NWD-495 FlexiDomeDN IP Cameras

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BOSCH
Invented for life

▶ High-impact, vandal-resistant enclosure

▶ Advanced Day/Night camera with mechanically switching IR filter

▶ 15-bit DSP technology with XF-dynamic extended dynamic range

▶ High-performance H.264, MPEG-4, and M-JPEG

▶ Direct-to-iSCSI recording

The NWD-495 FlexiDome^{DN} IP is a high-performance 1/3-inch CCD Day/Night network camera, designed to ensure the highest possible image quality at all times. This ultra-compact and vandal-resistant camera provides DVD-like quality MPEG-4 video at up to 25 and 30 images per second (for PAL and NTSC respectively) or H.264 encoding. Network video signals are sent over IP networks and can be received and displayed on a PC web browser, viewed and recorded using the DiBos hybrid recording system, or managed as part of a VIDOS or BVMS video management system. Moreover, send the stream to a BOSCH Video over IP (BVIP) decoder for viewing on a CVBS or VGA monitor.

The camera combines 15-bit digital video processing (which enhances sensitivity) and XF-Dynamic (which extends the dynamic range) to provide a sharper, more detailed image with outstanding accuracy in color reproduction. Depending on the available light, the NWD-495 automatically switches from color to monochrome, enhancing sensitivity for IR illumination to provide high-quality images even in challenging low-light conditions.

FlexiDome IP uses H.264 or MPEG-4 compression, bandwidth throttling, and multicasting capabilities to manage bandwidth and storage requirements

efficiently while delivering the best image quality and resolution. The analog video service output and the on-screen displays (OSD) simplify focus adjustment and network configuration, leading to lower installation and support costs. Power over Ethernet (PoE) makes installation easier and more cost-effective because cameras no longer need AC power

Functions

Day/Night Mode
In Night Mode, the NWD-495 provides enhanced night viewing by increasing the IR sensitivity. The IR filter can switch automatically from color to monochrome by sensing the illumination level or be remotely switched via a web browser. An internal, through-the-lens IR detector enhances monochrome mode stability by preventing the camera from returning to the color mode when IR illumination is dominant.

XF-Dynamic
The highly accurate 15-bit digital signal is automatically processed to reveal every detail of the image in both the highlight and low-light areas of the scene simultaneously.

Intelligence
The FlexiDome Day/Night IP supports increased intelligence at the edge that provides powerful tamper detection for various combined picture cases arising from: video loss, masking, hooding, defocusing, and diverted camera. Bosch also offers Intelligent Video Motion Detection (IVMD) as an additional licensable option. This provides video content analysis (VCA) directly at the video input for even more advanced VCA.

H.264 Baseline Profile Encoding
Firmware version 4.0 and higher enables the camera to use H.264 Baseline Profile to encode the video signal. This reduces the required bit rate for a given quality setting, or increases the quality while keeping the bit rate setting.
Because H.264 Baseline Profile does not support field encoding, interlaced video is not possible, thus resolution is limited to a maximum of 2CIF. H.264 encoding requires double the performance in respect to MPEG-4. Frame rate values must therefore be divided by two.

MPEG-4 Video Encoding
The FlexiDome MPEG-4 encoder creates high-quality streaming video at low bit rates, minimizing bandwidth and storage requirements, which further reduces costs. Each FlexiDome IP camera can deliver up to 25 and 30 images per second (PAL and NTSC) at true 4CIF video resolution.

ONVIF
ONVIF (Open Network video Interface Forum) compliancy ensures integration with third party management systems and video network devices.

Tri-streaming Video
FlexiDome IP cameras can generate two separate H. 264/MPEG-4 video streams and one JPEG stream simultaneously, while giving access to five users at a time. This advanced tri-streaming capability, not typically found in other IP CCTV systems, enables the user to optimize live viewing and recording requirements to meet specific site and enterprise needs. For example, BOSCH Video over IP Systems (BVIP) can be configured to record video at one quality setting (e.g. 3.75 IPS at 2CIF), while simultaneously providing live images at the best possible image quality (e.g. 30 IPS at 4CIF). Alternatively, the system deliver a high bandwidth, H. 264/MPEG-4 stream to a local LAN user, while simultaneously streaming a low bandwidth H.264/MPEG-4 stream to a remote user over a WAN connection, while using the JPEG stream for remote viewing, for instance, on a PDA.

Power Options
Three power options, PoE, 24 VAC (12 to 28 VAC) and 12 VDC (+11 to +36 VDC), are available on the NWD-495. Utilizing PoE makes installation easier and more cost-effective, since cameras do not require a local AC power source. Additionally, they can use an uninterruptible power supply (UPS), which will allow continuous operation, even during a power failure, e.g. in emergencies.

