NBE-5702-AL Bullet 2MP HDR 3.2-10.5mm IP66/67 IK10
DINION 5100i IR

- ▶ 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
- ▶ Built-in intelligent IR illuminator with up to 60 m (197 ft) viewing distance

The camera is a versatile and professional surveillance camera for outdoor monitoring. It offers a 1/2.8'' sensor and HDR technology at HD 1080p resolution with a built-in intelligent infrared illuminator that provides high performance in dark environments.
Built-in Intelligent Video Analytics Pro (IVA Pro) enriches full situational awareness and triggers relevant alerts.
The robust design and stable housing with sunshield prevent overexposure in certain periods of the day and help to provide optimal image stability.

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.

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 IP66/67, NEMA 4X, and IK10 standards, safeguarding the camera against rain and dust while also offering protection against vandalism and tampering.

Easy installation
The NBE-5702-AL uses the proven 3-step installation concept. The mounting plate has multiple hole patterns for installation on electrical boxes (4 inch square and double gang) and on the Bosch Universal Accessories. The back box can be attached with a simple rotate and click. All wires can be connected in the back box.
Power can be supplied through 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.
The camera is compatible with the Bosch electrical boxes accessories, including a double gang box and a 4 inch square junction box.

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.

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.

IR Illumination
The device offers integrated intelligent infrared (IR) capability, on top of adaptive power based on-the-scene content. The IR range covers a distance of up to 60 m (197 ft).
The IR coverage is always optimized for the scene in order to avoid over-exposure of objects that are close to the device.

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, Remote Portal, you can manage your connected Bosch devices. From the 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.
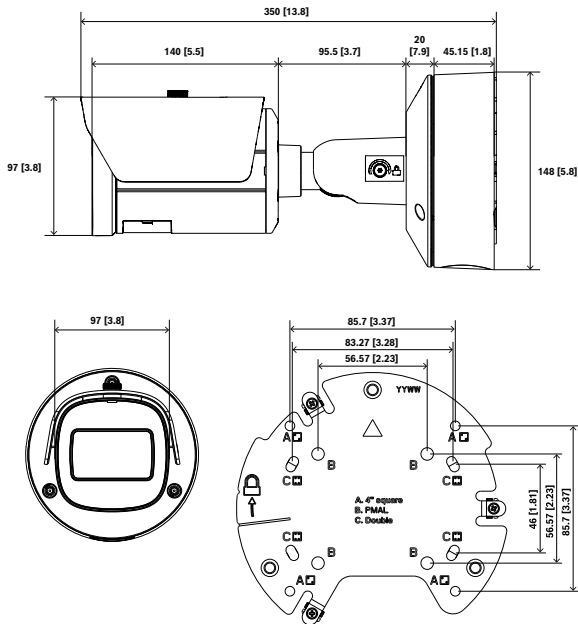
Project Assistant app
As the camera is equipped with a USB-C port for a wireless USB dongle (sold separately: NCA-WLAN-EU, NCA-WLAN-NA), the installer can easily perform the initial configuration wirelessly. Using a mobile device with the Bosch Project Assistant app, you can do initial set-up and lens 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 (IP66/67) UL50E (NEMA Type 4X)
ONVIF conformance	EN 50132-5-2, EN 62676-2
IR lighting	IEC 62471
Marks	CE, FCC, UL, WEEE, RCM, VCCI, UKCA, China RoHS, BIS
Compliance	NDAA

Region	Regulatory compliance/quality marks	
Europe	CE	
USA	UL CAP	Cybersecurity Assurance Program
Great Britain	UKCA	

Installation/configuration notes

Dimensions in mm (inch)

Parts included

Quantity	Component
1	NBE-5702-AL camera
1	Mounting plate
1	Secure screw (pre-installed in the camera)
2	Grommets (pre-installed in the camera's bottom cover)
1	TR20 Allen Key
2	Terminal connectors (8-pin, 2-pin) for audio/alarm/power
1	RJ45 guider
2	Rubbers for conduit
1	Desicant
1	Quick installation guide
1	Safety information
3	Installer UX labels

Technical specifications

Electrical

Input voltage (VAC)	24 VAC ± 10%
Input voltage (VDC)	12 VDC ± 10%
Power consumption PoE (W)	IR off: 6.79 W IR on: 10.73 W
Power consumption VDC (W)	IR off: 6.63 W IR on: 11.1 W
Power consumption VAC (W)	IR off: 6.32 W IR on: 10.47 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
Minimum illumination with IR (lx) (sensitivity measured according to IEC 62676 Part 5)	0.0 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°; Flip image; 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: IVA Pro Buildings
Alarm triggers	Any object; Object in field; Line crossing; Enter / leave field; Loitering; Follow route; Counting; Occu-

	pancy; Condition change; Similarity search; Objects stopping or starting to move
Object filters	Duration; Size; Direction; Color; Object classes
Object classes	Available by default: Person, Vehicle Available with optional IVA Pro: Bicycle, Motorcycle, Truck, Bus
Supported analytics	IVA Pro Perimeter (license); IVA Pro Traffic (license)

Night vision

IR function	On; Off; Auto; Intelligent
Built-in IR (m)	60 m
Built-in IR (ft)	197 ft
IR intensity	Manually adjustable; Automatic
Wavelength (nm)	850 nm

Optical

Lens type	3.2 to 10.5 mm
F-stop	1.6
Iris control	P-iris
IR corrected	Yes
Zoom/focus control	Motorized
Horizontal field of view (º)	105° – 31°
Vertical field of view (º)	57° – 18°

Inputs and outputs

Audio line in	0.6 Vrms max, 40 kOhm typical
Audio line out	1.0 Vrms at 10 kOhm typical
Alarm input activation	Short or DC 5V activation
Alarm output voltage	40 VDC, max. load 1 A
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)	RSA 4096 bit; AES/CBC 256 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

Alarm inputs	1
Alarm outputs	1
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
Conformity	ONVIF Profile S; ONVIF Profile G; ONVIF Profile T; Auto-MDIX; ONVIF Profile M

Mechanical

Dimensions (Ø x H) (mm)	148 mm x 97 mm
Dimensions (Ø x H) (in)	5.82 in x 3.82 in
Weight (kg)	2.50 kg
Weight (lb)	5.51 lb
Color (RAL)	RAL 9003 Signal white
Material	Housing: Aluminum Sunshield and SD-cover: Plastic
Conduit	3/4-inch NPT (M25) and 1/2-inch NPT (M20) conduit side entry

Environmental

Operating temperature (°C)	-40 °C – 55 °C 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; NEMA 4X
IP rating	IP66; IP67
Usage	Outdoor
Sustainability	PVC-free
Country of origin	Thailand

Ordering information

NBE-5702-AL Bullet 2MP HDR 3.2-10.5mm IP66/67 IK10
IP fixed bullet camera for outdoor 60 fps surveillance with HDR, H.264/H.265 and IVA Pro Buildings, 2 MP, IR, IP66/67, IK10, 3.2-10.5 mm lens
NDAA compliant
Order number **NBE-5702-AL**

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

NBA-7070-PA0 Surveillance cabinet 24VAC
Surveillance cabinet, 24 VAC, IK10
Order number **NBA-7070-PA0**

NBA-7070-PA1 Surveillance cabinet 120VAC
Surveillance cabinet, 120 VAC, IK10
Order number **NBA-7070-PA1**

NBA-7070-PA2 Surveillance cabinet 230VAC
Surveillance cabinet, 230 VAC, IK10
Order number **NBA-7070-PA2**

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

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**

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**

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**