

# NBN-921 DinionHD 720p Day/Night IP Camera

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**BOSCH**  
Invented for life



- ▶ 1/3-inch Day/Night HD CCD with progressive scan
- ▶ 15-bit Image Processing Technology
- ▶ Local Storage for Flexible recording options
- ▶ XF-dynamic engine and SmartBLC
- ▶ Intelligence at the edge

DinionHD Day/Night IP cameras are progressive scan HD cameras that use the Bosch-designed Dinion digital imaging technology.

The camera uses the latest CCD-based HD sensor for a sharper, more detailed picture with a 16:9 image format. Features such as multicasting, internet streaming and iSCSI recording are fully supported. The DinionHD camera delivers the highest standards of performance and reliability in any security and surveillance scenario, day and night.

## Functions

### 720p HD Camera

The DinionHD is designed using the latest HD CCD sensor which can deliver high resolution 720p streaming video in HD format (16:9). The camera now brings the unmatched Dinion Image performance to HD-standard video.

### Outstanding image quality

With a 1/3-inch HD CCD sensor, the DinionHD Day/Night IP camera delivers outstanding image quality. The Bosch-designed digital video processing system optimally handles the HD image format without

compromise. Image performance and color reproduction are superb even under challenging lighting conditions.

### XF Dynamic and SmartBLC

The XF-Dynamic technology uses pixel-by-pixel analysis to provide the user with the most detailed information. Turn on SmartBLC to automatically compensate the image without the need for complicated set-up or without compromising dynamic range. Features such as Autoblack and Sharpness further improve the details in a scene.

### Programmable Modes

Six independent, pre-programmed configuration modes, which have been optimized for typical applications, makes camera programming on-site easy and user-friendly. The installer just needs to select a mode from the menu that best defines the environment in which the camera is being installed. However, the operator still has the ability to customize these modes, if necessary, for the specific requirements of the site.

### **Day/Night switching**

In night mode, the camera enhances low-light viewing by switching the IR (infrared) filter out of the optical path and providing a monochrome image. The camera can switch from color to monochrome mode automatically by sensing the illumination level, via the alarm input, or remotely via a web browser. In scenes with predominantly IR light, use the alarm input for reliable Day/Night filter switching.

### **Privacy masking**

Four different privacy zones allow specific parts of a scene to be blocked. A mask for any part of the scene can be pre-programmed.

### **Default Shutter**

The default shutter allows the camera to use a higher shutter speed when sufficient light is available (for applications such as traffic management). When light levels fall and other adjustments have been exhausted, the shutter speed reverts to a standard setting to maintain sensitivity.

### **SensUp Dynamic**

By increasing the integration time up to 10 times on the CCD, the effective sensitivity is dramatically enhanced. This is especially useful when relying only on moonlight for illumination.

### **Efficient bandwidth and storage management**

The cameras use H.264 (Main Profile) compression, bandwidth throttling, and multicasting capabilities to manage bandwidth and storage requirements efficiently, while delivering high image quality and resolution.

Bosch's innovative Quad-streaming feature enables the DinionHD to deliver three H.264 streams (a 720p HD stream, a downscaled resolution stream, and a HD I-frame only stream) together with an M-JPEG stream. These four streams facilitate bandwidth-efficient viewing and recording options as well as integration with third-party video management systems. DinionHD cameras offer unparalleled recording options. Attached to the network, they can use iSCSI targets directly without needing any recording software. The recording management capabilities of the system can be further enhanced by using the Bosch Video Recording Manager (VRM). DinionHD supports local storage on a microSD card. This can be used for local alarm recording or for Automatic Network Replenishment (ANR) to improve the overall reliability of video recording.

### **Standard intelligence**

With built-in video content analysis, the camera reinforces the Intelligence-at-the-Edge concept where edge devices become increasingly intelligent. The MOTION+ video motion analysis system, which is built into all camera versions, is the perfect solution for applications where basic video content analysis features are required. This motion analysis algorithm is

based on pixel change and includes object size filtering capabilities and sophisticated tamper-detection capabilities.

### **Hardware enhanced version**

The hardware-enhanced version of the camera gives you the opportunity to upgrade the video content analysis features of the camera with the more advanced Intelligent Video Analysis (IVA) option. This option contains such features as idle object, line crossing, flow detection, crowd detection etc. The camera can be ordered with IVA pre-installed from the factory or IVA can be activated on hardware enhanced versions by installing a license on-site.

### **ONVIF conformance**

The camera conforms to the ONVIF (Open Network Video Interface Forum) specification which guarantees interoperability between network video products regardless of manufacturer. ONVIF conformant devices are able to exchange live video, audio, metadata and control information. They are automatically discovered and connected to network applications such as video management systems.

