FLEXIDOME IP outdoor 5000 HD

- 1080p resolution for sharp images
- Easy to install with auto zoom/focus lens, wizard and pre-configured modes
- Fully configurable quad streaming
- Regions of interest and E-PTZ
- IR version with 15 m (50 ft) viewing distance

The 1080p outdoor dome cameras from Bosch are professional surveillance cameras that provide high quality HD images for demanding security and surveillance network requirements. These robust domes are true day/night cameras offering excellent performance day or night.
There is a version with a built-in active infrared illuminator that provides high performance in extreme low-light environments.

System overview

Vandal resistant outdoor dome with varifocal lens
Ideal for outdoor use, the IK10-rated design is suitable for installations where a vandal resistance is important. The camera is protected against water and dust to IP66 standards. The varifocal lens allows you to choose the coverage area to best suit your application. Mounting options are numerous, including surface, wall, and suspended-ceiling mounting.
The automatic zoom/focus lens wizard makes it easy for an installer to accurately zoom and focus the camera for both day and night operation. The wizard is activated from the PC or from the on-board camera push button making it easy to choose the workflow that suits best.
The AVF (Automatic Varifocal) feature means that the zoom can be changed without opening the camera. The automatic motorized zoom/focus adjustment with 1:1 pixel mapping ensures the camera is always accurately focused.

Functions

Intelligent Dynamic Noise Reduction reduces bandwidth and storage requirements
The camera uses Intelligent Dynamic Noise Reduction which actively analyzes the contents of a scene and reduces noise artifacts accordingly.
The low-noise image and the efficient H.264 compression technology provide clear images while reducing bandwidth and storage by up to 50% compared to other H.264 cameras. This results in reduced-bandwidth streams that still retain a high image quality and smooth motion. The camera provides the most usable image possible by cleverly optimizing the detail-to-bandwidth ratio.

Area-based encoding
Area-based encoding is another feature which reduces bandwidth. Compression parameters for up to eight user-definable regions can be set. This allows uninteresting regions to be highly compressed, leaving more bandwidth for important parts of the scene.

Bitrate optimized profile
The average typical optimized bandwidth in kbits/s for various image rates is shown in the table:

IPS	1080p	720p	480p
30	1600	1200	600
15	1274	955	478
12	1169	877	438
5	757	568	284

2	326	245	122

Multiple streams
The innovative multi-streaming feature delivers various H.264 streams together with an M-JPEG stream. These streams facilitate bandwidth-efficient viewing and recording as well as integration with third-party video management systems.
Depending on the resolution and frame rate selected for the first stream, the second stream provides a copy of the first stream or a lower resolution stream. The third stream uses the I-frames of the first stream for recording; the fourth stream shows a JPEG image at a maximum of 10 Mbit/s.

Regions of interest and E-PTZ
Regions of Interest (ROI) can be user defined. The remote E-PTZ (Electronic Pan, Tilt and Zoom) controls allow you to select specific areas of the parent image. These regions produce separate streams for remote viewing and recording. These streams, together with the main stream, allow the operator to separately monitor the most interesting part of a scene while still retaining situational awareness.

Two-way audio and audio alarm
Two-way audio allows the operator to communicate with visitors or intruders via an external audio line input and output. Audio detection can be used to generate an alarm if needed.

Tamper and motion detection
A wide range of configuration options is available for alarms signaling camera tampering. A built-in algorithm for detecting movement in the video can also be used for alarm signaling.

Storage management
Recording management can be controlled by the Bosch Video Recording Manager
(Video Recording Manager) or the camera can use iSCSI targets directly without any recording software.

Edge recording
The MicroSD card slot supports up to 2 TB of storage capacity. A microSD card can be used for local alarm recording. Pre-alarm recording in RAM reduces recording bandwidth on the network, or — if microSD card recording is used — extends the effective life of the storage medium.

Cloud-based services
The camera supports time-based or alarm-based JPEG posting to four different accounts. These accounts can address FTP servers or cloud-based storage facilities (for example, Dropbox). Video clips or JPEG images can also be exported to these accounts.
Alarms can be set up to trigger an e-mail or SMS notification so you are always aware of abnormal events.

