

AUTODOME 7100i



- ▶ Built-in artificial intelligence alerts operators of unusual scene activity
- ▶ IVA Pro brings highly reliable deep-learning based detection of persons and vehicles to scenes ranging from sterile zones to crowded and congested
- ▶ Highly accurate and reliable solution thanks to a closed-loop drive platform
- ▶ Optional direct fiber connection for increased communications security

With starlight imaging technology for excellent low-light sensitivity, Intelligent Video Analytics, and video streaming, the AUTODOME 7100i camera supports superior intelligence and imaging at the edge. The design gives undistorted, high-resolution video above the horizon, which is helpful in city landscapes that are not flat.

The camera has a powerful, embedded processor with dedicated hardware to support advanced machine learning and neural-network-based Video Analytics.

Built-in Intelligent Video Analytics Pro (IVA Pro) enriches full situational awareness and triggers relevant alerts.

With high image quality and the highest levels of data security, the camera gives you the flexibility to customize configuration to your specific requirements.

Functions

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.

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. These capabilities are leveraged by Intelligent Video Analytics.

Video Analytics while camera is moving

Outside of pre-positions and even while the PTZ camera is moving, whether on guard tours or manually, the Intelligent Video Analytics application can detect and start alarms when objects are in alarm fields. These alarm fields are defined once across all PTZ camera views. The camera can

automatically trigger an alarm if any part of a field within the camera's view becomes active while on a guard tour sweeping across the monitored areas.

Exceptional low-light performance

The latest sensor technology combined with the sophisticated 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.

Variable beam illumination

The IR models have an integrated, long-life Illuminator that enables viewing of objects even in total darkness, ensuring high-quality images regardless of the lighting conditions.

Note: The distances and the performance depend on the environmental light conditions.

High dynamic range

The dynamic range of the camera is outstanding and is obvious in real-world performance comparisons. In extended dynamic range mode, the camera uses an electronic shutter to capture four images with different exposure time and reproduce a high-contrast frame. The result is that you can view details in both the bright areas (highlights) and the dark areas (shadows) of a scene at the same time. You can easily distinguish objects and features (for example, faces) with bright backlight.

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.

Image Stabilization

The 1080p (2MP) models (IR and non-IR) have electronic Image stabilization .

The 4K (8MP) IR model has optical Image stabilization.

If it detects vibration, the camera dynamically corrects the shaky video in both the vertical and horizontal axis, resulting in exceptional image clarity and a stable field of view on the monitor.

Auto Exposure (AE) region and Focus region

With the Auto Exposure (AE) function, the camera computes the lighting condition of the entire scene. Then the camera determines the optimum level of iris, gain, and shutter speed.

In AE region mode, users can designate a specified area of the scene, based on pre-positions. The camera computes the lighting condition of the specified area. Then the camera determines the optimum level of iris, gain, and shutter speed to get an image.

Focus region mode, unlike normal auto focus mode, allows users to focus on a specified area of the scene.

Snap to zoom

Drawing a box in the image will trigger the camera to zoom to the correct position.

Simple set-up

The camera has a very intuitive user interface that allows fast and easy configuration. Configurable scene modes are provided with the best settings for a variety of applications.

Users have the ability to customize these modes, if necessary, for the specific requirements of the site.

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:

DORI	Distance to object	
	WIDE 1x	TELE (maximum zoom)
Detection 25 pixels/m (8 pixels/ft)	40x models: 59 m 12x models: 121 m	40x models: 2316 m 12x models: 1441 m
Observation 63 pixels/m (19 pixels/ft)	40x models: 23 m 12x models: 48 m	40x models: 919 m 12x models: 572 m
Recognition 125 pixels/m (38 pixels/ft)	40x models: 12 m 12x models: 24 m	40x models: 463 m 12x models: 288 m
Identification 250 pixels/m (76 pixels/ft)	40x models: 6 m 12x models: 12 m	40x models: 232 m 12x models: 144 m

Sophisticated alarm responses

The camera supports advanced alarm control that uses sophisticated rules-based logic to determine how to manage alarms. In its most basic form, a "rule" could define which input(s) should activate which output(s). In a more complex form, inputs and

outputs can be combined with pre-defined or user-specified commands to perform advanced camera functions.

