

FLEXIDOME IP starlight 7000 VR

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HD Onvif

The FLEXIDOME IP starlight 7000 VR camera provides clear images 24/7 – even at night or under low-light conditions.

High sensitivity in color (0.017 lx) and monochrome mode (0.0057 lx) enables this camera to work with a minimum of ambient light. This exceptional light sensitivity combined with Content-Based Imaging Technology (C-BIT) ensures crisp, clear, and detailed images in all lighting conditions. The 720p HD can also provide up to 60 images per second.

The aesthetic vandal resistant housing makes the camera suitable for indoor or outdoor installation.

System overview

Compared to SD cameras, the FLEXIDOME IP starlight 7000 VR offers, at no higher cost, motorized autofocus, higher resolution, better sensitivity, higher frame rates, and improved picture quality, and is still more bandwidth-efficient. Video storage costs are significantly reduced.



- ▶ Excellent low-light performance (0.017 lx in color)
- ▶ Aesthetic vandal-resistant enclosure, suitable for indoor or outdoor applications
- ▶ Intelligent noise reduction reduces bandwidth and storage requirements by up to 30%
- ▶ Outstanding wide dynamic range of 84 dB (100 dB with iAE)
- ▶ Easy to install with auto zoom/focus SR lens, wizard and pre-configured modes

Functions

Exceptional low-light performance

The latest sensor technology combined with the sophisticated noise suppression results in a sensitivity of 0.017 lx in color. The low-light performance is so good that the camera continues to provide excellent color performance even with a minimum of ambient light.

The camera is a true day/night camera with a mechanical filter for truly outstanding nighttime performance (0.0057 lx in monochrome). The filter can be switched remotely, or automatically via a light level sensor or contact input.

Content-based Imaging Technology

Content-Based Image Technology (C-BIT) is used to radically improve image quality in all lighting conditions and to identify areas for enhanced processing. The camera examines the scene using intelligent video analytics and provides feedback to re-tune the image processing. This provides better detail in the areas that matter and better all-round performance. In IVA versions, the intelligent Automatic

Exposure (iAE) technology, for example, allows you to view moving objects in bright and dark areas of a scene.

Low bandwidth consumption

The intelligent Dynamic Noise Reduction (iDNR) actively analyzes the contents of the scene to reduce bandwidth and storage requirements. This removes noise artifacts so effectively, that compression efficiency is very high (up to 30% improvement). This results in reduced-bandwidth streams that still retain a high image quality and smooth motion. The camera provides the most usable image possible by cleverly optimizing the detail-to-bandwidth ratio via temporal and spatial noise filtering.

Area-based encoding reduces unnecessary bandwidth. Compression parameters for up to eight user-definable regions can be set. This allows uninteresting regions to be highly compressed, thus lowering bandwidth consumption and storage requirements. Important regions can be tuned for best image quality, thus allowing the user to allocate bandwidth to important parts of the scene.

Fast performance

The 60 images-per-second mode provides for optimum performance in fast action scenes and is particularly suitable for casino and banking applications.

Flexible lens choice

The camera comes with a choice of AVF (Automatic Varifocal) lenses for easy installation. These SR (Super Resolution) lenses have an advanced iris design to ensure that the high resolution HD sensor produces the sharpest image possible, even in the corners.

Simple installation

The camera has a very intuitive user interface that allows fast and easy configuration. Six configurable user modes are provided with the best settings for a variety of applications:

- **Indoor** – general day-to-night changes without sun highlights and street lighting
- **Outdoor** – general day-to-night changes with sun highlights and street lighting
- **Motion** – monitoring traffic or fast moving objects; motion artifacts are minimized
- **Lowlight** – optimized for sufficient details at low light.
- **Intelligent AE** (BLC on non-IVA models) – for people moving in front of a bright background
- **Vibrant** – enhanced contrast, sharpness and saturation

The automatic zoom/focus lens wizard makes it easy for an installer to accurately zoom and focus the camera for both day and night operation. The wizard is activated from the PC or from the on-board camera push button making it easy to choose the workflow that suits best.

The AVF (Automatic Varifocal) feature means that the zoom can be changed without opening the camera. The automatic motorized zoom/focus adjustment with 1:1 pixel mapping ensures the camera is always accurately focused.

Streams

The innovative multi-streaming feature delivers various H.264 streams together with an M-JPEG stream. These streams facilitate bandwidth-efficient viewing and recording as well as integration with third-party video management systems.

