NDE-7604-AL-OC Fixed dome 8MP IP66 IK10 IR OC

FLEXIDOME inteox 7100i IR

- Open platform that allows third-party apps from the Application store from Azena
- H.265 reduces bit rate by up to 80%
- 8MP (4K UHD) for exceptional detail
- Built-in Intelligent Video Analytics to trigger alerts and quickly retrieve data with the highest levels of accuracy

The NDE-7604-AL-OC camera is “Driven by OSSA”, ensuring seamless connectivity with the Azena Application Store to add third-party software apps easily that meet customer-specific requirements. The camera delivers high image quality with 4K resolution for demanding security and surveillance requirements.

Intelligent open, flexible, and extendable camera platform
The camera has a powerful, embedded processor with dedicated hardware to support advanced machine learning and neural-network-based Video Analytics. All cameras with this platform have high image quality, built-in Video Analytics, intelligent bitrate management, and the highest levels of data security. The platform also gives you the flexibility to customize your camera to your specific requirements.
The camera platform integrates with the cloud infrastructure of Azena for app management across devices. Also, Bosch offers advanced device management and services through the Bosch Remote Portal (https://remote.boschsecurity.com/). From the Bosch Remote Portal you can (remotely):

- Complete initial configuration of your online and connected Bosch devices.
- Update firmware for single or multiple devices.
- Manage certificates through Configuration Manager or the web interface of your camera.
- Monitor the health of and receive alerts for your connected Bosch devices.
- Connect your Bosch devices to the Azena portal for app management.

Functions

Dynamic Noise Reduction
Smart encoding capabilities reduce the bandwidth consumption to extremely low levels. 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 80% 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.

More flexibility in streaming capabilities
The camera has three independent encoder streams. Users can configure each stream individually to change the video resolution and the frame rate. Users have two options:

1. Let the camera deliver what is possible based on its encoding performance across the streams equally.
2. Select one of the three streams to be prioritized, for example, to guarantee “quality of service” for the recording stream.

Users can select the coding standard (H.264/H.265) for each stream.
Each stream also has its own set of 8 encoder profiles that users can configure.

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

Intelligent Video Analytics on the edge
This intelligence-at-the-edge concept allows a decision on which videos are captured based on video content analysis. By only selecting alarm video for streaming or recording, less bandwidth and storage is used.
Alarm conditions can be signaled by a relay output on the unit or an alarm connection, to stream video to a decoder or video management system. Alarms can also be transmitted to a video management system to start extended alarm scenarios.
As well as creating alarms, Intelligent Video Analytics produces metadata that describes the content of the analyzed scene. This metadata is sent over the network—and may also be recorded—together with the video stream.
With a future-proof design, the camera can tackle new use cases by delivering more reliable detections and thus more insights on what is happening in a scene. Based on the open platform principle, these capabilities are leveraged by Intelligent Video Analytics by Bosch as well as by third-party apps from the Application store from by Bosch as well as by third-party apps from the Application store from Azena.
The inteox family also offers models with Neural Network based object classifiers.

Traffic monitoring for intersections, tunnels and highways
Intelligent Video Analytics 8.10 comes with new artificial intelligent detectors for cars, trucks, busses, bikes and persons, allowing for traffic monitoring at intersections, tunnels and highways including traffic light queue length detection and accurate counting statistics even in dense traffic.

High-performance people counting
Intelligent Video Analytics 8.10 offers high-performance people counting. Recommended are top-down views for minimal inter-person-occlusion. In other fields of view, new artificial intelligent detectors for persons detect and separate these for accurate counts.

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 3.6 mm - 10 mm lens

DORI	DORI definition	Distance 3.6 mm/10 mm	Horizontal width
Detect	25 px/m (8 px/ft)	68 m/181 m (212 ft/565 ft)	154 m (480 ft)
Observe	63 px/m (19 px/ft)	27 m/72 m (89 ft/238 ft)	61 m (202 ft)
Recognize	125 px/m (38 px/ft)	14 m/36 m (45 ft/119 ft)	31 m (101.1 ft)
Identify	250 px/m (76 px/ft)	7 m/18 m (22 ft/60 ft)	15 m (50.5 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. 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

Only trusted and authenticated third-party apps can be uploaded. A safe sandbox environment enables the secure execution of trusted third-party software.
There is full transparency on individual app requirements to access system resources (listed in the Application store from Azena).

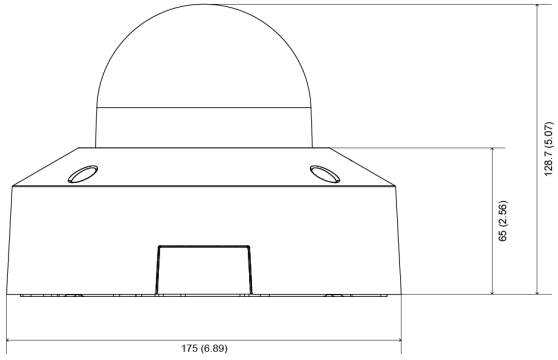
System integration and ONVIF conformance
The camera conforms to the ONVIF Profile S, ONVIF Profile G, ONVIF Profile M, and ONVIF Profile T specifications. For H.265 configuration, the camera supports Media Service 2, which is part of ONVIF Profile T. Compliance with these standards guarantees interoperability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

