Video - NDP-7602-Z40L PTZ 2MP HDR 40x IP66 pendant IR

NDP-7602-Z40L PTZ 2MP HDR 40x IP66 pendant IR
AUTODOME 7100i IR

- High performance 40x PTZ with excellent starlight imaging technology and high dynamic range delivers details in difficult light conditions
- IR illumination with detection distance of 300 m (984 ft)
- IVA Pro brings highly reliable deep-learning based detection of persons and vehicles to scenes ranging from sterile zones to crowded and congested
- Built-in artificial intelligence alerts operators of unusual scene activity
- Optional direct fiber connection for increased communications security
- Highly accurate and reliable solution thanks to a closed-loop drive platform

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. 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 Pro (IVA Pro)
The camera comes with the IVA Pro Building and the IVA Pro Perimeter pre-installed and brings highly reliable deep-learning based detection and tracking of persons and vehicles to scenes ranging from sterile zones to crowded and congested. Being extremely resistant to false triggers caused by challenging environments with rain, wind (moving trees), snow,
H.264 and H.265 are the algorithms that allow for high-efficiency video encoding. HEVC is the application of this encoding platform.

The camera has three independent encoder streams, providing more flexibility in streaming capabilities. 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.

**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.

**Electronic image stabilization**
The camera incorporates a built-in, electronic Image stabilization and algorithm that allows to sense continuous vibration. If it detects vibration, the device dynamically corrects the shaky video in both vertical and horizontal axis. The image stabilization function delivers exceptional image clarity and a stable field of view on the monitor.

**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.

**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:

- **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.

- **Standard**
  This mode is optimized for most standard scenes both indoor and outdoor.

- **Sensitivity boost**
  This mode provides maximum sensitivity in low light scenes by using longer exposure times, resulting in bright images even in extreme low light.

- **Fast movement**
  This mode is used for monitoring fast moving objects like cars in traffic scenes. Motion artifacts are minimized and the image is optimized for a sharp and detailed picture in color and monochrome.

- **Vibrant**
  This mode provides a more vivid image with increased contrast, sharpness, and saturation.

- **Color Only (Traffic)**
  In this mode, the camera does not switch to monochrome mode at low light levels. The mode is optimized to minimize motion artifacts and to capture the color of vehicles/pedestrians and traffic lights, even at night, for scenarios such as city surveillance and traffic monitoring.

- **Illuminator**
  This mode gives optimized performance when using the illuminator.
**Custom mode #1** and **Custom mode #2** give users the option to customize 2 scene modes of their own.

**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:

<table>
<thead>
<tr>
<th>DORI</th>
<th>Distance to object</th>
<th>Scene width</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>WIDE 1x</td>
<td>TELE (max. zoom)</td>
</tr>
<tr>
<td>Detection</td>
<td>59 m (194 ft)</td>
<td>2316 m (7598 ft)</td>
</tr>
<tr>
<td>Observation</td>
<td>23 m (75 ft)</td>
<td>926 m (3038 ft)</td>
</tr>
<tr>
<td>Recognition</td>
<td>12 m (39 ft)</td>
<td>463 m (1519 ft)</td>
</tr>
<tr>
<td>Identification</td>
<td>6 m (20 ft)</td>
<td>232 m (761 ft)</td>
</tr>
</tbody>
</table>

* DORI distances theoretically calculated using object target pixels/m thresholds defined in EN 62676-4_2016-07.

**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 has a closed-loop feedback control system using a 13-bit pan resolver and an 11-bit tilt resolver. This resolver makes sure that with every pan/tilt position, the camera can hold coordinates with accuracy. Because the camera always knows where it is pointed, it will return automatically to its original position even if moved by extremely high winds. The camera offers a reliable drive platform, designed for continuous tours for at least three years. It provides an unlimited three-year warranty for specified moving parts and five-year warranty for non-moving parts. Its design provides optimum smoothness in motion when used at low speeds or with a joystick.

