NDV-8504-R Fixed dome 8MP HDR 3.9-10mm PTRZ

FLEXIDOME IP indoor 8000i



- Motorized Pan, Tilt, Roll, and Zoom (PTRZ) to set the required field of view, without having to touch the camera or lens allows for remote configuration and commissioning
- 1/1.8" 4K UHD sensor and starlight technology to provide highly detailed images even in extreme low-light situations
- High Dynamic Range to see every detail in both bright and dark areas of the scene
- Built-in Intelligent Video Analytics with object detection to trigger alerts and quickly retrieve data with the highest levels of reliability
- Camera Trainer to train the camera to recognize user-specified target objects for both moving and non-moving objects

The FLEXIDOME IP indoor 8000i - 8 MP series camera offers a 1/1.8" sensor, starlight and High Dynamic Range at 4K ultra HD resolution. It provides highly detailed images even in challenging conditions.
The camera's remote commissioning functionality makes sure installation and commissioning can be done in very little time. Using a PC or a mobile device with the Bosch Project Assistant app, you can pan, tilt, roll and zoom (PTRZ) and point the camera to the required field of view with a single click - without ever having to touch the camera or lens.

Functions

Full Remote Commissioning
Installing a professional IP video surveillance camera has never been so easy. In fact, as an installer, you'll never want to go back to the old methods of installing cameras again. We've simplified the installation and commissioning stages to such a degree that they can be done in very little time.
With the FLEXIDOME IP indoor 8000i camera's remote commissioning functionality there's no need to go up and down ladders. Using a PC or a mobile device with the Bosch Project Assistant app, you can pan, tilt, roll and zoom (PTRZ) and point the camera to the required field of view with a single click - without ever having to touch the camera or lens.
Remote configuration and commissioning can also be done at a later stage once all cameras have been installed. Simply connect to the camera remotely via the network using the Bosch Project Assistant app, the camera's web interface, or the Bosch Configuration Manager.

Fast performance
The high sensor resolution together with a frame rate of 30 frames per second makes this camera an ideal solution for capturing fast moving objects in high detail and, at the same time, providing situational awareness.

Starlight performance
The latest sensor technology combined with the sophisticated image processing and noise suppression results in an exceptional sensitivity in color. The low-light performance is so good that the camera continues to provide excellent color performance even with a minimum of ambient light.

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.

Scene modes
Nine configurable modes are provided with the best settings for a variety of applications. In one click fully optimized image settings can be selected to suit the conditions. Different scene modes can be selected for different situations such as traffic or retail environments.

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 quad 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 compression standard of choice for IP video surveillance systems.

Bitrate optimized profile
The average bitrate for the bitrate optimized profile using H.265 encoding in kbps for different frame rates can be found in the table provided below.

FPS	Low activity	Medium activity	High activity
30	1632	2438	5335
25	1430	2143	4666
15	990	1494	3214
10	741	1123	2397
5	453	692	1458
3	316	485	1014
1	146	227	468

Notice

Actual bitrate values may vary depending on scene complexity/activity and picture settings.

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.

Advanced edge recording
Advanced edge recording provides the most reliable storage solution possible due to the combination of the following functionalities:
- Dual SD cards that can be set up as either:
  - Mirrored, for redundant storage
  - Failover, for extended service intervals
  - Extended, for maximum retention time
- Industrial SD card support allows for extreme lifetime
- Health monitoring of industrial SD cards provide early service indications

Intelligent Video Analytics on the edge
The camera includes the latest release of the Intelligent Video Analytics application from Bosch. Specifically designed for the most demanding environments. It delivers the highest levels of accuracy for mission-critical applications such as perimeter protection of airports, critical infrastructures and government buildings, border patrol, ship tracking and traffic monitoring (e.g. wrong-way detection, traffic counts, monitoring roadsides for parked cars).
Intelligent Video Analytics is extremely resistant to false triggers caused by challenging environments with snow, wind (moving trees), rain, hail, and water reflections. It is ideal for providing automatic object detection over large distances.
The set-up of Bosch's video analytics is also second to none, which is great news for installers. Should your customer decide to use Intelligent Video Analytics, configuration and calibration couldn't be easier. Simply enter the height of the camera and the rest of the calibration is carried out by the video analytics itself based on information provided by the camera's built-in gyro sensor.

