

## NDP-5522-Z30L PTZ 2MP 30x IP66 pendant IR

### AUTODOME IP starlight 5000i IR



- ▶ Starlight camera technology with excellent low-light performance
- ▶ High-performance HD outdoor PTZ dome camera with integrated IR illumination for scenes with low or no ambient lighting
- ▶ Variable illumination ensures that IR light is uniformly distributed in the field to minimize dark spots or over-illuminated scenes
- ▶ Long distance illumination up to 180 m (590 ft)

Keep your security in focus with the many features of the AUTODOME IP starlight 5000i IR camera. The camera is carefully tuned to deliver detailed, 1080p60 HD images during the day as well as full details in low-light or no-light conditions. The integrated, intelligent IR illuminator automatically adjusts the IR intensity according to zoom factor and field of view to ensure that the scene is illuminated uniformly.

#### Functions

##### See in the dark

The camera's smart, variable IR illumination technology from Bosch produces outstanding video on a per-zone basis in low-light scenes. This configuration ensures that each scene receives the appropriate illumination intensity and avoids focus instability from mixed lighting conditions.

##### Low-light performance

The latest sensor technology, combined with sophisticated noise suppression and a High dynamic range of 120 dB, results in an exceptional sensitivity in color. The camera continues to provide excellent color performance even with a minimum of ambient light.

##### Pre-programmed user modes

The camera has several pre-configured scene modes with the best settings for various applications. With one click, users can optimize image settings to match the camera's lighting conditions. Users can also configure individual image settings.

- Standard: For indoor fluorescent lighting.

- Sodium-lighting: For scenarios where the video is captured under sunlight in the day or under sodium vapor lamp at night.
- Vibrant: For enhanced contrast, sharpness, and saturation
- Number Plate scene mode: For the best image to be used by ANPR software.

##### 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.

##### Intelligent streaming

Smart encoding capabilities, together with Intelligent Dynamic Noise Reduction technology and analytics, make the bandwidth consumption drop to extremely low levels. Only relevant information in the scene, such as motion or objects found with the analytics, are encoded.

##### 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.

A memory card with a maximum of 32 GB (microSDHC) / 2 TB (microSDXC) 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.

### Essential Video Analytics on the edge

The camera includes the latest release of Essential Video Analytics application from Bosch for use on Pre-positions.

The Essential Video Analytics application provides reliable video analytics for small and medium business, large retail stores, commercial buildings, and warehouses.

Advanced tasks like multiple line crossing, loitering, idle / removed object detection, crowd density estimation, occupancy and people counting are available for live alarming and forensic search.

Object filters based on size, speed, direction, aspect ratio, and color can be defined.

A simplified calibration mode reduces installation time significantly, because you only need to enter the installation height once for each camera, independent of pre-positions.

After the camera is calibrated, the analytics engine can automatically classify objects as upright person, car, bike, or truck.

### 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.

### Superior privacy masking

The camera allows for a total of 32 individual privacy masks, with up to eight masks displayed in the same scene. Each mask can be programmed with eight corners. Each mask changes size and shape smoothly and quickly, ensuring that the covered object cannot be seen.

With the AUTO Privacy Mask, the color of the Privacy Mask will adapt to the color of the surroundings.

### 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 definition	Distance	
		WIDE 1X	TELE 30X
<b>Detect</b>	25 px/m (8 px/ft)	65 m (213 ft)	1833 m (6014 ft)
<b>Observe</b>	63 px/m (19 px/ft)	26 m (85 ft)	727 m (2385 ft)
<b>Recognize</b>	125 px/m (38 px/ft)	13 m (43 ft)	367 m (1204 ft)
<b>Identify</b>	250 px/m (76 px/ft)	7 m (23 ft)	183 m (600 ft)

### 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. You must set a service-level password in order to access camera functions.

Web browser and viewing client access can be protected using HTTPS or other secure protocols that support state-of-the-art TLS 1.2 protocol 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 protocol. 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

### Software sealing

After camera configuration is set and should not be changed, system administrators can enable software protection that seals the camera configuration. Any change of the sealing status and any change to static configuration, accidentally or intentional, will break the seal. The camera then sends an alarm message that the video management system can use to start an appropriate alarm scenario. The camera creates a separate log file of all changes that have an effect on the sealing status.

### System integration and ONVIF conformance

The camera conforms to the ONVIF Profile S, ONVIF Profile G and ONVIF Profile T specifications. 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](http://ipp.boschsecurity.com)) for more information.

### PTZ drive and mechanism

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.

Pan and tilt preset repeatability are accurate to within  $\pm 0.1$  degrees to ensure that the correct scene is captured every time. The camera delivers maximum pan speed of 240 degrees per second and maximum tilt speed of 160° degrees per second. The camera is capable of manual speeds (pan and tilt) of 0.1 to 120 degrees per second. The camera provides a pan range of up to 360 degrees continuous rotation.

