BOSCH

FCS-8000-VFD-B Video-based fire detection
AVIOTEC IP starlight 8000

VdS

- ▶ Very fast fire and smoke detection
- ▶ Robust against false alarms
- ▶ Covers large monitoring area
- ▶ Outstanding performance under low-light conditions
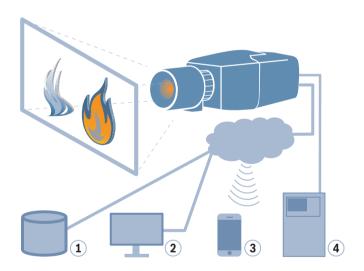- ▶ Resolution 1080p

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.

Pos.	Description
1	Video Recording Manager (VRM)
2	Client PC
3	Mobile Device
4	FPA-5000 Fire Alarm Panel

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 2 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. Additionally, uninterruptible power supplies (UPS) can be used to ensure continuous operation, even during a power failure.
For trouble-free network cabling, the camera supports Auto-MDIX which allows the use of straight or cross-over cables.

Certifications and approvals

Standards	Type
Emission	EN 55022 Class B (2010), +AC (2011)
	FCC: 47 CFR 15, class B (2012-10-1)
Immunity	EN 50130-4 (PoE, +12 VDC)* (2011)
	EN 50121-4 (2006), +AC: (2008)
Alarm	EN 50130-5 Class II (2011)
Safety	EN 60950-1
	UL 60950-1 (2nd edition)
	CAN/CSA-C 22.2 No. 60950-1
Vibration	Camera with 500 g (1.1 lb) lens as per IEC 60068-2-6 (5 m/s^2, operational)
HD	SMPTE 296M-2001 (Resolution: 1280x720)
	SMPTE 274M-2008 (Resolution: 1920x1080)
Color representation	ITU-R BT.709
ONVIF conformance	EN 50132-5-2; IEC 62676-2-3

* 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.

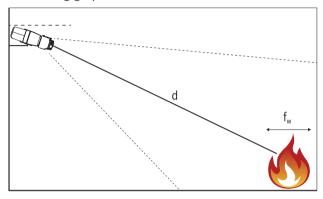| Region	Regulatory compliance/quality marks	
Germany	VdS	G 217090 AVIOTEC IP starlight 8000
Europe	CE	FCS-8000-VFD-B
USA	FCC	FCS-8000-VFD-B
Australia	CSIRO	afp-3323 AVIOTEC IP starlight 8000

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:

d	Distance to fire
f_w	Flame width

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)

LVF-5005C-S4109 (standard lens)

	Opening angle [°]		
	100	60	45
Fire width [m]			
0.3	18.2	27.6	36
0.5	30.4	46.1	60
1	60.9	92.2	120
2	121.9	184.4	240.1

LVF-8008C-P0413

	Opening angle [°]		
	100	60	33
Fire width [m]			
0.3	18.4	27.6	48.4
0.5	30.7	46	80.7
1	61.5	92.1	161.4
2	123.1	184.3	322.8

LVF-5005N-S1250

	Opening angle [°]		
	33	20	8.5
Fire width [m]			
0.3	48.5	79.1	185.1
0.5	80.9	131.8	308.5
1	161.8	263.7	617
2	323.6	527.5	1234.1

Maximum distance to fire in m (Smoke detection)

LVF-5005C-S4109 (standard lens)

	Opening angle [°]		
	100	60	45
Smoke width [m]			
0.3	12.5	19.3	25.2
0.5	21.3	32.2	42
1	42.6	64.5	84
2	85.3	129	168.1

LVF-8008C-P0413

	Opening angle [°]		
	100	60	33

LVF-8008C-P0413

Smoke width [m]

0.3	12.9	19.3	33.8
0.5	21.5	32.2	56.4
1	43.1	64.5	112.9
2	86.2	129	225.9

LVF-5005N-S1250

	Opening angle [°]		
	33	**20**	**8.5**
Smoke width [m]			
0.3	33.9	55.3	129.5
0.5	56.6	92.3	215.9
1	113.2	184.6	431.9
2	226.5	369.2	863.9

Parts included

Quantity	Component
1	AVIOTEC IP starlight 8000
1	Varifocal SR Megapixel Lens (LVF-5005C-S4109 | F.01U.297.770)
1	TC9208 bracket (TC9208 | F.01U.143.919)

Technical specifications

Algorithm Overview

Min. detection size for Smoke, standard setting (% of picture width)	1.6
Smoke speed (% of picture height /s)	0.7 - 8.4
Min. Smoke density (%)	40
Min. detection size for Flame, standard setting (% of picture width)	1.1
Min. illumination level (lx)	2

Algorithm Overview

Min. illumination level with IR illumination (lx)	0

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
Alarm input	2 inputs
Alarm input activation	+5 VDC nominal; +40 VDC max. (DC-coupled with 50 kOhm pull-up resistor to +3.3 VDC) (< 0.5 V is low; > 1.4 V is high)
Alarm output	1 output
Alarm output voltage	30 VAC or +40 VDC max. Maximum 0.5 A continuous, 10VA (resistive load only)
Ethernet	RJ45
Data port	RS-232/422/485

Local storage

Internal RAM	10 s pre-alarm recording

Local storage

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	TLS1.0/1.2, AES128, AES256
Ethernet	10/100 Base-T, auto-sensing, half/full duplex
Connectivity	Auto-MDIX
Interoperability	ONVIF Profile S; ONVIF Profile G; GB/T 28181

