

## NDE-3702-AL Fixed dome 2MP 3.3-10.2mm IP66 IK10 IR

### FLEXIDOME outdoor 3100i IR



- ▶ 1080p HD resolution
- ▶ IVA Pro Buildings brings reliable deep-learning based detection of persons and vehicles
- ▶ High Dynamic Range (HDR) to see every detail in both bright and dark areas of the scene
- ▶ Built-in Secure Element with Trusted Platform Module (TPM) to ensure the highest level of security for device access and data transport
- ▶ Built-in IR illuminator with up to 30 m (98 ft) viewing distance

The FLEXIDOME outdoor 3100i IR is a versatile device for general outdoor surveillance monitoring. The 2MP sensor, along with an integrated varifocal lens, provides a sharp and detailed image with a flexible field of view. With added IR functionality, the camera is able to function even in scenes where ambient lighting is not always available. The device features built-in IVA Pro Buildings, bringing highly reliable deep learning-based detection which only triggers relevant alarms. The device is also secured with TPM (Trusted Platform Module) functionality, ensuring safe storage of all certificates and keys needed for authentication and encryption.

The camera features an IK10 and IP66 impact and ingress protection rating, ensuring protection against vandalism and weather conditions. An extensive range of compatible accessories enables various mounting options.

#### Functions

##### 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.

##### Intelligent Video Analytics Pro (IVA Pro Buildings)

The camera comes with the IVA Pro Buildings pre-installed and brings reliable deep-learning based detection and tracking of persons and vehicles. Being 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 detects, tracks, and classifies objects.

A smart set of alarm and counter rules alerts you when predefined alarms are triggered, and enables forensic search with high efficiency through recordings. Configuration effort is minimized and made easy by removing the need for calibration.

##### Intelligent streaming

Smart encoding capabilities, utilizing video analytics, reduce bandwidth consumption to extremely low levels. Only relevant information in the scene, such as motion or objects found through analytics, needs to be encoded. The camera is capable of triple streaming, allowing it to deliver independent and configurable streams for live viewing, recording, or remote monitoring via constrained bandwidths. Each of these streams can be adapted independently to deliver high-quality video, perfectly tailored to purpose, while reducing bit rate by up to 90% compared to a standard camera.

### 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, an SMB with 4S and conduit support, and a compact L shape wall mount.

### 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.

### 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:

#### 1080p camera with 3.3 mm to 10.2 mm lens

| DORI      | DORI definition        | Distance<br>3.3 mm/10.2 m<br>m | Horizontal<br>width |
|-----------|------------------------|--------------------------------|---------------------|
| Detect    | 25 px/m<br>(8 px/ft)   | 29 m/138 m<br>(95 ft/451 ft)   | 77 m<br>(252 ft)    |
| Observe   | 63 px/m<br>(19 px/ft)  | 12 m/55 m<br>(38 ft/179 ft)    | 31 m<br>(100 ft)    |
| Recognize | 125 px/m<br>(38 px/ft) | 6 m/28 m<br>(19 ft/90 ft)      | 15 m<br>(50 ft)     |
| Identify  | 250 px/m<br>(76 px/ft) | 3 m/14 m<br>(10 ft/45 ft)      | 8 m<br>(25 ft)      |

### 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. The cameras also support RSA encryption key lengths of

up to 4096 bits, ensuring data safety beyond 2030, as well as 802.1x network authentication with EAP/TLS. 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

### 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.

### System integration and ONVIF conformance

The camera conforms to the ONVIF Profile S, ONVIF Profile G, ONVIF Profile M, and ONVIF Profile T 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.

