BOSCH

DINION IP starlight 6000 HD

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 frames per second mode provides for optimum performance in fast action scenes that ensures no critical data is lost.

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.

- ▶ Excellent low-light performance
- ▶ Built-in Essential Video Analytics to trigger relevant alerts and quickly retrieve data
- ▶ Intelligent Streaming and Intelligent Dynamic Noise Reduction for low network strains and storage costs
- ▶ Extended Dynamic Range mode to see details in bright and dark areas simultaneously
- ▶ Auto back focus for fast installation

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 standardized measurements, which can be used to compare different cameras.

Essential Video Analytics
The built-in video analysis reinforces the Intelligence-at-the-Edge concept and now delivers even more powerful features. Essential Video Analytics is ideal for use in controlled environments with limited detection ranges.
The system reliably detects, tracks, and analyzes objects, and alerts you when predefined alarms are triggered. A smart set of alarm rules makes complex tasks easy and reduces false alarms to a minimum. 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 Auto Exposure
Fluctuations in backlight and front light can ruin your images. To achieve the perfect picture in every situation, Intelligent Auto Exposure automatically adjusts the exposure of the camera. It offers superb

front light compensation and incredible backlight compensation by automatically adapting to changing light conditions.

Intelligent Dynamic Noise Reduction
Quiet scenes with little or no movement require a lower bitrate. By intelligently distinguishing between noise and relevant information, Intelligent Dynamic Noise Reduction reduces bitrate by up to 50%. Because noise is reduced at the source during image capture, the lower bitrate does not compromise on video quality.
Intelligent Dynamic Noise Reduction adjusts spatial and temporal filtering (3DNR) based on intelligent analysis of the scene content. Motion compensated temporal filtering (MCTF) reduces motion blur normally associated with standard temporal filtering. This maintains image quality of fast moving objects while still optimizing bitrate.
With Intelligent Dynamic Noise Reduction, our focus is to significantly reduce storage costs, and lessen network strain by only using bandwidth when needed.

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

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.

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.

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.

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.

Storage management
Recording management can be controlled by the Bosch 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. 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.

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 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

Complete viewing software
There are many ways to access the camera's features: using a web browser, with the BVMS, 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 and ONVIF conformance
The camera conforms to the ONVIF Profile S , ONVIF Profile G , ONVIF Profile M , and ONVIF Profile T specifications.
Third-party integrators can easily access the internal feature set of the device for integration into large projects. Visit the Bosch Integration Partner Program (IPP) website (ipp.boschsecurity.com) for more information.

Regulatory information

| Standards	Type
Emission	EN 55032:2012 /AC2013 class B
	EN 50121-4:2016
	FCC: 47CFR15, class B (2015-10-1)
Immunity	EN 50130-4:2011 /A12014 (PoE, +12VDC)*
	EN 50121-4:2016
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
ONVIF conformance	EN 50132-5-2:2011/AC:2012
	EN 62676-2-3:2014

* 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, CMIM, and China RoHS

Region	Regulatory compliance/quality marks	
Great Britain	UKCA	NBN-6/7x0x3-Bx
USA	UL CAP	Cybersecurity Assurance Program
Europe	CE	NBN-6/7x0x3-Bx
USA	UL	ST-VS 2016-E-045

Installation/configuration notes

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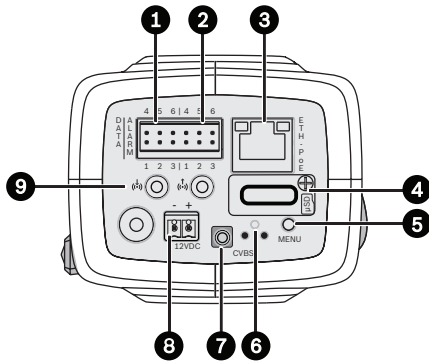
1	Data (RS485/422/232)	6	Reset button
2	Alarm in, alarm out	7	Video out (SMB connector)
3	10/100 Base-T Fast Ethernet	8	Power supply input
4	MicroSD card slot	9	Audio in / Audio out
5	Menu button		

Dimensions

60 (2.35)
140 (5.51)
66 (2.60)
78 (3.07)
mm (in)
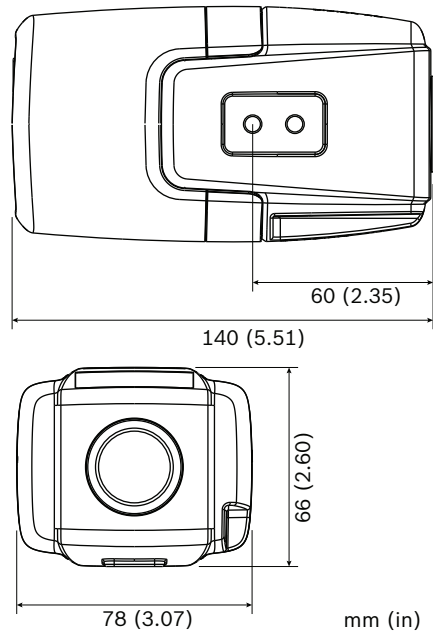
Technical specifications

Power (12 VDC/PoE version)

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

Power (24 VAC/PoE version)

Input voltage	Power-over-Ethernet (48 VDC nominal) and/or 24 VAC ±10% / +12 VDC ±10% (auxiliary)
PoE	802.3af (802.3at Type 1) Power level: Class 3
Power Consumption	7.2 W max.
Current consumption	600 mA max. (12 VDC) 350 mA max. (24 VAC) 200 mA max. (PoE 48 VDC)

