IP Camera 200 Series

NBC-255-P

BOSCH

en Installation manual

Table of Contents

1 Safety

1.1 Safety precautions

DANGER!

High risk: The lighting flash and arrowhead within the triangle is a warning sign alerting you of "Dangerous Voltage" inside the product that can cause an electrical shock, bodily injury, or death.

WARNING!

Medium risk: The exclamation mark within the triangle sign alerts the user to important instructions accompanying the unit.

CAUTION!

Alerts the user to the risk of damage to the unit.

1.2 Important safety instructions

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

1. Clean only with a dry cloth. Do not use liquid cleaners or aerosol cleaners.
2. Do not install unit 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 unit.
4. Take precautions to protect the unit from power and lightning surges.
5. Adjust only those controls specified in the operating instructions.
6. Operate the unit only from the type of power source indicated on the label.
7. Unless qualified, do not attempt to service a damaged unit yourself. Refer all servicing to qualified service personnel.

8. Use only replacement parts specified by the manufacturer.
9. Install in accordance with the manufacturer's instructions in accordance with applicable local codes. Use only attachments/accessories specified by the manufacturer. Equipment change or modification could void the user's guarantee or authorization agreement.

1.3 FCC information

This equipment has been tested and found to comply with the limits for a **Class B** digital device, pursuant to *part 15* of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a **residential installation**. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
Reorient or relocate the receiving antenna.
Increase the separation between the equipment and receiver.
Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
Consult the dealer or an experienced radio/ TV technician for help.

Note
Any change or modification of the equipment not expressly approved by Bosch could void the user's authority to operate the equipment.

	**Disposal -** Your Bosch product was developed and manufactured with high-quality material and components that can be recycled and reused. This symbol means that electronic and electrical appliances, which have reached the end of their working life, must be collected and disposed of separately from household waste material. Separate collecting systems are usually in place for disused electronic and electrical products. Please dispose of these units at an environmentally compatible recycling facility, per *European Directive 2002/96/EC*

For additional information or to speak to a representative, please contact the Bosch Security Systems location nearest to you or visit our web site at *www.boschsecurity.com*

2 Introduction

2.1 Features

The NBC-255-P IP camera is a ready-to-use, complete network video surveillance system inside a compact camera. This camera offers a cost-effective solution for a broad range of applications. It uses H.264 compression technology to give clear images reducing bandwidth and storage.
The camera can be used as a stand-alone video surveillance system with no additional equipment or it can easily integrate with the Bosch Divar XF Hybrid H.264 recorder.
Features include:

- Removable SD/SDHC card offers days of storage inside camera
- Dual-streaming: H.264 and M-JPEG
- Progressive scan for sharp images of moving objects
- Two-way audio and audio alarm
- Power over Ethernet (IEEE 802.3af compliant)
- Tamper and motion detection
- Complies with the ONVIF standard for wide compatibility

2.2 Unpacking

Unpack carefully and handle the equipment with care.
The packaging contains:

- NBC-255-P IP camera with 2.8 to 10 mm varifocal lens
- Universal power supply with US, EU and UK plug
- SD card
- Camera mount kit
- Quick install instructions
- CD ROM
  - BVIP Lite Suite
  - Documentation
  - Tools

If equipment has been damaged during shipment, repack it in the original packaging and notify the shipping agent or supplier.

WARNING!
Installation should only be performed by qualified service personnel in accordance with the National Electrical Code or applicable local codes.

CAUTION!
The camera module is a sensitive device and must be handled carefully.

3 Installation

3.1 Power connection

3.1.1 DC power connection

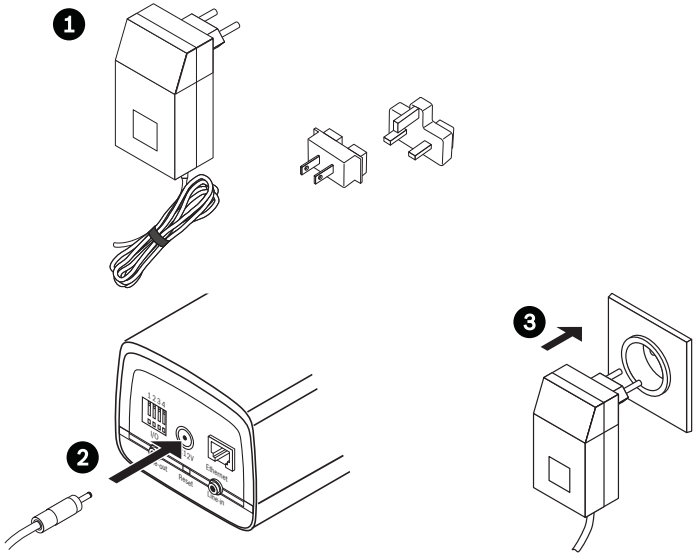


Figure 3.1 DC power connection

1. Slide the plug adapter that matches your outlet socket onto the supplied power supply.
2. Insert the power connector jack from the power supply into the DC12V socket of the camera.
3. Connect the power supply to either a 230 VAC or a 120 VAC power supply outlet.

When power is supplied to the camera the LED on the bottom-front of the camera lights. (This LED can be disabled in the Installer Options menu.)

Note:
The date/time must be synchronized each time after power on. It is important to ensure that the date/time is correct for recording. An incorrect date/time setting could prevent correct recording.

3.2 Network (and power) connector

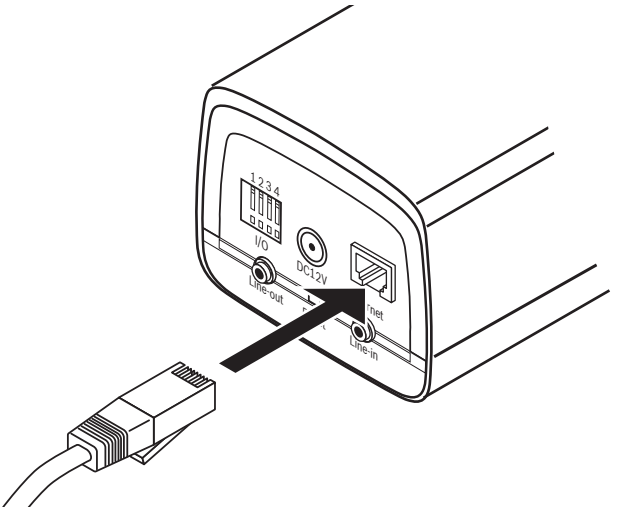


Figure 3.2 Network connection

- Connect the camera to a 10/100 Base-T network.
- Use a shielded UTP Category 5 cable with RJ45 connectors.
- Power can be supplied to the camera via the Ethernet cable compliant with the Power-over-Ethernet (IEEE 802.3af) standard.

Note:
The camera can accept power from both the DC12V power input and the Ethernet input at the same time. The primary source is the DC12V input. If both are connected and you remove the DC power, the camera will reboot and will then be powered by PoE. If both are connected and you remove the PoE, the camera will continue working.

3.3 I/O connector

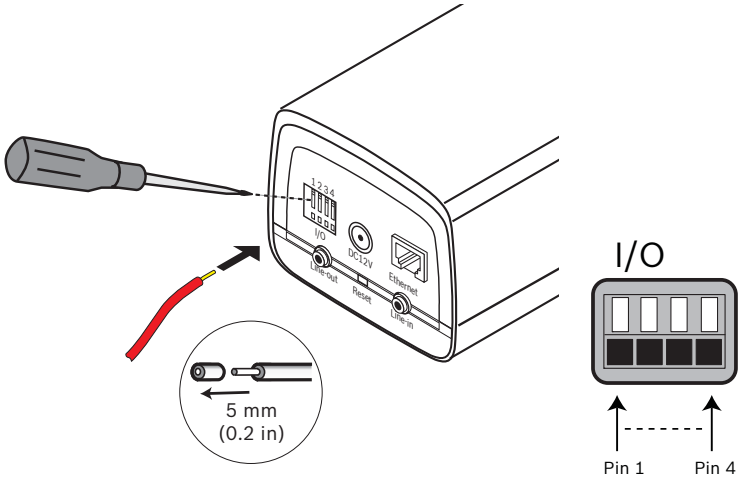


Figure 3.3 I/O connector pins

Function	Pin	I/O socket
Relay	1	Relay out contact 1
	2	Relay out contact 2
Alarm input	3	Trigger in Positive
	4	Trigger in Negative

- Max. wire diameter AWG 22-28 for both stranded and solid; cut back 5 mm (0.2 in) of insulation.
- Relay output switching capability: Max. voltage 24 VAC or 24 VDC. Max. 1 A continuous, 12 VA.
- Trigger in: +9 VDC minimum; +30 VDC maximum. Reverse connection will be inactive.
- Alarm input configurable as active low or active high (refer to *Section 6.7.1 Alarm inputs, Page 64* for more information).

3.4 Audio connectors

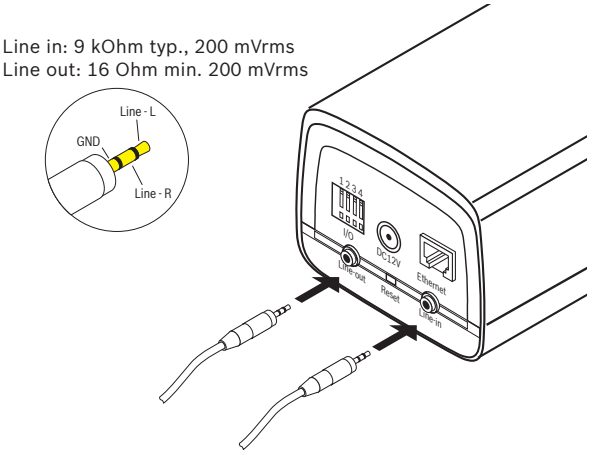


Figure 3.4 Audio connectors

Connect audio devices to the **Line In** and **Line Out** connectors.

