DINION IP starlight 7000 HD

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BOSCH
Invented for life

- Excellent low-light performance
- Built-in Intelligent Video Analytics to trigger relevant alerts and quickly retrieve data
- Intelligent Dynamic Noise Reduction reduces bandwidth and storage requirements by up to 50%
- Extended Dynamic Range mode to see details in bright and dark areas simultaneously
- Auto back focus for fast installation

This camera provides clear images 24/7 – even at night or under low-light conditions.
The exceptional starlight sensitivity enables this camera to work with a minimum of ambient light. The extended dynamic mode provides detailed images in scenes with challenging lighting.
The camera is available in 1080p or 720p resolution versions and provides up to 60 images per second.
There is a selection of high quality lenses separately available.

Functions

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.

Fast performance
The 60 images-per-second mode provides for optimum performance in fast action scenes and is particularly suitable for casino and banking applications.

High Dynamic Range
The camera has High Dynamic Range. This is based on a multiple-exposure process that captures more details in the highlights and in the shadows even in the same scene. The result is that you can easily distinguish objects and features, for example, faces with bright backlight.
The actual dynamic range of the camera is measured using Opto-Electronic Conversion Function (OECF) analysis according to IEC 62676 Part 5. This method is used to provide a standard result which can be used to compare different cameras.

Content Based Imaging Technology
Content Based Imaging Technology (CBIT) is used to radically improve image quality in all lighting conditions and to identify areas for enhanced processing. The camera examines the scene using Intelligent Video Analytics and provides feedback to re-tune the image processing. This provides better detail in the areas that matter and better all-round performance. With IVA, the Intelligent Auto Exposure technology, for example, allows you to view moving objects in bright and dark areas of a scene.

Intelligent Video Analytics
The built-in video analytics is both robust and intelligent. The Intelligence-at-the-Edge concept now delivers even more powerful features:

- Simple calibration
- False alarm reduction
- Extended range identification
- Crowd and queue management
- Density and flow counting

The mission critical video analytics reliably detects, tracks, and analyzes objects, and alerts you when predefined alarms are triggered. A smart set of alarm rules, together with object filters and tracking modes, makes complex tasks easy.
The system is also extremely robust and is able to reduce false alarms, for example from foliage or shaking objects, even in harsh weather conditions.
Metadata is attached to your video to add sense and structure. This enables you to quickly retrieve the relevant images from hours of stored video. Metadata can also be used to deliver irrefutable forensic evidence or to optimize business processes based on people counting or crowd density information.
Calibration is quick and easy – just enter the height of the camera. The internal gyro/accelerometer sensor provides the rest of the information to precisely calibrate the video analytics.

Intelligent Dynamic Noise Reduction reduces bandwidth and storage requirements
The camera uses Intelligent Dynamic Noise Reduction which actively analyzes the contents of a scene and reduces noise artifacts accordingly.
The low-noise image and the efficient H.264 compression technology provide clear images while reducing bandwidth and storage by up to 50% compared to other H.264 cameras. This results in reduced-bandwidth streams that still retain a high image quality and smooth motion. The camera provides the most usable image possible by cleverly optimizing the detail-to-bandwidth ratio.

Area-based encoding
Area-based encoding is another feature which reduces bandwidth. Compression parameters for up to eight user-definable regions can be set. This allows uninteresting regions to be highly compressed, leaving more bandwidth for important parts of the scene.

Bitrate optimized profile
The average typical optimized bandwidth in kbits/s for various image rates is shown in the table.

IPS	1080p	720p	480p
60	1900	1400	722
30	1600	1200	600
15	1274	955	478
12	1169	877	438
5	757	568	284
2	326	245	122

Multiple streams
The innovative multi-streaming feature delivers various H.264 streams together with an M-JPEG stream. These streams facilitate bandwidth-efficient viewing and recording as well as integration with third-party video management systems.
The camera can run multiple independent streams that allows to set a different resolution and frame rate on the first and second stream. The user can also choose to use a copy of the first stream.
The third stream uses the I-frames of the first stream for recording; the fourth stream shows a JPEG image at a maximum of 10 Mbit/s.

