# VIP X1600 XFM4

VIP-1600-XFM4A | VIP-1600-XFM4B

BOSCH

**en** Installation and Operating Manual

# Table of Contents

# 1 Preface

## 1.1 About this Manual

This manual is intended for persons responsible for the installation and operation of the VIP X1600 XF. International, national and any regional electrical engineering regulations must be followed at all times. Relevant knowledge of network technology is required. The manual describes the installation and operation of the unit.

## 1.2 Conventions in this Manual

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

⚠

**CAUTION!**
This symbol indicates that failure to follow the safety instructions described may endanger persons and cause damage to the unit or other equipment.
It is associated with immediate, direct hazards.

ℹ

**NOTICE!**
This symbol refers to features and indicates tips and information for easier, more convenient use of the unit.

## 1.3 Intended Use

The VIP X1600 XF network video server is intended for use with CCTV systems and serves to transfer video and control signals via data networks (Ethernet LAN and Internet). The optional modules for installation determine the range of functions. Encoder modules (senders) and decoder modules (receivers) are available. The encoder modules each contain RAM memory for short-term recording of connected cameras. Audio signals can also be transmitted with the audio versions of the encoder modules. Various functions can be triggered automatically by incorporating external alarm sensors. Other applications are not permitted.
In the event of questions concerning the use of the unit which are not answered in this manual, please contact your sales partner or:

Bosch Sicherheitssysteme GmbH
Werner-von-Siemens-Ring 10
85630 Grasbrunn
Germany
www.boschsecurity.com

## 1.4 EU Directives

The VIP X1600 XF network video server complies with the requirements of EU Directives 89/336 (Electromagnetic Compatibility) and 73/23, amended by 93/68 (Low Voltage Directive).

## 1.5 Rating Plate

For exact identification, the model name and serial number are inscribed on the rating plate on the bottom of the VIP X1600 XF base system and on the rating plates on the circuit boards of the modules. Please make a note of this information before installation, if necessary, so as to have it to hand in case of questions or when ordering spare parts.

# 2 Safety Information

## 2.1 Electric Shock Hazard

- Always install a module in the appropriate VIP-X1600-XFB base system or VIP-X1600-B base system housing only.
- If a fault occurs, disconnect the VIP X1600 XF from the power supply and from all other units.
- Install the power supply and the unit only in a dry, weather-protected location.
- If safe operation of the unit cannot be ensured, remove it from service and secure it to prevent unauthorized operation. In such cases, have the unit checked by Bosch Security Systems.

  Safe operation is no longer possible in the following cases:
  - if there is visible damage to the unit or power cables,
  - if the unit no longer operates correctly,
  - if the unit has been exposed to rain or moisture,
  - if foreign bodies have penetrated the unit,
  - after long storage under adverse conditions, or
  - after exposure to extreme stress in transit.

## 2.2 Installation and Operation

- The relevant electrical engineering regulations and guidelines must be complied with at all times during installation.
- Relevant knowledge of network technology is required to install the unit.
- Before installing or operating the module, please ensure you have read and understood the documentation for the VIP X1600 XF base system and for any other equipment connected to the module, such as monitors. The documentation contains important safety instructions and information about permitted uses.
- Perform only the installation and operation steps described in this manual. Any other actions may lead to personal injury, damage to property or damage to the equipment.

## 2.3 Maintenance and Repair

- Never open the housing of a VIP X1600 XF base system. The unit does not contain any user-serviceable parts. Remove only the supplied cover when installing a module.
- Do not change any components in a VIP X1600 XF base system or a module. The units do not contain any user-serviceable parts.
- Never open the housing of the power supply unit. The power supply unit does not contain any user-serviceable parts.
- Ensure that all maintenance or repair work is carried out only by qualified personnel (electrical engineers or network technology specialists).

