BOSCH

Invented for life

NDC-455 FlexiDome IP Cameras

▸ **1/3-inch color CCD with progressive scan**

▸ **Tri-streaming: Dual H.264 and M-JPEG simultaneously**

▸ **Intelligence at the edge**

▸ **ONVIF conformant**

▸ **High-impact, vandal-resistant enclosure**

FlexiDome IP cameras are progressive scan CCD color cameras in a compact, high-impact rated, vandal-resistant housing.

They can tri-stream video simultaneously — on two H.264 streams and one M-JPEG stream. Features such as multicasting, internet streaming and iSCSI recording are fully supported. FlexiDome IP cameras have built-in video motion detection and additional processing power for video content analysis systems.

FlexiDome IP cameras include picture performance enhancements such as NightSense for low-light scenes and Autoblack for low contrast scenes.

Supported by the award-winning Dinion digital imaging technology, they provide a proven, dependable solution for many security and surveillance requirements.

Functions

Progressive scan

To capture sharp images, even in busy scenes with high motion content, the Dinion camera uses progressive scan technology.

A quality image

With a 1/3-inch color CCD and Bosch's advanced digital signal processing, the FlexiDome IP provides professional image quality. Automatically activate the NightSense feature to extend sensitivity under low-light conditions by a factor of three in monochrome operation. Autoblack improves the overall contrast of an image in low contrast scenes, such as foggy weather conditions.

Efficient bandwidth and storage management

The cameras use H.264 compression, bandwidth throttling, and multicasting capabilities to manage bandwidth and storage requirements efficiently, while delivering high image quality and resolution. The bandwidth of an H.264 stream using Main profile at 4CIF resolution is about the same as one MPEG-4 stream at 2CIF resolution. Bosch's innovative tri-streaming feature enables FlexiDome IP cameras to generate two independent H.264 streams and one M-JPEG stream simultaneously. This allows streaming of high-quality H.264 images for live viewing and recording while streaming M-JPEG images to another device at the same time. The M-JPEG video stream also provides easy integration with third-party JPEG or M-JPEG-compatible video management systems.

FlexiDome IP cameras offer unparalleled recording options. Attached to the network, they can use iSCSI targets directly, as well as Network Video Recorders (NVRs). The iSCSI storage target support enables the cameras to function as a conventional DVR, while streaming high-performance live video across the network.

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, that 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

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 bases the IVA algorithm on digital imaging technology that uses multi-level image analysis of pixels, texture, and object direction, and is activated by installing a license.

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, 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, wall, corner and suspended ceiling. 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, or with VIDOS. The camera is also ideal for use with a Divar 700 Series digital video recorder. By routing a video stream to a Bosch video decoder, you can also present the video with ultimate clarity on an analog monitor.

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 allow continuous operation even during a power failure.

For trouble free network cabling, the cameras support Auto-MDIX.

FlexiDome IP cameras can be configured using the control buttons on the camera as an alternative to configuration over IP. 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.

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 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

- Museums and art galleries
- Shopping centers
- Offices
- Schools, colleges and universities
- Petrol / gas station

Certifications and Approvals

Region	Certification	
Europe	CE	Declaration of Conformity
		Model Identity Declaration
USA	FCC	Declaration of Conformity

Electro Magnetic Compatibility

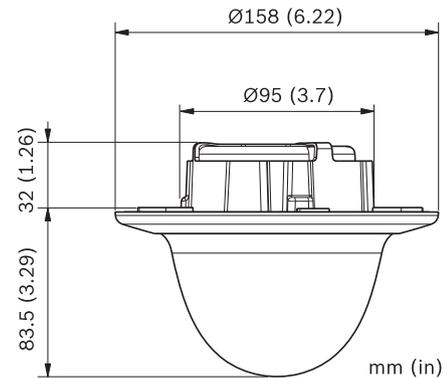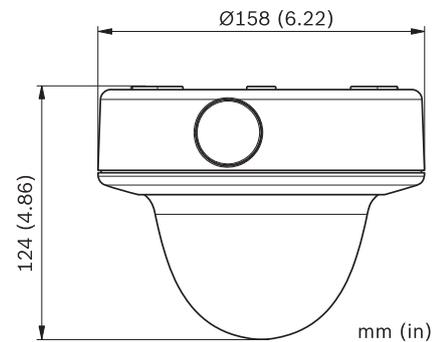|	
Emission	EN55022 Class B EN61000-3-2 EN61000-3-3 CFR. 47 FCC Part 15: class B
Immunity	EN50130-4 (PoE, +12 VDC) EN55024 (24 VAC) EN50121-4
Safety	EN60950-1 UL60950-1 (2nd edition) CAN/CSA-C 22.2 No. 60950-1
Vibration	As per IEC60068-2-6 (5 m/s^2, operational)