Pan and tilt pre-positions are accurate to within average ±0.1 degrees typ.so that the camera shows the correct scene every time. The camera has a tilt angle 20 degrees above the horizon, and a pan range of up to 360 degrees continuous rotation.

**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:

- Up to 3072 bit RSA keys for TLS, 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

**Power options**

The camera can be powered by one of the devices in the list that follows:

- A 90 W midspan (IEEE 802.3bt, Type 4, Class 8 standard)
- A 24 VAC power source
- A 36 VDC power source
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.

An IEEE 802.3bt, Type 4, class 8 compliant 90 W midspan from Bosch or an IEEE 802.3bt Type 4, class 8 compliant 90W per AUTODOME port switch is required.

**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).

**Ease of installation and servicing**
The camera has been designed for quick and easy installation, a key feature from Bosch IP video products. 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.
The compatible accessories for these products are listed below.
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.

<table>
<thead>
<tr>
<th>Electromagnetic compatibility (EMC)</th>
<th>FCC Part 15, ICES-003</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>EN 55032 (Class A)</td>
</tr>
<tr>
<td></td>
<td>EN 50130-4</td>
</tr>
<tr>
<td></td>
<td>EN 50121-4 (Railway applications)</td>
</tr>
<tr>
<td></td>
<td>CISPR 32 (Class A)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Product Safety</th>
<th>Complies with UL, CE, CSA, EN, and IEC standards including:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>UL 62368-1</td>
</tr>
<tr>
<td></td>
<td>EN 62368-1</td>
</tr>
<tr>
<td></td>
<td>CAN/CSA-C22.2 No. 62368-1-14</td>
</tr>
<tr>
<td></td>
<td>IEC 62368-1 Ed.2</td>
</tr>
<tr>
<td></td>
<td>IEC 60950-22 Ed.2</td>
</tr>
</tbody>
</table>

| Marks | UL, CE, WEEE, VCCI, FCC, RoHS |

**Region**  | **Regulatory compliance/quality marks**
Global       | IEC 62443  Industrial Cyber Security Capability

**Installation/configuration notes**

**Fig. 1:** Dimensions in mm (in.) of the camera on NDA-7100-PEN | NDA-7100-PENF (front view)
Video - NDP-7602-Z40L 2MP HDR 40x IP66 pendant IR

**Technical specifications**

<table>
<thead>
<tr>
<th>Sensor</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensor type</td>
<td>1/2.8 inch CMOS</td>
</tr>
<tr>
<td>Total sensor pixels</td>
<td>2 MP appr.</td>
</tr>
<tr>
<td>Effective pixels (H x V)</td>
<td>1,920 x 1,080</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Optical</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Lens zoom (x)</td>
<td>40x</td>
</tr>
<tr>
<td>Digital zoom (x)</td>
<td>32x</td>
</tr>
<tr>
<td>Lens aperture (/F)</td>
<td>1.6 /F – 4.95 /F</td>
</tr>
<tr>
<td>Lens focal length (mm)</td>
<td>4.25 mm – 170 mm</td>
</tr>
<tr>
<td>Field of View varifocal lens (°)</td>
<td>1.9° x 66.35°</td>
</tr>
<tr>
<td>Zoom/focus control</td>
<td>Automatic (with manual override)</td>
</tr>
<tr>
<td>Iris control</td>
<td>Automatic (with manual override)</td>
</tr>
<tr>
<td>Number of imagers</td>
<td>1</td>
</tr>
<tr>
<td>Common Product Platform</td>
<td>CPP13</td>
</tr>
</tbody>
</table>

| Video functions               |       |
| Modes for viewing the video area of pre-position settings | Automatic exposure, either full-screen or defined to a specific area. Specific area can also be used for focus. |
| Image stabilization           | Electronic |
| WDR technology                | HDR |
| High Dynamic Range (HDR) (dB) | 120 dB |
| Measured according to IEC 62676 Part 5 (dB) | 92 dB |
| Sensitivity                   | 3100K; Reflectivity 89%; 1/30; F1.6; 30 IRE |
| Color (lx)                    | .0067 lx |
| Monochrome (lx)               | .0010 lx |
| With IR                       | 0.0 lx |
| Day/night modes               | Auto; Auto (adjustable switch points); Color; Monochrome |
| Gain control                  | AGC; Fixed; Region per pre-position |

