



BOSCH

AUTODOME 7100i

NDP-7802-Z40 | NDP-7802-Z40L | NDP-7804-Z12L

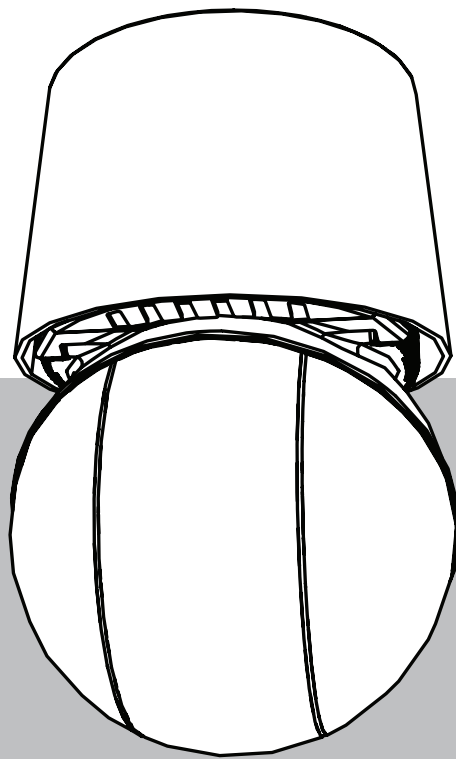


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1 Safety

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 complete and correct at the time of printing. Because of the ongoing development of products, the content of the manual may change without notice. Bosch Security Systems accepts no liability for damage resulting directly or indirectly from faults, incompleteness, or discrepancies between the 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



Danger!

Indicates a hazardous situation which, if not avoided, will result in death or serious injury.



Warning!

Indicates a hazardous situation which, if not avoided, could result in death or serious injury.



Caution!

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



Notice!

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

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.

* Refer to chapter "Installing the camera outdoors" in the Installation Manual.



Caution!

To reduce the risk of electric shock and damage to the product, only connect any power source when the device is fully installed.



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.



Warning!

INSTALL EXTERNAL INTERCONNECTING CABLES IN ACCORDANCE TO NEC, ANSI/NFPA70 (FOR US APPLICATION) AND CANADIAN ELECTRICAL CODE, PART I, CSA C22.1 (FOR CAN APPLICATION) AND IN ACCORDANCE TO LOCAL COUNTRY CODES FOR ALL OTHER COUNTRIES. BRANCH CIRCUIT PROTECTION INCORPORATING A 20 A, 2-POLE LISTED CIRCUIT BREAKER OR BRANCH RATED FUSES ARE REQUIRED AS PART OF THE BUILDING INSTALLATION. A READILY ACCESSIBLE 2-POLE DISCONNECT DEVICE WITH A CONTACT SEPARATION OF AT LEAST 3 mm MUST BE INCORPORATED.



Warning!

ROUTING OF EXTERNAL WIRING MUST BE DONE THROUGH A PERMANENTLY EARTHED LIQUID TIGHT METAL CONDUIT.



Notice!

Bosch recommends the use of surge/lightning suppression devices (sourced locally) to protect network and power cables and the camera installation site. Refer to NFPA 780, Class 1 & 2, UL96A, or the equivalent code appropriate for your country/region, and to local building codes. Refer also to the installation instructions of each device (midspan, camera, and surge suppression device installed where the cable enters the building).

**Notice!**

Always use one of the following types of shielded network connection (Ethernet) cable (Cat5e/Cat6 or better), and a shielded RJ45 network cable connector:

- F/UTP overall screened cable with unscreened twisted pairs (often referred to as FTP)
- S/UTP overall braided shield with unscreened twisted pairs (often referred to as STP)
- a cable with better shielding that has a minimum bend radius of 30 mm (1.2 in.) and a maximum diameter of 6 mm (0.24 in.).

Always use shielded cables/connectors in demanding indoor electrical environments where the network cable is located in parallel with electrical mains supply cables, or where large inductive loads such as motors or contactors are near the camera or its cable.

**Notice!**

Ancillary power (UPS) required

To meet the Mains Supply Voltage Dips and Short Interruptions requirements per EN 50130-4 Alarm Standard, ancillary equipment (for example, an Uninterruptible Power Supply (UPS)) is necessary.

The UPS must have a Transfer time between 2-6 ms and Backup Runtime of greater than 5 seconds for the power level as specified on the product data sheet.

**Warning!**

THE CAMERA MUST BE MOUNTED DIRECTLY AND PERMANENTLY TO A NON-COMBUSTIBLE SURFACE.

- Make sure that the installation conditions comply with the specified stresses of vibration and shock as mentioned in the datasheet.
- Use on mobile platforms is not recommended. Refer to the warranty statement for more information.

**Notice!**

To maintain the Type 4X rating when the camera is installed, installers must make sure that the user-supplied cable glands or conduit connections have Type 4X ratings.

**Notice!**

Risk of water ingress

If you:

- remove a camera from its mount but do not replace it promptly, or
- install the mount but do not install the camera immediately,

then you must remove the PCB from the mount to avoid moisture or water ingress and potential corrosion.

**Caution!**

Risk of burns - Camera surface may be hot

The camera housing may be hot to the touch, especially in hot weather climates. Use caution when handling the camera to avoid burns.

**Notice!**

Before adding or removing an SD card from the camera, disconnect all power sources (including POE) from the device.

**Notice!**

Before adding or removing an SFP module from the camera's mount, disconnect all power sources (including POE) from the mount (NDA-7100-PENF and NDA-7100-PIPEF).

**Notice!**

Risk of permanent damage to the camera

The interface board connects only one way to the camera. Make sure that when you install it in the mount (arm or pipe mount), you install it the correct way.

1.5

Important Notices

For use in China: CHINA ROHS DISCLOSURE TABLE

Moving cameras

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	○	○	○	○	○
PCBA with connectors	X	○	X	○	○	○
Cable assemblies	○	○	○	○	○	○
Image sensor assembly	X	○	X	○	○	○
Lens assembly	X	○	X	○	○	○
PT Motor control assembly	X	○	X	○	○	○
Fan assembly	X	○	X	○	○	○
This table was created according to the provisions of SJ/T 11364						
○: 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:

<https://www.keenfinity-group.com/xc/en/datecodes/>

QA Pass certificate
Bosch Security Systems



Accessories - Do not place this unit on an unstable stand, tripod, bracket, or mount. The unit may fall, causing serious injury and/or serious damage to the unit. Use only with mounting solutions specified by the manufacturer. When a cart is used, use caution and care when moving the cart/unit combination to avoid injury from tip-over. Quick stops, excessive force, or uneven surfaces may cause the cart/unit combination to overturn. Mount the unit per the installation instructions.

Adjustment of controls - Adjust only those controls specified in the operating instructions. Improper adjustment of other controls may cause damage 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).

Environmental statement - Bosch has a strong commitment towards the environment. This device has been designed to respect the environment as much as possible.

Electrostatic-sensitive device - Use proper ESD safety precautions when handling the camera to avoid electrostatic discharge.

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).

Grounding:

- Connect outdoor equipment to the unit's inputs only after this unit has had its ground terminal connected properly to a ground source.
 - Disconnect the unit's input connectors from outdoor equipment before disconnecting the grounding terminal.
 - Follow proper safety precautions such as grounding for any outdoor device connected to this unit.
- U.S.A. models only - Section 810 of the *National Electrical Code*, ANSI/NFPA No.70, provides information regarding proper grounding of the mount and supporting structure, size of grounding conductors, location of discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.

Refer to the chapter "Installing the camera outdoors" in the installation manual for more information on outdoor installations.

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).

Refer to the chapter "Installing the camera outdoors" in the installation manual for more information on outdoor installations.

Permanently connected equipment - Incorporate a readily accessible disconnect device in the building installation wiring.

Power disconnect - Units have power supplied to the unit whenever the power cord is inserted into the power source, or when IEEE 802.3bt, Type 3/4 (60W/90W) power is provided over the Ethernet Cat5e/Cat6e cable. The power cord is the main power disconnect device for switching off the voltage for all units. When IEEE 802.3bt, Type 3/4 (60W/90W) is used to power the unit, the power is provided over the Ethernet cable, which is then the main power disconnect device for switching off the voltage for all units.

Power lines - Do not locate the camera near overhead power lines, power circuits, or electrical lights, nor where it may contact such power lines, circuits, or lights.

Damage requiring service - Unplug the device from the main AC/DC/PoE power source and refer servicing to qualified service personnel when any damage to the equipment has occurred, such as:

- the power supply cord or plug is damaged;
- exposure to moisture, water, and/or inclement weather (rain, snow, etc.);
- liquid has been spilled into or on the device;

- an object has fallen into the device;
- the device has been dropped or its enclosure or the equipment cabinet in which it is located is damaged;
- the device exhibits a distinct change in performance;
- the device does not operate normally when the user follows the operating instructions correctly.

Servicing - Do not attempt to service this device yourself. Refer all servicing to qualified service personnel.

This device has no user-serviceable internal parts.

FCC information

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

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.



Notice!

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

FCC suppliers Declaration of Conformity

NDP-7602-Z40	PTZ 2MP HDR 40x IP66 pendant
NDP-7602-Z40L	PTZ 2MP HDR 40x IP66 pendant IR
NDP-7604-Z12L	PTZ 8MP 12x IP66 pendant IR

FCC Compliance Statement

This device complies with part 15 of the FCC Rules. 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.

Responsible party

Bosch Security Systems, LLC
130 Perinton Parkway
14450 Fairport, NY, USA
www.boschsecurity.us

**Notice!**

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to EN 55032. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

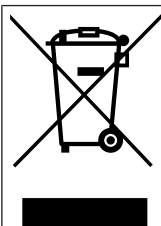
Canadian Compliance Statement

CAN ICES-003(A) / NMB-003(A)

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 62368-1 and UL 60950-22. 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.

Old electrical and electronic equipment

This product and/or battery must be disposed of separately from household waste. Dispose such equipment according to local laws and regulations, to allow their reuse and/or recycling. This will help in conserving resources, and in protecting human health and the environment.

1.6**Connection in Applications**

Bosch recommends operating the AUTODOME 7100i IR camera models (NDP-7602-Z40L, NDP-7604-Z12L) by IEEE 802.3bt PoE Type 4, 90W. You can also use a third-party 24 VAC, 50/60Hz power supply that meets the stated requirements.

**Warning!**

The product must be supplied only by an external power supply that is a certified Class 2 or Limited Power Source (LPS) supply.

24 VAC / 36 VDC power source: This unit is intended to operate at 24 VAC or 36 VDC power if IEEE 802.3bt type 3 60W (non IR models), type 4 90W (IR models) is not available. User-supplied wiring must be in compliance with electrical codes and shielded wire must be used.

PoE: Use only approved PoE (IEEE 802.3bt) devices: Type 3 60W for non IR models and Type 4 90W for IR models. Power-over-Ethernet can be connected at the same time as 24 VAC or at the same time as 36 VDC power supply. If auxiliary power (24 VAC or 36 VDC) and PoE (IEEE 802.3bt) are applied simultaneously, the camera selects PoE over the auxiliary input.

For full feature support of the AUTODOME 7100i camera, an IEEE 802.3bt Type 3 60W midspan from Bosch should be used for non IR models and the IEEE 802.3bt Type 4 90W midspan should be used for IR models.

1.7 Use latest software

Before operating the device for the first time, make sure that you install the latest applicable release of your software version. For consistent functionality, compatibility, performance, and security, regularly update the software throughout the operational life of the device. Follow the instructions in the product documentation regarding software updates.

The following links provide more information:

- General information: <https://www.boschsecurity.com/xc/en/support/product-security/>
- Security advisories, that is a list of identified vulnerabilities and proposed solutions: <https://www.boschsecurity.com/xc/en/support/product-security/security-advisories.html>

Bosch assumes no liability whatsoever for any damage caused by operating its products with outdated software components.



Notice!

Bosch strongly recommends upgrading to the latest firmware for the best possible functionality, compatibility, performance and security.

Check <http://downloadstore.boschsecurity.com/> regularly to see if there is a new firmware version available.

1.8 Customer Support and Service

If this unit needs service or if you need technical support, contact Keenfinity **Technical Support** for instructions.

USA and Canada:

- Telephone: 800-289-0096, option 4
- Fax: 800-315-0470
- Email: technicalsupport.nam@keenfinity-group.com

Europe, Middle East, Africa, and Asia Pacific Regions:

Contact your local distributor or Keenfinity sales office. Use this link:

<https://www.keenfinity-group.com/us/en/where-to-buy/>

More Information

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

1.9 Important Notices - Illumination Safety

The text in this section applies only to cameras that have illuminators.



Notice!

This product has been tested according to standard IEC 62471:2006 "Photobiological safety of lamps and lamp systems". The product emissions exceed the EXEMPT Group limit for both Retinal Blue Light and Cornea/Lens infrared hazard as defined by IEC 62471:2006. The product was found to meet the Risk Group 1 exposure limits for IR LEDs.

The IEC 62471 provides the methods to determine the risk group of any lamp or any product incorporating a lamp. The risk groups in IEC 62471 indicate the degree of risk from potential optical radiation hazards. The risk groups were developed based upon decades of lamp use experience and the analysis of accidental injuries related to optical radiation emission.

EXEMPT Group - no optical hazard is considered reasonably foreseeable, even for continuous, unrestricted use. Typical examples are most frosted incandescent lamps and fluorescent lamps used in domestic applications.

Risk Group 1 - products are safe for most use applications, except for very prolonged exposures where direct ocular exposures may be expected. An example of Risk Group 1 is a domestic battery operated torch (flashlight).

Exposure Hazard Value (EHV) is a ratio of the Exposure Level (distance, exposure time) to Exposure Limit Value (ELV). When EHV is greater than 1, the device has exceeded the Exposure Limit Values for a particular Risk Group. The ELV is the level where optical radiation to the eye or skin is not expected to result in adverse biological effects.

The **Hazard Distance (HD)** is the distance from the source at which the Exposure Level equals the appropriate ELV. In other words, when $EHV=1$ for a particular Risk Group.

Regarding the Cornea / Lens infrared hazard of this product, the Exposure Hazard Value (EHV) at a test distance of 200mm is 2.19 based on EXEMPT Group exposure limits. The EHV based on Risk Group 1 limits is 0.386. The HD for the Exempt Group is 297 mm.

These values have been summarized in the table below:

Hazard	EXEMPT Group Limits			Risk Group 1 Limits		
	t, duration	d, distance	EHV	t, duration	d, distance	EHV
Cornea / Lens Infrared Hazard	1000 s Hazard Distance	200 mm 279 mm	2.19	100 s	200 mm	0.386

2 Browser connection

2.1 Additional Accessories

Quantity	Component
100 m maximum	Ethernet cable (Cat5e or better)
*	Power cable (24 VAC)
*	Power cable (36 VDC)
*	Alarm wiring as needed
*	Audio wiring as needed
*	For AUTODOME 7100i non-IR models : PoE midspan IEEE 802.3bt Type 3, Class 6, 4 Pair Power (4PPOE) 60W at PSE (POE midspan or POE Ethernet switch) side, (51W at AUTODOME 7100i also known as PD side) using a single-signature PD For AUTODOME 7100i IR models: PoE midspan IEEE 802.3bt Type 4, Class 8, 4 Pair Power (4PPOE) 90W at PSE (POE midspan or POE Ethernet switch) side, (71.3W at AUTODOME 7100i also known as PD side) using a single-signature PD
*	SFP modules (refer to chapter Support for Fiber optic cable installation, in the Installation Manual)
*	Media Converter
*	Direct fiber connection
1	Full-sized SD card. Recommended: industrial SD cards from Western Digital (sold separately by Bosch)

* Refer to the chapter Preparing Wiring in the Installation Manual.

2.2 System requirements

- Computer with Intel Xeon processor or better
- Graphic card with performance that matches or is better than the resolution of the camera
- Windows 10 or later
- Network access
- Google Chrome, Microsoft Edge, or Mozilla Firefox
- **- or -**
- Application software, for example, Application software, for example, Video Security Client, BVMS, or Project Assistant app.
- Configuration Manager 7.60 (or newer)

2.3 Establishing the connection

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 automatically assigned via link-local address.

You can use the Configuration Manager to find an IP address. Download the software from <http://downloadstore.boschsecurity.com>.

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 cameras from Bosch have many ways to connect.

The core communication protocol is called (**Bosch Remote Control Protocol plus (RCP+)**), which handles the connections between camera and connected clients.

Every camera can handle a maximum of 128 RCP+ connections, from which a few are used internally, making 100+ external RCP+ connections possible for unicast, multi-unicast, or multicast connections.

A video connection also requires one or two such connections, depending on the access method.

Assuming the accumulated requested bitrate does not exceed the available network interface bandwidth, a minimum of five unicast connections is possible.

2.4 Access with Project Assistant app

You can also use the Project Assistant app to complete the initial configuration of the camera.

In order to use this device with the Project Assistant app by Bosch, you must download the app from the BoschDownloadStore, from Google Play, or from the Apple Store.

You can access the app in several ways:

- Scan the QR code from the QIG.
- From www.boschsecurity.com, select Support > Apps and Tools > Online Apps - Video > Bosch Project Assistant app. Select the appropriate operating system, and then click the appropriate button to download and install the app.
- From Google Play Store (play.google.com), search for Bosch Project Assistant. Select the app from the list. Click the Install button.
- From Apple Store (itunes.apple.com), search for Bosch Project Assistant. Select the app from the list. Click the appropriate button to download and install the app.

2.5 Password protection in camera

The device is password-protected. The first time that any user accesses the device, the device will prompt the user to set a password at the service level.

The camera requires a strong password. Follow the prompts in the dialog box, which specifies what is required. The system measures the strength of the password that you enter.

When you use Configuration Manager to access your device for the first time, you must set the initial password of the device in Configuration Manager. The Users section (General > Unit Access > Users) displays the message, "Before you can use this device you have to secure it with an initial password."

Note: After you set the initial password, a "lock" icon appears next to the device name in the **Devices** list in Configuration Manager.

Make sure the password obeys these conditions:

- 8 to 19 characters in length
- Upper and lower case letters
- Minimum of 1 digit
- Minimum of 1 special character

These special characters are not allowed: '@', '&', '<', '>', ':', '+'

Enter the user name ("**service**") and a password in the appropriate fields. Refer to the section **User Management** for more information.

You can also launch the device webpage directly. In the device webpage, an initial password page appears, displaying input fields and a password strength gauge.

After a service-level password is set for the device, the device displays a dialog box that prompts users to enter the user name ("**service**") and the service-level password every time that they access the device.

1. Fill in the fields **User name** and **Password**.
2. Click **OK**. If the password is correct, the desired page appears.

Note: New releases of software may require you to set a new and stronger password.

3 System overview

Note: None of the pages are accessible until after you set a service-level password.

When a connection is established, the **Live** page is initially displayed.

The application bar displays the following icons:

	Live	Click this icon to view the live video stream.
	Playback	Click this icon to play back recorded sequences. This link is only visible if a storage medium has been configured for recording. (With VRM recording, this option is not active.)
	Configuration	Click this icon to configure the device.
	Dashboard	Click this icon to see detailed system information.
	Links	Click this icon to navigate to the Bosch download store.
	Logout	Click this icon to log out of the device.
		Click this icon to get context-sensitive help for the page you are browsing.

3.1 Live

The **Live** page is used to display the live video stream, and control the unit when service or user level access is available.

3.2 Playback

The **Playback** page is used for playing back recorded sequences.

3.3 Configuration

The **Configuration** page is used to configure the unit and the application interface when service is available.

Making Changes

Each configuration screen shows the current settings. You can change the settings by entering new values or by selecting a predefined value from a list field.

Not every page has a **Set** button. Changes to pages without a **Set** button are set immediately. If a page does show a **Set** button, you must click the **Set** button for a change to take effect.



Notice!

Most changes to the configuration settings have an immediate effect.

If a field has a **Set** button, press it to save the settings.

