

FLEXIDOME IP starlight 8000i

en

Installation Manual

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1 Safety

1.1 About this manual

This manual has been compiled with great care and the information it contains has been thoroughly verified. The text was correct at the time of publication, however, the content can change without notice. Bosch Security Systems accepts no liability for damage resulting directly or indirectly from faults, incompleteness or discrepancies between this manual and the product described.

1.2 Legal information

Copyright

This manual is the intellectual property of Bosch Security Systems, and is protected by copyright. All rights reserved.

Trademarks

All hardware and software product names used in this document are likely to be registered trademarks and must be treated accordingly.

1.3 Safety precautions

In this manual, the following symbols and notations are used to draw attention to special situations:

Danger!

High risk: This symbol indicates an imminently hazardous situation such as “Dangerous Voltage” inside the product. If not avoided, this will result in an electrical shock, serious bodily injury, or death.

Warning!

Medium risk: Indicates a potentially hazardous situation. If not avoided, this may result in minor or moderate injury.

Caution!

Low risk: Indicates a potentially hazardous situation. If not avoided, this may result in property damage or risk of damage to the unit.

Notice!

This symbol indicates information or a company policy that relates directly or indirectly to the safety of personnel or protection of property.

1.4 Important safety instructions

Read, follow, and retain for future reference all of the following safety instructions. Follow all warnings before operating the device.

1. Clean only with a dry cloth. Do not use liquid cleaners or aerosol cleaners.
2. Do not install device near any heat sources such as radiators, heaters, stoves, or other equipment (including amplifiers) that produce heat.
3. Never spill liquid of any kind on the device.
4. Take precautions to protect the device from power and lightning surges.
5. Adjust only those controls specified in the operating instructions.
6. Operate the device only from the type of power source indicated on the label.

7. Unless qualified, do not attempt to service a damaged device yourself. Refer all servicing to qualified service personnel.
8. Install in accordance with the manufacturer's instructions in accordance with applicable local codes.
9. Use only attachments/accessories specified by the manufacturer.
10. Protect all connection cables from possible damage, particularly at connection points.

Caution!

Installation must be made by qualified personnel and conform to ANSI/NFPA 70 (the National Electrical Code® (NEC)), Canadian Electrical Code, Part I (also called CE Code or CSA C22.1), and all applicable local codes. Bosch Security Systems accepts no liability for any damages or losses caused by incorrect or improper installation.

All-pole power switch - Incorporate an all-pole power switch, with a contact separation of at least 3 mm, into the electrical installation of the building. If it is needed to open the housing, use this all-pole switch as the main disconnect device for switching off the voltage to the unit.

Camera signal - Protect the cable with a primary protector if the camera signal is beyond 140 feet, in accordance with *NEC800 (CEC Section 60)*.

Fuse rating - For security protection of the device, the branch circuit protection must be secured with a maximum fuse rating of 16A. This must be in accordance with *NEC800 (CEC Section 60)*.

Outdoor signals - The installation for outdoor signals, especially regarding clearance from power and lightning conductors and transient protection, must be in accordance with *NEC725* and *NEC800 (CEC Rule 16-224 and CEC Section 60)*.

Video loss - Video loss is inherent to digital video recording; therefore, Bosch Security Systems cannot be held liable for any damage that results from missing video information. To minimize the risk of losing information, we recommend multiple, redundant recording systems, and a procedure to back up all analog and digital information.

1.5

Power connection in applications

24 VAC / 12 VDC power source: This unit is intended to operate with a limited power source. The unit is intended to operate at 24 VAC or 12 VDC (if PoE is not available). User supplied wiring must be in compliance with electrical codes (Class 2 power levels).

PoE: Use only approved PoE devices. Power-over-Ethernet can be connected at the same time as a 24 VAC or 12 VDC power supply. The power supply can work as backup power source in case of PoE power drops.

1.6

Important notices

Notice!

This device is intended for use in public areas only.

U.S. federal law strictly prohibits surreptitious recording of oral communications.

UL Disclaimer

Underwriter Laboratories Inc. ("UL") has not tested the performance or reliability of the security or signaling aspects of this product. UL has only tested fire, shock and/or casualty hazards as outlined in Standard(s) for Safety for Information Technology Equipment, UL 60950-1 . UL Certification does not cover the performance or reliability of the security or signaling aspects of this product.

UL MAKES NO REPRESENTATIONS, WARRANTIES, OR CERTIFICATIONS WHATSOEVER REGARDING THE PERFORMANCE OR RELIABILITY OF ANY SECURITY OR SIGNALING-RELATED FUNCTIONS OF THIS PRODUCT.

Notice!

This is a **class B** product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

FCC statement (USA)

1. This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
 - This device may not cause harmful interference.
 - This device must accept any interference received, including interference that may cause undesired operation.
2. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

IC statement (Canada)

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

- (1) l'appareil ne doit pas produire de brouillage, et
- (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

RF exposure statement (Canada)

The antennas used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be located or operating in conjunction with any other antenna or transmitter.

Les antennes pour ce transmetteur doivent être installées en considérant une distance de séparation de toute personne d'au moins 20 cm et ne doivent pas être localisées ou utilisées en conflit avec toute autre antenne ou transmetteur.

Simplified EC DoC (European Union)

Hereby, Bosch declares that the radio equipment type FLEXIDOME IP starlight 8000i is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address: **www.boschsecurity.com / (Product Catalog) / (Region) / (Country) / (Search for Product No.)**.

ANATEL (Brazil)

Este equipamento não tem direito à proteção contra interferência prejudicial e não pode causar interferência em sistemas devidamente autorizados.

For use in China: CHINA ROHS DISCLOSURE TABLE

Fixed cameras with lens

Hazardous substance table according to SJ/T 11364-2014						
	Pb (Pb)	Hg (Hg)	Cd (Cd)	Cr 6+ (Cr 6+)	PBB (PBB)	PBDE (PBDE)
Housing & enclosures	X	O	O	O	O	O
PCBA with connectors	X	O	X	O	O	O
Cable assemblies	O	O	O	O	O	O
Image sensor assembly	X	O	X	O	O	O
Lens assembly	X	O	X	O	O	O
This table was created according to the provisions of SJ/T 11364						
O: The content of such hazardous substance in all homogeneous materials of such component is below the limit defined in GB/T 26572						
X: The content of such hazardous substance in a certain homogeneous material is above the limit defined in GB/T 26572						

The manufacturing datecodes of the products are explained in:
<http://www.boschsecurity.com/datecodes/>

NOM (Mexico)

La operación de este equipo está sujeta a las siguientes dos condiciones: (1) es posible que este equipo o dispositivo no cause interferencia perjudicial y (2) este equipo o dispositivo debe aceptar cualquier interferencia, incluyendo la que pueda causar su operación no deseada.

KCC (South Korea)

Applicant name: Bosch Security Systems B.V.
 Product name: FLEXIDOME IP starlight 8000i

Model name: FLEXIDOME IP starlight 8000i

Manufacturer name: Bosch Security Systems B.V.