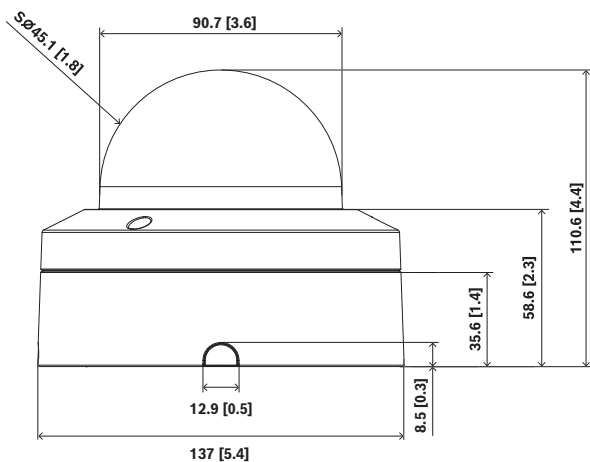
### Regulatory information

| Standard      | Type                                                                                                                                                                    |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Emission      | EN 55032 (Class A)<br>CFR 47 FCC part 15 (Class A)<br>VCCI (Class A)<br>AS/NZS CISPR32 (Class A)                                                                        |
| Immunity      | EN 55035<br>EN IEC 61000-6-1<br>EN IEC 61000-6-2                                                                                                                        |
| Environmental | IEC 60068-2-1<br>IEC 60068-2-2<br>IEC 60068-2-6<br>IEC 60068-2-14<br>IEC 60068-2-27<br>EN IEC 63000: 2018<br>RoHS EU, 2011/65/EU and 2015/863/EU<br>WEEE EU, 2012/19/EU |

| Standard             | Type                                                                           |
|----------------------|--------------------------------------------------------------------------------|
|                      | Packaging EU, 94/62/EU<br>N2580-1 (Bosch standard)<br>N33.6 (Bosch standard)   |
| Safety               | EN IEC 62368-1<br>IEC 62368-1<br>UL 62368-1<br>IEC 62471<br>EN/IEC/UL 60950-22 |
| Ingress protection   | EN 60529 (IP66)                                                                |
| Image performance    | IEC 62676-5                                                                    |
| Color representation | ITU-R BT.709-6                                                                 |
| ONVIF conformance    | EN 50132-5-2, EN 62676-2                                                       |
| IR lighting          | IEC 62471                                                                      |
| Impact protection    | EN 62262 (IK10): 2002                                                          |
| Marks                | CE, FCC, UL, WEEE, RCM, VCCI, UKCA, BIS, KCC, SASO, CMIM, Sweden PVC free      |
| Compliance           | NDA compliant                                                                  |

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

### Installation/configuration notes



### Dimensions in mm (inch)

#### Parts included

| Quantity | Component                         |
|----------|-----------------------------------|
| 1        | FLEXIDOME outdoor 3100i IR device |
| 1        | TR20 key                          |
| 1        | Mounting template                 |
| 1        | Quick installation guide          |
| 1        | Safety and security information   |
| 3        | Installer UX label                |
| 1        | RJ45 guider                       |

#### Technical specifications

##### Electrical

|                                               |                                            |
|-----------------------------------------------|--------------------------------------------|
| PoE input                                     | PoE IEEE 802.3af / 802.3at Type 1, Class 3 |
| Power consumption PoE (W) (typical – maximum) | 4.2 W – 7.6 W                              |

##### 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)                        | 0.06 lx  |
| Monochrome (lx) (sensitivity measured according to IEC 62676 Part 5)                   | 0.016 lx |
| Minimum illumination with IR (lx) (sensitivity measured according to IEC 62676 Part 5) | 0 lx     |

##### Dynamic range

|                               |        |
|-------------------------------|--------|
| High Dynamic Range (HDR) (dB) | 120 dB |
|-------------------------------|--------|

##### Optical

|                        |                  |
|------------------------|------------------|
| Lens focal length (mm) | 3.3 mm – 10.2 mm |
| Lens aperture (/F)     | 1.6 /F – 3.29 /F |

|                              |                          |
|------------------------------|--------------------------|
| Iris control                 | DC-iris                  |
| IR corrected                 | Yes                      |
| Day / Night                  | Switchable IR-cut filter |
| Zoom/focus control           | Motorized                |
| Horizontal field of view (°) | 106° – 31.2°             |
| Vertical field of view (°)   | 55.2° – 17.5°            |