# 3 Product Description

## 3.1 Parts Included

- VIP-X1600-XFM4A or VIP-X1600-XFM4B encoder module
- Mounting kit for installation in the VIP X1600 XF base system
- Terminal plugs
- Quick Installation Guide

**NOTICE!**
Check that the delivery is complete and in perfect condition. Arrange for the unit to be checked by Bosch Security Systems if you find any damage.

## 3.2 System Requirements

**General Requirements**

- VIP-X1600-XFB base system or VIP-X1600-B base system housing
- Computer with Windows XP or Windows Vista operating system
- Network access (Intranet or Internet)
- Screen resolution at least 1,024 × 768 pixels
- 16- or 32-bit color depth
- Installed Sun JVM

**NOTICE!**
Please note the information in the **System Requirements** document on the product CD supplied with the VIP X1600 XF base system. If necessary, you can install the required programs and controls from the product CD.
The Web browser must be configured to enable Cookies to be set from the IP address of the unit.
In Windows Vista, deactivate protected mode on the **Security** tab under **Internet Options**.
You can find notes on using Microsoft Internet Explorer in the online Help in Internet Explorer.

**Additional Configuration Requirements**

- Microsoft Internet Explorer (version 6.0 or higher)
  or
- Installed Configuration Manager program (version 3.0 or higher)

**Additional Operational Requirements**

- Microsoft Internet Explorer (version 6.0 or higher)
  or
- Receiver software, for example VIDOS (version 4.0 or higher) or Bosch Video Management System (version 2.2 or higher)
  or
- H.264-compatible hardware decoder from Bosch Security Systems (for example VIP XD) as a receiver and connected video monitor
- For playing back recordings: connection to storage medium

## 3.3 Overview of Functions

**Network Video Encoder**

The VIP X1600 XFM4 encoder module is a network video server for up to four independent video channels. It is primarily designed for encoding video and control data for transfer over an IP network. Audio signals can also be transmitted to compatible units.  The use of existing networks means that integration with CCTV systems or local networks can be achieved quickly and easily. The module offers the complete resolution of 4CIF on both streams of all four of the channels, at the complete image rate of 25 (PAL) or 30 (NTSC) images per second. Video images from a single sender can be received simultaneously on multiple receivers.

The encoder module VIP X1600 XFM4 is designed for installation in the VIP X1600 XF base system. Installing the units is a quick and easy operation that does not require any additional tools. All modules are hot swappable and can be exchanged while the system is running.

**Receiver**

Compatible H.264-enabled hardware decoders can be used as receivers, for example VIP XD. Computers with decoding software such as VIDOS or computers with the Microsoft Internet Explorer Web browser can also be used as receivers.

**Video Encoding**

The VIP X1600 XFM4 encoder module uses the H.264 video compression standard. Thanks to efficient encoding, the data rate remains low even with high image quality and can also be adapted to local conditions within wide limits.

**Dual Streaming**

Dual Streaming allows the incoming data stream to be encoded simultaneously according to two different, individually customized profiles. This feature creates two data streams that can serve different purposes, for example one for recording and one optimized for live transmission over the LAN.

**Multicast**

In suitably configured networks, the multicast function enables simultaneous real-time video transmission to multiple receivers. The UDP and IGMP V2 protocols must be implemented on the network for this function.

**Encryption**

The VIP X1600 XFM4 encoder module offers a variety of options for protection against unauthorized reading. Web browser connections can be protected using HTTPS. You can protect the control channels via the SSL encryption protocol. With an additional license, the user data itself can be encrypted.

**Remote Control**

For remote control of external units such as pan or tilt heads for cameras or motorized zoom lenses, control data is transmitted via the module's bidirectional serial interface. This interface can also be used to transmit transparent data.

In the VIP-X1600-XFM4B variant the encoder module also supports Bilinx technology, which permits bidirectional communication over the video cable for control of Bilinx-compatible units (such as AutoDome and Dinion cameras) and allows access to their data.

**Tamper detection and motion detectors**

The VIP X1600 XFM4 encoder module offers a wide range of configuration options for alarm signaling in the event of tampering with the connected camera. The parts included also comprise an algorithm for detecting movement in the video image and this can optionally be extended to include special video analysis algorithms.