Some changes only take effect after the unit is rebooted. In this case, the **Set** button changes to **Set and Reboot**.

1. Make the desired changes.
2. Click the **Set and Reboot** button. The camera reboots and the changed settings are activated.

3.4

Dashboard

The **Dashboard** page is used to display detailed information about the device.

The **Dashboard** is only visible in the application bar if the **Show 'Dashboard'** option is enabled by a service-level user in the **Configuration -> Web Interface -> Appearance** page.

4 General

4.1 Identification

Device name

Enter a unique, unambiguous name for the device (for example, the installation location of the device). This name should be easy to identify in a list of devices in your system. The device name is used for the remote identification of a unit, such as in the event of an alarm.

Do not use any special characters, for example **&**, in the name. Special characters are not supported by the system's internal management.

Device ID

Enter a unique identifier for the device. This ID is additional identification for the device.

Video name

Enter a name for the video (for example, HDR ON).

Host name

Enter the unique identifier of your hardware device (host) that is connected to a network.

Initiator extension

Add text to an initiator name to make identification easier in large iSCSI systems. This text is added to the initiator name, separated from it by a full stop. (You can see the initiator name in the System Overview page.)

4.2 User Management

The section **Authentication modes** provides information about the authentication modes set in the camera. A checkmark appears in the checkbox to the left of the mode if the mode is set. If the mode is not set, the phrase, "**No certificate installed**" appears to the right of the mode name.

Password

This field indicates if a password is set for the camera.

Certificate

A check mark in this check box indicates that at least one certificate is loaded onto the camera. If no certificates are loaded, then "No certificate installed" appears to the right of the text.

The Escrypt certificate is a root certificate for Bosch Security Systems that proves that the device meets the following criteria:

- It originates from a Bosch factory that is a secure environment.
- It has not been tampered with.

Escrypt is a Bosch company and Certificate Authority (CA).

Active directory server (ADFS)

A check mark in this check box indicates that the camera uses an active directory server. If the camera does not use ADFS, then "No certificate installed" appears to the right of the text.

Password management

A password prevents unauthorized access to the device. You can use different authorization levels to limit access.

Proper password protection is only guaranteed when all higher authorization levels are also protected with a password. Therefore, you must always start from the highest authorization level when assigning passwords.

You can define and change a password for each authorization level if you are logged into the "service" user account.

To edit a password

To edit a password, click the pencil icon to the right of the column **Type** for the appropriate **User name**.

Creating a new user

To create a new user, click **Add** in the section below **Authentication modes**.

In the box **User**, fill in the fields:

1. **User name**, Enter a name with a minimum of 5 and a maximum of 31 characters.
2. **Group**, select the appropriate authorization level:
 - live is the lowest authorization level. At this level, it is only possible to view the live video image, and switch between the different live image displays.
 - user is a middle authorization level. At this level, it is possible to operate the device and playback recordings, but configuration changes are not possible.
 - **IVA configuration** is a middle authorization level. At this level, it is only possible to configure VCA, but access is available to all user level functions like PTZ and Replay.
 - service is the highest authorization level. Entering the correct password gives access to all the functions, and allows all configuration settings to be changed.
3. **Type**, select either:
 - **Password** for a new password.
Use a minimum of 8 and a maximum of 19 characters. The password must have upper-case and lower-case letters, one or more numerical digits and one or more of these special characters ! ? " # \$ % () { } [] * - = . , ; ^ _ | ~ \
Special characters such as space @ : < > ' & + are not valid.
In this case, enter the new password a second time to eliminate typing mistakes.
 - **Certificate** for a certificate that the new user is authorized to use.
4. Click **Set** to confirm and create a new user.

Confirm password

In each case, enter the new password a second time to eliminate typing mistakes.

**Notice!**

A new password is only saved when you click the **Set** button. You should therefore click the **Set** button immediately after entering and confirming a password.

4.3**Date/Time****Date format**

Select the required date format from the dropdown menu.

Device date/Device time**Notice!**

Make sure that recording is stopped before synching to the PC.

If there are multiple devices operating in your system or network, it is important to synchronize their internal clocks. For example, it is only possible to identify and correctly evaluate simultaneous recordings when all units are operating on the same time.

1. Enter the current date. Since the unit time is controlled by the internal clock, there is no need to enter the day of the week - it is added automatically.
2. Enter the current time or click the **Sync to PC** button to copy your computer's system time to the camera.

Note: It is important that the date/time is correct for recording. An incorrect date/time setting could prevent correct recording.

Device time zone

Select the time zone in which the system is located.

Daylight saving time

The internal clock can switch automatically between normal and daylight saving time (DST). The unit already contains the data for DST switch-overs for many years in advance. If the date, time and zone have been set up correctly, a DST table is automatically created.

If you decide to create alternative daylight saving time dates by editing the table, note that values occur in linked pairs (DST start and end dates).

First, check the time zone setting. If it is not correct, select the appropriate time zone and click **Set**.

1. Click **Details** to edit the DST table.
2. Click **Generate** to fill the table with the preset values from the unit.
3. Click one of the entries in the table to make changes. The entry is highlighted.
4. Click **Delete** to remove the entry from the table.
5. Choose other values from the list boxes under the table, to change the selected entry. Changes are immediate.
6. If there are empty lines at the bottom of the table, for example after deletions, add new data by marking the row and selecting values from the list boxes.
7. When finished, click **OK** to save and activate the table.

Time server address

The camera can receive the time signal from time server using various time server protocols, and then use it to set the internal clock. The unit polls the time signal automatically once every minute.

Enter the IP address of a time server here.

You can choose to have the DHCP server give a time server date by selecting the **Overwrite by DHCP** option.

Time server type

Select the protocol that is supported by the selected time server.

- Select **Time protocol** if the server uses the protocol RFC 868.
- The **SNTP protocol** supports a high level of accuracy and is required for special applications and subsequent function extensions.
- Select **TLS protocol** if the server uses the RFC 5246 protocol.
- Select **Off** to disable the time server.

Click **Set** to apply the changes.

5 Web Interface

5.1 Appearance

You can adapt the appearance of the web interface and change the website language to meet your requirements.

Website language

Select the language for the user interface.

The default language is English.

After setting the new language, click the Set button to apply changes. The GUI now displays field names and options, as well as OSD messages, in the selected language.

Show VCA metadata

When video content analysis (VCA) is activated, additional information is displayed in the live video stream. With the MOTION+ analysis type, for example, the sensor fields in which motion is recorded are marked with yellow rectangles.

Using Intelligent Video Analytics, the outlines of detected objects are displayed in these colors:

- Red: Objects that generate an alarm event under the current settings appear on the camera image inside a red outline.
- Orange: An object that triggered an alarm event but does not generate another one appears inside an orange outline (example: object has crossed a line). During forensic search, an object that triggers an alarm event has an orange outline from the beginning.
- Yellow: Objects that are detected as moving but do not generate an alarm event under the current settings appear inside a yellow outline.

Show VCA trajectories

For devices with Essential Video Analytics or Intelligent Video Analytics, the trajectories (motion lines of objects) from the video content analysis are shown in the live video image if a corresponding analysis type is activated. The trajectory is shown as a green line that follows the object's base point.

Show VCA attributes

Select this checkbox to show VCA attributes on the live video image.

Show overlay icons

Select this check box to show overlay icons on the live video image.

Show 'Dashboard'

Select this checkbox to enable the **Dashboard** in the application bar.

Secure cookies

Select this checkbox to secure the cookies sent through the camera.



Notice!

If cookies are secured, authentication forwarding to MPEG ActiveX and the Video Security App is prohibited.

HTTP referrer check

Click this option to disable HTTP referrer checking. This option is enabled by default.

The HTTP referrer check works as a protection against a CSRF (Cross-site request forgery) attack.

If a use case requires not sending the HTTP referrer, you can disable this option. In this situation, you might require other mitigations against CSRF attacks.

Login notification

Select this checkbox to receive a notification when a user logs in.

Video player

Select the type of player to be used for live mode viewing.

Video buffer

The value shown is calculated from the **Latency mode** setting. It cannot be changed.

JPEG resolution

You can specify the size of the JPEG image on the **Live** page. Options are **Small** , **Medium** , **Large** , **Extra large**, **Maximum** and **Resource based** (default).

JPEG interval

You can specify the interval at which the individual images should be generated for the M-JPEG image on the **Live** page.

Enter a time interval (in milliseconds). The default is 0.

JPEG quality

You can specify the quality at which the JPEG images appear on the **Live** page.

This option is only available if **JPEG resolution** is not set to **Resource based**.

Click **Set** to apply the changes.

Login page text

Type the text you want to display to a user in the **Login** page before he accesses the device with the respective **User name** and **Password**.

5.2

'Live' functions

On this page you can adapt the functions on the **LIVE** page to your requirements. You can choose from a variety of different options for displaying information and controls.

1. Check the box for the items that are to be made available on the **LIVE** page. The selected items are indicated by a check mark.
2. Check whether the required functions are available on the **LIVE** page.

Transmit audio

You can only select this option if audio transmission is actually switched on (see Audio). The audio signals are sent in a separate data stream parallel to the video data, and so increase the network load. The audio data are encoded according to G.711 and require an additional bandwidth of approx. 80 kbps per connection in each direction.

Lease time (s)

The lease time in seconds determines the time beyond which a different user is authorized to control the camera after no further control signals are received from the current user. After this time interval, the camera is automatically enabled for another user.

Auto logout time [min]

Set a time frame (in minutes) for the automatic logout. Default value is 0 (no automatic logout).

Show alarm inputs

Select this checkbox if you want the alarm inputs to appear in the **Digital I/O** section of the **Live** page.

Show alarm outputs

Select this checkbox if you want the alarm outputs to appear in the **Digital I/O** section of the **Live** page.

Allow local recording

Here you can specify whether the icon for saving (recording) video sequences on the local memory should be displayed below the live image. Video sequences can only be saved if this icon is visible.

I-frame only stream

Here you can specify whether the **Live** page displays a viewing tab for an I-frame only stream.

Show 'Pre-positions'

Here you can specify whether the section **Pre-positions** of the **Live** page displays a drop-down box with the list of scenes set in the section **Camera > Pre-positions and Tours** of the **Configuration** page.

Show 'AUX Control'

Here you can specify whether the **Live** page displays the section **Show 'AUX Control'**.

Show 'Intelligent Tracking'

Here you can specify whether the **LIVE** page displays the controls for the Intelligent Tracking feature.

Show 'Special Functions'

Here you can specify whether the **Live** page displays the section **Special Functions**.

Path for JPEG and video files

Enter the path for the storage location of individual images and video sequences saved from the **Live** page.

Video file format

Select a file format for the live page display. The MP4 format does not include metadata.

6 Connectivity

6.1 Cloud Services

Cloud connectivity

Operation

The operation mode determines how the camera communicates with the Remote Portal.

- Select **On** to poll the server constantly.
- Select **Off** to block polling.
- Select **Re-register to different account** if you want to register the camera to another Remote Portal account.

Connectivity state

This field identifies any cloud-based services with which the camera communicates.

- If you have registered the device on a cloud-based service such as Remote Portal, then this field identifies this fact ("**Connected**").

Note: The button (**Visit Remote Portal**) to connect to the device with that service is active.

- If you have not registered the device, then the message, "**Not available. When 'Operation' is set to 'Auto', 'Automatic IP assignment (DHCP)' must be active to connect to the Remote Portal**" appears.

Note: The button (**Visit Remote Portal**) to connect to the device with that service is not active.

Other services

Registration code

This area displays the state of the Stratocast registration code.

Connectivity state

This field indicates the device's connectivity state with Remote Portal.

- If the device is registered and the operation mode is set to **On**, the state will indicate that the device is **Connected** (to the cloud service).

Note: The **Visit Remote Portal** button will become active.

- If the device is not registered or the operation mode is set to **Off**, the state will indicate that the device is **Not available**.

Note: The **Register** button will become active only if you have not registered the device to the Remote Portal.

6.2 Accounts

An account can be defined for posting and recording export.

Type

Select FTP as the account type.

Account name

Enter an account name to be shown as the target name.

Note: The fields that appear next depend on the option that you select in the field **Type**.

IP address

Enter the IP address of the server on which you wish to save the JPEG images.

Login

Enter the login ID for the server.

Password

Enter the password that gives you access to the server. To verify the password, click the **Check** button to the right.

Path

Enter the exact path on which you wish to post the images on the server. To browse for the correct path, click the **Browse...** button to the right.

Maximum bit rate

Enter the maximum bit rate for the JPEG images (in kbps).

Encryption

Tick the box to use a secure FTP over TLS connection.

6.3

DynDNS

Enable DynDNS

A dynamic Domain Name Service (DNS) allows you to select the unit via the Internet using a host name, without having to know the current IP address of the unit. You can enable this service here. To do this, you must have an account with one of the dynamic DNS providers and you must register the required host name for the unit on that site.

Note:

For information about the service, registration process and available host names refer to the provider.

Provider

Select your dynamic DNS Provider from the drop-down list.

Host name

Enter the host name registered for the unit.

User name

Enter the user name you registered.

Password

Enter the password you registered.

Force registration now

Force the registration by transferring the IP address to the DynDNS server. Entries that change frequently are not provided in the Domain Name System. It is a good idea to force the registration when setting up the device for the first time. Only use this function when necessary and no more than once a day, to avoid the possibility of being blocked by the service provider. To transfer the IP address of the device, click the **Register** button.

Status

The status of the DynDNS function is displayed here for information purposes; these settings cannot be changed.

Click **Set** to apply the changes.

7 Camera

7.1 Installer Menu

Application variant

Select one of the options from the dropdown list for each stream.

This functionality has no effect on video processed by 3rd party apps.

There are two application variants:

- AUTODOME 7100i (IR)
- AUTODOME 7100i (IR) - BLURRING

The blurring variant is useful when privacy is an issue, but determining the presence of motion is still required.



Notice!

Select the application variant before making other changes.

The device restarts when you switch application variants. Restarting the device resets the configuration options to factory defaults.

Sensor mode

The sensor mode specifies the base resolution and frame rates for the image quality settings. Fast moving scenes use more frame rates (50 fps or 60 fps) for better image quality than slow moving scenes. Adjust this setting as necessary.

This higher resolution (HD 1080p) gives maximum detail in these scenes, but can result in motion artifacts for fast-moving objects because of the lower frame rates.

Some types of light can show flickering in the image when the frame rate is not synchronized with the mains power frequency. To avoid this, the sensor mode frame rate should be in line with the power frequency:

- 50Hz: 25 or 50 fps (AUTODOME 7100i 2 MP non-IR)
- 60Hz: 30 or 60 fps (AUTODOME 7100i 2 MP and 8 MP IR)
- AUTODOME 7100i IR 8MP model: 25 or 30 fps

Camera LED

Select the **Enabled** or **Disabled** radio buttons to switch the **Camera LED** on or off.

Select **Auto disable** to let the device determine when the LED should be switched off.

The camera LED activates when powering on the device for the first time. The LED deactivates automatically after 5 min.

Reboot device

Click the **Reboot** button to reboot the camera. There is a ten (10) second pause before the dome starts its homing phase. During the homing phase, the camera pans left and right and tilts up and down. It also adjusts the lens focus. The entire homing phase lasts approximately 40 seconds.

System controller settings

Click the **Restore** button to restore some of the cameras settings to their original defaults.

Note: This operation does not affect any PTZ settings, such as Pre-positions, IVA profiles, Tours A and B, among others.

Restore settings

Click **Restore** to restore all settings, except network settings, to their defaults.

Note: Clicking this button also clears the service-level password. Operators must reset the password before doing anything else.

Factory defaults

Click **Defaults** to restore the factory defaults for the camera. A confirmation screen appears. Allow several seconds for the camera to optimize the picture after a reset.

Click **Confirm** in each dialog box that opens to complete a factory reset of the device.

This action deletes all third-party apps and resets all settings to defaults (including network settings).



Caution!

Do not remove power to the unit during a factory default or a firmware update. Wait at least two minutes for the default process to complete. If the unit appears to be "frozen" after two minutes, then reboot the unit. Refer to Troubleshooting for more details.

7.1.1

Display Stamping

Various overlays or "stamps" in the video image provide important supplementary information. These overlays can be enabled individually and are arranged on the image in a clear manner.

The drop-down menus below allow the configuration of the individual stamping options. The respective sample windows show a preview of the configured text and background styles.

Click **Set** to apply the changes.

Global configuration



Notice!

These options can also be configured individually for all stamping settings.

Any changes to the global configuration settings will be applied to all stamping settings!

Camera name stamping

This field sets the position of the camera name overlay. It can be displayed at the **Top**, at the **Bottom** or at a position of your choice that you can then specify using the **Custom** option. Or it can be set to **Off** for no overlay information.

1. Select the desired option from the list.
2. If you select the **Custom** option, additional fields are displayed where you can specify the exact position (**Position (XY)**).
3. In the **Position (XY)** fields, enter the values for the desired position.

Select the position of the camera name overlay in the drop-down box. It can be displayed at the **Top**, at the **Bottom**, or at a position of choice using the **Custom** option, or it can be set to **Off** for no overlay information.

If the **Custom** option is selected, enter values in the X and Y position fields.

Stamping size

Select the desired font size of the overlays on the OSD: **Normal** or **Large**.

Select **Custom** to enable the **Font size (%)** field.

Font size

Enter a number for a custom size (percentage) of the font, from 1 to 1000.

Text color

Select the color for the stamps to be displayed in.

Background color

Select the background color for the stamps to be displayed in.

If you have enabled the **Transparent background** option, the background color is not displayed in the OSD.

Transparent background

Check this box to make transparent the stamp background on the image.

Underlay with full-width bar

Check this box to place a full-width background bar beneath the time stamp.

Logo stamping

To place a logo on the image, select and upload an uncompressed .bmp file with a maximum size of 1024x1024 pixels and 16 million colors to the camera. Its position on the image can then be selected. This option becomes available when the **Camera name stamping** option is enabled. Select:

- **Off**: This option is disabled.
- **To the left of the name**: The logo will be positioned to the left of the **Camera name stamping**
- **To the right of the name**: The logo will be positioned to the right of the **Camera name stamping**
- **Logo only**: The logo will be shown without the **Camera name stamping**.

Time stamping

This field sets the position of the time overlay. It can be displayed at the **Top**, at the **Bottom** or at a position of your choice that you can then specify using the **Custom** option. Or it can be set to **Off** for no overlay information.

1. Select the desired option from the list.
2. If you select the **Custom** option, additional fields are displayed where you can specify the exact position (**Position (XY)**).
3. In the **Position (XY)** fields, enter the values for the desired position.

Display milliseconds

If necessary, you can also display milliseconds. This information can be useful for recorded video images; however, it does increase the processor's computing time. Select **On** if you need to display milliseconds.

Note: The time stamp (with or without the display of Milliseconds) on the OSD is the indication to camera operators that the camera is showing live video, that the image is not frozen.

Alarm mode stamping

Select **On** to display a text message overlay in the image in the event of an alarm. It can be displayed at a position of your choice that you can then specify using the **Custom** option. Or it can be set to **Off** for no overlay information.

1. Select the desired option from the list.
2. If you select the **Custom** option, additional fields are displayed where you can specify the exact position (**Position (XY)**).
3. In the **Position (XY)** fields, enter the values for the desired position.

Alarm message

Enter the message to be displayed in the image in the event of an alarm. The maximum text length is 31 characters.

Info stamping

Check this box to activate the stamping.

The **Position (XY)** is displayed to enter the values in the X and Y position fields.

Title region

Select **On** to set or to edit the position of the **Title region** on the **OSD**.

The fields **Position (XY)** and **(0...255)** appear.

1. In the field **Position (XY)**, specify the exact position. (The default is 10.)
2. In the field **(0...255)**, enter the position range. (The default is 176).

Select **Off** to hide the region from view.

