



BOSCH
Invented for life

NDN-921 FlexiDomeHD 720p Day/Night IP Camera



- ▶ **1/3-inch Day/Night HD CCD with progressive scan**
- ▶ **15-bit image processing technology**
- ▶ **XF dynamic engine and SmartBLC**
- ▶ **Local Storage for flexible recording options**
- ▶ **Intelligence at the edge**
- ▶ **ONVIF conformant**
- ▶ **High-impact, vandal-resistant enclosure**

FlexiDomeHD Day/Night IP cameras are progressive scan HD cameras in a compact, high-impact rated, vandal-resistant housing.

They are equipped with a 15-bit DSP and an XF dynamic engine for sharper images with outstanding color reproduction. Features such as multicasting, internet streaming and iSCSI recording are fully supported. FlexiDomeHD cameras have built-in video motion analysis and additional processing power for video content analysis systems.

Supported by the Bosch-designed Dinion digital imaging technology, they provide a proven, dependable solution for any security and surveillance requirements, day and night.

Functions

720p HD Cameras

The FlexiDomeHD 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.

Superior image quality

With a 1/3-inch HD CCD sensor and Bosch's advanced digital signal processing, the FlexiDomeHD provides outstanding image quality for a wide range of security applications.

Digital Image Processing

The highly accurate digital signal processing optimally processes the image to bring out the details in the scene making it suitable for applications requiring identification of facial characteristics or alphanumeric characters.

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 FlexiDomeHD 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.

FlexiDomeHD 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).

FlexidomeHD supports local storage on micro SD 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.

Tough design

The cast-aluminum housing, polycarbonate dome, and hardened inner liner can withstand the equivalent of 55 kg (120 lbs) of force. The enclosure contains the full-featured camera and integral varifocal lens. Ideal for outdoor use, the cameras are protected against water and dust to IP 66 (NEMA 4X) standards. The camera enclosure provides the extra protection necessary for applications such as schools, banks, prisons, retail outlets and industrial buildings.

Installation is quick and easy, as the camera comes completely assembled and ready to use. The camera uses Bosch designed lens and optics to deliver true HD resolution with different light levels.

Using the proprietary pan/tilt/rotation mechanism, installers can select the exact field of view. Mounting options are numerous, including surface, wall, corner, and suspended ceiling mounting. The compact, sleek design and virtually flush-mount appearance complements any decor.

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.

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

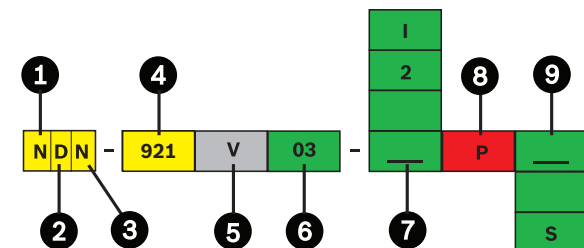
Region	Certification
Europe	CE
USA	UL FCC
Canada	CSA

Electro Magnetic Compatibility

Emission	EN55022 Class B EN61000-3-2 EN61000-3-3 FCC Part 15: Class B
Immunity	EN50130-4 (PoE, +12 VDC) EN55024 (24 VAC) EN50121-4
Safety	EN60950-1 UL60950-1 (2nd edition) CAN/CSA-C 22.2 No. 60950-1
Vibration	As per IEC60068-2-6 (5 m/s ² , operational)