### Snapshots

Individual video frames (snapshots) can be called up as JPEG images, stored on the computer's hard drive or displayed in a separate browser window.

### Backup

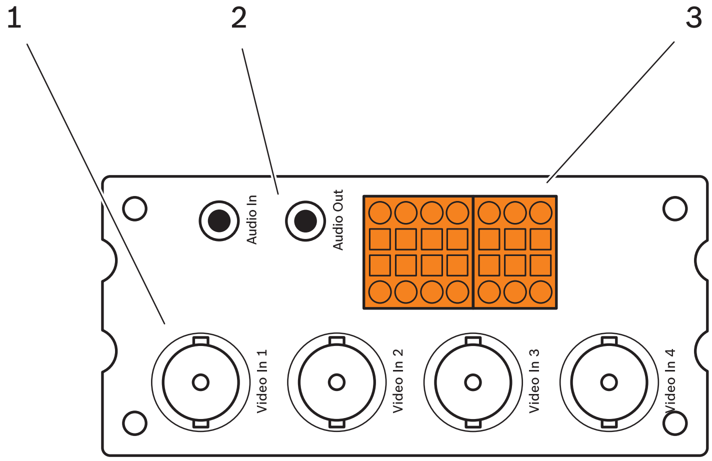
On the **LIVEPAGE** you will find a function for saving the video images provided by the unit as files on your computer's hard drive. Video sequences can be stored by means of a mouse click and can be redisplayed using the program Player supplied with the base.

**Summary**

The VIP X1600 XFM4 encoder module provides the following main functions:

- Video and data transmission over IP data networks
- Dual Streaming function for simultaneous encoding with two individually definable profiles
- Multicast function for simultaneous image transmission to multiple receivers
- Four analog BNC composite video inputs (PAL/NTSC)
- Video encoding to international standard H.264
- Transparent, bidirectional data channel via RS-232/RS-422/RS-485 serial interface
- The VIP-X1600-XFM4B variant also supports Bilinx technology.
- Configuration and remote control of all internal functions via TCP/IP, also secured via HTTPS
- Password protection to prevent unauthorized connection or configuration changes
- Extensive, flexible storage options
- Four alarm inputs and one relay output
- Built-in video sensor for motion and tamper alarms
- Event-controlled automatic connection
- Convenient maintenance via uploads
- Flexible encryption of control and data channels
- Authentication according to international standard 802.1x
- Audio signal transmission via IP data networks
- Audio encoding to international standard G.711

## 3.4 Connections



**1** Video inputs **Video In 1** to **Video In 4**
BNC sockets for attaching video sources

**2** Audio connections (mono) **Audio In** and **Audio Out**
3.5 mm / 1/8 in. stereo socket line-outs for connecting an audio connection

**3** Terminal Block
for alarm inputs, relay output and serial interface

# 4 Installation

## 4.1 Preparations

The module is exclusively designed for installation in the VIP X1600 XF base system. Installing the units is a quick and easy operation that does not require any additional tools.

## 4.2 Installing Modules

Installation of the different VIP X1600 XF modules in the VIP X1600 XF base system is described in the relevant Quick Installation Guide. Please also take note of the following basic notes when installing a unit.

**CAUTION!**
Do not install a module in a different housing and do not operate the module outside of the VIP X1600 XF base system. The ambient temperature during installation must be between 0 and +40 °C (+32 and +104 °F), and the relative humidity must not exceed 95% (non-condensing).

**Installation Sequence and Capacity of the VIP X1600 XF Base System**

**CAUTION!**
Ensure that Slot 1 is always populated by a module, even when modifying the installation. Malfunctions may occur when the VIP X1600 XF base system is switched on without a functional module in Slot 1.

You can install up to four modules in a VIP X1600 XF base system. Slot 1 must always be the first slot that is populated. The remaining slots can be populated in any order desired. It is also possible to install and remove modules during operation.

