NDE-5702-A Fixed dome 2MP HDR 3.2-10.5mm IP66
FLEXIDOME outdoor 5100i

▶ 1080p60 for highly detailed images

▶ Starlight camera technology with excellent low-light performance

▶ IVA Pro brings highly reliable deep-learning based detection of persons and vehicles to scenes ranging from sterile zones to crowded and congested

▶ High Dynamic Range to see every detail in both bright and dark areas of the scene

The camera is a versatile and professional surveillance camera for outdoor monitoring. It delivers exceptional image quality, starlight performance and High Dynamic Range at resolution HD 1080p for highly detailed image for demanding security and surveillance network requirements. Built-in Intelligent Video Analytics Pro (IVA Pro) enriches full situational awareness and triggers relevant alerts.

The camera offers a 1/2.8'' sensor and HDR technology at HD 1080p resolution that provides high performance in extreme low light environments. The modular structure design uses a click and rotate mechanism on mounting plate or base that requires no hardware to secure the camera to housing for fast installation, including compatibility with various mounting options.

Functions

H.265 high-efficiency video encoding
The camera is designed on the most efficient and powerful H.264 and H.265/HEVC encoding platform. The camera is capable of delivering high-quality and high-resolution video with very low network load. With a doubling of encoding efficiency, H.265 has become the new compression standard of choice for IP video surveillance systems.

Intelligent Video Analytics Pro (IVA Pro)
The camera comes with IVA Pro Buildings pre-installed and brings highly reliable deep-learning based detection and tracking of persons and vehicles to scenes ranging from sterile zones to crowded and

congested. Being extremely resistant to false triggers caused by challenging environments with rain, wind (moving trees), snow, hail, and water reflections as well as shadows and bugs, it reliable detects, tracks, and classifies objects. A smart set of alarm and counter rules allows to alert you when predefined alarms are triggered, and to forensically search with high efficiently though recordings. Configuration effort is minimized and made easy by removing the need for calibration.

Optionally the camera can be licensed with IVA Pro Perimeter or IVA Pro Traffic to optimize the camera analytics for specific enterprise use-cases.

Two-way audio
Two-way audio allows the operator to communicate with visitors or intruders via an external audio line input and output. By using the external microphone, audio detection can be used to generate alarms to alert the security operator quicker and act more proactively.

DORI coverage
DORI (Detect, Observe, Recognize, Identify) is a standard system (EN-62676-4) for defining the ability of a person viewing the video to distinguish persons or objects within a covered area. The maximum distance at which a camera/lens combination can meet these criteria is shown below:

2 MP camera with 3.2-10.5 mm lens*

DORI	DORI definition	Distance 3.2 mm / 10.5 mm	Horizontal width
Detect	25 px/m (8 px/ft)	31 m / 138 m (102 ft / 453 ft)	77 m (252 ft)
Observe	63 px/m (19 px/ft)	12 m / 55 m (39 ft / 180 ft)	30 m (100 ft)
Recognize	125 px/m (38 px/ft)	6 m / 28 m (20 ft / 92 ft)	15 m (50 ft)
Identify	250 px/m (76 px/ft)	3 m / 14 m (10 ft / 46 ft)	8 m (25 ft)

*The numbers in this table do not reflect IVA distances. For IVA distances, refer to the lens calculator / Bosch IP video design tool.

Scene modes

Multiple configurable modes are provided with the best settings for a variety of applications. In one click fully optimized image settings can be selected to suit the conditions. Different scene modes can be selected for different situations such as sodium lighting, fast moving objects, or dark environments.

Resists rain, dust, and tampering with reliable operation across a wide temperature range

The camera is suitable for outdoor usage. The camera can operate in a wide ambient temperature range between -40 ºC up to +55 ºC (-40 ºF up to +131 ºF).
The robust design of the camera is rated to IP66, NEMA 4X, and IK10 standards, safeguarding the camera against rain and dust while also offering protection against vandalism and tampering.

