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, Blixir 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.

**Lens Options**
With the FlexiDome 2X dome camera, there is no compromise between scene coverage and aesthetics of the camera. The camera brings the widest choice of lens selection. Choose lenses between 2.8 to 10 mm for wide coverage, 9 to 22 mm VF lens for standard coverage, or 6 to 50 mm for long-rang coverage.

**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**

<table>
<thead>
<tr>
<th>Electro Magnetic Compatibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emission</td>
</tr>
</tbody>
</table>
### 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

### Region | Certification
--- | ---
Europe | CE
Europe | Declaration of Conformity
USA | UL
USA | FCC

### Installation/configuration notes

#### FlexiDome 2X model overview

<table>
<thead>
<tr>
<th>Model</th>
<th>Standard</th>
<th>Lens</th>
</tr>
</thead>
<tbody>
<tr>
<td>VDN-498V03-11</td>
<td>PAL</td>
<td>2.8 to 10 mm F1.2</td>
</tr>
<tr>
<td>VDN-498V03-21</td>
<td>NTSC</td>
<td>2.8 to 10 mm F1.2</td>
</tr>
<tr>
<td>VDN-498V06-11</td>
<td>PAL</td>
<td>6 to 50 mm F1.6</td>
</tr>
<tr>
<td>VDN-498V06-21</td>
<td>NTSC</td>
<td>6 to 50 mm F1.6</td>
</tr>
<tr>
<td>VDN-498V09-11</td>
<td>PAL</td>
<td>9 to 22 mm F1.4</td>
</tr>
<tr>
<td>VDN-498V09-21</td>
<td>NTSC</td>
<td>9 to 22 mm F1.4</td>
</tr>
</tbody>
</table>

#### BNC to UTP Transceiver

Dimensions in mm (in.)

#### VDA-455SMB–Surface Mount Box

Dimensions in mm (in.) for surface mounting

---

**Flush Mounting**

Dimensions in mm (in.)
VDN-498 Series FlexiDome 2X Dome Camera

**Technical specifications**

### Electrical

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Rated Voltage</th>
<th>Rated Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>VDN-498V03/11</td>
<td>24 VAC ±10% 12 VDC ±10%</td>
<td>50 Hz</td>
</tr>
<tr>
<td>VDN-498V06/11</td>
<td>24 VAC ±10% 12 VDC ±10%</td>
<td>50 Hz</td>
</tr>
<tr>
<td>VDN-498V09/11</td>
<td>24 VAC ±10% 12 VDC ±10%</td>
<td>50 Hz</td>
</tr>
<tr>
<td>VDN-498V03/21</td>
<td>24 VAC ±10% 12 VDC ±10%</td>
<td>60 Hz</td>
</tr>
<tr>
<td>VDN-498V06/21</td>
<td>24 VAC ±10% 12 VDC ±10%</td>
<td>60 Hz</td>
</tr>
<tr>
<td>VDN-498V09/21</td>
<td>24 VAC ±10% 12 VDC ±10%</td>
<td>60 Hz</td>
</tr>
</tbody>
</table>

- 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%)

<table>
<thead>
<tr>
<th>VDN-498V03 (F1.2)</th>
<th>Full video (100 IRE)</th>
<th>Usable picture (50 IRE)</th>
<th>Usable picture (30 IRE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>2.48 lx (0.23 fc)</td>
<td>0.621 lx (0.058 fc)</td>
<td>0.28 lx (0.027 fc)</td>
</tr>
</tbody>
</table>
### VDN-498V06 (F1.6)

<table>
<thead>
<tr>
<th>Color + SensUp 10x</th>
<th>0.248 lx (0.023 fc)</th>
<th>0.062 lx (0.0058 fc)</th>
<th>0.028 lx (0.0027 fc)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monochrome</td>
<td>1.01 lx (0.093 fc)</td>
<td>0.23 lx (0.021 fc)</td>
<td>0.099 lx (0.0092 fc)</td>
</tr>
<tr>
<td>Monochrome + SensUp 10x</td>
<td>0.1 lx (0.0093 fc)</td>
<td>0.023 lx (0.0021 fc)</td>
<td>0.0099 lx (0.00092 fc)</td>
</tr>
</tbody>
</table>