Country of origin: Portugal

Manufactured year and month: <http://www.boschsecurity.com/datecodes/>

NBTC (Thailand)

This telecommunication equipment conforms to NBTC technical standard or requirement.

More information

For more information please contact the nearest Bosch Security Systems location or visit www.boschsecurity.com

2 System overview

2.1 Product description

The FLEXIDOME IP 8000i family consists of high performance dome cameras with superior imaging qualities, IVA-optimized, mission critical surveillance in low light and high dynamic range. Motorized PTZR setup simplifies commissioning.

FLEXIDOME IP starlight 8000i

This camera provides clear images 24/7 - even at night or under low-light conditions. The exceptional starlight sensitivity enables this camera to work with a minimum of ambient light. The extended dynamic mode provides detailed images in scenes with challenging lighting. The camera is available as 2MP (Full HD) at 60 fps or 6MP at 30 fps.

FLEXIDOME IP ultra 8000i

This camera offers crisp, clear and extremely detailed images for the most demanding IP video surveillance requirements. It captures 4K UHD at 30 fps, so providing images of fast moving objects in high resolutions. The content-rich image allows effective retrospective analysis at the level of detail that makes the difference when collecting forensic evidence.

2.2 Intended use

The camera is designed to be integrated in professional IP video surveillance solutions as a surveillance camera. Installation, commissioning and operation of the camera shall be carried out by trained professionals only.

The use of surveillance cameras is restricted by national laws and regulations. Use the camera accordingly.

No other applications are permitted.

2.3 Remote commissioning

Full Remote Commissioning

Installing a professional IP video surveillance camera has never been so easy. In fact, as an installer, you'll never want to go back to the old methods of installing cameras again. We've simplified the installation and commissioning stages to such a degree that they can be done in very little time.

With the FLEXIDOME IP starlight 8000i camera's remote commissioning functionality there's no need to go up and down ladders. Using a PC or a mobile device with the Bosch Project Assistant app, you can pan, tilt, roll and zoom (PTRZ) and point the camera to the required field of view with a single click - without ever having to touch the camera or lens.

Wireless or remote configuration and commissioning can also be done at a later stage once all cameras have been installed. Simply connect the Bosch Project Assistant app, available for iOS, Windows or Android, wirelessly to the camera. Or connect to the camera remotely via the network using the camera's web interface or the Bosch Configuration Manager.

2.4 Using the camera

Use a web browser to access the camera features and to view the camera streams live. Use the same browser interface to access and change the camera configuration parameters and recording/storage functions (including local alarm recording, and recording to iSCSI-based systems).

Refer to the software manual for more information on the browser interface.

The web browser is the most direct way of using the camera, however, the Bosch download store provides several other free applications (listed below) for viewing and controlling the camera.

Download store

Download the latest applications and firmware from:
<http://downloadstore.boschsecurity.com/>

Video Security Client

The Video Security Client is a free, easy-to-use video-surveillance application provided by Bosch for local and remote monitoring of IP cameras and appliances. The software supports up to 16 cameras.

Bosch Video Client

The Bosch Video Client is a free Windows application to view, operate, control, and administer surveillance cameras and installations at remote locations. It offers a user-friendly interface for easy live viewing of multiple cameras, playback, forensic search and export.

IP Helper

The IP Helper tool is a free PC application that makes it easy to detect Bosch cameras and devices on your network.

Video security app

The Bosch video security mobile app has been developed to enable Anywhere access to HD surveillance images allowing you to view live images from any location. The app is designed to give you complete control of all your cameras, from panning and tilting to zoom and focus functions. It's like taking your control room with you.

This app, together with the separately available Bosch transcoder, will allow you to fully utilize our dynamic transcoding features so you can play back images even over low-bandwidth connections.

2.5

Application variants

The camera has a choice of application variants that set up the camera for optimum performance in a specific environment. Select the application variant best suited to your installation.

The application variant must be selected before any other changes are made, as the camera reboots automatically and resets the factory defaults when the application variant is changed. This camera has the following application variants:

- Extended Dynamic mode - simultaneously see details in very bright and very dark objects in the same scene
- Starlight mode (default) – to continue viewing in color at very low light levels

3 Unpacking

3.1 Checking the delivery

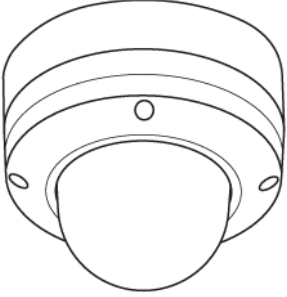
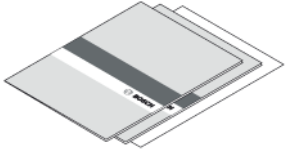
This equipment should be unpacked and handled with care. If an item appears to have been damaged in shipment, notify the shipper immediately.

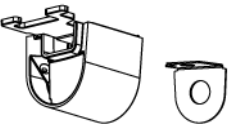
Verify that all parts are included. If any items are missing, notify your Bosch Security Systems Sales or Customer Service Representative.

The original packaging is the safest container in which to transport the unit and can be used if returning the unit for service.

3.2 Contents

The packaging contains:

Quantity	Component	
1	FLEXIDOME IP camera, consists of: – Rugged metal base: for wire connections and mechanical fixture to the surface mounting plate – Camera top: bubble-protected, motorized camera in rugged housing	
1	Surface mounting plate: for easy click-on installation of camera base	
1	TR20 security torx bit: for use with the camera's TR20 screws	
4	Screws (TR20): lost-proof for easier overhead installations. Screws are fixed to the camera top and connect it with the base.	
1 each	– Quick Installation Guide – EAC booklet – Identification label sheet	
1	RJ45 patch cable	
1 each	– 10-pole terminal: for connecting alarm and audio wiring	

Quantity	Component	
	– 2-pole terminal for 12 VDC/24 VAC connection	
1	Desiccant sachet: for additional moisture protection in very humid environments Note: do not open the sachet before its content has to be used. Premature exposure to air will render the moisture protection useless!	
1	Rubber grommet: for on-site sealing of the network connection.	
1	Cable conduit: used when connecting the base to on-surface cable routing instead of in-ceiling cabling.	

4 Hardware Installation

Caution!

Do not attempt to move the camera lens manually. Do not remove the bubble.

The lens system is motorized for easy commissioning. Moving these parts manually will break the gears and damage the camera. In order to move or focus the camera lens, always use the commissioning apps mentioned in this manual.

Installation overview

The hardware installation of the camera summarizes in six main steps:

1. Prepare the camera
2. Install the surface mounting plate
3. Prepare the on-site wiring
4. Install the camera's base
5. Connect all wiring
6. Plug-in and fix the camera top to the base

4.1 Preparation

4.1.1 Separating base and top

On delivery, camera top and camera base are fixed together. In order to proceed with the installation, base and top need to be separated.