Regulatory information

Standards	Type
Emission	EN 50121-4 EN 55032 (class B) CFR 47 FCC part 15 (class B)
Immunity	EN 50121-4 EN 50130-4
Environmental	EN 50130-5 (Class IV) EN 50581 RoHS EU, 2011/65/EU WEEE EU, 2012/19/EU
Standards	Type
	Packaging EU, 94/62/EU N2580-1 (Bosch standard) N33.6 (Bosch standard)
Safety	EN 62368-1 UL 62368-1 IEC 62368-1 EN 62471 (Eye safety for IR)
ONVIF conformance	EN 50132-5-2 EN 62676-2
Impact protection	EN 62262 (IK10)
Water/dust protection	EN 60529 (IP66) UL50E (Type 4X)
Marks	CE, FCC, WEEE, cULus, C-Tick, VCCI

Installation/configuration notes



Parts included

Quantity	Component
1	FLEXIDOME inteox 7100i camera
1	Quick Installation Guide
1	Safety instructions

Technical specifications

Power	
Input voltage	PoE 802.3at Type 2, Class 4 24 VAC ±10% PoE and auxiliary power can be connected simultaneously for redundant operation

Power	
Power Consumption (typical / maximum)	PoE+: Max. 25.5 W 24 VAC: 7.1 W - 25 W/ 13 W - 25 W

Sensor	
Sensor type	1/1.8-inch CMOS
Total sensor pixels	3840 (H) x 2160 (V), 8MP (approx.)

Video performance - Sensitivity	
Sensitivity - (3200K, reflectivity 89%, F1.5, 30IRE)	
Color	0.189 lux
Mono	0.0316 lux
With IR	0.0 lx

Dynamic range	
Wide Dynamic Range	87 dB WDR
Measured according to IEC 62676 Part 5	67 dB WDR

Night vision	
Distance	40 m (131 ft)
LED	High efficiency LED array, 850 nm

Optical	
Lens	3.6 to 10 mm, P-iris lens (IR corrected) F-stop 1.5
Adjustment	Motorized zoom/focus
Iris control	P-iris control
Field of view	Wide: 97º x 53º (H x V) Tele: 46º x 30º (H x V)

Platform	
Common product platform	CPP13

Video streaming	
Video compression	H.265; H.264; M- JPEG
Sensor modes	30 fps, 3840 x 2160 (8 MP)
Streaming	Multiple configurable streams in H.264, H.265 and M-JPEG, configurable frame rate and bandwidth.

Video streaming	
	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)	
4K UHD	3840 x 2160
5 MP	2560 x 1440
1080p HD	1920 x 1080
1.3 MP	1536 x 864
720p HD	1280 x 720
480p SD	768 x 342
SD 4:3 (cropped)	512 x 480

Camera installation	
Mirror image	On / Off
Rotate	0° / 90° upright / 180° / 270° upright
Camera LED	Automatic
Camera view wizard	Zoom, autofocus

Video functions - color	
Exposure control	Automatic, Manual
Manual exposure control adjustments	Shutter, Gain, Iris
Day / Night	Automatic, Color, Monochrome
Zoom position / Focus position	One push auto focus
White balance	Automatic, Manual
Manual white balance adjustments	Red gain, Blue gain

Video content analysis	
Analysis type	Intelligent Video Analytics

Video content analysis	
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
Tamper detection	Maskable

Additional functions	
Privacy Masking	One area, fully programmable
Display stamping	Name; Logo; Time; Alarm message

Local storage	
Memory card slots	microSDHC / microSDXC SD card slot
Industrial SD cards	Extreme lifetime

Input/output	
Audio signal line in	10 kOhm typical; 1 Vrms max
Audio signal line out	1 Vrms; 1.5 kOhm typical
Alarm input	1 input, activation voltage: +3.3 VDC to +40 VDC
Alarm output	2 outputs, maximum: 30 VAC or +40 VDC, 0.5 A continuous, 10 VA
Ethernet	RJ45
Surge protection	Ethernet: 1 kV to ground (8/20 µs pulse)

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	
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, NTP (SNTP), 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	10/100/1000 Base-T, auto-sensing, half/full duplex
Connectivity	Auto-MDIX
Interoperability	ONVIF Profile S; ONVIF Profile GONVIF 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)	175 x 130 mm (6.9 x 5.1 in)
Weight	1.5 kg (3.31 lbs)
Mounting	Surface mount
Color	White (RAL9003)
PTR range	Pan: 0º to +370º Tilt: 0º to +75º Roll: 0º to +355º
Dome bubble	Polycarbonate, clear with UV blocking anti-scratch coating Anti-reflection coating UV resistant Scratch resistant

Mechanical	
Housing	Aluminum with dehumidifying membranes and waterproof connection area

Environmental	
Operating temperature	-40 ºC to +50 ºC (-40 ºF to +122 ºF) for continuous operation;
Storage temperature	-30 ºC to +70 ºC (-22 ºF to +158 ºF)
Operating humidity	5% to 93% relative humidity non condensing 5% to 100% relative humidity condensing
Storage humidity	Up to 98% relative humidity
Impact resistance casing and dome	IK10
Water/dust protection	IP 66 and NEMA type 4X

Ordering information

NDE-7604-AL-OC Fixed dome 8MP IP66 IK10 IR OC
Fixed dome 8MP H.265 IVA IP66 IK10 IR running an open camera platform, with pre-installed object classification app
Order number **NDE-7604-AL-OC | F.01U.386.375**

Accessories

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-CMT Corner mount adapter
Universal corner mount, white
Order number **NDA-U-CMT | F.01U.324.946**

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-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-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-RMT Pendant parapet mount
Universal roof mount for dome cameras, white
Order number **NDA-U-RMT | F.01U.324.945**

NDA-U-WMP Wall mount plate
Back plate for universal wall mount, corner mount and pole mount, white, IP66
Order number **NDA-U-WMP | F.01U.324.950**

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

Services

EWE-D71IR-IW 12 mths wrty ext inteox 7100i IR
12 months warranty extension
Order number **EWE-D71IR-IW | F.01U.396.736**

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