Camera Trainer
Based on examples of target objects and non-target objects, the Camera Trainer program uses machine learning to allow the user to define objects of interest and generate detectors for them. In contrast to the moving objects that the Intelligent Video Analytics application detects, the Camera Trainer program detects both moving and non-moving objects and classifies them immediately. Using Configuration Manager, you can configure the Camera Trainer program using both live video as well as recordings available through the respective camera. The resulting detectors can be downloaded and uploaded for distribution to other cameras.
A free of charge license is required to activate the Camera Trainer program.

DORI coverage
DORI (Detect, Observe, Recognize, Identify) is a standard system (EN-62676-4) for defining the ability of a person viewing the video 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:

8 MP Camera with 3.9 mm - 10 mm

DORI	DORI definition	Distance 3.9 mm / 10 mm	Horizontal width
Detect	25 px/m 8 px/ft	47 m / 190 m 147 ft / 594 ft	154 m 480 ft
Observe	63 px/m 19 px/ft	19 m / 75 m 62 ft / 250 ft	61 m 202 ft
Recognize	125 px/m 38 px/ft	9 m / 38 m 31 ft / 125 ft	31 m 101 ft
Identify	250 px/m 76 px/ft	5 m / 19 m 16 ft / 63 ft	15 m 51 ft

Data security
Special measures ensure the highest level of security for device access and data transport. On initial setup, the camera is only accessible over secure channels and enforces a password. Web browser and viewing client access can be protected using HTTPS or other secure protocols that support state-of-the-art TLS 1.2 with updated cipher suites including AES encryption with 256 bit keys. No software can be installed in the camera, and only authenticated firmware can be uploaded. A three-level password protection with security recommendations allows users to customize device access.
Network and device access can be protected using 802.1x network authentication with EAP/TLS.
Superior protection from malicious attacks is guaranteed by the Embedded Login Firewall, on-board Trusted Platform Module (TPM) and Public Key Infrastructure (PKI) support.
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, ONVIF Profile M, 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.
Available options include: a clear or tinted replacement bubble, in-ceiling mounting kits, a surveillance cabinet with power and fiber optic options and different mounting options.

Certifications and approvals

Standards	Type
Emission	EN 55032:2015 /A11:2020 /A1:2020 Class B
Immunity	EN 55035:2017 /A11:2020, EN 50130-4:2011 / A1:2014, IEC 62599-2:2010, EN IEC 61000-6-1:2019, EN IEC 61000-6-2:2019
Environmental	EN 50130-5 Class III, UL 2043 when combined with NDA-8000-PLEN and NDA-8001-PLEN
Safety	EN 62368-1, EN 60950-22, UL 62368-1, UL 60950-22, CSA C22.2 No. 62368-1-14, CAN/CSA-C22.2 No. 62368-1:19
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

Standards	Type
Impact protection	EN 62262 (IK10)
Water/dust protection	EN 60529 (IP5X/IP54 with NDA-8001-IP)
Environment	2011/65/EU RoHS (EN 50581 and EN IEC 63000), 1999/45/EC and 1907/2006 REACH, 2012/19/EU WEEE, 94/62/EC and 2005/20/EC Packaging

Marks	CE, cULus, WEEE, RCM, EAC, China RoHS

Region	Regulatory compliance/quality marks	
Europe	CE	EU Declaration of Conformity
USA	UL	UL Certificate of Compliance

Parts included

Quantity	Component
1	FLEXIDOME IP indoor 8000i - 8 MP series camera
1	T-20 security torx bit
1	Quick installation guide
1	Safety information
1	Cable conduit for side entry
1	Washer for cable conduit
1	Adapter plate for cable conduit (Ø 3/4" / M25)
1	Adapter plate for cable conduit (Ø 1/2" / M20)

Technical specifications

Power	
Input voltage	PoE IEEE 802.3af / 802.3at Type 1, Class 3
Power Consumption (typical / maximum)	PoE: 7 W / 11.5 W

Sensor	
Sensor type	1/1.8-inch CMOS
Total sensor pixels	3840 x 2160 2.0 µm pixels, 8.3MP (approx.)

