BOSCH

Invented for life

VDN-498 Series FlexiDome 2X Dome Camera

‣ **20-bit Image Processing Technology**

‣ **CCD sensor with Wide Dynamic Range**

‣ **Dynamic engine with Smart BLC**

‣ **Detail enhancement**

‣ **True Day/Night performance with switchable filter**

‣ **High impact, vandal-resistant, weatherproof housing**

‣ **Patented dome shape for 90º vertical view**

The FlexiDome 2X Day/Night camera is the ultimate solution for virtually any indoor or outdoor surveillance application. This vandal-resistant dome camera uses a 1/3-inch, wide dynamic range CCD sensor and incorporates advanced (20-bit) digital signal processing for outstanding picture performance.

The 20-bit image processing enhances sensitivity; the 2X-Dynamic extends the dynamic range. This unique combination provides a sharper, more detailed image with outstanding accuracy in color reproduction even under harsh lighting conditions.

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, parking garages, retail and industrial buildings.

Installation is quick and easy, as the camera comes completely assembled and ready to use. Using the proprietary pan/tilt/rotation mechanism, installers can select the exact field of view. Mounting options are numerous, including surface, 4S (USA), wall, corner and suspended ceiling. The compact, sleek design and virtually flush-mount appearance complements any decor.

The FlexiDome 2X camera is an ideal solution for many surveillance applications, even under the most challenging lighting conditions. The day/night feature ensures the highest image quality possible at any time. Depending on the available light the camera will automatically switch from color to monochrome.

All FlexiDome cameras are supplied ready to operate. Six distinct pre-programmed operational modes are stored in the camera. Recall the mode that suits your application for optimized performance.

Functions

Detail in Extreme Lighting

In harsh lighting, the difference between the brightest and the darkest parts of a scene can be extreme. To produce a clear picture in these conditions, the CCD sensor in the FlexiDome 2X generates two images; one long exposure to resolve details in the scene's darkest areas, and one short exposure to resolve details in the scene's brightest areas. The Digital Signal Processor (DSP) of the FlexiDome 2X combines these dual shutter images, mixing pixels from each exposure to produce the most detailed image possible.

20-bit Image Processing

The highly accurate digital signal processing optimally captures the detail in both bright highlights and deep shadows simultaneously. By combining 20-bit image processing and wide dynamic range, the FlexiDome 2X maximizes the information visible in the picture even with strong backlighting.

Wide Dynamic Range

The superior wide dynamic range handling for all lighting conditions reveals details previously unseen.

2X-Dynamic and SmartBLC

Using 2X-Dynamic technology, pixel-by-pixel analysis provides 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.

Detail Enhancement

Features such as Autoblack and Sharpness further improve the details in a scene, pixel by pixel.

Day/Night Mode

The day/night mode provides enhanced night viewing by increasing the IR sensitivity. The IR filter can switch from color to monochrome automatically by either sensing the illumination level or via the alarm input. The filter can be switched manually via the alarm input, through the camera menu or via the Bilinx coaxial control interface. An internal through-the-lens IR detector enhances the monochrome mode stability, as it prevents reverting to the color mode when IR illumination is dominant. IR contrast is also measured and used to handle reflected IR light in outdoor scenes.

Privacy masking

Four different privacy zones allow specific parts of a scene to be blocked. Pre-program any part of the scene to be masked.

Default Shutter

The default shutter speed captures fast moving objects when sufficient light is available. When light levels fall and other adjustments have been exhausted, the shutter speed reverts to a standard setting to maintain sensitivity.

Bilinx Technology

Bilinx is a bidirectional communication capability embedded in the video signal of all Bosch FlexiDome cameras. Technicians can check status, change camera settings and even update firmware from virtually anywhere along the video cable. Bilinx reduces service and installation time, provides for more accurate set-up and adjustment, and improves overall performance. In addition, Bilinx uses the standard video cable to transmit alarm and status messages, providing superior performance without additional installation steps.

Ease of installation

Several features are available that make installation easy:

- Video connection BNC on flying lead
- Power connection on flying leads
- A built-in test pattern generator produces signals to test and fault-find cables.
- A multi-language On-Screen Display (OSD) increases user compatibility.