Telemetry region

Select **On** to set or to edit the position of the telemetry information (azimuth and elevation (pan/tilt position)) and the zoom factor on the **OSD**. Refer to the section "PTZ Settings" to set the pan and tilt limits.

The fields **Position (XY)** and **(0...255)** appear.

1. In the field **Position (XY)**, specify the exact position. (The default is 10.)
2. In the field **(0...255)**, enter the position range. (The default is 176).

Select **Off** to hide the region from view.

Feedback region

Select **On** to set or to edit the position of system feedback messages (including message for camera settings such as focus, iris, and zoom level, etc.) on the **OSD**. Refer to the section "Lens Settings" to configure these settings.

The fields **Position (XY)** and **(0...255)** appear.

1. In the field **Position (XY)**, specify the exact position. (The default is 10.)
2. In the field **(0...255)**, enter the position range. (The default is 176).

Select **Off** to hide the region from view.

Stream security

Video authentication

Select from the **Video authentication** drop-down box a method for verifying the integrity of the video. If you select **Watermarking**, all images are marked with an icon. The icon indicates if the sequence (live or saved) has been manipulated.

If you want to add a digital signature to the transmitted video images to ensure their integrity, select one of the cryptographic algorithms for this signature.

Signature interval [s]

For certain **Video authentication** modes, enter the interval (in seconds) between insertions of the digital signature.

7.1.2

Positioning

The **Positioning** feature describes the location of the camera and the perspective in the camera's field of view.

Perspective information is essential to Video Analytics, as it enables the system to compensate for the illusory smallness of distant objects.

Only through use of perspective information is it possible to distinguish objects such as persons, bicycles, cars and trucks, and accurately compute their real size and speeds as they move through 3D space.

However, to calculate perspective information accurately, the camera must be directed at a single, flat horizontal plane. Multiple and inclined planes, hills, stairs can falsify perspective information and produce incorrect object information such as size and speed.

Height [m]

The height describes the vertical distance from the camera to the ground plane of the captured image. Typically the elevation of the mounted camera above the ground.

Enter the height in meters of the position of the device.

Sketch

The **Sketch** functionality offers an additional, half-automatic calibration method. This calibration method allows you to describe the perspective in the camera's field of view by drawing vertical lines, ground lines, and ground angles in the camera image and entering the correct size and angle. Use the **Sketch** functionality if the result of the automatic calibration is not sufficient.

You can also combine this manual calibration with the values for roll angle, tilt angle, height and focal length calculated by the camera or entered manually.

Click to improve the automatic calibration. The **Sketch-based calibration** window is displayed.

VCA Profile

Select the appropriate profile.

Global

Select the **Global** check box to use the global, overall calibration for all AUTODOME and MIC cameras.

Alternatively, clear the **Global** check box to obtain a local calibration and overwrite the global calibration for the selected profile. To do this, select the VCA profile before.

Notice!

The **Sketch** functionality is only available for configured and assigned pre-positions.

For AUTODOME and MIC cameras, configure the pre-positions of the camera and assign the pre-positions to one of the available 16 VCA profiles before calibration with **Sketch**.

Applications are pre-positions of cameras directed towards different ground planes, an optimized calibration for inclined ground planes or large focal lengths. A local pre-position calibration does not change the global calibration.

It is also possible to calibrate pre-positions without entering a global calibration.



Calculate

Select the **Calculate** check box to obtain the roll angle, tilt angle, height and focal length from the sketched calibration elements - vertical lines, ground lines and angles - you have placed in the device. Clear the **Calculate** check box to enter a value manually or to refresh to the values provided by the device itself.

Tilt angle [°]

Enter the angle manually, or click the refresh icon to obtain values that are provided by any sensors that the camera may have. As an alternative, select the **Calculate** check box to get values based on the calibration elements that are marked on the image.

Height [m]

Enter the height manually, or click the refresh icon to obtain values that are provided by any sensors that the camera may have. As an alternative, select the **Calculate** check box to obtain values based on the calibration elements that are marked on the image.

Focal length [mm]

Enter the focal length manually, or click the refresh icon to obtain values that are provided by any sensors that the camera may have. As an alternative, select the **Calculate** check box to obtain values based on the calibration elements that are marked on the image.

Calibrating cameras using the Sketch-based calibration window

To determine non-automatically set values:

1. Enter the value for tilt angle, roll angle, height and focal length if the value is known, for example, by measuring the height of the camera above the ground, or reading the focal length from the lens.
2. For each value that is still unknown, select the **Calculate** check box, then place a calibration element on the camera image. Use these calibration elements to trace individual outlines of the displayed environment in the camera image and define the position and size of these lines and angles.

- Click  to place a vertical line across the image.

A vertical line corresponds to a line that is perpendicular to the ground plane, such as a door frame, edge of a building or a lamp post.

- Click  to place a line across the ground in the image.
A line on ground corresponds to a line that is on the ground plane, such as a road marking.
 - Click  to place an angle on the ground in the image.
The angle on ground represents an angle lying on the horizontal ground plane, such as the corner of a carpet or parking bay markings.
3. Adjust the calibration elements to the situation:
- Enter the real size of a line or angle. To do this, select the line or angle, then enter the size in the corresponding box.
Example: You have placed a line on ground across the lower side of an automobile. You know that the automobile is 4 m long. Enter 4 m as the length of the line.
 - Adjust the position or length of a line or angle. To do this, drag the line or angle or move the end points to the desired position in the camera image.
 - Remove a line or angle. To do this, select the line or angle, then click the trash can icon.

Note:

Blue lines indicate calibration elements added by you.

White lines represent the element as it should be positioned on the camera image based on the current calibration results or the determined calibration data.

**Notice!**

If the distance to the camera (geolocation) is not relevant, it is enough to determine height and focal length in relation to each other. This allows a simple calibration by marking 2-3 persons - each with a vertical line - and setting their size. 1,80 m (71 in.) for all is sufficient. Use at least one person in the front and one person in the background of the image for best results.

Coordinate system

The **Coordinate system** feature describes the position of the camera in a local **Cartesian** or the global **WGS 84** coordinate system. The camera and the objects tracked by the video analytics are displayed on a map.

Select the coordinate system and enter the appropriate values in the additional input fields that appear depending on the coordinate system selected.

Cartesian

The Cartesian coordinate system describes each point in the space by a combination of the position on three orthogonal axes X, Y and Z. A right-handed coordinate system is used, where X and Y span the ground plane and Z describes the elevation of the ground plane.

X [m]

The location of the camera on the ground on the X-axis.

Y [m]

The location of the camera on the ground on the Y-axis.

Z [m]

The elevation of the ground plane. To determine the elevation of the camera, add the **Z [m]** value and the **Height [m]** value of the camera.

WGS 84

The WGS 84 coordinate system is a spherical coordinate system description of the world and used in many standards including GPS.

Latitude

Latitude is the north-south position of the camera in the spherical coordinate system WGS 84.

Longitude

Longitude is the east-west position of the camera in the spherical coordinate system WGS 84.

Ground level [m]

The elevation of the ground above sea level. To determine the elevation of the camera, add the **Ground level [m]** value and the **Height [m]** value of the camera.

Azimuth [°]

The orientation of the camera in a counter-clockwise angle starting with 0° in the east (WGS 84) or on the X-axis (**Cartesian**). If the camera is directed towards the north (WGS 84) or the Y-axis (**Cartesian**), the azimuth is 90°.

7.2

Scene Mode

A scene mode is a collection of image parameters that are set in the camera when that particular mode is selected (installer menu settings are excluded). Several pre-defined modes are available for typical scenarios. After a mode has been selected, additional changes can be made through the user interface.

Customize the mode, if necessary, for the specific requirements of the site by selecting different values for the fields below.

Current mode

Select the mode you wish to use from the drop-down menu.

- **Standard**

This mode is optimized for most standard scenes both indoor and outdoor.

- **Sensitivity boost**

This mode provides maximum sensitivity in low light scenes by using longer exposure times, resulting in bright images even in extreme low light.

- **Fast movement**

This mode is used for monitoring fast moving objects like cars in traffic scenes. Motion artifacts are minimized and the image is optimized for a sharp and detailed picture in color and monochrome.

- **Vibrant**

This mode provides a more vivid image with increased contrast, sharpness, and saturation.

- **Color Only (Traffic)**

In this mode, the camera does not switch to monochrome mode at low light levels. The mode is optimized to minimize motion artifacts and to capture the color of vehicles/pedestrians and traffic lights, even at night, for scenarios such as city surveillance and traffic monitoring.

- **Illuminator**

This mode gives optimized performance when using the AUTODOME 7100i models with built-in IR.

Note: This function is only available for IR models.

- **Custom mode #1**

If necessary, select a custom mode.

- **Custom mode #2**

If necessary, select a second custom mode.

Mode ID

The name of the selected mode is displayed.

Copy mode to

Select the mode from the drop-down menu to which you wish to copy the active mode.

Restore mode defaults

Click **Restore Mode Defaults** to restore the factory default scene modes. Confirm your decision.

7.2.1

Picture Settings

Color

White Balance

Adjusts the color settings to maintain the quality of the white areas of the image.

- **ATW**: allows the camera to adjust color reproduction continuously.
- **Indoor**: white balance tracking for indoor use.
- **Outdoor**: white balance tracking for outdoor use.
- **AWB hold**: places the ATW on hold and saves the color settings.
- **Extended ATW** (default): allows the camera to adjust constantly for optimal color reproduction.
- **Manual**: Red and Blue gain can be set manually to a desired position.

Red Gain

The red gain adjustment offsets the factory white point alignment (reducing red introduces more cyan).

Blue Gain

The blue gain adjustment offsets the factory white point alignment (reducing blue introduces more yellow). It is only necessary to change the white point offset for special scene conditions.

Note: The fields **Sodium red level** and **Sodium blue level** appear only when the value in the field **White balance** is "Sodium lamp auto" or "Sodium lamp."

This feature is not supported by 1080p resolution devices.

Saturation

Select the percentage of light or color in the video image.

Color hue

Select the degree of color in the video image.

Brightness

Enter the value to adjust the brightness of the video image to your working environment.

This feature is only supported by 1080p resolution devices.

Contrast

Enter the value to adjust the contrast of the video image to your working environment.

This feature is only supported by 1080p resolution devices.

Exposure and gain control

Gain control

Adjusts the automatic gain control (AGC).

- **AGC** (default): Automatically adjusts the gain to the lowest possible value needed to maintain a good picture.
- **Fixed**: no enhancement. This setting disables the Max. Gain Level option.

Fixed gain

Select the desired number for **Fixed gain** from the drop-down box.

Maximum gain level

Select the desired maximum gain level from the drop-down list.

Note: This list is locked when **Gain control** is set to **Fixed**.

AE-response speed

Select the speed of the response of auto exposure. Options are Super slow, Slow, Medium (default), Fast.

Shutter Mode

- **Fixed**: The shutter mode is fixed to a selectable shutter speed.

- **Automatic exposure:** increases camera sensitivity by increasing the integration time on the camera. This is accomplished by integrating the signal from a number of consecutive video frames to reduce signal noise.

If you select this option, the camera disables **Shutter** automatically.

Shutter

Adjusts the electronic shutter speed (AES). Controls the time period for which light is gathered by the collecting device. The default setting is 1x (60 Hz: 1/30, 50 Hz: 1/25)

Maximum automatic exposure

Use this field to limit the integration time when Frame Integration is active.

Default shutter limit

The camera tries to hold this shutter value as long as sufficient ambient light is available in the scene.

Backlight compensation

The function will ignore small areas of high illumination directly into the camera. The function increases the brightness of the overall screen to make sure that subjects and the larger portion of the scene remain bright.

Select **Off** to stop **Backlight compensation**. (Default)

Select **On** to start **Backlight compensation**.

■ **Backlight compensation** does not work in **Fixed shutter** mode.

High sensitivity

Adjusts the level of intensity or lux within the image. Select from **Off** or **On**.

This feature is only available for the AUTODOME 7100i IR 8MP model.

Day/night

Night mode

Selects night mode (B/W) to enhance lighting in low light scenes. Select from the following options:

- **Monochrome:** Forces the camera to stay in Night Mode and transmit monochrome images.
- **Color:** The camera does not switch to Night Mode regardless of ambient light conditions.
- **Auto** (default): The camera switches out of Night Mode after the ambient light level reaches a pre-defined threshold.

Night mode threshold

Adjusts the level of light at which the camera automatically switches out of night mode (B/W) operation. Select a value between 10 and 55 (in increments of 5; default 40). The lower the value, the earlier the camera will switch to color mode.

Night mode priority

Select the option to which the camera should give priority while in night mode:

- Motion
- Color (default)

The Night mode priority function is only available for 1080p devices.

Night mode shutter

Indicates the point of switching from illumination in color to illumination in monochrome when a selection is made for **Night mode priority**.

7.2.2

Enhance

All settings on this page except for **Noise reduction** are scene-mode specific. This means that you can adjust the sharpness/noise suppression/HDR on each scene mode.

High dynamic range

The **High dynamic range** mode uses an electronic shutter to capture multiple images with different exposure times and to reproduce a high-contrast frame. The output frame combines the bright area captured by the high-speed shutter image and the dark area captured by the low-speed shutter image. The result is that you can view details in both the bright areas (highlights) and the dark areas (shadows) of a scene at the same time.

- Use the radio buttons to turn **High dynamic range** on or off.

Note: **High dynamic range** does not work in **Fixed shutter** mode.

Stabilization

Stabilization reduces camera shake in both the vertical and horizontal axis. The 1080p resolution camera compensates for the movement of the image by up to 2% of the image size. This feature is ideal for cameras mounted on a pole or mast, or on another location that shakes frequently.

- **On** - Stabilization is always on.
- **Off** - Stabilization is disabled.
- **Auto** - Stabilization activates automatically when the camera detects vibration greater than the set threshold.



Notice!

Use of Electronic Image Stabilization (EIS) may impact the functionality of features of Video Content Analysis (VCA).

The EIS algorithm appears to “shift” the image on the screen while trying to keep the video stable. This “shift” is more visible at night when the camera interprets vehicle headlights as unstable video. Therefore, Bosch recommends not to use IS in combination with VCA.

Sharpness mode

Select the appropriate sharpness mode. Options are **Manual** and **Auto**.

Sharpness level

This field is active when **Sharpness mode** is set to **Manual**.

Adjust the level of sharpness of the video image (from 1 to 15) using the slider.

Adjustments to the **Sharpness level** appear on the OSD.

Gamma correction

This function lets you adjust the image contrast in the original scene, to make it lighter or darker.

Contrast lets you get more detail in a dark area, or get video with more contrast.

Use the slider to adjust the Gamma correction value. The higher the number, the better the image contrast.

Intelligent Defog

Select the required Intelligent Defog option. This feature continuously adjusts image parameters to provide the best picture possible under foggy or misty conditions.

Intelligent Defog intensity

Select the intensity level for the defog feature from the dropdown list.

Note: This field is active only when the option in Intelligent Defog is **On**.

Noise suppression

Adjust the balance between noise suppression in a frame over frame averaging way, at the cost of motion blur. The higher the value the more noise is removed at the cost of more blur in moving parts of the scene to achieve a lower bitrate and vice-versa for lower values.

The optimum for most scenes is value zero.

Noise reduction

By default, this option is **On**.

Noise reduction **On** enables temporal noise reduction, which reduces random video noise in the picture by averaging pixels across time if the difference between them is below a threshold. **Off** disables temporal noise reduction.

Use the radio buttons to turn 2D and 3D noise reduction on or off.

Select **Auto** to have the device adjust the 2D and 3D noise reduction level automatically.

7.2.3

Scene Mode Scheduler

The scene mode scheduler is used to determine which scene mode should be used during the day and which scene mode should be used during the night.

1. Select the mode you wish to use during the day from **Marked range** drop-down box.
2. Select the mode you wish to use during the night from **Unmarked range** drop-down box.
3. Use the two slider buttons to set the **Time ranges**.

7.3

Encoder Streams

When this menu is accessed while the device is recording, the following message appears at the top of the page: "Recording is currently active. At 'Active profile' the stream profile used for recording is displayed, and overrules the 'Non-recording profile'."

Stream limits (H.264/H.265)

Select the maximum stream resolution as provided per stream.

Stream limits is a mandatory selection to pre-assign the maximum available resolution for each of the four H.264/H.265 streams. If a lower resolution is selected, you will be more flexible in streaming options on the second and third stream. The fourth JPEG stream always shows the maximum resolution available in the camera.

Stream 1 always runs at the maximum selected resolution in stream limits. On stream 2 and 3, you can select various downscaled resolutions.

Stream prioritization

Select the stream that should not drop any frame.

Coding standard

Select the coding standard you want to use for the stream.

Active profile

Active profile shows the profile that is in use and can be set differently per stream

If no edge recording or VRM recording is active, the device switches to the **Non-recording profile**.

Please refer to section **Non-recording profile**.

Select one of the following profiles for each stream:

Profile number	Description
Profile 1	For a high resolution image, the video bit rate and frame quality are adjusted to ensure that the picture quality is the priority.
Profile 2	For a high resolution image, the video bit rate and frame quality are adjusted to a median profile for everyday use.
Profile 3	For a high resolution image, the video bit rate and frame quality are adjusted to ensure that the bit rate is the priority.
Profile 4	For a low resolution image, the video bit rate and frame quality are adjusted to ensure that the picture quality is the priority.
Profile 5	For a low resolution image, the video bit rate and frame quality are adjusted to a median profile for everyday use.

Profile 6	For a low resolution image, the video bit rate and frame quality are adjusted to ensure that the bit rate is the priority.
Profile 7	Ideal for encoding on a DSL uplink where bit rate limitations are critical.
Profile 8	Ideal for encoding on a 3G uplink where bit rate limitations are critical.

Stream 1 always runs at maximum selected resolution in stream limits. On stream 2 and 3, you can select various downsampled resolutions.

Non-recording profile

Select one of the resolutions from the drop-down menu for each stream.

If you activate the recording function, the active profile switches from **Non-recording profile** to **Active profile**.

The **Active profile** follows the scheduled profiles under **Recording Profiles**. Please refer to section **Recording Profiles**.

This behavior is only applicable when using Bosch recording solutions, including edge recording or VRM recording. Third-party recording solutions might use the **Non-recording profile**.

If no edge recording or VRM recording is active, the active profile is managed via the drop-down of **Non-recording profile**.

If edge recording or VRM recording is active, the active profile is managed via the menu in **Recording Profiles**. Please refer to section **Recording Profiles**.

Click **Frame and bit rate test** to see when and if a specific stream will drop frames.

Encoder Profile

To access the **Encoder Profile** configuration window for the individual streams, click the edit (pencil) button next to the respective **Active profile** or **Non-recording profile** sections.



Caution!

The profiles are rather complex. They include a large number of parameters that interact with one another, so it is generally best to use the default profiles.

Change the profiles only once you are fully familiar with all the configuration options.

Profile name

If required, enter a new name for the profile.

Video resolution

Select one of the available video resolution options from the drop-down menu.

Frame rate

The **Frame rate** slider determines the interval at which images are encoded and transmitted. This can be particularly advantageous with low bandwidths. The frame rate is displayed next to the slider.

The frame rate is the result from the maximum or base frame rate divided by the value of the encoding interval (for example, with a base frame rate of 30 fps and an encoding interval of 6, the encoded frame rate is 5 fps).

Advanced Settings

If necessary, use the advanced settings to adapt the I-frame quality and the P-frame quality to specific requirements. The setting is based on the H.264 quantization parameter (QP).

GOP structure

Select the required structure for the group of pictures, depending on whether you place greater priority on having the lowest possible delay or using as little bandwidth as possible.

I-frame distance

Use the slider to set the distance between I-frames to **Auto** or to between **3** and **255**. An entry of 3 means that every third image is an I-frame. The lower the number, the more I-frames are generated.

Min. P-frame QP

The Quantization Parameter (QP) specifies the degree of compression and thus the image quality for every frame. The lower the QP value, the higher the encoding quality. A higher quality produces a higher data load. Typical QP values are between 18 and 30. Define the lower limit for the quantization of the P-frames here, and thus the maximum achievable quality of the P-frames.

