

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

FLEXIDOME inteox 7100i IR



The NDE-7604-AL 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.



- ▶ 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

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.

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.

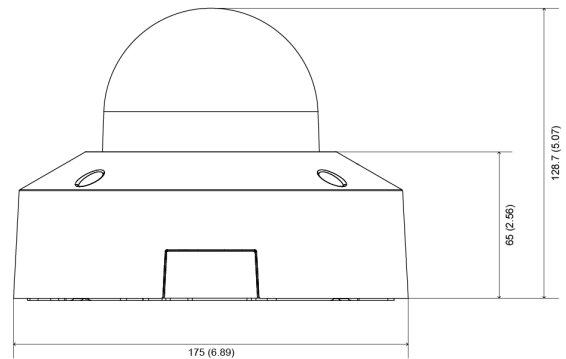
Regulatory information

| 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 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) |

| Standards | Type |
|-----------|------------------------------------|
| Marks | CE, FCC, WEEE, cULus, C-Tick, VCCI |

| Region | Regulatory compliance/quality marks |
|---------------|-------------------------------------|
| Great Britain | UKCA |
| Europe | CE |

Installation/configuration notes



Parts included

| Quantity | Component |
|----------|------------------------------|
| 1 | FLEXIDOME intex 7100i camera |
| 1 | Quick Installation Guide |
| 1 | Safety instructions |

Technical specifications

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

| Video performance - Sensitivity | |
|--|--|
| 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: 97° x 53° (H x V) Tele: 46° x 30° (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. Regions of Interest (ROI) Bosch Intelligent Streaming |
| Camera latency | 120 ms (8 MP, 30 fps) |
| GOP structure | IP |
| Frame rate | 1-30 fps |

| Video streaming | |
|-------------------------------------|--|
| 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 |
| 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 |

| Video content analysis | |
|---------------------------|---|
| 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 | 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 |

| Network | |
|------------------|---|
| 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: 0° to +370° Tilt: 0° to +75° Roll: 0° to +355° |
| Dome bubble | Polycarbonate, clear with UV blocking anti-scratch coating Anti-reflection coating UV resistant Scratch resistant |
| Housing | Aluminum with dehumidifying membranes and waterproof connection area |

| Environmental | |
|-----------------------|---|
| Operating temperature | -40 °C to +50 °C (-40 °F to +122 °F) for continuous operation; |
| Storage temperature | -30 °C to +70 °C (-22 °F to +158 °F) |
| Operating humidity | 5% to 93% relative humidity non condensing 5% to 100% relative humidity condensing |

Environmental

| | |
|-----------------------------------|-----------------------------|
| 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 Fixed dome 8MP IP66 IK10 IR**

Fixed dome 8MP H.265 IVA IP66 IK10 IR running an open camera platform

NDAA compliant

Order number **NDE-7604-AL | F.01U.394.577**

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**