### **Unsurpassed flexibility**

There are many ways to access the camera's video: on a PC using a web browser, with the Bosch Video Management System (VMS), or with the Bosch Video Client. The Bosch Video Client is provided free of charge with each camera. This easy-to-use software can easily configure and operate up to 16 cameras. A license upgrade adds support for up to 64 cameras.

### **Cost effective, simple installation**

Three power options, PoE (Power-over-Ethernet), 24 VAC and 12 VDC are available. Using PoE makes installation easier and more cost-effective, as cameras do not require a local power source. To increase system reliability, the camera can be simultaneously connected to both PoE and 12 VDC/24 VAC supplies. Additionally, uninterruptible power supplies (UPS) can be used, which will allow continuous operation, even during a power failure. For trouble-free network cabling, the cameras support Auto-MDIX which allows the installer to use straight or cross-over cables.

### **Intuitive user interface**

The DinionHD camera has a very intuitive user interface that allows fast and easy configuration over IP. The new intuitive lens wizard in the web GUI guides the installer through a step-by-step procedure to setup the back focus correctly

### **Easy Upgrade**

Remotely upgrade the camera whenever new firmware becomes available. This ensures up-to-date products, thus protecting investment with little effort.

### **Access Security**

Various security levels are available for accessing the network, the camera and the data channels. As well as password protection with three levels, 802.1x

authentication using a RADIUS (Remote Authentication Dial In User Service) server is supported. To secure Web browser access, use HTTPS with a SSL certificate stored in the camera. For total data protection, the video and audio communication channels can be independently AES encrypted with 128-bit keys by installing the optional encryption site license.

**Typical applications**

- Prisons and correctional facilities
- Retail outlets
- Commercial and government buildings
- Schools
- Hospitals
- Banks
- City surveillance
- Places with high crowd density or mass gatherings

**Certifications and approvals**

**HD standards**

Complies with the 296M-2001 Standard in:

- Resolution: 1280x720
- Scan: Progressive
- Color representation: complies with ITU-R BT.709
- Aspect ratio: 16:9
- Frame rate: 25 and 30 frames/s

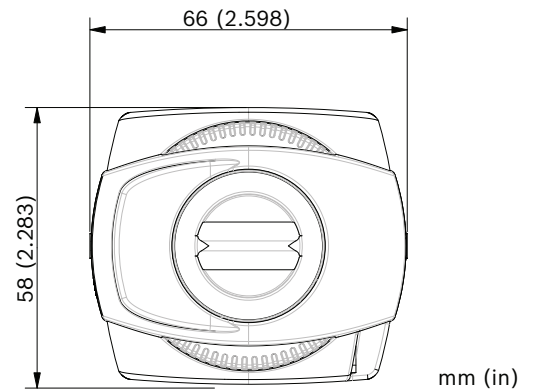
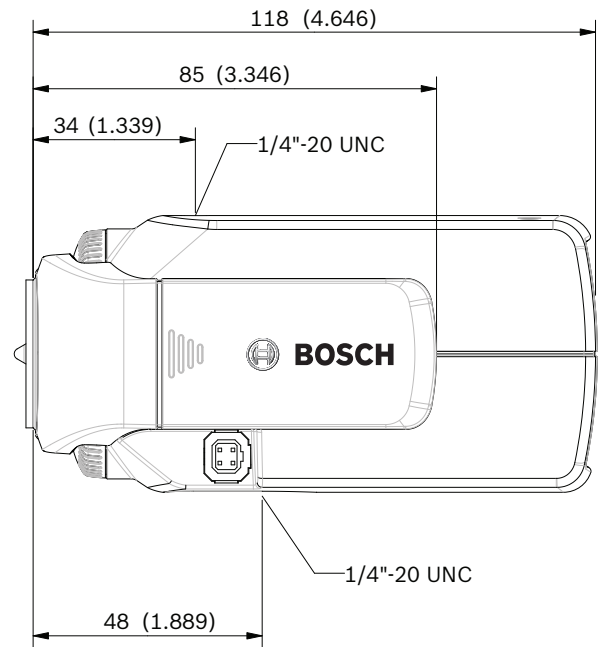
**Electro Magnetic Compatibility**

|           |  |
|-----------|--|
| Emission  | EN55022 Class B<br>EN61000-3-2<br>EN61000-3-3<br>FCC Part 15 Class B                   |
| Immunity  | EN50130-4 (PoE, +12 VDC)<br>EN55024 (24 VAC)<br>EN50121-4                              |
| Safety    | EN60950-1<br>UL60950-1 (2nd edition)<br>CAN/CSA-C 22.2 No. 60950-1                     |
| Vibration | Camera with 500 g (1.1 lb) lens as per IEC60068-2-6 (5 m/s <sup>2</sup> , operational) |