Programmable Modes

Six independent, pre-programmed operating modes support typical applications, but are fully programmable for individual situations. Switching between modes is easy via Bilinx or the external alarm input.

High efficiency

A high efficiency power supply improves maximum operating temperature.

Video Motion Detection

The built-in video motion detector allows you to select a programmable area with individual thresholds. The global scene change detector minimizes false alarms caused by sudden lighting condition changes, such as switching on or off the indoor or security lighting. When motion is detected, alarms can be displayed in the video signal, the output relay can be closed or an alarm message can be transmitted via Bilinx.

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.

Typical applications

- Entrance foyer/lobby with glass
- Warehouses and loading bays
- Prisons and correctional facilities
- Airport locations including:
  - baggage handling
  - fuel and equipment storage
- Stadium

Certifications and Approvals

Region	Certification	
Europe	CE	Declaration of Conformity
USA	UL	
	FCC	
Canada	CSA	

Electro Magnetic Compatibility

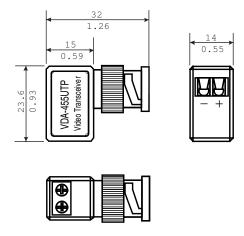|	
Emission	EN55022 class B, FCC part 15 class B, EN6100-3, EN50121-4
Immunity	EN50130-4 (CE), EN50121-4 (CE)
Vibration	IEC60068-2-6

Safety

UL1950-1, CSA 22.2 No. 950-1, EN60950-1 (CE), UL60950, CAN/CSA No. 60950

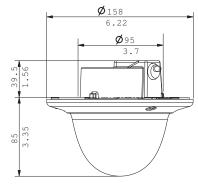## Installation/Configuration Notes

FlexiDome 2X model overview

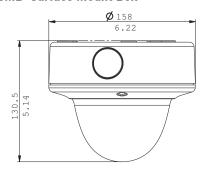| Model	Standard	Lens
VDN-498V03-11	PAL	2.8 to 10 mm F1.2
VDN-498V03-21	NTSC	2.8 to 10 mm F1.2
VDN-498V09-11	PAL	9 to 22 mm F1.4
VDN-498V09-21	NTSC	9 to 22 mm F1.4

BNC to UTP Transceiver

Dimensions in mm (in.)
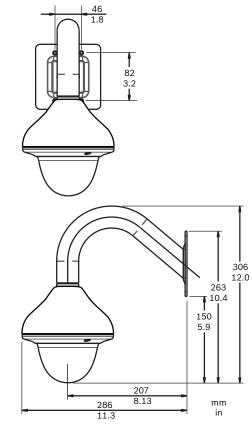
Flush Mounting

Dimensions in mm (in.)
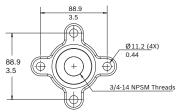
VDA-455SMB–Surface Mount Box

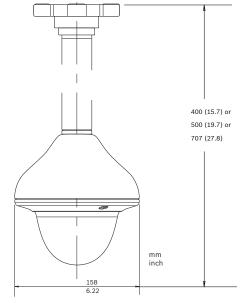*Dimensions in mm (in.) for surface mounting*

VDA-445WMT–Pendant Wall Mount
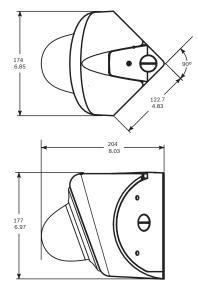

Dimensions in mm (in.)

VDA-455PMT–Pendant Pipe Mount

Dimensions in mm (in.)

