

NDP-5522-Z30C PTZ 2MP HDR 30X CLEAR IP66 IN-CEILING

AUTODOME IP starlight 5000i



- ▶ Starlight camera technology with excellent low-light performance
- ▶ 120dB dynamic range lets you capture details in overexposed situations with confidence
- ▶ Intelligent streaming, IDNR and H.265 reduce bit rate by up to 80%
- ▶ Built-in Essential Video Analytics to trigger relevant alerts and quickly retrieve data
- ▶ High resolution bubble to ensure maximum effective resolution output
- ▶ Simple installation with flexible mounting options (in-ceiling or pendant mounting)

Specially designed and tuned for applications requiring surveillance in scenes with varying light levels, the AUTODOME IP starlight 5000i camera has an integrated 30X optical zoom to identify people at a maximum distance of 183 m (600 ft) with minimal loss of detail.

Functions

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

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
Detect	25 px/m (8 px/ft)	65 m (213 ft)	1833 m (6014 ft)
Observe	63 px/m (19 px/ft)	26 m (85 ft)	727 m (2385 ft)

	DORI definition	Distance	
		WIDE 1X	TELE 30X
Recognize	125 px/m (38 px/ft)	13 m (43 ft)	367 m (1204 ft)
Identify	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) 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 ± 0.1 degrees to ensure that the correct scene is captured every time. The camera delivers maximum pan speed of 300 degrees per second and maximum tilt speed of 200° 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 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 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 pendant housings are rated to provide IP66 protection and offer an operating temperature range down to -40 °C (-40 °F). The pendant camera comes fully assembled with a sunshield and ready for wall or pipe applications with the proper mounting hardware (sold separately).

Bosch offers a full complement of hardware and accessories (sold separately) for wall, corner, mast, roof, pipe mount, and in-ceiling applications for indoor and outdoor environments, which allow the camera to be adapted easily to individual site requirements.

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>Electromagnetic Compatibility (EMC) Directive</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>Product Safety: Low Voltage Directive (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>
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) - AUTO-DOME IP starlight 5000i,-IR
Global	IEC 62443	Industrial Cyber Security Capability
USA	UL CAP	Cybersecurity Assurance Program
Great Britain	UKCA	F01U345122-UK_DoC_AUTODOME IP starlight 5000i

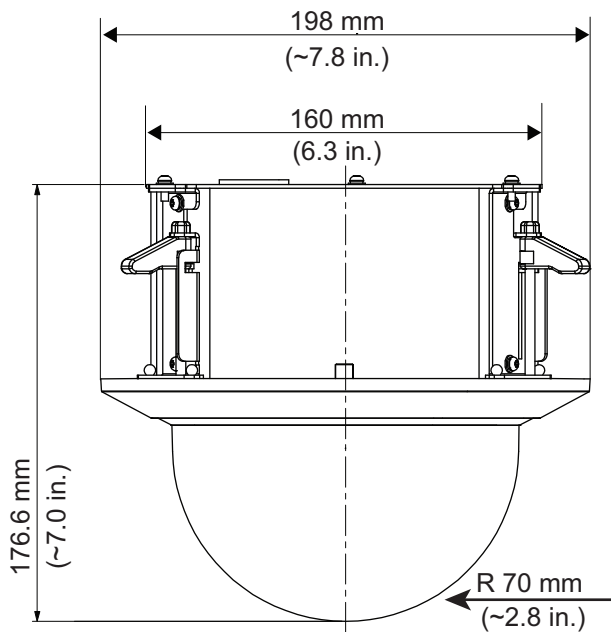
Installation/configuration notes

Fig. 1: In-ceiling model
Dimensions in mm (inch)

Parts included

Quantity	Component
1	AUTODOME IP starlight 5000i in-ceiling camera
1	Mounting template
1	Screwdriver, T10 Torx
4	MAC address labels
1	Quick Installation Guide
1	Safety instructions