An upright mode can be selected for the second stream. In this mode an image of 400 x 720 (9:16 aspect ratio) is cropped from the full sensor image. When the scene to be monitored is suitable to this mode, the bandwidth and storage requirements are reduced.

Storage management

Recording management can be controlled by the Bosch Video Recording Manager (VRM) or the camera can use iSCSI targets directly without any recording software.

Edge recording

The internal MicroSD card slot supports up to 2 TB of storage capacity. A microSD card can be used for local alarm recording. Pre-alarm recording in RAM reduces recording bandwidth on the network, or – if microSD card recording is used – extends the effective life of the storage medium.

Video Analytics

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 that is built into all camera versions is the perfect solution for applications where standard video content analysis features are required.

The IVA version of the camera uses the latest generation of the Bosch Intelligent Video Analysis (IVA) software. This IVA system is the guard-assistant system of choice when reliable indoor or outdoor video analytics is needed. The state-of-the-art system reliably detects, tracks, and analyzes moving objects while suppressing unwanted alarms from spurious sources in the image.

The face detection feature detects faces in the scene and forwards a high quality JPEG image of the best shot of each face when the face disappears from the scene.

Retrospective forensic search capabilities are available remotely from the web browser or the Bosch Video Client.

Regions of interest

Two Regions of Interest (ROI) can be user defined. The remote electronic pan, tilt and zoom controls allow you to select specific areas of the parent image. These regions produce separate streams for remote

viewing and recording. These streams, together with the main stream, allow the operator to separately monitor the most interesting part of a scene while still retaining situational awareness.

The IVA Intelligent tracker can also follow objects within the defined regions of interest. The Intelligent tracker can autonomously detect and track moving objects or the user can click on an object which the Intelligent tracker will then follow.

Aesthetic vandal resistant design

Ideal for indoor or outdoor use, the compact aesthetic design is suitable for installations where housing size and appearance are very important. The cast-aluminum housing, polycarbonate window, and hardened inner liner can withstand the equivalent of 55 kg (120 lbs) of force (IK10). The camera is protected against water and dust to IP 66 (NEMA Type 4X) standards. 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.

Access Security

Password protection with three levels and 802.1x authentication is supported. To secure Web browser access, use HTTPS with a SSL certificate stored in the camera. The video and audio communication channels can be independently AES encrypted with 128-bit keys by installing the optional encryption site license.

Surveillance software

There are many ways to access the camera's video and IVA-based features: using a web browser, with the Bosch Video Management System, with the Bosch Recording System, with the free-of-charge Bosch Video Client, or with the video security mobile App. The Bosch Video Client PC surveillance software offers a user-friendly interface to support easy installation and configuration. It also provides easy live viewing of multiple cameras, playback, forensic search and export.

Access to IVA metadata is available to integrators via RTSP.

Video security App

The Bosch video security mobile App has been developed to enable **Anywhere** access to HD surveillance images allowing you to view live images from any location. The App is designed to give you complete control of all your cameras, from panning and tilting to zoom and focus functions. It's like taking your control room with you.

This App, together with the separately available Bosch transcoder, will allow you to fully utilize our dynamic transcoding features so you can play back images even over low-bandwidth connections.

Hybrid mode

An analog video output enables the camera to operate in hybrid mode. This mode provides simultaneous high resolution HD video streaming and an analog video

output via a BNC connector. The hybrid functionality offers an easy migration path from legacy CCTV to a modern IP-based system.

Connections

The camera conforms to the ONVIF (Open Network Video Interface Forum) Profile S specification. This guarantees interoperability between network video products regardless of manufacturer. For trouble-free network cabling, the camera supports Auto-MDIX which allows the use of straight or cross-over cables. Third-party integrators can easily access the internal feature set of the camera for integration into large projects. Visit the Bosch Integration Partner Program (IPP) website (ipp.boschsecurity.com) for more information.

Camera power is supplied via PoE (Power-over-Ethernet) or via the 24 VAC/12 VDC connector.