Easy installation

The mechanical design follows the Bosch installation philosophy by using an installation SMB and easy cable management.
Power can be supplied via Power-over-Ethernet. With this configuration, only a single cable connection is required to view, power, and control the camera. Using PoE makes installation easier and more cost effective, as cameras do not require a local power source.
For trouble-free network cabling, the camera supports Auto-MDIX which allows the use of straight or cross-over cables.
The AVF (Automatic Varifocal) feature makes it easy for installers to adjust zoom position without opening the camera. The automatic motorized zoom/ focus adjustment with 1:1 pixel mapping ensures the camera is always accurately focused.

Data security

Special measures have been put in place to ensure the highest level of security for device access and data transport. The three-level password protection with security recommendations allows users to customize device access. Web browser access can be protected using HTTPS and firmware updates can also be protected with authenticated secure uploads. The cameras have built-in Secure Element (SE) hardware providing main Trusted Platform Module (TPM) functionality to ensure the highest levels of data security and privacy protection. Together with Public Key Infrastructure (PKI) support, superior protection from malicious attacks is guaranteed. With future firmware updates, it will also support RSA encryption key lengths of up to 4096 bits, ensuring data safety beyond 2030. 802.1x network authentication with EAP/TLS will also be added. The advanced certificate handling offers:

• Bosch origin device certificate pre-installed
• Self-signed unique certificates automatically created when required
• Client and server certificates for authentication
• Client certificates for proof of authenticity
• Certificates with encrypted private keys

More flexibility in streaming capabilities

The camera has four independent encoder streams. Users can do the following:

• Configure each stream individually to change the video resolution and the frame rate
• Select the coding standard (H.264/H.265) for each stream
• Configure a set of eight encoder profiles for each stream

Edge recording

Insert a memory card into the card slot to store up to 2 TB of local alarm recording. Pre-alarm recording in RAM reduces recording bandwidth on the network, and extends the effective life of the memory card. It has advanced edge recording providing a reliable storage solution possible due to the combination of these functions:

• Industrial SD card support allows for extreme lifetime
• Health monitoring of industrial SD cards provide early service indications.

High Dynamic Range

The camera has High Dynamic Range. This is based on a multiple-exposure process that captures more details in the highlights and in the shadows even in the same scene. The result is that you can easily distinguish objects and features, for example, faces with bright backlight.
The actual dynamic range of the camera is measured using Opto-Electronic Conversion Function (OECF) analysis according to IEC 62676 Part 5. This method is used to provide standardized measurements, which can be used to compare different cameras.

Automatic image rotation
The integrated gyro/accelerometer sensor automatically corrects the image orientation in steps of 90° if the camera is mounted at right angles or upside down. The sensor image can also be rotated manually through steps of 90°.
To efficiently capture details in long hallways without loss of resolution, mount the camera at right angles. The image is displayed upright at full resolution on your monitor.

System Integration and ONVIF conformance
The camera conforms to the ONVIF Profile S, ONVIF Profile G, ONVIF Profile T, and ONVIF Profile M specifications. For H.265 configuration, the camera supports Media Service 2, which is part of ONVIF Profile T. Compliance with these standards guarantees interoperability between network video products regardless of manufacturer. 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.

Modular accessories
A full line of modular accessories is available, which allows a consistent design across different cameras and a wide range of installation possibilities. Available options include wall or pipe mount, a surveillance cabinet with power, and an in-ceiling mounting kit.

Cloud-based services
The camera supports time-based or alarm-based JPEG posting to four different accounts. These accounts can address FTP servers or cloud-based storage. Video clips or JPEG images can also be exported to these accounts.
Alarms can be set up to trigger an e-mail or SMS notification so you are always aware of abnormal events.