VDA-455CMT–Corner Mount

Dimensions in mm (in.) for corner mounting

Technical Specifications

Electrical

Model No.	Rated Voltage	Rated Frequency
VDN-498V03/11	24 VAC ±10% 12 VDC ±10%	50 Hz
VDN-498V09/11	24 VAC ±10% 12 VDC ±10%	50 Hz
VDN-498V03/21	24 VAC ±10% 12 VDC ±10%	60 Hz
VDN-498V09/21	24 VAC ±10% 12 VDC ±10%	60 Hz

Power Consumption	400 mA (12 VDC) 350 mA (24 VAC)
CCD Type	1/3-inch interline, WDR dual shutter

Active Pixels

PAL Model:	752 x 582
NTSC Model	768 x 494

Sensitivity (3200 K, scene reflectivity 89%, transmission 68%)

	Full video (100 IRE)	Usable picture (50 IRE)	Usable picture (30 IRE)
VDN-498V03 (F1.2)			
Color	2.48 lx (0.23 fc)	0.621 lx (0.058 fc)	0.28 lx (0.027 fc)
Color + SensUp 10x	0.248 lx (0.023 fc)	0.062 lx (0.0058 fc)	0.028 lx (0.0027 fc)
Monochrome	1.01 lx (0.093 fc)	0.23 lx (0.021 fc)	0.099 lx (0.0092 fc)
Monochrome + SensUp 10x	0.1 lx (0.0093 fc)	0.023 lx (0.0021 fc)	0.0099 lx (0.00092 fc)
VDN-498V09 (F1.4)			
Color	2.7 lx (0.26 fc)	0.69 lx (0.064 fc)	0.321 lx (0.03 fc)
Color + SensUp 10x	0.27 lx (0.026 fc)	0.069 lx (0.0064 fc)	0.032 lx (0.003 fc)
Monochrome	1.1 lx (0.090 fc)	0.27 lx (0.026 fc)	0.11 lx (0.01 fc)
Monochrome + SensUp 10x	0.11 lx (0.01 fc)	0.027 lx (0.0026 fc)	0.011 lx (0.001fc)

Horizontal Resolution	540 TVL
Signal-to-Noise Ratio	>50 dB
Video Output	Composite video 1 Vpp, 75 ohm
Synchronization	Internal, Line Lock
Shutter	Auto (1/50 [1/60] to 1/10000) selectable Auto (1/50 [1/60] to 1/50000) automatic flickerless, fixed selectable
Sensitivity up	Adjustable from Off up to 10x
Day/Night	Color, Mono, Auto
Auto Black	Automatic continuous, Off

Dynamic engine	XF-Dynamic, 2X-Dynamic, SmartBLC
Dynamic range	120 dB (20-bit image processing)
Dynamic Noise Reduction	Auto, On/off selectable
Sharpness	Sharpness enhancement level selectable
SmartBLC	On (includes 2X-Dynamic) / Off
AGC	AGC On or Off (0 - 30 dB) selectable
Peak White Invert	On/Off
White Balance	ATW, ATWhold and manual (2500 to 10000K)
Alarm Output	VMD or Bilinx
Synchronization	Internal or line lock
Cable Compensation	Up to 1000 m (3000 ft) coax without external amplifiers (automatic set-up in combination with Bilinx coaxial communication)
Camera ID	17 character editable string, position selectable
Test Pattern Generator	Color bars 100%, Greyscale 11-step, Sawtooth 2H, Checker board, Cross hatch, UV plane
Modes	6 preset programmable modes
Remote Control	Bilinx coaxial bi-directional communication
Video Motion Detection	One area, fully programmable
Privacy Masking	Four independent areas, fully programmable
Controls	OSD with soft-key operation (multi-lingual)

Optical

Varifocal	Manual zoom and focus adjustment
Iris control	Automatic iris control
Viewing angle	
2.8 to 10 mm	Wide 100.8 x 73.7º (H x V)
	Tele 28.5º x 21.4º (H x V)
9 to 22 mm	Wide: 31.2º x 22.8º (H x V)
	Tele: 12.8º x 9.6º (H x V)

Mechanical

Dimensions	See drawings
Weight	740 g (1.63 lb)
Mounting	Flush on hollow surface with three (3) screws in a 4S electrical box
Color	White (RAL9010) trim ring with black inner liner
Adjustment range	360º pan, 90º tilt, ±90º azimuth
Dome bubble	Polycarbonate, clear with UV blocking anti-scratch coating
Trim ring	Aluminum