Sensitivity	
Low-light technology	starlight
Measured according to IEC 62676 Part 5 (1/25, F1.3)	

Sensitivity	
Color	0.054 lx
Mono	0.0098 lx

Dynamic range	
Dynamic range (WDR)	HDR 120 dB
Measured according to IEC 62676 Part 5	107 dB WDR

Optical	
Lens	3.9 to 10 mm P-iris lens (IR corrected); F-stop 1.6 - 2.7
Adjustment	Motorized zoom/focus
Iris control	P-iris control
Viewing angle	Wide: 117º x 62º (H x V); Tele: 44º x 24º (H x V)

Platform	
Common product platform	CPP7.3

Video streaming	
Video compression	H.265; H.264; M- JPEG
Sensor modes	20 fps, HDR, 3840 x 2160 (8.3 MP) 25 fps, 3840 x 2160 (8.3 MP) 30 fps, 3840 x 2160 (8.3 MP)
Streaming	Multiple configurable streams in H.264, H.265 and M-JPEG, configurable frame rate and bandwidth. Regions of Interest (ROI) Bosch Intelligent Streaming
Camera latency	120 ms (8 MP, 30 fps)
GOP structure	IP
Frame rate	1-30 fps
Signal-to-Noise Ratio (SNR)	>55 dB

Video resolution (H x V)	
Supported resolutions	4K UHD 3840 x 2160, 7.2MP 3584 x 2016, 2.8MP (4:3) 1920 x 1440, HD 1080p 1920 x 1080, 1.3MP 1536 x 864,

Video resolution (H x V)	
	1.3 MP (5:4) 1280 x 1024, HD 720p 1280 x 720, SD 432p 768 x 432, SD 480p (4:3) 720 x 480, VGA (4:3) 640 x 480

Camera installation	
Mirror image	On / Off
Rotate	0° / 90° upright / 180° / 270° upright
Camera LED	Auto disable/Enable/Disable
Positioning	Coordinates / Mounting height
Camera view wizard	Motorized pan, tilt, roll, 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	
ALC	Mode (standard, fluorescent), Level , Average vs. peak, Speed, Maximum gain
Exposure	Automatic Electronic Shutter (AES); Fixed shutter (1/25[30] to 1/15000) selectable; Default shutter, Maximum shutter
P-iris	Automatic/manual, priority
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	Intelligent Video Analytics, Camera Trainer

Video content analysis	
Maximum IVA detection range	Wide: 4.72 m - 32.68 m (15.49 ft - 107.22 ft) Tele: 13.33 m - 130.87 m (43.73 ft - 429.36 ft) (depending on setup and scene)
Configurations	Silent VCA / Profile1/2 / Scheduled / Event triggered
Alarm rules (combinable)	Any object, Object in field, Line crossing, Enter / leave field, Loitering, Follow route, Idle / removed object, Counting, Occupancy, Crowd density estimation, Condition change, Similarity search, Flow / counter flow
Object filters	Duration, Size, Aspect ratio, Speed, Direction, Color, Object classes (4)
Tracking modes	Standard (2D) tracking, 3D tracking, 3D people tracking, Ship tracking, Museum mode
Calibration / Geolocation	Automatic, based on gyro sensor, focal length and camera height
Additional functionalities	Tamper detection, Face detection

Additional functions	
Scene modes	10 default modes with scheduler: Standard, Sodium lighting, Fast movement, Sensitivity boost, Dynamic backlight, Vibrant, Color only, Sports & Gaming, Retail, License Plate Recognition (LPR)
Privacy Masking	Eight independent areas, fully programmable
Display stamping	Name; Logo; Time; Alarm message
Pixel counter	Selectable area

Local storage	
Internal RAM	5 s pre-alarm recording
Memory card slots	Dual SDXC/SDHC microSD card slots, up to 2TB.
Dual SD-card slot configurations	• Mirror (redundant storage) • Failover (extended service interval) • Extend (maximum retention time) • Automatic Network Replenishment
Industrial SD cards	Extreme lifetime and health monitoring support that provides early service indication.