Installation/Configuration Notes

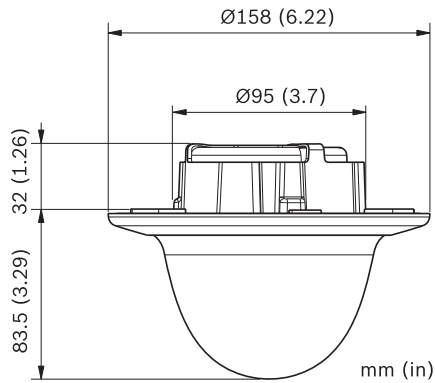
Ordering chart



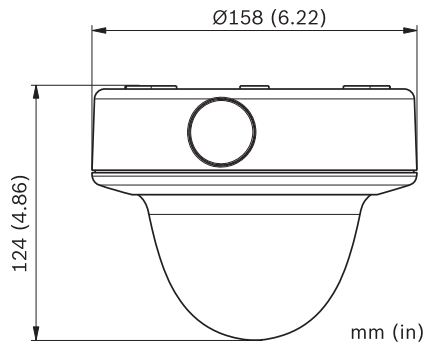
1	N	Network camera
2	D	Dome (FlexiDome fixed dome)
3	N	Day/Night
4	921	DinionHD performance
5	V	Varifocal lens, auto iris
6	03	3 to 9 mm F1.4
7		Motion+
	2	IVA Ready *
	I	IVA enabled
8	P	PoE
9		Flush mount (blank)
	S	Surface mount