OSD-based Network Set-up
Network parameters and basic camera set-up, such as lens set-up and back focus, are quickly and easily performed using the on-screen displays (OSD) and analog video service output. Unlike other IP cameras, no network connection, PC configuration utilities, or other tools are required to set up FlexiDome IP.

Recording
The FlexiDome IP cameras offer unparalleled recording options – network-attached utilizing iSCSI devices, and of course centrally, using network video recorders (NVRs). The iSCSI RAID 5 storage support enables a camera to act as a conventional DVR, while streaming high-performance live video across the network. The cameras also offer 10 Mb internal RAM storage.
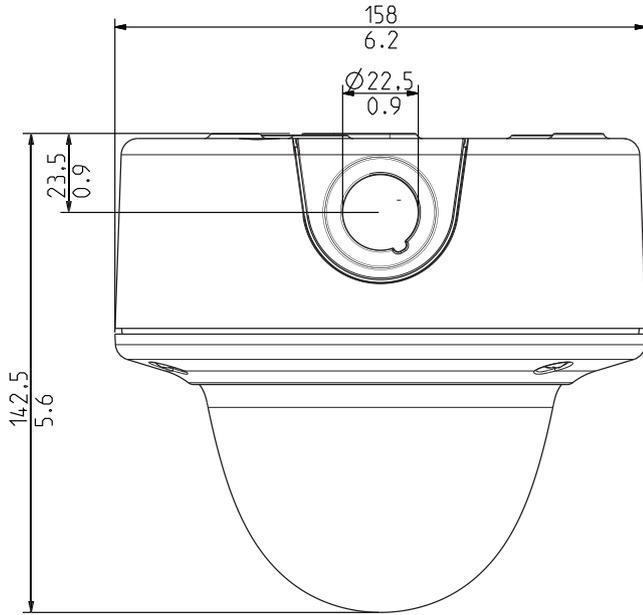
Certifications and approvals

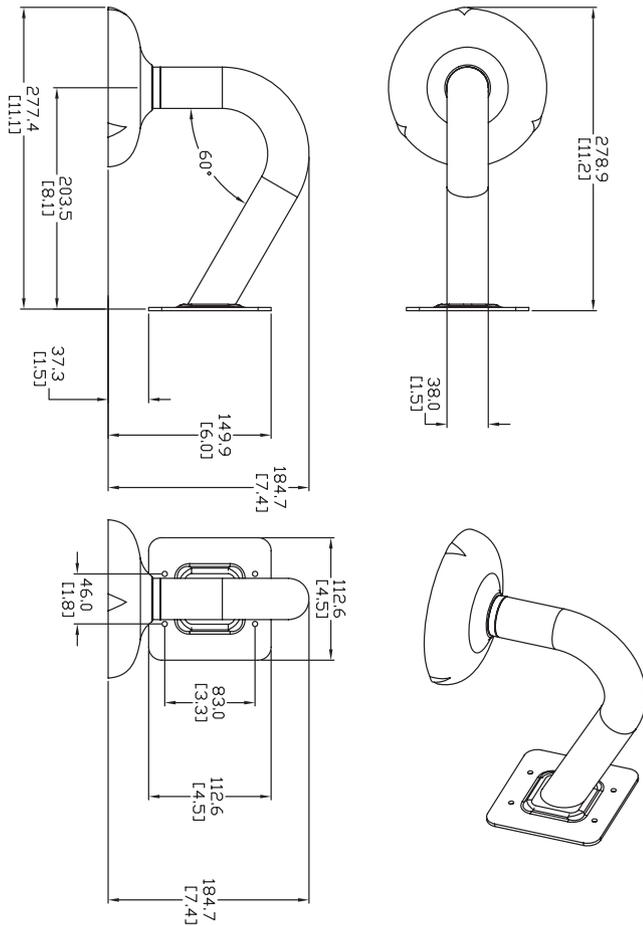| Safety	acc. to EN 60950-1 (CE)
	acc. to UL 60950-1
Immunity	acc. to EN 50130-4 (CE)
Emission	acc. to EN 55022 class B (CE)
	acc. to EN 61000-3-2 (CE); EN 61000-3-3 (CE)
	acc. to FCC CFR 47 Part 15, Class B
	acc. to AS/NZS CISPR 22 (equal to CISPR 22)

