FLEXIDOME IP 3000i IR

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- 1080p and 5MP resolutions
- Built-in Essential Video Analytics to trigger relevant alerts and quickly retrieve data
- Fully configurable H.265 multi-streaming
- Easy to install with zoom/focus lens
- Built-in IR illuminator with 30 m (98 ft) viewing distance

The FLEXIDOME IP 3000i IR is built for high quality, 24/7 performance, with a range of reliable surveillance features, including Essential Video Analytics, and is designed for easy installation.
The compact and minimalist design provides high installation flexibility and offers various mounting options.

Functions

Essential Video Analytics

The built-in video analysis reinforces the Intelligence-at-the-Edge concept and now delivers even more powerful features. Essential Video Analytics is ideal for use in controlled environments with limited detection ranges.
The system reliably detects, tracks, and analyzes objects, and alerts you when predefined alarms are triggered. A smart set of alarm rules makes complex tasks easy and reduces false alarms to a minimum. Metadata is attached to your video to add sense and structure. This enables you to quickly retrieve the relevant images from hours of stored video. Metadata can also be used to deliver irrefutable forensic evidence or to optimize business processes based on people counting or crowd density information.

High Dynamic Range

The high dynamic range mode is based on a multiple-exposure process that captures more details in the highlights and in the shadows even in the same scene. The result is that you can easily distinguish objects and features, for example, faces with bright backlight. The actual dynamic range of the camera is measured using Opto-Electronic Conversion Function (OECF) analysis according to IEC 62676 Part 5.

Intelligent streaming

Smart encoding capabilities, together with Intelligent Dynamic Noise Reduction technology and analytics, reduce the bandwidth consumption to extremely low levels. Only relevant information in the scene, like motion, or objects found with the analytics, need to be encoded.
The camera is capable of triple streaming which allows the camera to deliver independent, configurable streams for live viewing, recording, or remote monitoring via constrained bandwidths.
Each of these streams can be adapted independently to deliver high quality video, perfectly tailored to purpose, while reducing bit rate by up to 90% compared to a standard camera.

H.265 high-efficiency video encoding
The camera is designed on the most efficient and powerful H.264 and H.265/HEVC encoding platform. The camera is capable of delivering high-quality and high-resolution video with very low network load. With a doubling of encoding efficiency, H.265 is the new compression standard of choice for IP video surveillance systems.

Recording and storage management
Recording management can be controlled by the Bosch Video Recording Manager application, or the camera can use local storage and iSCSI targets directly without any recording software.
Local storage can be used for recording "at the edge" or for Automatic Network Replenishment (ANR) technology to improve the overall recording reliability. Pre-alarm recording in RAM reduces bandwidth consumption on the network and extends the effective life of the memory card.

Edge recording
Insert a memory card into the card slot to store up to 2 TB of local alarm recording. Pre-alarm recording in RAM reduces recording bandwidth on the network, and extends the effective life of the memory card.
It has advanced edge recording providing a reliable storage solution possible due to the combination of these functions:
- Industrial SD card support allows for extreme lifetime
- Health monitoring of industrial SD cards provide early service indications.

DORI coverage
DORI (Detect, Observe, Recognize, Identify) is a standard system (EN-62676-4) for defining the ability of a camera to distinguish persons or objects within a covered area. The maximum distance at which a camera/lens combination can meet these criteria is shown below:

1080p camera with 3.2 mm to 10 mm lens

DORI	DORI definition	Distance 3.2 mm/ 10 mm	Horizontal width
Detect	25 px/m (8 px/ft)	30 m/75 m (98 ft/246 ft)	77 m (253 ft)
Observe	63 px/m (19 px/ft)	12 m/30 m (39 ft/98 ft)	30 m (98 ft)
Recognize	125 px/m (38 px/ft)	6 m/15 m (20 ft/49 ft)	15 m (49 ft)
Identify	250 px/m (76 px/ft)	3 m/8 m (10 ft/25 ft)	8 m (25 ft)

5.3MP camera with 3.2 mm to 10 mm lens

DORI	DORI definition	Distance 3.2 mm/ 10 mm	Horizontal width
Detect	25 px/m (8 px/ft)	63 m/141 m (207 ft/ 463 ft)	123 m (404 ft)
Observe	63 px/m (19 px/ft)	25 m/56 m (82 ft/184 ft)	49 m (161 ft)
Recognize	125 px/m (38 px/ft)	13 m/28 m (43 ft/92 ft)	25 m (82 ft)
Identify	250 px/m (76 px/ft)	6 m/14 m (20 ft/46 ft)	12 m (39 ft)

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.