Optical

Lens mount	CS mount (C-mount with adapter ring)
Lens connector	Standard 4-pin DC-iris connector / P-iris* connector
Focus control	Motorized back-focus adjustment
Iris control	DC-iris and P-iris* control

Power

Power Supply	12 VDC; Power-over-Ethernet 48 VDC nominal
Current Consumption	750 mA (12 VDC);

Power

	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

Video streaming

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)
Lens mount	CS
Angle of view (HxV) 1/1.8-inch sensor 16:9	101 x 56° Wide 46 x 26° Tele
Iris control	4-pin, DC control
Focus ctrl	manual
Zoom ctrl	manual
IR corrected	yes
Environmental	
- Operating Temperature	-10℃ to+50℃ (+14℉ to +122℉)
- Storage Temperature	-40℃ to +70℃ (-40℉ to + 158℉)
- Operating Humidity	Up to 93% non-condensing
- Certification	CE

LVF-5005N-S1250

Maximum sensor format	1/1.8-inch

LVF-5005N-S1250

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) values in air
Weight	175 g (0.386 lb)
Dimensions	Ø 52.4 mm x 89.3 mm
Lens mount	C
Angle of view (HxV) 4:3	33 x 25° Wide 8 x 6° Tele
Angle of view (HxV) 1/3-inch sensor 16:9	24 x 14° Wide 6 x 3° Tele
Angle of view (HxV) 1/2.7-inch sensor 16:9	27 x 16° Wide; 6.7 x 3.8° Tele
Angle of view (HxV) 1/1.8-inch sensor 16:9	33 x 19° Wide; 8.3 x 4.7° Tele
Iris control	4-pin, DC control
Focus ctrl	manual
Zoom ctrl	manual
IR corrected	yes
Environmental	
- Operating Temperature	-10℃ to+50℃ (+14℉ to +122℉)
- Storage Temperature	-20℃ to +60℃ (-4℉ to + 140℉)
- Operating Humidity	35% to 90% non-condensing
- Certification	CE

LVF-8008C-P0413

Environmental

Operating Temperature	-10℃ to+50℃ (+14℉ to +122℉)

Environmental

Storage Temperature	-40℃ to +60℃ (-40℉ to + 140℉)
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)
Back focus distance	15.24 mm (in air)
Iris control	P-iris stepping motor (120 steps)
Focus control	Rotational ring and locking screw
Zoom control	Rotational ring and locking screw
IR corrected	Yes

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 | F.01U.317.536**

Accessories

UHI-OG-0 Indoor camera housing
Indoor camera housing
Order number **UHI-OG-0 | F.01U.026.741**

UHI-OGS-0 Indoor housing with sunshield
Indoor camera housing with sunshield.
Order number **UHI-OGS-0 | F.01U.028.282**

UHO-POE-10 Outdoor housing, POE + power supply
Outdoor camera housing with PoE+ power supply.
Order number **UHO-POE-10 | F.01U.300.502**

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 | F.01U.302.304**

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 | F.01U.302.310**

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 | F.01U.302.311**

HAC-TAMP01 Tamper switch kit for UHI/UHO Series
Tamper switch kit for HSG and UHI/UHO series enclosures
Order number **HAC-TAMP01 | F.01U.005.044**

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 | 4.998.137.651**

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 | F.01U.503.621**

LTC 9219/01 Feed through J mount
J-mount for camera housing, 40 cm (15 in); for indoor use.
Order number **LTC 9219/01 | F.01U.503.623**

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 | F.01U.305.567**

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 | F.01U.319.331**

IIR-50850-SR Illuminator, 850nm, short range
Short range IR illuminator
850 nm
Order number **IIR-50850-SR | F.01U.319.313**

IIR-50940-SR Illuminator, 940nm, short range
Short range IR illuminator
940 nm
Order number **IIR-50940-SR | F.01U.319.314**

IIR-50850-MR Illuminator, 850nm, medium range
Medium range IR illuminator
850 nm
Order number **IIR-50850-MR | F.01U.319.315**

IIR-50940-MR Illuminator, 940nm, medium range
Medium range IR illuminator
940 nm
Order number **IIR-50940-MR | F.01U.319.316**

IIR-50850-LR Illuminator, 850nm, long range
Long range IR illuminator
850 nm
Order number **IIR-50850-LR | F.01U.319.317**

IIR-50940-LR Illuminator, 940nm, long range
Long range IR illuminator
940 nm
Order number **IIR-50940-LR | F.01U.319.318**

IIR-50850-XR Illuminator, 850nm, extra range
Extra long range IR illuminator
850 nm
Order number **IIR-50850-XR | F.01U.319.319**

IIR-50940-XR Illuminator, 940nm, extra range
Extra long range IR illuminator
940 nm
Order number **IIR-50940-XR | F.01U.319.320**

NIR-50850-MRP Illuminator, 850nm, medium range, PoE+
Medium range IR illuminator powered by PoE+
850 nm
Order number **NIR-50850-MRP | F.01U.319.321**

NIR-50940-MRP Illuminator, 940nm, medium range, PoE+
Medium range IR illuminator powered by PoE+
940 nm
Order number **NIR-50940-MRP | F.01U.319.322**

Services

EWE-AVIOTEC-IW 12mths wrty ext Aviotec starlight 8000
12 months warranty extension
Order number **EWE-AVIOTEC-IW | F.01U.360.765**