**Parts included**

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>AUTODOME 7100i IR camera</td>
</tr>
<tr>
<td>1</td>
<td>Quick Installation Guide</td>
</tr>
<tr>
<td>1</td>
<td>Safety instructions</td>
</tr>
<tr>
<td>4</td>
<td>MAC address labels</td>
</tr>
</tbody>
</table>

*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.
**Video**

**Camera functionality**
- Geolocation; Region of interest; Audio detection; Backlight compensation (BLC); Contrast enhancement; Sharpness enhancement; Intelligent defog; Tamper detection; Saturation; Brightness; Color hue

**White balance modes**
- Manual mode; Indoor; Outdoor; AWB hold; Extended ATW; ATW

**White balance (K)**
- 2,000 K – 10,000 K

**Number of privacy masks**
- 32

**Privacy masks pattern**
- Black; White; Gray; Auto color; 16M color; Mosaic; 10 blurred levels

**Shutter modes**
- Automatic Electronic Shutter (AES); 1/1 min; 1/30,000 max

**Tours**
- Recorded tours: two (2), maximum total duration 15 minutes (depending on the amount of commands sent during recording); Pre-position tour: One (1), consisting of up to 256 scenes consecutively, and one (1), customized up to 64 scenes

**Number of pre-positions**
- 256, each with 40 characters per title

**Scene modes**
- Standard; Vibrant; Fast movement; Sensitivity boost; Color only; Illuminator; Custom modes

**Supported languages**
- Czech; German; English; Spanish; French; Italian; Japanese; Dutch; Polish; Portuguese (Brazil); Russian; Simplified Chinese

**Number of sectors**
- 4, 6, 8, 9, 12, or 16 user-selectable, independent Sectors, each with 40 characters per Title

**Virtual Masks**
- 24 individually configurable Virtual Masks to hide parts of the scene (background motion such as moving trees, pulsating lights, busy roads, etc.)

**Guard Tours**
- Custom Recorded Tours - two (2), total duration 30 minutes; Pre-position tour - one (1), consisting of up to 256 scenes consecutively, and one (1) customized with up to 256 user-defined scenes

**Alarm control**
- Rules-based logic supports basic and complex predefined user-specified commands
- In its most basic form, a “rule” could define which input(s) should activate which output(s).

**Camera status monitoring**
- Integrated sensors monitor operational status such as internal temperature, humidity level, incoming voltage level, vibration, and shock events.

**Diagnostics**
- Various status conditions are tracked in the internal diagnostic log. Critical fault conditions will also be displayed on screen.

### Functionality

**Alarm triggering**
- Audio detection; Motion detection

**Alarms activations**
- Video loss; System alarm

### Video content analysis

**Analysis type**
- Intelligent Video Analytics; Camera trainer; Intelligent Video Analytics Pro: IVA Pro Buildings; Intelligent Video Analytics Pro: IVA Pro Perimeter (pre-installed)

**Configurations**
- Scheduled; Event triggered; Off; Global VCA; Profiles 1 - 16

**Calibration**
- Automatic self-calibrating when height is set

**Alarm triggers**
- 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; Tampering; Rule based alarms and tracking; Audio detection

**Object filters**
- Duration; Size; Aspect ratio; Speed; Direction; Color; Object classes (4)

**Additional functionalities**
- Intelligent tracking; Detect moving objects during PTZ; Tamper detection

**Geolocation**
- Tracking of object locations

**Tracking modes**
- Standard (2D) tracking; 3D tracking; 3D people tracking; Ship tracking; Museum mode

**Supported analytics**
- IVA Pro Intelligent Tracking (separate license available); IVA Pro Traffic (separate license available)
### Video streaming