Prerequisites:

- Camera unpacked
- TR20 bit mounted to screwing device

Steps:

1. Place the camera on a horizontal surface, with the flat bottom of the base facing to the ground.
2. Use the provided TR20 security bit to unfasten the four screws, visible in their mounting holes on the camera top. Do not use any 'similar' looking torque bit.
3. **Note:** do not unfasten the screws from the camera top. A second screw thread in the camera top prevents the screws from falling down when doing an overhead installation.
4. Lift the camera top off the base.
5. Set the camera top aside for now.

4.1.2 Installing local storage

Notice!

Local storage on memory cards should only be used for alarm recording. To minimize the risk of losing information, use multiple, redundant recording systems and a procedure to back up all digital information.

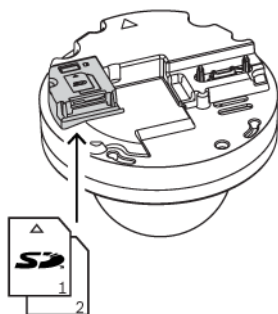
Up to two local memory cards (SD) can be installed in the camera top.

Prerequisites

- The camera top, detached from the base
- One or two SD memory cards

Steps

1. Carefully turn around the camera top. The bubble faces down.
2. Locate the SD slot on the backside of the camera top.

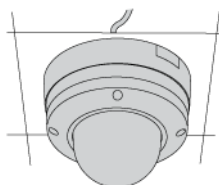


3. Slide one card into one slot.
4. Press the card firmly until it latches into place in the slot. To remove the card, press it into the slot until it unlatches again.
5. To install a second card, repeat from step 3 with the remaining free slot.

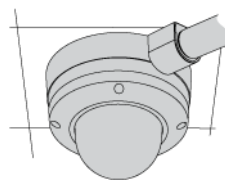
4.2 Installing the surface mounting plate

4.2.1 Fixing

The surface mounting plate is used to fix the camera to a wall or ceiling. The plate can be configured for *in-ceiling* or *on-surface* cable routing:



In-ceiling cable routing



On-surface cable routing
with cable duct.

The camera base sits flat on the surface. There are no flush-mount parts and thus no need to cut out or drill large recess holes.

Mounting options

The surface mounting plate offers different holes and slots for a variety of fixing options. The following graphic illustrates the different applications:

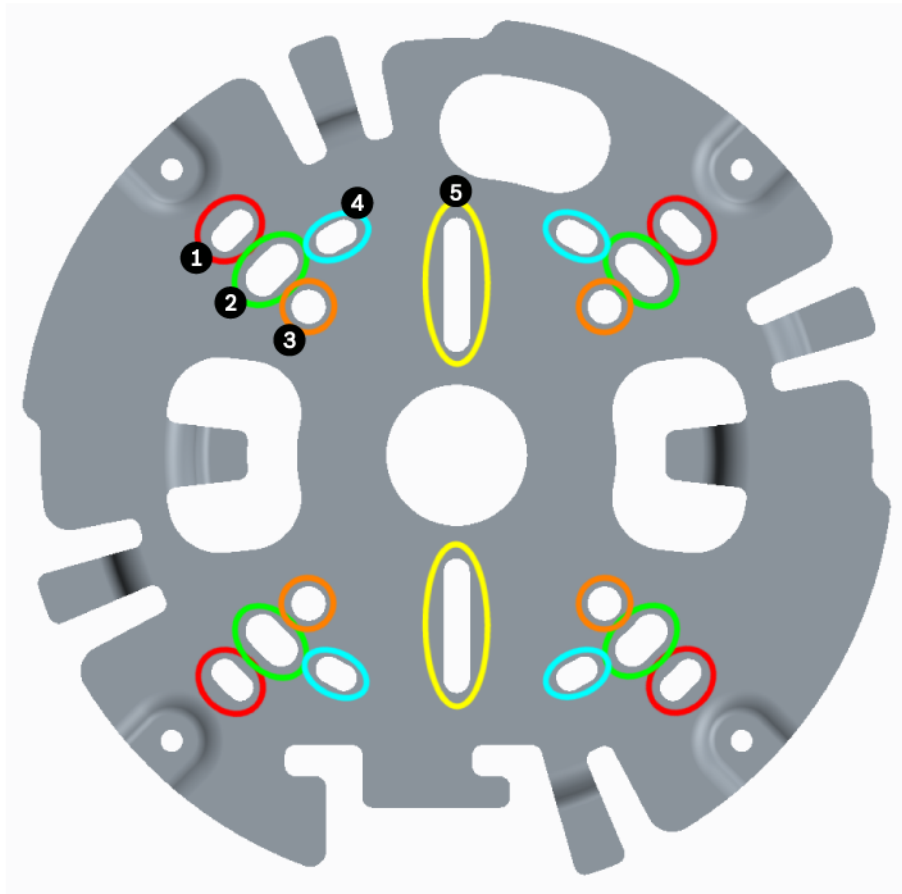


Figure 4.1: Prepared for different applications

1	4" Square junction box	2	Ceiling/wall mount and Pendant interface plate (NDA-8000-PIP)
3	Pole mount (NDA-U-PMAL/NDA-U-PMAS)	4	Double gang box
5	Single Gang box and universal slot, 45 mm to 85 mm		Note: Only options 1,2 and 3 must be used to maintain IK10 rating!

Fixing the surface mounting plate to a surface

Prerequisites

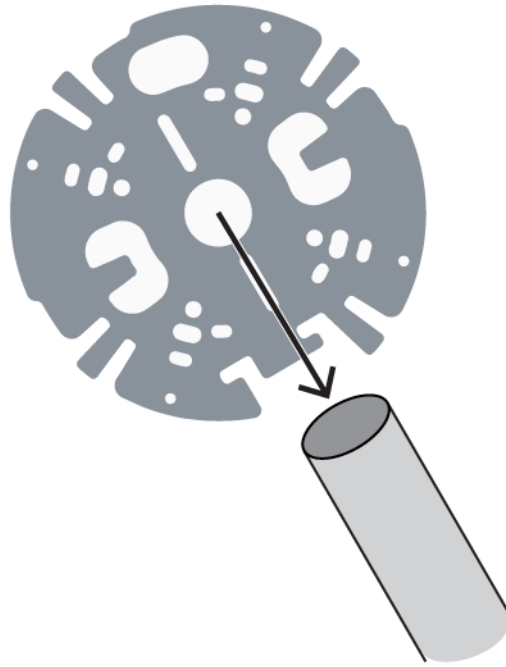
- Choose studs/screws and wall plugs/anchors according to the on-site situation.
- On-site cabling: available cable length must not exceed 30 cm in order to fit in the confined space between base and camera top.
- Have the mounting plate available. You will use it as a drilling template.
- Power drill and suitable drill bit.