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.
For trouble-free network cabling, the camera supports Auto-MDIX which allows the use of straight or cross-over cables.

True day/night switching
The camera incorporates mechanical filter technology for vivid daytime color and exceptional night-time imaging while maintaining sharp focus under all lighting conditions.

Hybrid mode
An analog video output enables the camera to operate in hybrid mode. This mode provides simultaneous high resolution HD video streaming and an analog video output via an SMB connector. The hybrid functionality offers an easy migration path from legacy CCTV to a modern IP-based system.

Access security
Password protection with three levels and 802.1x authentication is supported. To secure Web browser access, use HTTPS with a SSL certificate stored in the camera.

Complete viewing software
There are many ways to access the camera's features: using a web browser, with the Bosch Video Management System, with the free-of-charge Bosch Video Client or Video Security Client, with the video security mobile app, or via third-party software.

Video security app
The Bosch video security mobile app has been developed to enable Anywhere access to HD surveillance images allowing you to view live images from any location. The app is designed to give you complete control of all your cameras, from panning and tilting to zoom and focus functions. It's like taking your control room with you.
This app, together with the separately available Bosch transcoder, will allow you to fully utilize our dynamic transcoding features so you can play back images even over low-bandwidth connections.

System integration
The camera conforms to the ONVIF Profile S specifications. Compliance with these standards guarantees interoperability between network video products regardless of manufacturer.

Third-party integrators can easily access the internal feature set of the camera for integration into large projects. Visit the Bosch Integration Partner Program (IPP) website (ipp.boschsecurity.com) for more information.

Certifications and approvals

HD standards
Complies with the SMPTE 274M-2008 Standard in:
- Resolution: 1920x1080
- Scan: Progressive
- Color representation: complies with ITU-R BT.709
- Aspect ratio: 16:9
- Frame rate: 25 and 30 frames/s

Complies with the SMPTE 296M-2001 Standard in:
- Resolution: 1280x720
- Scan: Progressive
- Color representation: complies with ITU-R BT.709
- Aspect ratio: 16:9
- Frame rate: 25 and 30 frames/s

Standards	IEC 62471 (IR version)
	EN 60950-1
	UL 60950-1
	UL 60950-22
	CAN/CSA-C22.2 NO. 60950-1-03
	CAN/CSA-C22.2 NO. 60950-22
	EN 50130-4
	EN 50130-5
	FCC Part15 Subpart B, Class B
	EMC directive 2004/108/EC
	EN 55022 class B
	EN 55024
	AS/NZS CISPR 22 (equal to CISPR 22)
	ICES-003 Class B
	VCCI J55022 V2/V3
	EN 50121-4
	EN 60950-22
ONVIF compliance	EN 50132-5-2; IEC 62676-2-3
Product certifications	CE, FCC, UL, cUL, RCM, CB, VCCI
Ingress protection	IP66, NEMA Type 4X
Impact protection	IK10

Region	Regulatory compliance/quality marks	
Europe	CE	EU Declaration of Conformity
USA	UL	Outdoor 4000_5000

Installation/configuration notes

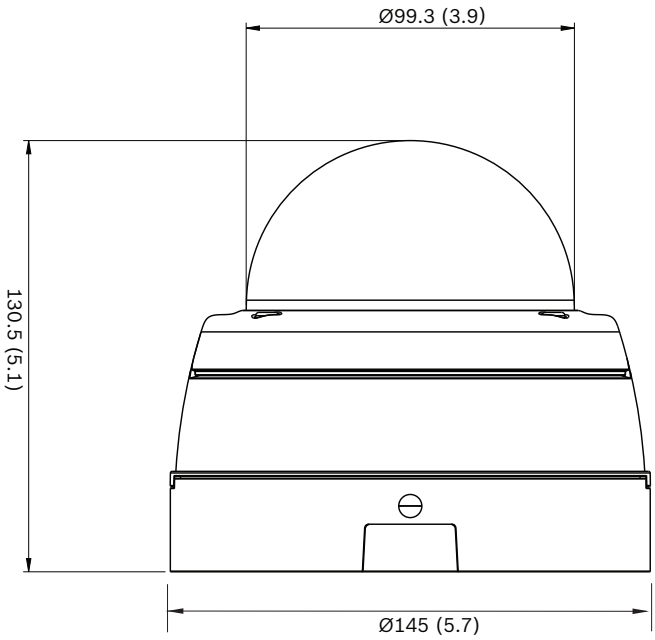

Fig. 1: Dimensions mm (inch)