Regions of interest and E-PTZ
Regions of Interest (ROI) can be user defined. The remote E-PTZ (Electronic Pan, Tilt and Zoom) controls allow you to select specific areas of the parent image. These regions produce separate streams for remote viewing and recording. These streams, together with the main stream, allow the operator to separately monitor the most interesting part of a scene while still retaining situational awareness.
Intelligent Tracking can follow objects within the defined regions of interest. Intelligent Tracking can autonomously detect and track moving objects or the user can click on an object which the tracker will then follow.

Storage management
Recording management can be controlled by the Bosch Video Recording Manager
(Video Recording Manager) or the camera can use iSCSI targets directly without any recording software.

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.

Cloud-based services
The camera supports time-based or alarm-based JPEG posting to four different accounts. These accounts can address FTP servers or cloud-based storage facilities (for example, Dropbox). Video clips or JPEG images can also be exported to these accounts.
Alarms can be set up to trigger an e-mail or SMS notification so you are always aware of abnormal events.

Easy installation
Power for the camera can be supplied via a Power-over-Ethernet compliant network cable connection. With this configuration, only a single cable connection is required to view, power, and control the camera. Using PoE makes installation easier and more cost-effective, as cameras do not require a local power source.
The camera can also be supplied with power from +12 VDC power supplies.

To increase system reliability, the camera can be simultaneously connected to both PoE and +12 VDC supplies. If one power source fails, the other source takes over without a reboot so providing power redundancy.
The auto-focus lens wizard makes it easy for an installer to accurately focus the camera for both day and night operation. The wizard is activated from the web browser or from the on-board camera push button making it easy to choose the workflow that suits best. The automatic motorized back focus adjustment with 1:1 pixel mapping ensures the camera is always focused accurately.

Automatic image rotation
The integrated gyro/accelerometer sensor automatically corrects the image orientation in steps of 90° if the camera is mounted at right angles or upside down. The sensor image can also be rotated manually through steps of 90°.
To efficiently capture details in long hallways without loss of resolution, mount the camera at right angles. The image is displayed upright at full resolution on your monitor.

Scene modes
The camera has a very intuitive user interface that allows fast and easy configuration. Nine configurable modes are provided with the best settings for a variety of applications. Different scene modes can be selected for day or night situations.

Hybrid operation
A surge-protected analog video output allows full hybrid operation. This means that high resolution IP video streaming and an analog video output are available simultaneously. The hybrid functionality offers an easy migration path from legacy CCTV to a modern IP-based system.

True day/night switching
The camera is a true day/night camera with a mechanical filter for vivid daytime color and exceptional night-time imaging while maintaining sharp focus under all lighting conditions. The filter can be switched remotely, or automatically via a light level sensor or contact input.

Data security
Special measures have been put in place to ensure the highest level of security for device access and data transport. The three-level password protection with security recommendations allows users to customize device access. Web browser access can be protected using HTTPS and firmware updates can also be protected with authenticated secure uploads.
The on-board Trusted Platform Module (TPM) and Public Key Infrastructure (PKI) support, guarantee superior protection from malicious attacks. The 802.1x network authentication with EAP/TLS, supports TLS 1.2 with updated cipher suites including AES 256 encryption.

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

Complete viewing software
There are many ways to access the camera's features: using a web browser, with the Bosch Video Management System, with the free-of-charge Bosch Video Client or Video Security Client, with the video security mobile app, or via third-party software.

Video security app
The Bosch video security mobile app has been developed to enable Anywhere access to HD surveillance images allowing you to view live images from any location. The app is designed to give you complete control of all your cameras, from panning and tilting to zoom and focus functions. It's like taking your control room with you.
This app, together with the separately available Bosch transcoder, will allow you to fully utilize our dynamic transcoding features so you can play back images even over low-bandwidth connections.

System integration
The camera conforms to the ONVIF Profile S 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.