Proper alignment

In two application scenarios, the surface mounting plate needs proper alignment:

1. If a weather protector will be used with a *wall-mounted* camera, the camera base must be leveled to facilitate the horizontal alignment of the weather protector. To achieve this, orient the mounting plate as shown in this illustration:

1. For *on-ceiling* cable routing, the cable conduit must be oriented towards the cable duct.



(Preliminary picture)

Steps

1. Use the mounting plate to mark the bore holes on the surface. **Note:** With in-ceiling cable routing, make sure to have the plate centered over the cable outlet. The cable will be passed through the center hole. The cabling must not get stuck between the surface and the plate!
2. Drill four holes. Choose the right holes combination for your application.
3. Place your wall plugs or anchors.
4. *For in-ceiling cabling only:* pass the cable through the center hole of the surface mounting plate.
5. Place the plate onto the bore holes. Make sure to proper align to the correct holes on the plate.
6. Fasten the screws or studs. Torque for fastening must exceed 4 NM and shall not exceed 7 NM.
7. Check for firm hold of the plate.

Fixing the surface mounting plate is finished.

Vandal-proof installation according to IK10 standard

To maintain the IK10+ rating of the installation, screws or anchors used must meet the following specifications:

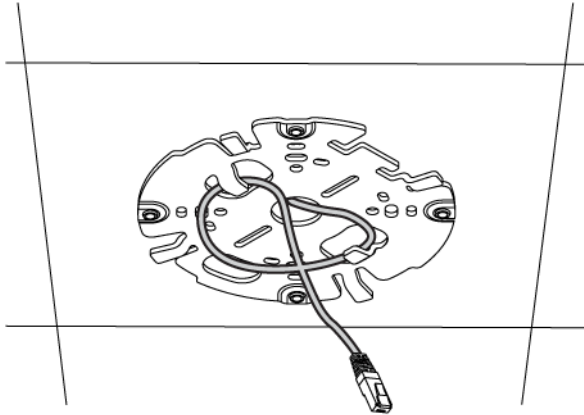
- Use no less than 4 screws or studs.
- Only use the appropriate holes. Do not use the long slots in the plate for mounting.
- Use 5mm screws and wall plugs or M5 anchor bolts only.

4.2.2

Preparing for in-ceiling or on-surface cable routing

The surface mounting plate in its delivery state can be used for *in-ceiling cable routing* without further configuration.

To prepare for connecting to the camera base: Use the hooks on the surface mounting plate to secure the cable and to form a service loop. **Note:** excessive cable lengths (> 30 cm) will not fit into the confined space between camera base and surface mounting plate.

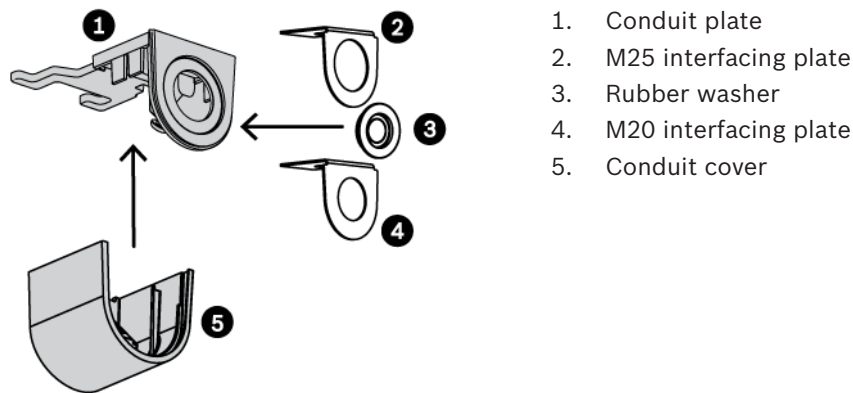


Preparing for on-surface cable routing

For *on-surface cable routing*, a cable conduit is available in the package.

This conduit consists of five parts:

- The *conduit plate* gets fixed to the surface mounting plate. Choose from $\frac{3}{4}$ " / M25 or $\frac{1}{2}$ " / M20 interfacing plate to suit different round cable ducts.
- The *conduit cover* gets fixed to the conduit plate.
- The *rubber washer* is a grommet, closing the gap between wiring and the conduit plate.

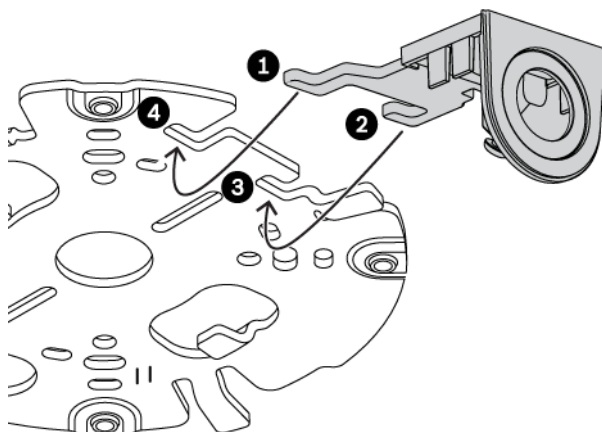


Prerequisites:

The surface mounting plate has been fixed to a surface.

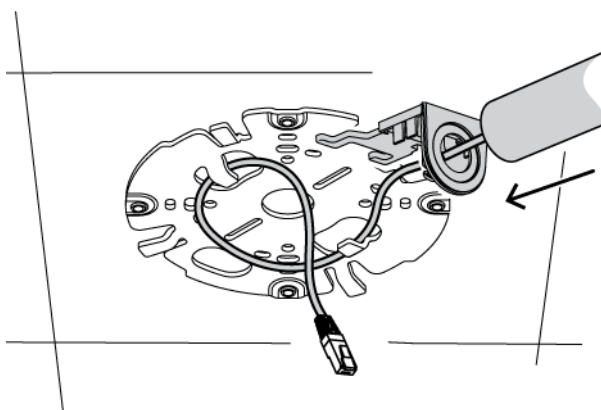
Steps:

1. Prepare the conduit plate to fit the cable duct by choosing the appropriate interfacing plate (M20 or M25). Slide the interfacing plate into the conduit plate.
2. Put the conduit plate onto the surface mounting plate. **Note:** the conduit plate has two tabs. The tabs fit into two slots of the mounting plate. Due to the asymmetric form, there is only one way to slide the conduit plate into these slots.

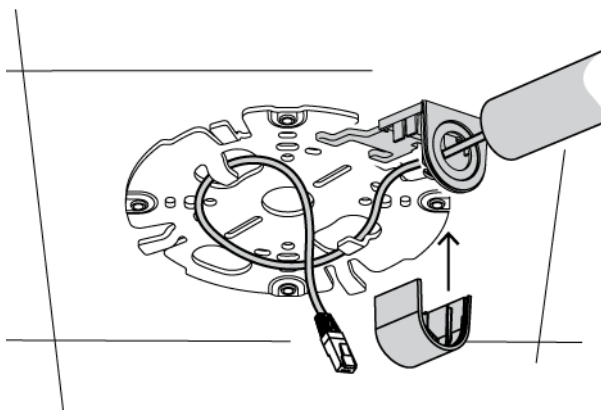


1, 2	Tabs	3,4	Slide-in slots
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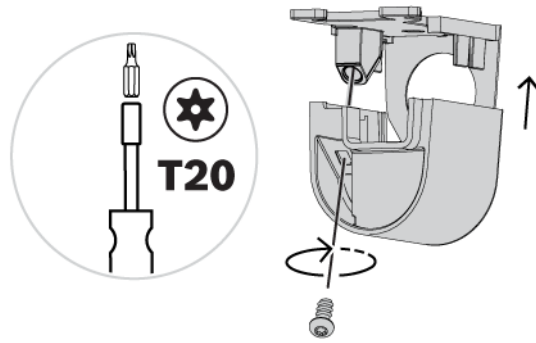
3. Pass the external cable through the center hole of the conduit plate.