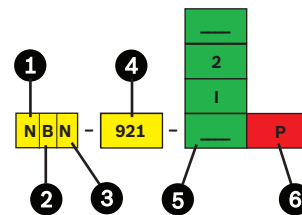
| Region | Certification |
|--------|---------------|
| Europe | CE            |
| USA    | UL            |
|        | FCC           |
| Canada | CSA           |

**Installation/configuration notes**

**Dimensions**



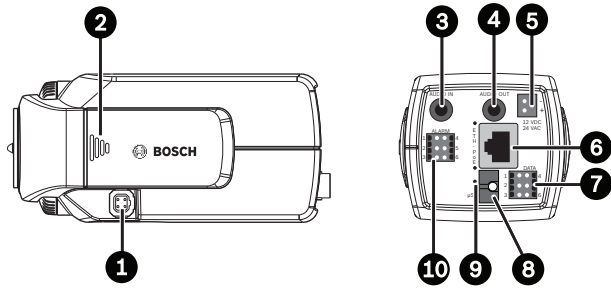
**Ordering chart**



|   |                   |   |  |
|---|-------------------|---|--|
| 1 | N: Network camera | 4 | 921: DinionHD performance                  |
| 2 | B: Fixed body     | 5 | Motion+<br>2: IVA ready*<br>I: IVA enabled |
| 3 | N: Day/Night      | 6 | P: PoE                                     |

\* No license included

**Controls**



|   |                    |    |                             |
|---|--------------------|----|-----------------------------|
| 1 | Lens connector     | 6  | 10/100 Base-T Fast Ethernet |
| 2 | Back focus lock    | 7  | Data (RS485/422/232)        |
| 3 | Audio in           | 8  | MicroSD card slot           |
| 4 | Audio out          | 9  | Reset button                |
| 5 | Power supply input | 10 | Alarm in, relay out         |

**Parts included**

| Quantity | Components                                    |
|----------|---|
| 1        | NBN-921 Series DinionHD Day/Night IP Camera   |
| 1        | Spare lens connector                          |
| 1        | Safety Instructions                           |
| 1        | Quick Install Guide                           |
| 1        | Mini DVD-ROM with manuals, software and tools |
| 1        | Power connector                               |
| 1        | Alarm I/O connector                           |
| 1        | Data connector                                |
| 1        | C/CS mount adapter                            |

**Technical specifications**

**Electrical**

|                     |  |
|---------------------|--|
| Power Supply        | 24 VAC ±10% 50/60 Hz<br>12 VDC ±10%<br>Power-over-Ethernet                                       |
| Current Consumption | 550 mA   650 mA IVA (12 VDC)<br>550 mA   650 mA IVA (24 VAC)<br>200 mA   250 mA IVA (PoE 48 VDC) |
| Power Consumption   | 6.6 W   7.8 W IVA (12 VDC)<br>8.2 W   9.7 W IVA (24 VAC)<br>9.6 W (PoE 48 VDC)                   |

**Sensor**

|               |              |
|---------------|--------------|
| Type          | 1/3-inch CCD |
| Active Pixels | 1280 x 960   |

| Network Video                                |   |
|--|---|
| Video compression                            | H.264 (ISO/IEC 14496-10); M-JPEG, JPEG  |
| Streaming                                    | Four individually configurable streams in H.264 and M-JPEG, configurable frame rate and bandwidth.  |
| Two independently configurable H.264 streams | <b>Stream 1:</b><br>H.264 Main Profile (MP) 720p 25/30<br><b>Stream 2:</b><br>H.264 Baseline Profile plus (BP+) or H.264 MP Standard Definition (SD), or Copy of stream 1 |
| Two additional streams                       | M-JPEG stream and High Definition (HD) I-frame only stream.   |
| Data rate                                    | 9.6 Kbps to 10 Mbps   |
| HD Resolution (H x V)                        | 720p: 1280 x 720  |
| 480p Resolution (H x V)                      | Encoding: 704 x 480<br>Displayed: 854 x 480   |
| 240p Resolution (H x V)                      | Encoding: 352 x 240<br>Displayed: 432 x 240   |
| Overall IP Delay                             | Min. 120 ms, Max. 240 ms  |
| GOP structure                                | IP, IBP, IBBP   |