### Video functions

|                         |                                                                                                                                                                                                                                                 |
|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Day/night modes         | Auto (adjustable switch points); Color; Monochrome                                                                                                                                                                                              |
| Camera functionality    | Mirror image; Rotation 90°; Rotation 180°; Rotation 270° including up-right mode; Backlight compensation (BLC); Sharpness enhancement; Intelligent defog; Pixel counter; Saturation; Brightness; Video watermarking; Display stamping; Location |
| White balance (K)       | 2,000 K – 10,000 K                                                                                                                                                                                                                              |
| White balance modes     | Basic; Standard; Manual mode; Hold mode; Sodium lamp auto                                                                                                                                                                                       |
| Shutter modes           | Automatic Electronic Shutter (AES); 1/15,000 max; Default shutter; 1/25 [30] min                                                                                                                                                                |
| Number of privacy masks | 8                                                                                                                                                                                                                                               |

### 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        | <120ms                                                                                                                      |
| GOP structure                    | IP                                                                                                                          |
| Frame rate (fps)                 | 1 fps – 30 fps                                                                                                              |
| Video signal-to-noise ratio (dB) | >55 dB                                                                                                                      |
| Video resolution (H x V)         | HD 1080p (16:9), 1920 x 1080 to 0.1MP (16:9), 512 x 288                                                                     |

### 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 classes                                  | Person; Vehicle                                                                                                                                                                          |
| Object filters                                  | Duration; Size; Aspect ratio; Direction; Color                                                                                                                                           |
| Tracking modes                                  | Base tracking (2D)                                                                                                                                                                       |
| Number of possible alarm rules (simultaneously) | 16                                                                                                                                                                                       |
| Additional functionalities                      | Tamper detection                                                                                                                                                                         |

### Night vision

|                  |                     |
|------------------|---------------------|
| IR function      | On; Off; Auto       |
| Built-in IR (m)  | 30 m                |
| Built-in IR (ft) | 98 ft               |
| IR intensity     | Manually adjustable |
| Wavelength (nm)  | 850 nm              |

### Inputs and outputs

|                     |                                                                                 |
|---------------------|---------------------------------------------------------------------------------|
| Ethernet            | Shielded RJ45                                                                   |
| Analog video output | CVBS: 1.0 Vp-p/ 75ohm composite, 720x480 (NTSC), 720x576 (PAL) for installation |

### Storage

|                     |                                                                                       |
|---------------------|---------------------------------------------------------------------------------------|
| Internal storage    | 5-s-pre-alarm-recording                                                               |
| Memory card slot    | Micro SDHC; Micro SDXC; Micro SD up to 2 TB                                           |
| Industrial SD cards | Extreme lifetime and health monitoring support that provides early service indication |
| Recording mode      | Continuous (ring); Scheduled; Alarm; Event                                            |

**Data security**

|                          |                                    |
|--------------------------|------------------------------------|
| Secure element           | 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       |

**Platform**

|                         |         |
|-------------------------|---------|
| Common Product Platform | CPP14.3 |
|-------------------------|---------|

**Network**

|               |              |
|---------------|--------------|
| Ethernet type | 10/100BASE-T |
|---------------|--------------|

**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); 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; ONVIF Profile M                                                                                                                                                                                                                                                         |

**Mechanical**

|                         |                   |
|-------------------------|-------------------|
| Pan range (°)           | 0° - 355°         |
| Tilt range (°)          | 0° - 85°          |
| Roll range (°)          | 0° - 355°         |
| Dimensions (Ø x H) (mm) | 137 mm x 111 mm   |
| Dimensions (Ø x H) (in) | 5.39 in x 4.37 in |
| Weight (g)              | 789.5 g           |
| Weight (lb)             | 1.74 lb           |
| Color                   | White             |

|                 |                                                       |
|-----------------|-------------------------------------------------------|
| Color (RAL)     | RAL 9003 Signal white                                 |
| Bubble material | Clear polycarbonate                                   |
| Coating type    | Clear with anti-scratch coating                       |
| Material        | Aluminum housing                                      |
| Material finish | Dehumidifying membrane and waterproof connection area |
| Mounting type   | Surface-mounted                                       |