### Snap to zoom

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

### Ease of installation and servicing

The camera has been designed for quick and easy installation, a key feature of IP video security products from Bosch.

Bosch designed the camera with the knowledge that field cables and mounts are installed before the camera is mounted. The installation concept allows a single person to connect the cables directly to the camera without re-routing cables. The camera is easily secured to the mount with a single screw. The camera is rated to provide IP66 protection and offer an operating temperature range down to -40 °C (-40 °F). The housing comes fully assembled with a sunshield and ready for wall or pipe applications with the proper mounting hardware (sold separately).

### Regulatory information

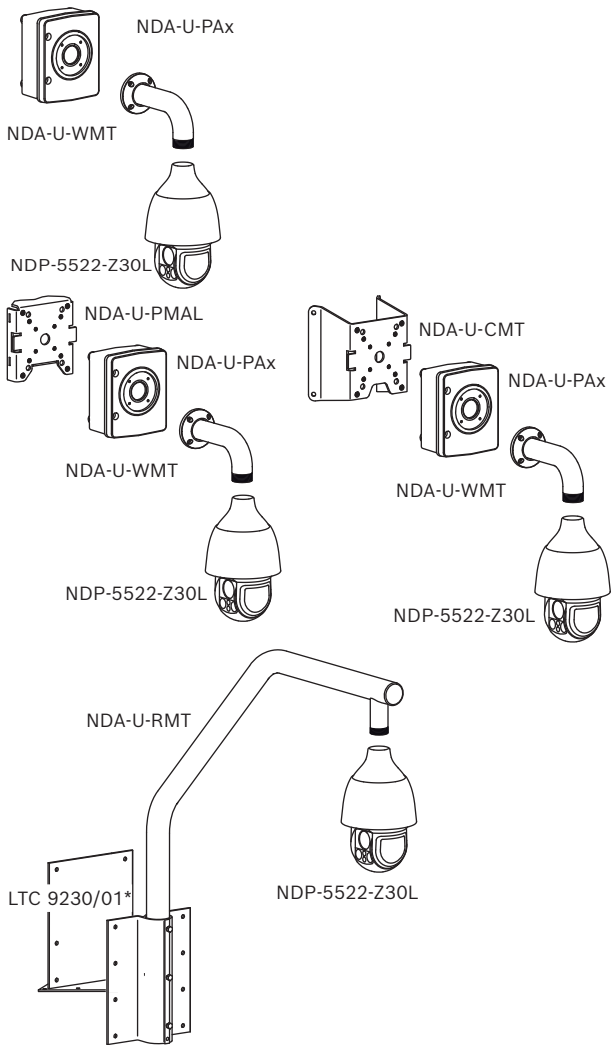
For a full list of all related certifications/standards, refer to the Product Test Reports, available on the online catalog, on the Documents tab of the product

page for your device. If the document is unavailable on the product page, contact your sales representative.

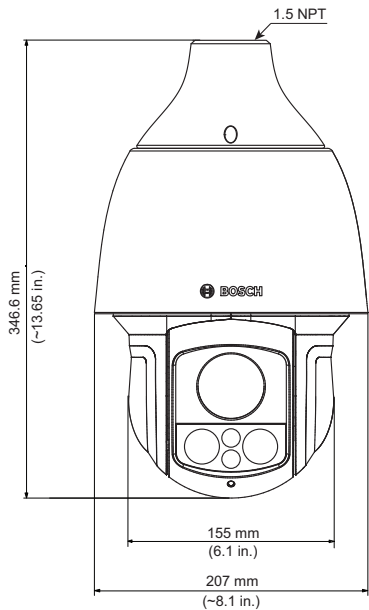
Standard	Type
cULus	UL 62368-1, 3rd Ed. (Includes CSA 22.2 No. 62368-1:19, 3rd Ed.)
FCC/ICES	47 CFR FCC Part 15 (USA) (Class A) ICES-003 (Canada) (Class A)
CE (Europe)	<p><b>Electromagnetic Compatibility (EMC) Directive</b></p> <p>EN 55032:2015 + A11: 2020 + A1: 2020 (Class A)</p> <p>EN 50130-4:2011/A1:2014</p> <p>EN 61000-3-2:2019 + A1: 2021</p> <p>EN 61000-3-3:2013 + A1: 2019 + A2: 2021 + AC: 2022</p> <p><b>Product Safety: Low Voltage Directive</b> (IECEE CB scheme certificate and report are required)</p> <p>EN 62368-1:2020+A11:2020 (with national differences)</p> <p>IEC 62368-1: 2018 (ed 3)</p> <p>IEC 62471:2006</p>
Image performance	IEC 62676-5
Color representation	ITU-R BT.709-6
ONVIF conformance	EN 50132-5-2, EN 62676-2
HD	SMPTE 296M-2001 (Resolution: 1280x720) SMPTE 274M-2008 (Resolution: 1920x1080)
Other labels / markings	BIS; RCM; China RoHS; WEEE
Compliance	NDA compliant TAA compliant