Sensor (1080p version)

Sensor type	1/2.8-inch CMOS

Sensor (1080p version)

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	108 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
Encoder regions	Up to eight areas with encoder quality settings per area

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

Video resolution (H x V)

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
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 (BLC)
Contrast enhancement	On/off
Signal-to-noise ratio (SNR)	>55 dB
Noise reduction	Intelligent Dynamic Noise Reduction Intelligent Streaming

Video functions - enhance

Intelligent defog	Intelligent Defog automatically adjusts parameters for best picture in foggy or misty scenes (switchable)

Video content analysis

Analysis type	Essential Video Analytics
Features	Rule based alarms and tracking
	Line crossing
	Enter /leave field
	Follow route
	Loitering
	Idle / removed object
	People counting
	Crowd density estimation
	3D tracking
	Audio detection (if microphone used)
Calibration / Geolocation	Automatic based on gyro / accelerometer data and camera height
Tamper detection	Maskable

Additional functions

Scene modes	10 pre-defined modes, including License Plate Recognition (LPR), with scheduler
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	5 s pre-alarm recording
Memory card slot	Supports up to 32 GB microSDHC / 2 TB microS-DXC card. Extreme lifetime and health monitoring support that provides early service indication. Recommended: Industrial microSD cards with health monitoring
Recording	Continuous recording, ring recording.

Local storage

	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	2 inputs
Alarm input activation voltage	+5 VDC to +40 VDC (+3.3 VDC with DC-coupled 22 kOhm pull-up resistor)
Alarm output	1 output
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

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, CHAP, digest authentication
Encryption	Full end-to-end encryption with supported VMS Network: TLS1.0/1.2, AES128, AES256 Local storage: XTS-AES
Ethernet	10/100 Base-T, auto-sensing, half/full duplex

Network

Connectivity	Auto-MDIX
Interoperability	ONVIF Profile S, ONVIF Profile G, ONVIF Profile M, ONVIF Profile T

Optical

Lens mount	CS mount (C-mount with adapter ring)
Lens connector	Standard 4-pin DC-iris connector / P-iris* connector
Focus control	Motorized back-focus adjustment
Iris control	DC-iris and P-iris* control

* P-iris control supported in combination with Bosch LVF-5003C-P2713 lens

Environmental

Operating Temperature	-20°C to +55°C (-4°F to 131°F)
Storage Temperature	-30°C to +70°C (-22°F to +158°F)
Operating Humidity	5% to 93% RH non condensing
Storage Humidity	up to 98% RH

Mechanical

Dimensions (W × H × L)	78 × 66 × 140 mm (3.07 × 2.6 × 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

Ordering information

NBN-63013-B Fixed camera 1MP HDR
High-performance IP box camera for intelligent HD surveillance in low light and with hybrid IP/analog operation.
720p
NDAA compliant
Order number **NBN-63013-B | F.01U.314.349**

NBN-63023-B Fixed camera 2MP HDR
High-performance IP box camera for intelligent HD surveillance in low light and with hybrid IP/analog operation.
1080p
NDAA compliant
Order number **NBN-63023-B | F.01U.314.805**

NBN-65023-B Fixed camera 2MP HDR 24V
1080p
High-performance IP box camera for intelligent HD surveillance in low light and with hybrid IP/analog operation.
NDAA compliant
Order number **NBN-65023-B | F.01U.349.538**

Accessories
LVF-5003C-P2713 Varifocal lens, 2.7-13mm, 3MP, CS mount
Varifocal P-iris megapixel IR corrected lens with 1/2.7 inch sensor and CS-mount
Order number **LVF-5003C-P2713 | F.01U.381.550**

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 | F.01U.274.352**

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 | F.01U.274.354**

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 | F.01U.297.770**

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 | F.01U.305.567**

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 | F.01U.076.155**

UPA-1220-50 Power supply, 220VAC 50Hz, 12VDC 1A out
Power supply for camera. 100-240 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 | F.01U.076.158**

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 | F.01U.143.373**

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 | F.01U.302.304**

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 | F.01U.302.310**

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 | F.01U.302.311**

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 | F.01U.027.057**

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 | 4.998.137.651**

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 | F.01U.503.621**

LTC 9219/01 Feed through J mount
J-mount for camera housing, 40 cm (15 in); for indoor
use.
Order number **LTC 9219/01 | F.01U.503.623**

**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 | F.01U.009.291**

**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 | F.01U.291.564**

**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 | F.01U.291.565**

VJT-XTCXF VIDEOJET XF TRANSCODER
High-performance video transcoder. H.264; CF card slot;
ROI; max resolution 1080p; 2 channels
Order number **VJT-XTCXF | F.01U.261.015**

NPD-5001-POE Midspan, 15W, single port, AC in
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 | F.01U.305.288**

NPD-5004-POE Midspan, 4 port x 15W, AC in
Power-over-Ethernet midspan injector for use with PoE
enabled cameras; 15.4 W, 4-ports
Weight: 620 g (1.4 lb)
Order number **NPD-5004-POE | F.01U.305.289**

UHO-POE-10 POE outdoor housing, heater, blower
Outdoor camera housing with PoE+ power supply.
Order number **UHO-POE-10 | F.01U.300.502**