3.5 Resetting the camera

If you cannot connect to the camera because the IP address has changed, press and hold the reset button (7 seconds approximately) until the LED flashes (red) to recall the factory default values. The factory default IP address is 192.168.0.1

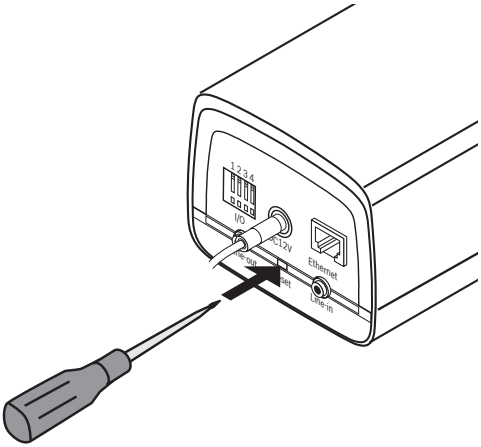


Figure 3.5 Reset button

3.6 SD card

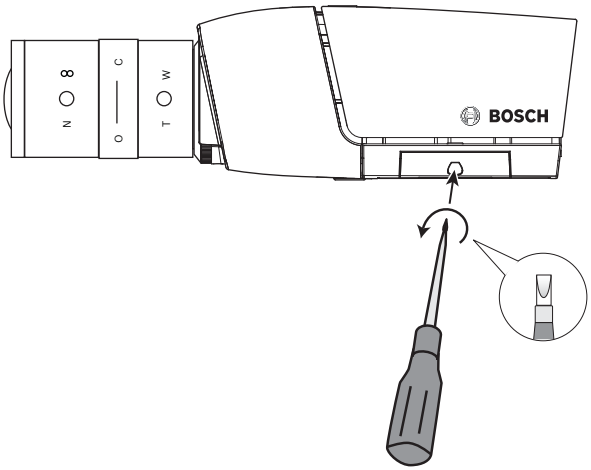


Figure 3.6 SD card

1. Unscrew the cover on the right side of the camera.
2. Slide the SD card into the slot.
3. Close and secure the cover.

The camera supports most SD/SDHC cards. For a list of recommended cards (not supplied by Bosch), please visit www.boschsecuritysystems.com.

3.7 Mounting the camera

The camera can be mounted either from the top or from the bottom (1/4"-20 UNC thread). The mounting socket is isolated from ground to prevent ground loops.

CAUTION!
Do not point the camera/lens into direct sunlight as this may damage the sensors.

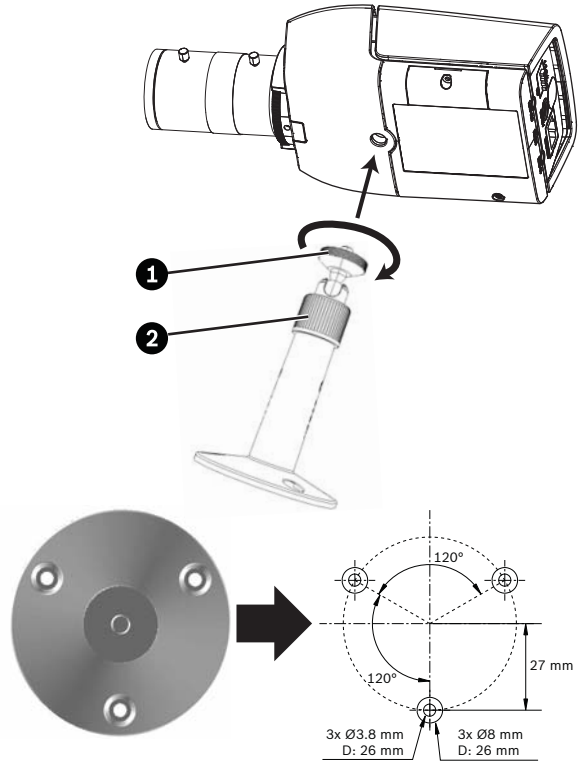


Figure 3.7 Mounting a camera

1. Use three screws to secure the base of the mounting unit to a wood (Ø3.8 mm, 26 mm deep) or concrete (Ø8 mm, 26 mm deep) surface.
2. On the mounting unit, loosen the ball-socket adjustment ring (2).
3. Adjust the ball-socket so that camera mount is correcrly aligned for the angle you require.
4. Screw camera onto mount and, when in position, tighten the locking ring (1) securely.
5. Tighten the ball-socket adjustment ring (2) securely.

4 Browser Connection

A computer with Microsoft Internet Explorer can be used to receive live images from the camera, control cameras, and replay stored sequences. The camera is configured over the network using a browser or via the BVIP Lite Suite (supplied with the product).

4.1 System requirements

- Microsoft Internet Explorer version 6.0 or higher
- Monitor resolution 1024 × 768 pixels, 16 or 32 bit color depth
- Intranet or Internet network access

To play back live video images, an appropriate MPEG ActiveX must be installed on the computer. If necessary, the required software and controls can be installed from the product CD provided.

a. Insert the CD into the CD-ROM drive of the computer. If the CD does not start automatically, open the root directory of the CD in Windows Explorer and double click MPEGAx.exe
b. Follow the on-screen instructions.

4.2 Establishing the connection

The camera must be assigned a valid IP address to operate on your network. The default address pre-set at the factory is 192.168.0.1

1. Start the Web browser.
2. Enter the IP address of the camera as the URL.

Note:
If the connection is not established, the maximum number of possible connections may already have been reached. Depending on the device and network configuration, up to 25 web browsers, or 50 VIDOS or Bosch VMS connections, are supported.

4.2.1 Password protection in camera

A camera offers you the option of limiting access across various authorization levels. If the camera is password-protected, a message to enter the password appears.

1. Enter the user name and the associated password in the appropriate fields.
2. Click **OK**. If the password is correct, the desired page is displayed.

4.3 Protected network

If a Radius server is used for network access control (802.1x authentication), the camera must be configured first. To configure the camera for a Radius network, connect it directly to a PC via a crossed network cable and configure the two parameters, **Identity** and **Password**. Only after these have been configured can you communicate with the camera via the network.

4.4 Connection established

When a connection is established, the **LIVEPAGE** is initially displayed. The application title bar displays three items: LIVEPAGE, RECORDINGS, SETTINGS.

Note:
The **RECORDINGS** link is only visible if a storage medium is available.

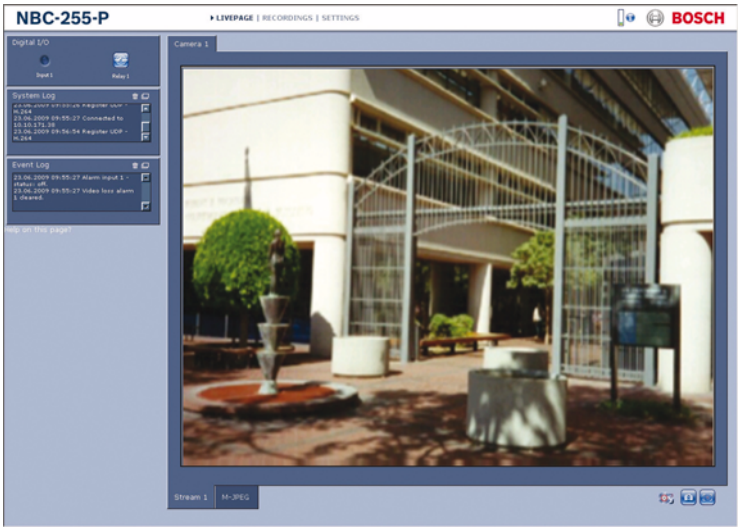


Figure 4.1 Livepage

4.4.1 Livepage

The **LIVEPAGE** is used to display and control the video stream. Refer to *Section 7.1 Livepage, Page 77* for more information.

4.4.2 Recordings

Click **RECORDINGS** in the application title bar to open the playback page. Refer to *Section 7.2 Recordings page, Page 80* for more information.

4.4.3 Settings

Click **SETTINGS** in the application title bar to configure the camera and the application interface. A new page containing the configuration menu is opened. All settings (except date/

time) are stored in the camera memory so that they are retained, even if the power is interrupted.
Changes that influence the fundamental functioning of the unit (for example, firmware updates) can only be made using the configuration menu.
The configuration menu tree allows all parameters of the unit to be configured. The configuration menu is divided into **Basic Settings** and **Advanced Settings**.
Refer to *Section 5 Basic Settings, Page 23* for more information on basic settings; refer to *Section 6 Advanced Settings, Page 29* for more information on advanced settings.

Note:
It is recommended that only expert users or system administrators use the **Advanced Settings**.

5 Basic Settings

5.1 Basic Mode menu tree

The basic mode configuration menu allows a set of basic camera parameters to be configured.

▼Basic Mode	
	Unit Access
	Date/Time
	Network
	Encoder Profile
	Audio
	Recording
	System overview

To view the current settings:

1. If necessary, click the Basic Mode menu to expand it. The sub-menus are displayed.
2. Click a sub-menu. The corresponding page is opened.

