

AUTODOME IP 4000 HD / AUTODOME IP 5000 HD/IR



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BOSCH

en Operation Manual

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1 Configuration Prerequisites

To operate the camera in your network, you must configure the camera properly for your network. You will need the following information:

- Unit IP address: An identifier for the camera on a TCP/IP network.
Default: 192.168.0.1 (if your network does not have a DHCP server)
or
the first available IP address (if your network has a DHCP server)
Note: You will likely need to change the IP address of your camera so that it does not conflict with another device on your network. Refer to the section Network > Network Access for more information.
- Subnet mask: A mask used to determine what subnet an IP address belongs to.
Default: 255.255.255.0
- Gateway IP address: A node on a network that serves as an entrance to another network.
Default: 0.0.0.0
- Port: An endpoint to a logical connection in TCP/IP and UDP networks. The port number identifies the use of the port for use through a firewall connection.



Notice!

Ensure that the network parameters of your camera are available before you begin configuration. Contact your local network administrator for a valid IP address, Subnet mask, and Gateway IP address.

The following sections provide instructions about installing the software necessary to view images over an IP connection, configuring the IP network settings, and accessing the camera images from a Web browser.

The camera has a default IP address of 192.168.0.1. To change the IP address or any network settings, you can use the Configuration Manager software or the built-in Web server.



Notice!

Contact your local network administrator for a valid IP address, Subnet Mask, and a Gateway IP Address.

Using the Configuration Manager

Configuration Manager is an optional network utility provided on the Bosch Security Systems Web site. Use the Configuration Manager Manual to make any configuration changes.



Notice!

Depending on the PC network security settings, the user may need to add the new IP address to the browser's **trusted sites** list for the controls to operate.

Using the built-in Web Server

1. Set the **IP address** on the network device to *192.168.0.10* to ensure that the network device and the camera are on the same Subnet.
2. Launch your web browser (such as Microsoft Internet Explorer) and navigate to the following URL: <http://192.168.0.1>. The web browser opens the **Live** page for the camera; a security warning message appears.
3. Select the box **Always Trust**, and then click YES.
4. Click **Configuration** at the top right of the page.
5. Select **Network**. The menu expands.

6. Select **Network Access**. The page **Network Access** opens.
7. Configure the settings on this page based on the addresses provided by your local network administrator.
 - ▶ Click **Set and Reboot**. The camera will reset (go through the homing sequence, which usually takes 30 seconds to complete), and then the **Live** page appears, with updated video and the new **IP address**.

2 System overview

When a connection is established, the **Live** page is initially displayed. The application bar displays the following items:

-  **Live,**
-  **Playback,**
This link is only visible if a storage medium has been configured for recording. (With VRM recording this option is not active.)
-  **Configuration.**

Getting help

To get context sensitive help for a particular page, click the help icon .

2.1 Live page

The **LIVE** page is used to display the live video stream and control the unit.

2.2 Playback

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

2.3 Configuration

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

Making Changes

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

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



Notice!

Save each change with the associated **Set** button.

Clicking the **Set** button saves the settings only in the current field. Changes in any other fields are ignored.

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

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

All settings are backed up in camera memory so they are not lost even if the power fails. The exception is the time settings, which are lost after 1 hour without power if no central time server is selected.

3 Operation via the browser

3.1 Live page

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

Other information may also be shown next to the live video image. The items shown depend on the settings on the **'Live' functions** page.

3.1.1 Connection

Stream 1

Select this option to display stream 1 of the camera.

Stream 2

Select this option to display stream 2 of the camera.

M-JPEG

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

3.1.2 PTZ

Pan and tilt

To control the pan and tilt of PTZ cameras:

1. Click and hold the up or down arrows to tilt.
2. Click and hold the left or right arrows to pan.
3. Click and hold the center area to control both.

Move the mouse cursor over the video image; additional options for controlling peripherals are displayed with the mouse cursor.

Click  to focus near.

Click  to focus far.

3.1.3 Prepositions

The camera displays Preposition 1 through Preposition 6. Select the appropriate preposition to view the video image for that preposition/scene. In the lower left of the video image, the OSD displays the Camera number (title), the Preposition/Scene number, and the Preposition/Scene number stored.

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

Select the appropriate preposition (1 through 6). Click  to store the preposition.

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

Click  to display the selected preposition in the video image.

3.1.4 AUX Control

Show preposition

Click this button to display a preposition.

Set preposition

Click this button to set a preposition.

AUX on

Click this button to activate an AUX command.

AUX off

Click this button to deactivate an AUX command.

3.1.5 Digital I/O

Input 1

This parameter identifies the first alarm input.

Input 2

This parameter identifies the second alarm input.

Output 1

Click the checkmark icon to enable the output. The checkmark becomes green.

3.1.6 Special Functions

Tour A / Tour B

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

To stop a tour, click a directional control in the View Control tab.

Find home

Click this button to trigger the camera to seek its home position. The OSD displays the message, "OSD: Finding Home Position."

Focus

Click this button to activate the Auto Focus mode on the camera.

The OSD displays the message, "OSD: Camera [number] / Auto Focus: ONE PUSH."

Nightmode

Click this button to activate/deactivate night mode for the camera. After a few seconds, the camera switches modes.

3.1.7 Recording status



The hard drive icon below the live camera image changes during an automatic recording. The icon lights up and displays a moving graphic to indicate a running recording. If no recording is taking place, a static icon is displayed.

3.1.8 Saving snapshots

Individual images from the displayed live video stream can be saved locally in JPEG format on the computer's hard drive.



- Click the photo camera icon to save a single image.
 - The storage location depends on the configuration of the camera.

3.1.9 Recording live video

Video sequences from the displayed live video stream can be saved locally on the computer's hard drive. The sequences are recorded at the resolution specified in the encoder configuration. The storage location depends on the configuration of the camera.



1. Click the recording icon to record video sequences.
 - 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.

3.1.10 Full-screen display



Click the full-screen icon to view the selected stream in full-screen mode; press **Esc** on the keyboard to return to the normal viewing window.

3.1.11 Audio communication

Audio can be sent and received via the **Live** page if the unit and the computer support audio.

1. Press and hold the F12 key on the keyboard to send an audio signal to the unit.
2. Release the key to stop sending audio.

All connected users receive audio signals sent from the unit but only the user who first pressed the F12 key can send audio signals; others must wait for the first user to release the key.

3.1.12 Storage, CPU and network status



When accessing the unit with a browser, the local storage, processor and network status icons are shown in the upper right of the window.

When a local storage card is available, the memory card icon changes color (green, orange or red) to indicate the local storage activity. If you hover over this icon with the mouse the storage activity is shown as a percentage.

If you hover over the middle icon, the CPU load is shown.

If you hover over the right-hand icon, the network load is shown.

This information can help with problem solving or when fine tuning the unit. For example:

- if the storage activity is too high, change the recording profile,
- if the CPU load is too big, change the VCA settings,
- if the network load is too big, change the encoder profile to reduce bitrate.

3.1.13

Status icons

Various overlays in the video image provide important status information. The overlays provide the following information:



Decoding error

The frame might show artifacts due to decoding errors.



Alarm flag

Indicates that an alarm has occurred.



Communication error

A communication error, such as a connection failure to the storage medium, a protocol violation or a timeout, is indicated by this icon.



Gap

Indicates a gap in the recorded video.



Watermark valid

The watermark set on the media item is valid. The color of the check mark changes according to the video authentication method that has been selected.



Watermark invalid

Indicates that the watermark is not valid.



Motion alarm

Indicates that a motion alarm has occurred.



Storage discovery

Indicates that recorded video is being retrieved.

3.2

Playback

Click  **Playback** in the application bar to view, search or export recordings. This link is only visible if a direct iSCSI or memory card has been configured for recording. (With VRM recording this option is not active.)

The panel on the left has four groups:

- **Connection**
- **Search**
- **Export**
- **Track list**

3.2.1

Selecting the recording stream

On the left side of the browser, expand the **Connection** group if necessary.