**Cooling**

**CAUTION!**
Whenever the installation is modified, or modules are exchanged or supplemented, it is essential that all unpopulated slots are properly covered on the rear panel of the VIP X1600 XF base system.

The installed modules generate a high volume of heat during operation. As a result, it is essential that a functional heat dissipation system is in place for problem-free operation of a VIP X1600 XF.

**Rating Plates**
Every module has a label on the circuit board containing a printed MAC address by which the module can be uniquely identified. Take note of this MAC address and the location in the VIP X1600 XF base system before installation so that you can later identify the module, even after it has been inserted (for example when performing fault diagnosis).

**Removing and Exchanging Modules**

It is also possible to install, remove and exchange modules during operation.

**CAUTION!**

Ensure that Slot 1 is always populated by a module, even when modifying the installation. Malfunctions may occur when the VIP X1600 XF base system is switched on without a functional module in Slot 1.

1. Before removing a module, terminate all recordings currently running in this module.
2. When installing a module, please ensure that the cover is kept for future use.
3. When removing a module, it is essential that the corresponding slot be closed with the cover if a module is no longer to be used in this slot. The opening must be closed to ensure that the unit remains cool.

## 4.3 Connections

**Cameras**

You can connect a maximum of four video sources to the module. Any cameras and other video sources that produce a standard PAL or NTSC signal are suitable.

1. Connect each of the cameras or other video sources to BNC sockets **Video In 1** to **Video In 4** using a video cable (75 Ohm, BNC connector).
2. If the video signal is not looped through, termination is performed by a software setting if necessary (see *Section 5.16 Advanced Mode: Video Input, page 37*).

**Audio Connections**

The VIP X1600 XFM4 module has two audio ports for audio line signals.

The audio signals are transmitted two-way and in sync with the video signals. As a result, you can connect a speaker or door intercom system at the destination point, for example. The following specifications should be complied with in all cases.

| | |
|---|---|
| 2 × **Line In**: | Impedance 9 kOhm typ., 5.5 $V_{p-p}$ max. input voltage |
| 1 × **Line Out**: | Impedance 10 kOhm typ., 3.0 $V_{p-p}$ max. output voltage,<br>impedance 16 Ohm min., 1.7 $V_{p-p}$ max. output voltage |

The stereo plugs must be connected as follows:

| Contact | Audio In | Audio Out |
|---|---|---|
| Tip | Channel 1 | Channel 1 |
| Middle ring | Channel 2 | – |
| Lower ring | Ground | Ground |

1. Connect two audio sources with line level to the **Audio In** socket of the module with a 3.5 mm / 1/8 in. stereo plug.
2. Connect a unit with line-in connection to the **Audio Out** socket of the module with a 3.5 mm / 1/8 in. stereo plug.

**Data interface**

The bidirectional data interface is used to control units connected to the module, such as a dome camera with a motorized lens. The connection supports the RS-232, RS-422 and RS-485 transmission standards.

The module offers the serial interface via the orange terminal block (see *Section 8.8 Terminal Block, page 108*).

The range of controllable equipment is expanding constantly. The manufacturers of the relevant equipment provide specific information on installation and control.

**CAUTION!**

Please take note of the appropriate documentation when installing and operating the unit to be controlled.

The documentation contains important safety instructions and information about permitted uses.

**NOTICE!**

A video connection is necessary to transmit transparent data.

**Alarm Inputs**

The module offers four alarm inputs via the orange terminal block (see *Section 8.8 Terminal Block, page 108*). The alarm inputs are used to connect to external alarm devices such as door contacts or sensors. With the appropriate configuration, an alarm sensor can automatically connect the VIP X1600 XF to a remote location, for example.

A zero potential closing contact or switch can be used as the actuator.

**NOTICE!**

If possible, use a bounce-free contact system as the actuator.