4. Use the hooks on the surface mounting plate to secure the cable and to form a service loop. **Note:** excessive cable lengths (> 30 cm) will not fit into the confined space between camera base and camera top.
5. Slide the conduit cover onto the conduit plate.



6. Secure the conduit cover: use the TR20 bit to fasten the screw.



The installation of the cable conduit is finished.

Preparing the camera top for on-surface cable routing

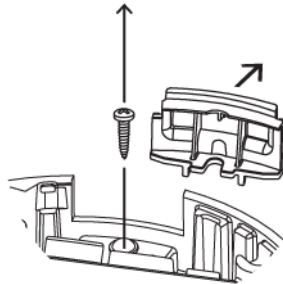
There is a lid on the camera top which has to be removed in order to have the required space for the cable duct.

Preliminaries

A Phillips screwdriver

Steps

1. Unfasten and remove the screw
2. Remove the lid



Keep both parts in a safe space for later use.

4.3 Wiring

Caution!

The unit has connection terminals on flying leads. In wet or outdoor installations, use a field wiring box with NEMA Type 4X or IP66 protection level or better. After connections are made, ensure the watertight compartment is tightly closed and cables and conduits are properly sealed to prevent water ingress.

Notice!

Use proper surge suppression on cables that are routed outdoors, or close to large inductive loads or electrical mains supply cables.

4.3.1 Input/output connector

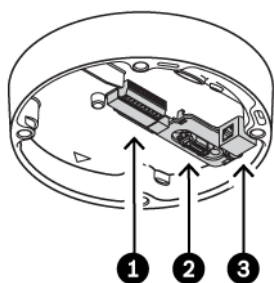
Use the 10-pin terminal for on-site cable commissioning. The terminal fits into its counterpart on the camera base.

Pin assignment

Pin	Connection
1	12 V out
2	GND
3	ALARM OUT
4	ALARM OUT
5	GND
6	ALARM IN 1
7	ALARM IN 2
8	GND
9	AUDIO OUT
10	AUDIO IN

Tab. 4.1: Pin assignment for 10-pin terminal

After fitting the terminal to an on-site wiring, the connection can easily be made. Plug the terminal into the 10-pin I/O on the camera base.

**Figure 4.2:** Connectors on the base

1	10-pin connector	2	RJ45 Ethernet/PoE connector
3	12 VDC/24 VAC connector		

4.3.2**Grounding**

The camera is double-insulated and does not need grounding. However, grounding provides improved surge protection (up to 1 kV).

The grounding connector suits cable diameters from 1 mm up to 4 mm. The following graphic illustrates the position of the grounding connector:

Steps:**Warning!**

Trained electricians only!

Work at electric appliances must only be carried out by qualified technicians.

1. Remove any power source from the device.

2. Unfasten the connector screw to lift it from the metal bracket underneath. Do not remove the connector screw completely. The gap between the washer and the bracket shall suit the diameter of the grounding wire.
3. Prepare your grounding wire.
4. Lift the washer and place the wire into the gap between washer and bracket.
5. Fasten the connector screw. Take care that the wire does not slip off the gap. Check the installation before re-connecting a power device.

4.3.3

Network (and PoE power)

Connect the camera to a 10/100 Base-T network:

- Use STP Category 5e cable with RJ45 connectors (the camera network socket is Auto MDIX compliant).
- Power is supplied to the camera via the Ethernet cable compliant with the Power-over-Ethernet standard.

Notice!

Use only PoE approved devices.

Power-over-Ethernet (PoE) can be connected at the same time as a 12 VDC or 24 VAC power supply. If auxiliary power (12 VDC/24 VAC) and PoE is applied simultaneously, the camera selects PoE and shuts off the auxiliary input.

4.3.4

Auxiliary power

Connect a SELV-LPS or a SELV Class 2 power supply with a rated supply voltage of 12 VDC or 24 VAC.

For maximum reliability, the camera can be connected simultaneously to a High PoE Midspan and a separate 24 VAC power source. If High PoE and 24 VAC are applied simultaneously, the camera usually selects the High PoE Midspan and will draw minimal power from the auxiliary input (24 VAC). If the High PoE Midspan power source fails, the camera switches power input seamlessly to 24 VAC. After the High PoE Midspan power source is restored, the camera switches power input again to the High PoE Midspan.

Caution!

Compliance with EN50130-4 Alarm Standard – CCTV for Security Applications

To meet the requirements of the EN50130-4 Alarm Standard, an ancillary uninterruptable power (UPS) supply is necessary. The UPS must have a **Transfer Time** between 2–6 ms and a **Backup Runtime** of greater than 5 seconds for the power level as specified on the product datasheet.

4.3.5

Alarm

Alarm out:

Use the alarm output for switching external devices such as lamps or sirens.

The alarm output switching capability has a max. voltage of 30 VAC or +40 VDC; max. 0.5 A continuous, 10 VA.

Alarm in:

Use the alarm input to connect external alarm devices such as door contacts or sensors:

- TTL logic, +5 V nominal, +40 VDC max, DC coupled with 50 kOhm pull-up to +3.3 V.
- Configurable as active low or active high.

Use a zero potential make-contact or switch as the actuator (with a bounce-free contact system).

4.3.6 12V output

The 12 V output can be controlled by the Alarm Task editor and it can be enabled via the web interface.

4.3.7 Audio

Connect audio devices to the audio input and audio output connectors.

The unit has full-duplex mono audio for two-way communication between a speaker or door intercom system. The audio input signal is transmitted in sync. with the video signal.

Audio input:

Line input level (not suitable for direct microphone signal); impedance 18 kOhm typical; 1 Vrms maximum input voltage.

Audio output:

Line output level (not suitable for direct speaker connection); impedance 1.5 kOhm minimum; 0.85 Vrms maximum output voltage.

Use shielded audio connection cable with advised maximum cable lengths for audio line input and output levels.

4.4 Mounting the camera

After installing the surface mounting plate, the camera base needs to get connected and installed.

Preliminaries

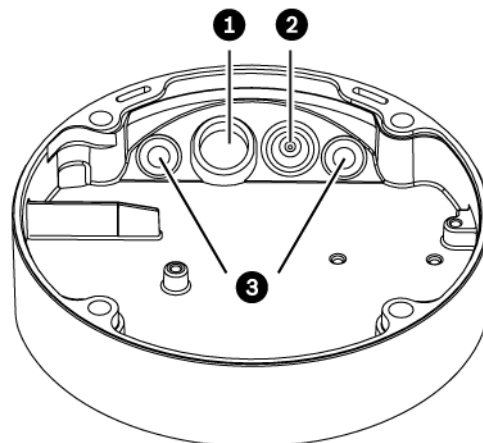
- Surface mounting plate installed (and prepared for on-ceiling cable routing, if necessary)
- Camera base and top separated
- On-site wiring (network, power, alarm, 12 V, audio) prepared, terminal installed
- Network cabling wound in a service loop
- PoE power supplies or 12 V/24 V power supplies **switched off and disconnected from power sources.**

4.4.1 Mounting the base

Installing the base is a simple, tool-free, click-on process.