### VDN-498V09 (F1.4)

<table>
<thead>
<tr>
<th>Color + SensUp 10x</th>
<th>2.7 lx (0.26 fc)</th>
<th>0.69 lx (0.064 fc)</th>
<th>0.321 lx (0.03 fc)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monochrome</td>
<td>1.1 lx (0.09 fc)</td>
<td>0.27 lx (0.026 fc)</td>
<td>0.11 lx (0.01 fc)</td>
</tr>
<tr>
<td>Monochrome + SensUp 10x</td>
<td>0.11 lx (0.01 fc)</td>
<td>0.027 lx (0.0026 fc)</td>
<td>0.011 lx (0.001 fc)</td>
</tr>
</tbody>
</table>

### Specifications

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Horizontal Resolution</td>
<td>540 TVL</td>
</tr>
<tr>
<td>Signal-to-Noise Ratio</td>
<td>&gt;50 dB</td>
</tr>
<tr>
<td>Video Output</td>
<td>Composite video 1 Vpp, 75 ohm</td>
</tr>
<tr>
<td>Synchronization</td>
<td>Internal, Line Lock</td>
</tr>
<tr>
<td>Shutter</td>
<td>Auto (1/50 [1/60] to 1/10000) selectable</td>
</tr>
<tr>
<td>Sensitivity up</td>
<td>Adjustable from Off up to 10x</td>
</tr>
<tr>
<td>Day/Night</td>
<td>Color, Mono, Auto</td>
</tr>
<tr>
<td>Auto Black</td>
<td>Automatic continuous, Off</td>
</tr>
<tr>
<td>Dynamic engine</td>
<td>XF-Dynamic, 2X-Dynamic, SmartBLC</td>
</tr>
<tr>
<td>Dynamic range</td>
<td>120 dB (20-bit image processing)</td>
</tr>
<tr>
<td>Dynamic Noise Reduction</td>
<td>Auto, On/off selectable</td>
</tr>
<tr>
<td>Sharpness</td>
<td>Sharpness enhancement level selectable</td>
</tr>
<tr>
<td>SmartBLC</td>
<td>On (includes 2X-Dynamic) / Off</td>
</tr>
<tr>
<td>AGC</td>
<td>AGC On or Off (0 - 30 dB) selectable</td>
</tr>
<tr>
<td>Peak White Invert</td>
<td>On/Off</td>
</tr>
<tr>
<td>White Balance</td>
<td>ATW, ATWhold and manual (2500 to 10000K)</td>
</tr>
<tr>
<td>Alarm Output</td>
<td>VMD or BilynX</td>
</tr>
<tr>
<td>Synchronization</td>
<td>Internal or line lock</td>
</tr>
<tr>
<td>Camera ID</td>
<td>17 character editable string, position selectable</td>
</tr>
<tr>
<td>Test Pattern Generator</td>
<td>Color bars 100%, Greyscale 11-step, Sawtooth 2H, Checker board, Cross hatch, UV plane</td>
</tr>
<tr>
<td>Modes</td>
<td>6 preset programmable modes</td>
</tr>
<tr>
<td>Remote Control</td>
<td>BilynX coaxial bi-directional communication</td>
</tr>
<tr>
<td>Video Motion Detection</td>
<td>One area, fully programmable</td>
</tr>
<tr>
<td>Privacy Masking</td>
<td>Four independent areas, fully programmable</td>
</tr>
<tr>
<td>Controls</td>
<td>OSD with soft-key operation (multi-lingual)</td>
</tr>
</tbody>
</table>

### Optical

- **Vari focal**: 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: 5.8º x 4.4º (H x V) 6 to 50 mm: Wide: 43.4º x 32.4º (H x V) Tele: 5.8º x 4.4º (H x V)

