



# FLEXIDOME IP panoramic 6000/7000 IC

NFN-60122 | NFN-70122



**BOSCH**

en Installation Manual



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# 1 Safety

## 1.1 Safety message explanation

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**Caution!**

Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

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**Notice!**

Indicates a situation which, if not avoided, could result in damage to the equipment or environment, or data loss.

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## 1.2 Safety precautions

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**Caution!**

Installation should only be performed by qualified service personnel in accordance with the National Electrical Code (NEC 800 CEC Section 60) or applicable local codes.

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## 1.3 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.

## 1.4 FCC and ICES compliance

### FCC & ICES Information

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.

Intentional or unintentional modifications, not expressly approved by the party responsible for compliance, shall not be made. Any such modifications could void the user's authority to operate the equipment. If necessary, the user should consult the dealer or an experienced radio/television technician for corrective action.

The user may find the following booklet, prepared by the Federal Communications Commission, helpful: *How to Identify and Resolve Radio-TV Interference Problems*. This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, Stock No. 004-000-00345-4.

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## 1.5 Notices

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**Notice!**

Optical elements are sensitive and should be protected at all times. Do not allow objects to come into contact with glass surfaces and do not touch optical elements with your fingers.

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**Notice!**

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.

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**Notice!**

We recommend that memory cards only be used for local storage of alarm recordings.

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## 2 Short information

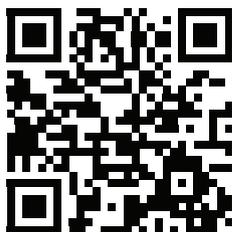
This manual has been compiled with great care and the information it contains has been thoroughly verified. The text was correct at the time of printing, however, the content can change without notice. Bosch Security Systems accepts no liability for damage resulting directly or indirectly from faults,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

### **Trademarks**

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

### **More information**

For more information please contact the nearest Bosch Security Systems location or visit [www.boschsecurity.com](http://www.boschsecurity.com)



[http://www.boschsecurity.com/catalog\\_overview.htm](http://www.boschsecurity.com/catalog_overview.htm)

## 3 System overview

This discreet, aesthetic camera mounts flush in a ceiling or wall. Its easily-painted cover plate blends in with almost all surroundings. The 12MP sensor operating at 30 fps provides full panoramic surveillance with complete area coverage, fine details and high speeds. The camera offers full situational awareness and simultaneous E-PTZ views in high resolution. The 360° version of the camera, when mounted centrally on a ceiling, gives complete wall-to-wall coverage. The 180° version has a higher effective resolution and is ideal for wall mounting or for ceiling mounting in corridors.

### 3.1 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:

- Client-side dewarping
- Edge dewarping

### 3.2 Using the camera

To access the features of the camera, use a web browser. The browser provides live viewing of the camera streams in the interface window, and also allows you to access and change the extensive list of settings and parameters for camera configuration. Refer to the software manual for more information on the browser interface.

The camera recording and storage functions include local alarm recording and recording to iSCSI-based systems. The camera can also use the Bosch Video Recording Manager (VRM) to control recording and storage. Integration with the many Bosch recording solutions is seamless.

### 3.3 Operation with external systems

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.

The Video Security Client has extensive dewarping capabilities and can be used for client-side dewarping as well as for viewing the available modes.

**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.

**3.3.1 Larger surveillance systems****Bosch Video Management System**

The Bosch Video Management System is a unique enterprise IP video surveillance solution that provides seamless management of digital video, audio and data across any IP network. It is designed to work with Bosch security products as part of a total video surveillance management system.

**Third-party integration**

Third-party integrators can easily access the internal feature set of the camera for integration into large projects. Access to metadata is available to integrators via RTSP.

When connected to external systems, many of the camera configuration parameters are controlled by the system and not by the settings made via a web browser.

## 4 Planning information

### 4.1 Unpacking

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.

### 4.2 Contents

The packaging contains:

Qty	Component
1	Camera
1	Cover plate
1	Hex wrench
1	Drill template
4	Screws (4 x 35)
4	Washers (M4 DIN433)
4	Plugs
1	Installation Guide
1	Identification label sheet

## 4.3 System requirements

To enjoy the full benefits of megapixel resolutions, ensure that the computer, the graphic adapter, the display connections, and the monitor are sufficiently powerful to view our camera images at their best.

