AVIOTEC IP starlight 8000 sets new standards in visual fire detection by combining reliable smoke and flame detection with outstanding speed.

System overview

The video-based fire detection is the system of choice when reliable video motion and fire detection is needed, e.g. applications which are not subjected to construction product regulation or a supplementation to existing fire detection systems. AVIOTEC IP starlight 8000 operates as stand-alone unit and doesn’t need a separate evaluation unit. Furthermore, it contains all features of the Intelligent Video Analytics which allows analyzing and evaluating moving objects in parallel. Video-based fire detection and Intelligent Video Analytics operate independently from each other and are separately adjustable.

A 10/100 Base-T Fast Ethernet port on the back part of the device is available to connect the camera to Ethernet. This allows easy configuration and monitoring through network devices such as Client PCs or mobile devices. A video recording management system may be integrated optionally. Furthermore, there is a relay output to transmit alarm signals, e.g. to the FPA-5000 fire alarm panel. In this case the camera acts as supervisory signal-initiating device. Alarms have to be verified by an operator in a monitoring center owing to non-existing standards. Automatic alarm-forwarding to fire services is not provided.

<table>
<thead>
<tr>
<th>Pos.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Video Recording Manager (VRM)</td>
</tr>
<tr>
<td>2</td>
<td>Client PC</td>
</tr>
</tbody>
</table>
Functions

Fast and reliable flame and smoke detection
A unique Bosch algorithm based on physical characteristics of fires detects flames and smoke within an incredibly short time span by analyzing video sequences. The video-based fire detection works under remarkable low-light performance (down to 7 lx) and detects test fires TF1 to TF8. In case of flame or smoke detection the video broadcast has the advantage to verify the alarm, speed up the rescue chain and give insights to rescue teams.

Monitoring large areas
Insensitive to dust and humidity thanks to the optical principle, it is possible to monitor large indoor areas that push conventional systems to their limits. AVIOTEC IP starlight 8000 is the innovative solution for:
- Industry
- Transportation
- Energy & Utilities
- Warehouses

Large application range
The video-based fire detection is suitable for a range of challenging applications in harsh environments with a high fire hazard like paper mills. Highly versatile in application, AVIOTEC IP starlight 8000 offers the possibility to complement existing systems or to tap into new application fields.

Individually adjustable and adaptable
Verification time, sensitivity, detection size and selective masking for smoke and flame are individually configurable to adjust them to the customer needs. Flame and smoke detection can be activated or deactivated separately.

Root cause analysis
Connecting the camera to a video management system offers the possibility to find out the cause of fires. Based on video recordings, incidents can carefully be established and evaluated. This helps eliminating and preventing hazardous situations in the future.

Easy installation
Power for the camera can be supplied via a Power-over-Ethernet compliant network cable connection. With this configuration, only a single cable connection is required to view, power, and control the camera. Using PoE makes installation easier and more cost-effective, as cameras do not require a local power source.

The camera can also be supplied with power from +12 VDC power supplies. To increase system reliability, the camera can be simultaneously connected to both PoE and +12 VDC supplies.

Certifications and approvals

<table>
<thead>
<tr>
<th>Standards</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alarm</td>
<td>EN 50130-5 Class II (2011)</td>
</tr>
<tr>
<td>Safety</td>
<td>EN 60950-1 UL 60950-1 (2nd edition) CAN/CSA-C 22.2 No. 60950-1</td>
</tr>
<tr>
<td>Vibration</td>
<td>Camera with 500 g (1.1 lb) lens as per IEC 60068-2-6 (5 m/s², operational)</td>
</tr>
<tr>
<td>HD</td>
<td>SMPTE 296M-2001 (Resolution: 1280x720) SMPTE 274M-2008 (Resolution: 1920x1080)</td>
</tr>
<tr>
<td>Color representation</td>
<td>ITU-R BT.709</td>
</tr>
<tr>
<td>ONVIF conformance</td>
<td>EN 50132-5-2; IEC 62676-2-3</td>
</tr>
</tbody>
</table>

* Chapters 7 and 8 (mains voltage supply requirement) are not applicable to the camera. However, if the system in which this camera is used needs to comply with this standard, then any power supplies used must comply with this standard.

VdS certification only valid with the supplied lens.