**Sensitivity** (3200 K, scene reflectivity 89%, F1.4)

|                         | Minimum illumination (30 IRE) |
|-------------------------|-------------------------------|
| Color                   | 1 lx (0.1 fc)                 |
| Color + SensUp 10x      | 0.1 lx                        |
| Monochrome              | 0.4 lx (0.04 fc)              |
| Monochrome + SensUp 10x | 0.04 lx                       |
| IR Sensitivity          | Upto 1050 nm                  |

|               |   |
|---------------|---|
| Day/Night     | Color, Mono, Auto   |
| Modes         | 6 preset programmable modes   |
| SmartBLC      | On / Off  |
| Dynamic Range | 70 dB   |
| AGC           | AGC On or Off (0 - 35 dB) selectable  |
| White Balance | ATW (2500 to 10000K), ATWhold and manual  |
| Shutter       | Auto (1/50 [1/60] to 1/10000) selectable<br>Auto (1/50 [1/60] to 1/50000) automatic<br>Fixed selectable |

|                         |  |
|-------------------------|--|
| Sensitivity up          | Adjustable from Off up to 10x          |
| Auto Black              | Automatic continuous, Off              |
| Dynamic Noise Reduction | Auto, On/off selectable                |
| Sharpness               | Sharpness enhancement level selectable |

|                        |   |
|------------------------|---|
| Privacy Masking        | Four independent areas, fully programmable  |
| Video Motion Analysis  | Motion+ or IVA  |
| Test Pattern Generator | Color bars 100%, Grayscale 11-step, Sawtooth 2H, Checker board, Cross hatch, UV plane |
| Synchronization        | Internal, Line Lock selectable  |

| Lens          |  |
|---------------|--|
| Lens Mount    | CS (max lens protrusion 5 mm, 0.2 inch), C-mount compatible with supplied adapter ring |
| Lens Types    | Manual, DC-Iris auto-detect<br>DC-iris drive: max. 50 mA continuous                    |
| Lens Controls | Wizard from web page   |

| Audio                 |   |
|-----------------------|---|
| Standard              | G.711, 8kHz sampling rate<br>L16, 16kHz sampling rate |
| Signal-to-noise ratio | > 50 dB   |
| Audio Streaming       | Full duplex   |

| Input/output         |  |
|----------------------|--|
| Audio                | 1 x mono line in, 1 x mono line out  |
| • connector          | 3.5 mm mono jack   |
| • signal line in     | 9 kohm typical, 5.5 Vpp max  |
| • signal line out    | 3.0 Vpp at 10 kohm typical,<br>2.3 Vpp at 32 Ohm typical,<br>1.7 Vpp at 16 Ohm typical |
| Alarm                | 2 inputs   |
| • connector          | Clamp (non-isolated closing contact)   |
| • activation voltage | +5 VDC to +40 VDC<br>(+3.3 VDC with DC-coupled 22 kohm pull-up resistor)               |
| Relay                | 1 output   |
| • connector          | Clamp  |
| • voltage            | 30 VAC or +40 VDC<br>Maximum 0.5 A continuous, 10VA                                    |
| Data port            | RS-232/422/485   |

## Software Control

|                    |   |
|--------------------|---|
| Unit Configuration | Via web browser or Configuration Manager                                |
| Software update    | Flash ROM, remote programmable via web browser or Configuration Manager |

## Network

|            |  |
|------------|--|
| Protocols  | RTP, RTSP, Telnet, UDP, TCP, IP, HTTP, HTTPS, FTP, DHCP, IGMP V2/V3, ICMP, ARP, SMTP, SNTP, SNMP, 802.1x, UPnP |
| Encryption | TLS 1.0, SSL, AES (optional)   |
| Ethernet   | STP, 10/100 Base-T, auto-sensing, half/full duplex, RJ45   |
| PoE supply | IEEE 802.3af compliant   |

## Mechanical

|                        |  |
|------------------------|--|
| Dimensions (H x W x L) | 58 x 66 x 122 mm (2.28 x 2.6 x 4.8 inch) without lens  |
| Weight                 | 542 g (1.195 lb) without lens                          |
| Color                  | RAL 9007 Metallic Titanium                             |
| Tripod Mount           | Bottom (electrically isolated) and top 1/4-inch 20 UNC |

## Environmental

|                              |  |
|------------------------------|--|
| Operating Temperature*       | -20°C to +50°C (-4°F to 122°F)                                   |
| Operating Temperature (IVA)* | -20°C to +40°C (-4°F to 113°F)                                   |
| Storage Temperature          | -40°C to +70°C (-40°F to +158°F)                                 |
| Operating Humidity           | 20% to 93% RH  |
| Storage Humidity             | up to 98% RH   |
| Environmental Test Method    | EN50130-5:1999 Alarm systems Part 5 (Class II Indoor in general) |