Our recommendations are:

- Computer with Dual core HyperThreading processor or better
- Graphic card with performance that matches or is better than the resolution of the camera
- Windows 7 or later operating system
- Network access
- Internet Explorer version 11 or later

**- or -**

Application software, for example, Video Security Client, Bosch Video Client or Bosch Video Management System.



### Notice!

Megapixel cameras can generate high bitrate streams. Ensure that your network can handle high volume traffic and that you use a powerful, high performance computer.

## 5 Installation

### 5.1 Local storage

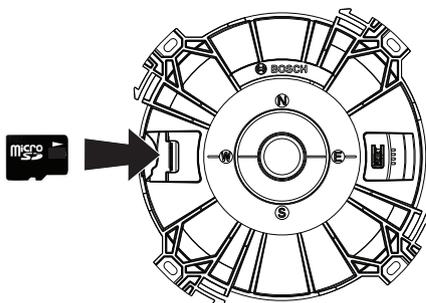
#### Notice!



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.

To insert a memory card:

1. Slide the memory card into the slot.
2. Press it firmly until it latches into place in the slot (when removing the card, press it down firmly again until it unlatches).



## 5.2 Painting the cover plate

The paint for the cover plate must have the following specifications:

- Epoxy or polyester based
- Temperature range: -40°C to +80°C (-40°F to 176°F)

To paint the cover plate:

1. Use a non-scratch scour pad to improve the adhesion of the paint.
2. Thoroughly clean the cover plate to remove dust particles.
3. Spray the paint in a dust-free environment.

## 5.3 Mounting the camera

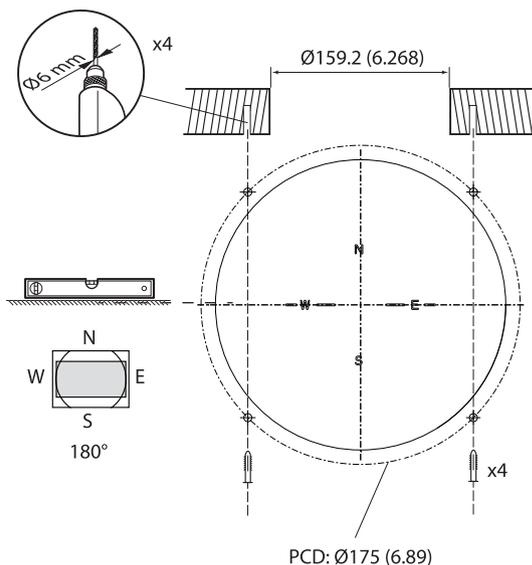


### Notice!

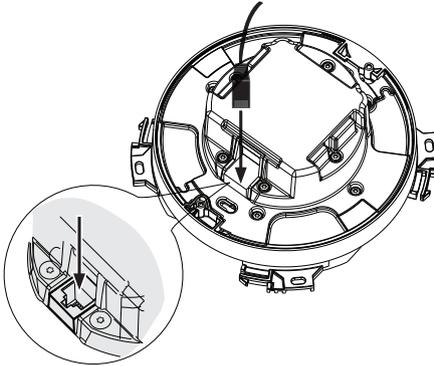
The 180° version of the camera, when mounted on a wall, must be horizontal along its east-west axis.

To mount the camera on the surface of a wall or ceiling:

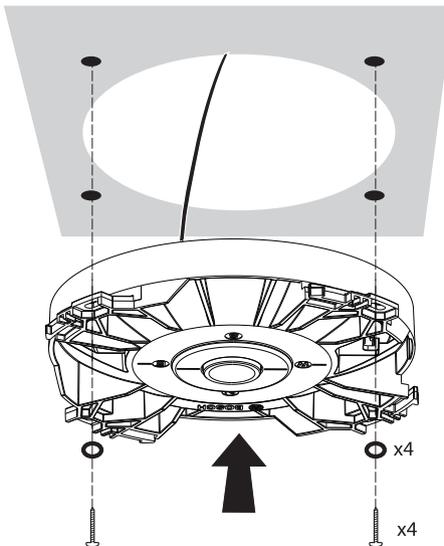
1. Cut out the inner recess hole:  $\text{Ø}159.2$  mm (6.268 in).
2. Use the drilling template to mark out the four mounting holes. The mounting holes are equally spaced around a diameter of 175 mm (6.89 in).
3. Use a 6 mm (0.24 in) bit to drill the four mounting holes.
4. Insert the supplied mounting plugs into the mounting holes.