Installation/configuration notes

Disclaimer
IMPORTANT: Video fire indication systems are video content analysis systems. They give indications for fires and are designed to supplement fire detection systems and human guards in monitoring centers. Video fire indication systems are confronted with a higher amount of challenges considering scenery and background compared to conventional fire detection systems. It cannot be granted that fire is detected in all scenery settings. Thus, the video fire detection system shall be seen as a system that enhances the probability of early fire detection, with the restriction that it might detect false alarms. It shall not be seen as a system that ensures fire detection in all possible image scenarios.
Seller does not represent that the product will prevent any personal injury or property loss by fire or otherwise; or that the product will in all cases provide adequate warning or protection. Buyer understands that a properly installed and maintained alarm may only reduce the risk of a fire or other events occurring without providing an alarm, but it is not insurance or a guarantee that such will not occur or that there will be no personal injury or property loss as a result. Consequently, seller shall have no liability for any personal injury, property damage or other loss based on a claim the product failed to give warning. The camera must be mounted according to the following graphic:

The maximum distance to fire depends on \( f_w \) and the lens settings. The tables below demonstrate exemplarily the maximum distances to a fire depending on fire size and opening angle of the camera lens:

### Maximum distance to fire in m (Flame detection)

<table>
<thead>
<tr>
<th>Camera Model</th>
<th>Opening angle [°]</th>
<th>Fire width [m]</th>
<th>Smoke width [m]</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LVF-5005C-S4109</strong></td>
<td></td>
<td>100</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td>30.7</td>
<td>46</td>
<td>80.7</td>
</tr>
<tr>
<td></td>
<td>61.5</td>
<td>92.1</td>
<td>161.4</td>
</tr>
<tr>
<td></td>
<td>123.1</td>
<td>184.3</td>
<td>322.8</td>
</tr>
<tr>
<td><strong>LVF-5005N-S1250</strong></td>
<td></td>
<td>33</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>33</td>
<td>20</td>
<td>8.5</td>
</tr>
<tr>
<td></td>
<td>48.5</td>
<td>79.1</td>
<td>185.1</td>
</tr>
<tr>
<td></td>
<td>80.9</td>
<td>131.8</td>
<td>308.5</td>
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<tr>
<td></td>
<td>161.8</td>
<td>263.7</td>
<td>617</td>
</tr>
<tr>
<td></td>
<td>323.6</td>
<td>527.5</td>
<td>1234.1</td>
</tr>
<tr>
<td><strong>LVF-8008C-P0413</strong></td>
<td></td>
<td>100</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td>33</td>
<td>20</td>
<td>8.5</td>
</tr>
<tr>
<td></td>
<td>33.9</td>
<td>55.3</td>
<td>129.5</td>
</tr>
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<td>56.6</td>
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<td></td>
<td>100</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td>12.5</td>
<td>19.3</td>
<td>25.2</td>
</tr>
<tr>
<td></td>
<td>21.3</td>
<td>32.2</td>
<td>42</td>
</tr>
<tr>
<td></td>
<td>42.6</td>
<td>64.5</td>
<td>84</td>
</tr>
<tr>
<td></td>
<td>85.3</td>
<td>129</td>
<td>168.1</td>
</tr>
<tr>
<td><strong>LVF-8008C-P0413</strong></td>
<td></td>
<td>100</td>
<td>60</td>
</tr>
<tr>
<td></td>
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<td></td>
<td>21.5</td>
<td>32.2</td>
<td>56.4</td>
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<tr>
<td></td>
<td>43.1</td>
<td>64.5</td>
<td>112.9</td>
</tr>
<tr>
<td></td>
<td>86.2</td>
<td>129</td>
<td>225.9</td>
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<td>215.9</td>
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</tbody>
</table>
### Parts included

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>AVIOTEC IP starlight 8000</td>
</tr>
<tr>
<td>1</td>
<td>Varifocal SR Megapixel Lens (LVF-5005C-S4109</td>
</tr>
<tr>
<td>1</td>
<td>TC9208 bracket (TC9208</td>
</tr>
</tbody>
</table>

### Technical specifications

#### Algorithm Overview
- Min. detection size for Smoke, standard setting (% of picture width): 2.3
- Smoke speed (% of picture height /s): 0.7 - 8.4
- Min. Smoke density (%): 40
- Min. detection size for Flame, standard setting (% of picture width): 1.6
- Min. illumination level (lx): 7

#### Audio streaming
- Standard: G.711, 8 kHz sampling rate, L16, 16 kHz sampling rate, AAC-LC, 48 kbps at 16 kHz sampling rate, AAC-LC, 80 kbps at 16 kHz sampling rate
- Signal-to-Noise Ratio: >50 dB
- Audio Streaming: Full-duplex / half duplex

#### Environmental
- Operating Temperature: -20°C to +50°C (-4°F to 122°F)
- Storage Temperature: -30°C to +70°C (-22°F to +158°F)
- Operating Humidity: 20% to 93% RH
- Storage Humidity: up to 98% RH