* No license included

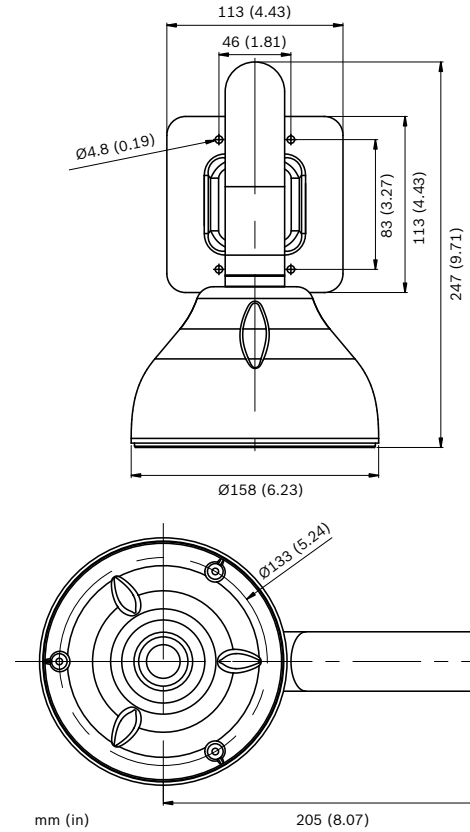
Flush Mounting



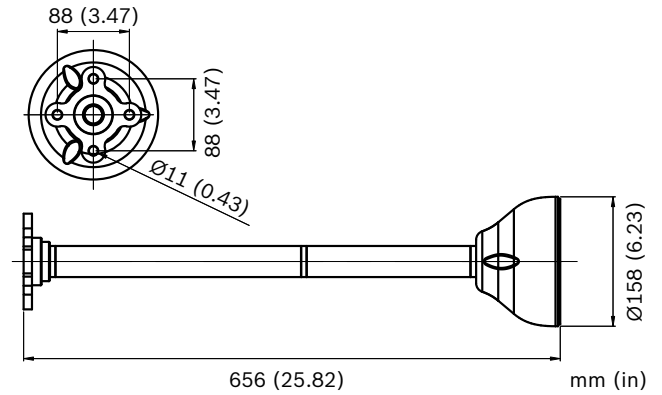
Surface Mounting

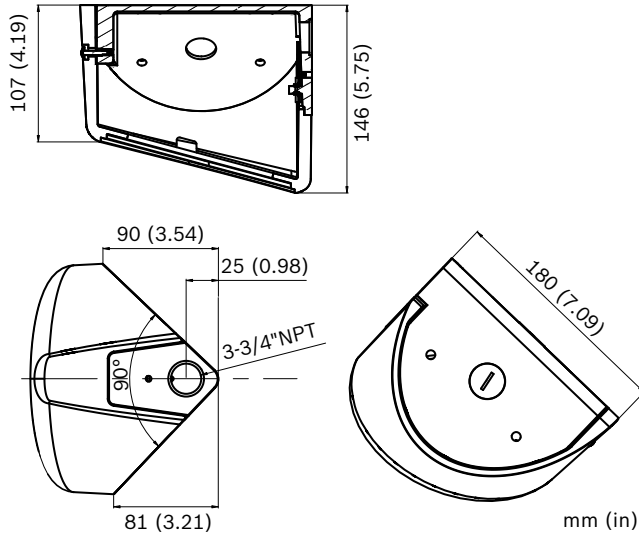


VDA-WMT-DOME -Pendant Wall Mount



VDA-PMT-DOME -Pendant Pipe Mount



VDA-CMT-DOME –Corner Mount**Parts Included**

Quantity	Component
1	NDN-921 Series FlexiDomeHD Day/Night IP Camera
1	Lens adjustment cap (focus aid)
1	Safety instructions
1	Quick Install Guide
1	Mini DVD-ROM with manuals, software, and tools
1	Mounting hardware kit + screwdriver bit
1	RJ45 network connector
1	Template for flush mount

Technical Specifications**Electrical**

Power Supply	24 VAC $\pm 10\%$ 50/60 Hz 12 VDC $\pm 10\%$ Power-over-Ethernet 48 VDC nominal
Current Consumption	550 mA 700 mA IVA (12 VDC) 550 mA 700 mA IVA (24 VAC) 200 mA (PoE 48 VDC)
Power Consumption	6.6 W 8.4 W IVA (12 VDC) 8.2 W 10.4 W IVA (24 VAC) 9.6 W (PoE 48 VDC)

Sensor

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

Network Video Output

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	Stream 1: H.264 Main Profile (MP) 720p 25/30 Stream 2: 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 Displayed: 854 x 480
240p Resolution (H x V)	Encoding: 352 x 240 Displayed: 432 x 240
Overall IP Delay	Min. 120 ms, Max. 240 ms
GOP structure	IP, IBP, IBBP

Sensitivity (3200 K, scene reflectivity 89%)

	Minimum illumination (30 IRE)
Color	1 lx
Color + SensUp 10x	0.1 lx
Monochrome	0.4 lx
Monochrome + SensUp 10x	0.04 lx

Day/Night	Color, Mono, Auto
Pre-configured modes	6 preset programmable modes
Dynamic range	70 dB
Dynamic engine	XF-Dynamic, SmartBLC
SmartBLC	On / Off
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 Auto (1/50 [1/60] to 1/50000) automatic 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, Saw-tooth 2H, Checker board, Cross hatch, UV plane
Synchronization	Internal, Line Lock, HV-lock and Genlock (Burst lock) selectable
Audio	
Standard	G.711, 8kHz sampling rate 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
• signal line in	9 kohm typical, 5.5 Vpp max
• signal line out	3.0 Vpp at 10 kohm typical, 2.3 Vpp at 32 Ohm typical, 1.7 Vpp at 16 Ohm typical
Alarm	1 non-isolated closing contact
• activation voltage	+5 VDC to +40 VDC (+3.3 VDC with DC-coupled 22 kohm pull-up resistor)
Relay	1 output
• voltage	30 VAC or +40 VDC Maximum 0.5 A continuous, 10VA
Software Control	
Unit Configuration	Via web browser or Configuration Manager
Flicker Control	50/60 Hz, selectable
Software update	Flash ROM, remote programmable
Network	
Protocols	RTP, RTSP, Telnet, UDP, TCP, IP, HTTP, HTTPS, FTP, DHCP, IGMP V2/V3, ICMP, ARP, SMTP, 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
Optical	
Varifocal lens	IR corrected, manual zoom and focus adjustment
Iris control	Automatic iris control
Viewing angle	92.9° to 31.7° horizontal 67.9° to 23.7° vertical

Mechanical

Weight	0.67 kg (1.48 lb) +SMB: 1.29 kg (2.84 lb)
Mounting	Flush mount or surface mount
Color	White (RAL9010) trim ring with black inner liner
Adjustment range	360° pan, 90° tilt, ±90° azimuth
Dome bubble	Polycarbonate, clear with UV blocking anti-scratch coating
Trim ring	Aluminum