Installation/Configuration Notes
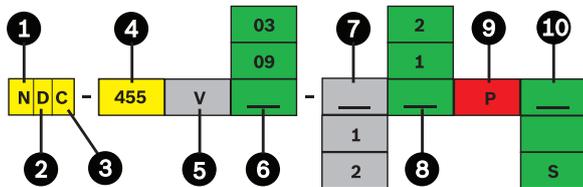
1	N	Network camera
2	D	Dome (FlexiDome fixed dome)
3	C	Color
4	455	Dinion performance
5	V	Varifocal lens, auto iris
6	03	2.8 to 10 mm F1.2
	09	9 to 22 mm F1.4
7	1	PAL 50 Hz
	2	NTSC 60 Hz
8	1	Motion+
	2	Designed for IVA *
9	P	PoE
10		Flush mount (blank)
	S	Surface mount

No license included

Flush Mounting

Ø158 (6.22)
Ø95 (3.7)
32 (1.26)
83.5 (3.29)
mm (in)

Surface Mounting

Ø158 (6.22)
124 (4.86)
mm (in)

VDA-WMT-DOME −Pendant Wall Mount

46 (1.8)
82 (3.2)

306 (12)

263 (10.4)

150 (5.9)

207 (8.13)

286 (11.3)

mm (in)

VDA-PMT-DOME −Pendant Pipe Mount

89 (3.5)

89 (3.5)

Ø11 (0.44) 4X

3/4-14 NPSM Threads

400 (15.7) or

500 (19.7) or

707 (27.8)

158 (6.22)

VDA-CMT-DOME −Corner Mount

174 (6.85)

90°

123 (4.83)

204 (8.03)

177 (6.97)