The settings are changed by entering new values or by selecting a pre-defined value in a list field.

Saving changes

After making changes in a window, click **Set** to send the new settings to the unit and save them there.
Clicking **Set** saves only the settings in the current window. Changes in any other windows are ignored.

Click **Settings** in the applications title bar to close the window without saving the changes.

Note:

When entering names do not use any special characters, for example **&**. Special characters are not supported by the internal recording management system.

5.2 Unit Access

5.2.1 Camera name

The camera can be assigned a name to assist in identifying it. The name simplifies the management of multiple devices in more extensive systems.

The camera name is used for remote identification of a unit, for example, in the event of an alarm. Enter a name that makes it as easy as possible to identify the location unambiguously.

5.2.2 Password

A password prevents unauthorized access to the unit. The unit recognizes three authorization levels: **service**, **user**, and **live**.

- **service** is the highest authorization level. Entering the correct password gives access to all the functions of the camera and allows all configuration settings to be changed.
- **user** is the middle authorization level. This user can operate the unit and also control a camera but cannot change the configuration.
- **live** is the lowest authorization level. It can only be used to view the live video image and switch between the different live image displays.

Use the various authorization levels to limit access. Proper password protection is only guaranteed if all higher authorization levels are also protected with a password. For example, if a **live** password is assigned, a **service** and a **user** password should also be set. When assigning passwords, always start from the highest authorization level, **service**, and use different passwords.

Password

Define and change a separate password for each level while logged in as **service** or if the unit is not protected by a password. Enter the password for the selected level.

Confirm password

Re-enter the new password to ensure that there are no typing mistakes.

The new password is only saved when you click **Set**. Therefore, click **Set** immediately after entering and confirming the password, even if you also plan to assign a password at another level.

5.3 Date/Time

Unit date, time and zone

If there are multiple units operating in the 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.

As the unit time is controlled by the internal clock, it is not necessary to enter the day or date of the week. These are set automatically. The time zone in which the system is located is also set automatically.

1. Click **Sync to PC** to apply the system time from your computer to the unit.

Note:

The date/time must be synchronized each time after power on. It is important to ensure that the date/time is correct for recording. An incorrect date/time setting could prevent correct recording.

5.4 Network

Use the settings on this page to integrate the unit into a network. Some changes only take effect after the unit is rebooted. When this is the case, the **Set** button changes to **Set and Reboot**.

1. Make the desired changes.
2. Click **Set and reboot**.
   – The unit is rebooted and the changed settings are activated. If you changed the IP address, subnet mask,

or gateway address, then the unit is only available under the new addresses after the reboot.

DHCP
If the network has a DHCP server for dynamic IP address allocation, set this parameter to **On** to activate the automatic acceptance of DHCP-assigned IP addresses.

Note:
Certain applications (for example, Bosch Video Management System) use the IP address for the unique assignment of the unit. If you use these 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 set IP address.

Gateway address
Enter the IP address of the gateway to establish a connection to a remote location in a different subnet. Otherwise, this field can remain empty (0.0.0.0).

5.5 Encoder profile

Select a profile for encoding the video signal. Pre-programmed profiles are available that give priority to different parameters. When a profile is selected, its details are displayed.

Exposure control
Select **Auto**, **Flicker-free 50 Hz** or **Flicker-free 60 Hz** as the exposure control method.

5.6 Audio

Switch the camera microphone **On** or **Off**.

5.7 Recording

Record the images from the camera to a storage medium. For long-term authoritative images, it is essential to use a Divar XF or an appropriately sized iSCSI system.

5.7.1 Storage medium

1. Select the required storage medium from the list.
2. Click **Start** to start recording or **Stop** to end recording.

5.8 System Overview

This page provides general information on the hardware and firmware system, including version numbers. No items can be changed on this page but they can be copied for information purposes when troubleshooting.

6 Advanced Settings

6.1 Advanced Mode menu tree

The advanced mode configuration menu contains all camera parameters that can be configured.

▼ Advanced Mode	
	General
	Web Interface
	Camera
	Recording
	Alarm
	Interfaces
	Network
	Service

To view the current settings:

1. Click the Advanced Mode menu to expand it. The associated menu sub-headings are displayed.
2. Click a menu sub-heading to expand it.
3. Click a sub-menu. The corresponding page is opened.

The settings are changed by entering new values or by selecting a pre-defined value in a list field.

Saving changes

After making changes in a window, click **Set** to send the new settings to the unit and save them there.
Clicking **Set** saves only the settings in the current window. Changes in any other windows are ignored.

Click **Settings** in the applications title bar to close the window without saving the changes made.

Note:
When entering names do not use any special characters, for example **&**. Special characters are not supported by the internal recording management system.

6.2 General Settings

▼General	
	Identification
	Password
	Date/Time
	Display Stamping

6.2.1 Identification

Camera ID
Each camera should be assigned a unique identifier that can be entered here as an additional means of identification.

Camera name
Assign a camera name to assist in identifying it. The name simplifies the management of multiple devices in more extensive systems, for example the VIDOS or Bosch VMS software. The camera name is used for remote identification of a unit, for example, in the event of an alarm. Enter a name that makes it as easy as possible to identify the location unambiguously.

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.

6.2.2 Password

A password prevents unauthorized access to the unit. The unit recognizes three authorization levels: **service**, **user**, and **live**.

- **service** is the highest authorization level. Entering the correct password gives access to all the functions of the camera and allows all configuration settings to be changed.
- **user** is the middle authorization level. This user can operate the unit and also control a camera but cannot change the configuration.
- **live** is the lowest authorization level. It can only be used to view the live video image and switch between the different live image displays.

Use the various authorization levels to limit access. Proper password protection is only guaranteed if all higher authorization levels are also protected with a password. For example, if a **live** password is assigned, a **service** and a **user** password should also be set. When assigning passwords, always start from the highest authorization level, **service**, and use different passwords.

Password
Define and change a separate password for each level while logged in as **service** or if the unit is not protected by a password. Enter the password for the selected level.

Confirm password
Re-enter the new password to ensure that there are no typing mistakes.

The new password is only saved when you click **Set**. Therefore, click **Set** immediately after entering and confirming the password, even if you also plan to assign a password at another level.

6.2.3 Date/Time

Date format
Select the required date format.

Unit date and time

If there are multiple units 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 unit are operating on the same time.

1. Enter the current date. Since the unit time is controlled by the internal clock, it is not necessary to enter the day of the week – it is added automatically.
2. Enter the current time or click **Sync to PC** to apply the system time from your computer to the unit.

Note:

The date/time must be synchronized each time after power on. It is important to ensure that the date/time is correct for recording. An incorrect date/time setting could prevent correct recording.

Unit 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 up to the year 2015. You can use this data or create alternative time saving data if required.

Note:

If you do not create a table, there is no automatic switching. When 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 for the system:

1. Click **Set**.
2. Click **Details**. A new window opens showing an empty table.
3. Click **Generate** to fill the table with the preset values from the camera.

4. Select the region or the city which is closest to the system's location from the list box below the table.
5. Click one of the entries in the table to make changes. The entry is highlighted.
6. Click **Delete** to remove the entry from the table.
7. Choose other values from the list boxes under the table, to change the selected entry. Changes are immediate.
8. If there are empty lines at the bottom of the table, for example after deletions, you can add new data by marking the row and selecting values from the list boxes.
9. When finished, click **OK** to save and activate the table.

Time server IP address

The camera can receive the time signal from a 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.

Time server type

Select the protocol that is supported by the selected time server. It is recommended that you select the **SNTP server** protocol. This protocol provides high accuracy and is required for special applications and future function extensions. Select **Time server** if the server uses the RFC 868 protocol.

6.2.4 Display Stamping

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

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 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.

Time stamping
This field sets the position of the time and date overlay. 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.

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 **Off** if you do not need to display milliseconds.

Alarm mode stamping
Select **On** for a text message to be overlaid in the event of an alarm. It can be displayed 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.

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

Video watermarking
Select **On** for the transmitted video images to be watermarked. After activation, all images are marked with a green **W**. A red **W** indicates that the sequence (live or saved) has been manipulated.

6.3 Web Interface

▼Web Interface	
	Appearance
	LIVEPAGE Functions
	Logging

6.3.1 Appearance

On this page you can adapt the appearance of the web interface and change the website language to meet your requirements. If necessary, you can replace the company's logo (top right) and the device name (top left) in the top part of the window with individual graphics.
Either GIF or JPEG images can be used. The file paths must correspond to the access mode (for example, C:\Images\Logo.gif for access to local files or http://www.myhostname.com/images/logo.gif for access via the Internet/Intranet). For access via the Internet/Intranet, there must be a connection in order to display the image. The image files are not stored on the camera.
To restore the original graphics, delete the entries in the Company logo and Device logo fields.

Website language
Select the language for the user interface here.

Company logo
Enter the path to a suitable image in this field. The image can be stored on a local computer, a local network, or at an Internet address. If the image is stored in local computer, only

Device logo
Enter the path for a suitable image for the device logo in this field. The image can be stored on a local computer, a local network, or at an Internet address.

Note:
When the image was stored in a local computer, the image can only be seen by this local computer.

6.3.2 Livepage Functions

In this window, you can adapt the **Livepage** functions to meet your requirements. You can choose from a variety of different options for displaying information and controls.

1. Mark the check boxes for the functions to be displayed on the **Livepage**. The selected elements are checked.
2. Check the **Livepage** to see how the desired items are available.