I/P-frame delta QP

This parameter sets the ratio of the I-frame QP to the P-frame QP. For example, you can set a lower value for I-frames by moving the slide control to a negative value. Thus, the quality of the I-frames relative to the P-frames is improved. The total data load will increase, but only by the portion of I-frames.

To obtain the highest quality at the lowest bandwidth, even in the case of increased movement in the picture, configure the quality settings as follows:

1. Observe the coverage area during normal movement in the preview images.
2. Set the value for **Min. P-frame QP** to the highest value at which the image quality still meets your needs.
3. Set the value for **I/P-frame delta QP** to the lowest possible value. This is how to save bandwidth and memory in normal scenes. The image quality is retained even in the case of increased movement since the bandwidth is then filled up to the value that is entered under **Maximum bit rate**.

Click **Default** to return the profile to the factory default values.

Click **Set** to apply the changes.

Frame and bit rate test

Click to open the **Frame and bit rate test** window.

Select the checkboxes for the individual streams to obtain the respective frame and bit rate values.

7.4 Encoder Statistics

This section gives the user information about the bit rate of the device. For each scene, it is possible to determine the best target/max bit rate through the graphic shown.

Stream

Identifies the current stream.

Zoom

Identifies the current zoom factor of the camera (1x, 2x, 4x, or 8x).

Averaging period

Identifies how often (in seconds, minutes, hours, days or weeks) the encoder time is synchronized to the actual time.

7.5 Privacy Masks

Note: The sequence of fields in the GUI may not match the sequence of the fields in this section of the User Manual. In this section of the User Manual, fields appear in a more logical functional sequence, identifying the sequence to create a new privacy mask, and then to update a privacy mask.

Privacy Masks block specific areas of a scene from being seen in the camera's field of view. This can be useful when public spaces are in the coverage area or monitoring will be limited to a particular zone.

You can define a total of thirty-two (32) privacy masks in the camera.

A total of eight (8) masks can be in view at the same time.

Privacy mask

Select the number of the **Privacy mask**. A colored rectangle appears in the unlabeled video preview window above the **Set** button.

Use the mouse to define the area for each privacy mask.

Privacy Masks can have multiple corners (which are blue in the preview window) and can form any convex shape.

The default mask template has four corners. You can add or delete corners as needed:

- To add a corner, double-click the side of the mask where you want to add the corner.
- To delete a corner, double-click the corner to remove.
- To amend the shape of a zone, place the cursor over the edge of the zone, hold down the mouse button and drag the edge of the zone to the required position.
- To reposition a zone, place the cursor over the zone, hold down the mouse button and drag into position.



Notice!

Draw the mask at 50% optical zoom or less for improved masking performance.

Draw the mask 10% larger than the object to ensure that the mask completely covers the object as the camera zooms in and out.

If you select the **Pattern "Auto,"** the camera adjusts to the brightness or darkness of the background scene of the video. In other words, the color of the **Privacy mask** is the most prevalent of the three (**Black, White, or Gray**) in the background scene that the **Privacy mask** covers.

Enabled

Select this check box to draw the mask for the corresponding **Privacy mask** zone.

Clear this check box to erase the mask for an individual **Privacy mask** zone.

Disable masks

Click the check box to hide all privacy masks.

Note: You can disable masks individually by deselecting the check box **Disable masks**.

Mask enlargement

Select this check box to enlarge all masks automatically while the camera is in motion.

Zoom threshold

Click this check box to select the current zoom position at which the mask will appear as the camera zooms in or be hidden as the camera zooms out.

7.6

Lens Settings

Focus

Autofocus

Continuously adjusts the lens automatically to the correct focus for the sharpest picture.

- **One Push** (default; commonly called "Spot Focus"): activates the Auto Focus feature after the camera stops moving. Once focused, Auto Focus is inactive until the camera is moved again.
- **Auto Focus:** Auto Focus is always active.
- **Manual:** Auto Focus is inactive.

Focus speed

Use the slider (from 1 to 8) to control how fast the Auto focus will readjust when the focus becomes blurred.

IR focus correction

Optimizes the focus for IR lighting. Options are: On, Off (default).

Day near limit [m]

Select the distance (in meters), from 0.1 to 20 m, for the minimum distance of the zoom focus during the day.

Night near limit [m]

Select the distance (in meters), from 0.1 to 20 m, for the minimum distance of the zoom focus during the night.

Iris**Auto iris**

Automatically adjusts the lens to allow the correct illumination of the camera sensor. This type of lens is recommended for use where there are low light or changing light conditions.

- **Constant** (default): camera constantly adjusts to varying light conditions (default).
If you select this option, the camera makes the following changes automatically:
 - **Gain Control**: switches to AGC.
 - **Shutter Speed**: switches to default.
- **Manual**: camera must be manually adjusted to compensate for varying light conditions.

Auto iris level

Increases or decreases brightness according to the amount of light. Type a value between 1 and 15. Available only with Constant Iris mode.

Zoom**Maximum zoom speed**

Controls the zoom speed.

Zoom limit

Select the appropriate limit for zooming the camera: 20x, 30x, or 40x.

Digital zoom

Digital zoom is a method of decreasing (narrowing) the apparent angle of view of a digital video image. It is accomplished electronically, without any adjustment of the camera's optics, and no optical resolution is gained in the process.

Select **On** to enable this feature.

Select **Off** to disable this feature.

7.7

PTZ Settings

Auto pan speed

Continuously pans the camera at a speed between right and left limit settings. Type a value between 1 and 60 (expressed in degrees per second), inclusive. The default setting is 30.

Inactivity

Selects the time period the dome must be not controlled until the inactivity event will be executed.

- **Off** (default): camera remains on a current scene indefinitely.
- **Pre-position 1**: camera returns to **Pre-position 1**.
- **Previous AUX**: camera returns to the previous AUX activity.

Inactivity period

Determines the behavior of the camera when the control for the camera is inactive. Select a time period from the pull-down list (3 s - 24 h).

Number of sectors

Select the appropriate number of sectors (for example, 4, 6, 8, 9, 12, or 16).

Note: The number that you select in this field determines the number of sectors that appear in the **Sectors** page (below).

Auto pivot

The Auto pivot tilts the camera through the vertical position as the camera is rotated to maintain the correct orientation of the image. Set the Auto Pivot to On (default) to automatically rotate the camera 180° when following a subject traveling directly beneath the camera. To disable this feature, click Off.

Freeze frame

Select On to freeze the image while the camera moves to a predetermined scene position.

Azimuth

Select On to display azimuth/elevation readings.

Select Off to hide azimuth/elevation readings.

Maximum pan speed [%]

Select the maximum pan speed (in percent).

Maximum tilt speed [%]

Select the maximum tilt speed (in percent).

Tracking zoom-out limit [%]

This parameter defines the zoom ratio percentage to which the camera zooms out after Tracking idle time [s] stops tracking, or if Intelligent Tracking loses visibility of an object being tracked. This allows the camera to re-acquire the target in a new, wider FoV.

Tracking idle time [s]

This parameter allows the camera to stop tracking motion of certain objects, such as a tree or a flag swaying in the wind, in a confined area after the specified number of seconds.

Auto pan left limit

Sets the left Auto Pan limit of the camera. Use the preview window to move the camera to the left pan limit and click the Set button. The camera will not move past this limit when in Auto Pan Between Limits mode (AUX 2 ON).

To move to the limit position, click the Show button.

Auto pan right limit

Sets the right Auto Pan limit of the camera. Use the preview window to move the camera to the right pan limit and click the Set button. The camera will not move past this limit when in Auto Pan Between Limits mode (AUX 2 ON).

To move to the limit position, click the Show button.

Tilt up limit

Sets the upper tilt limit of the camera. Use the preview window to move the camera to the tilt limit and click the Set button.

To clear the Tilt up limit, click the Clear button.

Pan offset

Click Set to set the pan offset for the camera.

Click Clear to clear the pan offset position.

Tour A / Tour B

Starts and stops the recording of a recorded (guard) tour.

The camera can make up to two (2) recorded tours. A recorded tour saves all manual camera movements made during the recording, including its rate of pan, tilt and zoom speeds, and other lens setting changes. The tour does not capture camera video during the recording of the tour.

Note 1: You can save a total of 15 minutes of recorded actions between the two tours.

To record a tour:

- ▶ Click the Start Recording button. The system prompts you to overwrite the existing tour.
- ▶ Click Yes to overwrite the existing tour movements.
- ▶ Click the View Control link, under the image cameo, click the PTZ controls under the Live preview section to access the directional and zoom controls.
- ▶ Use the PTZ controls under the Live preview section to make the necessary camera movements.
- ▶ Click the Stop Recording button to save all actions.

Note: **Tour B** is now intended for use with the 'IVA while moving' functions.

Compass

The camera allows a user to display the compass heading of the camera in the lower-right corner of the image display. The camera displays the cardinal or intercardinal (N, NE, E, SE, S, SW, W, NW) heading in which the camera is pointing.

You must first calibrate the camera to North before the camera displays accurate compass headings. The camera uses this calibration, usually set to magnetic North, as the zero degree pan position and as the North compass heading. The camera then displays the compass heading based on the number of degrees from the North calibration point.

To set the North calibration point:

1. Determine the North compass heading, then move the camera to that position.
2. Click the Set button next to "North point" to set the calibration point.
3. Click the On radio button for the Compass parameter.

North point

- Click the **Set** button to overwrite the existing **North point**. A dialog box appears with the message, "Overwrite **North point**?" To confirm, click **OK**. To cancel, click **Cancel**.
- Click the **Clear** button to reset the **North point** to factory defaults. A dialog box appears with the message, "Reset **North point** to factory defaults?" To confirm, click **OK**. To cancel, click **Cancel**.

Alternative home position

Click **Set** to set the alternative home position for the camera.

Click **Clear** to clear the alternative home position.

7.8

Pre-positions and Tours

The camera can store up to 256 preset scenes. You can define the individual scenes that comprise a **Pre-position Tour**.

You define individual pre-position scenes, then use these scenes to define the **Pre-position Tour**. The tour starts from the lowest scene number in the tour and progresses sequentially to the highest scene number in the tour. The tour displays each scene for a specified dwell time before advancing to the next scene.

By default, all scenes are part of the **Pre-position Tour** unless removed.

Sequence settings

To define and edit an individual pre-position:

- Set the pre-position in the video image.
 - Use the PTZ controls to move the device into position.
 - Using the Live preview window as reference, navigate to the scene that you want to define as a pre-position.

- Click the button **Add pre-position** ("+") to define the pre-position.
- Select a number for the pre-position, from 1 to 256.
- Type an optional name for the pre-position, up to 40 characters long.
- Click **OK** to save the pre-position to the list **Pre-positions**.
- To include the pre-position in a standard tour, select the checkbox to the left of the field "**Include in standard tour (marked with *)**". An asterisk (*) appears to the left of the name in the list **Pre-positions**.
- To delete a pre-position from the list, select the pre-position and click the **Delete pre-position** button.
- To overwrite an existing pre-position:
 - Use the PTZ controls to navigate to the new pre-position.
 - In the list **Pre-positions**, select the pre-position that you want to overwrite.
 - Click the button **Overwrite pre-position** (disk icon) to apply the new pre-position to the existing pre-position.
 - To change the name of the pre-position, double-click the pre-position in the list. Then, change the name in the dialog box **Edit Pre-position** and click **OK**.
- To view a pre-position in the preview window, select the pre-position in the list and click the button **Show pre-position** (eye icon).
- To view a pre-position from the **Live** page:
 - Click a pre-position number in the list **Pre-positions**.
 - OR
 - Use the keypad and the button **Show pre-position** in **AUX Control**.

To define a Custom tour:

- Create the individual pre-positions.
- Select the pre-position from the **Pre-positions** list and click the triangle button to copy it to the **Custom tour** list.
- Adjust the custom tour sequence by moving a pre-position up or down.
- To start the **Custom tour**:

Return to the **Live** page.

Select **Special Functions**.

Click **Custom tour**

- or -

Select **AUX Control**.

Type 7 in the input box.

Click **AUX on**.
- To stop the tour, type 7 and click **AUX off**.

Include in standard tour (marked with *)

Select this checkbox to include the pre-position in the standard tour.

Upload

Click the button to upload the tour configuration to the camera.

Dwell times

Standard pre-position tour

Select the dwell time in seconds or minutes for the **Standard pre-position tour**.

Custom pre-position tour

Select the dwell time in seconds or minutes for the **Custom pre-position tour**.

7.9 Pre-position settings

Pre-position

Select the number of the pre-position for which to save specific settings.

Name

Change the name of the pre-position if needed. Click **Set** to save the new name.

Automatic exposure

Select the automatic exposure mode. Options are Full-screen or Defined

Full-screen (Default)

The camera computes the lighting condition of the entire scene. Then the camera determines the optimum level of iris, gain, and shutter speed.

Defined

Move and adjust the size of the green box to cover an interesting area.

The camera computes the lighting condition to the center spot of the specified area. Then the camera determines the optimum level of iris, gain, and shutter speed to get an image.

Note: the size shape of the specified area does not matter.

Focus

Autofocus

The autofocus function continuously adjusts the lens automatically to the correct focus for the sharpest picture.

Select one of the options from the dropdown list:

- **One push:** activates **Autofocus** after the device stops moving. Once focused, **Autofocus** becomes inactive until the device is moved again.
- **Autofocus:** **Autofocus** is always active.
- **Manual:** **Autofocus** is inactive.

Day near limit [m]

Select the distance (in meters), from 0.1 to 20 m, for the minimum distance of the zoom focus during the day.

Night near limit [m]

Select the distance (in meters), from 0.1 to 20 m, for the minimum distance of the zoom focus during the night.

7.10 Sectors

To define a title for sectors:

1. Place the cursor in the input box to the right of the sector number.
2. Type a title for the sector, up to 40 characters long.
3. To blank the sector, click the check box to the right of the sector title.

7.11 Miscellaneous

Fast address

This parameter allows the appropriate camera to be operated via the numerical address in the control system. Enter a number between 0000 and 9999, inclusive, to identify the camera.

7.12 Illuminator

Note: This menu page is valid for AUTODOME 7100i IR models only.

**Notice!**

A PoE IEEE 802.3bt Type 4, Class 8 (90 W) (Refer to the subchapter Connecting the AUTODOME camera to the PC in the Installation Manual) is required for IR operation. (Refer to *Additional Accessories*, page 15 for the complete description of PoE requirements.)

**Warning!**

If the external environmental temperature exceeds 50 °C (122 °F), the illuminator will not function.

IR mode

Select the appropriate IR mode to control the IR illuminators:

- **Off** - This mode turns off the illuminators.
- **Auto** - This mode activates the 850 nm IR array in low-light scenes (for example, at night), and deactivates the IR array in scenes with bright light (for example, during a sunny day).

IR operation range

Select the appropriate range of operation for the IR illuminator.

Maximum IR intensity

Select the percentage of maximum intensity of the infrared (IR) light.

Anti-saturation function

The settings in this section allow changes in the behavior of illuminator regarding reflective objects.

Mode

Select **On** to make the image darker. In this mode, reflective objects are less overexposed.

Select **Off** to make the image lighter.

Level

Select the appropriate level (1-20).

Brightness

Select the appropriate brightness (1-20).

**Notice!**

A dark banding effect may be visible at the left and right edges of the image.

In very dark environments, this effect occurs on the camera image when IR light is activated and when the zoom level is set between 1x and 1.3x. The effect is limited to this specific zoom range and scene and does not impact overall camera performance.

7.13

Audio

You can set the gain of the audio signals to suit your specific requirements. The current video image is shown in the small window next to the slide controls to help you check the audio source and improve assignments. Your changes are effective immediately.

If you connect via Web browser, you must activate the audio transmission on the '**Live' functions** page. For other connections, the transmission depends on the audio settings of the respective system.

Audio

The audio signals are sent in a separate data stream parallel to the video data, and so increase the network load. The audio data are encoded according to the selected format and require additional bandwidth. If you do not want any audio data to be transmitted, select **Off**.

Input volume

Set the input volume using the slider.

Line Out

Set the line output gain using the slider.

Recording format

Select a format for audio recording. The default value is **48 kbps**. You can select **80 kbps**, G.711 or L16 depending on the required audio quality or sampling rate.

AAC audio technology is licensed by Fraunhofer IIS.

[\(http://www.iis.fraunhofer.de/amm/\)](http://www.iis.fraunhofer.de/amm/)

AAC bit rate

Select the required **AAC bit rate**.

7.14

Pixel Counter

The number of horizontal and vertical pixels covered by the highlighted area is displayed below the picture. With these values you can check whether the requirements for specific functions, for example, identification tasks, are fulfilled.

1. Click **Freeze** to freeze the camera image if the object that you want to measure is moving.
2. To reposition a zone, place the cursor over the zone, hold down the mouse button and drag into position.
3. To change the shape of a zone, place the cursor over the edge of the zone, hold down the mouse button and drag the edge of the zone to the required position.

8 Recording

Images can be recorded to an appropriately-configured iSCSI system or, for devices with the appropriate storage slot, to a local media card such as a CompactFlash (CF) card.

Note: This is only required if the Transcoder is going to Manage the recordings. Otherwise, the recording settings of the connected device will apply.

Images can be recorded to an appropriately configured iSCSI system or, for devices with an SD slot, locally to an SD card.

SD cards are the ideal solution for shorter storage times and temporary recordings. They can be used for local alarm recording or to improve the overall reliability of video recording.

For long-term authoritative images use an appropriately sized iSCSI system.

Two recording tracks are available (**Recording 1** and **Recording 2**). The encoder streams and profiles can be selected for each of these tracks for both standard and alarm recordings.

Ten recording profiles are available where these recording tracks can be defined differently. These profiles are then used for building schedules.

A Video Recording Manager (VRM) can control all recording when accessing an iSCSI system. The VRM is an external program for configuring recording tasks for video servers.

With WiFi models the recording performance depends on the wireless transmission efficiency. To avoid degradation for continuous recording with an iSCSI target storage device, it is essential to use the Bosch Video Recording Manager or a DIVAR IP 2000 / DIVAR IP 3000 to manage all recordings without interruption.

You can define up to ten different recording profiles. You will then use these recording profiles in the recording scheduler, where they are linked with the individual days and times.



Notice!

You can change or add to the recording profile description on the tabs on the **Recording Scheduler** page.

CF cards are the ideal solution for shorter storage times and temporary recordings, for example alarm recordings or local buffering in the event of network interruptions.

For long-term, authoritative images, it is essential that you use an appropriately sized iSCSI system.

You can record the images from the camera connected to the VideoJet XF E on the local CF card or on an appropriately configured iSCSI system.

It is also possible to let the VRM Video Recording Manager control all recordings when accessing an iSCSI system. This is an external program for configuring recording tasks for video servers. For further information please contact your local customer service at Bosch Security Systems.

8.1 Storage Management

Device manager

The Device manager indicates if storage is controlled locally or by a VRM system.

An external Video Recording Manager (VRM) system for the unit is configured via the Configuration Manager.

Recording media

Select a media tab to connect to the available storage media.

iSCSI Media

To use an **iSCSI system** as the storage medium, a connection to the desired iSCSI system is required to set the configuration parameters.

The storage system selected must be available on the network and completely set up. It must have an IP address and be divided into logical drives (LUNs).

1. Enter the IP address of the required iSCSI destination in the **iSCSI IP address** field.
2. If the iSCSI destination is password protected, enter the password into the **Password** field.
3. Click **Read**.
 - The connection to the IP address is established.

The **Storage overview** field displays the logical drives.

Local Media

An SD card inserted in the camera can be used for local recording.

- ▶ If the SD card is password protected, enter the password into the **Password** field.

The **Storage overview** field displays the local media.

Note: SD card recording performance is highly dependent on the speed (class) and performance of the SD card. It is recommended to use an industrial SD card with health monitoring.