mm (in)
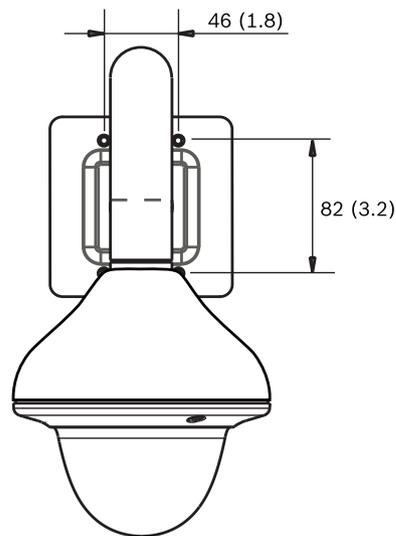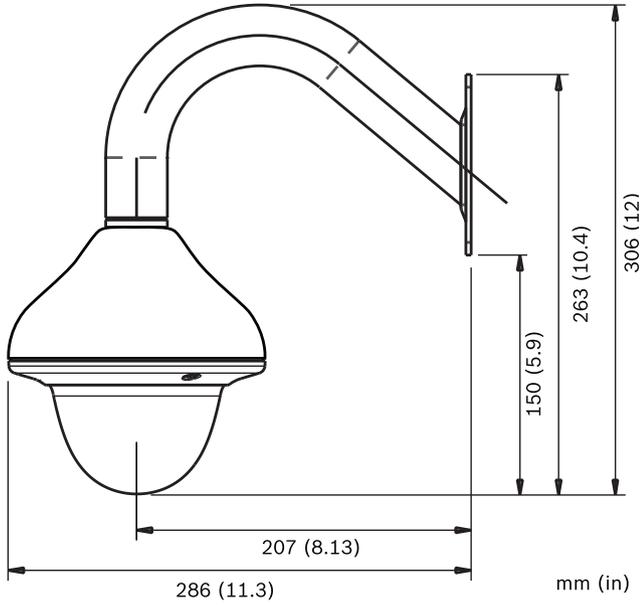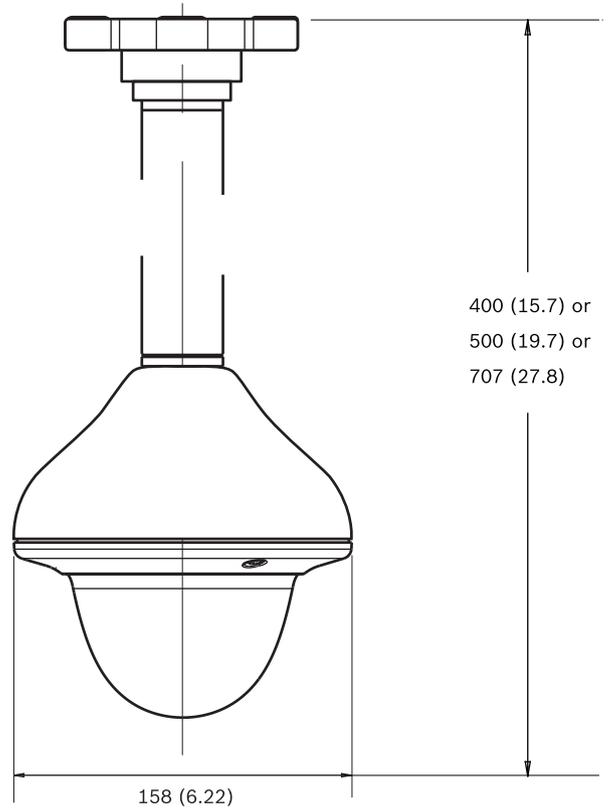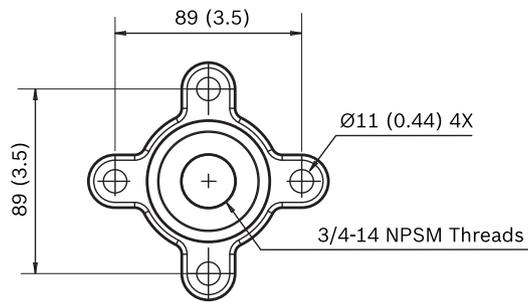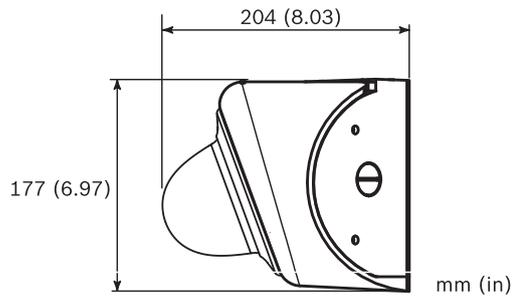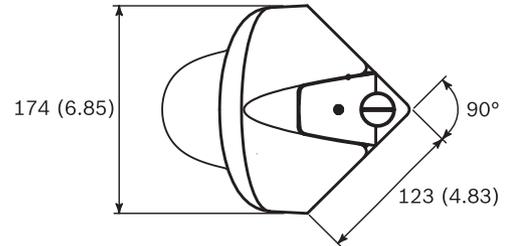
Parts Included

Quantity	Component
1	NDC-455 Series FlexiDome 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

Model No.	Rated Voltage	Rated Frequency
NDC-455Vxx-1xP	24 VAC ±10%	50 Hz
	12 VDC ±10%	
	Power-over-Ethernet	
NDC-455Vxx-2xP	24 VAC ±10%	60 Hz
	12 VDC ±10%	
	Power-over-Ethernet	
Current Consumption	500 mA | 650 mA IVA (12 VDC) 500 mA | 650 mA IVA (24 VAC) 200 mA (PoE 48 VDC)	