Transmit audio
When selected, the audio from the camera is sent to the computer.

Show alarm inputs
The alarm inputs are displayed next to the video image as icons along with their assigned names. If an alarm is active, the corresponding icon changes color.

Show relay outputs
The relay output is shown next to the video image as an icon along with its assigned name. If a relay is switched, the icon changes color.

Show VCA metadata
When video content analysis (VCA) is activated, additional information is displayed in the live video stream. For example, in **Motion+** mode, the sensor areas for motion detection are marked.

Show event log
The event messages are displayed with the date and time in a field next to the video image.

Show system log
The system messages are displayed with the date and time in a field next to the video image and provide information about the establishment and termination of connections, etc.

Allow snapshots
Here you can specify whether the icon for saving individual images should be displayed below the live image. Individual images can only be saved if this icon is visible.

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

Path for JPEG and video files

Enter the path for the storage location of individual images and video sequences that you save from the **Livepage**. If necessary, click **Browse** to find a suitable folder.

6.3.3 Logging

Save event log

Select this option to save event messages in a text file on the local computer. This file can be viewed, edited, and printed with any text editor or standard office software.

File for event log

Enter the path for saving the event log here. If necessary, click **Browse** to find a suitable folder.

Save system log

Select this option to save system messages in a text file on the local computer. This file can be viewed, edited, and printed with any text editor or standard office software.

File for system log

Enter the path for saving the system log here. If necessary, click **Browse** to find a suitable folder.

6.4 Camera

▼Camera	
	Encoder Profile
	Video
	Audio
	Installer Options

6.4.1 Encoder Profile

Adapt the video data transmission to the operating environment (network structure, bandwidth, data structures). The camera simultaneously generates a H.264 video stream and an M-JPEG stream (Dual Streaming). You can select the compression settings of these streams individually, for example, one setting for transmissions to the Internet and one for LAN connections. The settings are made individually for each stream.

Active profiles

For encoding the video signal, select a profile and a code algorithm. Eight definable profiles and two code algorithms are available.

Pre-programmed profiles are available which give priority to different parameters.

- **High resolution 1**
  VGA resolution with low delay
- **High resolution 2**
  VGA resolution with lower data rate
- **Low bandwidth**
  VGA resolution for low bandwidth connections
- **DSL**
  VGA resolution for DSL connections at 500 kbps maximum
- **ISDN (2B)**
  QVGA resolution for ISDN connections at 100 kbps maximum

– **ISDN (1B)**
  QVGA resolution for ISDN connections at 50 kbps maximum
– **Modem**
  QVGA resolution for analog modem connections at 22 kbps maximum
– **GSM**
  QVGA resolution for GSM connections at 9600 baud

Select profile and algorithm

You can choose the H.264 BP+ or the H.264 MP code algorithm for stream 1.

1. Select the required profile for each data stream.
2. Select the required code algorithm for stream 1.

Preview for

A preview of stream 1 is shown in the right section of the window. Above the preview, various additional items of information regarding data transmission are displayed and continually updated.

1. Check the box to display the stream.
2. Click the **i** icon above the relevant preview to display further information about the data stream.

You can deactivate the display of the video images if the performance of the computer is affected too much by the decoding of the data stream.

Profile Configuration

Profiles can be configured for H.264 and M-JPEG profiles. Change the name of a profile and individual parameter values within a profile. Select a profile by clicking the appropriate tab. Profiles are rather complex. They include a number of parameters that interact with one another, so it is generally best to use the default profiles. Only change a profile if you are completely familiar with all the configuration options.
The parameters as a group constitute a profile and are dependent on one another. If a setting outside the permitted

range for a parameter is entered, the nearest valid value is substituted when the settings are saved.

Profile name
Enter a new name for the profile here. The name is then displayed in the list of available profiles in the **Active profile** field.

Target data rate
To optimize utilization of the bandwidth in the network, limit the data rate for the camera. The target data rate should be set according to the desired picture quality for typical scenes with no excessive motion.
For complex images or frequent changes of image content due to frequent movements, this limit can temporarily be exceeded up to the value entered in the **Maximum data rate** field.

Maximum data rate
This maximum data rate is not exceeded under any circumstances. Depending on the video quality settings for the I- and P-frames, this can result in individual images being skipped.
The value entered here must be at least 10% higher than the value entered in the **Target data rate** field. If the value entered here is too low, it is automatically adjusted.

Video resolution
Here, you can select the desired resolution for the video image. **VGA** (640x480) and **QVGA** (320x240) resolutions are available.

I-frame distance
This parameter sets the intervals at which I-frames are coded. **0** means auto mode, where the video server inserts I-frames as necessary. **1** indicates that I-frames are continuously generated. **2** indicates that only every second image is an I-frame, and **3** only every third image etc.; the frames in between are coded as P-frames.

Video quality (M-JPEG)
This setting allows adjustment of the M-JPEG image quality.

The number selected for **Encoder interval** determines the interval at which images are encoded and transmitted. For example, entering **4** means that only every fourth image is encoded, the following three are skipped - this can be particularly advantageous with low bandwidths. The image rate in ips (images per second) is displayed next to the text field. The **Auto** option automatically adjusts the video quality. For **Manual** settings, select a value between 1 and 100 on the slide bar. The value **1** represents the best quality with, if necessary, a lower frame refresh rate, depending on the settings for the maximum data rate. A value of **100** results in a very high refresh rate and lower image quality.

Deblocking filter
You can activate a filter that reduces blocking in the image of H.264-encoded video streams, thereby providing a smoother image. This option requires additional computing power of the camera.

CABAC
When CABAC is selected, the compression is improved but more computing power is required (H.264 MP only).

GOP structure
Select the type and order of the frames for the group of picture structure (H.264 MP only).

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

6.4.2 Video

Contrast
Adjusts the contrast of the image.

Saturation
Adjusts the color saturation; 0 gives a monochrome image.

Brightness
Adjusts the brightness of the image..

White balance

- **ATW**: Auto tracking white balance allows the camera to constantly adjust for optimal color reproduction.
- In **Manual** mode the Red, Green, and Blue gain can be manually set to a desired position.

Apply white balance **Hold**: Puts the ATW on hold and saves the color settings.

R-gain

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

G-gain

The green gain adjustment offsets the factory white point alignment to optimize the white point.

B-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.

Exposure control

- **Auto:** the camera automatically sets the optimum shutter speed for manual iris lenses. The camera tries to maintain the selected default shutter speed as long as the light level of the scene permits.
- **Flickerless 50 Hz (60 Hz):** flickerless mode avoids interference from light sources.
- **Manual:** allows a user-defined shutter speed.

Max. frame rate

Select a maximum frame rate from 4 to 30 IPS.

Shutter time

Select the shutter speed when exposure control is set to manual (AES, 1/4, 1/6, 1/8, 1/12, 1/15, 1/25, 1/30, 1/50, 1/60, 1/100, 1/120, 1/250, 1/500, 1/1000, 1/2500, 1/5000, 1/7500, or 1/15000).

Note:
Shutter time is affected by frame rate. For example, if the frame rate is set to 30 IPS, the longest shutter time available is 1/30s.

Default
Click **Default** to set all video values to their factory setting.

6.4.3 Audio

Select the microphone or line-in connector as the **Audio input** or switch it off. Adust the volume with the slider.
Switch the **Audio output** On or Off.

6.4.4 Installer options

Disable the **Camera LED** on the camera to switch it off.
Enable **Mirror image** to obtain a mirror image display of the camera picture.

6.5 Recording

▼Recording	
	Storage Management
	Recording Profiles
	Retention Time
	Recording Scheduler
	Recording Status

Record the images from the camera to local storage media or to an appropriately configured iSCSI system.
SD cards are the ideal solution for shorter storage times and temporary recordings, for example, local buffering in the event of network interruptions.

Continuous Recording Hours				
Profiles	**SD card capacity**			
	4 GB	**8 GB**	**16 GB**	**32 GB**
High resolution 1 (VGA, 30F/S, H.264 MP, T:2000Kb, M:4000Kb)	4 h	8 h	16 h	32 h
Low bandwidth (VGA, 30F/S, H.264 MP, T:700Kb, M:1500Kb)	8 h	16 h	32 h	64 h
DSL (VGA, 30F/S, H.264 MP, T:400Kb, M:500Kb)	16 h	32 h	64 h	128 h
ISDN (2B) (VGA, 30F/S, H.264 MP, T:80Kb, M:100Kb)	40 h	80 h	160 h	320 h

Note:
The recording hours table is only an indication for reference, an actual situation might be different (because of different scenes or networking status for example).

For long-term authoritative images use an appropriately sized iSCSI system.
It is also possible to let the Video Recording Manager (**VRM**) control all recording when accessing an iSCSI system. The VRM is an external program for configuring recording tasks for video servers. For further information, contact your local customer service at Bosch Security Systems.

6.5.1 Storage Management

Device manager
If you activate the **VRM** option, the VRM Video Recording Manager manages all recording and you are not able to configure any further settings here.

Note:
Activating or deactivating VRM causes the current settings to be lost; they can only be restored through reconfiguration.

Recording media
Select the required recording media so that you can then activate them and configure the recording parameters.

iSCSI Media
If an iSCSI system is selected as the storage medium, a connection to the desired iSCSI system is needed to set the configuration parameters.
The storage system selected must be available on the network and completely set up. Amongst other things, it must have an IP address and be divided into logical drives (LUN).