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: 25/30 and 50/60 frames/s

Standards

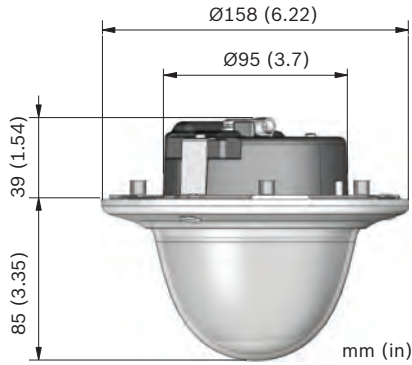
| | |
|-------------------|--|
| Emission | EN 55022 Class B FCC Part 15 Class B |
| Immunity | EN 50130-4 (PoE, +12 VDC, 24 VAC)* EN 50121-4 |
| Safety | EN 60950-1 UL 60950-1 (2nd edition) CAN/CSA-C 22.2 No. 60950-1 |
| Vibration | Camera with lens as per IEC 60068-2-6 (5 m/s ² , operational) |
| ONVIF conformance | EN 50132-5-2; IEC 62676-2-3 |

* Chapters 7 and 8 (mains voltage supply requirement) are not applicable to the camera. However, if the system in which this camera is used needs to comply with this standard, then any power supplies used must comply with this standard.

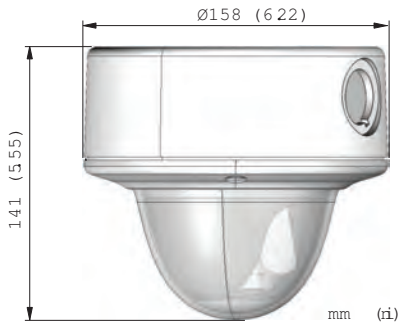
| Region | Certification |
|--------|----------------|
| Europe | CE |
| | CE accessories |
| USA | UL |
| | FCC |