Input/output	
Ethernet	Shielded RJ45

Input/output	
Surge protection	Ethernet: 1 kV, 2 kA to ground (8/20 µs pulse)
Fiber optics (sold separately)	The Fiber Optic Ethernet Media Converter kit (VG4-SFPSCKT) installed inside a Surveillance Cabinet (NDA-U-PA0, NDA-U-PA1 or NDA-U-PA2) provides the fiber optic interface to the mounted camera.

Audio streaming	
Audio input	Built-in microphone (can be permanently disabled)
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

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
Ethernet	10/100 Base-T
Interoperability	ONVIF Profile S; ONVIF Profile G; ONVIF Profile M; ONVIF Profile T

Data security	
Crypto Coprocessor (TPM)	RSA 2048 bit, AES/CBC 256 bit
PKI	X.509 certificates
Encryption	Full end-to-end encryption with supported VMS Network: TLS1.0/1.2, AES128, AES256 Local storage: XTS-AES
Video authentication	checksum, MD5, SHA-1, SHA-256

Mechanical	
Dimensions (D x H)	177 x 148 mm (6.96 x 5.7 in)
Weight	2051.45 g (4.52 lbs)
Mounting	Surface mount

Mechanical	
Color	White (RAL9003)
Motorized PTR range	Pan: 0º to +361º; Tilt: -3º to +85º; Roll: -95º to +95º
Dome bubble	Polycarbonate, clear with UV blocking anti-scratch coating
Housing	Aluminum with dehumidifying membrane and polycarbonate shell

Environmental	
Operating temperature	-20 °C to +55 °C (-4 °F to +131 °F) for continuous operation
Storage temperature	-30 °C to +70 °C (-22 °F to +158 °F)
Operating humidity	5% to 93% RH non condensing 5% to 100% RH condensing
Storage humidity	Up to 98% RH
Impact resistance casing and dome	IK10
Water/dust protection	IP5X, IP54 with NDA-8001-IP

Ordering information

NDV-8504-R Fixed dome 8MP HDR 3.9-10mm PTRZ
Fixed dome 8 MP PTRZ H.265 IVA
Order number **NDV-8504-R | F.01U.396.937**
F.01U.393.107

Accessories

NDA-8001-IP IP54 protection kit
RJ45 waterproofing kit for FLEXIDOME IP indoor 8000i
Order number **NDA-8001-IP | F.01U.394.830**

NDA-8000-CBL Clear replacement bubble
Clear replacement bubble.
Order number **NDA-8000-CBL | F.01U.324.934**

NDA-8000-TBL Tinted Bubble
Tinted bubble for FLEXIDOME IP 8000i.
Order number **NDA-8000-TBL | F.01U.324.973**

NDA-8000-IC In-ceiling mount kit
In-ceiling mount kit for FLEXIDOME IP 8000i.
Order number **NDA-8000-IC | F.01U.324.935**

NDA-8000-PLEN Plenum-rated in-ceiling mount kit
Plenum-rated in-ceiling mount kit for FLEXIDOME IP 8000i.
Order number **NDA-8000-PLEN | F.01U.324.936**

NDA-8001-IC In-ceiling mount kit
In-ceiling mount kit for FLEXIDOME IP 8000i with microphone support
Order number **NDA-8001-IC | F.01U.398.407**

NDA-8001-PLEN Plenum-rated mount kit
Plenum-rated in-ceiling mount kit for FLEXIDOME IP 8000i with microphone support
Order number **NDA-8001-PLEN | F.01U.398.393**