Bosch Remote Portal
With the secure cloud infrastructure, Bosch Remote Portal, you can manage your connected Bosch devices. From the Bosch Remote Portal you can:
• Complete initial configuration of your connected Bosch devices (online or offline).
• Update firmware for single or multiple devices.
• Manage certificates.
• Monitor the health of your connected Bosch devices.

Project Assistant app
As the camera is equipped with a USB-C port for a wireless USB dongle (sold separately: NCA-WLAN-EU, NCA-WLAN-NA), the installer can easily perform the initial configuration wirelessly. Using a mobile device with the Bosch Project Assistant app, you can do initial set-up and lens zoom-focus to find the right
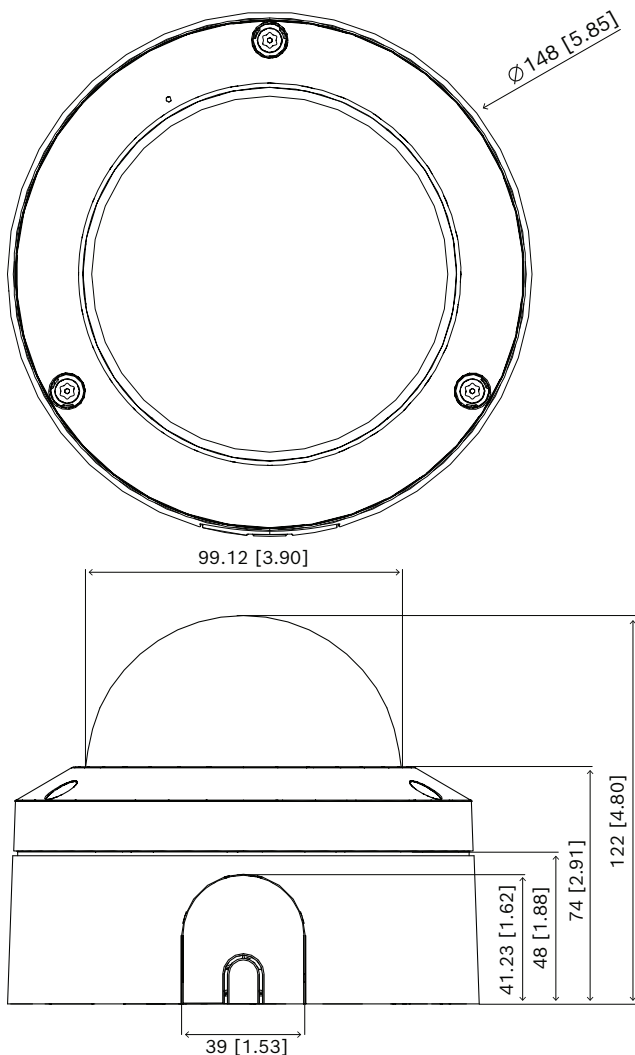
scene. Simply connect the wireless USB dongle and go to the Bosch Project Assistant app, available for iOS, Windows, or Android.

Regulatory information

Standard	Type
Emission	EN 55032 (Class B)
	CFR 47 FCC part 15 (Class B)
	ICES-003 (Class B)
	VCCI CISPR 32
	AS/NZS CISPR 32
Immunity	EN 50121-4
	EN 50130-4
Environmental	EN 50130-5, Class IV
	EN IEC 63000
	RoHS EU, 2011/65/EU and 2015/863/EU
	WEEE EU, 2012/19/EU
Safety	EN 62368-1
	IEC 62368-1
	UL 62368-1
	EN/IEC/UL 60950-22
	CAN/CSA-C22.2 No. 60950-22:17, Second Edition
Image performance	IEC 62676-5
Impact protection	EN 62262 (IK10): 2002
Ingress protection	EN 60529 (IP66)
	UL50E (NEMA Type 4X)
ONVIF conformance	EN 50132-5-2, EN 62676-2
Marks	CE, FCC, UL, WEEE, RCM, VCCI, UKCA, China RoHS, BIS
Compliance	NDAA compliant