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.

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.

Data security
Special measures have been put in place to ensure the highest level of security for device access and data transport. The three-level password protection with security recommendations allows users to customize device access. Web browser access can be protected using HTTPS and firmware updates can also be protected with authenticated secure uploads.
The on-board Trusted Platform Module (TPM) and Public Key Infrastructure (PKI) support, guarantee superior protection from malicious attacks. The 802.1x network authentication with EAP/TLS, supports TLS 1.2 with updated cipher suites including AES 256 encryption.

The advanced certificate handling offers:
- Self-signed unique certificates automatically created when required
- Client and server certificates for authentication
- Client certificates for proof of authenticity
- Certificates with encrypted private keys

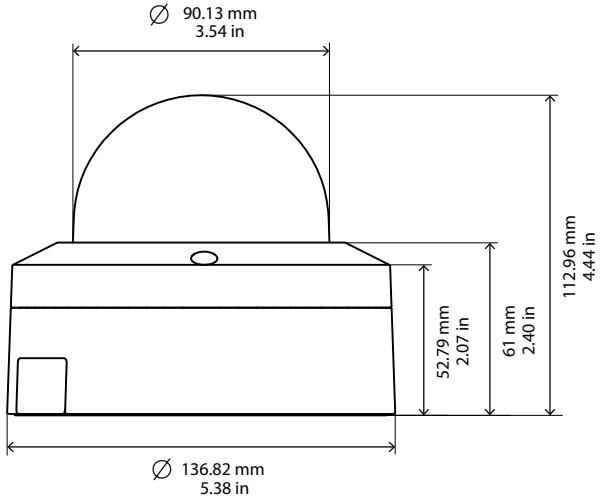
System integration and ONVIF conformance
The camera conforms to the ONVIF Profile S, ONVIF Profile G and ONVIF Profile T specifications. For H.265 configuration, the camera supports Media Service 2, which is part of ONVIF Profile T. Compliance with these standards guarantees interoperability between 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.

Universal accessories
A full line of universal accessories are available that allow a consistent design across different platforms and a wide range of installation possibilities. Several dedicated accessories are available that seamlessly fit to the camera and expand the different installation options over previous generations.

Certifications and approvals

Standard	Type
Emission	EN 55032 CFR 47 FCC part 15, Class B AS/NZS CISPR 32
Immunity	EN 50130-4 EN 50121-4
Environmental	EN 50130-5 (Class IV); EN 60068-2-1, EN 60068-2-2, EN 60068-2-6, EN 60068-2-18, EN 60068-2-27, EN 60068-2-30, EN 60068-2-52, EN 60068-2-75, EN 60068-2-78, EN 60068-2-5
Safety	EN 60950-1 EN 60950-22 UL 60950-1 UL 60950-22 CAN/CSA-C22.2 No. 60950-1 CAN/CSA-C22.2 No. 60950-22-07
Image performance	IEC 62676-5
HD	SMPTE 296M-2001 (Resolution: 1280x720) SMPTE 274M-2008 (Resolution: 1920x1080)
Color representation	ITU-R BT.709-6
ONVIF conformance	EN 50132-5-2 EN 62676-2
Impact protection	EN 62262 (IK10)
Water/dust protection	EN 60529 (IP66)
Environmental	EN 50581 (RoHS)
Marks	CE, FCC, cULus, WEEE, RCM, VCCI, CMIM

Installation/configuration notes



Technical specifications

Power	
Input voltage	POE IEEE 802.3af / 802.3 at Type 1, Class 0 12 VDC ±30%
Power consumption (typical / maximum)	PoE: 3.5 W / 10.5 W 12 VDC: 3.1 W / 9.5 W

Sensor	
2 MP	
Sensor type	1/2.8 inch CMOS
Effective pixels	1920 (H) x 1080 (V)
5.3 MP	
Sensor type	1/2.9 CMOS
Effective pixels	3072 (H) x 1728 (V)

Video performance - Sensitivity	
2 MP Measured according to IEC 62676 Part 5 (1/30, F1.6)	
• Color	0.06 lx
• Mono	0.02 lx
• With IR	0.0 lx

Video performance - Sensitivity	
5.3 MP Measured according to IEC 62676 Part 5 (1/30, F1.6)	
• Color	0.379 lx
• Mono	0.042 lx
• With IR	0.0 lx

Video performance - Dynamic range	
High Dynamic Range	120 dB WDR
Measured according to IEC 62676 Part 5	
2 MP	103 dB
5.3 MP	101 dB