Environmental

	Motion+ versions	IVA versions
Operating temperature default (with heater off)	-20 °C to +50 °C (-4 °F to +122 °F) cold start	-20 °C to +45 °C (-4 °F to +113 °F) cold start
Operating temperature (with heater on)	-50 °C to +50 °C (-58 °F to +122 °F)	-50 °C to +45 °C (-58 °F to +113 °F)
Storage temperature	-50 °C to +70 °C (-58 °F to +158 °F)	
Operating humidity	5% to 93% relative humidity	
Storage humidity	Up to 98% relative humidity	
Impact protection	IEC 60068-2-75 test Eh, 50 J	
	EN 50102, exceeding IK 10	
Water/dust protection	IP 66 and NEMA-4X	
Environmental Test Method	EN50130-5:1999 Alarm systems Part 5 (Class 4 Outdoor in general)	

Ordering Information

NDN-921-V03-P FlexiDomeHD 720p 1/3-inch Dome, HD 720p, H.264, Motion+, PoE	NDN-921-V03-P
NDN-921-V03-2P FlexiDomeHD 720p 1/3-inch Dome, HD 720p, H.264, IVA ready, PoE	NDN-921-V03-2P
NDN-921-V03-IP FlexiDomeHD 720p 1/3-inch Dome, HD 720p, H.264, IVA enabled, PoE	NDN-921-V03-IP
NDN-921-V03-PS FlexiDomeHD 720p 1/3-inch Dome, HD 720p, H.264, Motion+, PoE, Surface mount	NDN-921-V03-PS
NDN-921-V03-2PS FlexiDomeHD 720p 1/3-inch Dome, HD 720p, H.264, IVA ready, PoE, Surface mount	NDN-921-V03-2PS
NDN-921-V03-IPS FlexiDomeHD 720p 1/3-inch Dome, HD 720p, H.264, IVA enabled, PoE, Surface mount	NDN-921-V03-IPS

Ordering Information

Accessories

VDA-WMT-DOME Wall Pendant Mount Bracket Wall pendant mount bracket for FlexiDome cameras	VDA-WMT-DOME
VDA-CMT-DOME Corner Mount Bracket Corner mount bracket for FlexiDome cameras	VDA-CMT-DOME
VDA-PMT-DOME Pendant Pipe Mount Bracket Pendant pipe mount bracket for FlexiDome cameras	VDA-PMT-DOME
UPA-2410-60 Power Supply 120 VAC, 60 Hz, 24 VAC, 10 VA Out	UPA-2410-60
UPA-2430-60 Power Supply 120 VAC, 60 Hz, 24 VAC, 30 VA Out	UPA-2430-60
UPA-2450-60 Power Supply 120 VAC, 60 Hz, 24 VAC, 50 VA Out	UPA-2450-60
UPA-2420-50 Power Supply 220 VAC, 50 Hz, 24 VAC, 20 VA Out	UPA-2420-50
UPA-2450-50 Power Supply 220 VAC, 50 Hz, 24 VAC, 50 VA Out For use with certain 24 VAC camera models.	UPA-2450-50
VDA-455TBL Tinted bubble Tinted bubble for FlexiDome series	VDA-455TBL
VDA-455CBL Clear bubble Clear Bubble for FlexiDome series	VDA-455CBL
Software Options	
MVC-FENC-AES BVIP AES 128 Bit Encryption BVIP AES 128-bit encryption site license. This license is required only once per installation. It enables encrypted communication between BVIP devices and management stations.	MVC-FENC-AES
MVC-FIVA4-CAM IVA 4.x VCA software license for IP camera/dome (e-license)	MVC-FIVA4-CAM

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
5600 JB 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 6258 5511
Fax: +65 6571 2698
apr.securitysystems@bosch.com
www.boschsecurity.asia

Represented by