▶ Connect the lines to the appropriate terminals on the orange terminal block (**IN1** to **IN4**) and check that the connection is secure.

**Relay Output**

The module has a relay output for switching external units such as lamps or sirens. You can operate this relay output manually while there is an active connection to the module. The output can also be configured to automatically activate sirens or other alarm units in response to an alarm signal. The relay output is also located on the orange terminal block (see *Section 8.8 Terminal Block, page 108*).

**CAUTION!**

The maximum rating of the relay contact is 30 V and 0.2 A (SELV).

▶ Connect the lines to both **R1** terminals of the orange terminal block and check that the connection is secure.

## 4.4 Setup Using Configuration Manager

The **Configuration Manager** program can be found on the product CD delivered with the VIP X1600 XF base system. This program allows you to implement and set up new modules quickly and conveniently.

**NOTICE!**
Using Configuration Manager to set all parameters in the module is an alternative to configuration by means of a Web browser, as described in chapter 5 of this manual.

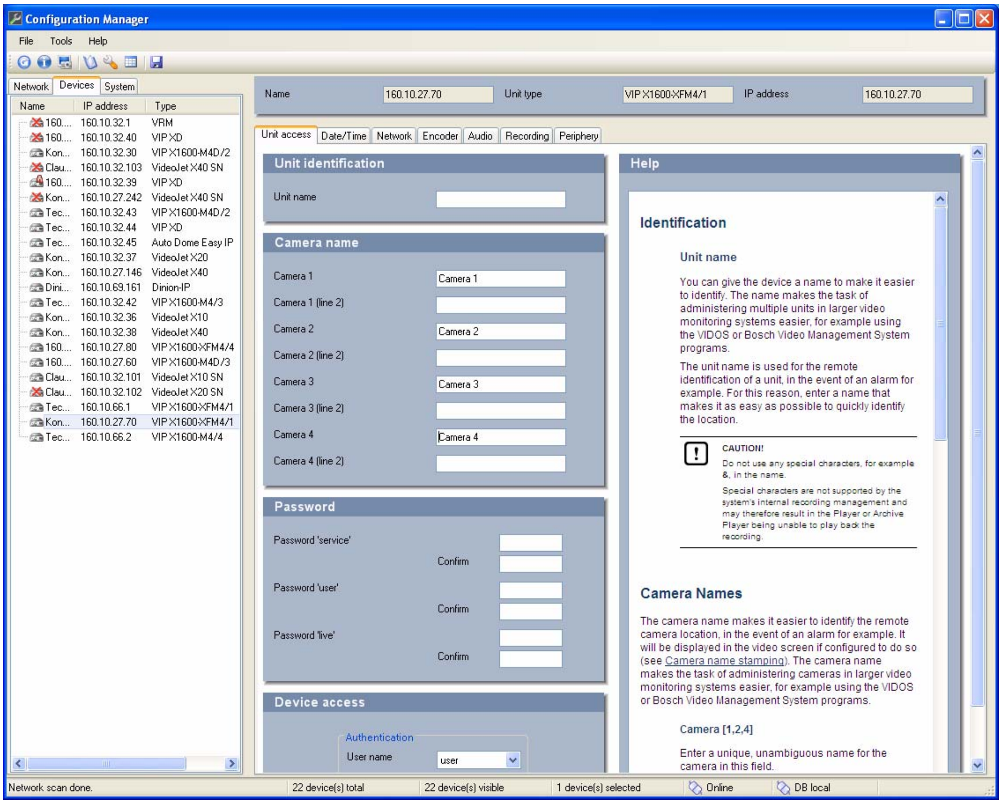
### Installing the Program

1. Insert the CD into the computer's CD-ROM drive.
2. If the CD does not start automatically, open the **Configuration Manager** directory using Windows Explorer and double-click **Setup.exe**.
3. Follow the on-screen instructions.

### Configuring the Module

You can start Configuration Manager immediately after installation.