Local storage

To activate the ANR settings, **Recording 1** must be assigned to an iSCSI target and **Recording 2** to a local storage.

This function enables recording to the iSCSI target. If there is a network disconnection, the video is recorded to the local storage. When the network is recovered, the video recorded to the local storage is transferred to the iSCSI target and completes the missing information.

Activating and configuring storage media

Available media or iSCSI drives must be transferred to the **Managed storage media** list, activated, and configured for storage.

Note:

An iSCSI target storage device can only be associated with one user. If a target is being used by another user, ensure that the current user no longer needs the target before decoupling that user.

1. In the **Storage overview** section, double-click a storage medium, an iSCSI LUN or one of the other available drives.
 - The medium is added as a target in the **Managed storage media** list.
 - Newly added media is shown as **Not active** in the **Status** column.
2. Click **Set** to activate all media in the **Managed storage media** list.
 - The **Status** column shows all media as **Online**.
3. Check the box in the **Rec. 1** or **Rec. 2** column to specify the recording tracks to be recorded on the target selected.

Formatting and wiping storage media

Formatting the storage media can be necessary to delete all data and recreate a valid file structure to be usable.

All recordings on a storage medium can be deleted at any time. Check the recordings before deleting and back-up important sequences on the computer's hard drive.

1. Click a storage medium in the **Managed storage media** list to select it.
2. Click **Edit** below the list.
3. Click **Format** in the new window to delete all recordings in the storage medium.
4. Click **OK** to close the window.

Wiping the storage media deletes all data without recreating a valid file structure.

To wipe the recordings from the storage media:

1. Click a storage medium in the **Managed storage media** list to select it.
2. Click **Edit** below the list.
3. Click **Wipe** in the new window to wipe the recordings in the storage medium.
4. Click **Close** to close the window.

Deactivating storage media

A storage medium in the **Managed storage media** list can be deactivated. It is then no longer used for recordings.

1. Click a storage medium in the **Managed storage media** list to select it.
 2. Click **Remove** below the list. The storage medium is deactivated and removed from the list.
- Click **Set** to apply the changes.

8.2

Recording Profiles

A recording profile contains the characteristics of the tracks that are used for recording. These characteristics can be defined for ten different profiles. The profiles can then be assigned to days or times of day on the **Recording Scheduler** page.

Each profile is color-coded. The names of the profiles can be changed on the **Recording Scheduler** page.

To configure a profile, click its tab to open its settings page.

- To copy the currently visible settings to other profiles, click **Copy Settings**. A window opens to select the target profiles for the copied settings.
- If you change a profile's settings, click **Set** to save.
- If necessary, click **Default** to return all settings to their factory defaults.

Stream profile settings

Select the encoder profile setting that is to be used with stream 1 and 2 when recording. This selection is independent of the selection for live stream transmission. (The properties of the encoder profiles are defined on the **Encoder Profile** page.)

Pre-position

Select the appropriate pre-position to record. Options are **Tour A**, **Tour B**, **Custom Tour**, and configured pre-positions.

Settings for selected recordings

Recording includes

You can specify whether, in addition to video data and metadata (for example alarms, VCA data and serial data) should also be recorded. Including metadata could make subsequent searches of recordings easier but it requires additional memory capacity.



Caution!

Without metadata, it is not possible to include video content analysis in recordings.

Select what is to be included in the recordings:

- **Audio:** If audio is not enabled, **Off** is shown. Click on **Off** and the page is redirected to the **Audio** section.
- **Metadata.**

Standard recording

Select the mode for standard recordings:

- **Continuous:** the recording proceeds continuously. If the maximum recording capacity is reached, older recordings are overwritten automatically.
- **Pre-alarm:** recording takes place in the pre-alarm time, during the alarm and during the post-alarm time only.
- **Off:** no automatic recording takes place.

Stream

Select the stream to be used for standard recordings:

- **Stream 1**
- **Stream 2**
- **I-frames only**

Alarm recording

Select a period for the **Pre-alarm time** from the list box.

Select a period for the **Post-alarm time** from the list box.

Alarm stream

Select the stream to be used for alarm recordings:

- **Stream 1**
- **Stream 2**
- **I-frames only**

Check the **encoding interval and bit rates from profile:** box and select an encoder profile to set the associated encoding interval for alarm recording.

Check the **Export to account** box to send standard H.264 or H.265 files to the target whose address is displayed.

If the target has not yet been defined, click **Configure accounts** to jump to the **Accounts** page where the server information can be entered.

Alarm triggers *

Select the alarm type that is to trigger an alarm recording:

- **Alarm input**
- **Analysis alarm**
- **Video loss**

Select the **Virtual alarm** sensors that are to trigger a recording, via RCP+ commands or alarm scripts, for example.

8.3 Maximum Retention Time

Maximum retention time

Enter the required retention time in hours or days for each recording. **Recording 1** corresponds to Stream 1, **Recording 2** corresponds to Stream 2.

Recordings are overwritten when the retention time entered here has expired.

- ▶ Enter the required retention time in days for each recording track.

Once the storage unit is full, the previous recording will be overwritten.

8.4 Recording Scheduler

The recording scheduler allows you to link the created recording profiles to the days and times at which the camera's images are to be recorded. Schedules can be defined for weekdays and for holidays.

Weekdays

Define the settings for the normal weekly schedule.

Days that have already been defined are shown in the table.

Holidays

You can define holidays that are not in the standard weekly schedule on which recordings are to apply. This allows you to apply a schedule for Sundays to other days with dates that fall on varying weekdays.

1. Click the **Holidays** tab. Any days that have already been selected will be shown in the table.
2. Click the **Add** button. A new window will open.
3. Select the desired date from the calendar. You can select several consecutive calendar days by holding down the mouse button. These will later be displayed as a single entry in the table.
4. Click **OK** to accept the selection. The window will close.
5. Assign the individual holidays to the recording profiles, as described above.

Deleting Holidays

You can delete holidays you have defined yourself at any time.

1. Click the **Delete** button. A new window will open.
2. Click the date you wish to delete.
3. Click **OK**. The item will be deleted from the table and the window will close.
4. The process must be repeated for deleting additional days.

Time periods

You can change the names of the recording profiles.

1. Click a profile and then the **Rename** button.
2. Enter your chosen name and then click the **Rename** button again.

Assign as many time periods (in 15-minute intervals) as needed for any day of the week. Move the mouse cursor over the table — the time is displayed.

1. Click the profile to be assigned in the **Time periods** box.
2. Click a field in the table and, while holding down the left mouse button, drag the cursor across all of the fields to be assigned to the selected profile.
3. Use the right mouse button to deselect any of the intervals.
4. Click **Select All** to select all of the intervals to be assigned to the selected profile.
5. Click **Clear All** to deselect all of the intervals.
6. When finished, click **Set** to save the settings to the device.

Activating the Recording

After completing configuration you must activate the recording scheduler and start the recording.

Once recording is underway, the **Recording Profiles** and **Recording Scheduler** pages are deactivated and the configuration cannot be modified.

You can stop the recording activity at any time and modify the settings.

1. Click the **Start** button to activate the recording scheduler.
2. Click the **Stop** button to deactivate the recording scheduler. Running recordings are interrupted and the configuration can be changed.

Recording status

The graphic indicates the recording activity. An animated graphic is displayed when recording is taking place.

8.5

Recording Status

Details of the recording status are displayed here for information. These settings cannot be changed.

If an error occurs during recording, the Status line for the recording may display informational icons that provide additional information when you point to them with your mouse.

8.6 Recording Statistics

The bit rate of the recorded video (blue) and other data (grey), such as audio and metadata, are shown in the graphic.

Line

Identifies the current recording video.

Zoom

1x, 2x, 4x, 8x

Recording

Identifies the current recording profile (1 or 2).

Averaging period

Identifies how often (in seconds, minutes, hours, days or weeks) the encoder time is synchronized to the actual time.

8.7 Image Posting

Save individual JPEG images on an FTP server at specific intervals.

JPEG

Image size

Select the size of the JPEG images that are to be sent from the camera. JPEG resolution corresponds to the highest setting from the two data streams.

File name

Select how file names are created for the individual images that are transmitted.

- **Overwrite:** The same file name is always used and any existing file will be overwritten by the current file.
- **Increment:** A number from 000 to 255 is added to the file name and automatically incremented by 1. When it reaches 255, it starts again from 000.
- **Date/time suffix:** The date and time are automatically added to the file name. When setting this parameter, make sure that the date and time of the device are always set correctly. For example, the file snap011005_114530.jpg was stored on October 1, 2005 at 11:45 and 30 seconds.

VCA overlays

If you have enabled the display of VCA overlays on the **Appearance** page, select the **VCA overlays** check box to have the overlays also visible in the JPEG image.

Posting interval

Enter the interval in seconds at which the images are sent to an FTP server. Enter zero for no images to be sent.

Post JPEG from camera

Select the camera from which you want to post a JPEG. You can select multiple cameras.

Target

Select the target account for JPEG posting.



Notice!

You must configure an account in order to have functionality for **Image Posting**. Click on **Configure accounts** to do so.

Click **Set** to apply the changes.

8.8

SD Card Status

It is recommended to use an industrial SD card with health monitoring and enhanced performance. For non-industrial SD cards, the lifespan options are not available.

This section identifies the following details about the SD card installed in the camera:

- **Manufacturer**
- **Product**
- **Size**

9 Alarm

9.1 Alarm Connections

Connect on alarm

Select **On** so that the camera automatically connects to a predefined IP address in the event of an alarm.

By setting **Follows input 1***, the unit maintains the connection that has been automatically established for as long as an alarm exists on alarm input 1.



Notice!

In the default setting, Stream 2 is transmitted for alarm connections. Consider this when assigning the profile (see Encoder Profile).

Auto-connect

Select the **On** option to automatically re-establish a connection to one of the previously specified IP addresses after each reboot, after a connection breakdown or after a network failure.



Notice!

In the default setting, Stream 2 is transmitted for automatic connections. Bear this fact in mind when assigning the profile (see Encoder Profile).

Number of destination IP address

Specify the numbers of the IP addresses to be contacted in the event of an alarm. The unit contacts the remote stations one after the other in the numbered sequence until a connection is made.

Destination IP address

For each number, enter the corresponding IP address for the desired remote station.

Destination password

If the remote station is password protected, enter the password here.

Only ten passwords can be defined here. Define a general password if more than ten connections are required. The unit connects to all remote stations protected by the same general password. To define a general password:

1. Select 10 in the **Number of destination IP address** list box.
2. Enter 0.0.0.0 in the **Destination IP address** field.
3. Enter the password in the **Destination password** field.
4. Set the user password of all the remote stations to be accessed using this password.

Setting destination 10 to the IP-address 0.0.0.0 overrides its function as the tenth address to try.

Video transmission

If the unit is operated behind a firewall, **TCP (HTTP port)** should be selected as the transfer protocol. For use in a local network, select **UDP**.



Caution!

Please note that in some circumstances, a larger bandwidth must be available on the network for additional video images in the event of an alarm, in case multicast operation is not possible. To enable multicast operation, select the **UDP** option for the **Video transmission** parameter here and on the **Network** page.

Stream

Select the number of the stream from the drop-down list.

Remote port

Depending on the network configuration, select a browser port here. The ports for HTTPS connections will be available only if the **On** option is selected in the **SSL encryption** parameter.

Video output

If you know which unit is being used as the receiver, you can select the analog video output to which the signal should be switched. If the destination unit is unknown, it is advisable to select the **First available** option. In this case, the image is placed on the first free video output. This is an output on which there is no signal. The connected monitor only displays images when an alarm is triggered. If you select a particular video output and a split image is set for this output on the receiver, you can also select from **Decoder** the decoder in the receiver that is to be used to display the alarm image.



Notice!

Refer to the destination unit documentation concerning image display options and available video outputs.

Decoder

If a split image is set for the selected video output, select a decoder to display the alarm image. The decoder selected determines the position in the split image.

SSL encryption

SSL encryption protects data used for establishing a connection, such as the password. By selecting **On**, only encrypted ports are available for the **Remote port** parameter. SSL encryption must be activated and configured on both sides of a connection.

The appropriate certificates must also have been uploaded. (Certificates can be uploaded on the **Maintenance** page.)

Configure and activate encryption for media data (such as video, metadata or audio when available) on the **Encryption** page (encryption is only available if the appropriate license is installed).

Audio

Select **On** to activate audio alarms.

9.2

Video Content Analysis (VCA)

Note: This section of the manual provides an overview of the fields and the options for each field on the page **VCA**. This section is not a complete tutorial of setting up **VCA**. For more information, refer to the separate manual *Video Content Analysis (VCA)*, available on the product page for Intelligent Video Analytics. Access the product page on the online product catalog through the appropriate link from <https://www.boschsecurity.com/xc/en/product-catalog/>.

VCA configuration

Select one of the profiles here to activate it or edit it.

You can rename the profile.

1. To rename the file, click the icon to the right of the list field and enter the new profile name in the field.
2. Click the icon again. The new profile name is saved.

Please note that when using the browser, the camera refers you to Configuration Manager. Fields/settings are not saved.

If you select the option **Silent VCA**, then the system creates metadata to facilitate searches of recordings but no alarm is triggered. You cannot change any parameters for this configuration.

If you want to turn off VCA, then select **Off**.

9.3 Virtual Masks

Virtual masks allow users to mask parts of the scene which should not be considered for flow analysis to trigger Intelligent Tracking. This allows users to mask background motion in the scene such as moving trees, pulsating lights, busy roads, etc.

Click the checkbox to disable virtual masks. The text "Virtual Masks: DISABLED" appears in the view control window.

Select the virtual mask number from the dropdown list to display the mask.

Use the mouse to position it accordingly in the area you want to mask and click the **Enabled** checkbox to enable the selected mask.

To create a virtual mask:

- Select the number of the Virtual mask. In the video preview window, a dark grey rectangle appears with the text "Mask x", where "x" is the number of the mask.
- Select the mask with your mouse. Move the mouse to position the mask over the area of the view that you want to mask, and then click **Set**. The text "VM Configuration active!" appears in the view control window.
- Click **Enabled** to enable the virtual mask. The rectangle that represents the mask in the preview window becomes red. The text "Virtual Masks: ENABLED" appears in the view control window.

9.4 Audio Alarm

The camera can create alarms on the basis of audio signals. You can configure signal strengths and frequency ranges in such a way that false alarms, for example due to machine noise or background noise, are avoided.



Notice!

First set up normal audio transmission before you configure the audio alarm here (see Audio).

Audio alarm

Select **On** if you want the device to generate audio alarms.

Name

Do not use any special characters, for example **&**, in the name. Special characters are not supported by the system's internal management.

Signal Ranges

You can exclude particular signal ranges in order to avoid false alarms. For this reason the total signal is divided into 13 tonal ranges (mel scale). Check or uncheck the boxes below the graphic to include or exclude individual ranges.

Threshold

Set up the threshold on the basis of the signal visible in the graphic. You can set the threshold using the slide control or, alternately, you can move the white line directly in the graphic using the mouse.

Sensitivity

You can use this setting to adapt the sensitivity to the sound environment. You can effectively suppress individual signal peaks. A high value represents a high level of sensitivity.

9.5 Alarm E-Mail

As an alternative to automatic connecting, alarm states can also be documented by e-mail. In this way it is possible to notify a recipient who does not have a video receiver. In this case, the camera automatically sends an e-mail to a previously defined e-mail address.

Send alarm e-mail

Select **On** if you want the unit to automatically send an alarm e-mail in the event of an alarm.

Mail server IP address

Enter the IP address of a mail server that operates on the SMTP standard (Simple Mail Transfer Protocol). Outgoing e-mails are sent to the mail server via the address you entered. Otherwise leave the box blank (0.0.0.0).

SMTP port

Select the appropriate SMTP port.

SMTP user name

Enter a registered user name for the chosen mailserver here.

SMTP password

Enter the required password for the registered user name here.

Format

You can select the data format of the alarm message.

- **Standard (with JPEG)** E-mail with attached JPEG image file.
- **SMS** E-mail in SMS format to an e-mail-to-SMS gateway (for example to send an alarm by cellphone) without an image attachment.

**Caution!**

When a cellphone is used as the receiver, make sure to activate the e-mail or SMS function, depending on the format, so that these messages can be received.

You can obtain information on operating your cellphone from your cellphone provider.

Image size

Select the size of the JPEG images that are to be sent from the camera.

Attach JPEG from camera

Click the checkbox to specify that JPEG images are sent from the camera. An enabled video input is indicated by a check mark.

VCA overlays

Select the **VCA overlays** check box, to place the outline of the object that triggered an alarm into the camera image sent as snapshot via e-mail.

Destination address

Enter the e-mail address for alarm e-mails here. The maximum address length is 49 characters.

Sender address

Enter a unique name for the e-mail sender, for example the location of the device. This will make it easier to identify the origin of the e-mail.

Note: The name must include at least two character groups separated by a blank (for example, Parking Garage) in order for the system to generate an email from that name, as in "From Parking Garage". Text with only one group of characters (for example, Lobby) will not generate an email.

Test e-mail

You can test the e-mail function by clicking the **Send Now** button. An alarm e-mail is immediately created and sent.

9.6

Alarm Inputs

Active

Configure the alarm triggers for the unit.

Select **N.C.** (Normally Closed) if the alarm is to be triggered by opening the contact.

Select **N.O.** (Normally Open) if the alarm is to be triggered by closing the contact.

Select **N.C.S.** (Normally Closed Supervised) if the alarm is to be triggered by opening the contact.

Select **N.O.S.** (Normally Open Supervised) if the alarm is to be triggered by closing the contact.

A supervised alarm transmits both the alarm condition and the tamper condition. Depending on how the alarm is configured, a short or a break in the alarm's circuit can trigger the tamper signal.

(NCS and NOS contacts are only present on some cameras)

Name

You can enter a name for each alarm input. If the **Live** functions are configured accordingly, this name is displayed below the icon for the alarm input. You can also use the name in the Forensic Search program function as a filter option for quick search in recordings. Enter a unique and clear name here.



Caution!

Do not use any special characters, for example **&**, in the name.

Special characters are not supported by the system's internal management.

Note: This name appears in the **Digital I/O** section of the **Live** page.

Action

Select a type of action to be performed when an alarm input occurs:

- **None**
- **Monochrome**
This switches the camera to the monochrome mode.
- **Switch mode**
When this is selected, you can select the **Scene Mode** to be used for the active and inactive period of the alarm.

9.7

Alarm Outputs

Idle state

Select **Open** for the output to operate as a normally open contact, or select **Closed** if the output is to operate as a normally closed contact.

Operating mode

Select an operating mode for the relay.

For example, if you want an alarm-activated lamp to stay on after the alarm ends, select **Bistable**. If you wish an alarm-activated siren to sound for ten seconds, for example, select **10 s**.

Output name

Enter a name for the alarm output.

This name appears on the **Live** page.

Note: This name appears in the **Digital I/O** section of the **Live** page.

Toggle

Click the button to test the relay / output connection.

9.8

Alarm Task Editor

Editing scripts on this page overwrites all settings and entries on the other alarm pages. This procedure cannot be reversed.

To edit this page, you should have programming knowledge and be familiar with the information in the Alarm Task Script Language document and the English language.

As an alternative to the alarm settings on the various alarm pages, enter the desired alarm functions in script form here. This will overwrite all settings and entries on the other alarm pages.

1. Click **Examples** under the Alarm Task Editor field to see some script examples. A new window opens.
2. Enter new scripts in the Alarm Task Editor field or change existing scripts in line with your requirements.
3. When finished, click **Set** to transmit the scripts to the device. If the transfer was successful, the message **Script successfully parsed.** is displayed over the text field. If it was not successful, an error message is displayed with further information.

9.9

Alarm Rules

An alarm rule can define which input(s) activate which output(s). Basically, an alarm rule allows you to configure the device to respond automatically to different alarm inputs.