Environmental

Operating temperature default (with heater off)	-30 ºC to +55 ºC (-22 ºF to +131 ºF)
Operating temperature (with heater on)	-50 ºC to +55 ºC (-58 ºF to +131 ºF)
Storage temperature	-55 ºC to +70 ºC (-40 ºF to +158 ºF)
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

Ordering Information

VDN-498V03-11 Vandal Resistant Day/ Night 2X Model 1/3-inch WDR, PAL D/N, 540 TVL, 12 VDC/ 24 VAC, 50 Hz, w/2.8-10 mm F1.2 Varifocal lens, white	**VDN-498V03-11**
VDN-498V03-21 Vandal Resistant Day/ Night 2X Model 1/3-inch WDR, NTSC D/N, 540 TVL, 12 VDC/ 24 VAC, 60 Hz, w/2.8-10 mm F1.2 Varifocal lens, white	**VDN-498V03-21**
VDN-498V09-11 Vandal Resistant Day/ Night 2X Model 1/3-inch WDR, PAL D/N, 540 TVL, 12 VDC/ 24 VAC, 50 Hz, w/9-22 mm F1.4 Varifocal lens, white	**VDN-498V09-11**
VDN-498V09-21 Vandal Resistant Day/ Night 2X Model 1/3-inch WDR, NTSC D/N, 540 TVL, 12 VDC/ 24 VAC, 60 Hz, w/9-22 mm F1.4 Varifocal lens, white	**VDN-498V09-21**
VDN-498V03-11S Vandal Resistant Day/ Night 2X Model, Surface Mount 1/3-inch WDR, PAL D/N, 540 TVL, 12 VDC/ 24 VAC, 50 Hz, w/2.8-10 mm F1.2 Varifocal lens, white, surface mount	**VDN-498V03-11S**
VDN-498V03-21S Vandal Resistant Day/ Night 2X Model, Surface Mount 1/3-inch WDR, NTSC D/N, 540 TVL, 12 VDC/ 24 VAC, 60 Hz, w/2.8-10 mm F1.2 Varifocal lens, white, surface mount	**VDN-498V03-21S**
VDN-498V09-11S Vandal Resistant Day/ Night 2X Model, Surface Mount 1/3-inch WDR, PAL D/N, 540 TVL, 12 VDC/ 24 VAC, 50 Hz, w/9-22 mm F1.4 Varifocal lens, white, surface mount	**VDN-498V09-11S**
VDN-498V09-21S Vandal Resistant Day/ Night 2X Model, Surface Mount 1/3-inch WDR, NTSC D/N, 540 TVL, 12 VDC/ 24 VAC, 60 Hz, w/9-22 mm F1.4 Varifocal lens, white, surface mount	**VDN-498V09-21S**

Ordering Information

Accessories

EX12LED-3BD-8M Infrared Illuminator EX12LED IR Illuminator, 850 nm, 30 deg beam	EX12LED-3BD-8M
EX12LED-3BD-8W Infrared Illuminator EX12LED, IR Illuminator, 850 nm, 60 deg beam	EX12LED-3BD-8W
EX12LED-3BD-9M Infrared Illuminator EX12LED IR Illuminator, 940 nm, 30 deg beam	EX12LED-3BD-9M
EX12LED-3BD-9W Infrared Illuminator EX12LED, IR Illuminator, 940 nm, 60 deg beam	EX12LED-3BD-9W
VDA-455SMB Surface mount box, high impact for VDC-455, VDM-455, VDC-485 and VDN-495 (not for FlexiDome VF).	VDA-455SMB
VDA-445WMT Wall mounting bracket	VDA-445WMT
VDA-455CMT Corner mounting bracket for interior corner	VDA-455CMT
VDA-455PMT Pendant pipe mount	VDA-455PMT
VDA-455UTP Adaptor for UTP twisted pair output	VDA-455UTP
S1460 Service/Monitor Cable for FlexiDome XT (2.5 mm connector to BNC), 1 m	S1460
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	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

VP-CFGSFT Configuration Software for cameras using Bilinx, includes VP-USB Adaptor	VP-CFGSFT