Installation/configuration notes

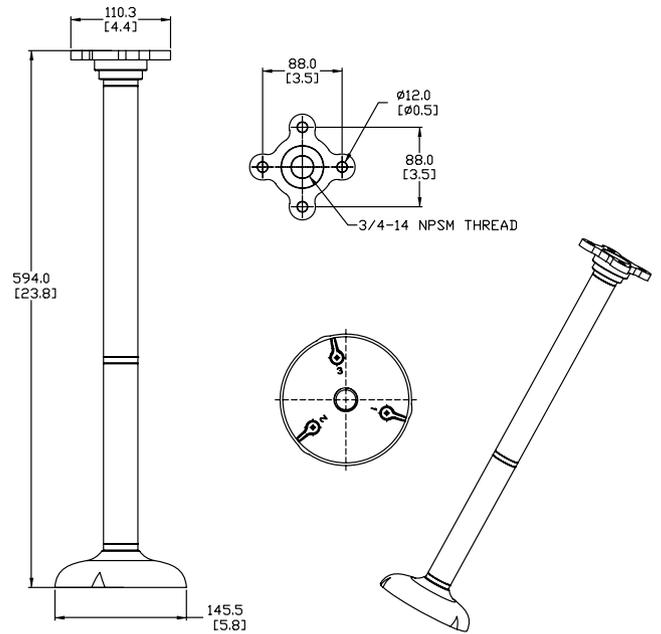| NWD	495	V	___ 03 09	–	___ 10 20	P
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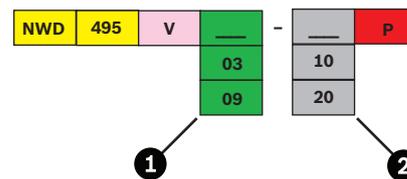
1	03	3 to 9 mm F1.4
	09	9 to 22 mm F1.4
2	10	PAL color or CCIR mono
	20	NTSC color or EIA mono

VDA-NWDPMT Pipe Mount

VDA-NWDWMT Wall Mount

VDA-NWDCMT Corner Mount
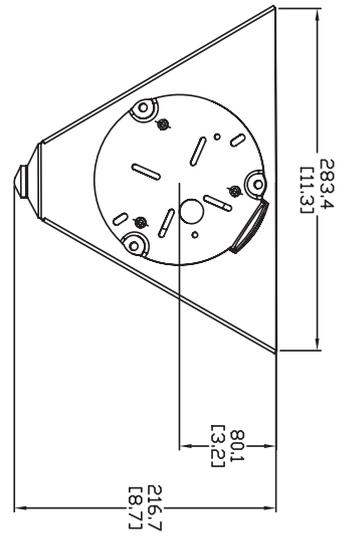
Parts included

Quantity	Component
1	NWD-495 FlexiDome DN IP Cameras
1	Focus aid
1	Quick Installation Guide
1	CD-ROM with manual, software, and tools

Technical specifications

Electrical

Power

Input voltage	+11 to +36 VDC (750 mA)
	12 to 28 VAC, 45/65 Hz* (850 mA)
	PoE, IEEE 802.3af
Power consumption	10.5 VA (max)
Connector	3-pole push-in

Video

Video compression	MPEG-4/H.264; M-JPEG	
GOP structure	I, IP	
Data rate	9.6 Kbps to 6 Mbps (const. and variable)	
Sensor	1/3-inch interline CCD	
Sensor matrix		
PAL	752 x 582	
NTSC	768 x 494	
Resolutions and frame rates	PAL	NTSC
4CIF: 25/30 IPS	704 x 576	704 x 480
2CIF: 25/30 IPS	704 x 288	704 x 240
half D1: 25/30 IPS	352 x 576	352 x 480
CIF: 25/30 IPS	352 x 288	352 x 240
QCIF: 25/30 IPS	176 x 144	176 x 120
Video out	1 x	
signal	Analog composite (NTSC or PAL)	
connector	2.5 mm jack socket, 75 ohm	
Video S/N	50 dB	

Sensitivity (3200 K, scene reflectivity 89%)	Usable picture (30 IRE)	Usable picture (50 IRE)	Full video (100 IRE)
NWD-495V03			
NightMode	0.11 lx (0.01 fc)	0.27 lx (0.026 fc)	1.1 lx (0.1 fc)
color	0.32 lx (0.031 fc)	0.69 lx (0.064 fc)	2.7 lx (0.26 fc)
NightMode + SenseUp	0.011 lx (0.001 fc)	0.027 lx (0.003 fc)	0.11 lx (0.01 fc)
color + SenseUp	0.032 lx (0.003 fc)	0.069 lx (0.007 fc)	0.27 lx (0.026 fc)