**Resolution**
- 1920 x 1080; 1280 x 720; 704 x 480; 768 x 432; 512 x 288; 704 x 576; 640 x 480; 1536 x 864; 720 x 480; 720 x 576

**Frame rate (fps)**
- 1 fps – 60 fps

**Streaming**
- 3 fully configurable streams with the option to activate or deactivate VCA overlays on each stream

**Video compression**
- H.264 (ISO/IEC 14496-10); MJPEG; H.265/HEVC

**GOP structure**
- IP

### Night vision

**Wavelength (nm)**
- 850 nm and 940 nm

**IR horizontal beam angle (° FWHM)**
- Wide Beam: 53° FWHM
- Medium Beam: 25° FWHM
- Narrow Beam: 13° FWHM
- Bank: 50% FWHM

**IR intensity**
- Manually adjustable; Automatic

### Network

**Cloud services**
- Stratocast Genetec; Remote Portal

**Ethernet type**
- Auto-sensing; 100BASE-TX; 1000BASE-T; Full duplex

**Integration tools**
- Video SDK; RCP+ SDK

**Overall IP delay**
- 30 fps: 281 ms (typical); 60 fps: 159 ms (typical)

### Support for optional Fiber SFP modules

**Note:** Refer to the camera installation manual for details.

**Description**
- Third-party SFP fiber modules are supported when used with the optional mounts NDA-7100-PENF | NDA-7100-PIPEF.

**Data rate**
- Must use 1 Gbps SFP modules.

**Compatibility**
- The SFP modules used on the end-to-end system (AUTODOME camera/media converter) must be compatible, if not the same exact brand and part number.
- The fiber used must be compatible with the SFP modules in mode (single-mode or multi-mode) and wavelengths.

### Operation

**Conformity**
- ONVIF Profile S; ONVIF Profile G; ONVIF Profile T; ONVIF Profile M

**Protocols / standards**
- IPv4; IPv6; UDP; TCP; HTTP; HTTPS; RTP/RTCP; IGMP V2/V3; ICMP; ICMPv6; RTSP; FTP; ARP; DHCP; NTP (SNTP); SNMP (V3, MIBII); DNS; DNSv6; DDNS (DynDNS.org, selfHOST.de, no-ip.com); SMTP; iSCSI; UPnP (SSDP); DiffServ (QoS); SOAP; CHAP; Digest authentication; IGMP; HSTS; RTSPS; MQTT

### Data security

**Encryption**
- TLS 1.2; AES 256; AES 128; TLS 1.3

**Local storage encryption**
- XTS-AES

**Security**
- HTTPS

**Video authentication**
- Off; Watermark; MD5; SHA-1; SHA-256

### User Connections

**Alarm inputs**
- 2

**Alarm relay output**
- One (1) dry contact relay, 27 VAC, 1 A, AC, rms | 30 VDC, 2 ADC; Three output lines (selectable N.O./N.C./Common)

### Audio

**Audio input**
- Line-in

**Audio output**
- Line-out

**Audio streaming**
- Full duplex

**Compression and sampling rate**
- G.711 8 kHz; L16 16 kHz; AAC-LC 80kbps 16 kHz; AAC; AAC-LC 48kbps 16 kHz

### Storage

**Internal storage**
- Memory card SD

**Memory card slot**
- SDHC; SDXC

**Recording mode**
- Manual; Scheduled; Pre-alarm; Alarm

**Note:** For this camera, Bosch does not recommend the use of microSD cards or of microSD to SD adapters.
### Video - NDP-7602-Z40L PTZ 2MP HDR 40x IP66 pendant IR