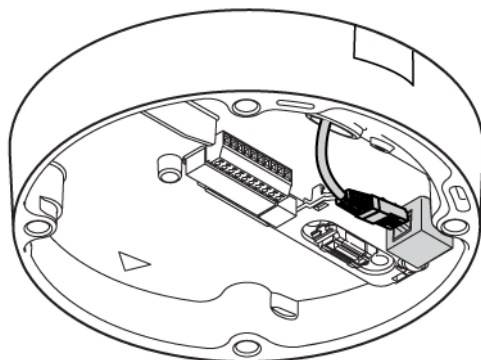
Steps

1. Locate the *network cable inlet* (1) and pass the network cable into the base.

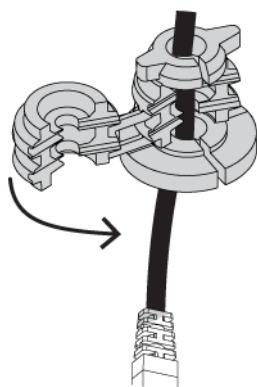


1	Network cable inlet	2	Sealed cable inlet with adjustable rubber grommet
3	Ventilation holes. Note: Never remove or break the sealing from these holes. Check safety chapter for further information.		

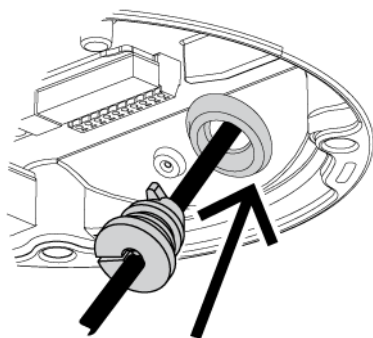
2. Insert the RJ45 plug into the RJ45 network connector.



3. Attach the grommet to the network cable, with the larger diameter facing the RJ45 plug. **Note:** The grommet will seal round-shaped network cables with a diameter of 5 mm to 8 mm. The grommet **will not seal** the housing if flat, oval or wrinkled network cables are used. In this case you need to take further measures (e.g. silicone sealant) to seal the cabling.



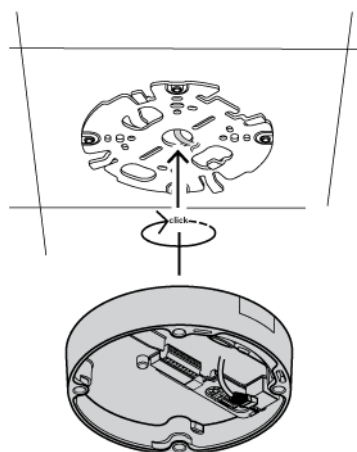
4. Insert the grommet into the network cable inlet. **Note:** the grommet does not slide in easy. Grab the base with both hands and use both thumbs to push the grommet into the inlet. Do not use any lubricant as this would harm the sealing.



5. Make sure that the grommet is pushed in to its full length:



6. Place the camera base onto the surface mounting plate.
7. Turn the camera base clockwise until you hear a 'click' sound.



8. Check the correct, seamless seating of the base.
The base is mounted.

4.4.2 Handling additional cabling

4.4.3 Mounting the camera top

Notice!

Optional moisture protection

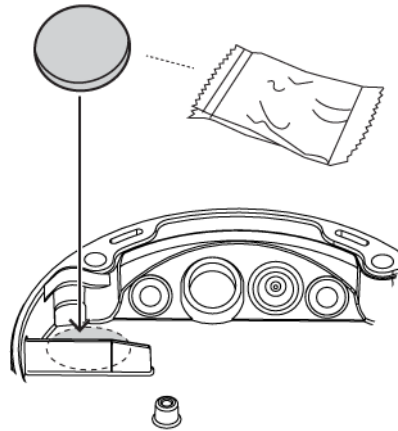
If fogging occurs during installation, you have to install the optional moisture protection. In this case, you must finish the whole installation of the camera top within 10 minutes, otherwise the moisture protection will be useless!

Installing the optional moisture protection

The desiccant sachet contains a pill. This self-adhesive pill will be affixed to the camera base and provides moisture protection if fogging occurs during installation.

Steps

1. Open the sachet and take out the pill. From now you have 10 minutes to complete the whole installation.
2. Remove the protective cover from the adhesive side of the pill.
3. Affix the pill to the base, on the left side of the cable inlets. Be sure not to cover the ventilation hole.

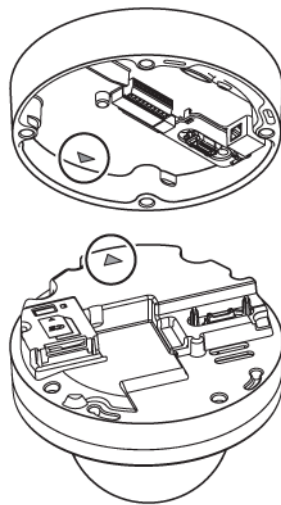


4. Proceed with the installation of the camera top immediately.

Installing the camera top

The camera top connects to the base through a built-in plug/socket connector. To achieve this connection, camera top and base have to be aligned properly.

To facilitate proper alignment, top and base are marked with a triangle on their inside. Align these triangles before mounting the top.

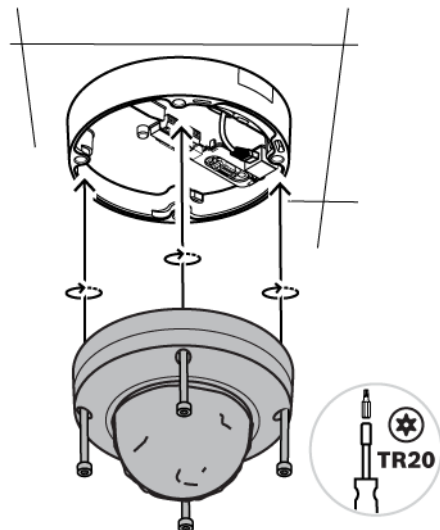
**Preliminaries**

Screwing tool with TR20 bit installed.

Steps

1. Align camera top to camera base.
2. Put the camera top onto the base, with no gap between top and base. This has to fit easily. Do not use physical force if it doesn't fit! Check for proper alignment instead!
3. While holding the camera top with one hand, use the other hand to hand-tighten two opposing bolts.

4. Use the screwing tool to fasten all four bolts. Apply at least 2.5 Nm of torque, but no more than 4 Nm.



5. Remove the protective cover from the bubble.



The hardware installation is complete.

Note: Recall that this device has motorized PTZ setup. Do not remove the bubble. Do not move the camera manually.