Parts included

Technical specifications

Power	
Input voltage	+12 VDC or Power-over-Ethernet (48 VDC nominal)
Power consumption	3.8 W max. 6.3 W max. (IR version)
PoE	IEEE 802.3af (802.3at Type 1) Power level: Class 2

Platform	
Common product platform	CPP4

Sensor	
Sensor type	1/2.7-inch CMOS
Total sensor pixels	1952 x 1092 (2MP)

Video performance - Sensitivity	
Sensitivity – (3200K, reflectivity 89%, F1.3, 30IRE)	
Color	0.24 lx
Mono	0.05 lx
With IR	0.0 lx

Video performance - Dynamic range	
Dynamic range	76 dB WDR

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 25 [30] ips
Encoder regions	Eight independent areas for setting encoder quality to optimize bitrate.

Video resolution (H x V)	
• 1080p HD	1920 X 1080
• 720p HD	1280 x 720
• D1 4:3 (cropped)	704 x 480
• SD upright (cropped)	400 x 720
• 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;

Video resolution (H x V)	
	Displayed: 432 x 240
• 144p SD	256 x 144

Video functions	
Day/Night	Color, Monochrome, Auto
Adjustable picture settings	Contrast, Saturation, Brightness
White Balance	4 automatic modes, manual mode and measure
Shutter	Automatic Electronic Shutter (AES); Fixed (1/12 to 1/15000) selectable; Default shutter
Backlight compensation	On/off/Intelligent Auto Exposure (BLC)
Noise reduction	Intelligent Dynamic Noise Reduction with separate temporal and spatial adjustments
Contrast enhancement	On/off
Sharpness	Sharpness enhancement level selectable
Intelligent defog	Intelligent Defog automatically adjusts parameters for best picture in foggy or misty scenes (switchable)
Privacy Masking	Eight independent areas, fully programmable
Video Analysis	MOTION+
Other functions	Image mirror, Image flip, Pixel counter, Video watermarking, Display stamping, Scene modes, Location

Night vision (IR version only)	
Distance	15 m (50 ft)
LED	10 LED high efficiency array, 850 nm
IR intensity	Adjustable

Optical	
Lens type	3 to 10 mm Automatic Varifocal (AVF) lens, IR corrected DC Iris F1.3 – 360
Lens mount	Board mounted
Adjustment	Motorized zoom/focus
Iris control	Automatic iris control

Optical	
Day/Night	Switched mechanical IR filter
Horizontal field of view	36° - 117°
Vertical field of view	20° - 61°

Input/output	
Analog video out	SMB connector, CVBS (PAL/NTSC), 1 Vpp, 75 Ohm
Audio line in	0.707 Vrms max, 10 kOhm typical, jack connector
Audio line out	0.707 Vrms at 16 Ohm typical, jack connector
Alarm input	1 input
Alarm input activation	Short or DC 5V activation
Alarm output	1 output
Alarm output voltage	30 VDC, max. load 0.5 A
Ethernet	RJ45

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

Local storage	
Internal RAM	5 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

Software	
Unit discovery	IP Helper
Unit configuration	Via web browser or Configuration Manager
Firmware update	Remotely programmable
Software viewing	Web browser; Video Security Client; Video Security App; BVMS; Bosch Video Client; or third party software
Latest firmware and software	http://downloadstore.boschsecurity.com/

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 1.2, SSL, DES, 3DES
Ethernet	10/100 Base-T, auto-sensing, half/full duplex
Connectivity	Auto-MDIX
Interoperability	ONVIF Profile S; GB/T 28181