Installation/configuration notes

Dimensions flush mounting

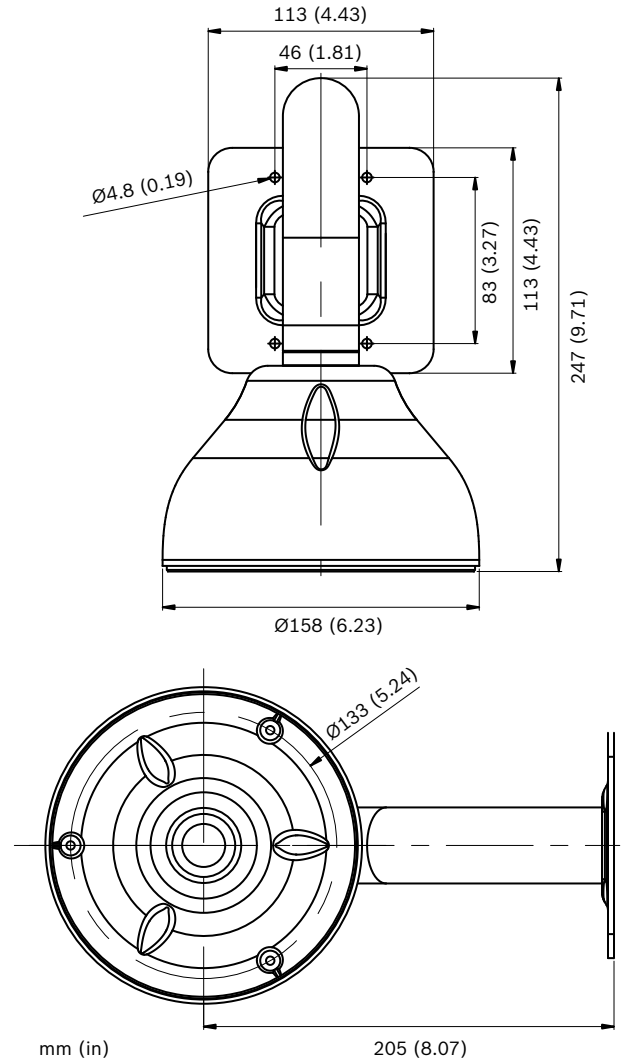


Dimensions surface mounting

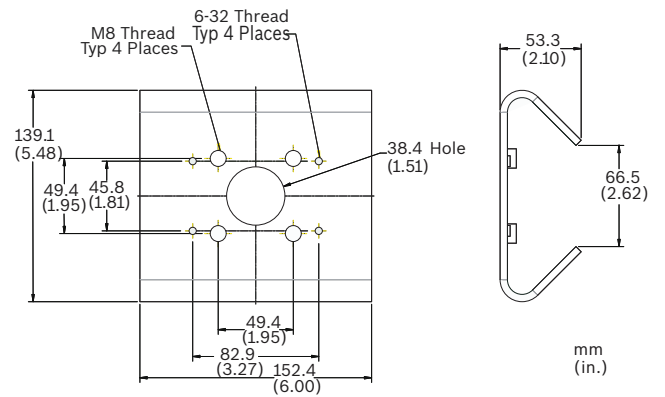


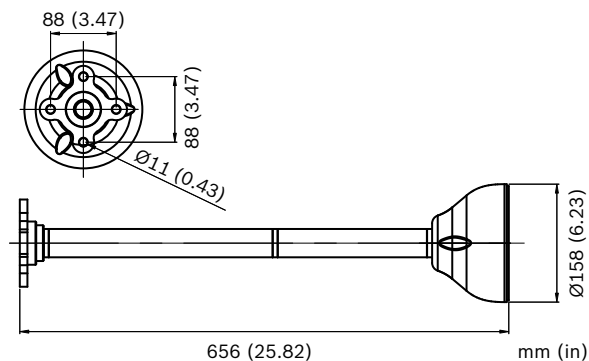
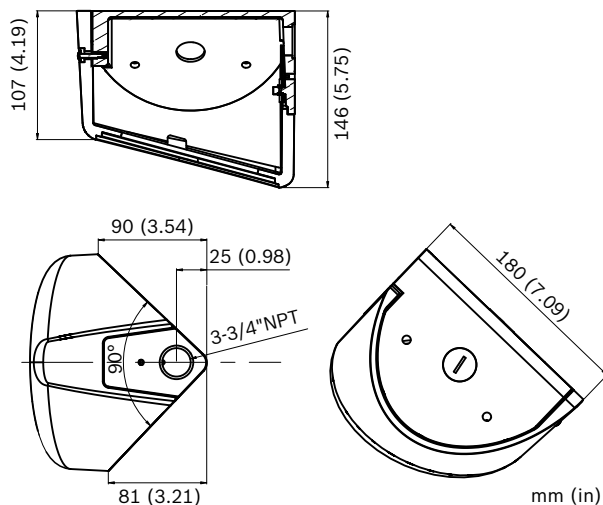
Brackets (not included)

VDA-WMT-DOME –Pendant Wall Mount



LTC 9213/01 Pole Mount Adapter



VDA-PMT-DOME –Pendant Pipe Mount**VDA-CMT-DOME –Corner Mount****Technical specifications****Electrical**

| | |
|---------------------|--|
| Power Supply | 24 VAC 50/60 Hz 12 VDC Power-over-Ethernet 48 VDC nominal |
| Current Consumption | 500 mA 600 mA IVA (12 VDC) 450 mA 500 mA IVA (24 VAC) 150 mA 175 mA IVA (PoE 48 VDC) |
| Power Consumption | 6 W 7.2 W IVA |
| PoE | IEEE 802.3af (802.3at Type 1) |

Sensor

| | |
|---------------|---------------------|
| Type | 1/3-inch CMOS HD |
| Sensor Pixels | 1312 x 1069 (1.4MP) |

Video streams

| | |
|-------------------|--|
| Video compression | H.264 (ISO/IEC 14496-10); M-JPEG, JPEG |
|-------------------|--|

| | |
|-------------------|--|
| Streaming | Multiple individually configurable streams in H.264 and M-JPEG, configurable frame rate and bandwidth, Regions of Interest (ROI) |
| Overall IP Delay | Min. 120 ms, Max. 240 ms |
| GOP structure | IP, IBP, IBBP |
| Encoding interval | 1 to 60 (50) ips |

Resolutions (H x V)

| | |
|------------------------|--|
| • 720p HD | 1280 x 720 |
| • D1 4:3 (cropped) | 704 x 480 |
| • SD upright (cropped) | 400 x 720 |
| • 480p SD | Encoding: 704 x 480; Displayed: 854 x 480 |
| • 432p SD | 768 x 432 |
| • 288p SD | 512 x 288 |
| • 240p SD | Encoding: 352 x 240; Displayed: 432 x 240 |
| • 144p SD | 256 x 144 |

Sensitivity (3200 K, scene reflectivity 89%, 1/60 sec shutter time, 30 IRE)

Lens 3 - 9 mm (F1.2)

| | |
|--------------|------------------------|
| • Color | 0.017 lx (0.0017 fc) |
| • Monochrome | 0.0057 lx (0.00057 fc) |

