F220 Heat Detectors

- Two-wire or four-wire bases
- 50 ft (15.2 m) maximum spacing between detectors
- Tamper detection
- Dual color LED

The F220 Heat Detectors include:
- **F220-135**: An electronic rate-of-rise, fixed temperature heat detector that initiates an alarm when the ambient temperature exceeds +135°F (+57°C) or when the ambient temperature increases by +15°F (+8.3°C) or more in less than 1 minute.
- **F220-135F**: An electronic fixed temperature heat detector that initiates an alarm when the ambient temperature reaches +135°F (+57°C).
- **F220-190F**: An electronic fixed temperature heat detector that initiates an alarm when the ambient temperature reaches +190°F (+88°C).

The detectors use low current electronic circuitry, so they can connect to 12 VDC nominal or 24 VDC nominal power source circuits. When mounted on the appropriate F220-B6 Series Mounting Base, the F220 Heat Detectors provide general property protection from fire.

**Notice**
Heat detectors are not life safety devices.

**Functions**

**Compatible Bases**
Configure the detectors as either two-wire or four-wire depending on the mounting base selected. These detectors are compatible with any of the F220-B6 bases:
- F220-B6 12/24 VDC Two-wire Mounting Base
- F220-B6R Standard 12/24 VDC Four-wire Mounting Base
- F220-B6RS 24 VDC Four-wire Mounting Base with Sounder
- F220-B6C 12/24 VDC Four-wire Power Supervision Mounting Base
- F220-B6PM 24 VDC Four-wire Addressable Master Base
- F220-B6PS 12/24 VDC Four-wire Addressable Base

**Dual-color LED**
To verify the detector has power and the heat detection circuitry functions, a dual-color LED indicator flashes green every 8 sec when operating normally. It flashes once every 4 sec when a trouble condition exists. The LED latches on red if an alarm...
occurs, allowing the user to easily verify individual detector alarms. Clear the alarm condition by interrupting power to the detector.

**Tamper Detection**
When detector heads are correctly installed in any of the F220-B6 bases, the control panel initiates a trouble signal if a detector is removed from its base. A mechanical tamper lock comes with each base to inhibit unauthorized head removal.

**Supervision**
The control panel supervises two-wire systems. Supervision of four-wire system power is provided by an end-of-line (EOL) power supervision device such as a D275 or PAM-4, or an F220-B6E Power Supervision Mounting Base and an EOL resistor as specified by the control panel manufacturer.

<table>
<thead>
<tr>
<th>Region</th>
<th>Certification</th>
<th>Date and Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>UL</td>
<td>UQGS: Heat - Automatic Fire Detectors (UL521)</td>
</tr>
<tr>
<td></td>
<td>FM</td>
<td>F220 Heats</td>
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<tr>
<td></td>
<td>CSFM</td>
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<td>NYCT-MEA</td>
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<td>MSFM</td>
<td>2200 Sep 2008</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>HKFSD</td>
<td>J-002/C/067</td>
</tr>
</tbody>
</table>

**End-of-Line Power Supervision**
Loop supervision requires one D275 or PAM-4 or F220-B6E per loop when using F220-B6R/B6C bases and is accomplished by the control panel.

**Notice**
The volume of any electrical box used should be adequate to accommodate the number and size of conductors as specified by the National Electrical Code or any local authorities having jurisdiction (AHJ).

**Wiring the Bases**
For detailed wiring instructions, see the F220 Series Detectors with F220-B6/C/E/R Bases Installation Instructions, the F220 Series Detectors with F220-B6RS Bases Installation Instructions, or the F220-B6PS/M Installation Instructions.

**Parts included**

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Detector head with dust cover</td>
</tr>
</tbody>
</table>

**Technical specifications**

**Electrical**

- **Current (alarm):**
  - (detector head only): 20 mA minimum at 8.5 VDC; 35 mA maximum at 32 VDC
- **Current (start-up/standby):** 0.12 mA maximum at 35 VDC
- **Maximum RMS Ripple:** 25% of DC input
- **Power-up Time:** 22 sec maximum

**Voltage (standby)**

- F220-B6: 8.5 VDC to 32.0 VDC
- F220-B6C/-B6R/B6E: 10.0 VDC to 30.0 VDC
- F220-B6RS: 16.0 VDC to 30.0 VDC
- F220-B6PM: 18.9 VDC to 28.0 VDC
- F220-B6PS: With D299: 18.9 VDC to 28.0 VDC
  - Without D299: 9.6 VDC to 28.0 VDC

**Environmental**

- **Relative Humidity:** 0% to 95% non-condensing
- **Temperature (normal operating):** +32°F to +100°F (0°C to +38°C)

**Note:** The normal environment where these detectors are installed should be within the specified normal operating temperature limits.
Mechanical

<table>
<thead>
<tr>
<th>Color:</th>
<th>White</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions</td>
<td>6.75 in. x 2.25 in. (17.1 cm x 6.4 cm)</td>
</tr>
</tbody>
</table>

Trademarks

All hardware and software product names used in this document are likely to be registered trademarks and must be treated accordingly.

Ordering information

F220-135 Electronic Rate-of-Rise/Fixed Temperature (+135°F [+57°C]) Heat Detector
Rate-of-rise/fixed temperature heat detector head only; requires base.
Order number F220-135

F220-135F Electronic Fixed Temperature (+135°F [+57°C]) Heat Detector
Fixed temperature heat detector head only; requires base.
Order number F220-135F

F220-190F Electronic Fixed Temperature (+190°F [+88°C]) Heat Detector
Fixed temperature heat detector head only; requires base.
Order number F220-190F

Accessories

D275 Power Supervision Module
Line supervision device for four-wire fire detection circuits
Order number D275

DRA-5 Remote Annunciator (5 VDC)
Designed to provide remote annunciation of alarms for a number of Bosch smoke and heat detectors
Order number DRA-5

DT-2 Detector Removal Tool
Use the DT-2 to remove, replace, or test the detector head
Order number DT-2

F220-B6 12/24 VDC Two-wire Base
Standard base for two-wire (12 VDC or 24 VDC system) applications.
Order number F220-B6

F220-B6R Standard 12/24 VDC Four-wire Base
Standard base for four-wire (12 VDC or 24 VDC) detector systems.
Order number F220-B6R

F220-B6RS 24 VDC Four-wire Detector Base with Sounder
Four-wire detector base with sounder for use with the F220 Photoelectric Smoke and Heat Detectors.
Order number F220-B6RS

F220-B6C 12/24 VDC Four-wire Base with Auxiliary Form C Relay
Four-wire base with a normally-open (NO) alarm loop relay and a set of auxiliary contacts (Form C).
Order number F220-B6C

F220-B6E 12/24 VDC Four-wire Power Supervision Base with End-of-line Power Monitoring Relay
Four-wire base with a normally-open (NO) alarm relay and an EOL power supervision relay.
Order number F220-B6E

F220-B6PS 12/24 VDC Four-wire Addressable Single Detector Base
The single detector base provides an address on the FACP data expansion circuit for its detector. It accepts the F220 Photoelectric Smoke Detector Heads and Heat Detector Heads.
Order number F220-B6PS

F220-B6PM 24 VDC Four-wire Addressable Multiple Detector Base
The multiple detector base provides an address on the FACP data expansion circuit for its detector and up to an additional 19 detectors. It accepts the F220 Photoelectric Smoke Detector Heads and Heat Detector Heads.
Order number F220-B6PM