Mechanical	
3-axis adjustment (pan/ tilt/rotation)	350º / 130º / 330º
Dimensions	Diameter: 145 mm (5.71 in) Height: 131 mm (5.14 in)
Weight	1102 g (2.43 lb) approx.
Color	RAL 9004, RAL 9010

Environmental	
Operating temperature	-40 ºC to +50 ºC (-40 ºF to +122 ºF) for continuous operation; -34 ºC to +74 ºC (-30 ºF to +165 ºF) according to NEMA TS 2-2003 (R2008), para 2.1.5.1 using fig. 2.1 test profile
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Humidity	20% to 90% relative humidity (non condensing)

Ordering information

NDN-50022-A3 Fixed dome 2MP 3-10mm auto IP66
Vandal-resistant IP dome day/night camera for outdoor HD surveillance with motion/tamper/audio detection.
Order number **NDN-50022-A3 | F.01U.296.219**

NDI-50022-A3 Fixed dome 2MP 3-10mm auto IP66
Vandal-resistant IP dome day/night camera for outdoor HD surveillance with motion/tamper/audio detection. Active infrared illuminator
Order number **NDI-50022-A3 | F.01U.296.220**

Accessories

NDA-LWMT-DOME Wall mount, L-shaped, for dome camera
Sturdy wall L-shaped bracket for dome cameras
Order number **NDA-LWMT-DOME | F.01U.303.767**

VDA-WMT-AODOME Wall mount, outdoor, for dome, 166mm
Sturdy outdoor wall mount bracket for dome cameras (Ø166 mm)
Order number **VDA-WMT-AODOME | F.01U.268.900**

VDA-PMT-AODOME Pipe mount for AUTODOME, outdoor
Sturdy outdoor pipe mount bracket for dome cameras (Ø166 mm)
Order number **VDA-PMT-AODOME | F.01U.268.901 F.01U.313.786**

LTC 9213/01 Pole mount adapter for LTC9210,9212,9215
Flexible pole mount adapter for camera mounts (use together with the appropriate wall mount bracket). Max. 9 kg (20 lb); 3 to 15 inch diameter pole; stainless steel straps
Order number **LTC 9213/01 | F.01U.009.291**

NDA-FMT-DOME Inceiling flush mount for dome camera
In-ceiling flush mounting kit for dome cameras (Ø157 mm)
Order number **NDA-FMT-DOME | F.01U.303.768**

NDA-ADT4S-MINDOME Surface mount box for dome camera
Surface mount box (Ø145 mm / Ø5.71 in) for dome cameras (for indoor camera variant, use together with NDA-ADTVEZ-DOME).
Order number **NDA-ADT4S-MINDOME | F.01U.285.200**

NBN-MCSMB-03M Cable, SMB to BNC, camera-cable, 0.3m
0.3 m (1 ft) analog cable, SMB (female) to BNC (female) to connect camera to coaxial cable
Order number **NBN-MCSMB-03M | F.01U.291.564**

NBN-MCSMB-30M Cable, SMB to BNC, camera-monitor/DVR
3 m (9 ft) analog cable, SMB (female) to BNC (male) to connect camera to monitor or DVR
Order number **NBN-MCSMB-30M | F.01U.291.565**

NDN-IOC-30M Cable, IP66 certified, waterproof
An IP66 certified cable for easy waterproof installation
Order number **NDN-IOC-30M | F.01U.313.565**

NPD-5001-POE Midspan, 15W, single port, AC in
Power-over-Ethernet midspan injector for use with PoE enabled cameras; 15.4 W, 1-port
Weight: 200 g (0.44 lb)
Order number **NPD-5001-POE | F.01U.305.288**

NPD-5004-POE Midspan, 4 port x 15W, AC in
Power-over-Ethernet midspan injectors for use with PoE enabled cameras; 15.4 W, 4-ports
Weight: 620 g (1.4 lb)
Order number **NPD-5004-POE | F.01U.305.289**

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