To view a video input channel:

1. Click the **Video Input** to see the options.
2. Select the video channel you wish to view.

To view a circular or dewarped image for the full image circle:

1. Click the **Dewarping** arrow to see the options.
2. Select **E-PTZ** or **Off**.

To view a recording stream:

1. Click the **Recording** arrow to see the options.
2. Select recording stream 1 or 2.

3.2.2 Searching for recorded video

On the left side of the browser, expand the **Search** group if necessary.

1. To limit the search to a particular time range, enter the start and stop date and times.
2. Select an option from the drop-down box to define a search parameter.
3. Click **Start Search**.
4. The results are shown.
5. Click a result to play it back.
6. Click **Back** to define a new search.

3.2.3 Exporting recorded video

On the left side of the browser, expand the **Export** group if necessary.

1. Select a track in the track list or in the search results.
2. The start and stop date and time are filled-in for the selected track. If required, change the times.
3. In the **Time lapse** drop-down box, select the original or a condensed speed.
4. In the **Location** drop-down box, select a target.
5. Click **Export** to save the video track.

Note:

The target server address is set on the **Network / Accounts** page.

3.2.4 Controlling playback

The time bar below the video image allows quick orientation. The time interval associated with the sequence is displayed in the bar in gray. Arrows indicate the position of the image currently being played back within the sequence.

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

- If required, click in the bar at the point in time at which the playback should begin.
- Change the time interval displayed by clicking the plus or minus icons. The display can span a range from two months to a few seconds.
- Click the alarm jump buttons to go from one alarm event to the next or to the previous one. Red bars indicate the points in time where alarms were triggered.

Controls

Control playback by means of the buttons below the video image.

The time code is displayed on the left above the full-screen icon.

The buttons have the following functions:

- Start/Pause playback
- Select the playback speed using the speed regulator
- Jump to start of active sequence or to previous sequence
- Jump to start of the next video sequence in the list

4 General

4.1 Identification

Camera name

The camera name makes it easier to identify the remote camera location, in the event of an alarm for example. It will be displayed in the video screen if configured to do so. The camera name makes the task of administering cameras in larger video monitoring systems easier, for example using the BVC or Bosch Video Management Systems Programs.

Enter a unique, unambiguous name for the camera in this field. You can use both lines for this. Do not use any special characters, for example **&**, in the name. Special characters are not supported by the system's internal management.

You can use the second line for entering additional characters; these can be selected from a table.

1. Click the icon next to the second line. A new window with the character map is opened.
2. Click the required character. The character is inserted into the **Result** field.
3. In the character map, click the **<<** and **>>** icons to move between the different pages of the table, or select a page from the list field.
4. Click the **<** icon to the right of the **Result** field to delete the last character, or click the **X** icon to delete all characters.
5. Now click the **OK** button to apply the selected characters to the second line of the **Camera 1** parameters. The window will close.

Camera ID

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

Initiator extension

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

4.2 Password

The camera is generally protected by a password to prevent unauthorized access to the unit. You can use different authorization levels to limit access.



Notice!

Proper password protection is only guaranteed when all higher authorization levels are also protected with a password. If a **live** password is assigned, for example, a **service** and a **user** password must also be set. When assigning passwords, you should therefore always start from the highest authorization level, **service**, and use different passwords.

Password

The camera operates with three authorization levels: **service**, **user** and **live**.

The highest authorization level is **service**. After entering the correct password, you can access all the functions of the camera and change all configuration settings.

With the **user** authorization level, you can operate the unit and also control cameras, for example, but you cannot change the configuration.

The lowest authorization level is **live**. It can only be used to view the live video image and switch between the different live image displays.

You can define and change a password for each authorization level if you are logged in as **service** or if the unit is not password protected.

Enter the password for the appropriate authorization level here.

Confirm password

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



Notice!

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

4.3

Date/Time

Date format

Select your required date format.

Device date/Device time



Notice!

Ensure that recording is stopped before syncing to the PC.

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

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

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

Device time zone

Select the time zone in which your 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 2018. You can use these data or create alternative time saving data if required.



Notice!

If you do not create a table, there will be no automatic switching. When changing and clearing individual entries, remember that two entries are usually related to each other and dependent on one another (switching to summer time and back to normal time).

1. First check whether the correct time zone is selected. If it is not correct, select the appropriate time zone for the system, and click the **Set** button.
2. Click the **Details** button. A new window will open and you will see the empty table.
3. Select the region or the city that is closest to the system's location from the list field below the table.
4. Click the **Generate** button to generate data from the database in the unit and enter it into the table.
5. Make changes by clicking an entry in the table. The entry is selected.
6. Clicking the **Delete** button will remove the entry from the table.

7. Select other values from the list fields below the table to change the entry. Changes are made immediately.
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 required values from the list fields.
9. Now click the **OK** button 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 here.

Time server type

Select the protocol that is supported by the selected time server. Preferably, you should select the **SNTP server** as the protocol. This supports a high level of accuracy and is required for special applications and subsequent function extensions.

Select **Time server** for a time server that works with the protocol RFC 868.

4.4 Display Stamping

Various overlays or “stamps” in the video image provide important supplementary information. These overlays can be enabled individually and are arranged on the image in a clear manner. After you set all necessary parameters, click the **View Control** link to see how the stamping appears on the **LIVE** page.

Camera name stamping

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

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

Logo

Click **Choose File** to select a file. Heed the restrictions for file format, logo size, and color depth. **Click Upload** to load the file to the camera.

If no logo is selected, Configuration displays the message, “No file chosen.”

Logo position

Select the position for the logo on the OSD: Left or Right.

Select Off (the default value) to disable logo positioning.

Time stamping

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

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

Display milliseconds

If necessary, you can also display milliseconds. This information can be useful for recorded video images; however, it does increase the processor's computing time. Select **Off** if you do not need to display milliseconds.

Alarm mode stamping

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

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

Alarm message

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

Title OSD

Select **On** to continuously display sector or shot title overlays in the image. Select **Momentary** to display sector or shot title overlays for a few seconds. OSD titles can be displayed at a position of your choice, or it can be set to **Off** for no overlay information.

1. Select the desired option from the list.
2. Specify the exact position (**Position (XY)**).
3. In the **Position (XY)** fields, enter the values for the desired position.

Camera OSD

Select **On** to momentarily display camera response information, such as Digital Zoom, Iris open/close, and Focus near/far overlays in the image. Select **Off** to display no information.

1. Select the desired option from the list.
2. Specify the exact position (**Position (XY)**).
3. In the **Position (XY)** fields, enter the values for the desired position.

Transparent background

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

Video authentication

Select a method for verifying the integrity of the video in the **Video authentication** drop-down box.

If you select **Watermarking** all images are marked with an icon. The icon indicates if the sequence (live or saved) has been manipulated.

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

Enter the interval (in seconds) between insertions of the digital signature.

Signature intervals

Select the interval (in seconds) for the signature.

4.5

GB/T 28181

This page allows you to set the parameters for conformance to the GB/T 28181 national standard "Security and protection video monitoring network system for information transport, switch and control". This standard is specifically for China.

Enable

Select this checkbox to enable the system to use the other parameters on this page in accordance with the GB/T 28181 national standard.

H.264 elementary stream

Select this checkbox to select or to enable the H.264 elementary stream.

Registration timeout

Enter a value (in milliseconds) for the registration timeout. The default is 3600.

Heartbeat timeout

Enter the value (in seconds) for the heartbeat timeout. The default is 15.

Server ID

Enter the ID of the server.

Server IP address

Enter the server IP address.

Device ID

Enter the ID of the device.

Device port

Enter the number of the device port. The default is 5060.

Password

Enter the appropriate password.

Alarm device ID

Enter the ID of the alarm device.

5 Web Interface

5.1 Appearance

Website language

Select the language for the user interface here.

Company logo

Enter the path to a suitable graphic if you want to replace the manufacturer's logo. The image file can be stored on a local computer, in the local network or at an Internet address.