Optical	
Lens type	3.2 to 10 mm, F1.6
Adjustment	Motorized zoom/focus
Iris control	DC iris control
Day/Night	Switchable IR-cut filter
Field of view	
2 MP	Wide: 104° x 54° (H x V) Tele: 33° x 19° (H x V)
5.3 MP	Wide: 89° x 47° (H x V) Tele: 30° x 17° (H x V)

Night vision	
Distance	30 m (98 ft)
LED	3 LEDs, 850 nm
IR intensity	Adjustable

Video streaming	
Video compression	H.265; H.264; M- JPEG
Sensor modes	
2 MP	30 fps, HDR, 1920 x 1080 25 fps, HDR, 1920 x 1080
5.3 MP	20 fps, HDR, 3072 x 1728 (5.3 MP) 25 fps, HDR, 2720 x 1530 (4.1 MP)
Streaming	Multiple configurable streams in H.264 or H. 265 and M-JPEG, configurable frame rate and bandwidth. Regions of Interest (ROI)
GOP structure	IP
Encoding interval	
2 MP	1 to 30 fps
5.3 MP	1 to 20 fps (5.3 MP)

Video streaming	
	1 to 25 fps (4.1 MP)
Signal-to-noise ratio (SNR)	>55 dB

Video resolution	
2 MP	
1080p HD	1920 x 1080
720p HD	1280 x 720
SD	768 x 432
D1	720 x 480
VGA	640 x 480
5.3 MP	
5.3 MP	3072 x 1728
4.1 MP	2720 x 1530
3 MP	2304 x 1296
1080p	1920 x 1080
720p	1280 x 720
SD	768 x 432
D1	720 x 480
VGA	640 x 480

Camera installation	
Mirror image	On / Off
Rotation	0° / 90° upright / 180° / 270° upright
Camera LED	Enable / Disable
Camera view wizard	Zoom, autofocus

Video functions - color	
Adjustable picture settings	Contrast, Saturation, Brightness
White Balance	2500 to 10000K, 4 automatic modes (Basic, Standard, Sodium lamp, Dominant color), Manual mode and Hold mode

Video functions - ALC	
Shutter	Automatic Electronic Shutter (AES); Fixed (1/25[30] to 1/15000) selectable; Default shutter
Day/Night	Auto (adjustable switch points), Color, Monochrome

Video functions - enhance	
Sharpness	Sharpness enhancement level selectable
Backlight compensation	On/off
Contrast enhancement	On/off
Noise reduction	Intelligent Dynamic Noise Reduction with separate temporal and spatial adjustments
Intelligent defog	Intelligent Defog automatically adjusts parameters for best picture in foggy or misty scenes (switchable)

Video content analysis	
Analysis type	Essential Video Analytics
Features	Rule based alarms and tracking, Line crossing, Enter / leave field, Follow route, Loitering, Idle / removed object, People counting, Crowd density estimation, 3D tracking

Additional functions	
Privacy Masking	Eight independent areas, fully programmable
Display stamping	Name, Logo, Time; Alarm message
Pixel counter	Selectable area

Local storage	
Internal RAM	up to 5 s pre-alarm recording
Memory card slot	microSDHC / microSDXC SD card slot
Industrial SD cards	Extreme lifetime and health monitoring support that provides early service indication

Input/output	
Audio line in	10 kOhm typical; max input 1 Vrms
Audio line out	16 Ohm typical; output 0.875 Vrms
Alarm input	Short or DC 5 V activation
Alarm output	Maximum load: 12 VDC / 50 mA
Ethernet	RJ45 connector

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

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; ONVIF Profile T: GB/T 28181

Mechanical	
Dimensions (Ø x H)	137 x 122.5 mm (5.4 x 4.8 in.)
Weight (approx.)	760 g (1.68 lbs)
Mounting	Surface mount
Color	White (RAL9003)
3-axis adjustment (pan/tilt/rotation)	Pan: 0° to 355° Tilt: 0° to 85° Roll: 0° to 355°
Dome bubble	Polycarbonate, clear with anti-scratch coating

Environmental	
Operating temperature (continuous)	-30 °C to +50 °C (-22 °F to +122 °F)
Storage temperature	-30 °C to +70 °C (-22 °F to +158 °F)
Humidity	5% to 100% relative humidity (condensing) 5% to 93% relative humidity (non condensing)
Storage humidity	Up to 98% relative humidity
Impact resistance	IK10
Water/dust protection	IP66