Sensor

Type	1/3-inch, CCD
Active Pixels (PAL)	752 x 582
Active Pixels (NTSC)	768 x 494

Video

Video compression	H.264 (ISO/IEC 14496-10); M-JPEG, JPEG
Data rate	9.6 Kbps to 6 Mbps
Resolution	Horizontal x vertical (PAL/NTSC ips)
• 4CIF	704 x 576/480 (25/30 ips)
• CIF	352 x 288/240 (25/30 ips)
Overall IP Delay	Min. 120 ms, Max. 240 ms
GOP structure	I, IP
Frame rate	1 to 50/60 (PAL/NTSC) H.264 1 to 25/30 (PAL/NTSC) M-JPEG

Video Out

Signal	Analog composite (NTSC or PAL) for service
Connector	2.5 mm jack, 75 Ohm
Horizontal resolution	540 TVL
Video S/N	50 dB

Sensitivity (3200 K, scene reflectivity 89%)

	Full video (100 IRE)	Usable picture (50 IRE)	Minimum illumination (30 IRE)
NDC-455V03 (F1.2)			
Color	2.6 lx (0.26 fc)	0.65 lx (0.065 fc)	0.30 lx (0.03 fc)
NightSense	1.04 lx (0.104 fc)	0.26 lx (0.026 fc)	0.012 lx (0.0012 fc)
NDC-455V09 (F1.4)			
Color	2.9 lx (0.29 fc)	0.75 lx (0.075 fc)	0.37 lx (0.037 fc)
NightSense	1.25 lx (0.13 fc)	0.30 lx (0.03 fc)	0.14 lx (0.014 fc)

Color/NightSense	Auto, Forced
Signal-to-noise Ratio	> 50 dB
Dynamic Range	60 dB (10-bit processing)
BLC	Center window weighting
Gain	20 dB (max)
White Balance	ATW, ATWHold (2500 to 10000 K)
Shutter	Auto (1/50 [1/60] to 1/50000) automatic flickerless, fixed selectable
Auto Black	Automatic continuous, Off
Privacy Masking	Four independent areas, fully programmable
Video Motion Analysis	Motion+ or IVA
Test Pattern Generator	Color bars 100%, Grayscale 11-step, Sawtooth 2H, Checker board, Cross hatch, UV plane
Synchronization	Internal, Line Lock, selectable
Controls	OSD with soft-key operation (multi-lingual)

Audio

Standard G.711	300 Hz to 3.4 kHz at 8 kHz sampling rate
Signal-to-noise ratio	> 50 dB

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, Telnet, UDP, TCP, IP, HTTP, HTTPS, FTP, DHCP, IGMP V2/V3, ICMP, ARP, SMTP, SNTP, 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	
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

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	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)	-20 ºC to +50 ºC (-4 ºF to +122 ºF) cold start
Operating temperature (with heater on)	-50 ºC to +50 ºC (-58 ºF to +122 ºF)
Storage temperature	-50 ºC to +70 ºC (-58 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