Device logo

Enter the path to a suitable graphic if you want to replace the product name. The image file can be stored on a local computer, in the local network or at an Internet address.



Notice!

If you want to use the original graphics again, simply delete the entries in the **Company logo** and **Device logo** fields.

Show overlay icons

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

JPEG size

You can specify the size of the JPEG image on the **LIVE** page. Options are Small, Medium, Large, 720p, 1080p, and "Best possible" (default).

JPEG interval

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

JPEG quality

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

5.2 LIVE Functions

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

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

Transmit audio

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

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 alarm outputs

Alarm outputs are shown next to the video image as icons, along with their assigned names. If the alarm output is active, the corresponding icon changes color.

Allow snapshots

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

I-frames only stream

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

Show scene list

Here you can specify whether the View Controls section of the **LIVE** page displays a drop-down box with the list of scenes set in Advanced Mode > Camera > Scenes and Tours of the **SETTINGS** page.

Show 'Special Functions'

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

Path for JPEG and video files

1. Enter the path for the storage location of individual images and video sequences that you can save from the **LIVE** page.
2. If necessary, click **Browse** to find a suitable directory.

Video file format

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

6 Camera

6.1 Installer Menu

Base frame rate

This option allows you to set the frame rate that the camera uses to transmit video. Select either 25 ips or 30 ips. If you select 25 ips, the camera will stream video at 25 or 50 ips. If you select 30 ips, the camera will stream video at 30 or 60 ips, depending on the option selected in the Encoder Stream.



Notice!

Changing the Base frame rate or Max. frame rate

A change to the Base frame rate or to the Max. frame rate parameter requires approximately 10-20 seconds to complete. During this time, no changes can be made. The cameo image freezes.

Location

Select the appropriation option. Enter the appropriate additional values in the additional input fields that appear depending on the options selected. Refer to the following table.

Option	Additional Input field
Not set	
Local	X [m] Y [m] Z [m] Pan [deg]
WGS 1984	Latitude Longitude Ground elevation [m] Pan [deg]

Reboot device

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

Factory defaults

Click the **Defaults** button to restore the configuration settings defined in the camera's web server to their default values. A confirmation screen appears. Allow 5 seconds for the camera to optimize the picture after a mode reset.

6.2 Scene Mode

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

Current mode

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

- Indoor
- Outdoor

- Vibrant

Note: When the camera is in an indoor room that often has smoke or has low-contrast and the camera monitors an area facing the outdoors (such as large windows), Bosch recommends to select mode *Outdoor*.

Mode ID

The name of the selected mode is displayed.

Copy mode to

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

Restore mode defaults

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

6.3

Color

Brightness (0...255)

Adjust the brightness with the slider from 0 to 255.

Contrast (0...255)

Adjust the contrast with the slider from 0 to 255.

Saturation (0...255)

Adjust the color saturation with the slider from 0 to 255.

White balance

Select the appropriate white balance mode from the drop-down list.

- **Basic auto** mode allows the camera to continually adjust for optimal color reproduction using an average reflectance method. This is useful for indoor light sources and for colored LED light illumination.
- **Standard auto** mode allows the camera to continually adjust for optimal color reproduction in an environment with natural light sources.

Note: This is the default mode for cameras with a current Scene Mode of *Indoor*.

- **Sodium vapor auto** mode allows the camera to continually adjust for optimal color reproduction in an environment with sodium vapor light sources (street lighting).
- **Dominant color auto** mode takes into account any dominant color in the image (for example, the green of a football pitch or of a gaming table) and uses this information to obtain a well balanced color reproduction.
- In **Manual** mode the Red, Green, and Blue gain can be manually set to a desired position.

Apply white balance

Click **Hold** to put ATW on hold and save the current color settings. The mode changes to manual.

The table below identifies the options available in the field **White balance** and the additional fields that appear depending on the options selected.

Option in field "White balance"	Additional Input field	Additional fields for configuration	NOTES
Basic auto	RGB-weighted white balance	R-weight G-weight B-weight	The 3 "-weight" fields appear only when the option in the field "RGB-weighted white balance" is On.
Standard auto	RGB-weighted white balance	R-weight G-weight B-weight	

Option in field “White balance”	Additional Input field	Additional fields for configuration	NOTES
Sodium vapor auto	RGB- weighted white balance	R-weight G-weight B-weight	
Dominant color auto	RGB- weighted white balance	R-weight G-weight B-weight	
Manual		R-gain G-gain B-gain	

RGB-weighted white balance

In an auto mode, **RGB-weighted white balance** can be switched On or Off. When On, additional fine tuning of the automatic color reproduction can be made with the R, G and B weight sliders.

R-weight

When White balance is in an auto mode, and **RGB-weight white balance** is On, this field appears. Adjust the slide for red-gain weight (from -5-0 to +50, with 0 as the default). Reducing red introduces more cyan.

G-weight

When White balance is in an auto mode, and **RGB-weight white balance** is On, this field appears. Adjust the slide for green-gain weight (from -5-0 to +50, with 0 as the default). Reducing green introduces more magenta.

B-weight

When White balance is in an auto mode, and **RGB-weight white balance** is On, this field appears. Adjust the slide for blue-gain weight (from -5-0 to +50, with 0 as the default). Reducing blue introduces more yellow.

R-gain

In **Manual** white balance mode, adjust the red gain slider to offset the factory white point alignment (reducing red introduces more cyan).

G-gain

In **Manual** white balance mode, adjust the green gain slider to offset the factory white point alignment (reducing green introduces more magenta).

B-gain

In **Manual** white balance mode, adjust the blue gain slider to offset the factory white point alignment (reducing blue introduces more yellow).

6.4

ALC

ALC mode

Select the mode for automatic light-level control:

- Fluorescent 50 Hz
- Fluorescent 60 Hz
- Outdoor

ALC level

Adjust the video output level (-15 to 0 to +15).

Select the range within which the ALC will operate. A positive value is more useful for low-light conditions; a negative value is more useful for very bright conditions. The table below identifies the default values in the Exposure fields, depending on the options selected for ALC mode.

Field	Option	Default values, field "Min. frame rate"	Default values, field "Default shutter"	Default values, field "Shutter time"
ALC mode	Fluorescent 50 Hz	15 ips	1/33	1/100
	Fluorescent 60 Hz	15 ips	1/30	1/120
	Outdoor	15 ips	1/30	1/500

Automatic exposure

Select to let the camera automatically set the optimum shutter speed. The camera tries to maintain the selected shutter speed as long as the light level of the scene permits.

- ▶ Select the minimum frame rate for automatic exposure. (The values available depend on the value set for the **Base frame rate** in the **Installer Menu**.)

Fixed exposure

Select to set a fixed shutter speed.

- ▶ Select the shutter speed for fixed exposure. (The values available depend on the value set for the ALC mode.)

Day/night

Select the appropriate mode from the drop-down list.

Auto - the camera switches the IR cut-off filter on and off depending on the scene illumination level.

Monochrome - the IR cut-off filter is removed, giving full IR sensitivity.

Color - the camera always produces a color signal regardless of light levels.

Switch level

Set the video level at which the camera in **Auto** mode switches to monochrome operation (-15 to 0 to +15).

A low (negative) value means that the camera switches to monochrome at a lower light level. A high (positive) value means that the camera switches to monochrome at a higher light level.

6.5

Enhance

Sharpness level

The slider adjusts the sharpness level between -15 and +15. Zero position of the slider corresponds to the factory default level.

A low (negative) value makes the picture less sharp. Increasing sharpness brings out more detail. Extra sharpness can enhance the details of license plates, facial features and the edges of certain surfaces but can increase bandwidth requirements.

Backlight compensation

Select **Off** to switch off backlight compensation.

Select **On** to capture details in high-contrast and extremely bright-dark conditions.

Contrast enhancement

Select **On** to increase the contrast in low contrast conditions.

Intelligent DNR

Select **On** to activate intelligent Dynamic Noise Reduction (DNR) which reduces noise based on motion and light levels.