Region	Regulatory compliance/quality marks	
Europe	CE	Declaration of Conformity (DoC) - AUTODOME IP starlight 5000i,-IR
	CE	AUTODOME IP starlight 5000i/-IR   5100i IR
Global	IEC 62443	Industrial Cyber Security Capability
USA	UL CAP	Cybersecurity Assurance Program
Great Britain	UKCA	F01U345122-UK_DoC_AUTODOME IP starlight 5000i

**Installation/configuration notes**



For more options, see [Quick Selection Guide: Camera accessories](#).



Dimensions in mm (inch)

**Parts included**

Quantity	Component
1	AUTODOME IP starlight 5000i IR camera
1	Screwdriver, T15 Torx
4	MAC address labels
1	Pendant interface plate
1	M4 screw
1	Quick Installation Guide
1	Safety instructions

**Technical specifications**

**Sensor**

Sensor type	1/2.8 inch CMOS
Total sensor pixels	2.13 MP approx.
Effective pixels (H x V)	1,945 x 1,097

**Sensitivity**

Low light technology	starlight
Measuring method	IEC 62676 Part (1/30, F1.6)
Color (lx)	0.0186 lx
Monochrome (lx)	0.0040 lx

**Optical**

Lens zoom (x)	30x
Lens focal length (mm)	4.5 mm – 135 mm
Lens aperture (/F)	1.6 /F – 4.4 /F
Horizontal field of view (°)	2.4° – 60.9°
Digital zoom (x)	16x

**Night vision**

Wavelength (nm)	850 nm
IR intensity	Automatic; Intelligent intensity
Maximum detection distance IR (m)	180 m
Maximum detection distance IR (ft)	590 ft

Number of IR LEDs	4
<b>PTZ functions</b>	
Pan range (°)	0° – 360° continuous
Pan speed (°/s)	0.1°/s – 240°/s
Tilt range (°)	-90° – 3°
Tilt speed (°/s)	0.1°/s – 120°/s
Pre-position accuracy (average) (°)	0.10°
Number of pre-positions	256
<b>Platform</b>	
Common Product Platform	CPP7.3
Memory (RAM) (MB)	512 MB RAM, 256 MB Flash
<b>Video streaming</b>	
Camera processing latency	<200ms
Frame rate (fps)	60 fps
Resolution	1920 x 1080; 1280 x 1024; 1280 x 720; 768 x 432; 512 x 288; 704 x 576; 640 x 480
Streaming	Multiple configurable streams in H.265; H.264 and M-JPEG
Type of stream	High resolution H.26x stream; M-JPEG stream; I-frame only from stream 1
Video signal-to-noise ratio (dB)	>55 dB
<b>Video functions</b>	
Distance detection (1x zoom) (m)	65 m
Distance detection at 25 p/m(max zoom) (m)	1,833 m
Distance of recognition (1x zoom) (m)	13 m
Distance of recognition (max zoom) (m)	367 m
Distance of identification (1x zoom) (m)	7 m
Distance of identification (max zoom) (m)	183 m

Gain control	AGC
Backlight compensation	On/Off; Intelligent Auto Exposure (IAE)
Camera functionality	Backlight compensation (BLC); Display stamping
Day/night modes	Auto; Color; Monochrome
White balance modes	Basic; Standard; Dominant color; Sodium lamp auto
Number of sectors	16
Number of privacy masks	32
Privacy masks pattern	Black; White; Gray; Auto color

**Video content analysis**

Analysis type	Essential Video Analytics
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; Tampering
Calibration	Automatic self-calibrating when height is set
Configurations	Silent VCA; Profiles 1 - 16
Object filters	Duration; Size; Aspect ratio; Speed; Direction; Color; Object classes (4)

**Storage**

Internal storage	Memory card micro SD
Memory card slot	Micro SDHC; Micro SDXC

**Inputs and outputs**

Alarm inputs	2
Alarm outputs	1 relay output 5 VDC, 150 mA maximum

**Audio**

Compression and sampling rate	G.711 8 kHz; L16 16 kHz; AAC; 16kHz
Audio input	Line-in