\* for extended temperature range use HAC-IPCCC

## Ordering information

### NBN-921-P DinionHD D/N IP Camera

High-performance IP box camera for intelligent HD surveillance. PoE; day/night; H.264 quad-streaming; free viewing Apps; cloud services; XF-Dynamic; SmartBLC; 720p; MOTION+  
Order number **NBN-921-P**

### NBN-921-IP DinionHD D/N IP Camera

High-performance IP box camera for intelligent HD surveillance. PoE; day/night; H.264 quad-streaming; free viewing Apps; cloud services; XF-Dynamic; SmartBLC; 720p; IVA  
Order number **NBN-921-IP**

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**Accessories**
**Varifocal Megapixel Lens**

Super resolution varifocal 3MP lens for 1/2" format.  
3.8 to 13 mm; f1.4; DC iris  
Order number **VLG-3V3813-MP3**

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**EX12LED-3BD-8M Infrared Illuminator**

Mini IR 850 nm illuminator. LED array; 3D Diffuser;  
black; 17 m HFOV; 30° beam pattern  
Order number **EX12LED-3BD-8M**

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**EX12LED-3BD-8W Infrared Illuminator**

Mini IR 850 nm illuminator. LED array; 3D Diffuser;  
black; 16 m HFOV; 60° beam pattern  
Order number **EX12LED-3BD-8W**

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**EX12LED-3BD-9M Infrared Illuminator**

Mini IR 940 nm illuminator. LED array; 3D Diffuser;  
black; 17 m HFOV; 30° beam pattern  
Order number **EX12LED-3BD-9M**

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**EX12LED-3BD-9W Infrared Illuminator**

Mini IR 940 nm illuminator. LED array; 3D Diffuser;  
black; 16 m HFOV; 60° beam pattern  
Order number **EX12LED-3BD-9W**

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**UPA-2410-60 Power Supply**

Power supply. 120 VAC, 60 Hz; 24 VAC, 10 VA Out  
Order number **UPA-2410-60**

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**UPA-2430-60 Power Supply**

Power supply for camera. 120 VAC, 60 Hz; 24 VAC,  
30 VA Out  
Order number **UPA-2430-60**

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**UPA-2450-60 Power Supply, 120 V, 60 Hz**

Indoor power supply for camera. 120 VAC, 60 Hz In;  
24 VAC, 50 VA Out  
Order number **UPA-2450-60**

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**UPA-2420-50 Power Supply**

Power supply for cameras. 220 VAC, 50 Hz In; 24 VAC,  
20 VA Out  
Order number **UPA-2420-50**

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**UPA-2450-50 Power Supply, 220 V, 50 Hz**

Indoor power supply for camera. 220 VAC, 50 Hz In;  
24 VAC, 50 VA Out  
Order number **UPA-2450-50**

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**S1374 Adapter**

Adapter to convert C mount lens to CS mount camera  
Order number **S1374**

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**HAC-IPCCC Camera Cooling Case**

Carrying case for cameras, plus housings equipped  
with an optional blower  
Order number **HAC-IPCCC**

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**Software Options**
**IVA license camera**

IVA 4.xx/5.xx VCA software license (e-license) for IP  
camera/dome  
Order number **MVC-FIVA4-CAM**

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**BVIP AES 128 Bit Encryption**

Single installation licence for BVIP AES 128-bit  
encryption site. Enables encrypted communication  
between BVIP devices and management stations.  
Order number **MVS-FENC-AES**

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**Represented by:**

**Americas:**

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

**Europe, Middle East, Africa:**

Bosch Security Systems B.V.  
P.O. Box 80002  
5617 BA Eindhoven, The Netherlands  
Phone: + 31 40 2577 284  
Fax: +31 40 2577 330  
emea.securitysystems@bosch.com  
www.boschsecurity.com

**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

**China:**

Bosch (Shanghai) Security Systems Ltd.  
201 Building, No. 333 Fuquan Road  
North IBP  
Changning District, Shanghai  
200335 China  
Phone +86 21 22181111  
Fax: +86 21 22182398  
www.boschsecurity.com.cn

**America Latina:**

Robert Bosch Ltda Security Systems Division  
Via Anhanguera, Km 98  
CEP 13065-900  
Campinas, Sao Paulo, Brazil  
Phone: +55 19 2103 2860  
Fax: +55 19 2103 2862  
latam.boschsecurity@bosch.com  
www.boschsecurity.com