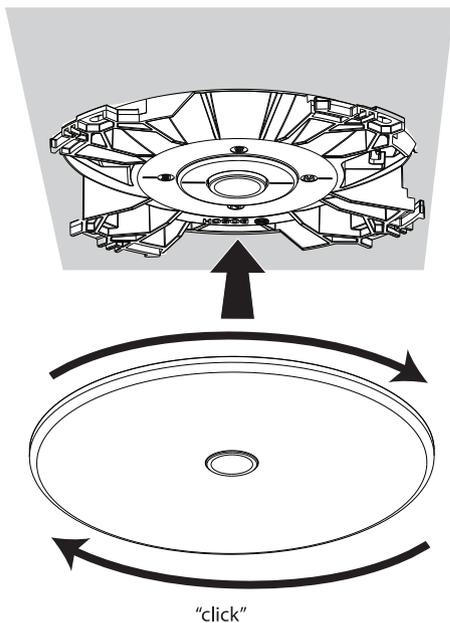
5. Insert the Ethernet cable into the RJ45 connector at the back of the camera.



6. Use the supplied screws and washers to securely mount the camera to the surface; if the surface is too thin, use appropriate bolts (not supplied).



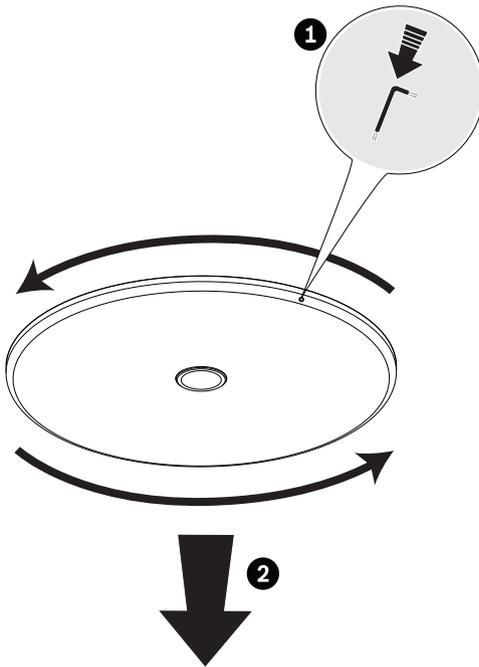
7. To install the cover plate hold it against the camera body and rotate it clockwise until it clicks into place.



## 5.4 Uninstalling the camera

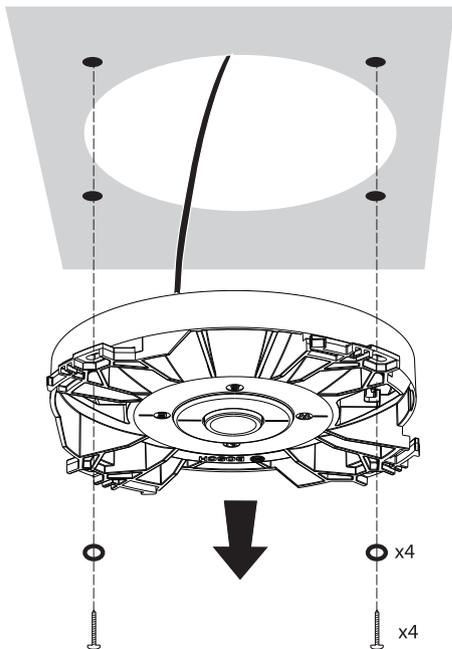
### Remove the cover plate

1. Push a small object (for example, the 1.5 Allen key) into the opening (push straight, do not wobble).
2. Turn the cover plate counterclockwise to disconnect it from the camera body.



### Remove the camera

1. Unscrew the four screws and pull the camera away from the surface.
2. Disconnect the Ethernet cable and remove the camera.



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## 6 Connection

### 6.1 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.

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## 7 Configuration

### 7.1 Browser connection

A computer with Microsoft Internet Explorer is used to receive live images, control the unit, and replay stored sequences. The unit is configured over the network using the browser.

#### 7.1.1 Establishing the connection

The unit must have a valid IP address to operate on your network and a compatible subnet mask. 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

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.

#### IP Helper

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

#### 7.1.2 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.

### 7.1.3 Set-up with web browser

1. Open the camera in the web browser.
2. Click **Configuration** in the title bar.
3. Select **Camera >> Installer Menu** from the side bar.
4. Select the application variant before any other changes are made, as the camera reboots automatically and resets the factory defaults when the application variant is changed.
5. Select the installation parameters as required.