NWD-495V09			
NightMode	0.066 lx (0.006 fc)	0.16 lx (0.016)	0.66 lx (0.06)
color	0.19 lx (0.018 fc)	0.41 lx (0.038)	1.62 lx (0.16)
NightMode + SenseUp	0.0066 lx (0.0006 fc)	0.016 lx (0.0016)	0.066 lx (0.006)
color + SenseUp	0.019 lx (0.0018 fc)	0.041 lx (0.0038)	0.162 lx (0.016)

SenseUp	Off; auto up to 10 x
Dynamic range	32 x
BLC	On/off; area; manual selectable
Gain	Fixed; auto with selectable limit (max 28 dB)
White balance	Auto (2500 to 10000 K); AWB hold; fixed selectable
Auto black	On/off selectable
Electronic shutter	Auto; fixed; flickerless; default
PAL	1/50 to 1/150000 s
NTSC	1/60 to 1/150000 s

Optical

Varifocal	IR-corrected, manual zoom and focus adjustment
Iris control	Automatic
Viewing angle 3 to 9 mm	Wide 90.3º x 66.4º (H x V)
	Tele 31.9º x 23.9º (H x V)
Viewing angle 9 to 22 mm	Wide: 31.2º x 22.8º (H x V)
	Tele: 12.8º x 9.6º (H x V)

Software control

Unit configuration	Via web browser or Configuration Manager
Flicker control	50/60 Hz, selectable
Contour	Horizontal and vertical, symmetrical
Firmware	Flash ROM, remote update

Network

Protocols	Telnet, RTP, HTTP(S), ARP,TCP, UDP, IP, ICMP, DHCP, IGMPv2/v3, SNMP, 802.1x
Ethernet	10/100 Base-T, auto-sensing, half/full duplex, RJ45
Overall unit delay	120 ms (MPEG-4)
PoE	IEEE 802.3af compliant

Mechanical

Dimensions (H x W x D)*	See drawing
Weight (without lens)	Approx. 1.8 kg (3.96 lb)
Color	White (RAL 9010), black inner liner
Material	
dome bubble	Polycarbonate, clear, UV-blocking, anti-scratch coating
trim ring, camera body	Aluminum
Lens mounting	C/CS
Adjustment range	360º pan, 90º tilt, ±90º azimuth

Environmental

Operating temperature	-10 ºC to +40 ºC (+14 ºF to +104 ºF)
Storage temperature	-25 ºC to +70 ºC (-13 ºF to +158 ºF)
Humidity	20% to 80% relative humidity (noncondensing)
Water/dust protection	IP 54, NEMA-3R

Ordering information

NWD-495V03-10P FlexiDomeDN IP Camera
PAL, 3 to 9 mm F1.4 lens
Order number **NWD-495V03-10P**

NWD-495V03-20P FlexiDomeDN IP Camera
NTSC, 3 to 9 mm F1.4 lens
Order number **NWD-495V03-20P**

NWD-495V09-10P FlexiDomeDN IP Camera
PAL, 9 to 22 mm lens
Order number **NWD-495V09-10P**

NWD-495V09-20P FlexiDomeDN IP Camera
NTSC, 9 to 22 mm lens
Order number **NWD-495V09-20P**

Accessories

UPA-1509-60 Power Supply
Power supply for camera. 120 VAC, 60 Hz In; 15 VDC, 9 VA Out
Order number **UPA-1509-60**

UPA-1509-50 Power Supply
Power supply for camera. 220 VAC, 50 Hz In; 15 VDC, 9 VA Out
Order number **UPA-1509-50**

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

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**

VDA-NWDPMT
Pendant mount for FlexiDome IP Series
Order number **VDA-NWDPMT**

VDA-NWDWMT
Wall mount for FlexiDome IP Series
Order number **VDA-NWDWMT**

VDA-NWDCMT
Corner mount for FlexiDome IP Series
Order number **VDA-NWDCMT**

VDA-NWDFMT Flush-mount Ceiling Kit
Order number **VDA-NWDFMT**

VDA-NWDSKT Support Kit for VDA-NWDFMT
Order number **VDA-NWDSKT**

VDA-455CBL Clear bubble
Clear Bubble for FlexiDome series
Order number **VDA-455CBL**

VDA-455TBL Tinted bubble
Tinted bubble for FlexiDome series
Order number **VDA-455TBL**

Software Options

NWD-4X5-FS1
FlexiDome IP IVMD 1.0 VCA software license
Order number **NWD-4X5-FS1**

NWD-4X5-FS2
FlexiDome IP IVMD 2.0 VCA software license
Order number **NWD-4X5-FS2**

NWD-4X5-FS3
FlexiDome IP IVA 3.0 VCA software license
Order number **NWD-4X5-FS3**