#### Input/output
- Analog video out: SMB connector, CVBS (PAL/NTSC), 1 Vpp, 75 Ohm
- Audio line in: 1 Vrms max, 18 kOhm typical
- Audio line out: 0.85 Vrms at 1.5 kOhm typical
- Audio connectors: 3.5 mm mono jack

### Local storage
- Internal RAM: 10 s pre-alarm recording
- Memory card slot: Supports up to 32 GB microSDHC / 2 TB microSDXC card. (An SD card of Class 6 or higher is recommended for HD recording)
- Recording: Continuous recording, ring recording, alarm/events/schedule recording

### Mechanical
- Dimensions (W x H x L): 78 x 66 x140 mm (3.07 x 2.6 x 5.52 inch) without lens
- Weight: 855 g (1.88 lb) without lens
- Color: RAL 9006 Metallic Titanium
- Tripod Mount: Bottom and top 1/4-inch 20 UNC
- Sustainability: PVC free

### Network
- Protocols: IPv4, IPv6, UDP, TCP, HTTP, HTTPS, RTP/RTCP, IGMP V2/V3, ICMP, ICMPv6, RTSP, FTP, ARP, DHCP, APIPA (Auto-IP, link local address), NTP (SNTP), SNMP V1, V3, MIB-II, 802.1x, DNS, DNSv6, DDNS (DynDNS.org, selfHOST.de, no-ip.com), SMTP, iSCSI, UPnP (SSDP), DiffServ (QoS), LLDP, SOAP, Dropbox™, CHAP, digest authentication
- Encryption: TLS 1.0, SSL, DES, 3DES
- Ethernet: 10/100 Base-T, auto-sensing, half/full duplex
- Connectivity: ONVIF Profile S, Auto-MDIX

### Optical
- Lens mount: CS mount (C-mount with adapter ring)
- Lens connector: Standard 4-pin DC-iris connector
- Focus control: Motorized back-focus adjustment
- Iris control: Automatic iris control
### Power

**Power Supply**
- 12 VDC; Power-over-Ethernet 48 VDC nominal

**Current Consumption**
- 750 mA (12 VDC);
- 200 mA (PoE 48 VDC)

**Power Consumption**
- 9 W

**PoE**
- IEEE 802.3af (802.3at Type 1) Class 3

### Sensor

**Type**
- 1/1.8" CMOS

**Total sensor pixels**
- 6.1 MP

### Software

**Unit Configuration**
- Via web browser or Configuration Manager

**Firmware update**
- Remotely programmable

**Software viewer**
- Web browser, Bosch Video Client, or third party software

### Video resolution

- **1080p HD**
  - 1920 x 1080

- **720p HD**
  - 1280 x 720

- **Upright 9:16 (cropped)**
  - 400 x 720

- **D1 4:3 (cropped)**
  - 704 x 480

- **480p SD**
  - Encoding: 704 x 480;
    - Displayed: 854 x 480

- **432p SD**
  - 768 x 432

- **288p SD**
  - 512 x 288

- **240p SD**
  - Encoding: 352 x 240;
    - Displayed: 432 x 240

- **144p SD**
  - 256 x 144

### Video streaming

**Video compression**
- H.264 (MP); M-JPEG

**Streaming**
- Multiple configurable streams in H.264 and M-JPEG, configurable frame rate and bandwidth. Regions of Interest (ROI)