#### Mechanical

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pan range (°)</td>
<td>0° – 360° continuous</td>
</tr>
<tr>
<td>Tilt range (°)</td>
<td>-90° – 20°</td>
</tr>
<tr>
<td>Pan speed (°/s)</td>
<td>.01°/s – 400°/s</td>
</tr>
<tr>
<td>Tilt speed (°/s)</td>
<td>.01°/s – 300°/s</td>
</tr>
<tr>
<td>Intelligent tracking speed (°/s)</td>
<td>.1°/s – 400°/s</td>
</tr>
<tr>
<td>Pre-position accuracy (average) (°)</td>
<td>±.10° typ.</td>
</tr>
</tbody>
</table>

#### Electrical

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input voltage (VAC)</td>
<td>24 VAC 50/60 Hz (IEC 62368-1 Limited Power Source)</td>
</tr>
<tr>
<td>Input voltage (VDC)</td>
<td>36 VDC (IEC 62368-1 Limited Power Source)</td>
</tr>
<tr>
<td>PoE nominal voltage (VDC)</td>
<td>54 VDC</td>
</tr>
<tr>
<td>PoE input</td>
<td>IEEE 802.3bt Type 4, Class B, 90W</td>
</tr>
<tr>
<td>Power consumption (W)</td>
<td>53.0W at 24VAC, 50/60Hz and 3.5A at 24VAC, 50/60Hz 64.8W at POE 54VDC 66.6W at 36VDC</td>
</tr>
</tbody>
</table>

Note: Power Supplies in the following product families are not designed to provide power to this camera:
- VG4-A-PSU (including VG4-A-PSU0, VG4-A-PSU1, VG4-A-PSU2)
- VG4-A-PA (including VG4-A-PA0, VG4-A-PA1, VG4-A-PA2)
- NDA-U-PA (including NDA-U-PA0, NDA-U-PA1, NDA-U-PA2)
- NDA-U-PSU (including NDA-U-PSU0, NDA-U-PSU1, NDA-U-PSU2)
- NDA-7100-PA (including NDA-7100-PA0, NDA-7100-PA1, NDA-7100-PA2, NDA-7100-PA0F, NDA-7100-PA1F, NDA-7100-PA2F)

#### Environmental

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>IP rating</td>
<td>IP66</td>
</tr>
<tr>
<td>Degree of protection</td>
<td>UL type 4X</td>
</tr>
<tr>
<td>Operating temperature (°C)</td>
<td>-40 °C – 50 °C</td>
</tr>
<tr>
<td>Operating temperature (°F)</td>
<td>-40 °F – 122 °F</td>
</tr>
<tr>
<td>Storage temperature (°C)</td>
<td>-40 °C – 70 °C</td>
</tr>
<tr>
<td>Storage temperature (°F)</td>
<td>-40 °F – 158 °F</td>
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<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating relative humidity, condensing (%)</td>
<td>% – 95%</td>
</tr>
<tr>
<td>Operating relative humidity, non-condensing (%)</td>
<td>% – 95%</td>
</tr>
<tr>
<td>Storage relative humidity (%)</td>
<td>% – 95%</td>
</tr>
<tr>
<td>Cold start temperature (°C)</td>
<td>-35 °C</td>
</tr>
<tr>
<td>Cold start temperature (°F)</td>
<td>-31 °F</td>
</tr>
<tr>
<td>Wind load</td>
<td>Camera will hold its position in gusts up to 170 mph (274 kph).</td>
</tr>
<tr>
<td>Effective projected area (EPA) (camera with pendant arm)</td>
<td>0.17 m² (0.57 ft²)</td>
</tr>
<tr>
<td>Effective projected area (EPA) (camera with pipe mount)</td>
<td>0.31 m² (1.01 ft²)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vibration</td>
<td>IEC 60068-2-6; NEMA TS2 Section 2.2.8</td>
</tr>
<tr>
<td>Shock</td>
<td>IEC 60068-2-27; NEMA TS2 Section 2.2.9</td>
</tr>
<tr>
<td>Power service</td>
<td>NEMA TS2 Section 2.2.7.2</td>
</tr>
<tr>
<td>Power interruption</td>
<td>NEMA TS2 Section 2.2.10</td>
</tr>
<tr>
<td>Salt mist spray (corrosion test)</td>
<td>EN 50130-5: IEC 60068-2-42, Sulfur Dioxide, 21 days; IEC 60068-2-52, Salt Mist, Test Method 1, 4 cycles</td>
</tr>
<tr>
<td>External mechanical impact</td>
<td>IEC 62262: IK10</td>
</tr>
<tr>
<td>Sustainability</td>
<td>PVC Free</td>
</tr>
</tbody>
</table>