Pre-positions and tours

The camera supports 256 pre-positions and two styles of Guard Tours: Pre-position and Record/Playback. The Pre-position tour has capability for up to 256 pre-positions with a configurable dwell time between pre-positions and can be customized as to the order and the frequency that each Pre-position is visited. The camera also provides support for two (2) recorded tours, which have a total duration of 15 minutes of movements. These are recorded macros of an operator's movements, including pan, tilt, and zoom activities, and can be played back in a continuous manner.

PTZ drive and mechanism

The camera offers a reliable drive platform, designed for continuous tours for at least three years. It provides an unlimited three-year warranty. Its design provides optimum smoothness in motion when used at low speeds or with a joystick.

Data security

Special measures are necessary to ensure the highest level of security for device access and data transport. On initial setup, the camera is only accessible over secure channels. A three-level password protection with security recommendations lets users customize device access. Unsecure ports are disabled. Firmware updates are only possible with Bosch-signed firmware files. The Embedded Login Firewall improves robustness against Denial of Service (DoS) attacks. The software sealing functionality can detect changes in a configuration. HTTPS or other secure protocols prevent access to the web browser and the viewing client. With the feature of secure and verified boot, you can trust all executed code in the device.

TPM functionality is provided by "Secure Element" (dedicated AES/DES/PKI crypto co-processor) that:

- Is independently certified with Assurance Level (EAL) 6+ based on Common Criteria for Information Technology Security Evaluation [out of 7 levels according to ISO/IEC 15408]
- Has cryptography with a maximum of 4096 bit RSA keys for TLS (maximum version 1.3) and device identity (Future-proof until 2031 and beyond) [according to NIST Special Publication 800-57, part 1, page 56]

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).

Power options

In a PoE configuration, a single (Cat5e/Cat6) cable connection provides power while simultaneously supporting data and video transmission. For maximum reliability, the camera can operate in a redundant configuration, with both a 24 VAC/36 VDC power source and an IEEE 802.3bt midspan or a switch connected simultaneously. If one power source fails, the camera switches automatically to the other power source. The camera can also accept a standard 24 VAC/36 VDC power source if a PoE network interface will not be used.

Refer to individual product datasheets for details on technical specifications.

System integration and ONVIF conformance

The camera conforms to the specifications for ONVIF Profile S, ONVIF Profile G, and ONVIF Profile M. (ONVIF is the acronym for Open Network Video Interface Forum.) For H.265 configuration, the camera also 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. For more information, see the Bosch Integration Partner Program (IPP) website (ipp.boschsecurity.com). Cameras with this platform are intended to be backwards compatible with existing VMS integrations. Compatibility of the app feature set that is available in the Application store is the responsibility of the app developer and of Azena.

Design for challenging environments

The pendant housing is rated to provide IP66 protection and offers an operating temperature range down to -40° C (-40° F). The pendant camera comes fully assembled with a sunshield and ready for pendant arm or pipe applications with the proper mounting hardware (sold separately).

Ease of installation and servicing

The camera has been designed for quick and easy installation, a key feature of IP video products from Bosch. All housings feature recessed screws and latches for increased tamper resistance. Bosch designed the camera with the knowledge that field cables and mounts are installed before the camera is mounted. The hinge design allows one person to hook the camera to the mount. One person can connect the cables directly to the camera without re-routing cables.

Bosch offers a full complement of hardware and accessories (sold separately) for wall, corner, mast, roof, and pipe mount for indoor and outdoor environments, which allow the camera to be adapted easily to individual site requirements. Remotely upgrade the camera whenever new firmware becomes available. This ensures up-to-date products, thus protecting investment with little effort.

Camera Diagnostics

The camera has several built-in sensors / advanced diagnostics that display warnings on the camera's OSD about the health of the camera. The diagnostics log records the events such as:

- Low voltage - a drop in incoming power below the level where the camera becomes non-functional
- High temperature - the internal temperature exceeds specifications
- Low temperature - the internal temperature exceeds minimum levels
- High humidity - the internal humidity exceeds 70%
- Total hours of camera operation

Certain events also appear on the camera's OSD. These diagnostic records are available for the installation or service technician to review.