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 this into the **Password** field.
3. Click the **Read** button. The connection to the IP address is established. The **Storage overview** field displays the logical drives.

Local Media

The supported local recording media is displayed in the storage overview field.

Activating and Configuring Storage Media

The storage overview displays the available storage media. You can select individual media or iSCSI drives and transfer these to the **Managed storage media** list. You can activate the storage media in this list and configure them for storage.

Note:

Each storage medium can only be associated with one user. If a storage medium is already being used by another user, you can decouple the user and connect the drive to the camera. Before decoupling, make absolutely sure that the previous user no longer needs the storage medium.

1. In the **Recording media** section, click the **iSCSI Media** or **Local Media** tab to display the applicable storage media in the overview.
2. In the **Storage overview** section, double-click the required storage medium, an SD card or one of the other available drives. The medium is then added to the **Managed storage media** list. Newly added media is indicated in the **Status** column by the status **Not active**.
3. Click **Set** to activate all media in the **Managed storage media** list. These are indicated in the **Status** column by the status **Online**.
4. Check the box for the **Overwrite older recordings** option to specify if older recordings can be overwritten once the available memory capacity has been used.

Note:

If older recordings are not allowed to be overwritten when the available memory capacity has been used, the recording in question is stopped. Specify limitations for overwriting old recordings by configuring the retention time.

Formatting Storage Media

You can delete all recordings on a storage medium 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. A new window opens.
3. Click **Formatting** to delete all recordings in the storage medium.
4. Click **OK** to close the window.
5. Click **Set** to execute the action.

Deactivating Storage Media

You can deactivate any storage medium from the **Managed storage media** list. 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.

6.5.2 Recording Profiles

Define up to ten different recording profiles here, then assign these to individual days or times of day on the **Recording Scheduler** page. Modify the names of the recording profiles on the tabs in the **Recording Scheduler** page.

1. Click a tab to edit the corresponding profile.
2. If necessary, click **Default** to return all settings to their defaults.
3. Click **Copy settings** to copy the currently visible settings to other profiles. A window opens where you can select the target profiles for the copied settings.
4. For each profile, click **Set** to save.

Profiles can be set for each camera stream.

Note:

The selected recording profile overrides the viewing profile which was set on the encoder page.

Standard recording

Select the mode for standard recordings here. If you select **Continuous**, the recording proceeds continuously. If the maximum memory capacity is reached, older recordings will automatically be overwritten. If you select **Pre-alarm**, recording takes place in the pre-alarm time, during the alarm and during the post-alarm time only.
If you select **Off**, no automatic recording takes place.

Select an encoder profile for **Standard Recording**.

Post-alarm recording

Select the **Pre-alarm time** from the list box.
Select the **Post-alarm time** from the list box.
Select the encoder **Post-alarm profile** to use for recording during the post-alarm time. The **Standard profile** option sets this to the same as the standard profile.
Select the alarm type (Alarm input/Motion detection/Video loss alarms) that is to trigger a recording.
Select the **Virtual alarm** sensors that are to trigger a recording, via RCP+ commands or alarm scripts, for example.

Recording options

Specify whether, in addition to video data, audio and metadata (for example alarms or VCA data) should also be recorded. Including metadata could make subsequent searches of recordings easier but it requires additional memory capacity. Without metadata, it is not possible to include video content analysis in recordings.

6.5.3 Retention Time

Specify the retention times for recordings. If the available memory capacity of a medium has been used, older recordings are only overwritten if the retention time entered here has expired.
Make sure that the retention time corresponds with the available memory capacity. A rule of thumb for the memory

requirement is as follows: 1 GB per hour retention time with VGA for complete frame rate and high image quality.

Retention time Camera 1

Enter the required retention time in hours or days for each recording.

6.5.4 Recording Scheduler

The recording scheduler allows you to link the recording profiles you created with the days and times at which the camera's images are to be recorded in the event of an alarm. 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. In addition to weekdays, also define holidays which override the settings for that weekday. This allows you to apply the settings for Sundays to other days of the week.

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 unit.

Holidays

You can define holidays which will override the settings for the normal weekly schedule. This allows you to apply the settings for Sundays to other days of the week.

1. Click the **Holidays** tab. Days that have already been defined are shown in the table.
2. Click **Add**. A new window opens.
3. Select the desired date from the calendar. Drag the mouse to select a range of dates. These are handled as a single entry in the table.
4. Click **OK** to accept the selection(s). The window closes.

5. Assign the defined holidays to the recording profile as described above.

Delete user-defined holidays at any time.

1. Click **Delete** in the **Holidays** tab. A new window opens.
2. Click the date to be deleted.
3. Click **OK**. The selection is removed from the table and the window is closed.
4. Repeat for any other dates to be deleted.

Profile names

Change the names of the recording profiles listed in the **Time Periods** box.

1. Click a profile.
2. Click **Rename**.
3. Enter the new name and click **Rename** again.

Activate recording

After completing configuration, activate the recording schedule and start recording. Once activated, the **Recording Profiles** and the **Recording Scheduler** are deactivated and the configuration cannot be modified. Terminate recording at any time to modify the configuration.

1. Click **Start** to activate the recording schedule.
2. Click **Stop** to deactivate the recording schedule. Recordings that are currently running are interrupted and the configuration can be modified.

Recording Status

The graphic indicates the recording activity. You see an animated graphic when recording is taking place.

6.5.5 Recording Status

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

6.6 Alarm

▼Alarm	
	Alarm Connections
	VCA
	Audio Alarm
	Alarm E-mail

6.6.1 Alarm Connections

Select the response of the camera when an alarm occurs. In the event of an alarm, the unit can automatically connect to a pre-defined IP address. The unit can contact up to ten IP addresses in the order listed until a connection is established.

Connect on alarm

Select **On** so that the camera automatically connects to a pre-defined IP address in the event of an alarm. Select **Follows input 1** so that the unit maintains the connection for as long as an alarm exists.

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 locations 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, for example, when connections are initiated by a controlling system such as VIDOS or Bosch Video Management System.

The camera 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, select **TCP (HTTP Port)** as the transfer protocol. For use in a local network, select **UDP**. Please note that in some circumstances, in the event of an alarm, a larger bandwidth must be available on the network for additional video images (if Multicast operation is not possible). To enable Multicast operation, select the **UDP** option for the **Video transmission** parameter here and on the **Network** page.

Remote port

Select a browser port, depending on the network configuration. The ports for HTTPS connections are only available if the **On** option in **SSL encryption** is selected.

Video output

If it is known which unit is being used as the receiver, 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 a particular video output is selected and a split image is set for this output on the receiver, select the decoder from **Decoder** in the receiver that is to be used to display the alarm image. Refer to the destination unit documentation concerning image display options and available video outputs.

Decoder
Select a decoder of the receiver to display the alarm image. The decoder selected has an impact on the position of the image in a split screen.

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.

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

Audio
Select **On** to transmit the audio stream with an alarm connection.

6.6.2 Video Content Analyses (VCA)

The camera contains an integrated VCA, which can detect and analyze changes in the signal on the basis of image processing. Such changes can be due to movements in the camera's field of view.

You can select various VCA configurations and adapt these to your application as required. The **Silent MOTION+** configuration is active by default. In this configuration, metadata is created to facilitate searches of recordings, however, no alarm is triggered.

1. Select a VCA configuration and make the required settings.
2. If necessary, click the **Default** button to return all settings to their default values.

Note:

If there is not enough computing power, priority is given to live images and recordings. This can lead to impairment of the VCA system. Observe the processor load and optimize the encoder settings or the VCA settings if necessary.

6.6.3 VCA configuration- Profiles

You can configure two profiles with different VCA configurations. You can save profiles on your computer's hard drive and load saved profiles from there. This can be useful if you want to test a number of different configurations. Save a functioning configuration and test new settings. You can use the saved configuration to restore the original settings at any time.

1. Select a VCA profile and enter the required settings.
2. If necessary, click **Default** to return all settings to default values.
3. Click the **Save...** to save the profile settings to another file. A new window opens in which you can specify the file name and where to save it.
4. Click **Load...** to load a saved profile. A new window opens in which you can select the profile file and specify where to save the file.

You can rename a 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.

The current alarm status is displayed for information purposes. Metadata is always created for a video content analysis, unless this was explicitly excluded.

Analysis type

Select the required analysis algorithm. By default, only **Motion+** is available — this offers a motion detector and essential recognition of tampering.

Depending on the analysis type selected and the relevant configuration, additional information overlays the video image in the preview window next to the parameter settings. With the **MOTION+** analysis type, for example, the sensor fields in which motion is recorded are marked with rectangles.

Motion detector

Motion detection is available for the **Motion+** analysis type. For the detector to function, the following conditions must be met:

– Analysis must be activated.
– At least one sensor field must be activated.
– The individual parameters must be configured to suit the operating environment and the desired responses.
– The sensitivity must be set to a value greater than zero.

Note:

Reflections of light (from glass surfaces, etc.), lights switching on and off, or changes in the light level caused by cloud movement on a sunny day can trigger unintended responses from the motion detector and generate false alarms. Run a series of tests at different times of the day and night to ensure that the video sensor is operating as intended. For indoor surveillance, ensure constant lighting of the areas during the day and at night.

Sensitivity

Sensitivity is available for the **Motion+** analysis type. The basic sensitivity of the motion detector can be adjusted for the environmental conditions to which the camera is subject. The sensor reacts to variations in the brightness of the video image. The darker the observation area, the higher the value that must be selected.