To configure an alarm rule, specify one input from a physical connection, from a motion detection trigger, or from a connection to the device's LIVE page. The physical input connection can be activated by dry contact devices such as pressure pads, door contacts, and similar devices.

Next, specify up to two (2) rule outputs, or the device's response to the input. Outputs include a physical alarm output, an AUX command, or a preposition scene.

Select the required **Input** (a physical alarm connection) from the dropdown list:

- **Alarm input:** Select the required alarm input in the second **Input** dropdown list to the right.
- **Video analytics/MOTION+:** Triggers and alarm when IVA or motion detection is activated.
- **Connection:** Triggers an alarm will when an attempt is made to access the device's IP address.
- **Time:** Enter the time for the activation of the alarm in hours and minutes in the input field.
- **Time range:** Enter the time range for the activation of the alarm in hours and minutes in the input fields.

Select the required output commands for both Output 1 and Output 2 settings from the dropdown list:

Note: Not all options are available for all cameras.

- **None:** No defined command.
- **Alarm output:** Defines an alarm output.
- **AUX on:** Defines a standard or custom keyboard ON command.
- **AUX off:** Defines a standard or custom keyboard OFF command.
- **Pre-position:** Defines a pre-position from shot 1-256.
(**Note:** This option is not available for the input **Time range**.)
- **Monochrome:** Triggers the camera to give the output in monochrome mode.

Click the checkbox **Enabled** to activate the alarm.

Click Set to save. The camera's system activates the alarm rules.

10 Network

10.1 Network Services

This page shows an overview of all available network services.

Use the checkbox to activate or deactivate a network service.

Click the settings symbol next to the network services to go to the respective settings page.

10.2 Network Access

The settings on this page are used to integrate the VideoJet XF E into an existing network.

IP V4 address

Automatic assignment (DHCP)

If the network has a DHCP server for the dynamic assignment of IP addresses, select **On** to automatically accept the DHCP-assigned IP address.

For certain applications, the DHCP server must support the fixed assignment between IP address and MAC address, and must be appropriately set up so that, once an IP address is assigned, it is retained each time the system is rebooted.

IP address

Enter the desired IP address for the camera. The IP address must be valid for the network.

Subnet mask

Enter the appropriate subnet mask for the selected IP address here.

Gateway address

If you want the unit to establish a connection to a remote location in a different subnet, enter the IP address of the gateway here. Otherwise leave the box blank (**0.0.0.0**).

IP V6 address

IP address

Enter the desired IP address for the camera in this field. The IP address must be valid for the network.

A typical IPv6 address may resemble the following example:

2001:db8::52:1:1

Consult the network administrator for valid IPv6 address construction.

Prefix length

A typical IPv6 node address consists of a prefix and an interface identifier (total 128 bits). The prefix is the part of the address where the bits have fixed values or are the bits that define a subnet.

Additional addresses

This field displays additional IPv6 addresses that are also available.

Ethernet

The Ethernet options are defined in this section.

DNS server address 1 / DNS server address 2

The camera is easier to access if the unit is listed on a DNS server. If you wish, for example, to establish an Internet connection to the camera, it is sufficient to enter the name given to the unit on the DNS server as a URL in the browser. Enter the IP address of the DNS server here. Servers are supported for secure and dynamic DNS.

Video transmission

If the unit is operated behind a firewall, **TCP (HTTP port)** should be selected as the transfer protocol. For use in a local network, select **UDP**.

**Caution!**

Multicast operation is only possible with the UDP protocol. The TCP protocol does not support multicast connections.

The MTU value in UDP mode is 1,514 bytes.

UDP encryption

Enable this option to encrypt the User Datagram Protocol (UDP) connection. UDP with encryption can also be used in multicast networks.

Bandwidth throttle [kbps]

Enter the number in kbps for the rate at which to transmit data. This number is the rate limit (bandwidth throttling).

Min. IP packet size [bytes]

Enter the number of bytes for the minimum size of the IP packet.

Per packet overhead [bytes]

Enter the number of bytes of overhead per packet. The overhead is the amount of extra bandwidth required to transmit the packet to make sure that it gets to its destination.

HTTP browser port

Select a different HTTP browser port from the list if required. The default HTTP port is 80. If you want to allow only secure connections via HTTPS, you must deactivate the HTTP port. In this case, select **Off**.

HTTPS browser port

If you wish to allow browser access on the network via a secure connection, select an HTTPS browser port from the list if necessary. The default HTTPS port is 443. Select the **Off** option to deactivate HTTPS ports; only unsecured connections will now be possible.

The camera uses the TLS 1.0 encryption protocol. You may have to activate this protocol via your browser configuration. You must also activate the protocol for the Java applications (via the Java control panel in the Windows control panel).

**Notice!**

If you want to allow only secure connections with SSL encryption, you must select the **Off** option for each of the parameters **HTTP browser port**, **RCP+ port 1756** and **Telnet support**. This deactivates all unsecured connections. Connections will then only be possible via the HTTPS port.

You can activate and configure encryption of the media data (video and metadata) on the **Encryption** page (see Encryption).

Minimum TLS version

Select the version for minimum Transport Layer Security (TLS).

Allow HTTP basic authentication

Select **On** if you want to allow HTTP basic authentication. This is a less secure authentication option where passwords are transmitted in clear text. This option should only be used if the network and system are otherwise secured.

Login limiter timeout [s]

Enter the number of seconds after which the Login field will no longer be open for input (the field will “time out”).

HSTS

Select this option to use the web security policy HTTP Strict Transport Security (HSTS) to provide secure connections.

RCP+ port 1756

To exchange connection data, you can activate the unsecured RCP+ port 1756. If you want connection data to be transmitted only when encrypted, select the **Off** option to deactivate the port.

Discovery port (0 = Off)

Enter the number of the port that you want to discover.

To deactivate the port, enter 0.

If necessary, select the Ethernet link type for interface ETH. Depending on the device connected, it may be necessary to select a special operation type.

Network MSS (Byte)

You can set the maximum segment size for the IP packet's user data. This gives you the option to adjust the size of the data packets to the network environment and to optimize data transmission.

Please comply with the MTU value of 1,514 bytes in UDP mode.

Network MTU [Byte]

Specify a maximum value in bytes for the package size (including IP header) to optimize data transmission.

10.3

Advanced

The settings on this page are used to implement advanced settings for the network.

RTSP**RTSP port****802.1x**

If a RADIUS server is employed in the network for managing access rights, authentication must be activated here to allow communication with the device. The RADIUS server must also contain the corresponding data.

Connect the device directly to a computer using a network cable. Network communication is not enabled until the **Identity** and **Password** parameters have been set and successfully authenticated.

Authentication (802.1x)**Identity**

Enter the name that the RADIUS server is to use for identifying the device.

Password [EAP-MD5]

Enter the password that is stored in the RADIUS server.

Certificates [EAP-TLS]

This field shows any certificates that are already uploaded at the client level or at the server level.

Click **Configure** to be redirected to the **Certificates** page in order to add or configure any existing certificates.

TCP metadata input

The device can receive data from an external TCP sender, for example an ATM or POS device, and store it as metadata. Select the port for TCP communication. Select **Off** to deactivate the function.

Enter a valid **Sender IP address**.

Syslog**Server IP Address**

Enter the IP address of the server.

Server port (0=Off)

Enter the number of the server port.

Protocol

Displays the used network protocol for this device.

You can change the value manually.

LLDP power configuration**Requested for camera**

The value in this field identifies the number of watts requested for the camera.

Additional Power

Enter the number of additional watts that you want the camera to use.

Requested total

The value in this field is the total number of watts from the fields **Requested for camera** and **Additional Power**.

Allocated power

The value in this field is the number of watts of allocated power to the camera.

10.4 Network Management

10.4.1 SNMP

The device supports two versions of Simple Network Management Protocol (SNMP) for managing and monitoring network components, and can send SNMP messages (traps) to IP addresses. The unit supports SNMP MIB II in the unified code.

Select the required protocol.

If you select either of the SNMP version, but do not enter an SNMP host address, the camera does not send messages (traps) automatically, but only replies to SNMP requests.

- Selecting **SNMP v1 legacy** requires a reboot before the SNMP traps become available.
- When **SNMP v3** is selected, the tabs **User** and **Trap user** are displayed.
The same fields show in both tabs.
- Select **Off** to deactivate the SNMP function.

Enter the IP addresses of one or two required target devices to send SNMP traps automatically.

10.4.2 Quality of Service

Quality of Service (QoS) configuration options ensure fast network response to PTZ data and images. QoS is the set of techniques to manage network resources. QoS manages the delay, delay variation (jitter), bandwidth, and packet loss parameters to guarantee the ability of a network to deliver predictable results. QoS identifies the type of data in a data packet and divides the packets into traffic classes that can be prioritized for forwarding.

The priority of the different data channels can be set by defining the DiffServ Code Point (DSCP).

Consult with your network administrator for assistance in configuring these parameters (the values must be a multiple of 4).

Define the priority of the **Audio** data channel. Enter a number between 0 and 252 as a multiple of four.

Define the priority of the **Video** data channel. Enter a number between 0 and 252 as a multiple of four.

Define the priority of the **Control** data channel. Enter a number between 0 and 252 as a multiple of four.

Define the priority of the **Alarm video** data channel. You can set a higher priority than for regular video. Enter a number between 0 and 252 as a multiple of four.

Select the required **Post-alarm time** over which the priority is maintained.

10.5 Multicast

The camera can enable multiple receivers to receive the video signal simultaneously. The stream is either duplicated and then distributed to multiple receivers (Multi-unicast), or it is sent as a single stream to the network, where it is simultaneously distributed to multiple receivers in a defined group (Multicast).

Multicast operation requires a multicast-enabled network that uses UDP and the Internet Group Management protocol (IGMP V2). The network must support group IP addresses. Other group management protocols are not supported. The TCP protocol does not support multicast connections.

A special IP address from 225.0.0.0 to 239.255.255.255 (class D address) must be configured for multicast operation in a multicast-enabled network. The multicast address can be the same for multiple streams, however, it is necessary to use a different port in each case.

The settings must be made individually for each stream. Enter a dedicated multicast address and port for each stream. Switch between the streams by clicking the appropriate tabs.

Enable

Enable simultaneous data reception on receivers that need to activate the multicast function. To do this, check the box and enter the multicast address.

Multicast Address

Enter a valid multicast address to be operated in multicast mode (duplication of the data stream in the network).

With a 0.0.0.0 setting, the encoder for the stream operates in multi-unicast mode (copying of data stream in device). The camera supports multi-unicast connections for up to five simultaneously connected receivers.

Duplication of data places a heavy demand on the CPU and can lead to impairment of the image quality under certain circumstances.

Port

Enter the port address for the stream here.

Streaming

Click the checkbox to activate multicast streaming mode. An activated stream is marked with a check. (Streaming is typically not required for standard multicast operation.)

Multicast packet TTL

Enter a value to specify how long the multicast data packets are active on the network. If multicast is to be run via a router, the value must be greater than 1.

IGMP version

Set the multicast IGMP version to comply with the device.

10.6 IPv4 Filter

Use this setting to configure a filter that allows or blocks network traffic that matches a specified address or protocol.

IP Address 1 / 2

Enter the IPv4 address that you want to allow or block

Mask 1 / 2

Enter the subnet mask for the appropriate IPv4 address.

11 Service

11.1 Maintenance

Update server

The address of the update server appears in the address box.

1. Click **Check** to make a connection to this server.
2. Select the appropriate version for your camera to download the firmware from the server.

Firmware

The camera functions and parameters can be updated by uploading new firmware. To do this, the latest firmware package is transferred to the device via the network. The firmware is installed there automatically. Thus, a camera can be serviced and updated remotely without requiring a technician to make changes to the device on site. The latest firmware can be obtained from your customer service center or from the download area.



Notice!

Potential loss of data

Bosch recommends that you save all device configurations, including IVA and calibration, on your network before starting a firmware update.



Notice!

Before starting a firmware update, make sure to select the correct upload file.

Do not interrupt the firmware installation. Even changing to another page or closing the browser window leads to interruption.

Uploading the wrong files or interrupting the upload can result in the device no longer being addressable, requiring it to be replaced.



Caution!

Do not remove power to the unit during a factory default or a firmware update. Wait at least two minutes for the default process to complete. If the unit appears to be "frozen" after two minutes, then reboot the unit. Refer to Troubleshooting for more details.

Progress

The progress bar displays the progress of the firmware upload.

Note: Once the progress bar reaches 100%, a reset page may appear. If this page appears, allow the reset page to complete its action.

Upload history

Click **Show** to view the firmware upload history.

Configuration

Click **Browse...** to navigate to the required firmware file (*.fw).

Note: Ensure that the file to be loaded comes from the same unit type as the unit that you want to configure.

Click **Upload** to begin transferring the file to the unit. Click OK to the warning message to continue the firmware upload, or Cancel to stop the upload.

Click **Download** to save the camera settings to a file to upload to the same camera or to a similar camera in the future.

Maintenance log

Download an internal maintenance log from the device to send it to Customer Service for support purposes. Click **Download** and select a storage location for the file.

11.2

Licenses

This page allows the activation of additional features via acquired license keys.

To install or uninstall a license, type the respective key in the **Activation key** field and click **Install** or **Uninstall**.

Alternatively, click **License file** to browse for license files and add them to the device.

The device's unique **Installation code** and **Fingerprint** are also displayed in this page and can be copied to the clipboard by pressing the respective **Copy to Clipboard** button.

The **Installed licenses** field lists all licenses currently installed in the device.

11.3

Certificates

Add a certificate/file to the file list

Click **Add**.

In the Add certificate window choose either:

- **Upload certificate** to select a file that is already available:
 - Click **Browse** to navigate to the required file.
 - Click **Upload**.
- **Generate signing request** for a signing authority to create a new certificate:
 - Fill in all the required fields and click **Generate**.
- **Generate certificate** to create a new self-signed certificate:
 - Fill in all the required fields and click **Generate**.

Delete a certificate from the file list

Click the trashcan icon to the right of the certificate. The Delete file window appears. To confirm deletion, click OK. To cancel deletion, click Cancel.

Note: You can only delete certificates that you have added; you cannot delete the default certificate.

11.4

Logging

In this page:

- Use the **Filter** field in each tab to search for specific log entries.
- Use the dropdown menu to select the **Number of displayed entries** to be listed in the current tab.

Event Logging

Current log level

Select the level of event for which to display log entries or to log.

Software Sealing

Enable software sealing

Select this check box to enable software protection that prevents users from adjusting camera settings. This function also protects the camera from unauthorized access.

Debug Logging

Retrieves detailed information of the active logs.

Diagnostics

This tab lists the individual diagnostics routines and their respective values.

Reload

Reloads the displayed entries.

Download log

Click **Download log** to save a copy of the entries from the device to a computer.

11.5

Diagnostics

Logs

This section updates automatically with the history of the camera and maintains a log of all events such as those listed below. Click the REFRESH button to reload log data.

- Low voltage - a drop in incoming power below the level where the camera becomes non-functional
- Highest temperature - the internal temperature exceeds specifications
- Lowest temperature - the internal temperature exceeds minimum levels
- Day/Night switch
- Pan motor default
- Total time on

11.6

System Overview

This window is for information only and cannot be modified. Keep this information at hand when seeking technical support.

Select the text on this page with a mouse and copy it so that it can be pasted into an e-mail if required.

Click **Open source licenses** to open a browser page with information on the open source software in use.

Click **Other open source licenses** to open a browser page with general open source software license information.

12 Operation via the browser

12.1 Live page

After the connection is established, the **Live** page is initially displayed. It shows the live video image on the right of the browser window. Depending on the configuration, various text overlays may be visible on the live video image.

Other information may also be shown next to the live video image. The items shown depend on the settings on the '**Live**' **functions** page or upon the user access level established.

Connection

Stream

Select the appropriate live video stream.

Stream 1

Select this option to display stream 1 of the camera.

Stream 2

Select this option to display stream 2 of the camera.

Stream 3

Select this option to display stream 3 of the camera.

Stream 4

Select this option to display stream 4 of the camera.

M-JPEG

Select this option to display the M-JPEG stream of the camera.

PTZ

Click and drag the virtual joystick to move the device in the intended direction.

Alternatively, you can click the directional arrow buttons to move the device in the respective direction.

Click the **+** and **-** buttons to **Zoom** in and out respectively.



Notice!

Clicking sound is normal

Bosch designed the AUTODOME 7100i (IR) camera for reliable and precise movements, through drive belt teeth that prevent slipping and greater torque transmission during pan operation. Because of these enhancements, the camera can make an occasional clicking noise, which is normal and does not reduce the camera's performance or lifespan.

A "snap to area" or "snap to zoom" function allows you to select a different area of the video image to which to zoom the camera.

Hold the **Ctrl** key and use your mouse to draw a box/rectangle over the video to define the area to which to zoom. When you release the **Ctrl** key, the camera zooms to the defined position.

Click the **Iris Close** or **Iris Open** buttons to close or open the iris incrementally.

Click the **Focus near** or **Focus far** buttons to adjust the focus incrementally depending on the object's distance.

Manual override changes in PTZ Iris and Focus are temporary. The execution of another PTZ command resets to the automatic settings.

Pre-Positions

The **Pre-positions** menu provides easy access to **Pre-position 1** through **Pre-position 6**. Select the appropriate pre-position to view the video image for that pre-position/scene. In the lower left of the video image, the OSD displays the Camera number (title), the Pre-position number, and the Pre-position number stored.



Select the appropriate pre-position (1 through 6). Click  to store the pre-position.

Note: If the pre-position is already stored, a dialog box displays the message, “**Overwrite current pre-position?**” Click **OK** to overwrite, or click **Cancel** to cancel the operation.

Below the list of pre-positions/scenes is a drop-down list showing the stored pre-positions/scenes.



Click  to display the selected pre-position in the video image.

AUX Control

With the tab **AUX Control** you can enter pre-programmed keyboard control commands. These commands are composed of a command number plus the appropriate function key (**Show pre-position**, **Set pre-position**, **AUX on**, or **AUX off**). A valid combination either issues a command to the device or displays an on-screen menu.

Show pre-position

Click this button to display a pre-position.

Set pre-position

Click this button to set a pre-position.

AUX on

Click this button to switch an AUX command **On**.

AUX off

Click this button to switch an AUX command **Off**.

Intelligent Tracking

For cameras with the ability to track movement, options for tracking objects within the region of interest are displayed in the panel.



When on, the tracking icon  is displayed on the image together with the lines that track moving objects.

Select **Off**, **Auto** or **Click**. If **Click** is selected, use the mouse to click on an object to track it.

Special Functions

Scan 360°

Click this button to start a continuous 360° pan. To stop the continuous pan, click a directional control in the View Control tab.

Auto pan

Click to pan the device between user-defined limits. To stop the pan, click a directional control in the PTZ tab.

Tour A / Tour B

Click one of these buttons to start the continuous playback of a recorded (guard) tour. A recorded tour saves all manual camera movements made during the recording, including its rate of pan, tilt and zoom speeds, and other lens setting changes.

To stop a tour, click a directional control in the View Control tab.

Note: **Tour B** is now intended for use with the 'IVA while moving' functions.

Focus

Click this button to activate the Auto Focus One Push mode on the camera.

The OSD displays the message, “Auto Focus: ONE PUSH.”

Custom tour

Click this button to view (in continuous playback) a custom tour that was previously configured.

Recording status



The hard drive icon below the live camera image changes during an automatic recording. The icon lights up and displays a moving graphic to indicate a running recording. If no recording is taking place, a static icon is displayed.

Recording live video

Video sequences from the displayed live video stream can be saved locally on the computer's hard drive. The sequences are recorded at the resolution specified in the encoder configuration. The storage location depends on the configuration of the camera.



1. Click the recording icon to record video sequences locally.
 - Saving begins immediately. The red dot on the icon indicates that a local recording is in progress.
2. Click the recording icon again to stop the local recording.