Note: To protect the hardware, the illuminators, by design, will not operate if the operating temperature exceeds +55 °C (+131 °F).

#### Construction

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions (Ø x H) (mm)</td>
<td>210.65 mm x 324 mm</td>
</tr>
<tr>
<td>Dimensions (Ø x H) (in)</td>
<td>8.3 in x 12.8 in</td>
</tr>
<tr>
<td>Weight (kg)</td>
<td>5.62 kg</td>
</tr>
<tr>
<td>Weight (lb)</td>
<td>12.4 lb</td>
</tr>
<tr>
<td>Material</td>
<td>Anodized cast Aluminum</td>
</tr>
<tr>
<td>Bubble material</td>
<td>Clear polycarbonate</td>
</tr>
<tr>
<td>Color in RAL</td>
<td>RAL 9003 Signal white</td>
</tr>
<tr>
<td>Coating type</td>
<td>Powder coat</td>
</tr>
</tbody>
</table>
### Ordering information

<table>
<thead>
<tr>
<th>Material finish</th>
<th>Smooth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bubble size (mm)</td>
<td>209.6 mm</td>
</tr>
<tr>
<td>Bubble size (in.)</td>
<td>8.25 in.</td>
</tr>
</tbody>
</table>

**Video** - NDP-7602-Z40L PTZ 2MP HDR 40x IP66 pendant IR

PTZ dome camera, 2MP, 40x Optical zoom, integrated IR, starlight imaging, IP66, IK10, IVA Pro Buildings, IVA Pro Perimeter
NDAA compliant
Order number NDP-7602-Z40L | F.01U.389.324

**Accessories**

- **NDP-9001-E** Midspan bt 90W IP67
  - Outdoor midspan with Power-over-Ethernet for use with PoE-enabled cameras; 90 W, single-port
  - Order number NDP-9001-E | F.01U.398.268

- **NDP-9001-EBT** Midspan bt 90W IP67 TAA
  - Outdoor midspan with Power-over-Ethernet for use with PoE-enabled cameras; 90 W, single-port
  - TAA compliant
  - Order number NDP-9001-EBT | F.01U.404.541

- **NDA-6090-PMA** Pole mount for midspan bt outdoor
  - Pole mount for outdoor PoE midspans NDP-6001C-E / NDP-6001C-EBT and NDP-9001-E / NDP-9001-EBT
  - Order number NDA-6090-PMA | F.01U.402.626

- **NDA-7100-PEN** Pendant arm for AUTODOME 7100i
  - Pendant arm mount for AUTODOME 7100i and AUTODOME 7100i IR cameras
  - Order number NDA-7100-PEN | F.01U.389.329

- **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 | F.01U.395.439

- **NDA-7100-PIPE** Pipe mount for AUTODOME 7100i
  - Pipe mount for AUTODOME 7100i and AUTODOME 7100i IR cameras
  - Order number NDA-7100-PIPE | F.01U.389.330

- **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 | F.01U.395.440

- **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 | F.01U.400.682

**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 | F.01U.409.538

- 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 | F.01U.412.107

**Services**

- **EWE-AD71IP-IWM** 12 mths wrty ext AD 7100i moving parts
  - 12 months warranty extension
  - Order number EWE-AD71IP-IWM | F.01U.402.736

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