Region	Regulatory compliance/quality marks	
Europe	CE	
Great Britain	UKCA	
Global	IEC 62443	Industrial Cyber Security Capability
USA	UL CAP	Cybersecurity Assurance Program

Installation/configuration notes

Dimensions in mm (inch)

Parts included

Quantity	Component
1	FLEXIDOME outdoor 5100i - 2 MP camera
1	T-20 security Torx Allen key
1	2-pin terminal block
1	4-pin terminal block
1	Adapter plate for cable conduit (Ø 3/4" / M25)
1	Adapter plate for cable conduit (Ø 1/2" / M20)
1	RJ45 guider
1	Cable box
1	Safety information

Quantity	Component
1	Quick installation guide

Technical specifications

Electrical

Input voltage (AC)	24 VAC ± 10%
Input voltage (DC)	12 VDC ± 10%
Power consumption PoE (W) (typical – maximum)	4.80 W – 6 W
Power consumption VDC (W) (typical – maximum)	4.08 W – 5.88 W
Power consumption VAC (W) (typical – maximum)	4.07 W – 5.44 W
PoE input	PoE IEEE 802.3af / 802.3at Type 1, Class 3

Platform

Common Product Platform	CPP14

Sensor

Total sensor pixels	2 MP approx.
Sensor type	1/2.8 inch CMOS
Effective pixels (H x V)	1,920 x 1,080

Sensitivity

Color (lx) (sensitivity measured according to IEC 62676 Part 5)	0.0210 lx
Monochrome (lx) (sensitivity measured according to IEC 62676 Part 5)	0.0040 lx

Dynamic range

Wide Dynamic Range (WDR) (dB)	144 dB
Measured according to IEC 62676 Part 5 (dB)	105 dB

Video streaming

Video compression	H.264 (ISO/IEC 14496-10); M-JPEG; H.265/HEVC
Streaming	Multiple configurable streams in H.265; H.264 and M-JPEG; Configurable framerate and bandwidth; Bosch Intelligent Streaming

Camera processing latency	<70 ms (at 1080p60) (Camera-internal latency only, achievable with settings excluding all image enhancements)
GOP structure	IP; IBP; IBBP
Frame rate (fps)	1 fps – 60 fps
Video signal-to-noise ratio (dB)	>55 dB

Video resolution

1080p HD	1920 × 1080
Upright mode 1080p	1080 × 1920
1.3 MP (16:9)	1536 × 864
Upright mode 1.3 MP (16:9)	864 × 1536
720p	1280 × 720
Upright mode 720p	720 × 1280
SD	768 × 432

Video functions

Day/night modes	Auto (adjustable switch points); Color; Monochrome
Camera functionality	Mirror image; Rotation 90°; Rotation 180°; Rotation 270° including upright mode; Backlight compensation (BLC); Sharpness enhancement; Intelligent defog; Pixel counter; Saturation; Brightness; Video watermarking; Display stamping; Location; Electronic image stabilization (gyro-based)
White balance (K)	2,500 K – 10,000 K
White balance modes	Basic; Standard; Sodium vapor; Manual mode; Hold mode; 3 automatic modes
Shutter modes	Automatic Electronic Shutter (AES); 1/25 min; 1/15,000 max; Default shutter
Number of privacy masks	8
Scene modes	Multiple default modes

Video content analysis

Analysis type	Intelligent Video Analytics Pro Buildings
Alarm triggers	Any object; Object in field; Line crossing; Enter / leave field; Loitering; Follow route; Counting; Occupancy; Condition change; Similarity search; Objects stopping or starting to move
Object filters	Duration; Size; Aspect ratio; Direction; Color; Object classes
Object classes	Available by default: Person, Vehicle. Available with optional IVA Pro: Bicycle, Motorcycle, Truck, Bus
Audio detection	Detection of audio to generate an alarm
Supported analytics	IVA Pro Perimeter (license); IVA Pro Traffic (license)