If required, configure the parameters in other menus to suit your working environment (for example, ID, passwords, date and time). Refer to the operation manuals of the software for more information.

#### Installer Menu

Application variant	FLEXIDOME IP panoramic 7000 ▾
Base frame rate	30 fps ▾
Camera LED	<input checked="" type="radio"/> Enabled <input type="radio"/> Disabled
<b>Positioning</b>	
Type	Mounting position ▾
Mounting position	Ceiling ▾
Tilt angle [°]	90
Roll angle [°]	0
Height [m]	
	<b>Set</b>
Reboot device	<b>Reboot</b>
Factory defaults	<b>Defaults</b>

## 8 Troubleshooting

### 8.1 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.

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.

## 8.2 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.

## 8.3 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.

## 9 Maintenance

### 9.1 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.

#### 9.1.1 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).

### 9.2 Repair

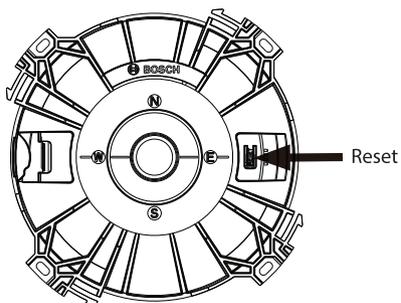
**Notice!**

Never open the casing of the unit

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

## 9.3 Reset

Use the factory reset button to restore the unit to its original settings. Any changes to the settings are overwritten by the factory defaults. A reset may be necessary, for example, if the unit has invalid settings that prevent it from functioning as desired.



## 10 Decommissioning

### 10.1 Transfer

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

### 10.2 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 *European Directive 2012/19/EU*.

# 11 Technical data

## 11.1 Specifications

<b>Power</b>	
Power Supply	Power-over-Ethernet 48 VDC nominal
Power Consumption	140 mA 200 mA (Intelligent Video Analytics version)
PoE	IEEE 802.3af (802.3at Type 1)

<b>Sensor</b>	
Type	1/2.3-inch CMOS
Total sensor pixels	12MP
Used pixels (180° version)	3648 x 2160 (8MP)
Used pixels (360° version)	2640 x 2640 (7MP)

<b>Video performance – Sensitivity – 360° lens</b>	
(3100K, reflectivity 89%, F2.8, 30IRE)	
Color	0.55 lx
Mono	0.18 lx

<b>Video performance – Sensitivity – 180° lens</b>	
(3100K, reflectivity 89%, F2.8, 30IRE)	
Color	0.46 lx
Mono	0.15 lx

<b>Video performance – Dynamic range</b>		
Dynamic range	92 dB WDR (+16 dB IAE)	
<b>Video streaming</b>		
Video compression	H.264 (MP); M- JPEG	
Streaming	Multiple configurable streams in H.264 and M-JPEG, configurable frame rate and bandwidth. Multiple channels with edge dewarping. Regions of Interest (ROI)	
Overall IP Delay	Min. 120 ms, Max. 340 ms	
Encoding interval	1 to 25 [30] ips	
Encoder regions	Eight independent areas for setting encoder quality to optimize bitrate.	
<b>Video resolution (H x V) – 180° version</b>		
Video 1 channel	Image circle	3640 x 2160
Video 2 channel	Panoramic	2688 x 800
	E-PTZ	2048 x 1152
	Corridor	1600 x 1200
Video 3 channel	E-PTZ	1280 x 720
<b>Video resolution (H x V) – 360° version</b>		
Video 1 channel	Full image circle	2640 x 2640
Video 2 channel	Full panoramic	3584 x 504
	E-PTZ	1536 x 864
	Quad	1536 x 864
	Panoramic	2688 x 800

<b>Video resolution (H x V) – 360° version</b>		
	Double panoramic	1920 x 1080
	Corridor	1600 x 1200
Video 3 channel	E-PTZ	1280 x 720