**Overall IP Delay**
- Min. 120 ms, Max. 340 ms

**GOP structure**
- IP, IBP, IBBP

**Encoding interval**
- 1 to 30 [25] fps

**Encoder regions**
- Up to 8 areas with encoder quality settings per area

### LVF-5005C-S4109

**Maximum sensor format**
- 1/1.8-inch

**Optical resolution**
- 5 Megapixels

**Focal length**
- 4.1 - 9 mm

**Iris range**
- F1.6 to F8

**Min object distance**
- 0.3 m (1 ft)

**Back focus distance (values in air)**
- 12.72 mm (wide),
  - 19.94 mm (tele)

**Weight**
- 130 g (0.29 lb)

**Dimensions**
- Ø 62.9 mm (excluding focus and zoom knobs)
  - x 66.6 mm (excluding flange)

### LVF-5005N-S1250

**Maximum sensor format**
- 1/1.8-inch

**Optical resolution**
- 5 Megapixels

**Focal length**
- 12 - 50 mm

**Iris range**
- F1.8 to T360

**Min object distance**
- 0.8 m (2.63 ft)

**Back focus distance (values in air)**
- 10.19 mm (wide),
  - 10.12 mm (tele)

**Weight**
- 175 g (0.386 lb)

**Dimensions**
- Ø 52.4 mm x 89.3 mm

**Lens mount**
- C
### LVF-5005N-S1250

<table>
<thead>
<tr>
<th>Angle of view (HxV)</th>
<th>4:3</th>
<th>33 x 25° Wide; 8 x 6° Tele</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angle of view (HxV)</td>
<td>1/3-inch sensor 16:9</td>
<td>24 x 14° Wide; 6 x 3° Tele</td>
</tr>
<tr>
<td>Angle of view (HxV)</td>
<td>1/2.7-inch sensor 16:9</td>
<td>27 x 16° Wide; 6.7 x 3.8° Tele</td>
</tr>
<tr>
<td>Angle of view (HxV)</td>
<td>1/1.8-inch sensor 16:9</td>
<td>33 x 19° Wide; 8.3 x 4.7° Tele</td>
</tr>
</tbody>
</table>

- **Iris control**: 4-pin, DC control
- **Focus ctrl**: manual
- **Zoom ctrl**: manual
- **IR corrected**: yes

#### Environmental

- **Operating Temperature**: -10°C to +50°C (+14°F to +122°F)
- **Storage Temperature**: -20°C to +60°C (-4°F to +140°F)
- **Operating Humidity**: 35% to 90% non-condensing

### LVF-8008C-P0413

#### Environmental

- **Operating Temperature**: -10°C to +50°C (+14°F to +122°F)
- **Storage Temperature**: -40°C to +60°C (-40°F to +140°F)
- **Operating Humidity**: Up to 90% non-condensing

#### Angle of view with DINION IP starlight 8000 MP (HxV)

- **16:9 mode**: Wide: 105x57°; Tele: 33x18.5°
- **4:3 mode**: Wide: 94x70°; Tele: 30x22°

#### Mechanical

- **Weight**: 172 g (0.38 lb)
- **Dimensions**: Ø 65 x 93 mm
- **Lens mount**: CS-mount

#### Optical

- **Maximum sensor format**: 1/1.8-inch
- **Focal range**: 4 – 13 mm
- **Iris range**: F1.5 to close
- **Min. object distance**: 0.3 m (1 ft)

### Ordering information

**FCS-8000-VFD-B Video-based fire detection**
Fast and secure identification of smoke and flames by video-based fire detection.
Order number **FCS-8000-VFD-B**
**Accessories**

**UHI-OG-0 Indoor camera housing**
Indoor camera housing  
Order number UHI-OG-0

**UHI-OGS-0 Indoor housing with sunshield**
Indoor camera housing with sunshield.  
Order number UHI-OGS-0

**UHO-POE-10 Outdoor housing, POE + power supply**
Outdoor camera housing with PoE+ power supply.  
Order number UHO-POE-10

**UHO-HBGS-11 Outdoor housing, 24VAC, feed-through**
Outdoor housing for (24 VAC / 12 VDC) camera with 24 VAC power supply, blower and feed-through cabling.  
Order number UHO-HBGS-11

**UHO-HBGS-51 Outdoor housing, blower, 230VAC/35W**
Outdoor housing for (230 VAC / 12 VDC) camera with 230 VAC power supply, blower and feed-through cabling.  
Order number UHO-HBGS-51

**UHO-HBGS-61 Outdoor housing, blower, 120VAC/35W**
Outdoor housing for (120 VAC / 12 VDC) camera. 120 VAC power supply; blower; feed-through cabling  
Order number UHO-HBGS-61

**HAC-TAMP01 Tamper switch kit for UHI/UHO Series**
Tamper switch kit for HSG and UHI/UHO series enclosures  
Order number HAC-TAMP01

**LTC 9215/00 Wall mount with cable feed through, 12”**
Wall mount for camera housing, cable feed-through, 30 cm (12 in); for outdoor use.  
Order number LTC 9215/00

**LTC 9215/00S Wall mount for UHI/UHO**
Wall mount for camera housing, cable feed-through, 18 cm (7 in); for indoor use.  
Order number LTC 9215/00S

**LTC 9219/01 Feed through J mount**
J-mount for camera housing, 40 cm (15 in); for indoor use.  
Order number LTC 9219/01

**LVF-5005N-S1250 Varifocal lens, 12-50mm, 5MP, C mount**
Varifocal megapixel IR corrected lens with 1/1.8” sensor max and C-mount  
Order number LVF-5005N-S1250

**LVF-8008C-P0413 Varifocal lens, 4-13mm, 12MP, CS mount**
Varifocal megapixel lens; P-iris; CS-mount; 1/1.8”; F1.5; 4-13mm  
Order number LVF-8008C-P0413

**Services**

**EWE-AVIOTEC-IW 12mths wrty ext Aviotec starlight 8000**
12 months warranty extension  
Order number EWE-AVIOTEC-IW