5 Online Camera Commissioning

Once the hardware installation is completed,

- the camera has to be integrated into your network and
- the field of view needs to be set.

The camera's initial setup is done via the camera's browser interface or, preferably, via the free-of-charge Bosch Project Assistant app.

5.1 Downloading the Project Assistant app

The Project Assistant app is available for Android, iPhone and Windows. The app is free of charge. You can find the app in the respective app stores.



Scan this QR code with your mobile phone to navigate directly to the appropriate store page.

5.2 Introducing the Project Assistant app

On the following pages we describe the use of the Project Assistant app for a single camera setup. But the app has much more to offer:

Installation

The Project Assistant app covers all basic camera settings like name, password, network settings, date and time, and the camera's field of view alignment.

Identification of camera

Local area network scans, direct connection via IP address, and QR-code scan for MAC-address import and automatic connection are available to identify cameras.

Single Camera Assistant

The quick mode allows you to connect to a camera and set basic camera setting online without having to go through the project setup phase beforehand.

Project Assistant

The Project Assistant app allows you to cluster and preconfigure cameras in projects. Project defaults can be defined for network settings and passwords and are automatically used for added cameras. Both project defaults and dedicated camera configurations can be defined offline and pushed onto the cameras when connecting. Project and camera settings can also be exported to as well as imported from project and .csv files (for example Excel).

Sharing of projects

Project files can be exported and transferred to associates via email or cloud service, for example in case another project team member is taking over from someone else. The most convenient way, however, is our Dropbox synchronization and sharing feature which allows multiple people to work on the same project simultaneously or to monitor real-time progress. Thus, easy collaboration and installation process monitoring is supported even for large sites.

Reporting

The app allows you to easily generate reports and documentation of the status of projects. The reports contain relevant project and camera settings as well as snapshots of the camera's field of view.

Please refer to the Project Assistant online help for in-depth information on the features.

5.3 Using the Project Assistant app

Notice!

Do not expose the image sensors to direct sunlight.

6 Connection via the web browser

The unit must have a valid IP address and a compatible subnet mask to operate on your network. By default, DHCP is pre-set at the factory to **On** and so your DHCP server assigns an IP address. With no DHCP server the default address is 192.168.0.1

To view the camera in your web browser:

1. Start the Web browser.
2. Enter the IP address of the unit as the URL.
3. During initial installation, confirm any security questions that appear.

Note:

To see live images in your browser it might be necessary to download and install the MPEG-ActiveX from the Bosch download store.

Protected Network

If a RADIUS server is used for network access control (802.1x authentication), the unit must be configured first. To configure the unit, connect it directly to a computer using a network cable and configure the two parameters, **Identity** and **Password**. Only after these have been configured can communication with the unit via the network occur.

IP Helper tool

Alternatively, use the IP Helper tool to detect Bosch devices on the network:

1. Access the Bosch download store (<http://downloadstore.boschsecurity.com/>).
2. Download and install IP Helper.
3. Choose your specific camera from the list of cameras shown in the table on the left of the screen
4. Click **Open in browser** to view the camera interface.

7 Troubleshooting

7.1 Resolving problems

The following table is intended to help identify the causes of malfunctions and correct them where possible.

Malfunction	Possible causes	Solution
Unit does not operate.	Power failure.	Check power supply.
	Faulty cable connections.	Check all cables, plugs, contacts and connections.
No connection established, no image transmission.	Incorrect unit configuration.	Check all configuration parameters (reset to factory default if necessary).
	Faulty installation.	Check all cables, plugs, contacts and connections.
	Wrong IP address.	Check the IP addresses (ping).
	Faulty data transmission within the LAN.	Check the data transmission with ping.
	The maximum number of connections has been reached.	Wait until there is a free connection and call the transmitter again.
No audio transmission to remote station.	Hardware fault.	Check that all connected audio units are operating correctly.
	Faulty cable connections.	Check all cables, plugs, contacts and connections.
	Incorrect configuration.	Check audio parameters on the Audio configuration and LIVE page functions pages.
	The audio voice connection is already in use by another receiver.	Wait until the connection is free and then call the sender again.
The unit does not report an alarm.	Alarm source is not selected.	Select possible alarm sources on the Alarm sources configuration page.
	No alarm response specified.	Specify the desired alarm response on the Alarm connections configuration page; if necessary change the IP address.
The unit is not operational after a firmware upload.	Power failure during programming by firmware file.	Have the unit checked by Customer Service and replace if necessary.

	Incorrect firmware file.	Enter the IP address of the unit followed by /main.htm in your Web browser and repeat the upload.
Web browser contains empty fields.	Active proxy server in network.	Create a rule in the local computer's proxy settings to exclude local IP addresses.

7.2 Testing the network connection

The ping command can be used to check the connection between two IP addresses. This allows testing whether a device is active in the network.

1. Open the DOS command prompt.
2. Type `ping` followed by the IP address of the device.

If the device is found, the response appears as "Reply from ... ", followed by the number of bytes sent and the transmission time in milliseconds. Otherwise, the device cannot be accessed via the network. This might be because:

- The device is not properly connected to the network. Check the cable connections in this case.
- The device is not correctly integrated into the network. Check the IP address, subnet mask, and gateway address.

7.3 Customer service

If a fault cannot be resolved, please contact your supplier or system integrator, or go directly to Bosch Security Systems Customer Service.

The version numbers of the internal firmware can be viewed on a service page. Please note this information before contacting Customer Service.

1. In the address bar of your browser, after the unit IP address, enter: `/version`
for example: `192.168.0.80/version`
2. Write down the information or print out the page.

8 Maintenance

8.1 Cleaning

It is generally sufficient to use a dry cloth for cleaning, but a moist lint-free cloth or leather shammy may also be used.

Do not use liquid cleaners or aerosol cleaners.

8.1.1 Lens cleaning

It is important to keep the lens clean to ensure optimum performance. Dust, grease, or fingerprints should be removed from the lens surface. When cleaning the lens, take extra care not to damage the special coating used to reduce light reflections.

- Remove dust with a blower-brush or grease-free soft brush.
- Wipe water drops off the lens with a clean soft lint-free cloth and dry the lens surface.
- Use special lens cleaning paper or cloth treated with lens cleaning fluid to gently wipe off any remaining dirt (wipe spirally from the lens center towards the edge).

8.2 Repair

Notice!

Never open the casing of the unit

The unit does not contain any user-serviceable parts. Refer all repairs to suitable qualified specialists.

9 Decommissioning

9.1 Transfer

The unit should only be passed on together with this installation guide.