<b>Video functions</b>	
Day/Night	Color, Monochrome, Auto (adjustable switchover points)
Adjustable picture settings	Contrast, Saturation, Brightness
White Balance	2500 to 10000K, 4 automatic modes (Basic, Standard, Sodium vapor, Dominant color), Manual mode and Hold mode
Shutter	Automatic Electronic Shutter (AES) Fixed (1/30 [1/25] to 1/15000) selectable Default shutter
Sharpness	Sharpness enhancement level selectable
Backlight compensation	Off / On / Intelligent Auto Exposure (BLC)
Contrast enhancement	On/off
Noise reduction	Intelligent Dynamic Noise Reduction with separate temporal and spatial adjustments
Intelligent defog	Intelligent Defog automatically adjusts parameters for best picture in foggy or misty scenes (switchable)

<b>Video functions</b>	
Exposure region	Multiple selectable regions
Privacy Masking	Eight independent areas, fully programmable
Video Content Analysis	MOTION+ and Intelligent Video Analytics
Pre-positions	Six independent sectors
Display stamping	Individual names and stamps for all video channels
Other functions	Pixel counter, Video watermarking, Location

<b>Optical</b>	
Lens (180° version)	2.1 mm fixed-focus lens (IR corrected), F2.8
Lens (360° version)	1.6 mm fixed-focus lens (IR corrected), F2.8
Lens mount	Board mounted
Iris control	Fixed iris
Field of view (180° version)	180° (H) x 93° (V)
Field of view (360° version)	180° (H) x 180° (V)
Minimum object distance	0.1 m
Day/Night	Switched mechanical IR filter

<b>Local storage</b>	
Internal RAM	10 s pre-alarm recording
Memory card slot	Supports up to 32 GB microSDHC / 2 TB microSDXC card. (An SD card of Class 6 or higher is recommended for HD recording)
Recording	Continuous recording, ring recording, alarm/events/schedule recording

<b>Software</b>	
Unit discovery	IP Helper
Unit configuration	Via web browser or Configuration Manager
Firmware update	Remotely programmable
Software viewing	Web browser; Video Security Client; Video Security App; Bosch Video Management System; Bosch Video Client; or third party software
Latest firmware and software	<a href="http://downloadstore.boschsecurity.com/">http:// downloadstore.boschsecurity.com/</a>

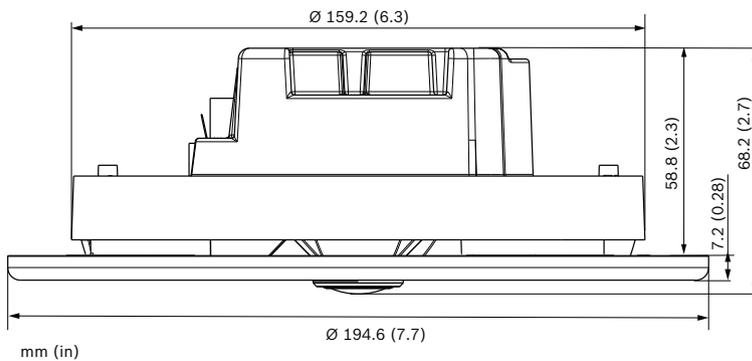
<b>Network</b>	
Protocols	IPv4, IPv6, UDP, TCP, HTTP, HTTPS, RTP/RTCP, IGMP V2/V3, ICMP, ICMPv6, RTSP, FTP, Telnet, ARP, DHCP, APIPA (Auto-IP, link local address), NTP (SNTP), SNMP (V1, MIB-II), 802.1x, DNS, DNSv6, DDNS (DynDNS.org, selfHOST.de, no-ip.com), SMTP, iSCSI, UPnP (SSDP), DiffServ (QoS), LLDP, SOAP, Dropbox, CHAP, digest authentication
Encryption	TLS 1.2, SSL, DES, 3DES
Ethernet	10/100 Base-T, auto-sensing, half/full duplex
Connectivity	Auto-MDIX
Interoperability	ONVIF Profile S; GB/T 28181

<b>Mechanical</b>	
Dimensions camera	Ø195 x 68.2 mm (7.68 x 2.68 in)
Dimensions flush profile	Ø195 x 7 mm (7.68 x 0.28 in)
Weight	761 g (1.68 lb)

<b>Environmental</b>	
Operating Temperature	-20°C to +40°C (-4°F to 104°F)
Storage Temperature	-20°C to +60°C (-4°F to 140°F)
Operating humidity	20% to 93% RH

Environmental	
Storage humidity	up to 98% RH
Vandal resistance	IK06 (Lens: IK04)

## 11.2 Dimensions







**Bosch Security Systems B.V.**

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Netherlands

**[www.boschsecurity.com](http://www.boschsecurity.com)**

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