

## 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 reliably 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 efficiency through 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<br>3.2 mm /<br>10.5 mm   | Horizontal<br>width |
|-----------|------------------------|-----------------------------------|---------------------|
| Detect    | 25 px/m<br>(8 px/ft)   | 31 m / 138 m<br>(102 ft / 453 ft) | 77 m<br>(252 ft)    |
| Observe   | 63 px/m<br>(19 px/ft)  | 12 m / 55 m<br>(39 ft / 180 ft)   | 30 m<br>(100 ft)    |
| Recognize | 125 px/m<br>(38 px/ft) | 6 m / 28 m<br>(20 ft / 92 ft)     | 15 m<br>(50 ft)     |
| Identify  | 250 px/m<br>(76 px/ft) | 3 m / 14 m<br>(10 ft / 46 ft)     | 8 m<br>(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 °C up to +55 °C (-40 °F up to +131 °F).

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](http://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, 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

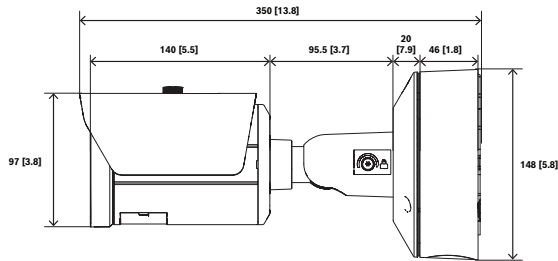
scene. Simply connect the wireless USB dongle and go to the Bosch Project Assistant app, available for iOS, Windows, or Android.

#### Regulatory information

| Standard           | Type                                                                                                           |
|--------------------|----------------------------------------------------------------------------------------------------------------|
| Emission           | EN 55032 (Class B)<br>CFR 47 FCC part 15 (Class B)<br>ICES-003 (Class B)<br>VCCI CISPR 32<br>AS/NZS CISPR 32   |
| Immunity           | EN 50121-4<br>EN 50130-4                                                                                       |
| Environmental      | EN 50130-5, Class IV<br>EN IEC 63000<br>RoHS EU, 2011/65/EU and 2015/863/EU<br>WEEE EU, 2012/19/EU             |
| Safety             | EN 62368-1<br>IEC 62368-1<br>UL 62368-1<br>EN/IEC/UL 60950-22<br>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)<br>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         | NDA                                                                                                            |

| Region        | Regulatory compliance/quality marks |
|---------------|-------------------------------------|
| Europe        | CE                                  |
| 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 $\pm$ 10%                 |
| Input voltage (VDC)       | 12 VDC $\pm$ 10%                 |
| Power consumption PoE (W) | IR off: 6.79 W<br>IR on: 10.73 W |
| Power consumption VDC (W) | IR off: 6.63 W<br>IR on: 11.1 W  |
| Power consumption VAC (W) | IR off: 6.32 W<br>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 x 1080 |
| Upright mode 1080p | 1080 x 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; Occupancy; 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<br>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 (°) | 105° – 31°     |
| Vertical field of view (°)   | 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<br>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 °C 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 (°F)  | -40 °F – 131 °F for continuous operation; Up to 165 °F 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 (°C) | -20 °C                                                                                                                                          |
| Cold start temperature (°F) | -4 °F                                                                                                                                           |
| Storage temperature (°C)    | -30 °C – 70 °C                                                                                                                                  |
| Storage temperature (°F)    | -22 °F – 158 °F                                                                                                                                 |

|                                                 |               |
|-------------------------------------------------|---------------|
| 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**

### Represented by:

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