12 VDC typical
Self-Test	Automatic every 10 minutes
Output	RS-485 FireBusII™ interface with FSC Controller or Control Panel
Operating Temp	32° to 131° F (0° to 55° C)
Humidity	10 to 90% RH, non-condensing
Enclosure	Leak-proof, heat-sealed, injection-molded polypropylene - IP 67
Mounting	Chassis mount slide bracket
Electrical Connections	Integral 20 foot 4-conductor Teflon cable connector for plugging into junction box.



Ordering Information

FS7-2173	Detector	FS-746	Long Range Test Lamp
FS7-2179	Junction Box	FT-57	Short Range Test Lamp

FS7-130-SX Controller Specifications

Inputs	Monitors up to (12) FS7-2173 detectors
Outputs	Master Alert Relay: SPST, N.O. Normally de-energized Zone Alarm Relays (4): SPST, N.O. Normally de-energized 1 relay per zone. Master Fault Relay: SPST, N.O. Master Fault relay is energized with N.C. contacts during normal operation and with no fault. All relays are non-latching Relay contact rating: 1 amp @ 24VDC
Input Power	Regulated 24 VDC (16.8 to 26.4 VDC)
Power Consumption	Controller module: 50 mA nominal Detector: 30 mA each
Detector Interface	RS-485 FireBus II™ digital communication
PC Interface	RS-232, for system configuration, monitoring and diagnostics
Mounting	Designed for panel mounting
Status Displays	Color LEDs for Power, Comm. Fault, System Fault, and Alert/Alarm
Event History	200 events (Alarms, Faults, Alerts) stored in non-volatile memory

FSWB Control Panel Specifications

Inputs	Monitors up to (9) FS7-2173 Detectors. Supervisory inputs for N.O. contact devices such as smoke detector, gas detector, manual pull station or tamper switches
Outputs	Supervised audible/visual circuit 24 VDC @ 150 mA Supervised Single zone suppression release solenoid 24 VDC @ 800 mA Non-supervised auxiliary 24 VDC @ 100 mA (resetable) Non-supervised auxiliary 24 VDC @ 85 mA for external control relays (normally energized) ALERT relay, N.O., De-energized ALARM relay, N.O., De-energized FAULT relay, N.C. Energized
Input Power	110 VAC or 24 VDC
Detector Interface	RS-485 FireBus II™ digital communication
PC Interface	RS-232, for system configuration, monitoring and diagnostics
Enclosure	Powder coated steel, NEMA 12
Battery Backup	24 hour built-in batteries and charger
Status Displays	Color LEDs for Alert, Alarm, Fault; 8-segment display for operational codes
Event History	200 events (alarms, faults, alerts) stored in non-volatile memory
Part Numbers	FSWB-1 (110 VAC) & FSWB-3 (24 VDC)

Dimensions are in inches. These specifications are subject to change without notice.

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