Temporal noise filtering

Adjusts the temporal noise filtering level between -15 and +15. The higher the value, the more noise filtering.

Spatial noise filtering

Adjusts the spatial noise filtering level between -15 and +15. The higher the value, the more noise filtering.

Intelligent Defog

With the Intelligent Defog mode feature, visibility can be improved significantly when viewing foggy or other low-contrast scenes.

Select *Auto* to activate the Intelligent Defog feature automatically as needed.

Select *Off* to disable the feature.

Note: When the camera is in an indoor room that often has smoke or has low-contrast and the camera monitors an area facing the outdoors (such as large windows), Bosch recommends to select option *Auto*.

6.6 Scene Mode Scheduler

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

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

6.7 Encoder Profile

For the video signal encoding, you can select a code algorithm and you can change the presets for the profiles.

You can adapt the video data transmission to the operating environment (for example network structure, bandwidth, data load). To this end, the camera simultaneously generates two data streams (Dual Streaming), which compression settings you can select individually, for example one setting for transmissions to the Internet and one for LAN connections.

Pre-programmed profiles are available, each giving priority to different perspectives.

You can change individual parameter values of a profile and you can also change the name.

You can switch between profiles by clicking the appropriate tabs.

**Caution!**

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

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

**Notice!**

All parameters combine to make up a profile and are dependent on one another. If you enter a setting that is outside the permitted range for a particular parameter, the nearest permitted value will be substituted when the settings are saved.

Profile name

Default Profile name	Description
HD Image Optimized	For an HD image, the video bit rate and frame quality are adjusted to ensure that the picture quality is the priority.
HD Balanced	For an HD image, the video bit rate and frame quality are adjusted to a median profile for everyday use.
HD Bit Rate Optimized	For an HD image, the video bit rate and frame quality are adjusted to ensure that the bit rate is the priority.
SD Image Optimized	For an SD image, the video bit rate and frame quality are adjusted to ensure that the picture quality is the priority.
SD Balanced	For an SD image, the video bit rate and frame quality are adjusted to a median profile for everyday use.
SD Bit Rate Optimized	For an SD image, the video bit rate and frame quality are adjusted to ensure that the bit rate is the priority.
DSL Optimized	Ideal for encoding on a DSL uplink where bit rate limitations are critical.
3G Optimized	Ideal for encoding on a 3G uplink where bit rate limitations are critical.

If required, enter a new name for the profile.

Target bit rate

To optimize use of the bandwidth in the network, limit the data rate for the device. 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 bit rate** field.

Maximum bit rate

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

Encoding interval

This parameter determines the interval at which images are encoded and transmitted. For example, entering or selecting 4 means that only every fourth image is encoded, while the following three are skipped, which can be particularly advantageous for networks with low bandwidths. The image rate in (images per second (ips)) appears next to the text field or slider.

Video resolution

Select the desired resolution for the video image.

Expert settings

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

GOP structure

Select the structure that you require for the group of pictures, depending on whether you place greater priority on having the lowest possible delay (IP frames only) or using as little bandwidth as possible.

Options are IP, IBP, and IBBP.

Averaging period

Select the appropriate averaging period as a means of stabilizing the long term bit rate.

I-frame distance

This parameter allows you to set the intervals in which the I-frames will be coded. Auto means auto mode, whereby the video server inserts I-frames as necessary. Values range from 3 to 60. An entry of 3 indicates that I-frames are continuously generated. An entry of 4 indicates that only every fourth image is an I-frame, and so on; the frames in between are coded as P-frames. Note that the values supported depend on the GOP structure setting. For example, only even values are supported with IBP; if you have selected IBBP, only 3 or multiples of 3 are supported.

Min. P-frame QP

This parameter allows you to adjust the image quality of the P-frame and to define the lower limit for the quantization of the P-frames, and thus the maximum achievable quality of the P-frames. In the H.264-protocol, the Quantization Parameter (QP) specifies the degree of compression and thus the image quality for every frame. The lower the quantization of the P-frame (QP value), the higher the encoding quality (and thus the best image quality) and the lower the frame refresh rate depending on the settings for the maximum data rate under network settings. A higher quantization value results in low image quality and lower network load. Typical QP values are between 18 and 30.

The basic setting Auto automatically adjusts the quality to the settings for the P-frame video quality.

I/P-frame delta QP

This parameter sets the ratio of the I-frame quantization (QP) to the P-frame quantization (QP). For example, you can set a lower value for I-frames by moving the slide control to a negative value. Thus, the quality of the I-frames relative to the P-frames is improved. The total data load will increase, but only by the portion of I-frames. The basic setting Auto automatically adjusts to the optimum combination of movement and image definition (focus). To obtain the highest quality at the lowest bandwidth, even in the case of increased movement in the picture, configure the quality settings as follows:

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

Background delta QP

Select the appropriate encoding quality level for a background region defined in Encoder Regions. The lower the QP value, the higher the encoding quality.

Object delta QP

Select the appropriate encoding quality level for an object region defined in Encoder Regions. The lower the QP value, the higher the encoding quality.

Default

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

6.8

Encoder Streams

Note: If you access this menu while the camera is recording, the following message appears at the top of the page:

Recording is currently active. Therefore, for 'Current profile' the respective stream profile selected for recording is displayed for information.

Property

Select one of the H.264 standards for each stream.

Stream 1 (recording)	Options are: <ul style="list-style-type: none"> - H.264 MP SD - H.264 MP 720p25/30 Fixed - H.264 MP 1080p25/30 Fixed; - H.264 MP 720p50/60 Fixed
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Note: In order to select the option "H.264 MP 720p50/60 fixed" here, you must first set the field **Max. frame rate** in Camera > Installer Menu to "50/60 fps (up to 1280 x 720 px)."

Stream 2 (recording)	Options vary depending on Stream 1 selection. Options with "H.264 MP 1080p25/30 Fixed" selected for Stream 1: <ul style="list-style-type: none"> - Copy Stream 1; - H.264 MP SD; - H.264 MP 720p8/10 Fixed; - H.264 MP 1080p4/5 Fixed; - H.264 MP upright (cropped); - H.264 MP D1 4:3 (cropped); Options with "H.264 MP 720p25/30 Fixed" selected for Stream 1: <ul style="list-style-type: none"> - H.264 MP SD; - H.264 MP 720p25/30 Fixed; - H.264 MP upright (cropped); - H.264 MP D1 4:3 (cropped); - H.264 MP 1280x960 (cropped) Option with "H.264 MP SD" selected for Stream 1: H.264 MP SD
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Non-recording profile

Select one of the following profiles for each stream:

Default Profile name	Description
HD Image Optimized	For an HD image, the video bit rate and frame quality are adjusted to ensure that the picture quality is the priority.
HD Balanced	For an HD image, the video bit rate and frame quality are adjusted to a median profile for everyday use.
HD Bit Rate Optimized	For an HD image, the video bit rate and frame quality are adjusted to ensure that the bit rate is the priority.
SD Image Optimized	For an SD image, the video bit rate and frame quality are adjusted to ensure that the picture quality is the priority.
SD Balanced	For an SD image, the video bit rate and frame quality are adjusted to a median profile for everyday use.
SD Bit Rate Optimized	For an SD image, the video bit rate and frame quality are adjusted to ensure that the bit rate is the priority.

Default Profile name	Description
DSL Optimized	Ideal for encoding on a DSL uplink where bit rate limitations are critical.
3G Optimized	Ideal for encoding on a 3G uplink where bit rate limitations are critical.

Note: Non-recording profiles (streams) are I-frame only.

JPEG stream

Select the resolution, frame rate, and image quality parameters for the M-JPEG stream.

- **Resolution:** Select the appropriate resolution.
- **Max. frame rate:** Select one of the following frame rates to be the maximum: 5, 10, 15, 20, 25, or 30 ips.
- **Picture quality:** This setting allows you to adjust the image quality. Use the slide bar to choose a quality between Low and High.