Certifications and approvals

Standards	Type
Emission	EN 55032:2012 /AC2013 class B EN 50121-4:2006 /AC:2008 FCC: 47CFR15, class B (2015-10-1)
Immunity	EN 50130-4:2011 /A12014 (PoE, +12VDC)* EN 50121-4:2006 /AC:2008
Environmental	EN 50130-5:2011 Class II
Safety	EN 62368-1:2014/AC:2015 EN 60950-1:2006 /A11:2009 /A1:2010 / A12:2011 /A2:2013 UL 62368-1, Ed. 2, Dec 1st, 2014 UL 60950-1, Ed. 2, October 14, 2014 CAN/CSA-C22.2 No. 62368-1 CAN/CSA-C22.2 No. 60950-1
HD	SMPTE 296M-2001 (Resolution: 1280x720) SMPTE 274M-2008 (Resolution: 1920x1080)
Color representation	ITU-R BT.709-6

Standards	Type
ONVIF conformance	EN 50132-5-2:2011/AC:2012 EN 62676-2-3:2014
Image quality	UL 2802

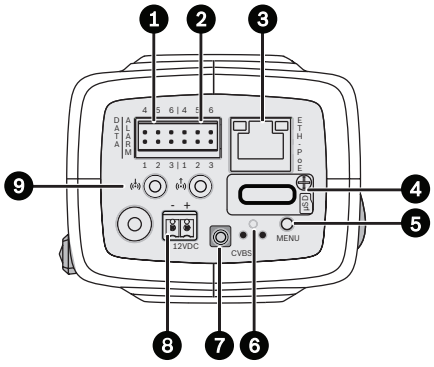
* Chapters 7 and 8 (mains voltage supply requirement) are not applicable to the camera. However, if the system in which this camera is used needs to comply with this standard, then any power supplies used must comply with this standard.

Marks	CE, cULus, WEEE, RCM, EAC and China RoHS

Region	Regulatory compliance/quality marks	
Europe	CE	
USA	UL	ST-VS 2016-E-045

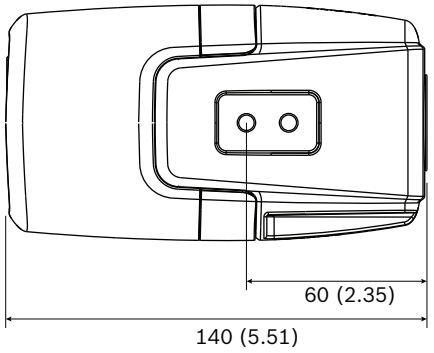
Installation/configuration notes

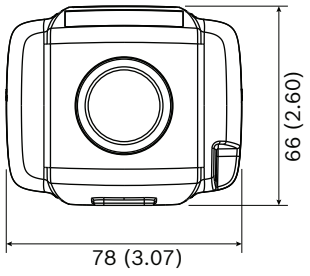
Controls



1	Data (RS485/422/232)	6	Reset button
2	Alarm in, alarm out	7	Video out (SMB connector)
3	10/100 Base-T Fast Ethernet	8	Power supply input
4	MicroSD card slot	9	Audio in / Audio out
5	Menu button		

Dimensions





mm (in)

Technical specifications

Power (12 VDC/PoE version)	
Input voltage	Power-over-Ethernet (48 VDC nominal) and/or +12 VDC ±10% (auxiliary)
PoE IEEE standard	802.3af (802.3at Type 1) Power level: Class 3
Power Consumption	7.2 W max.
Current draw (PoE)	200 mA max.
Current draw (12 VDC)	600 mA max.

Power (24 VAC/PoE version)	
Input voltage	Power-over-Ethernet (48 VDC nominal) and/or 24 VAC ±10% / +12 VDC ±10% (auxiliary)
PoE IEEE standard	802.3af (802.3at Type 1) Power level: Class 3
Power Consumption	7.2 W max.
Current draw (PoE)	200 mA max.
Current draw (24 VAC)	500 mA max.
Current draw (12 VDC)	600 mA max.

Sensor (1080p version)	
Sensor type	1/2.8-inch CMOS
Effective pixels	1920 (H) x 1080 (V); 2MP (approx.)