Audio Communication

Audio can be sent and received via the **Live** page if the device and the computer support audio.

1. Press and hold the F12 key on the keyboard to send an audio signal to the unit.
2. Release the key to stop sending audio.

All connected users receive audio signals sent from the device but only the user who first pressed the F12 key can send audio signals; others must wait for the first user to release the key.

Storage, CPU and network status

When accessing the unit with a browser, the local storage, processor, WLAN, and network status



icons are shown in the upper right of the window.

When a local storage card is available, the memory card icon changes color (green, orange or red) to indicate the local storage activity. If you hover over this icon with the mouse the storage activity is shown as a percentage.

If you hover over the processor icon, the CPU load is shown.

If you hover over the WLAN icon, the WLAN status is shown.

If you hover over the right-hand icon, the network load is shown.

This information can help with problem solving or when fine tuning the device. For example:

- If the storage activity is too high, change the recording profile.
- If the CPU load is too big, change the VCA settings.
- If the network load is too big, change the encoder profile to reduce bitrate.

Status icons

Various overlays in the video image provide important status information. The overlays provide the following information:



Decoding error

The frame might show artifacts due to decoding errors.



Alarm flag

Indicates that an alarm has occurred.

**Communication error**

A communication error, such as a connection failure to the storage medium, a protocol violation or a timeout, is indicated by this icon.

**Gap**

Indicates a gap in the recorded video.

**Watermark valid**

The watermark set on the media item is valid. The color of the check mark changes according to the video authentication method that has been selected.

**Watermark invalid**

Indicates that the watermark is not valid.

**Motion alarm**

Indicates that a motion alarm has occurred.

**Storage discovery**

Indicates that a recorded video is being retrieved.



Indicates that Intelligent Tracking is enabled. If flashing, it indicates an object is being tracked.

12.2

Playback



Click **Playback** in the application bar to view, search or export recordings. This link is only visible when a direct iSCSI or memory card is configured for recording (with Video Recording Manager (VRM) recording this option is not active).

On the left side of the screen, there are four groups:

- **Connection**
- **Search**
- **Export**
- **Track list**

12.2.1

Selecting the recording stream

On the left side of the browser, expand the **Connection** group if necessary.

To view a recording stream:

1. Click the **Recording** arrow to see the options.
2. Select recording stream 1 or 2.

12.2.2

Searching for recorded video

On the left side of the browser, expand the **Search** group if necessary.

1. To limit the search to a particular time range, enter the date and times for the start and stop points.
2. Select an option from the drop-down box to define a search parameter.
3. Click **Search**.

4. The results are shown.
5. Click a result to play it back.
6. Click **Back** to define a new search.

12.2.3 Exporting recorded video

Select a track from the **Track list** or from the **Search** results.

The start and stop date and time are filled according to the selected track. The time values can be adjusted, if necessary.

Select **Original**, to export the recorded video as its original or **Condensed** to export the recorded video condensed to the given output time.

Select a target location to store the exported track.

Click to export and save the video track.

Note: The target server address can be configured in **Connectivity > Accounts** page.

12.2.4 Track list

The **Track list** shows all the available recordings.

12.2.5 Controlling playback

The time bar below the video window allows quick orientation. The time interval associated with the sequence is displayed in the bar in gray. Arrows indicate the position of the image currently being played back within the sequence.

If required, click in the bar at the point in time at which the playback should begin.

Change the time interval displayed by clicking the plus or minus icons, or use the mouse scroll wheel.

The display can span a range from six months to one minute.

Click the alarm jump buttons to go from one alarm event to the next or to the previous one. Red bars indicate the points in time where alarms were triggered.

Control playback with the buttons below the video window.

The buttons have the functions that follow:

- Start/Pause playback
- Select the playback (forward or backward) speed using the speed regulator
- Step forward or backward frame-by-frame when paused (small arrows)

12.3 Dashboard

The **Dashboard** page is used to display detailed information about the device and is only visible in the application bar if the **Show 'Dashboard'** option is enabled by a service-level user in the **Configuration > Web Interface > Appearance** page.

The **Dashboard** page shows information on 4 topics:

- **Device status**
- **Recording status**
- **Connection Status**
- **Services**

You can also download a JSON file with information about the device:

1. Click the **Export** button at the bottom of the page
2. Select a location in your hard drive to store the file

13 Using your AUTODOME camera

13.1 Recommended Use of Your Camera

Bosch recommends that you consider the following in order to optimize the life of your Bosch camera.



Warning!

Do not back drive the camera manually

Do not try to “back drive” (or use force to make the camera move) manually (without power) under any circumstance. Bosch designed the camera to pan and tilt only when the camera operates with power.

Although it could be possible to “back drive” units manually, some units may go into a “locked” mechanical condition if you “back drive” manually.

If the camera becomes “locked,” supply power to the camera. The pan/tilt functions of the camera should now operate correctly.

1. Power-over-Ethernet (PoE)

Use the recommended Bosch High PoE IEEE 802.3bt Type 3 (60W) and Type 4 (90W) Midspans (sold separately from the camera) between the camera and your PoE network. Improper network connection can result in intermittent camera reboots.

If you choose to use a PoE switch, ensure that the switch supports High PoE IEEE 802.3bt Type 3 (60W) and Type 4 (90W) devices to optimize its power management, and that the switch meets requirements for power draw for the product.

2. Installation in an area with high humidity

Ideally, the bubble of your dome camera should remain in place. The dome contains a breather vent, which generates equalization of pressure through air exchange to reduce stress in sealed enclosures. It is able to withstand the most extreme weather conditions and environments.

If you must remove the bubble (for example, to install or remove an SD card), do not leave the bubble off of the dome for longer than five minutes.

Bosch also recommends that you keep the dome camera in its packaging until you are ready to install the camera.

3. Installation in a corrosive environment (for example, near a coastline)

The fasteners and fixtures shipped with the camera help to keep the camera secure. Always use Bosch-supplied screws and other fasteners during the installation or maintenance of the camera. Before installation, inspect the metal parts of the camera for paint that is chipped or otherwise damaged. If you notice any paint damage, touch up the damage with locally available paint or sealants.

Avoid installation practices that can bring the camera’s metal mountings in contact with materials such as stainless steel. Such contacts can result in galvanic corrosion and degrade the cosmetic appearance of the camera. These cosmetic damages caused by improper installation are not covered by warranty as they do not affect the functionality of the camera.

The customer is responsible for the choice of surface and environment to install the device.

4. Outdoor installation

Use proper surge suppression on your network video, power, audio, and alarm cables.

1. Power-over-Ethernet (PoE)

Use the recommended Bosch High PoE 60W Midspan (sold separately from the camera) between the camera and your PoE network. Improper network connection can result in intermittent camera reboots. If the camera reboots frequently, test your camera with another power supply.

If you choose to use a PoE switch, ensure that the switch can support PoE+ (IEEE 802.3at, class 4 standard) devices to optimize its power management, and that the switch meets requirements for power draw for the product.

**Warning!**

Only in-ceiling models of the AUTODOME can be connected to a PoE+ switch. Outdoor models should be used only with the Bosch High PoE 60W Midspan.

2. Installation in an area with high humidity

Ideally, the bubble of your dome camera should remain in place. The dome contains a desiccant pack to control the level of moisture inside the camera. Removing the bubble from the dome exposes the desiccant to moisture that could negatively affect the performance of the camera. If you must remove the bubble (for example, to install or remove an SD card), do not leave the bubble off of the dome for longer than five minutes.

Bosch also recommends that you keep the dome camera in its packaging until you are ready to install the camera.

3. Installation in a corrosive environment (for example, near a coastline)

The fasteners and fixtures shipped with the camera help to keep the camera secure. Always use Bosch-supplied screws and other fasteners when installing or performing maintenance on the camera. Before installation, inspect the metal parts of the camera for paint that is chipped or otherwise damaged. If you notice any paint damage, touch up the damage with locally available paint or sealants.

Avoid installation practices that may bring the camera's metal mountings in contact with materials such as stainless steel. Such contacts can result in galvanic corrosion and degrade the cosmetic appearance of the camera. These cosmetic damages caused by improper installation are not covered by warranty as they do not affect the functionality of the camera.

4. Outdoor installation

Use proper surge suppression on your network video, power, audio, and alarm cables.

5. SD card

This information is provided to assist the customer in the selection of an appropriate SD device as a means for recording video. It is not an endorsement of a specific technology or supplier.

AUTODOME 7000i / 7100i cameras can record video and audio to user-supplied local memory cards (SD, SDHC, or SDXC, hereafter referred to as "SD cards"). Bosch has identified best practices with respect to the selection and use of SD cards in the products.

1. Select a full-sized SD card. (Bosch does not recommend the use of microSD cards or of microSD to SD adapters.)
2. Select an SD card with a read/write speed of at least 10MB/second and class 6.
3. Ensure that write protection is off. (Check the slider if applicable.)
4. Switch off power to the unit before inserting the SD card.
5. Stop recording and switch off power to the unit before removing the SD card.

Bosch recommends that you do a frequent check of the recording status of your equipment. Periodic replacement of the SD card may be required. Bosch recommends using redundant recording systems and always backing up all information. As with all storage media, the "lifetime" of an SD card varies by supplier and use conditions. The lifetime of a SD card is normally dependent on the number of read/write activities.

Bosch provides this guidance as a service to our customers with no representation of warranty, either expressed or implied, associated with the use of SD cards for recording. Bosch is not liable for any damage that results from missing video information. Bosch does not make any commitments or promises regarding quality, performance, or other features with respect to third-party products (such as SD cards).

13.2 Using Intelligent Tracking

To activate the Intelligent Tracking feature, one of the following conditions must be met:

- The Silent IVA option must be selected in the VCA page on the Settings tab. Refer to VCA.
- IVA must be active for at least one preset scene in the VCA page on the Settings tab. If IVA is configured for one scene, then all other scenes have Intelligent Tracking enabled by default. If a scene has Motion+ or IVA Flow activated, however, then Intelligent Tracking is disabled for these scenes.



Notice!

The following actions occur if Intelligent Tracking is active:

All other IVA objects are disabled in scenes with Intelligent Tracking.

The camera automatically disables the display of compass headings. Once Intelligent Tracking is set to Off, the camera resumes display of the compass heading. Refer to PTZ Settings for details of the Compass feature.

Operation of Intelligent Tracking

The Intelligent Tracking feature behaves in one of the following ways:

- **Camera detects an object in motion and automatically tracks the object**
User actions always take precedence over Intelligent Tracking. If the camera is actively tracking an object and a user takes control, the camera will attempt to track the object after a period of inactivity.
- **An IVA alarm can trigger Intelligent Tracking to track a detected object**
A rule that triggers an IVA event must be set. The following standard tasks can be set: Object in field, Crossing Line, Loitering, Condition change, Following route, Entering field, and Leaving field. Refer to the IVA 5.60 Operation Manual for specific information.
- **A user manually selects an object in the live image area to track**
The Intelligent Tracking feature allows a user to click a moving object in the live image display inside the **LIVE** page to identify an object to track.
- **Use AUX Command 78 to activate/deactivate Intelligent Tracking**
Use AUX ON 78 to enable the Intelligent Tracking Auto mode. This command can be used in conjunction with the rules engine.

Using Intelligent Tracking

Use the following options on the **LIVE** page to control Intelligent Tracking:

Note: If you do not see these controls on the **LIVE** page, ensure that the **Show 'Tracking'** option is enabled on the **LIVE Functions** page. Refer to 'Live' functions, page 24.

- **Off:** Disables Intelligent Tracking.
- **Auto:** In this mode, the camera actively analyzes the video to detect any moving object. If it detects movement, the camera begins to track the moving object. This mode is most useful for scenarios where no motion is expected in the scene.
- **Click:** In this mode, users can click an object moving in the live video image to enable the camera to track the movement of the selected object. This mode is most useful for scenarios where normal scene activity is expected.

If the Intelligent Tracking feature is set to Auto or Click, the live video image displays an eye icon with a symbol that conveys the state of Intelligent Tracking activity:

Graphic	Description	Explanation
	White eye, flashing	Intelligent Tracking is actively following a target.
	Gray eye with a red "X"	Intelligent Tracking lost the selected target and will wait for the target to reappear using the last known trajectory. During the IDLE state, the camera will not seek other objects in motion.
	Gray eye without a symbol	Intelligent Tracking is idle, waiting to track a target.
	Gray eye with a "pause" symbol	Intelligent Tracking attempts to track a target passively while a user has camera control.

Tracking triggered by IVA rules

In this mode, the camera continuously analyzes the scene for IVA alarms or IVA rule violations. If an IVA rule is violated, it triggers the advanced tracking feature of the camera to start following the object / person that triggered the alarm. This allows the camera to track moving objects of interest without getting distracted by other moving objects in the scene.

To activate this mode, you must enable IVA by selecting either IVA [number] or IVA [number] Flow in the field **Analysis type** of the page **VCA** (from the page **Configuration**, select **Alarm > VCA**). Refer to the current *Operation Manual for IVA Intelligent Video Analysis* for specific information.

If the option **Show VCA metadata** is selected in **'Live' functions** (from the page **Configuration**, select **Web Interface > 'Live' functions**), the live view will show the following metadata objects in the **Live** page view:

- Objects in motion are initially identified in the video.
- Actively tracked object in motion are identified in the video.
- When an object in motion is lost, a diamond appears designating the area where the target was lost.

Several reasons may cause the Intelligent Tracking to stop tracking a target:

- The target has stopped moving while being followed by Intelligent Tracking.
- The target has moved behind a static object in the scene.

In these instances, Intelligent Tracking switches to the IDLE mode (pink eye icon) and waits for the target to reappear in the scene. The camera will restart tracking if a target starts moving in the same area where the initial target stopped moving or if the camera detects an object moving along the last known trajectory.

13.3 Changing the frame rate

The firmware for cameras with common product platform (starting with version 8.40) has a switch to change the video frame rate. The table that follows gives the options for each camera family:

Camera family	Default frame rate (fps)	Other frame rate scales available (fps)
MIC 7100i - 2MP	30	25 50 60
MIC 7100i - 8MP	30	25
FLEXIDOME 7100i (IR)	30	25
DINION 7100i IR	30	25
AUTODOME 7000i	30	--

To change the video frame rate, complete the steps that follow:

1. Change the video frame rate either in the camera GUI or in Configuration Manager (version 7.60 or higher).
2. Reboot the camera using either the Install menu in the web browser or using Configuration Manager.
3. Confirm the configuration of the selected video frame rate.
4. If you chose to upload firmware to Configuration Manager to change the video frame rate, you may need to reboot the camera two times to get video.

13.4 Downgrading the firmware version

You may need to downgrade the firmware version of your camera. To do so, complete the steps that follow.

1. Download the appropriate version of the firmware from <http://downloadstore.boschsecurity.com>.
2. Complete the steps in **Service > Maintenance** to load the firmware.



Notice!

Possibly no video after camera restart

If you must downgrade the firmware version of your camera from 8.40.0029 to 8.12.0005 or an older version, then the camera may show no video after the re-start.

Complete the steps that follow to make sure that the camera will show video after you reboot the camera.

1. Go to **Camera > Installer Menu > Sensor mode**.
2. Select 30 fps as the video frame rate.
3. Click **Reboot device**.

Note: If you do not complete this step, then you must reset configuration in order to bring the camera back to the proper operating status. A factory default reset is not required.

14

Status codes

Most status codes appear on the OSD until you acknowledge them. The codes identified with asterisks (**) appear for approximately 10 seconds, then disappear automatically.

Status Code	Description	Recommended action (to be completed by a qualified Service Technician)
1	Waiting for power	– Make sure that the length of the Cat5e/Cat6 cable does not exceed 100 m (328 ft) maximum. – Check that the mains power meets the specifications of the midspan. – Follow all of the recommended practices as outlined in the Installation Manual. – Use 24 VAC power (100 VA), or make sure that the PoE source is an appropriate Bosch midspan: – NPD-6001C, NPD-6001C-E, NDP-6001-I, NPD-6001C-BT, NPD-6001C-EBT, or NPD-6001-IBT (60 W); – NPD-9001-E or NPD-9001-EBT (90 W) for cameras with an illuminator – Refer to the “Troubleshooting” section of the midspan installation manual. Note: Bosch does not recommend or test any third-party PoE sources. If you use a non-Bosch PoE device, then contact the manufacturer of that device for assistance.
3	Capacity of external PoE device is insufficient to support operation of the camera's internal heater.	An incorrect type of PoE+ or PoE++ (such as one based on IEEE 802.3af or IEEE 802.3at) with insufficient power output may be connected to the camera.
4	Capacity of the external PoE device is insufficient to support operation of the camera's window defroster.	An incorrect type of PoE+ or PoE++ (such as one based on IEEE 802.3af or IEEE 802.3at) with insufficient power output may be connected to the camera.
5	When operating using redundant power sources, the camera is detecting insufficient voltage being provided by the external PoE power source.	1. Verify that the power source can provide the compliant output power: – IEEE 802.3bt Type 3, Class 6, 4 Pair Power (4PPOE) 60W (Refer to the subchapter Connecting the AUTODOME camera to the PC in the Installation Manual) – IEEE 802.3bt Type 4, Class 8, 4 Pair Power (4PPOE) 90W (Refer to the subchapter Connecting the AUTODOME camera to the PC in the Installation Manual)

Status Code	Description	Recommended action (to be completed by a qualified Service Technician)
		2. Verify that the network cable is not longer than 100 m (328 ft) maximum. 3. If using the IEEE 802.3bt, Type 4 (90W) PoE Midspan, verify that both LEDs are green. If not, refer to the "Troubleshooting" section of the installation manual of the midspan.
6	When operating using redundant power sources, or when using only a 24 VAC/36 VDC power source, the camera is detecting insufficient voltage being provided by the external 24 VAC/36 VDC power source.	1. Verify that the 24 VAC/36 VDC power source can provide at least 4.5 A to the camera. 2. Verify that the wire gage of the power cable is sufficient for the distance between the power source and the camera and that the voltage getting to the user cable of the camera is between 21 VAC and 30 VAC.
7	Camera may be operating in an environment where ambient temperature is below the specification of the camera.	1. Verify that the ambient temperature is not below -40 °C (-40 °F). 2. Review the information about temperature located in Logging diagnostics. Note: Motorized zoom and focus functions of the visible camera lens will be disabled until the camera operates within the specified temperature range.
8	Camera may be operating in an environment where ambient temperature is above specification of the camera.	1. Verify that the ambient temperature is not above +50 °C (+122 °F) for IR models, and +60 °C (+140 °F) for non-IR models. 2. Review the diagnostic log of the camera (accessible from the Service menu) for errors related to the operation of the internal fan.
9	Camera has been subjected to high shock. Mechanical damage to the camera may exist.	1. Verify the integrity of the mechanical parts such as the arms and the pan body. 2. Verify the integrity/tightness of the external fasteners. Tighten where necessary. 3. If obvious damage is present, stop using the camera and contact the nearest Bosch Security Systems Service Center. 4. If no damage is evident, power the camera off and then on, and then evaluate operational performance. If the camera does not operate as expected, contact the nearest Bosch Security Systems Service Center.
10	Camera is detecting high humidity level inside housing. The integrity of the housing seal may be compromised.	1. Inspect the dome/housing for any cracks or obvious damage. 2. Verify the integrity of the seals of the camera, and mounts if applicable.