Ordering information

NDE-3502-AL Fixed dome 2MP HDR 3.2-10mm IP66 IK10 IR
Fixed dome camera 2MP resolution; Essential Video Analytics; 3.2-10 mm lens; outdoor vandal resistant; integrated IR illuminator
Order number **NDE-3502-AL**

NDE-3503-AL Fixed dome 5MP HDR 3.2-10mm IP66 IK10 IR
Fixed dome camera 5MP resolution; Essential Video Analytics; 3.2-10 mm lens; outdoor vandal resistant; integrated IR illuminator
Order number **NDE-3503-AL**

Accessories

NDA-3080-CND Conduit adapter NDE-3000 outdoor camera
Conduit adapter for NDE-3000 outdoor camera
Order number **NDA-3080-CND**

NDA-3080-PIP Pendant interface plate NDE-3000 dome
Pendant interface plate for NDE-3000 dome
Order number **NDA-3080-PIP**

NDA-3080-4S 4S adapter plate NDE-3000 dome camera
4S adapter plate for NDE-3000 dome camera
Order number **NDA-3080-4S**

NDA-U-CMT Corner mount adapter
Corner mount adapter
Order number **NDA-U-CMT**

NDA-U-PMAL Pole mount adapter large
Universal pole mount adapter, white; large
Order number **NDA-U-PMAL**

NDA-U-PMAS Pole mount adapter small
Pole mount adapter small
Universal pole mount adapter, white; small.
Order number **NDA-U-PMAS**

NDA-U-PMT Pendant pipe mount, 12" (31cm)
Universal pipe mount for dome cameras, 31 cm, white
Order number **NDA-U-PMT**

NDA-U-PMTE Pendant pipe extension, 20" (50cm)
Extension for universal pipe mount, 50 cm, white
Order number **NDA-U-PMTE**

NDA-U-WMP Wall mount plate
Back plate for universal wall mount, corner mount and pole mount, white, IP66
Order number **NDA-U-WMP**

NDA-U-WMT Pendant wall mount
Universal wall mount for dome cameras, white
Order number **NDA-U-WMT**

NDA-U-PMTG Pendant pipe mount, gang box
Universal pipe mount, compatible with gang box installation for fixed dome cameras only, white
Order number **NDA-U-PMTG**

NDA-U-WMTG Pendant wall mount, gang box
Universal wall mount, compatible with gang box installation for fixed dome cameras only, white
Extension for universal pipe mount, 50 cm, white
Order number **NDA-U-WMTG**

NDA-U-PSMB Pendant wall/ceiling mount SMB
Surface mount box (SMB) for wall mount or pipe mount.
Order number **NDA-U-PSMB**

NPD-5001-POE Power over ethernet , 15.4W, 1-port
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**

NPD-5004-POE Power over ethernet, 15.4W, 4-port
Power-over-Ethernet midspan injector for use with PoE enabled cameras; 15.4 W, 4-ports
Weight: 620 g (1.4 lb)
Order number **NPD-5004-POE**

UPA-1220-50 Power supply, 220VAC 50Hz, 12VDC 1A out
Power supply for camera. 110-240 VAC, 50/60 Hz In; 12 VDC, 1 A Out; regulated.
Input connector: 2-prong, European Europlug standard (4 mm / 19 mm).
Order number **UPA-1220-50**

UPA-1220-60 Power supply, 120VAC 60Hz,12VDC 1A out
Power supply for camera. 100-240 VAC, 50/60 Hz In; 12 VDC, 1 A Out; regulated.
Input connector: 2-prong, North American standard (non-polarized).
Order number **UPA-1220-60**

Represented by:

Europe, Middle East, Africa:
Bosch Security Systems B.V.
P.O. Box 80002
5600 JB Eindhoven, The Netherlands
Phone: + 31 40 2577 284
emea.securitysystems@bosch.com
emea.boschsecurity.com

Germany:
Bosch Sicherheitssysteme GmbH
Robert-Bosch-Ring 5
85630 Grasbrunn
Germany
www.boschsecurity.com

North America:
Bosch Security Systems, Inc.
130 Perinton Parkway
Fairport, New York, 14450, USA
Phone: +1 800 289 0096
Fax: +1 585 223 9180
onlinehelp@us.bosch.com
www.boschsecurity.us

Asia-Pacific:
Robert Bosch (SEA) Pte Ltd, Security Systems
11 Bishan Street 21
Singapore 573943
Phone: +65 6571 2808
Fax: +65 6571 2699
apr.securitysystems@bosch.com
www.boschsecurity.asia

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