### Mechanical

- **Dimensions**: See drawings
- **Weight**: 740 g (1.63 lb)
- **Mounting**: Flush on hollow surface with three (3) screws in a 45 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 (-67 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
Order number 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
Order number VDN-498V03-21

VDN-498V06-11 Vandal Resistant Day/Night 2X Model
1/3-inch WDR, PAL D/N, 540 TVL, 12 VDC/24 VAC, 50 Hz, w/6-50 mm F1.6 Varifocal lens, white
Order number VDN-498V06-11

VDN-498V06-21 Vandal Resistant Day/Night 2X Model
1/3-inch WDR, NTSC D/N, 540 TVL, 12 VDC/24 VAC, 60 Hz, w/6-50 mm F1.6 Varifocal lens, white
Order number VDN-498V06-21

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
Order number 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
Order number 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
Order number 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
Order number VDN-498V03-21S

VDN-498V06-11S Vandal Resistant Day/Night 2X Model, Surface Mount
1/3-inch WDR, PAL D/N, 540 TVL, 12 VDC/24 VAC, 50 Hz, w/6-50 mm F1.6 Varifocal lens, white, surface mount
Order number VDN-498V06-11S

VDN-498V06-21S Vandal Resistant Day/Night 2X Model, Surface Mount
1/3-inch WDR, NTSC D/N, 540 TVL, 12 VDC/24 VAC, 60 Hz, w/6-50 mm F1.6 Varifocal lens, white, surface mount
Order number VDN-498V06-21S

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
Order number 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
Order number VDN-498V09-21S

Accessories
VDA-455SMB
Surface mount box, high impact for VDC-455, VDM-455, VDC-485, VDN-498, NDC-455 and NDN-498
Order number VDA-455SMB

VDA-455UTP
Adaptor for UTP twisted pair output
Order number VDA-455UTP

S1460 Service/Monitor Cable
2.5 mm connector to BNC for analog and IP cameras, 1 m
Order number S1460

UPA-2410-60 Power Supply
120 VAC, 60 Hz, 24 VAC, 10 VA Out
Order number UPA-2410-60

UPA-2430-60 Power Supply
120 VAC, 60 Hz, 24 VAC, 30 VA Out
Order number UPA-2430-60

UPA-2450-60 Power Supply, 120 V, 60 Hz
Indoor, 120 VAC, 60 Hz In; 24 VAC, 50 VA Out
Order number UPA-2450-60

UPA-2420-50 Power Supply
220 VAC, 50 Hz, 24 VAC, 20 VA Out
Order number UPA-2420-50

UPA-2450-50 Power Supply, 220 V, 50 Hz
Indoor, 220 VAC, 50 Hz In; 24 VAC, 50 VA Out
Order number UPA-2450-50

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

VDA-455CBL Clear bubble
Clear Bubble for FlexiDome series
Order number VDA-455CBL
EX12LED-3BD-8M Infrared Illuminator
EX12LED IR Illuminator, 850 nm, 30 deg beam
Order number EX12LED-3BD-8M

EX12LED-3BD-8W Infrared Illuminator
EX12LED IR Illuminator, 850 nm, 60 deg beam
Order number EX12LED-3BD-8W

EX12LED-3BD-9M Infrared Illuminator
EX12LED IR Illuminator, 940 nm, 30 deg beam
Order number EX12LED-3BD-9M

EX12LED-3BD-9W Infrared Illuminator
EX12LED IR Illuminator, 940 nm, 60 deg beam
Order number EX12LED-3BD-9W

VDA-WMT-DOME Wall Pendant Mount Bracket
Wall pendant mount bracket for FlexiDome cameras
Order number VDA-WMT-DOME

VDA-CMT-DOME Corner Mount Bracket
Corner mount bracket for FlexiDome cameras
Order number VDA-CMT-DOME

VDA-PMT-DOME Pendant Pipe Mount Bracket
Pendant pipe mount bracket for FlexiDome cameras
Order number VDA-PMT-DOME

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