9.2 Disposal

	Disposal - Your Bosch product was developed and manufactured with high-quality material and components that can be recycled and reused. This symbol means that electronic and electrical appliances, which have reached the end of their working life, must be collected and disposed of separately from household waste material. Separate collecting systems are usually in place for disused electronic and electrical products. Please dispose of these units at an environmentally compatible recycling facility, per <i>European Directive 2012/19/EU</i>.
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10 Technical data

10.1 Dimensions

Figure 10.1: FLEXIDOME IP 8000i dimensions

10.2 Specifications

Mechanical	
Dimensions (D x H)	175 x 145 mm (6.9 x 5.7 in)
Weight	2.2 kg (4.85 lbs)
Mounting	Surface mount
Color	White (RAL9010)
Motorized PTR range	Pan: -181.5° to +181.5° Tilt: -5.5° to +87° (NDE-8502-R), -5.5° to +90° (NDE-8502-RT) Roll: -92° to +92°
Dome bubble	Polycarbonate, clear with UV blocking anti-scratch coating
Housing	Aluminum with dehumidifying membranes and waterproof connection area
Environmental	
Operating temperature	-50 °C to +60 °C (-58 °F to +140 °F) for continuous operation;

Environmental	
	-34 °C to +74 °C (-30 °F to +165 °F) according to NEMA TS 2-2003 (R2008), para 2.1.5.1 using fig. 2.1 test profile
Storage temperature	-30 °C to +70 °C (-22 °F to +158 °F)
Operating humidity	5% to 93% RH non condensing 5% to 100% RH condensing
Storage humidity	Up to 98% RH
Impact resistance casing and dome	IK10+ (50 joules)
Water/dust protection	IP 66 and NEMA Type 4X
Power	
Input voltage	PoE IEEE 802.3af / 802.3at Type 1, Class 3 24 VAC ±10% 12-26 VDC ±10% PoE and auxiliary power can be connected simultaneously for redundant operation
Power Consumption (typical / maximum)	PoE: 7 W / 13 W 24 VAC: 7.1 W - 12 VA / 13 W - 25 VA 12-26 VDC: 7.5 W / 16 W
Input/output	
Power output	+12 VDC, max 50mA
Audio signal line in	10 kOhm typical; 1 Vrms max
Audio signal line out	1 Vrms; 1.5 kOhm typical
Alarm input	2 inputs, activation voltage: +3.3 VDC to +40 VDC
Alarm output	1 output, maximum: 30 VAC or +40 VDC, 0.5 A continuous, 10 VA
Ethernet	RJ45
Surge protection	Ethernet: 1 kV, 2 kA to ground (8/20 µs pulse)
Fiber optics (sold separately)	The Fiber Optic Ethernet Media Converter kit (VG4-SFPSCKT) installed inside a Surveillance Cabinet (NDA-U-PA0, NDA-U-PA1 or NDA-U-PA2) provides the fiber optic interface to the mounted camera.
Network	
Protocols	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, V3, MIB-II), 802.1x, DNS, DNSv6, DDNS (DynDNS.org, selfHOST.de, no-ip.com), SMTP, iSCSI, UPnP (SSDP), DiffServ (QoS), LLDP, SOAP, Dropbox™, CHAP, digest authentication

Network	
Ethernet	10/100 Base-T, auto-sensing, half/full duplex
Connectivity	Auto-MDIX
Interoperability	ONVIF Profile S; ONVIF Profile G; ONVIF Profile T GB/T 28181

Camera installation	
Mirror image	On / Off
Rotate	0° / 90° upright / 180° / 270° upright
Camera LED	Enable/disable
Positioning	Coordinates / Mounting height
Camera View Wizard	Motorized pan, tilt, roll, zoom, autofocus

Video streaming	
Video compression	H.265; H.264; M-JPEG
Sensor modes	25 fps, HDR, 1920 x 1080 (2 MP) 30 fps, HDR, 1920 x 1080 (2 MP) 50 fps, 1920 x 1080 (2 MP) 60 fps, 1920 x 1080 (2 MP)
Streaming	Multiple configurable streams in H.264, H.265 and M-JPEG, configurable frame rate and bandwidth. Regions of Interest (ROI) Bosch Intelligent Streaming
Camera latency	67 ms (2 MP, 60 fps)
GOP structure	IP, IBP, IBBP
Frame rate	1-60 fps
Signal-to-Noise Ratio (SNR)	>55 dB

Audio streaming	
Standard	G.711, 8 kHz sampling rate L16, 16 kHz sampling rate AAC-LC, 48 kbps at 16 kHz sampling rate AAC-LC, 80 kbps at 16 kHz sampling rate
Signal-to-Noise Ratio	>50 dB
Audio Streaming	Full-duplex / half duplex

Local storage	
Internal RAM	5 s pre-alarm recording
Memory card slots	Dual SDXC / SDHC / SD card slots.
Dual SD-card slot configurations	– Mirror (redundant storage) – Failover (extended service interval)

Local storage	
	– Extend (maximum retention time) – Automatic Network Replenishment
Industrial SD cards	Extreme lifetime and health monitoring support that provides early service indication. SR-32VMA (32GB), SR-64VMA (64GB), SR-G1VMA (128GB)

Data security	
Crypto Coprocessor (TPM)	RSA 2048 bit, AES/CBC 256 bit
FIPS	FIPS 140-2 Level 3 compliant
PKI	X.509 certificates
Encryption	Full end-to-end encryption with supported VMS Network: TLS1.0/1.2, AES128, AES256 Local storage: XTS-AES
Video authentication	checksum, MD5, SHA-1, SHA-256

Optical (10 to 23 mm lens)	
Lens	10 to 23 mm P-iris lens (IR corrected) F-stop 1.6 - 2.6
Adjustment	Motorized zoom/focus
Iris control	P-iris control
Viewing angle	Wide: 32° x 18° (H x V) Tele: 14.4° x 8.1° (H x V)

Optical (3 to 9 mm lens)	
Lens	3 to 9 mm P-iris lens (IR corrected) F-stop 1.2 - 2.3
Adjustment	Motorized zoom/focus
Iris control	P-iris control
Viewing angle	Wide: 117° x 59° (H x V) Tele: 37° x 21° (H x V)

2 MP version

Video resolution (H x V)	
1080p HD	1920 x 1080
Upright mode 1080p HD	1080 x 1920
1.3 MP (5:4)	1280 x 1024
720p HD	1280 x 720
Upright mode 720p	720 x 1280

Video resolution (H x V)	
480p SD	854 x 480
SD 4:3 (cropped)	704 x 480

6 MP version

Video resolution (H x V)	
6.0 MP	3264 x 1840
5.3 MP	3072 x 1728
2.8 MP (4:3)	1920 x 1440
1080p HD	1920 x 1080
1.3 MP (5:4)	1280 x 1024
720p HD	1280 x 720
480p SD	854 x 480
SD 4:3 (cropped)	704 x 480

8 MP version

Video resolution (H x V)	
4K UHD	3840 x 2160
7.3 MP	3584 x 2016
2.8 MP (4:3)	1920 x 1440
1080p HD	1920 x 1080
Upright mode 1080p	1080 x 1920
1.3 MP (5:4)	1280 x 1024
720p HD	1280 x 720
Upright mode 720p	720 x 1280
480p SD	854 x 480
SD 4:3 (cropped)	704 x 480

Bosch Security Systems B.V.

Torenallee 49

5617 BA Eindhoven

Netherlands

www.boschsecurity.com

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