Technical specifications**Sensor**

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

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

Sensitivity

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

Platform

Common Product Platform	CPP7.3
Memory (MB)	512 MB RAM, 256 MB Flash

Video functions

Backlight compensation	On/Off; Intelligent Auto Exposure (IAE)
Camera functionality	Backlight compensation (BLC); Display stamping
Day/night modes	Auto; Color; Monochrome
Gain control	AGC
WDR technology	HDR
High Dynamic Range (HDR) (dB)	120 dB
Measured according to IEC 62676 Part 5 (dB)	107 dB
Number of privacy masks	32
Number of sectors	16
Privacy masks pattern	Black; White; Gray; Auto color
Shutter modes	Automatic Electronic Shutter (AES)
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
White balance modes	Basic; Standard; Dominant color; Sodium lamp auto

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

Video streaming

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
Type of stream	High resolution H.26x stream; M-JPEG stream; I-frame only from stream 1
Video compression	H.264 (ISO/IEC 14496-10); M-JPEG; H.265/HEVC

Network

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

Data security

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

Storage

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

Audio

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

PTZ functions

Pan speed (°/s)	0.1°/s – 300°/s
Pan range (°)	0° – 360° continuous
Tilt range (°)	-90° – 0°
Number of pre-positions	256
Maximum pre-position pan speed (°/s)	300°/s
Maximum pre-position tilt speed (°/s)	200°/s
Pre-position accuracy (average) (°)	0.10°

Electrical

Type of power supply	VAC; PoE
Input voltage (VAC)	24 VAC
PoE input	PoE+
Power consumption VAC (W) (typical – maximum)	14 W – 24 W

Environmental

IP rating	IP51
Operating temperature (°F)	14 °F – 140 °F
Operating temperature (°C)	-10 °C – 60 °C

Operating relative humidity, non-condensing (%)	0% – 90%
Storage temperature (°C)	-40 °C – 60 °C
Storage temperature (°F)	-40 °F – 140 °F
Country of origin	Portugal

Construction

Dimensions (Ø x H) (mm)	198 mm x 176.6 mm
Dimensions (Ø x H) (in)	7.8 in x 7 in
Weight (kg)	2.10 kg
Weight (lb)	4.60 lb
Material	Housing: SPCC; Trim ring: Polycarbonate/ABS
Color (RAL)	RAL 9003 Signal white
Bubble material	Clear polycarbonate

Ordering information

NDP-5522-Z30C PTZ 2MP HDR 30X CLEAR IP66 IN-CEILING

In-ceiling IP PTZ dome camera; 1080p60; 30X optical, 4x4 digital zoom; 120dB HDR; starlight imaging; IAE; EVA; PoE; Intelligent Streaming; clear, high-resolution, coated bubble. Dual power options.

NDAA and TAA compliant.

Order number **NDP-5522-Z30C**

Accessories

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**

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

60 W indoor midspan for cameras without illuminators

Order number **NPD-6001B**

NDA-U-PA0 Surveillance cabinet 24VAC

Surveillance cabinet, 24 VAC input, 24 VAC output, IP66

Order number **NDA-U-PA0**

NDA-U-PA1 Surveillance cabinet 120VAC

Surveillance cabinet, 100 - 120 VAC 50/60 Hz input, 24 VAC output, IP66

Order number **NDA-U-PA1**

NDA-U-PA2 Surveillance cabinet 230VAC

Surveillance cabinet, 230 VAC input, 24 VAC output, IP66

Order number **NDA-U-PA2**

NDA-U-PSMB Pendant wall/ceiling mount SMB

Surface mount box (SMB) for wall mount or pipe mount.

Order number **NDA-U-PSMB**

VGA-IC-SP Suspended ceiling support kit,7"

Suspended ceiling support kit for dome cameras.

Aperture Ø177 mm (Ø7 in). Maximum supported weight 11.3 kg (25 lb).

Order number **VGA-IC-SP**

MNT-ICP-ADC Drop ceiling support kit for AUTODOME

Suspension ceiling support kit for AUTODOME IP 4000/5000/7000 AND VG5-100/600 series in-ceiling cameras

Order number **MNT-ICP-ADC**

VG4-SFPCKT Ethernet to SFP interface kit

Ethernet media converter video transmitter/data receiver fiber optic kit for AUTODOME 7000i cameras and for the Surveillance cabinets (NDA-U-PA0, NDA-U-PA1 and NDA-U-PA2).

Order number **VG4-SFPCKT**

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>