Lens 10 - 23 mm (F1.6)

| | |
|--------------|--------------------|
| • Color | 0.03 lx (0.003 fc) |
| • Monochrome | 0.01 lx (0.001 fc) |

| | |
|----------------------------------|--|
| Day/Night | Color, Monochrome, Auto |
| White Balance | ATW (2500 to 10000K), ATW hold and manual Indoor and Outdoor ATW |
| Shutter | Automatic Electronic Shutter (AES) Fixed (1/60 [1/50] to 1/150000) selectable Default shutter |
| Backlight compensation (IVA) | Off/Auto/IntelligentAE (iAE) |
| Backlight compensation (non-IVA) | Off/Auto/BLC |
| Noise reduction | Intelligent Dynamic Noise Reduction (iDNR) with separate temporal and spatial adjustments |
| Contrast enhancement | On/off |
| Sharpness | Sharpness enhancement level selectable |

| | |
|-----------------------|--|
| Dynamic Range | 84 dB WDR 100 dB WDR (with iAE) |
| Privacy Masking | Four independent areas, fully programmable |
| Video Motion Analysis | Intelligent Video Analysis |

Audio

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

Input/output

| | |
|---------------------------------|--|
| Analog Video out | CVBS (PAL/NTSC), 1 Vpp, BNC, 75 Ohm |
| Analog Video out (service only) | CVBS (PAL/NTSC), 1 Vpp, 2.5 mm jack, 75 Ohm (non-protected) |
| Audio | 1 x mono line in, 1 x mono line out |
| • signal line in | 12 kOhm typical, 1 Vrms max |
| • signal line out | 1 Vrms at 1.5 kOhm typical, |
| Alarm | 2 inputs |
| • 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 |

Local Storage

| | |
|------------------|---|
| Internal RAM | 10 s pre-alarm recording |
| Memory card slot | Supports SDHC and SDXC microSD cards |
| Recording | Continuous recording, ring recording, alarm/events/schedule recording |

Software Control

| | |
|--------------------|--|
| Unit Configuration | Via web browser or Configuration Manager |
| Software update | Remote programmable |

Network

| | |
|------------|---|
| Protocols | IPv4, IPv6, UDP, TCP, HTTP, HTTPS, RTP/RTCP, IGMP V2/V3, ICMP, ICMPv6, RTSP, FTP, Telnet, ARP, DHCP, SNTP, SNMP (V1, MIB-II), 802.1x, DNS, DNSv6, DDNS, SMTP, iSCSI, UPnP (SSDP), DiffServ (QoS), LLDP, SOAP, Dropbox, CHAP, Digest Authentication. |
| Encryption | TLS 1.0, SSL, DES, 3DES, AES (optional) |

| | |
|--------------------|---|
| Ethernet | 10/100 Base-T, auto-sensing, half/full duplex |
| Ethernet connector | RJ45 |
| Connectivity | ONVIF Profile S, Auto-MDIX |

Optical

| | |
|-----------------------------|--|
| Lens | 3 to 9 mm Automatic Varifocal (AVF) SR lens (IR corrected) - or - 10 to 23 mm Automatic Varifocal (AVF) SR lens (IR corrected) |
| Adjustment | Motorized zoom/focus |
| Iris control | Automatic iris control |
| Viewing angle (3 to 9 mm) | Wide: 96° x 52° (H x V) Tele: 32° x 18° (H x V) |
| Viewing angle (10 to 23 mm) | Wide: 28° x 15° (H x V) Tele: 12.4° x 6.9° (H x V) |

Mechanical

| | |
|--------------------|--|
| Dimensions (D x H) | 158 x 124 mm (6.22 x 4.89 in) |
| Weight | 0.85 kg (1.87 lb) 1.28 kg (2.82 lb) with SMB |
| Mounting | Flush mount or surface mount |
| Color | White (RAL9010) trim ring with black inner liner |
| Adjustment range | 360° pan, 90° tilt, ±90° twist |
| Dome bubble | Polycarbonate, clear with UV blocking anti-scratch coating |
| Trim ring | Aluminum |

Environmental

| | |
|---------------------------|--|
| Operating temperature | -30 °C to +50 °C (-22 °F to +122 °F) |
| Cold start temperature | -20 °C (-4 °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 | IK10 |
| Water/dust protection | IP 66 and NEMA Type 4X |
| Environmental Test Method | EN 50130-5:2011 Alarm systems Part 5 (Class IV Outdoor in general) |