Sensor (720p version)	
Sensor type	1/2.8-inch CMOS
Effective pixels	1280 (H) x 720 (V)

Starlight sensitivity	
(3100K, reflectivity 89%, 1/25, F1.2, 30IRE)	
Color	0.0069 lx
Mono	0.0008 lx

Dynamic range – HDR mode	
High Dynamic Range (10-bit, 3x exposure)	120 dB WDR
Measured according to IEC 62676 Part 5	110 dB WDR

Video streaming	
Video compression	H.264 (MP); M- JPEG
Streaming	Multiple configurable streams in H.264 and M-JPEG, configurable frame rate and bandwidth. Regions of Interest (ROI)
Camera processing latency	<67 ms (max. average at 1080p60)
GOP structure	IP, IBP, IBBP
Encoding interval	1 to 50 [60] ips

Video resolution (H x V)	
1080p HD	1920 x 1080 (1080p version only)
Upright mode 1080p	1080 x 1920 (1080p version only)
1.3 MP (5:4)	1280 x 1024 (1080p version only)
720p HD	1280 x 720
Upright mode 720p	720 x 1280
D1 4:3 (cropped)	704 x 480
432p SD	768 x 432
288p SD	512 x 288

Camera installation	
Application variant	Starlight mode (default) / HDR - extended dynamic mode
Base frame rate	25/30/50/60 fps (PAL/NTSC for analog output)
Mirror image	On / Off
Flip image	On / Off
Rotate	0° / 90° / 180° / 270°
Camera LED	Enable/disable
Analog output	Off, 4:3 letterbox, 4:3 crop, 16:9

Camera installation	
Positioning	Coordinates / Mounting height
Lens wizard	Motorized back-focus

Video functions - color	
Adjustable picture settings	Contrast, Saturation, Brightness
White Balance	2500 to 10000K, 4 automatic modes (Basic, Standard, Sodium lamp, Dominant color), Manual mode and Hold mode

Video functions - ALC	
ALC level	Adjustable
Saturation	Adjustable from peak to average
Shutter	Automatic Electronic Shutter (AES); Fixed shutter (1/25[30] to 1/15000) selectable; Default shutter
Day/Night	Auto (adjustable switch points), Color, Monochrome

Video functions - enhance	
Sharpness	Sharpness enhancement level selectable
Backlight compensation	On / off / Intelligent Auto Exposure (IAE)
Contrast enhancement	On/off
Signal-to-noise ratio (SNR)	>55 dB
Noise reduction	Intelligent Dynamic Noise Reduction with separate temporal and spatial adjustments
Intelligent defog	Intelligent Defog automatically adjusts parameters for best picture in foggy or misty scenes (switchable)

Video content analysis	
Analysis type	Intelligent Video Analytics
Configurations	Silent VCA / Profile1/2 / Scheduled / Event triggered

Video content analysis	
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 Audio detection (if microphone used)
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 / accelerometer data and camera height
Tamper detection	Maskable

Additional functions	
Scene modes	10 default modes with scheduler: Indoor, Outdoor, Traffic, Night Optimized, Intelligent AE, Vibrant, Low bitrate, Sports & Gaming, Retail, License Plate Recognition (LPR)
Privacy Masking	Eight independent areas, fully programmable
Video authentication	Off / Watermark / MD5 / SHA-1 / SHA-256
Display stamping	Name; Logo; Time; Alarm message
Pixel counter	Selectable area
Camera rotation	Automatic detection with manual override (90°)

Local storage	
Internal RAM	60 s pre-alarm recording
Memory card slot	Supports up to 32 GB microSDHC / 2 TB microSDXC card. (A memory card of Class 6 or higher is recommended for HD recording)
Recording	Continuous recording, ring recording. alarm/ events/schedule recording

Input/output	
Analog video out	CVBS (PAL/NTSC), 1 Vpp, SMB, 75 Ohm (surge protected)
Audio connectors	3.5 mm stereo jack (x2)
Audio line in	12 kOhm typical, 1 Vrms max
Audio line out	1 Vrms at 1.5 kOhm typical,
Alarm input connectors	Clamp (x2 non-isolated closing contact)
Alarm input activation voltage	+5 VDC to +40 VDC (+3.3 VDC with DC-coupled 22 kOhm pull-up resistor)
Alarm output connector	Clamp
Alarm output voltage	30 VAC or +40 VDC Maximum 0.5 A continuous, 10VA
Ethernet	RJ45
Data port	RS-232/422/485

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

Software	
Unit discovery	IP Helper
Unit configuration	Via web browser or Configuration Manager
Firmware update	Remotely programmable
Software viewing	Web browser; Video Security Client; Video Security App; Bosch Video Management System; Bosch Video Client; or third party software
Latest firmware and software	http://downloadstore.boschsecurity.com/