Status Code	Description	Recommended action (to be completed by a qualified Service Technician)
		3. If damage to the seals is obvious, contact the nearest Bosch Security Systems Service Center. 4. Make sure the camera reaches an ambient high air temperature on first use, to allow the breather vent to remove possible initial humidity. 5. If no obvious damage is found, power the camera off and then on. If the status code reappears, contact the nearest Bosch Security Systems Service Center.
13**	The function Autofocus has been turned off because of excessive focus activity.	1. If practical, increase lighting in the scene so that the focus function stops "hunting." 2. Use focus in Manual mode or One-push focus mode.
15	Attempt was made to move to a pre-position that is mapped to an alternate function, so it is no longer associated with a location.	1. Select/configure a different pre-position number for the desired location. 2. Re-configure the pre-position assignment so that this number is no longer associated with an alternate function. Refer to the subchapter "Pre-position mapping" in the User Manual for details on re-mapping pre-positions.
16**	Motorized zoom function is programmed to operate at a high usage level in the Playback Tour. This high rate of usage could result in premature wear of the zoom motor.	Re-configure the camera to decrease the zoom activity to less than 30% during recording.
17	Motor operation has been halted due to an obstruction.	1. Remove any obvious materials that are obstructing operation of the camera pan/tilt function. 2. If the obstruction is from ice buildup, review the diagnostic log of the camera (accessible from the Service menu) for errors related to the operation of the internal heaters. If the log shows heater failure, contact the nearest Bosch Security Systems Service Center. 3. If operation is obstructed because of excessive ice buildup, temporarily avoid operating the pan/tilt functions of the camera until internal heaters, combined with a rise in ambient temperature, melt the ice buildup.
18**	When operating using redundant power sources, the camera has detected a loss of power from the external 24 VAC power source.	1. Verify the operating status of the external 24 VAC power source. 2. Verify the integrity of the electrical connections between the power source and the camera.

Status Code	Description	Recommended action (to be completed by a qualified Service Technician)
19**	When operating using redundant power sources, the camera has detected a loss of power from the external PoE power source.	1. Verify the operating status of the external power source: – IEEE 802.3bt Type 3, Class 6, 4 Pair Power (4PPOE) 60W (Refer to the subchapter Connecting the AUTODOME camera to the PC in the Installation Manual) – IEEE 802.3bt Type 4, Class 8, 4 Pair Power (4PPOE) 90W (Refer to the subchapter Connecting the AUTODOME camera to the PC in the Installation Manual) 2. Verify the integrity of the electrical connections between the power source and the camera.
23	An internal error has occurred. (The optical video screen becomes blue for 1 or 2 seconds during the camera's recovery procedure).	If this problem begins to occur on a regular basis: 1. Verify that the power source to the camera is not experiencing brown-out conditions. 2. Verify that the camera's earth ground connection is attached per earlier instructions. If these actions do not resolve this problem, contact the nearest Bosch Security Systems Service Center.
25	When operating using redundant power sources, the camera has detected a loss of power from the external 36 VDC power source.	1. Verify the operating status of the external 36 VDC power source. 2. Verify the integrity of the electrical connections between the power source and the camera.

Caution!

Use a compliant switch or midspan with the appropriate Power Sourcing Equipment (PSE) chip to enable recognition of the device and to avoid any or overall loss of firmware functionalities:

- IEEE 802.3bt Type 3, Class 6, 4 Pair Power (4PPOE) 60W (Refer to the subchapter Connecting the AUTODOME camera to the PC in the Installation Manual);
- IEEE 802.3bt Type 4, Class 8, 4 Pair Power (4PPOE) 90W (Refer to the subchapter Connecting the AUTODOME camera to the PC in the Installation Manual).

15 AUX Commands

AUX	Function	Description
1	On/Off	Auto Pan without limits (Continuous)
2	On/Off	Auto Pan between limits
7	On/Off	Run Custom Pre-Position Tour
8	On/Off	Run Pre-Position Tour
18	On/Off	Auto pivot
20	On/Off	Backlight Compensation (BLC)
24	On/Off	Video Stabilization
40	On/Off	Restore camera settings [to factory defaults]
43	On/Off	Auto Gain Control (AGC)
50	On/Off	Playback A, continuous
51	On/Off	Playback A, single
52	On/Off	Playback B continuous
53	On/Off	Playback B, single
54	On/Off	IR illuminators mode (Available only in IR models)
57	On/Off	Night mode
60	On/Off	On-Screen Display (OSD)
65	Off	Alarm Acknowledge Acknowledges alarm events/rules
67	On/Off	IR Focus Correction
78	On/Off	Intelligent Tracking
80	On/Off	Digital Zoom
86	On/Off	Sector Blanking
87	On/Off	Privacy Masking
88	On/Off	Proportional Speed
94	On	Recalibrate Azimuth Compass
95	On/Off	Azimuth/Elevation Display
96	On/Off	Compass Points Display
100	On/Off	Record Tour A
101	On/Off	Record Tour B
149	On/Off	Turbo Mode
606	On/Off	Power Mode
700	On/Off	Proportional speed control adjustment Aux

AUX	Function	Description
804	On/Off	Mask Calibration Procedure
1-256	Set/Show	Pre-position Programming/Pre-position Recall

16 Troubleshooting

This section identifies issues that could occur with the camera, and how to resolve them.

16.1 Background too bright

Problem

The background is too bright to see a subject or any details of the scene.

Possible root causes

- **Backlight compensation** is **Off**.
- The **Iris** of the camera is open too much.

Solutions

1. Turn on **Backlight compensation** by:
 - Using the camera GUI path: **Configuration > Camera > Scene Mode > Picture Settings > Backlight compensation**
 - Using **AUX on 20** on the keyboard
2. Check if the **Iris** is in **Manual** mode and if it is too open. Select **Configuration > Camera > Lens Settings** > If yes, then close the **Iris** by:
 - Using the **Live** page, in the **PTZ** section, click **Iris close** to close the **Iris** incrementally.
 - Using the camera GUI: Adjust the **Manual** field as needed.

16.2 Built-in illuminators will not operate

Possible root cause

The operating temperature of the camera exceeded +74 °C (+165 °F) (the maximum temperature for NEMA TS2).

By design, the illuminators will not operate if the operating temperature exceeds +74 °C (+165 °F). this design protects the hardware of the illuminators.

Solution

1. Operate the camera (and the illuminators) at temperatures below +74 °C (+165 °F).
2. Let the camera (and the illuminators) cool before you try to operate it again.

16.3 Camera moves when operator tries to move other cameras

Possible root cause

The camera's IP address is not set, or not set correctly.

Solution

If camera's IP address is not set, then use Configuration Manager to confirm that two cameras do not have the same IP address. If they do, change the address of one of the cameras.

16.4 Camera reboots frequently or intermittently

Possible root causes

- The camera has an improper network connection.
- The camera has the wrong power supply.

Solutions

- Test the camera with another power supply.
- Check the Bosch website for a software update that might address the issue.

16.5

Dark picture

Possible root causes

- The camera iris is closed.
- The camera bubble still has its protective plastic sheet.
- The Ethernet cable exceeds the maximum length (100 m (328 ft)).
- The illuminators (for certain camera models only) are not operating (correctly).
- Camera settings are not correct for the scene.

Solutions

- Check that the **Gain control** (from **Configuration > Camera > Scene Mode > Picture Settings**) is set high.

If OK, then:

- Check that the **Auto iris level** (from **Configuration > Camera > Lens Settings**) is set to an appropriate level, and/or that the Iris is open.

If OK, then:

- Check that the protective plastic sheet is removed from the bubble.

If OK, then:

- If it is dark outside, then check if the illuminators are set to **Auto**, with appropriate day/night threshold, or forced into monochrome in picture settings.
- If the illuminators (**IR mode**) are set to **Auto**, then check if the temperature specification has been exceeded. If so, the camera will automatically turn the illuminators to **Off** to prevent damage to the unit.

If OK, then:

- Check if the **Iris** is in **Manual** mode and is too closed for the scene.

If OK, then:

- Check that the maximum length of the Ethernet cable does not exceed 100 m (328 ft).

If OK, then:

- Restore all camera settings.

16.6

Dim image on screen

Possible root causes

- The camera bubble is dirty.
- The camera lens is dirty.

Solutions

- For the bubble exterior: use only cleaning solutions and cloths suitable for cleaning safety glass lenses. Dry the bubble thoroughly with a dry, nonabrasive cloth to prevent water spots.
- For the bubble interior: use clean dry compressed air, preferably from a spray can, to remove any dust from the interior surface.

Note: Never scrub the bubble with any abrasive material or cleaners.

- Clean the camera lens with a cloth suitable for cleaning safety glass lenses.

16.7

Image flickers, streaks, or flares

Possible root cause

The camera is facing directly into the sun,

The camera is facing directly into fluorescent lighting

Solution

Change the position of the camera so that it has less light exposure.

16.8 No camera control

Possible root cause(s)

1. The camera browser may need refreshed.
2. The camera does not have a valid IP address.
3. The camera does not have power (from PoE, 24 VAC, or 36 VDC, as applicable).

Solution

1. Refresh the browser and make sure that video is updated.
2. Ping the camera's IP address and try again to control the camera.
3. Make sure that the LAN cable has good connection and is secured.
4. Provide power to the camera.
5. If using PoE, check that the PoE midspan or PSE Ethernet switch support IEEE 802.3bt Type 3 (60W) for non-IR models, and IEEE 802.3bt Type 4 (90W) for IR models. If a non-compliant midspan is used, it may not be able to provide adequate power for the camera, and some features such as motor control may be disabled.
6. Reset the camera to factory defaults. (Refer to the Troubleshooting section "Completing a hardware reset.")

16.9 No camera operation, or operation not as expected (after exposure to extreme low temperatures)

Possible root causes

- The outside temperature where the camera is installed is below -35 °C (-31 °F).
- The camera has not had enough of a warm-up period (60 minutes or more).
- The camera needs a hardware reset.

Solutions

- The cold start temperature of the camera is -35 °C (-31 °F). If it is colder than this outside, then let the camera warm up inside at a temperature higher than -35 °C (-31 °F). While the camera is still warm, install it outside and apply power to it.
- If the temperature is -35 °C (-31 °F) or warmer, then let the camera warm up. The camera requires a 60-minute warm-up before PTZ operations.
- If camera does not operate after this warm-up period, then reset the camera. In the URL line of your web browser, type "/reset" at the end of the IP address of the camera.

16.10 No network connection

Possible root cause

- Issues with your equipment
- Issues with your network

Solution

- Check all network connections.

If OK, then:

- If you are behind a firewall, make sure that the **Video transmission** mode is set to **UDP**. Select **Network > Network Access > Video transmission > UDP**. Then click **Set**.

If Ethernet output is used:

- If using an NDA-7100-PENF or NDA-7100-PIPEF mount, check that an SFP module is not plugged into the mount since that will disable Ethernet even if a fiber optic cable is not connected to it.
- Check all network connections including any connections through Ethernet couplers.

- Make sure that the maximum length between any two Ethernet connections is 100 m (328 ft) or less.
- Check the LINK and transmission LEDs on any Ethernet switch used.

If OK, then:

- Try to power off then power on the camera.
- Trying pressing the Factory Default button.

If Fiber optic output is used with NDA-7100-PIPEF or NDA-7100-PENF:

- Check that a Bosch 100Mbps SFP module is not being used since it is not supported.
- Check that the SFP module supports 1 Gbps.
- Check compatibility between the SFP modules on both sides of the fiber optic, to the fiber optic cable type, and to the media converter.
- Check that the fiber optic cable is plugged into the SFP module on both sides of the network.
- Check that the fiber optic cable is not damaged and is terminated properly.
- Check that there is a fiber link on the media converter.
- Make sure that the fiber optic cable distance specified by the SFP modules used has not been exceeded.
- Power off then power on the camera.
- Power off then power on the media converters.

16.11**No video****Possible root causes**

- The camera does not have power.
- The midspan does not support the correct IEEE standard for the camera model.
- The camera uses the wrong type of SFP module.
- The camera has the wrong IP address.
- Wires in the power cable to the camera may be damaged.
- The camera needs a hardware reset.

Solutions

- Check that the mains power to the power supply is on.
- Check that the PoE switch or midspan supports IEEE 802.3bt Type 3, Class 6 (60W), for non-IR models, and IEEE 802.3bt Type 4, Class 8 (90W), for the IR models.
- Check that the same SFP module is used on both ends of the fiber, and that it supports the type of fiber being used. Also make sure that the SFP module supports 1 Gbps.
- Check to see if you have a web page.

If you do not, then you may have the wrong IP address. Use Configuration Manager to identify the correct IP address.

If OK, then:

- Check that there is 24 V output from the transformer.

If OK, then:

- Check the integrity of all wires and mating connectors to the camera.

If OK, then:

Reset the camera to factory defaults. (Refer to the Troubleshooting section “Completing a hardware reset.”)

16.12**Privacy mask misaligned****Possible root cause****Solution**

- Web browsers or BVMS

- Press the **Find home button** on the **Special Functions** menu to align the mask to the original position.
 - IntuiKey (when keyboard is connected to BVMS)
- Issue a **SetScene 110** command to align the mask to the original position.

16.13 Rolling, noisy, or distorted video

Possible root causes

- Too much vibration on the camera.
- The Ethernet cable has damage.
- The camera settings are corrupted.

Solutions

- Check that there is not too much vibration in the application.
- Check the frequency. In the **Sensor mode** field (from **Configuration > Camera > Installer Menu > Sensor mode**, choose either 25 ips or 30 ips.
- Check the integrity of all connectors and splices of the Ethernet cable.
- Reset the camera to factory defaults to make sure that the camera settings are not corrupted (In the camera WebGUI: **Configuration > Camera > Installer Menu > Factory defaults**).

If OK, then:

Contact Bosch Technical Support.

16.14 Weak contrast on screen

Possible root causes

- The camera has too much light exposure.
- The contrast of the computer monitor is too low.

Solutions

- Change the position of the camera so that it has less light exposure.
- Adjust the contrast feature of the monitor.

16.15 Web page but no video

Possible root causes

- The camera web browser needs a refresh.
- The iris is closed.
- There is a problem with the version of the Bosch VideoSDK software.
- The scene does not have adequate light.

Solutions

- Refresh the web browser.
- Close and reopen the web browser.
- Try a different web browser.
- Try to open the lens iris manually to check that it is not closed all the way.
- If there is no **Stream 1** or **Stream 2** display, check to see if there is an **M-JPEG** display. If there is **M-JPEG** but not a **Stream 1** or **Stream 2** display in H.264 or H.265, then the problem might be with the version of the Bosch VideoSDK software.
- Check that there is adequate light in the video scene. If it is an IR model, make sure that the illuminator is active.

16.16 Completing a hardware reset

You may need to complete a hardware reset if you have the following issues:

- You can power up the camera but cannot log on to the camera using the web browser.
- The camera does not start up, or fails to power up via PoE.
- The camera cannot search an IP address.
- The camera's firmware crashed.
- You forgot the password to access the camera.
- The image becomes frozen.
- You cannot update the firmware.
- The camera disconnects from the network at random and needs a reboot.
- The camera no longer finds pre-positions (preset positions).
- You cannot configure the camera using the web browser.
- The camera has no video out.



Notice!

A factory default deletes all camera settings including passwords, network settings, and image settings.

Complete the following sequence of steps only if you have no other option to restore operation to the camera.

Steps to complete a hardware reset for all camera models

1. Apply power to the camera.
2. Find the IP address of the camera.
3. Log on to the camera using the web browser. (**Note:** You can use Configuration Manager to identify the IP address.)
4. Find the hardware reset area on the camera. (Refer to the figure below to find the reset button or terminal for your camera model.)



Caution!

Risk of burns - Camera surface may be hot

The camera housing may be hot to the touch, especially in hot weather climates. Use caution when handling the camera to avoid burns.

5. Push and hold the reset button for more than 8 seconds.

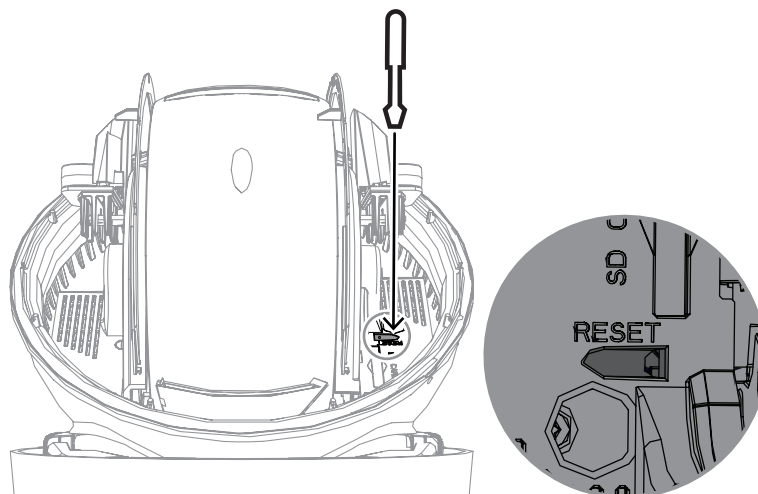


Caution!

Risk of electric shock

Use a non-electrical conductive tool to push the reset button.

6. Find the IP address again.
7. Access the camera using the web browser.
8. Set the initial **service-level** password for the camera.



16.17 Rebooting the unit

Reboot the unit

After a Factory Default or firmware update, reboot the unit if:

- You cannot connect to the unit in the Web browser.

OR

- Configuration Manager or BVMS or similar software identifies the unit as “Videojet Generic”.
 - ▶ Reboot the unit using one of the following methods:
- In the web browser, type the IP address and then /reset (without any punctuation). Press the **Enter** key.

OR

- In Configuration Manager, right-click the IP address and click **Restart**.
 - ▶ Wait two minutes for the process to complete.

If you cannot control the unit after the firmware upgrade, then cycle the power to the unit. If a power reset does not solve the problem, or if Configuration or video management software identifies the unit as “Videojet Generic,” then contact your Bosch Service Center for an RMA for the unit.

17 Maintenance

All bubbles require special care when handling and cleaning to avoid scratches.

**Notice!**

Risk of damage to the bubble

Handle the bubble with care. Do not scratch the inside of the bubble which doesn't have a hard coating.

**Caution!**

Risk of burns - Camera surface may be hot

The camera housing may be hot to the touch, especially in hot weather climates. Use caution when handling the camera to avoid burns.

**Notice!**

To avoid excessive moisture saturation inside the housing, limit the amount of time that the bubble is disconnected from the housing. Bosch recommends that the bubble be removed from the housing for no more than five (5) minutes.

Bubble Handling

The bubble may be packaged with a protective plastic sheet. It is recommended that the bubble remain stored this way until it is ready to install. Limit handling the bubble, as any scratches can quickly affect visibility.

Bubble Cleaning

If cleaning the bubble is required, use the following procedures and comply with all the warnings listed below.

Cleaning the Bubble Interior

The extremely soft interior surface should not be cleaned by rubbing or dusting with a cloth. Use clean dry compressed air, preferably from a spray can, to remove any dust from the interior surface.

**Warning!**

Do not use alcohol-based solutions to clean the bubble. This will cause the surface to cloud and, over time, cause stress aging, which makes the bubble brittle.

Cleaning the Bubble Exterior

The exterior of the bubble is hard-coated for extra protection. If cleaning becomes necessary, only use cleaning solutions and cloths suitable for cleaning safety glass lenses. Dry the bubble thoroughly with a dry nonabrasive cloth to prevent water spots. Never scrub the bubble with any abrasive material or cleaners.

Bosch recommends cleaning the exterior of the bubble with NOVUS "No. 1" Plastic Clean & Shine (or equivalent), according to manufacturer's instructions. Refer to www.novuspolish.com to order or to find a local distributor.

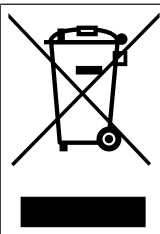
Cautions

- Do not clean bubbles in the hot sun or on very hot days.
- Do not use abrasive or highly alkaline cleaners on the bubble.
- Do not scrape the bubble with razor blades or other sharp instruments.
- Do not use Benzene, Gasoline, Acetone, or Carbon Tetrachloride on the bubble.

18

Disposal

Old electrical and electronic equipment



This product and/or battery must be disposed of separately from household waste. Dispose such equipment according to local laws and regulations, to allow their reuse and/or recycling. This will help in conserving resources, and in protecting human health and the environment.

19 Appendices

19.1 Copyright notices

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