NDC-455V03-11P FlexiDome Color IP Camera Vandal resistant, 1/3-inch Progressive Scan, H.264 dual stream, 2.8 to 10 mm Varifocal lens, PAL, 50 Hz, Motion+, PoE, Flush mount	**NDC-455V03-11P**
NDC-455V03-21P FlexiDome Color IP Camera Vandal resistant, 1/3-inch Progressive Scan, H.264 dual stream, 2.8 to 10 mm Varifocal lens, NTSC, 60 Hz, Motion+, PoE, Flush mount	**NDC-455V03-21P**
NDC-455V03-12P FlexiDome Color IP Camera Vandal resistant, 1/3-inch Progressive Scan, H.264 dual stream, 2.8 to 10 mm Varifocal lens, PAL, 50 Hz, Designed for IVA, PoE, Flush mount	**NDC-455V03-12P**
NDC-455V03-22P FlexiDome Color IP Camera Vandal resistant, 1/3-inch Progressive Scan, H.264 dual stream, 2.8 to 10 mm Varifocal lens, NTSC, 60 Hz, Designed for IVA, PoE, Flush mount	**NDC-455V03-22P**
NDC-455V09-11P FlexiDome Color IP Camera Vandal resistant, 1/3-inch Progressive Scan, H.264 dual stream, 9 to 22 mm Varifocal lens, PAL, 50 Hz, Motion+, PoE, Flush mount	**NDC-455V09-11P**
NDC-455V09-21P FlexiDome Color IP Camera Vandal resistant, 1/3-inch Progressive Scan, H.264 dual stream, 9 to 22 mm Varifocal lens, NTSC, 60 Hz, Motion+, PoE, Flush mount	**NDC-455V09-21P**
NDC-455V09-12P FlexiDome Color IP Camera Vandal resistant, 1/3-inch Progressive Scan, H.264 dual stream, 9 to 22 mm Varifocal lens, PAL, 50 Hz, Designed for IVA, PoE, Flush mount	**NDC-455V09-12P**
NDC-455V09-22P FlexiDome Color IP Camera Vandal resistant, 1/3-inch Progressive Scan, H.264 dual stream, 9 to 22 mm Varifocal lens, NTSC, 60 Hz, Designed for IVA, PoE, Flush mount	**NDC-455V09-22P**
NDC-455V03-11PS FlexiDome Color IP Camera Vandal resistant, 1/3-inch Progressive Scan, H.264 dual stream, 2.8 to 10 mm Varifocal lens, PAL, 50 Hz, Motion+, PoE, Surface mount	**NDC-455V03-11PS**

Ordering Information

NDC-455V03-21PS FlexiDome Color IP Camera
Vandal resistant, 1/3-inch Progressive Scan, H.264 dual stream, 2.8 to 10 mm Varifocal lens, NTSC, 60 Hz, Motion+, PoE, Surface mount

NDC-455V03-21PS

NDC-455V03-12PS FlexiDome Color IP Camera
Vandal resistant, 1/3-inch Progressive Scan, H.264 dual stream, 2.8 to 10 mm Varifocal lens, PAL, 50 Hz, Designed for IVA, PoE, Surface mount

NDC-455V03-12PS

NDC-455V03-22PS FlexiDome Color IP Camera
Vandal resistant, 1/3-inch Progressive Scan, H.264 dual stream, 2.8 to 10 mm Varifocal lens, NTSC, 60 Hz, Designed for IVA, PoE, Surface mount

NDC-455V03-22PS

NDC-455V09-11PS FlexiDome Color IP Camera
Vandal resistant, 1/3-inch Progressive Scan, H.264 dual stream, 9 to 22 mm Varifocal lens, PAL, 50 Hz, Motion+, PoE, Surface mount

NDC-455V09-11PS

NDC-455V09-21PS FlexiDome Color IP Camera
Vandal resistant, 1/3-inch Progressive Scan, H.264 dual stream, 9 to 22 mm Varifocal lens, NTSC, 60 Hz, Motion+, PoE, Surface mount

NDC-455V09-21PS

NDC-455V09-12PS FlexiDome Color IP Camera
Vandal resistant, 1/3-inch Progressive Scan, H.264 dual stream, 9 to 22 mm Varifocal lens, PAL, 50 Hz, Designed for IVA, PoE, Surface mount

NDC-455V09-12PS

NDC-455V09-22PS FlexiDome Color IP Camera
Vandal resistant, 1/3-inch Progressive Scan, H.264 dual stream, 9 to 22 mm Varifocal lens, NTSC, 60 Hz, Designed for IVA, PoE, Surface mount

NDC-455V09-22PS

Accessories

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

VDA-455SMB

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

Ordering Information

S1460 Service/Monitor Cable
for FlexiDome analog and IP (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

MVC-FIVA4-CAM
IVA 4.0 VCA software license for IP camera/dome (e-license)

MVC-FIVA4-CAM

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 encoders, decoders and management stations.

MVC-FENC-AES