Note: The M-JPEG frame rate can vary depending on system loading.

6.9 Encoder Regions

User can configure encoding regions for every configured preset (preposition/scene), to increase or decrease the encoding quality for selectable areas of the video image. These regions give better control of the bit rate. Important parts of the scene (identified as objects in the GUI) are encoded at high resolution and therefore have an enhanced encoding quality. Less important parts (such as the sky and trees in the background, all identified as backgrounds in the GUI) are encoded at lower quality and therefore have a decreased encoding quality.

Eight encoder regions can be defined. To define encoder regions, follow these steps.

1. From the first drop-down box (the unlabeled Regions selection list), select one of the eight available regions. (The drop-down box has the default option of **Region 1**).
2. Click the + box to add an area.
3. Use the mouse to define the area (shape) that the region covers and to position the area (shape) in the preview of the video image.
 - Drag the center, corner points, or sides of the shaded area (shape).
 - Double-click a side to add additional points to the area (shape).
4. From the last drop-down box (the unlabeled Mode selection list), select the encoder quality for the defined area. (The drop-down box has the default option of *Default*).
For *unimportant* parts of the video image, select **Background**.
For *important* parts of the video image, select **Object**.
(The quality levels for **Background** and for **Object** are defined in the **Expert Settings** section of the page **Encoder Profile**.)
5. For PTZ cameras: From the second drop-down box (the unlabeled Prepositions/Scenes selection list), select a Preposition/Scene to which to add the region. (The drop-down list is *blank* by default unless you have defined at least one scene, in which case the default is **Preposition 1** or the custom name for the preposition).
Note: If you have not yet defined any prepositions/scenes, refer to Prepositions and Tours.
6. If required, select another region and repeat the steps.
7. To remove a region, select the area and click the waste bin icon.
8. Click **Set** to apply the region settings.

6.10 Privacy Masks

Privacy Masking is used to block out a specific area of a scene from being viewed. Masks can be configured as a gray area with four corners. You may define a total of 24 privacy masks.

Pattern

Select the color of the mask as it will appear in live video: **Black**, **White**, or **Gray**.

Privacy mask

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

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

- To amend the shape of a zone, place the cursor over the edge of the zone, hold down the mouse button and drag the edge of the zone to the required position.
- To reposition a zone, place the cursor over the zone, hold down the mouse button and drag into position.



Notice!

Draw the mask 10% larger than the object to ensure that the mask completely covers the object as the camera zooms in and out. Click the check box **Zoom threshold**.

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

Enabled

Select this check box to enable the corresponding Privacy Mask zone.

Clear this check box to disable (hide) an individual Privacy Mask zone.

- To hide all masks from an image view, click the check box **Disable masks**.

Note: If you choose to hide all masks, you must enable each individual mask to show the mask in the scene.

Zoom threshold

Click this check box so that the mask will cover the selected area completely as the camera zooms in and out.

6.11 Lens Settings

Autofocus

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

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

Focus priority range

(previously titled **Near focus limit**)

Select the range of the focus priority of the camera: 10 cm, 3 m, 5 m, or 10 m.

For indoor cameras, the default value is 10 cm.

For outdoor cameras, the default value is 3 m.

Focus speed

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

IR focus correction

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

Maximum zoom speed

Controls the zoom speed.

Digital zoom

Digital zoom is a method of decreasing (narrowing) the apparent angle of view of a digital video image. It is accomplished electronically, without any adjustment of the camera's optics, and no optical resolution is gained in the process. Select Off to disable or Standard to enable this feature. The default setting is Standard.

6.12

PTZ Settings

Auto pan speed

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

Inactivity

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

- **Off** (default): camera remains on a current scene indefinitely.
- **Scene 1**: camera returns to Preset 1.
- **Previous Aux**: camera returns to the previous activity.

Inactivity period

Determines the behavior of the dome when the control for dome is inactive. Select a time period from the pull-down list (3 sec. - 10 min.). The default setting is 2 minutes.

Auto pivot

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

Freeze frame

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

Turbo mode

Select On to set the camera in Turbo mode when an operator pans or tilts the camera manually. In this mode, the camera can pan at a maximum of 400° per second, and tilt at a maximum of 300° per second.

Azimuth

Select On to display azimuth/elevation readings.

Select Off to hide azimuth/elevation readings.

Max. PT speed [%]

Sets the maximum pan/tilt speed (in percent). Settings range from 1 to 100. The default is 100.

Tilt up limit

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

Tour A / Tour B

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

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

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

To record a tour:

1. Click the Start Recording button. The system prompts you to overwrite the existing tour.
2. Click Yes to overwrite the existing tour movements.

3. Click the View Control link, under the image cameo, to access the directional and zoom controls.
4. Use the View Control dialog box to make the necessary camera movements.
5. Click the Stop Recording button to save all actions.

Compass

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

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

To set the North calibration point:

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

North point

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

6.13

Prepositions and Tours

The camera can store up to 256 preset scenes. You can define the individual scenes that comprise a **preposition tour**.

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

By default, all scenes are part of the preposition tour unless removed.

To define and edit an individual preposition:

1. Set the preposition in the video image.
 - Use the PTZ controls to move the camera into position.
 - Using the Live preview window as reference, navigate to the scene that you want to define as a preposition.
2. Click the button **Add preposition** (“+”) to define the preposition.
3. Select a number for the preposition, from 1 to 256.
4. Type an optional name for the preposition, up to 20 characters long.
5. Click OK to save the preposition to the list **Prepositions**.
6. To include the preposition in a standard tour, select the check box to the left of the field “**Include in standard tour (marked with *)**.” An asterisk (*) appears to the left of the name in the list **Prepositions**.
7. For IR cameras only: To add IR light to the preposition, select the check box to the left of the field “**IR light (marked with #)**”.
8. To delete a preposition from the list, select the preposition and click the button **Delete**

preposition ()

9. To overwrite an existing preposition:

- Use the PTZ controls to navigate to the new preposition.
 - In the list **Prepositions**, select the preposition that you want to overwrite.
 - Click the button **Overwrite preposition** (disk icon) to apply the new preposition to the existing preposition.
 - To change the name of the preposition, double-click the preposition in the list. Then, change the name in the dialog box **Edit Preposition** and click OK.
10. To view a preposition in the preview window, select the preposition in the list and click the button **Show preposition** (eye icon).
 11. To view a preposition from the **Live** page:
 - Click a preposition number in the list **Prepositions**.
 - OR
 - Use the keypad and the button **Show preposition** in **AUX Control**.

To define a preposition tour:

1. Create the individual prepositions.
By default, all scenes in the list **Prepositions** are in the preposition tour.
2. To remove a preposition from the tour, select the preposition in the list and uncheck the box **Include in standard tour (marked with *)**.
3. Select a dwell time from the drop-down list **Standard preposition tour**.
4. To start the preposition tour:
Return to the **Live** page.
Click **AUX Control**.
Type **8** in the input box and click **AUX on**.
5. To stop the tour, type **8** and click **AUX off**.

6.14 Sectors

Sector

The camera's pan capability is 360° and is divided into 16 equal sectors. This section allows you to apply a title for each sector and to designate any sectors as a Blanked Sector.

To define a title for sectors:

1. Place the cursor in the input box to the right of the sector number.
2. Type a title for the sector, up to 20 characters long.
3. To blank the sector, click the check box to the right of the sector title.

6.15 Miscellaneous

Fast address

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

6.16 Illuminator

IR mode

By default, the camera is set to automatic illuminator mode (Auto). To deactivate this mode, select Off.

IR near intensity limit

Select the limit (percentage) of intensity for IR at near focus range. Values range from 0 to 100 (default).

IR far intensity limit

Select the limit (percentage) of intensity for IR at far focus range. Values range from 0 to 100 (default).

For both intensity limit parameters, use a lower number to lower the percentage of intensity if the scene is overexposed with IR illumination.