Minimum object size

Specify the number of sensor fields that a moving object must cover to generate an alarm. This setting prevents objects that are too small from triggering an alarm. A minimum value of 4 is recommended. This value corresponds to four sensor fields.

Selecting the area

Select the areas of the image to be monitored by the motion detector. The video image is subdivided into 858 square sensor fields. Activate or deactivate each of these fields individually. To exclude particular regions of the camera's field of view from monitoring due to continuous movement (by a tree in the wind, for example), the relevant fields can be deactivated.

1. Click **Select area** to configure the sensor fields. A new window opens.
2. If necessary, click **Clear all** first to clear the current selection (fields marked red).
3. Left-click the fields to be activated. Activated fields are marked red.
4. If necessary, click **Select all** to select the entire video frame for monitoring.
5. Right-click any fields to deactivate.
6. Click **OK** to save the configuration.
7. Click the close button (**X**) in the window title bar to close the window without saving the changes.

Tamper detection

You can detect tampering of cameras and video cables by means of various options. Run a series of tests at different

times of the day and night to ensure that the video sensor is operating as intended.
Sensitivity and **Trigger delay** can only be changed if **Reference check** is selected.

Sensitivity
The basic sensitivity of the tamper detection can be adjusted for the environmental conditions to which the camera is subject. The algorithm reacts to the differences between the reference image and the current video image. The darker the observation area, the higher the value that must be selected.

Trigger delay
Set delayed alarm triggering here. The alarm is only triggered after a set time interval in seconds has elapsed and then only if the triggering condition still exists. If the original condition has been restored before this time interval elapses, the alarm is not triggered. This avoids false alarms triggered by short-term changes, for example, cleaning activities in the direct field of vision of the camera.

Global change (slider)
Set how large the global change in the video image must be for an alarm to be triggered. This setting is independent of the sensor fields selected under **Select area**. Set a high value if fewer sensor fields need to change to trigger an alarm. With a low value, it is necessary for changes to occur simultaneously in a large number of sensor fields to trigger an alarm. This option allows you to detect, independently of motion alarms, manipulation of the orientation or location of a camera resulting from turning the camera mount bracket, for example.

Global change
Activate this function if the global change, as set with the Global change slide control, should trigger an alarm.

Scene too bright
Activate this function if tampering associated with exposure to extreme light (for instance, shining a flashlight directly on the

objective) should trigger an alarm. The average brightness of the scene provides a basis for recognition.

Scene too dark

Activate this function if tampering associated with covering the objective (for instance, by spraying paint on it) should trigger an alarm. The average brightness of the scene provides a basis for recognition.

Scene too noisy

Activate this function if tampering associated with EMC interference (noisy scene as the result of a strong interference signal in the vicinity of the video lines) should trigger an alarm.

Reference check

Save a reference image that can be continuously compared with the current video image. If the current video image in the marked areas differs from the reference image, an alarm is triggered. This detects tampering that would otherwise not be detected, for example, if the camera is turned.

1. Click **Reference** to save the currently visible video image as a reference.
2. Click **Select area** and select the areas in the reference image that are to be monitored.
3. Check the box **Reference check** to activate the on-going check. The stored reference image is displayed in black and white below the current video image, and the selected areas are marked in yellow.
4. Select the **Disappearing edges** or **Appearing edges** option to specify the reference check once again.

Selecting the area

Select the image areas in the reference image that are to be monitored. The video image is subdivided into 858 square fields. Activate or deactivate each of these fields individually. Select only those areas for reference monitoring in which no movement takes place and that are always evenly lit, as false alarms could otherwise be triggered.

1. Click **Select area** to configure the sensor fields. A new window opens.
2. If necessary, click **Clear all** first to clear the current selection (fields marked yellow).
3. Left-click the fields to be activated. Activated fields are marked yellow.
4. If necessary, click **Select all** to select the entire video frame for monitoring.
5. Right-click any fields to deactivate.
6. Click **OK** to save the configuration.
7. Click the close button (**X**) in the window title bar to close the window without saving the changes.

6.6.4 VCA configuration - Scheduled

This configuration allows you to link the created VCA profile with the days and times at which the video content analysis is to be active.

You can link any number of 15-minute intervals with the VCA profiles for each day of the week. Moving the mouse cursor over the table displays the time below it. This aids orientation.

In addition to the normal weekdays, 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 profile you want to link in the **Time periods** field.
2. Click in a field in the table, hold down the mouse button and drag the cursor over all the periods to be assigned to the selected profile.
3. Use the right mouse button to deselect any of the intervals.
4. Click **Select All** to link all time intervals to the selected profile.
5. Click **Clear All** to deselect all of the intervals.
6. When you are finished, click **Set** to save the settings in the unit.

Holidays

You can define holidays on which a profile should be active that are different to the standard weekly schedule. 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 are shown in the table.
2. Click **Add**. A new window opens.
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 closes.
5. Assign the individual holidays to the VCA profiles, as described above.

Deleting Holidays

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

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

6.6.5 VCA configuration - Event Triggered

This configuration allows you stipulate that the video content analysis is only to be activated when triggered by an event. As long as no trigger is activated, the **Silent MOTION+** configuration in which metadata is created is active; this metadata facilitates searches of recordings, but does not trigger an alarm.

Trigger

You can select a physical alarm or avirtual alarms as a trigger. A virtual alarm is created using software, with RCP+ commands or alarm scripts, for example.

Trigger active

Select the VCA configuration here that is to be enabled via an active trigger. A green check mark to the right of the list field indicates that the trigger is active.

Trigger inactive

Select the VCA configuration here that is to be activated if the trigger is not active. A green check mark to the right of the list field indicates that the trigger is inactive.

Delay

Select the delay period here for the reaction of the video content analysis to trigger signals. A delay period may be useful in avoiding false alarms or frequent triggering. During the delay period, the **Silent MOTION+** configuration is always enabled.

6.6.6 Audio Alarm

You can create alarms based on audio signals. Configure signal strengths and frequency ranges so that false alarms, for example, machine noise or background noise, are avoided. Set up normal audio transmission before you configure the audio alarm.

Audio alarm

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

Name

The name makes it easier to identify the alarm in extensive video monitoring systems, for example with the VIDOS and Bosch Video Management System programs. Enter a unique and clear name here.

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, alternatively, 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.

6.6.7 Alarm E-mail

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

Send alarm e-mail
Select **On** for 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 user name
Enter a registered user name for the chosen mail server.

SMTP password
Enter the required password for the registered user name.

Format
Select the data format of the alarm message.
– Standard (with JPEG): e-mail with JPEG image file attachment.
– 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.

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. Obtain information on operating your cellphone from your cellphone provider.

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.

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

Sender name
Enter a unique name for the e-mail sender, for example, the location of the unit. This makes it easier to identify the origin of the e-mail.

Test e-mail
Click **Send now** to test the e-mail function. An alarm e-mail is immediately created and sent.

6.7 Interfaces

▼Interfaces	
	Alarm Inputs
	Relay

6.7.1 Alarm inputs

Configure the alarm trigger for the camera.
Select **Active high** if the alarm is to be triggered by closing the contact.
Select **Active low** if the alarm is to be triggered by opening the contact.

Name
You can enter a name for the alarm input. This is then displayed below the icon for the alarm input on the **LIVEPAGE** (if configured).

6.7.2 Relay

You can configure the switching behavior of the relay output. Select different events that automatically activate an output. For example, turn on a floodlight by triggering a motion alarm and then turn the light off again when the alarm has stopped.

Idle state
Select **Open** if you want the relay to operate as an NO contact, or select **Closed** if the relay is to operate as an NC contact.

Operating mode

Specify whether an output should operate as a bistable or monostable relay. In bistable mode, the triggered state of the relay is maintained. In monostable mode, you can set the time after which the relay returns to the idle state.
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**.

Relay follows

Select a specific event to trigger the relay. The following events are possible triggers:

- **Off**
  Relay is not triggered by events
- **Connection**
  Trigger whenever a connection is made
- **Video alarm 1**
  Trigger on interruption of the video signal
- **Motion alarm 1**
  Trigger on motion alarm as configured on the **VCA** page.
- **Local input 1**
  Trigger by the external alarm input
- **Remote input 1**
  Trigger by remote station's corresponding switching contact (only if a connection exists)

Relay name

The relay can be assigned a name here. The name is shown on the button next to **Trigger relay**. The **Livepage** can also be configured to display the name next to the relay icon.

Trigger relay

Click **Relay 1** to switch the relay manually (for example, for testing purposes or to operate a door opener).

6.8 Network

▼Network	
	Network
	Advanced
	Multicasting
	JPEG Posting

6.8.1 Network

The settings on this page are used to integrate the unit into a network. Some changes only take effect after the unit is rebooted. In this case **Set** changes to **Set and Reboot**.

1. Make the desired changes.
2. Click **Set and Reboot**.

The unit is rebooted and the changed settings are activated. If you changed the IP address, subnet mask, or gateway address, then the unit is only available under the new addresses after the reboot.

Automatic IP assignment

If a DHCP server is employed in the network for the dynamic assignment of IP addresses, you can activate acceptance of IP addresses automatically assigned to the unit.
Certain applications (VIDOS, Bosch Video Management System, Archive Player, Configuration Manager) use the IP address for the unique assignment of the unit. If you use these 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 set IP address.

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, this field can remain empty (0.0.0.0).