Optical

Lens type	3.2 to 10.5 mm
F-stop	1.6
Iris control	P-iris
IR corrected	Yes
Day / Night	Switchable IR-cut filter
Zoom/focus control	Motorized
Horizontal field of view	105º - 31º
Vertical field of view	57º - 18º

Inputs and outputs

Audio line in	0.6 Vrms max, 10 kOhm typical
Audio line out	1.0 Vrms at 10 kOhm typical
Ethernet	Shielded RJ45

Audio

Audio input	Line-in; Mic-level input
Audio output	Line-out

Compression and sampling rate	G.711 8 kHz; L16 16 kHz; AAC-LC 80kbps 16 kHz; AAC-LC 48kbps 16 kHz
Minimum signal-to-noise ratio (dB)	50 dB
Audio streaming	Full duplex; Half duplex

Storage

Internal storage	5-s-pre-alarm-recording
Memory card slot	Micro SDHC; Micro SDXC (a memory card of Class 6 or higher is recommended for HD recording)
Memory card capacity (GB)	32 GB for Micro SDHC; 2 TB for Micro SDXC
Industrial SD cards	Extreme lifetime and health monitoring support that provides early service indication (if supported by the SD card)
Recording mode	Continuous (ring); Scheduled; Alarm; Event

Data security

Crypto coprocessor (TPM)	AES/CBC 256 bit; RSA 4096 bit
PKI	X.509 certificates
End-to-end encryption	Full end-to-end with supported VMS
Encryption	TLS 1.2; AES 256; AES 128; TLS 1.3
Local storage encryption	XTS-AES
Video authentication	MD5; SHA-1; SHA-256; Checksum
Firmware protection	Signed firmware, secure boot

Capacity

Number of RJ45 connections	1

Connectivity

Number of USB ports	1 (USB 2.0 Type C, for use with wireless USB dongle for setup and commissioning, sold separately)

Network

Ethernet type	10/100BASE-T; Auto-sensing; Full / half duplex

System integration

Protocols / standards	IPv4; IPv6; UDP; TCP; HTTP; HTTPS; RTP/RTCP; IGMP V2/V3; ICMP; ICMPv6; RTSP; FTP; ARP; DHCP; APIPA (Auto-IP, link local address); NTP (SNTP); SNMP (V1, MIBII); SNMP (V3, MIBII); 802.1x, EAP/TLS; DNS; DNSv6; DDNS (DynDNS.org, selfHOST.de, no-ip.com); SMTP; iSCSI; UPnP (SSDP); DiffServ (QoS); LLDP; SOAP; CHAP; Digest authentication; IGMP; RTSPS; SRTP; SCEP
Conformity	ONVIF Profile S; ONVIF Profile G; ONVIF Profile T; Auto-MDIX; ONVIF Profile M

Mechanical

3-axis adjustment (pan / tilt / rotation)	355° / 85° / 350°
Dimensions (Ø x H) (mm)	148 mm x 122 mm
Dimensions (Ø x H) (in)	5.83 in x 4.80 in
Weight (g)	1,130 g
Weight (lb)	2.49 lb
Color	White, Black
Color in RAL	RAL 9003 Signal white, RAL 9017 Traffic black
Gyroscope	Yes
Bubble material	Clear polycarbonate, clear with anti-scratch coating
Material	Aluminum
Material finish	Dehumidifying membrane; Waterproof connection area
Mounting type	Surface-mounted (cable box included); 4-inch square junction box, single and double gang box, 1/4-inch 20 UNC screw thread
Conduit	3/4-inch NPT(M25) and 1/2 -inch NPT (M20) conduit side entry