Regulatory information

For a full list of all related certifications/standards, refer to the Product Test Reports, available on the online catalog, on the Documents tab of the product page for your device. If the document is unavailable on the product page, contact your sales representative.

Electromagnetic compatibility (EMC)	FCC Part 15, ICES-003 EN 55032 (Class A) EN 50130-4 EN 50121-4 (Railway applications) CISPR 32 (Class A)
Product Safety	Complies with UL, CE, CSA, EN, and IEC standards including: UL 62368-1 EN 62368-1 CAN/CSA-C22.2 No. 62368-1-14 IEC 62368-1 Ed.2 IEC 60950-22 Ed.2
Marks	UL, CE, WEEE, VCCI, FCC, RoHS, RCM, CMIM, UKCA, BIS

Installation/configuration notes

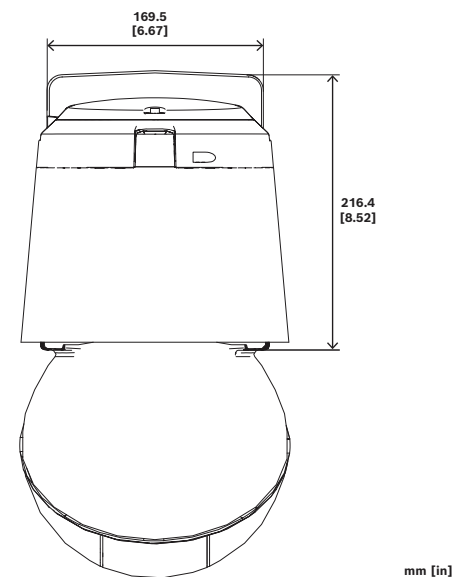


Fig. 1: Dimensions in mm (in.) of the camera on NDA-7100-PEN | NDA-7100-PENF (front view)

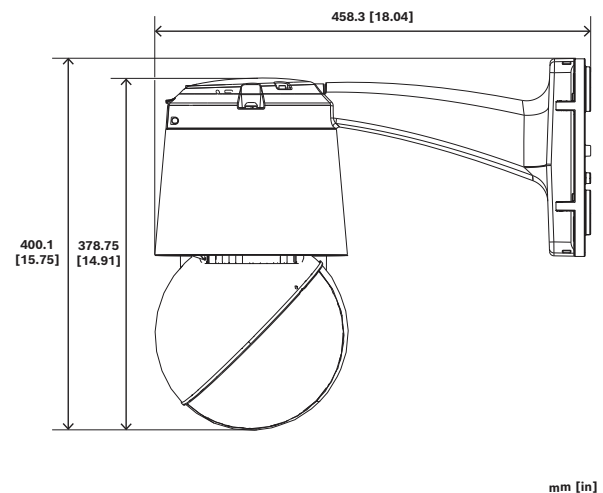


Fig. 2: Dimensions in mm (in.) of camera installed on NDA-7100-PEN | NDA-7100-PENF with NDA-PEND-WPLATE (side view)

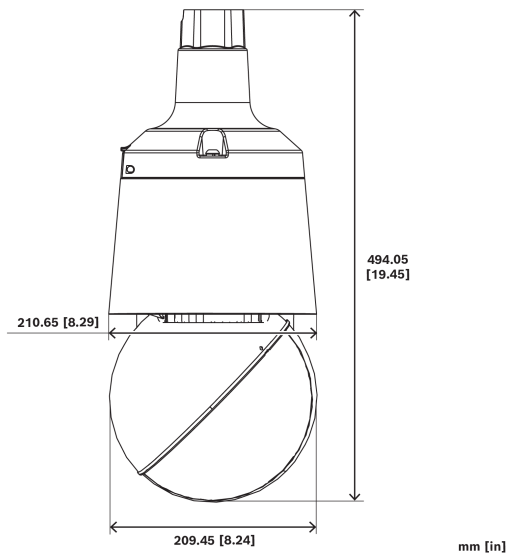


Fig. 3: Dimensions in mm (in.) of camera installed on NDA-7100-PIPE | NDA-7100-PIPEF (pipe mount)
For more options, see [Camera Accessories - Quick Selection Guide](#).