DNS server address
The unit is easier to access if it is listed on a DNS server. 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 DNS server's IP address. Servers are supported for secure and dynamic DNS.

Video transmission
If the unit is used behind a firewall, TCP (Port 80) should be selected as the transmission protocol. For use in a local network, choose UDP.
Multicast operation is only possible with the UDP protocol. The TCP protocol does not support multicast connections. The MTU value in UDP mode is 1514 bytes.

HTTP browser port
Select a different HTTP browser port from the list if required. The default HTTP port is 80. To limit connection to HTTPS, deactivate the HTTP port. To do this, activate the **Off** option.

HTTPS browser port
To limit browser access to encrypted connections, choose an HTTPS port from the list. The standard HTTPS port is 443. Select the **Off** option to deactivate HTTPS ports and limit connections to unencrypted ports.
The camera uses the TLS 1.0 protocol. Ensure that the browser has been configured to support this protocol. Also ensure that Java application support is activated (in the Java Plug-in Control Panel of the Windows Control Panel).
To limit connections to SSL encryption, set the **Off** option in the HTTP browser port, the RCP+ port, and Telnet support. This deactivates all unencrypted connections allowing connections on the HTTPS port only.

You can configure and activate encryption for media data (video, audio, metadata) on the **Encryption** page.

RCP+ port 1756
Activating RCP+ port 1756 allows unencrypted connections on this port. To allow only encrypted connections, set the **Off** option to deactivate the port.

Telnet support
Activating Telenet support allows unencrypted connections on this port. To allow only encrypted connections, you must set the **Off** option to deactivate telnet support, making telnet connections impossible.

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

Network MSS (Byte)
Set the maximum segment size for the IP packet's user data here. 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.

iSCSI MSS (Byte)
Specify a higher MSS value for a connection to the iSCSI system than for the other data traffic via the network. The potential value depends on the network structure. A higher value is only useful if the iSCSI system is located in the same subnet as the camera.

Enable DynDNS
DynDNS.org is a DNS hosting service that stores IP addresses in a database ready for use. It 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 DynDNS.org and you must have registered the required host name for the unit on that site.

Note:
Information about the service, registration process and available host names can be found at DynDNS.org.

Host name
Enter the host name registered on DynDNS.org for the unit here.

User name
Enter the user name you registered at DynDNS.org here.

Password
Enter the password you registered at DynDNS.org here.

Force registration now
You can 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 you are 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. You cannot change any of these settings.

6.8.2 Advanced

The settings on this page are used to set advanced settings the network. Some changes only take effect after the unit is rebooted. In this case **Set** changes to **Set and Reboot**.

1. Make the desired changes.
2. Click **Set and Reboot**.

The unit is rebooted and the changed settings are activated.

SNMP
The camera supports the SNMP V2 (Simple Network Management Protocol) for managing and monitoring network

components, and can send SNMP messages (traps) to IP addresses. It supports SNMP MIB II in the unified code.
If **On** is selected for the SNMP parameter and a SNMP host address is not entered, the unit does not send them automatically and will only reply to SNMP requests. If one or two SNMP host addresses are entered, SNMP traps are sent automatically. Select **Off** to deactivate the SNMP function.

SNMP host addresses
To send SNMP traps automatically, enter the IP addresses of one or two target devices here.

SNMP traps
To choose which traps are sent:
1. Click **Select**. A dialog box appears.
2. Click the check boxes of the appropriate traps.
3. Click **OK** to close the window and send all of the checked traps.

Authentication (802.1x)
To configure Radius server authentication, you must connect the camera directly to a computer using a network cable. If a Radius server controls access rights over the network, select **On** to activate authentication to communicate with the device.
1. Enter the user name that the Radius server uses for the camera in the **Identity** field.
2. Enter the **Password** that the Radius server expects from the camera.

RTSP port
If necessary, select a different port for the exchange of the RTSP data from the list. The standard RTSP port is 554. Select **Off** to deactivate the RTSP function.

6.8.3 Multicasting

In addition to a one-to-one connection between a camera and a single receiver (unicast), the camera can enable multiple receivers to receive the video signal simultaneously. This is either done by duplicating the data stream in the unit and then

distributing it to multiple receivers (multi-unicast), or by distributing an individual data stream in the network itself to multiple receivers in a defined group (multicast). Enter a dedicated multicast address and port for each stream. Then switch between the streams by clicking the associated tabs.
The prerequisite for multicast operation is a multicast-capable network that uses the UDP and IGMP protocols. Other group membership protocols are not supported. The TCP protocol does not support multicast connections.
A special IP address (class D address) must be configured for multicast operation in a multicast-enabled network. The network must support group IP addresses and the Internet Group Management Protocol (IGMP V2). The address range is from 225.0.0.0 to 239.255.255.255. The multicast address can be the same for multiple streams. However, it is then necessary to use a different port in each case so that multiple data streams are not sent simultaneously using the same port and multicast address. The settings must be made individually for each stream.

Enable
To enable simultaneous data reception on several receivers you need to activate the multicast function. To do this, check the box. You can then 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 the setting 0.0.0.0 the encoder for the stream operates in multi-unicast mode (copying of data stream in unit). 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.

Multicast packet TTL

A value can be entered 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.

6.8.4 JPEG posting

Save individual JPEG images on an FTP server at specific intervals. If required, retrieve these images at a later date to reconstruct alarm events.

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, ensure that the date and time of the unit are always set correctly . For eample, the file snap011005_114530.jpg was stored on October 1, 2005 at 11.45 and 30 seconds.

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.

FTP server IP address

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

FTP server login

Enter your login name for the FTP server.

FTP server password

Enter the password that gives you access to the FTP server.

Path on FTP server

Enter an exact path to post the images on the FTP server.

6.9 Service

▼Service	
	Maintenance
	System Overview

6.9.1 Maintenance

CAUTION!

Before starting a firmware update, make sure that you have selected the correct upload file. Uploading the wrong files can result in the unit no longer being addressable, requiring it to be replaced.

Do not interrupt the firmware installation. Even changing to another page or closing the browser window leads to interruption. Interruption may lead to faulty coding of the Flash memory. This can result in the unit no longer being addressable, requiring it to be replaced.

Firmware

The camera functions and parameters can be updated by uploading new firmware. To do this, the latest firmware package is transferred to the unit 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 unit on site. The latest firmware can be obtained from your customer service center or from the Bosch Security Systems download area.

To update the firmware:

1. First, store the firmware file on your hard disk.
2. Enter the full path for the firmware file in the field or click **Browse** to locate and select the file.
3. Click **Upload** to begin transferring the file to the unit. The progress bar allows you to monitor the transfer.

The new firmware is unpacked and the Flash memory is reprogrammed. The time remaining is shown by the message

going to reset Reconnecting in ... seconds. When the upload is completed successfully, the unit reboots automatically.
If the operating status LED lights up red, the upload has failed and must be repeated. To perform the upload, you must switch to a special page:

1. In the address bar of your browser, enter /main.htm after the unit IP address, for example:
   192.168.0.10/main.htm
2. Repeat the upload.

Configuration

Save configuration data for the camera to a computer and load saved configuration data from a computer to the unit.
To save the camera settings:

1. Click **Download**; a dialog box appears.
2. Follow the instructions to save the current settings.

To load configuration data from the computer to the unit:

1. Enter the full path of the file to upload or click **Browse** to select the desired file.
2. Make certain that the file to be loaded comes from the same device type as the unit to be reconfigured.
3. Click **Upload** to begin transmission to the unit. The progress bar allows monitoring of the transfer.

Once the upload is complete, the new configuration is activated. The time remaining is shown by the message **going to reset Reconnecting in ... seconds**. When the upload is completed successfully, the unit reboots automatically.

SSL certificate upload

To work with an SSL connection, both sides of the connection must have the appropriate certificates. Upload one or more certificate files, one at a time, to the camera.

1. Enter the full path of the file to upload or click **Browse** to locate the file.
2. Click **Upload** to start the file transfer.

Once all files have been successfully uploaded, the unit must be rebooted. In the address field of the browser, enter /reset after the camera's IP address, for example:

192.168.0.10/reset
The new SSL certificate is valid.

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

6.9.2 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.

7 Operation via the browser

7.1 Livepage

After the connection is established, the **Livepage** 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 on the **Livepage**. The display depends on the settings on the **Livepage Configuration** page.

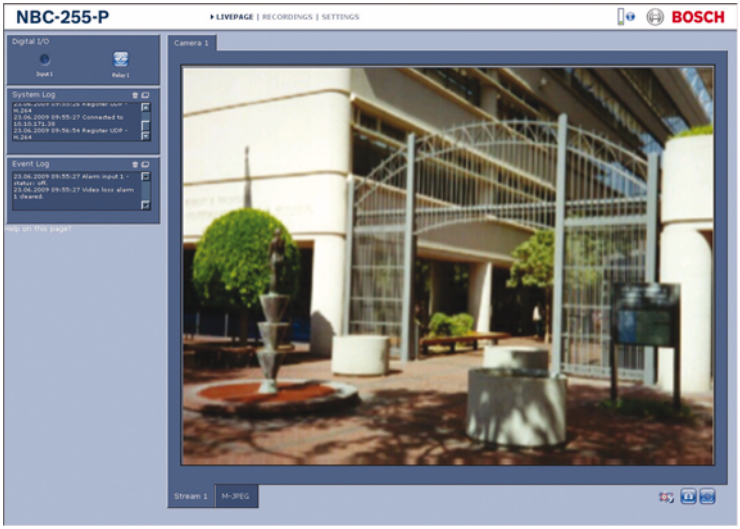
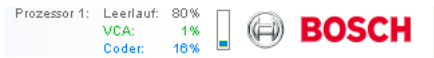


Figure 7.1 Livepage

7.1.1 Processor load

When accessing the camera with a browser, the processor load and network information is available in the upper right of the window next to the Bosch logo.