Environmental

Operating temperature (℃)	-40 ℃ – 55 ℃ for continuous operation; Up to 74 ºC according to NEMA TS2-2003 (R2008), para 2.1.5.1 using fig. 2.2.7.3~2.2.7.7 test profile
Operating temperature (℉)	-40 ℉ – 131 ℉ for continuous operation; Up to 165 ºF according to NEMA TS2-2003 (R2008), para 2.1.5.1 using fig. 2.2.7.3~2.2.7.7 test profile
Cold start temperature (℃)	-20 ℃
Cold start temperature (℉)	-4 ℉
Storage temperature (℃)	-30 ℃ – 70 ℃
Storage temperature (℉)	-22 ℉ – 158 ℉
Operating relative humidity, non-condensing (%)	5% – 93%
Operating relative humidity, condensing (%)	5% – 100%
Storage relative humidity (%)	0% – 98%
Impact protection	IK10
IP rating	IP66
Degree of protection	NEMA type 4X
Usage	Outdoor
Sustainability	PVC-free
Country of origin	Thailand

Ordering information

NDE-5702-A Fixed dome 2MP HDR 3.2-10.5mm IP66
Professional IP fixed dome camera for outdoor 60 fps surveillance with H.264/H.265 and IVA Pro Buildings, 2 MP, IP66, IK10
NDAA compliant
Order number **NDE-5702-A**

Accessories

NDA-5070-IC In-ceiling mount kit
In-ceiling mount kit for FLEXIDOME indoor 5100i, FLEXIDOME indoor 5100i IR, FLEXIDOME outdoor 5100i, and FLEXIDOME outdoor 5100i IR
Order number **NDA-5070-IC**

NDA-5070-PLEN In-ceiling plenum kit, 148mm
Plenum-rated in-ceiling mount kit for FLEXIDOME indoor 5100i, FLEXIDOME indoor 5100i IR, FLEXIDOME outdoor 5100i, and FLEXIDOME outdoor 5100i IR
Order number **NDA-5070-PLEN**

NDA-5070-PIPW Pendant interface plate with weather cap
Pendant interface plate including weather protector for FLEXIDOME outdoor 5100i and FLEXIDOME outdoor 5100i IR
Order number **NDA-5070-PIPW**

NDA-5070-LWMT L shape wall mount for FLEXIDOME 5100i
L-shaped wall mount for FLEXIDOME indoor 5100i, FLEXIDOME indoor 5100i IR, FLEXIDOME outdoor 5100i, FLEXIDOME outdoor 5100i IR, and FLEXIDOME IP 3000i IR
Order number **NDA-5070-LWMT**

NDA-5070-PIP Pendant interface plate NDE-570*
Pendant interface plate for FLEXIDOME outdoor 5100i, and FLEXIDOME outdoor 5100i IR
Order number **NDA-5070-PIP**

NDA-5070-PC Paintable cover, FLEXIDOME 5100i, 4pcs
Paintable cover (4 pieces) for FLEXIDOME 5100i and FLEXIDOME 5100i IR
Order number **NDA-5070-PC**

NDA-5070-CBL Bubble, clear for FLEXIDOME 5100i
Clear replacement bubble for FLEXIDOME indoor 5100i and FLEXIDOME outdoor 5100i
Order number **NDA-5070-CBL**

NDA-5070-TBL Bubble, tinted for FLEXIDOME 5100i
Tinted bubble for FLEXIDOME indoor 5100i and FLEXIDOME outdoor 5100i
Order number **NDA-5070-TBL**

NDA-U-CBB Conduit back box, 148mm
Outdoor conduit back box, 148mm, IP66 rated
Order number **NDA-U-CBB**

NDA-U-CMT Corner mount adapter
Universal corner mount, white
Order number **NDA-U-CMT**

NDA-U-PMAS Pole mount adapter small
Pole mount adapter small
Universal pole mount adapter, white; small.
Order number **NDA-U-PMAS**

NDA-U-PMAL Pole mount adapter large
Universal pole mount adapter, white; large
Order number **NDA-U-PMAL**

NDA-U-PSMB Pendant wall/ceiling mount SMB
Surface mount box (SMB) for wall mount or pipe mount.
Order number **NDA-U-PSMB**