Technical specifications

Refer to individual product datasheets for details on technical specifications.

Ordering information

NDP-7602-Z40 PTZ 2MP HDR 40x IP66 pendant

PTZ dome camera, 2MP, 40x optical zoom, HDR, starlight imaging, IP66, IK10, IVA Pro Buildings, IVA Pro Perimeter
NDAA compliant
Order number **NDP-7602-Z40**

NDP-7602-Z40-CA PTZ 2MP HDR 40x IP66 pendant CA

PTZ dome camera, 2MP, 40x optical zoom, HDR, starlight imaging, IP66, IK10, IVA Pro Buildings, IVA Pro Perimeter
NDAA compliant
Canada only.
Order number **NDP-7602-Z40-CA**

Accessories

NPD-6001C Midspan, bt, 60W, indoor

Indoor midspan with Power-over-Ethernet for use with PoE-enabled cameras; 60 W, single-port, AC input
Order number **NPD-6001C**

NPD-6001C-E Midspan, bt, 60W, IP67

Outdoor midspan with Power-over-Ethernet for use with PoE-enabled cameras; 60 W, single-port
Order number **NPD-6001C-E**

NPD-6001-I Midspan, bt, 60W, indoor, industrial

industrial midspan with Power-over-Ethernet for use with PoE-enabled cameras; 60 W, single-port
Order number **NPD-6001-I**

NPD-6001C-BT Midspan bt 60W indoor TAA

Indoor midspan with Power-over-Ethernet for use with PoE-enabled cameras; 60 W, single-port, AC input
TAA compliant
Order number **NPD-6001C-BT**

NPD-6001C-EBT Midspan bt 60W IP67 TAA

Outdoor midspan with Power-over-Ethernet for use with PoE-enabled cameras; 60 W, single-port
TAA compliant
Order number **NPD-6001C-EBT**

NPD-6001-IBT Midspan bt 60W indoor industrial TAA

industrial midspan with Power-over-Ethernet for use with PoE-enabled cameras; 60 W, single-port
TAA compliant
Order number **NPD-6001-IBT**

NDA-6090-PMA Pole mount for midspan, bt, outdoor

Pole mount for outdoor PoE midspans NPD-6001C-E / NPD-6001C-EBT and NPD-9001-E / NPD-9001-EBT
Order number **NDA-6090-PMA**

NDA-7100-PA0H Wall arm & PSU for AD7100i 24VAC

Wall arm + Power supply unit for AUTODOME 7100i cameras, IK10 rating
24 VAC
Order number **NDA-7100-PA0H**

NDA-7100-PA0HF Wall arm & PSU for AD7100i fiber 24VAC

Wall arm + Power supply unit for AUTODOME 7100i cameras, IK10 rating
24 VAC
Direct fiber connection
Order number **NDA-7100-PA0HF**

NDA-7100-PA1H Wall arm & PSU for AD7100i 120VAC

Wall arm + Power supply unit for AUTODOME 7100i cameras, IK10 rating
120 VAC
Order number **NDA-7100-PA1H**

NDA-7100-PA1HF Wall arm & PSU for AD7100i fiber 120VAC

Wall arm + Power supply unit for AUTODOME 7100i cameras, IK10 rating
120 VAC
Direct fiber connection
Order number **NDA-7100-PA1HF**

NDA-7100-PA2H Wall arm & PSU for AD7100i 230VAC

Wall arm + Power supply unit for AUTODOME 7100i cameras, IK10 rating
230 VAC
Order number **NDA-7100-PA2H**

NDA-7100-PA2HF Wall arm & PSU for AD7100i fiber 230VAC

Wall arm + Power supply unit for AUTODOME 7100i cameras, IK10 rating
230 VAC
Direct fiber connection
Order number **NDA-7100-PA2HF**