Network	
Protocols	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, V3, MIB-II), 802.1x, DNS, DNSv6, DDNS (DynDNS.org, selfHOST.de, no-ip.com), SMTP, iSCSI, UPnP (SSDP), DiffServ (QoS), LLDP, SOAP, Dropbox™, CHAP, digest authentication
Encryption	TLS 1.2, SSL, DES, 3DES
Ethernet	10/100 Base-T, auto-sensing, half/full duplex
Connectivity	Auto-MDIX
Interoperability	ONVIF Profile S; GB/T 28181

Optical	
Lens mount	CS mount (C-mount with adapter ring)
Lens connector	Standard 4-pin DC-iris connector
Lens Types	Manual and DC-Iris auto-detect with override DC-iris drive: max. 50 mA continuous
Lens Controls	Wizard from web page or camera button

Mechanical	
Dimensions (W x H x L)	78 x 66 x140 mm (3.07 x 2.6 x 5.52 inch) without lens
Weight	690 g (1.52 lb) without lens
Color	RAL 9007 Metallic Titanium
Tripod Mount	Bottom (isolated) and top 1/4-inch 20 UNC
Sustainability	PVC free

Environmental	
Operating Temperature	-20°C to +50°C (-4°F to 122°F)
Storage Temperature	-30°C to +70°C (-22°F to +158°F)
Operating Humidity	20% to 93% RH
Storage Humidity	up to 98% RH

Ordering information

NBN-73013-BA Fixed camera 1MP HDR
High-performance IP box camera for IVA-optimized, mission-critical, HD surveillance in low light and with hybrid IP/analog operation.
720p
Order number **NBN-73013-BA**

NBN-73023-BA Fixed camera 2MP HDR
High-performance IP box camera for IVA-optimized, mission-critical, HD surveillance in low light and with hybrid IP/analog operation.
1080p
Order number **NBN-73023-BA**

NBN-75023-BA Fixed camera 2MP HDR 24V
1080p
High-performance IP box camera for IVA-optimized, mission-critical, HD surveillance in low light and with hybrid IP/analog operation.
Order number **NBN-75023-BA**

Accessories

LVF-5005C-S0940 Varifocal lens, 9-40mm, 5MP, CS mount
Varifocal SR megapixel IR corrected lens with 1/2.5" sensor and CS-mount
Order number **LVF-5005C-S0940**

LVF-5003N-S3813 Varifocal lens, 3.8-13mm, 3MP, C mount
Varifocal SR megapixel lens with 1/2" sensor and C-mount
Order number **LVF-5003N-S3813**

LVF-5005C-S1803 Varifocal lens, 1.8-3mm, 5MP, CS mount
Varifocal SR megapixel IR corrected lens with 1/2.5" sensor and CS-mount
Order number **LVF-5005C-S1803**

LVF-5005C-S4109 Varifocal lens, 4.1-9mm, 5MP, CS mount
Varifocal SR megapixel IR corrected lens with 1/1.8” sensor and CS-mount
Order number **LVF-5005C-S4109**

LVF-5005N-S1250 Varifocal lens, 12-50mm, 5MP, C mount
Varifocal megapixel IR corrected lens with 1/1.8" sensor max and C-mount
Order number **LVF-5005N-S1250**

UPA-1220-60 Power supply, 120VAC 60Hz,12VDC 1A out
Power supply for camera. 100-240 VAC, 50/60 Hz In; 12 VDC, 1 A Out; regulated.
Input connector: 2-prong, North American standard (non-polarized).
Order number **UPA-1220-60**

UPA-1220-50 Power supply, 220VAC 50Hz, 12VDC 1A out
Power supply for camera. 110-240 VAC, 50/60 Hz In; 12 VDC, 1 A Out; regulated.
Input connector: 2-prong, European Europlug standard (4 mm / 19 mm).
Order number **UPA-1220-50**

TC9210U Camera mount, 6", indoor
A universal 6-inch wall/ceiling grid with off-white finish for 4.5 kg (10 lb) max load, incl. T-Bar ceiling clip and wall/ceiling mount flange.
Order number **TC9210U**