Ordering information**FLEXIDOME IP starlight 7000 VR**

High-performance IP dome camera for HD surveillance in low light. 720p60; Hybrid; IP66; IK10; iDNR; ROI; H. 264 quad-streaming; cloud services; free viewing Apps; 3 to 9 mm SR lens; MOTION+
Order number **NIN-733-V03P**

FLEXIDOME IP starlight 7000 VR

High-performance IP dome camera for HD surveillance in low light. 720p60; Hybrid; IP66; IK10; iDNR; iAE; ROI; H.264 quad-streaming; cloud services; free viewing Apps; 3 to 9 mm SR lens; IVA
Order number **NIN-733-V03IP**

FLEXIDOME IP starlight 7000 VR

High-performance IP dome camera for HD surveillance in low light. 720p60; Hybrid; IP66; IK10; iDNR; ROI; H.264 quad-streaming; cloud services; free viewing Apps; 3 to 9 mm SR lens; MOTION+, SMB
Order number **NIN-733-V03PS**

FLEXIDOME IP starlight 7000 VR

High-performance IP dome camera for HD surveillance in low light. 720p60; Hybrid; IP66; IK10; iDNR; iAE; ROI; H.264 quad-streaming; cloud services; free viewing Apps; 3 to 9 mm SR lens; IVA; SMB
Order number **NIN-733-V03IPS**

FLEXIDOME IP starlight 7000 VR

High-performance IP dome camera for HD surveillance in low light. 720p60; Hybrid; IP66; IK10; iDNR; ROI; H.264 quad-streaming; cloud services; free viewing Apps; 10 to 23 mm SR lens; MOTION+
Order number **NIN-733-V10P**

FLEXIDOME IP starlight 7000 VR

High-performance IP dome camera for HD surveillance in low light. 720p60; Hybrid; IP66; IK10; iDNR; iAE; ROI; H.264 quad-streaming; cloud services; free viewing Apps; 10 to 23 mm SR lens; IVA
Order number **NIN-733-V10IP**

FLEXIDOME IP starlight 7000 VR

High-performance IP dome camera for HD surveillance in low light. 720p60; Hybrid; IP66; IK10; iDNR; ROI; H.264 quad-streaming; cloud services; free viewing Apps; 10 to 23 mm SR lens; MOTION+; SMB
Order number **NIN-733-V10PS**

FLEXIDOME IP starlight 7000 VR

High-performance IP dome camera for HD surveillance in low light. 720p60; Hybrid; IP66; IK10; iDNR; iAE; ROI; H.264 quad-streaming; cloud services; free viewing Apps; 10 to 23 mm SR lens; IVA; SMB
Order number **NIN-733-V10IPS**

Accessories**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**

LTC 9213/01 Pole Mount Adapter

Flexible pole mount adapter for camera mounts. Max. 9 kg (20 lb); 3 to 15 inch diameter pole; stainless steel straps
Order number **LTC 9213/01**

VDA-PLEN-DOME In-ceiling Housing for Plenums Kit

FLEXIDOME in-ceiling housing installation kit (plenum-rated) for various FLEXIDOME cameras
Order number **VDA-PLEN-DOME**

VGA-IC-SP In-ceiling Support Kit for Various Bosch Dome Cameras

Suspended ceiling support kit for AUTODOME 100/600/7000 Series cameras
Order number **VGA-IC-SP**

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-2430-60 Power Supply

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

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**

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**

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**

S1460 Service/Monitor Cable

2.5 mm jack to BNC video connector cable. 1 m
Order number **S1460**

VIDEOJET XTC XF Video Transcoder

High-performance video transcoder. H.264; CF card slot; ROI; max resolution 1080p; 2 channels
Order number **VJT-XTCXF**

Surface Mount Box FLEXIDOME VR

Surface Mount Box for FLEXIDOME VR Cameras
Order number **VDA-455SMB-IP**

NIN-DMY Dummy Camera

FLEXIDOME VR family dummy camera
Order number **NIN-DMY**

Software Options

BVIP AES 128 Bit Encryption

Site licence for BVIP AES 128-bit encryption. Enables encrypted communication between BVIP devices and management stations

Order number **MVS-FENC-AES**

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