IR Operation Range

Select the zoom factor or range for the IR light:

- 1X-30X (default)
- 5X-30X
- 10X-30X
- 20X-30X

Spotlight mode

Select On to set the camera in spotlight mode. By default, this option is Off.

6.17

Audio

Audio

You can set the gain of the audio signals to suit your specific requirements. The live video image is shown in the window to help you check the audio source. Your changes are effective immediately.

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

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

Input volume

Set the input volume using the slide. Values range from 0 to 236.

Line Out

Set the line output gain using the slider. Values range from 0 to 143.

Recording format

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

AAC audio technology is licensed by Fraunhofer IIS.

(<http://www.iis.fraunhofer.de/amm/>)

6.18

Pixel Counter

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

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

7 Recording

7.1 Storage Management

7.1.1 Device manager

An external Video Recording Manager (VRM) system for the unit is configured via the Configuration Manager. The **Managed by VRM** box is only an indicator; it cannot be changed here.

If the **Managed by VRM** box is checked, you are not able to configure any further recording settings on this page.

7.1.2 Recording media

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

iSCSI Media

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

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

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

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

Local Media

An SD card inserted in the camera can be used for local recording (not available on some cameras).

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

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

Note:

SD card recording performance is highly dependent on the speed (class) and performance of the SD card. An SD card of Class 6 or higher is recommended.

7.1.3 Activating and configuring storage media

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

Note:

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

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

3. Check the box in the **Rec. 1** or **Rec. 2** column to specify the recording tracks to be recorded on the target selected.

7.1.4 Formatting storage media

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

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

7.1.5 Deactivating storage media

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

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

7.2 Recording Profiles

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

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

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

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

Stream profile settings

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

Recording includes

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



Caution!

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

Standard recording

Here you can select the mode for standard recordings.

If you select **Continuous**, the recording proceeds continuously. If the maximum memory capacity is reached, older recordings will automatically be overwritten. If you select the **Pre-alarm** option, recording will only take place in the pre-alarm time, during the alarm and during the set post-alarm time.

If you select **Off**, no automatic recording takes place.

**Caution!**

You can specify limitations for overwriting older recordings in **Continuous** mode by configuring the retention time (see Retention Time).

Stream

Select the stream to be used for standard recordings:

- Stream 1
- Stream 2
- I-frames only

Alarm recording**Pre-alarm time**

You can select the required pre-alarm time from the list field.

Post-alarm time

You can select the required post-alarm time from the list field.

Alarm stream

Select the stream to be used for alarm recordings:

- Stream 1
- Stream 2
- I-frames only

Encoding interval and bit rates from profile

Select this checkbox and then select an encoder profile to set the associated encoding interval for alarm recording.

Alarm triggers**Alarm input / Analysis alarm / Video loss**

Here you can select the alarm sensor that is to trigger a recording.

Virtual alarm

Here you can select the virtual alarm sensors that are to trigger a recording, via RCP+ commands or alarm scripts, for example.

**Notice!**

For more information, please see the Alarm Task Script Language document and the RCP+ documentation. For the latest version of these documents access your Bosch product catalog on the Internet.

Export to account

Select this parameter if you want all alarm recordings to be exported to an FTP server automatically. Make sure to have inserted all relevant data for FTP posting.

7.3

Maximum Retention Time

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

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

Make sure that the retention time does not exceed the available recording capacity.

7.4

Recording Scheduler

The recording scheduler allows you to link the created recording profiles with the days and times at which the camera's images are to be recorded in the event of an alarm.

You can link any number of 15-minute intervals with the recording 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 the **Select All** button to link all time intervals to the selected profile.
5. Click the **Clear All** button to deselect all of the intervals.
6. When you are finished, click the **Set** button to save the settings in the unit.

Holidays

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

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

Deleting Holidays

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

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

Time periods

You can change the names of the recording profiles.

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

Activating the Recording

After completing configuration you must activate the recording scheduler and start the recording. Once recording is underway, the **Recording Profiles** and **Recording Scheduler** pages are deactivated and the configuration cannot be modified.

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

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

Recording status

The graphic indicates the recording activity of the camera. You will see an animated graphic while recording is taking place.

7.5

Recording Status

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

8 Alarm

8.1 Alarm Connections

You can select how the camera responds to an alarm. In the event of an alarm, the unit can automatically connect to a pre-defined IP address. You can enter up to ten IP addresses to which the camera will connect in sequence in the event of an alarm, until a connection is made.

Connect on alarm

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

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



Notice!

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

Number of destination IP address

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

Destination IP address

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

Destination password

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

In this page, you can save a maximum of ten destination IP addresses and hence up to ten passwords for connecting to remote stations. If connections to more than ten remote stations are to be possible, for example when initiating connections via higher-ranking systems such as VIDOS or Bosch Video Management System, you can store a general password here. The camera can use this general password to connect to all remote stations protected with the same password. In this case, proceed as follows:

1. Select **10** from the **Number of destination IP address** list field.
2. Enter the address **0.0.0.0** in the **Destination IP address** field.
3. Enter your chosen password in the **Destination password** field.
4. Define this password as the **user** password for all remote stations to which a connection is to be possible.



Notice!

If you enter the destination IP address 0.0.0.0 for destination 10, this address will no longer be used for the tenth attempt at automatic connection in the event of an alarm. The parameter is then used only to save the general password.

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**.



Caution!

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

Stream

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

Remote port

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

Video output

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



Notice!

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

Decoder

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. For example, you can specify via a VIP XD that the upper-right quadrant should be used to display the alarm image by selecting decoder 2.

SSL encryption

The data for the connection, for example the password, can be securely transmitted with SSL encryption. If you have selected the **On** option, only encrypted ports are offered in the **Remote port** parameter.



Notice!

Please note that the SSL encryption must be activated and configured at both ends of a connection. This requires the appropriate certificates to be uploaded onto the camera.

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

Auto-connect

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



Notice!

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

Audio

Select On to activate audio alarms.

8.2**VCA****VCA configuration**

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

You can rename the profile.

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

The default option is Profile #1.

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

Preposition

Select the number of a stored preposition from the drop-down list. If you do not want to select a preposition, select Off.

Alarm status

The alarm status is displayed here for information purposes. This means you can check the effects of your settings immediately.

Aggregation times

Use the slider (from 0 (zero) to 20 (0 is the default)) to select the aggregation times.

Set an aggregation time of between 0 and 20 seconds. The aggregation time always starts when an alarm event occurs. It extends the alarm event by the value set. This prevents alarm events that occur in quick succession from triggering several alarms and successive events in a rapid sequence. No further alarm is triggered during the aggregation time.

The post-alarm time set for alarm recordings only starts once the aggregation time has expired.

Analysis type

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

**Notice!**

Additional analysis algorithms with comprehensive functions such as IVMD and IVA are available from Bosch Security Systems Inc.

If you select one of these algorithms, you can set the corresponding parameters here directly. You can find information on this in the relevant documents on the product CD supplied.

Metadata is always created for a video content analysis, unless this was explicitly excluded. 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. Options are: MOTION+, IVA 5.6, IVA 5.6 Flow. With the **MOTION+** analysis type, for example, the sensor fields in which motion is recorded will be marked with rectangles.

**Notice!**

On the **LIVE Functions** page, you can also enable additional information overlays for the **LIVE** page (see *LIVE Functions*, page 18).

Global change

You can 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 instance.

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 lens) 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 lens (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), as an example, should trigger an alarm.

8.3

Audio Alarm

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



Notice!

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

Audio alarm

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

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

Signal Ranges

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

Threshold

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

Sensitivity

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

8.4 Alarm E-Mail

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

Send alarm e-mail

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

Mail server IP address

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

SMTP user name

Enter a registered user name for the chosen mailserver here.

SMTP password

Enter the required password for the registered user name here.

Format

You can select the data format of the alarm message.

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



Caution!

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

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

Image size

Select the appropriate image size: Small, Medium, Large, 720p, 1080p.

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 address

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

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

Test e-mail

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

8.5 Alarm Task Editor



Caution!