Audio output	Line-out
<b>Network</b>	
Ethernet type	10/100BASE-T
Conformity	ONVIF Profile S; ONVIF Profile G; ONVIF Profile T
Protocols / standards	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, MIBII); SNMP (V3, MIBII); 802.1x, EAP/TLS; DNS; DNSv6; DDNS (DynDNS.org, selfHOST.de, no-ip.com); SMTP; iSCSI; DiffServ (QoS); LLDP; SOAP; CHAP; Digest authentication
<b>Data security</b>	
Crypto coprocessor (TPM)	AES/CBC 256 bit
PKI	X.509 certificates
End-to-end encryption	Full end-to-end with supported VMS
Encryption	TLS 1.2; TLS 1.1; AES 256; AES 128; TLS 1.3
Local storage encryption	XTS-AES
Video authentication	MD5; SHA-1; SHA-256; Checksum
Firmware protection	Signed firmware; Secure reboot
<b>Electrical</b>	
Type of power supply	VAC; PoE
Input voltage (VAC)	24 VAC
PoE input	PoE+ IEEE 802.3at Type 2, Class 4
Power consumption VAC (W) (typical - maximum)	20 W - 25 W
<b>Environmental</b>	
IP rating	IP66
Impact protection	IK10
Operating temperature (°C)	-40 °C - 60 °C
Operating temperature (°F)	-40 °F - 140 °F
Operating relative humidity, condensing (%)	5% - 100%
Operating relative humidity, non-condensing (%)	5% - 93%

Storage temperature (°C)	-40 °C - 60 °C
Storage temperature (°F)	-40 °F - 140 °F
Country of origin	Portugal
<b>Construction</b>	
Dimensions (Ø x H) (mm)	207 mm x 346.6 mm
Dimensions (Ø x H) (in)	8.15 in x 13.65 in
Weight (kg)	4.60 kg
Weight (lb)	10.14 lb
Material	Aluminum
Color (RAL)	RAL 9003 Signal white

### Ordering information

#### NDP-5522-Z30L PTZ 2MP 30x IP66 pendant IR

IP PTZ dome camera; integrated IR illumination up to 180 m (590 ft); 1080p60; 30x optical; 4x4 digital zoom; 120 dB HDR; starlight imaging; IAE; EVA; PoE; Intelligent Streaming; Dual power options. NDAA and TAA compliant.

Order number **NDP-5522-Z30L**

### Accessories

#### NPD-6001B Midspan, 60W, single port, AC in

60 W indoor midspan for cameras without illuminators

Order number **NPD-6001B**

#### 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**

#### UPA-2450-50 PSU, 220VAC 50Hz, 24VAC 50VA out

Indoor power supply for camera. 220 VAC, 50 Hz in; 24 VAC, 50 VA out

Order number **UPA-2450-50**

#### UPA-2450-60 PSU, 120VAC 60Hz, 24VAC 50VA out

Indoor power supply for camera. 120 VAC, 60 Hz in; 24 VAC, 50 VA Out

Order number **UPA-2450-60**

#### NDA-U-PA0 Surveillance cabinet 24VAC

Surveillance cabinet, 24 VAC input, 24 VAC output

Order number **NDA-U-PA0**

#### NDA-U-PA1 Surveillance cabinet 120VAC

Surveillance cabinet, 100 - 120 VAC 50/60 Hz input, 24 VAC output

Order number **NDA-U-PA1**

**NDA-U-PA2 Surveillance cabinet 230VAC**

Surveillance cabinet, 230 VAC input, 24 VAC output  
Order number **NDA-U-PA2**

**NDA-U-WMT Pendant wall mount**

Universal wall mount for dome cameras, white  
Order number **NDA-U-WMT**

**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-CMT Corner mount adapter**

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

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

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

**NDA-U-PMTE Pendant pipe extension, 20" (50cm)**

Extension for universal pipe mount, 50 cm, white  
Order number **NDA-U-PMTE**

**NDA-U-PSMB Pendant wall/ceiling mount SMB**

Surface mount box (SMB) for wall mount or pipe mount.  
Order number **NDA-U-PSMB**

**NDA-U-PMAS Pole mount adapter small**

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

**NDA-U-PMAL Pole mount adapter large**

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

**NDA-U-RMT Pendant parapet mount**

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

**VG4-SFPSCKT Ethernet to SFP interface kit**

Ethernet media converter video transmitter/data receiver fiber optic kit  
Order number **VG4-SFPSCKT**

**SFP-2 Fiber module, multimode, 1310nm, 2LC**

SFP Fiber Optic Module, 2 km (1.2 miles), 2 LC connectors.  
Multi-mode  
1310 nm  
Order number **SFP-2**

**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**

**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**

**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**

**Software Options****MVS-FCOM-PRCL License key for serial protocol**

Serial Protocol Software License (e-license) for IP Cameras  
Order number **MVS-FCOM-PRCL**

**Services****EWE-AD5HD-IWMP 12 mths wrty ext AD IP 5000 mov par**

12 months warranty extension  
Order number **EWE-AD5HD-IWMP**



<https://www.boschsecurity.com>