Move the mouse cursor over the icons to display numerical values. This information can help with problem solving or when fine tuning the device.

7.1.2 Image selection

You can view the image on a full screen.

1. Click the **Stream 1** or **M-JPEG** tab below the video image to switch between the different displays for the camera image.

7.1.3 Digital I/O

Depending on the configuration of the unit, the alarm input and the relay output are displayed next to the camera image. The alarm symbol is for information and indicates the input status of the alarm input: Active 1 = Symbol lights, Active 0 = Symbol not lit.

The relay on the camera allows you to operate a device (for example, a light or a door opener).

1. To operate, click the relay symbol. The symbol is red when the relay is activated.

7.1.4 System log / Event log

The System log field contains information about the operating status of the camera and the connection. These messages can be saved automatically in a file. Events such as the triggering or end of alarms are shown in the Event log field. These messages can be saved automatically in a file.

To delete the entries from the fields, click the icon in the top right-hand corner of the relevant field.

7.1.5 Saving snapshots

Individual images from the video sequence that is currently being shown on the **Livepage** can be saved in JPEG format on the computer's hard drive.

1. Click the camera icon  to save single images.

The storage location depends on the configuration of the camera.

7.1.6 Recording video sequences

Sections of the video sequence that is currently being shown on the **Livepage** can be saved 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.
   – Saving begins immediately. The red dot on the icon indicates that a recording is in progress.
2. Click the recording icon again to stop recording.

You can play back saved video sequences using the Player from Bosch Security Systems.

7.1.7 Running recording program

The hard drive icon below the camera images on the **Livepage** 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.

7.2 Recordings page

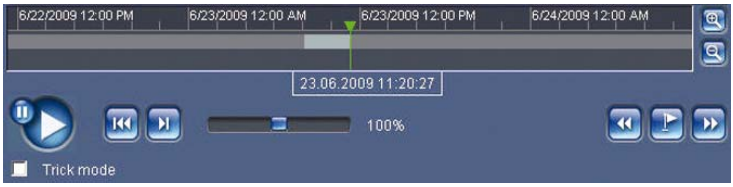
Access the **Recordings** page for playing back recorded video sequences from the **Livepage** as well as from the **Settings** menu. The **Recordings** link is only visible if a storage medium has been selected.

1. Click **Recordings** in the navigation bar in the upper section of the window. The playback page appears and playback begins immediately.

Figure 7.2 Recordings page

Note:
Install the BVIP Lite Suite on your PC to ensure that the **Recordings** page is displayed correctly.

7.2.1 Controlling playback



A time bar below the video image allows quick orientation. The time interval associated with the sequence is displayed in the bar in gray. A green arrow above the bar indicates the position of the image currently being played back within the sequence.

The time bar offers various options for navigation in and between sequences.

- You can change the time interval displayed by clicking the plus or minus icons. The display can span a range from two months to a few seconds.
- If required, drag the green arrow to the point in time at which the playback should begin.
- Red bars indicate the points in time where alarms were triggered. Drag the green arrow to navigate to these points quickly.

You can control playback by means of the buttons below the video image. The buttons have the following functions:

 Start/Pause playback

 Jump to start of active sequence or to previous sequence

 Jump to start of the next video sequence in the list

Slide control

You can continuously select playback speed by means of the speed regulator:

Bookmarks

In addition, you can set markers in the sequences, so-called bookmarks, and jump directly to these. These bookmarks are indicated as small yellow arrows above the time interval. Use the bookmarks as follows:

 Jump to the previous bookmark

 Set bookmark

 Jump to the following bookmark

– Right-click a bookmark to delete it.

Bookmarks are only valid while you are in the Recordings page; they are not saved with the sequences. All bookmarks are deleted as soon as you leave the page.

Trick mode

If you use a mouse with a scroll wheel, you can view recordings frame by frame in trick mode. To do this, place the mouse cursor in the timeline below the timescale and turn the scroll wheel. Playback is automatically stopped (paused) during scrolling. Trick mode requires significantly higher memory capacity and computing power.

8 Troubleshooting

8.1 Resolving problems

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

Malfunction	Possible causes	Solution
No image transmission to remote location.	Faulty cable connections.	Check all cables, plugs, contacts and connections.
No connection established, no image transmission.	The unit's configuration.	Check all configuration parameters.
	Faulty installation.	Check all cables, plugs, contacts and connections.

8.2 Customer service

If you cannot resolve a fault, please contact your supplier or system integrator, or contact Bosch Security Systems Customer Service directly.

The Installer should write down all information regarding the unit so that it can be referenced for warranty or repair. The version numbers of the firmware and other status information can be seen when the unit starts or by opening the **Service** menu. Note down this information and the information found on the camera label before contacting customer service.

9 Maintenance

9.1 Repairs

CAUTION!

Never open the casing of the camera. The unit does not contain any user serviceable parts. Ensure that all maintenance or repair work is performed only by qualified personnel (electrical engineering or network technology specialists). If in doubt, contact your dealer's technical service center.

9.1.1 Transfer and disposal

The camera should only be passed-on together with this installation guide. The unit contains environmentally hazardous materials that must be disposed of according to law. Defective or superfluous devices and parts should be disposed of professionally or taken to your local collection point for hazardous materials.

10 Technical Data

10.1 Specifications

Input voltage	+12 VDC or Power-over-Ethernet
Power consumption	3.36 W (max)
Sensor type	¼-inch CMOS
Sensor pixels	640 x 480
Sensitivity	1.0 lux at F1.4
Video resolution	VGA, QVGA
Video compression	H.264 MP (Main Profile); H.264 BP+ (Baseline Profile Plus); M-JPEG
Frame rate	30/25 fps: all resolutions, dual stream
Lens type	Varifocal 2.8 to 10 mm, F1.4 to close
Lens mount	CS mount
Alarm Input	+9 to 30 VDC
Relay Out	24 VAC/VDC, 1 A
Audio Input	Built-in microphone, Line in jack connector
Audio Output	Line out jack connector
Audio communication	Two-way, full duplex
Audio compression	G.711
SD card slot	Supports up to 32 GB SD/SDHC card
Recording	Continuous recording, ring recording. alarm/ events/schedule recording

Unit Configuration	Via web browser or PC surveillance software
Protocols	HTTP, HTTPs, SSL, TCP, UDP, ICMP, RTSP, RTP, RTCP, IGMPv2/v3, SMTP, POP3, FTP, DHCP client, ARP, DNS, DDNS, NTP, SNMP
Ethernet	10/100 Base-T, auto-sensing, half/full duplex, RJ45
PoE	IEEE 802.3af compliant
Dimensions with lens (H x W x D)	55 x 72 x 178 mm (2.17 x 2.83 x 7.01 in.)
Weight (with lens)	Approx. 245 g (0.54 lb)
Mounting	¼-inch mounting socket on top and bottom
Operating Temperature (Camera)	0 ºC to +50 ºC (+32 ºF to +122 ºF)
Operating Temperature (Power supply)	0 ºC to +40 ºC (+32 ºF to +104 ºF)
Storage Temperature	-20 ºC to +70 ºC (-4 ºF to +158 ºF)
Humidity	10% to 80% relative humidity (non condensing)

10.1.1 Dimensions

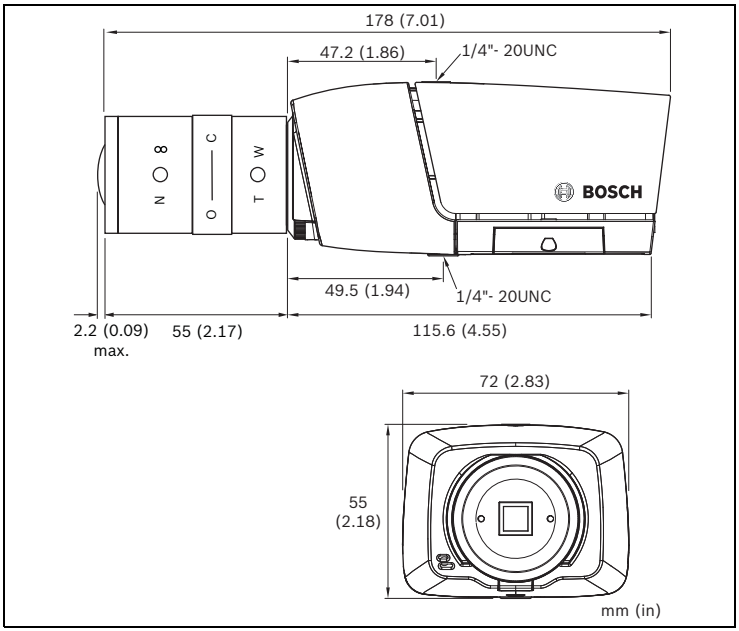


Figure 10.1 Dimensions

10.1.2 Accessories

- Indoor mounting brackets
- Archive Player Export License

Contact a Bosch representative in your area for the latest available accessories or visit our website at *www.boschsecurity.com*

Bosch Security Systems

www.boschsecurity.com