NDA-8000-SP In-ceiling mount support kit
Soft ceiling support for in-ceiling mount kit for FLEXIDOME IP 8000i.
Order number **NDA-8000-SP | F.01U.324.937**

NDA-8000-PIP Pendant interface plate, indoor
Pendant interface plate for FLEXIDOME IP 8000i and FLEXIDOME IP panoramic 6000/7000 outdoor.
Order number **NDA-8000-PIP | F.01U.324.938**

NDA-U-WMT Pendant wall mount
Universal wall mount for dome cameras, white
Order number **NDA-U-WMT | F.01U.324.939**

NDA-U-PMT Pendant pipe mount, 12" (31cm)
Universal pipe mount for dome cameras, 31 cm, white
Order number **NDA-U-PMT | F.01U.324.940**

NDA-U-PMTS Pendant pipe mount, 4" (11 cm)
Universal pendant pipe mount for dome cameras, 11 cm (4"), white
Order number **NDA-U-PMTS | F.01U.385.046**

NDA-U-PMTE Pendant pipe extension, 20" (50cm)
Extension for universal pipe mount, 50 cm, white
Order number **NDA-U-PMTE | F.01U.324.941**

NDA-U-PSMB Pendant wall/ceiling mount SMB
Surface mount box (SMB) for wall mount or pipe mount.
Order number **NDA-U-PSMB | F.01U.324.942**

NDA-U-PA0 Surveillance cabinet 24VAC
Surveillance cabinet, 24 VAC input, 24 VAC output, IP66
Order number **NDA-U-PA0 | F.01U.324.947**

NDA-U-PA1 Surveillance cabinet 120VAC
Surveillance cabinet, 100 - 120 VAC 50/60 Hz input, 24 VAC output, IP66
Order number **NDA-U-PA1 | F.01U.324.948**

NDA-U-PA2 Surveillance cabinet 230VAC
Surveillance cabinet, 230 VAC input, 24 VAC output, IP66
Order number **NDA-U-PA2 | F.01U.324.949**

NDA-U-PMAL Pole mount adapter large
Universal pole mount adapter, white; large
Order number **NDA-U-PMAL | F.01U.324.944**

NDA-U-PMAS Pole mount adapter small
Pole mount adapter small
Universal pole mount adapter, white; small.
Order number **NDA-U-PMAS | F.01U.324.943**

NDA-U-WMTG Pendant wall mount, gang box
Universal wall mount, compatible with gang box installation for fixed dome cameras only, white
Order number **NDA-U-WMTG | F.01U.358.358**

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 | F.01U.358.359**

VG4-SFPSCKT Ethernet to SFP interface kit
Ethernet media converter video transmitter/data receiver fiber optic kit for AUTODOME cameras, for MIC-IP-PSU for MIC analog cameras and for the Surveillance cabinets (NDA-U-PA0, NDA-U-PA1 and NDA-U-PA2).
Order number **VG4-SFPSCKT | F.01U.142.529**

SFP-2 Fiber module, multimode, 1310nm, 2LC
SFP Fiber Optic Module, 2 km (1.2 miles), 2 LC connectors.
Multi-mode
1310 mm
Order number **SFP-2 | F.01U.136.537**

SFP-3 Fiber module, single-mode, 1310nm, 2LC
SFP Fiber Optic Module, 20 km (12.4 miles), 2 LC connectors.
Single-mode
1310 nm
Order number **SFP-3 | F.01U.136.538**

SFP-25 Fiber module, 1310/1550nm, 1SC
SFP Fiber Optic Module, 2 km (1.2 miles), 1 SC connector
Multi-mode
1310/1550 nm
Order number **SFP-25 | F.01U.136.541**

SFP-26 Fiber module, 1550/1310nm, 1SC
SFP Fiber Optic Module, 2 km (1.2 miles), 1 SC connector
Multi-mode
1550/1310 nm
Order number **SFP-26 | F.01U.136.542**

Services

EWE-FDIP8I-IW 12 mths wrty ext FD IP 8000i
12 months warranty extension
Order number **EWE-FDIP8I-IW | F.01U.380.691**

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