

FLEXIDOME IP micro 5000 IVM

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HD ONVIF



- ▶ Compact and stylish microdome for in-vehicle mounting
- ▶ 1080p and 5MP resolutions
- ▶ Regions of interest and E-PTZ
- ▶ iDNR reduces bandwidth requirements and storage costs
- ▶ EN 50155 and ISO16750-3 compliant

The HD 1080p and 5MP vandal-resistant microdome cameras from Bosch are professional surveillance cameras that provide high quality HD and MP images for demanding security and surveillance network requirements. The camera comes with an ultra-wide angle lens which provides outstanding performance without the need for de-warping software. The cameras are available in 1080p and 5MP versions and are especially designed for In-Vehicle Mounting (IVM) using an M12 connector.

System overview

The cameras are designed for transportation surveillance purposes. The robust design ensures continuous video recordings without interference from the environment. They comply with the full EN 50155 railway applications standard, which includes vibration, shock, EMC, climatic and temperature, and ESD tests. The cameras have successfully passed the ISO 16750-3 road vehicles test part 3. An industrial standard M12 connector ensures a secure connection from the camera to the network.

The cast-aluminum housing, polycarbonate window, and hardened inner liner can withstand the equivalent of 55 kg (120 lbs) of force (IK08). The camera is protected against water and dust to IP66 standards.

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

IPS	5MP	1080p	720p	480p
30	-	1600	1200	600

15	-	1274	955	478
12	1753	1169	877	438
5	1136	757	568	284
2	489	326	245	122

1080p or 5MP resolutions with multiple streams

The camera is available in a 1080p resolution version at 30 images per second (ips) or a 5MP resolution version at 12 ips. 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.

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.

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.

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.

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.

3-axis adjustment

The 3-axis adjustment allows easy installation on a wall or a ceiling with a precise field of view.

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, 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, ONVIF Profile Q and ONVIF Profile G 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

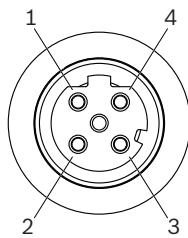
Standards	EN 60950-1
	UL 60950-1
	CAN/CSA-C22.2 NO. 60950-1-07
	UL 60950-22 Outdoor UL
	EN 50130-4; EN 50130-5

	FCC Part15 Subpart B, Class B
	EMC directive 2004/108/EC
	EN 55022 class B
	EN 55024
	VCCI J55022 V2/V3
	AS/NZS CISPR 22 (equal to CISPR 22)
	ICES-003 Class B
	EN 50121-4
	EN 50121-3-2
	CE: Automotive environment
	EN 55025
	EN 50155: Vibration and Shock, EMC, Climatic and Temperature Class TX column 4, ESD
	ISO16750-3: Vibration and mechanical shock
ONVIF compliance	EN 50132-5-2; IEC 62676-2-3
Product certifications	CE, FCC, UL, cUL, C-tick, CB, VCCI

Region	Certification
Europe	CE
USA	UL
Canada	CSA

Installation/configuration notes

M12 Connector



M12 pin	Signal	RJ45 pin
1	Tx+	1
2	Tx-	6
3	Rx+	2
4	Rx-	3

Parts included

Technical specifications

Power

Input voltage	Power-over-Ethernet (48 VDC nominal)
Power consumption	3.84 W (max)
PoE	IEEE 802.3af (802.3at Type 1) Power level: Class 1

Video

Sensor type	1/2.7-inch CMOS (1080p) 1/3-inch CMOS (5MP)
Sensor pixels	1920 x 1080 (1080p) 2592 x 1944 (5MP)
1080p Sensitivity (3200 K, reflectivity 89%, 30IRE)	1.0 lx
5MP Sensitivity (3200 K, reflectivity 89%, 30IRE)	2.0 lx
Dynamic range	76 dB (1080p) 65 dB (5MP)
Electronic Day/Night	Auto, Color, Monochrome
Shutter speed	Automatic Electronic Shutter (AES) Fixed (1/30 [1/25] to 1/15000 for 1080p) Fixed (1/12 to 1/15000 for 5MP)
Video resolution	1080p, 720p, 480p, 432p, 240p, 288p, 144p (1080p version) 5 Megapixels, 480p (5MP version)
Aspect ratio	16:9 (1080p) 4:3 (5MP)
Video compression	H.264 MP (Main Profile); M-JPEG
Max. frame rate	30 ips (1080p) 12 ips (5MP) (M-JPEG frame rate can vary depending on system loading)
Video Settings	Video watermarking, Alarm mode stamping, Image mirror, Image flip, Contrast, Saturation, Brightness, White balance, Sharpness level, Contrast enhancement, Backlight Compensation, Privacy Mask, Motion detection, Tamper alarm, Upright mode, Pixel counter

Lens

Lens type	2.5 mm fixed, F2.8
Lens mount	Board mounted
View angle (H x V)	135° x 75° (NUC-51022) 105° x 79° (NUC-51051)

Local Storage**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

Software

Unit Configuration	Via web browser or Configuration Manager
Firmware update	Remotely programmable
Software viewer	Web browser, Bosch Video Client, or third party software

Network

Protocols	IPv4, IPv6, UDP, TCP, HTTP, HTTPS, RTP/ RTCP, IGMP V2/V3, ICMP, ICMPv6, RTSP, FTP, Telnet, ARP, DHCP, APIPA (Auto-IP, link local address), NTP (SNTP), SNMP (V1, 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
Ethernet connector	M12 D-coded female
Connectivity	ONVIF Profile S, Auto-MDIX

Mechanical

3-axis adjustment (pan/tilt/ rotation)	±175° / ±70° / ±180°
Dimensions	Diameter: 110 mm (4.33 in) Height: 55 mm (2.17 in)
Weight	320 g (11.28 oz) approx.
Color	RAL 9017, RAL 9003

Environmental

IP protection	IP66
Impact protection	IK08

Operating temperature	-40 °C to +70 °C (-40 °F to +158 °F) for continuous operation; -40 °C to +85 °C (-40 °F to +185 °F) based on EN 50155 Climatic and Temperature Class TX -34 °C to +74 °C (-30 °F to +165 °F) according to NEMA TS 2-2003 (R2008), para 2.1.5.1 using fig. 2.1 test profile
Storage temperature	-40 °C to +85 °C (-40 °F to +185 °F)
Humidity	0% to 95% relative humidity (non condensing)

Ordering information**FLEXIDOME IP micro 5000 HD**

Compact and stylish outdoor microdome camera. IP66; IDNR; ROI; day/night; tamper/motion detection; 3-axis adjustment; cloud services; free viewing Apps; fixed 2.5 mm f2.8 lens; 1080p; IVM (M12)
Order number **NUC-51022-F2M**

FLEXIDOME IP micro 5000 MP

Compact and stylish outdoor MP microdome camera. IP66; IDNR; ROI; day/night; tamper/motion detection; 3-axis adjustment; cloud services; free viewing Apps; fixed 2.5 mm f2.8 lens; 5MP; IVM (M12)
Order number **NUC-51051-F2M**

Accessories**NDA-SMB-MICSMB Surface Mount Box**

Surface mount box (Ø114 mm / Ø4.49 in)
Order number **NDA-SMB-MICSMB**

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