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

In order to edit this page, you must have programming knowledge and be familiar with the information in the Alarm Task Script Language document.

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

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

8.6 Alarm Rules

An alarm rule can define which input(s) activate which output(s). Basically, an alarm rule allows you to customize the camera to respond automatically to different alarm inputs. To configure an alarm rule, specify one input from a physical connection, from a motion detection trigger, or from a connection to the camera's LIVE page. The physical input connection can be activated by dry contact devices such as pressure pads, door contacts, and similar devices.

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

1. Click the check box **Enabled** to activate the alarm.
2. Click Input 1 (a physical alarm connection).
3. Select the appropriate input:
 - Alarm input: If you select this option, then a second Input field (a physical alarm connection) appears to the right, with the options *1: Input 1* or *2: Input 2*.
 - Day/night
 - IVA/MOTION+: If you select this option, then an alarm will begin when IVA or motion detection is activated.
 - Connection: If you select this option, then an alarm will begin when an attempt is made to access the camera's IP address.
 - Time: If you select this option, then an input field appears to the right. In this field, enter the time for the activation of the alarm in hours and minutes. (The default value is 00:00.)
 - Time range: If you select this option, then two input fields appear to the right. In these fields, enter the time range for the activation of the alarm in hours and minutes. (The default values are 00:00 and 00:01.)
4. Choose one of the following output commands for both Output 1 and Output 2 settings:
Note: Not all options are available for all cameras.
 - None: no defined command.
 - Alarm Output: defines a physical connection from the open collector alarm output.
 - AUX On: defines a standard or custom keyboard ON command.

- AUX Off: defines a standard or custom keyboard OFF command.
- Scene: defines a preset scene from shot 1-256.
- Monochrome: switches the camera video to monochrome mode.

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

The table below identifies the Input and Output options and the additional fields that appear depending on the options selected.

Field	Value	Additional Input field	Additional Output field	NOTES
Input	Alarm input Day/night IVA/MOTION+ Connection Time Time range	1: Input 1 2: Input 2 00:00 00:00 00:00		
Output 1 / Output 2	None Alarm output AUX on / AUX off Scene		1: Output 1 1: Scan 360° 7: Custom tour 8: Scene tour 18: Auto pivot 57: Night mode 60: On-screen display 67: IR focus correction 80: Digital zoom Scene 1 Scene 2	Not available as an Output if Input is "Time range".

(Refer to the *AUX Commands Table*, page 56 in the User / Operation Manual for a list of all AUX commands for your camera.)

9 Interfaces

9.1 Alarm Inputs

Alarm input

Select **N.O.** if the alarm is to be triggered when the contact closes. Select **N.C.** if the alarm is to be triggered when the contact opens.

Name

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



Caution!

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

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

9.2 Alarm Outputs

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

Select an operating mode for the relay.

For example, if you want an alarm-activated lamp to stay on after the alarm ends, select

Bistable. If you wish an alarm-activated siren to sound for ten seconds, for example, select **10 s**.

Output name

Enter a name for the alarm output.

Output name / Toggle

Click the button to test the relay / output connection.

10 Network

10.1 Network Access

The settings on this page are used to integrate the camera into an existing network.

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 camera.

Certain applications (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.

IPv4

Fill in the 3 fields in this section of the screen.

IP address

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

Subnet mask

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

Gateway address

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

IPv6

Consult with the network administrator before making changes to this section.

IP address

Enter the desired IP address for the camera in this field. The IP address must be valid for the network. A typical IPv6 address may resemble the following example:

2001:db8::52:1:1

Consult the network administrator for valid IPv6 address construction.

Prefix length

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

Gateway address

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

DNS server address 1 / DNS server address 2

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

Video transmission

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



Notice!

Multicast operation is only possible with the UDP protocol. The TCP protocol does not support multicast connections. The MTU value in UDP mode is 1,514 bytes.

TCP rate control

Select On to control the rate of transmission control protocol. Select Off if you do not want to control the TCP rate.

HTTP browser port

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

HTTPS browser port

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

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



Notice!

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

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

RCP+ port 1756

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

Telnet support

If you want to allow only secure connections with encrypted data transmission, you must select the **Off** option to deactivate Telnet support. The unit will then no longer be accessible using the Telnet protocol.

Interface mode ETH

Select the Ethernet link type for the ETH interface.

Options are:

- Auto
- 10 Mbps HD (half duplex)
- 10 Mbps FD (full duplex)
- 100 Mbps HD (half duplex)
- 100 Mbps FD (full duplex)

Network MSS (Byte)

You can set the maximum segment size for the IP packet's user data. This gives you the option to adjust the size of the data packets to the network environment and to optimize data transmission. Please comply with the MTU value of 1,514 bytes in UDP mode.

iSCSI MSS (Byte)

You can 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.

Network MTU (Byte)

The value in the field defaults to 1514.

10.2 DynDNS

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 camera 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.



Notice!

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

Provider

The value in this field defaults to `dyndns.org`. Select another option as necessary.

Host name

Enter the host name registered on DynDNS.org for the camera 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 camera, click the **Register** button.

Status

The status of the DynDNS function is displayed here for information purposes. You cannot change any of these settings.

10.3 Advanced

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

Operation

The operation mode determines how the camera communicates with Cloud-based Security and Services.

- Select **Auto** to allow the camera to poll the server a few times; if no contact is made, it stops polling.
- Select **On** to constantly poll the server.
- Select **Off** to block polling.

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.

Authentication

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

To configure the unit, you must connect the camera directly to a computer using a network cable. This is because communication via the network is not enabled until the **Identity** and **Password** parameters have been set and successfully authenticated.

Identity

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

Password

Enter the password that is stored in the RADIUS server.

TCP port

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

Sender IP address

Enter the IP address of the TCP metadata sender here.

10.4

Network Management

SNMP

The camera supports the SNMP V1 (Simple Network Management Protocol) for managing and monitoring network components, and can send SNMP messages (traps) to IP addresses. The unit supports SNMP MIB II in the unified code. If you wish to send SNMP traps, enter the IP addresses of one or two required target devices here.

If you select **On** for the **SNMP** parameter and do not enter an SNMP host address, the camera does not send them automatically, but only replies to SNMP requests. If you enter one or two SNMP host addresses, SNMP traps are sent automatically. Select **Off** to deactivate the SNMP function.

1. SNMP host address / 2. SNMP host address

If you wish to send SNMP traps automatically, enter the IP addresses of one or two required target units here.

SNMP traps

You can select which traps are to be sent.

1. Click **Select**. A list is opened.
2. Click the checkboxes to select the required traps. All the checked traps will be sent.
3. Click **Set** to accept the selection.

UPnP

You can activate the Universal Plug and Play (UPnP) function. If the function is turned on, the unit responds to requests from the network and is automatically registered on the requesting computers as a new network device. For example, access to the unit can then be made using Windows Explorer without knowledge of the IP address of the unit.



Notice!

To use the UPnP function on a computer, both the Universal Plug and Play Device Host and SSDP Discovery Service must be active in Windows XP and Windows 7.

Quality of service

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

Consult with your network administrator for assistance configuring the **Audio**, **Video**, **Control**, and the **Alarm video** settings, and to select the appropriate **Post-alarm time**.

The priority of the different data channels can be set by defining the DiffServ Code Point (DSCP). Enter a number between 0 and 252 as a multiple of four. For alarm video you can set a higher priority than for regular video and you can define a Post Alarm Time over which this priority is maintained.

10.5

Multicast

In addition to a 1:1 connection between an encoder and a single receiver (unicast), the camera can enable multiple receivers to receive the video signal from an encoder simultaneously. The device either duplicates the data stream itself and then distributes it to multiple receivers (Multi-unicast) or it sends a single data stream to the network, where the data stream is simultaneously distributed to multiple receivers in a defined group (Multicast). You can enter a dedicated multicast address and port for each stream. You can switch between the streams by clicking the appropriate tabs.



Notice!