UHO-HBGS-51 Outdoor housing, blower, 230VAC/35W
Outdoor housing for (230 VAC / 12 VDC) camera with 230 VAC power supply, blower and feed-through cabling.
Order number **UHO-HBGS-51**

UHO-HBGS-61 Outdoor housing, blower, 120VAC/35W
Outdoor housing for (120 VAC / 12 VDC) camera.
120 VAC power supply; blower; feed-through cabling
Order number **UHO-HBGS-61**

UHO-HBGS-11 Outdoor housing, 24VAC, feed-through
Outdoor housing for (24 VAC / 12 VDC) camera with 24 VAC power supply, blower and feed-through cabling.
Order number **UHO-HBGS-11**

LTC 9215/00 Wall mount with cable feed through, 12"
Wall mount for camera housing, cable feed-through, 30 cm (12 in); for outdoor use.
Order number **LTC 9215/00**

LTC 9215/00S Wall mount for UHI/UHO
Wall mount for camera housing, cable feed-through, 18 cm (7 in); for indoor use.
Order number **LTC 9215/00S**

LTC 9219/01 Feed through J mount
J-mount for camera housing, 40 cm (15 in); for indoor use.
Order number **LTC 9219/01**

LTC 9210/01 Column mount, 8", 9KG/20lb load
Feed-through column mount for 20 cm (8 in), 5 kg (11 lb) maximum load; light gray finish; for indoor use.
Order number **LTC 9210/01**

LTC 9213/01 Pole mount adapter for LTC9210,9212,9215
Flexible pole mount adapter for camera mounts (use together with the appropriate wall mount bracket). Max. 9 kg (20 lb); 3 to 15 inch diameter pole; stainless steel straps
Order number **LTC 9213/01**

NBN-MCSMB-03M Cable, SMB to BNC, camera-cable, 0.3m
0.3 m (1 ft) analog cable, SMB (female) to BNC (female) to connect camera to coaxial cable
Order number **NBN-MCSMB-03M**

NBN-MCSMB-30M Cable, SMB to BNC, camera-monitor/DVR
3 m (9 ft) analog cable, SMB (female) to BNC (male) to connect camera to monitor or DVR
Order number **NBN-MCSMB-30M**

VJT-XTCXF VIDEOJET XF TRANSCODER
High-performance video transcoder. H.264; CF card slot; ROI; max resolution 1080p; 2 channels
Order number **VJT-XTCXF**

NPD-5001-POE Power over ethernet , 15.4W, 1-port
Power-over-Ethernet midspan injector for use with PoE enabled cameras; 15.4 W, 1-port
Weight: 200 g (0.44 lb)
Order number **NPD-5001-POE**

NPD-5004-POE Power over ethernet, 15.4W, 4-port
Power-over-Ethernet midspan injectors for use with PoE enabled cameras; 15.4 W, 4-ports
Weight: 620 g (1.4 lb)
Order number **NPD-5004-POE**

UPA-1220-60 Power supply, 120VAC 60Hz,12VDC 1A out
Power supply for camera. 100-240 VAC, 50/60 Hz In; 12 VDC, 1 A Out; regulated.
Input connector: 2-prong, North American standard (non-polarized).
Order number **UPA-1220-60**

UHO-POE-10 Outdoor housing, POE + power supply
Outdoor camera housing with PoE+ power supply.
Order number **UHO-POE-10**

Represented by:

Europe, Middle East, Africa:
Bosch Security Systems B.V.
P.O. Box 80002
5600 JB Eindhoven, The Netherlands
Phone: + 31 40 2577 284
emea.securitysystems@bosch.com
emea.boschsecurity.com

Germany:
Bosch Sicherheitssysteme GmbH
Robert-Bosch-Ring 5
85630 Grasbrunn
Germany
www.boschsecurity.com

North America:
Bosch Security Systems, Inc.
130 Perinton Parkway
Fairport, New York, 14450, USA
Phone: +1 800 289 0096
Fax: +1 585 223 9180
onlinehelp@us.bosch.com
www.boschsecurity.us

Asia-Pacific:
Robert Bosch (SEA) Pte Ltd, Security Systems
11 Bishan Street 21
Singapore 573943
Phone: +65 6571 2808
Fax: +65 6571 2699
apr.securitysystems@bosch.com
www.boschsecurity.asia

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