NDA-U-PSU0H PSU, IR, 24VAC, for NDA-7100-PEN/ PENF

Power supply unit without transformer, 24 VAC, IK10, for AUTODOME 7100i IR cameras
Order number **NDA-U-PSU0H**

NDA-U-PSU1H PSU, IR, 120VAC, for NDA-7100-PEN/ PENF

Stand-alone power supply unit without transformer, 120 VAC, IK10, for AUTODOME 7100i IR cameras
Order number **NDA-U-PSU1H**

NDA-U-PSU2H PSU, IR, 230VAC, for NDA-7100-PEN/ PENF

Power supply unit without transformer, 230 VAC, IK10, for AUTODOME 7100i IR cameras
Order number **NDA-U-PSU2H**

NDA-7100-PEN Pendant arm for AUTODOME 7100i

Pendant arm mount for AUTODOME 7100i and AUTODOME 7100i IR cameras
Order number **NDA-7100-PEN**

NDA-7100-PENF Pendant arm fiber AUTODOME 7100i

Pendant arm with direct fiber connection for AUTODOME 7100i and AUTODOME 7100i IR cameras
Order number **NDA-7100-PENF**

NDA-7100-PIPE Pipe mount for AUTODOME 7100i

Pipe mount for AUTODOME 7100i and AUTODOME 7100i IR cameras
Order number **NDA-7100-PIPE**

NDA-7100-PIPEF Pipe mount fiber for AUTODOME 7100i

Pipe mount with direct fiber connection for AUTODOME 7100i and AUTODOME 7100i IR cameras
Order number **NDA-7100-PIPEF**

NDA-PEND-WPLATE Mounting plate for NDA-7100-PEN/PENF

Mounting plate for NDA-7100-PEN and NDA-7100-PENF for AUTODOME 7100i and AUTODOME 7100i IR cameras
Order number **NDA-PEND-WPLATE**

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-PMT Pendant pipe mount, 12" (31cm)

Universal pipe mount for dome cameras, 31 cm, white
Order number **NDA-U-PMT**

NDA-U-PMAL Pole mount adapter large

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

NDA-U-CMT Corner mount adapter

Universal corner mount, white
Order number **NDA-U-CMT**

NDA-U-RMT Pendant parapet mount

Universal roof mount for dome cameras, white, for outdoor usage
Order number **NDA-U-RMT**

LTC 9230/01 Parapet roof mount adapter

Flat Roof Mount Adapter for mounting a unit in an upright position on a flat surface.

Order number **LTC 9230/01**

NDA-7100-CBL Spare bubble for AUTODOME 7100i IR

Replacement bubble for AUTODOME 7100i and AUTODOME 7100i IR cameras

Order number **NDA-7100-CBL**

NDA-7100-HCBL Bubble, clear hydrophilic AUTODOME 7100i

Clear, hydrophilic replacement bubble for AUTODOME 7100i and AUTODOME 7100i IR cameras

Order number **NDA-7100-HCBL**

NDA-7100-TBL Bubble, tinted for AUTODOME 7100i

Tinted replacement bubble for AUTODOME 7100i and AUTODOME 7100i IR cameras

Order number **NDA-7100-TBL**

SD-064G IP SECURITY SD CARD 64GB

64 GB industrial SD card with health status monitoring
Order number **SD-064G**

SD-128G IP SECURITY SD CARD 128GB

128 GB industrial SD card with health status monitoring

Order number **SD-128G**

SD-256G IP SECURITY SD CARD 256GB

256 GB industrial SD card with health status monitoring

Order number **SD-256G**

Software Options**MVC-IVA-TRA IVA Pro Traffic**

Video analytics software based on deep neural network technology for traffic monitoring and Automatic Incident Detection.

Order number **MVC-IVA-TRA**

MVC-IVA-IT IVA Pro Intelligent Tracking

AI-based Intelligent Tracking and video analytics while the camera is moving for applications in crowds and traffic scenes.

Order number **MVC-IVA-IT**

Services**EWE-AD71IP-IWMP 12 mths wrty ext AD 7100i moving parts**

12 months warranty extension

Order number **EWE-AD71IP-IWMP**



<https://www.boschsecurity.com>