Multicast operation requires a multicast-enabled network that uses the UDP and the Internet Group Management IGMP protocols. Other group management 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 will be 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.



Notice!

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 for each stream to be operated in multicast mode (duplication of the data streams in the network).

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



Notice!

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

Port

Assign a different port to each data stream if there are simultaneous data streams at the same multicast address.

Enter the port address of the required stream here.

Streaming

Click the checkbox to activate multicast streaming mode for the relevant stream. An enabled stream is indicated by a check mark.

Multicast packet TTL

You can enter a value to specify how long the multicast data packets are active on the network. This value must be greater than one if multicast is to be run via a router.

10.6

Image Posting

You can save individual JPEG images on an FTP server at specific intervals. You can then retrieve these images at a later date to reconstruct alarm events if required. In order to configure image posting, and to save and retrieve JPEG images, you must create an Account in which to save and access them. If you have not configured an account, the following error message appears at the top of this page: “No configured account. Configure accounts.” Click the link to access the Accounts page.

Image size

Select the size of the images that you want to save:

- Small
- Medium
- Large
- 720p
- 1080p

File name

You can select how file names will be created for the individual images that are transmitted.

- **Overwrite** The same file name is always used and any existing file will be overwritten with 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 unit's date and time are always correctly set. Example: 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 will be sent to an FTP server. Enter 0 (zero) if you do not want any images to be sent.

Target

Select the target—the name of the account on the server—to which to save images.

When face recognition is available, selected images of the face can be sent to a target account.

Enable

Click this checkbox to enable face detection.

File format

Select the file format in which to save images. Options are JPEG (default), YUV420, TIFF.

Timeout [s]

Enter the number of seconds after which image posting will time out. The default is 0 (no timeout).

Maximum image width [px]

Enter a number for the maximum width, in pixels, for the saved images. For automatic width selection, use value “0.”

10.7 Accounts

Four separate accounts can be defined for posting and recording export.

Type

Select either FTP or Dropbox for the account type.

Before using a Dropbox account ensure that the time settings of the device have been correctly synchronized.

Account name

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

IP address

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

Login

Enter the login ID for the server.

Password

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

Path

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

Maximum bit rate

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

10.8 IPv4 Filter

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

IP Address 1 / 2

Enter the IPv4 address that you want to allow or block

Mask 1 / 2

Enter the subnet mask for the appropriate IPv4 address.

11 Service

11.1 Maintenance

Update server

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

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

Firmware

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



Notice!

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

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

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

Progress

The progress bar displays the progress of the firmware upload.

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

Upload history

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

Configuration

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

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

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

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

Maintenance log

You can 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.

11.2 Licenses

This window is for the activation of additional functions by entering activation codes. An overview of installed licenses is shown. The installation code of the unit is also displayed here.

11.3 Certificates

Usage list

HTTPS server

Select the default certificate for the HTTPS server.

EAP-TLS client

Select the client for Extensible Authentication Protocol-Transport Layer Security (EAP-TLS).

Note: The only option may be “None.”

EAP-TLS trusted

Select the trusted certificate for Extensible Authentication Protocol-Transport Layer Security (EAP-TLS).

To add a certificate, click the plus sign.

To delete a certificate, click the trashcan icon to the right of the certificate. **Note:** You can delete only certificates that you have added; you cannot delete the default certificate.

TLS-DATE trusted

Select the trusted certificate for TTLS-DATE.

To add a certificate, click the plus sign.

To delete a certificate, click the trashcan icon to the right of the certificate. **Note:** You can delete only certificates that you have added; you cannot delete the default certificate.

ADFS CA trusted

Select the trusted certificate for Active Directory Federation Services Certification Authority (ADFS CA).

To add a certificate, click the plus sign.

To delete a certificate, click the trashcan icon to the right of the certificate. **Note:** You can delete only certificates that you have added; you cannot delete the default certificate.

File list**Add a certificate/file to the file list**

1. Click **Add**. The Add certificate window appears.
2. Click **Choose File** to navigate to the required file.
3. Click **Upload**.

Delete a certificate from the file list

Click the trashcan icon. The Delete Trusted certificate window appears. To confirm deletion, click OK. To cancel deletion, click Cancel.

Download a certificate

Click the disk icon.

11.4

Diagnostics

Accesses the Built-in Self Test (BIST). The BIST displays a Pass or Fail status on the most recent homing event, not a counter. For the other items, a counter is maintained.

Click the **Start Self test** button to display the number of times the camera:

- performed a homing event.
- failed to home properly.
- restarted.
- lost video.

Logs

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

11.5

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.

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Operation

Behavior of the camera in motion when in Autofocus mode *Auto Focus*

The camera displays the following behavior when in motion when set to the Autofocus mode *Auto Focus* (continuous/always active):

- The camera runs autofocus continuously to keep the objects in focus when in manual motion.
- Autofocus does not activate if the camera is moving between pre positions.
- Bosch recommends that users turn off Autofocus when the camera is moving at very high speed (>60°/second).
- Autofocus compensates for focus distortion from the camera bubble.
- Autofocus does not get “distracted” by bright light sources. For example, under low light scenes, the camera does not try to focus on the bright light sources (such as a street light) instead of on low illumination regions (such as the street).
- Autofocus tries to keep the objects at the center of the scene under the best focus. This is especially important when operators try to track a moving person or vehicle.
- The minimum distance for objects from the camera is 3 m. Users can increase the minimum focus distance to the following values to improve the focus speed (using the field **Near focus limit** in the menu **Lens Settings**):
 - Near: 3 m
 - Medium: 5 m
 - Far: 10 m

Behavior of the camera in motion when in Autofocus mode *One Push*

The camera displays the following behavior when in motion when set to the Autofocus mode *One Push* (often called “Spot Focus”):

- By default, the camera is forced into *Auto Focus* mode when panning, tilting, or zooming (PTZ). That is, the camera overrides the Autofocus mode *One Push* and switches to Autofocus mode *Auto Focus* (continuous/always active).
- When the camera stops, the camera tries to find the best focus position within 5 seconds of stopping and then keeps the focus setting until triggered by manual PTZ commands.
- Switching from day mode to night mode (in the menu ALC) triggers the Autofocus mode *One Push*.
- When on preset tours, the camera triggers the auto focus commands as soon the camera stops moving. Users can save the focus position when saving presets.

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AUX Commands**AUX Commands Table**

AUX	Function	Description	Notes
1	On/Off	AutoPan (Continuous)	
7	On/Off	Run Custom Pre-Position Tour	
8	On/Off	Run Pre-Position Tour	
18	On/Off	AutoPivot Enable	
20	On/Off	Backlight Compensation (BLC)	
40	On/-	Reset to default settings	
50	On/Off	Playback A, continuous	
51	On/Off	Playback A, single	
52	On/Off	Playback B, continuous	
53	On/Off	Playback B, single	
54	On/Off	IR mode	AUX ON sets IR to Auto. AUX OFF sets IR to OFF.
57	On/Off	Night mode IR Filter In/Out	
60	On/Off	On-Screen Display (OSD)	
67	On/Off	Focus adjust for external IR Illuminators	
80	On/Off	Digital Zoom lock	
88	On/Off	Proportional Speed	
94	On/-	Recalibrate Azimuth Compass	
95	On/Off	Azimuth/Elevation Display	
96	On/Off	Compass Points Display	
100	On/Off	Record A	
101	On/Off	Record B	
149	On/Off	Turbo Mode toggle	
700	On/Off	Proportional speed control adjustment	Aux On, entered repeatedly, cycles through increasing speeds Super Slow, Slow, Medium, and Fast. Aux Off, decreases speeds through the same settings.
804	On/Off	Mask Calibration Procedure	
908	On/Off	Privacy mask enlargement toggle	Aux On enables privacy mask enlargement during PTZ movement. Aux Off disables enlargement.

AUX	Function	Description	Notes
1-256	Set/-	Pre-position Programming	
1-256	-/Shot	Pre-position Recall	

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