**Environmental**

|                                                 |                 |
|-------------------------------------------------|-----------------|
| Operating temperature (°C)                      | -30 °C - 50 °C  |
| Operating temperature (°F)                      | -22 °F - 122 °F |
| Cold start temperature (°C)                     | -20 °C          |
| Cold start temperature (°F)                     | -4 °F           |
| Storage temperature (°C)                        | -50 °C - 70 °C  |
| Storage temperature (°F)                        | -58 °F - 158 °F |
| Operating relative humidity, non-condensing (%) | 5% - 95%        |
| Operating relative humidity, condensing (%)     | 5% - 100%       |
| Storage relative humidity (%)                   | 5% - 95%        |
| Impact protection                               | IK10            |
| IP rating                                       | IP66            |
| Sustainability                                  | PVC free        |
| Country of origin                               | Thailand        |

**Ordering information****NDE-3702-AL Fixed dome 2MP 3.3-10.2mm IP66 IK10 IR**

Fixed dome camera for indoor 30 fps surveillance; 2MP resolution; IVA Pro Buildings; 3.3-10.2 mm lens; IP66; IK10; IR; NDAA compliant  
Order number **NDE-3702-AL**

**Accessories**

**NDA-3083-TBLE Bubble, tinted, FD3100i outdoor**  
Tinted bubble for FLEXIDOME outdoor 3100i IR cameras  
Order number **NDA-3083-TBLE**

**NDA-3083-SMB SMB with 4S and conduit support, 137mm**

Surface mount box for FLEXIDOME indoor 3100i, FLEXIDOME indoor 3100i IR and FLEXIDOME outdoor 3100i IR cameras with 4S and conduit support, 137 mm  
Order number **NDA-3083-SMB**

**NDA-3083-PLEN In-ceiling plenum kit for FLEXIDOME 3100**

Plenum-rated in-ceiling mount kit for FLEXIDOME 3100i  
Order number **NDA-3083-PLEN**

**NDA-3083-LWMT L-shape wall mount for FLEXIDOME 3100i**

L-shaped wall mount support for 4S and gangbox for FLEXIDOME indoor 3100i, FLEXIDOME indoor 3100i IR FLEXIDOME outdoor 3100i IR, FLEXIDOME micro 3100i indoor, FLEXIDOME micro 3100i outdoor, FLEXIDOME indoor 5100i, FLEXIDOME indoor 5100i, FLEXIDOME indoor 5100i IR, FLEXIDOME outdoor 5100i, FLEXIDOME outdoor 5100i IR  
Order number **NDA-3083-LWMT**

**NDA-3083-PIP Pendant interface plate FD 3100i**

Pendant interface plate for FLEXIDOME indoor 3100i, FLEXIDOME indoor 3100i IR and FLEXIDOME outdoor 3100i IR cameras  
Order number **NDA-3083-PIP**

**NDA-MCBNC-01M Analog cable, BNC connector**

0.1 m (0.3 ft) analog cable to BNC (female) for connecting a camera to a coaxial cable  
Order number **NDA-MCBNC-01M**

**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-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-PMAS Pole mount adapter small**

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

**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-PMT Pendant pipe mount, 12" (31cm)**

Universal pipe mount for dome cameras, 31 cm, white  
Order number **NDA-U-PMT**

**Represented by:****Europe, Middle East, Africa:**

Bosch Security Systems B.V.  
P.O. Box 80002  
5600 JB Eindhoven, The Netherlands  
[www.boschsecurity.com/xc/en/contact/](http://www.boschsecurity.com/xc/en/contact/)  
[www.boschsecurity.com](http://www.boschsecurity.com)

**Germany:**

Bosch Sicherheitssysteme GmbH  
Robert-Bosch-Platz 1  
D-70839 Gerlingen  
[www.boschsecurity.com](http://www.boschsecurity.com)

**North America:**

Bosch Security Systems, LLC  
130 Perinton Parkway  
Fairport, New York, 14450, USA  
[www.boschsecurity.com](http://www.boschsecurity.com)

**Asia-Pacific:**

Robert Bosch (SEA) Pte Ltd, Security Systems  
11 Bishan Street 21  
Singapore 573943  
[www.boschsecurity.com/xc/en/contact/](http://www.boschsecurity.com/xc/en/contact/)  
[www.boschsecurity.com](http://www.boschsecurity.com)