NDA-U-WMT Pendant wall mount
Universal wall mount for dome cameras, white
Order number **NDA-U-WMT**

NDA-U-WMTG Pendant wall mount, gang box
Universal wall mount, compatible with gang box installation for fixed dome cameras only, white
Order number **NDA-U-WMTG**

NDA-U-PMT Pendant pipe mount, 12" (31cm)
Universal pipe mount for dome cameras, 31 cm, white
Order number **NDA-U-PMT**

NDA-U-PMTE Pendant pipe extension, 20" (50cm)
Extension for universal pipe mount, 50 cm, white
Order number **NDA-U-PMTE**

NDA-U-PMTG Pendant pipe mount, gang box
Universal pipe mount, compatible with gang box installation for fixed dome cameras only, white
Order number **NDA-U-PMTG**

NDA-U-PMTS Pendant pipe mount, 4" (11 cm)
Universal pendant pipe mount for dome cameras, 11 cm (4"), white
Order number **NDA-U-PMTS**

NDA-U-RMT Pendant parapet mount
Universal roof mount for dome cameras, white, for outdoor usage
Order number **NDA-U-RMT**

NDA-U-PA0 Surveillance cabinet 24VAC
Surveillance cabinet, 24 VAC input, 24 VAC output, IP66
Order number **NDA-U-PA0**

NDA-U-PA1 Surveillance cabinet 120VAC
Surveillance cabinet, 100 - 120 VAC 50/60 Hz input, 24 VAC output, IP66
Order number **NDA-U-PA1**

NDA-U-PA2 Surveillance cabinet 230VAC
Surveillance cabinet, 230 VAC input, 24 VAC output, IP66
Order number **NDA-U-PA2**

NPD-3001-WAP Portable installation tool
Bosch camera portable and wireless installation tool
Order number **NPD-3001-WAP**

NPD-5001-POE Midspan, 15W, single port, AC in
Power-over-Ethernet midspan injector for use with PoE enabled cameras; 15.4 W, 1-port
Weight: 200 g (0.44 lb)
Order number **NPD-5001-POE**

NPD-5004-POE Midspan, 4 port x 15W, AC in
Power-over-Ethernet midspan injector for use with PoE enabled cameras; 15.4 W, 4-ports
Weight: 620 g (1.4 lb)
Order number **NPD-5004-POE**

MSD-064G IP SECURITY MICROSD CARD 64GB
64 GB industrial microSD card with health status monitoring
Order number **MSD-064G**

MSD-128G IP SECURITY MICROSD CARD 128GB
128 GB industrial microSD card with health status monitoring
Order number **MSD-128G**

MSD-256G IP SECURITY MICROSD CARD 256GB
256 GB industrial microSD card with health status monitoring
Order number **MSD-256G**

MNT-ICP-FDC Drop ceiling suppport kit for FLEXIDOME
Suspension ceiling support kit for FLEXIDOME IP 2000/4000/5000/5100i/7000 (except RD series) and panoramic 5000/7000 series cameras
Order number **MNT-ICP-FDC**

NCA-WLAN-EU Wireless installation dongle EU
Wireless installation dongle for wireless commissioning
Order number **NCA-WLAN-EU**

NCA-WLAN-NA Wireless installation dongle NA
Wireless installation dongle for wireless commissioning for North America
Order number **NCA-WLAN-NA**

NDA-5070-COV Conduit cover for NDE-570*, 50pcs
Conduit cover without knockout for FLEXIDOME outdoor 5100i and FLEXIDOME outdoor 5100i IR
Order number **NDA-5070-COV**

Software Options

MVC-IVA-PER IVA Pro Perimeter
Video analytics software for mission-critical perimeter security.
Order number **MVC-IVA-PER**

MVC-IVA-TRA IVA Pro Traffic
Video analytics software based on deep neural network technology for traffic monitoring and Automatic Incident Detection.
Order number **MVC-IVA-TRA**