1. Double-click the icon on the desktop or start the program via the Start menu. After the program has started, the network is immediately searched for compatible video servers.



| Name | IP address | Type |
|---|---|---|
| 160.... | 160.10.32.1 | VRM |
| 160.... | 160.10.32.40 | VIP XD |
| Kon... | 160.10.32.30 | VIP X1600-M4D/2 |
| Clau... | 160.10.32.103 | VideoJet X40 SN |
| 160.... | 160.10.32.39 | VIP XD |
| Kon... | 160.10.27.242 | VideoJet X40 SN |
| Tec... | 160.10.32.43 | VIP X1600-M4D/2 |
| Tec... | 160.10.32.44 | VIP XD |
| Tec... | 160.10.32.45 | Auto Dome Easy IP |
| Kon... | 160.10.32.37 | VideoJet X20 |
| Kon... | 160.10.27.146 | VideoJet X40 |
| Dini... | 160.10.69.161 | Dinion-IP |
| Tec... | 160.10.32.42 | VIP X1600-M4/3 |
| Kon... | 160.10.32.36 | VideoJet X10 |
| Kon... | 160.10.32.38 | VideoJet X40 |
| 160.... | 160.10.27.80 | VIP X1600-XFM4/4 |
| 160.... | 160.10.27.60 | VIP X1600-M4D/3 |
| Clau... | 160.10.32.101 | VideoJet X10 SN |
| Clau... | 160.10.32.102 | VideoJet X20 SN |
| Tec... | 160.10.66.1 | VIP X1600-XFM4/1 |
| Kon... | 160.10.27.70 | VIP X1600-XFM4/1 |
| Tec... | 160.10.66.2 | VIP X1600-M4/4 |

Name 160.10.27.70 Unit type VIP X1600-XFM4/1 IP address 160.10.27.70

Unit name

Camera 1: Camera 1
Camera 1 (line 2):
Camera 2: Camera 2
Camera 2 (line 2):
Camera 3: Camera 3
Camera 3 (line 2):
Camera 4: Camera 4
Camera 4 (line 2):

Password 'service'
Confirm
Password 'user'
Confirm
Password 'live'
Confirm

User name: user

Identification

Unit name

You can give the device a name to make it easier to identify. The name makes the task of administering multiple units in larger video monitoring systems easier, for example using the VIDOS or Bosch Video Management System programs.

The unit name is used for the remote identification of a unit, in the event of an alarm for example. For this reason, enter a name that makes it as easy as possible to quickly identify the location.

CAUTION!
Do not use any special characters, for example &, in the name.
Special characters are not supported by the system's internal recording management and may therefore result in the Player or Archive Player being unable to play back the recording.

Camera Names

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 (see Camera name stamping). The camera name makes the task of administering cameras in larger video monitoring systems easier, for example using the VIDOS or Bosch Video Management System programs.

Camera [1,2,4]

Enter a unique, unambiguous name for the camera in this field.

Network scan done. 22 device(s) total 22 device(s) visible 1 device(s) selected Online DB local

2. You can start the configuration if the module is shown in the list in the left section of the window. To do this, right-click the entry for the module.
3. In the popup menu, click **Device Network Settings...**.
4. In field **Device IP address** , enter a valid IP address (for example **192.168.0.16**).
5. If required, enter an appropriate subnet mask for the IP address, and additional network data.
6. Click **OK**. The unit is rebooted and the new network settings are valid.

**Additional Parameters**

You can check and set additional parameters with the assistance of Configuration Manager. You can find detailed information on this in the documentation for this program.

# 5 Configuration Using a Web Browser

## 5.1 Connecting

The integrated HTTP server in the module offers you the option of configuring the unit over the network with a Web browser. This option is an alternative to configuration using the Configuration Manager program and is considerably richer in function and more convenient than configuration using the terminal program.

**System Requirements**

- Computer with Windows XP or Windows Vista operating system
- Network access (Intranet or Internet)
- Microsoft Internet Explorer (version 6.0 or higher)
- Screen resolution at least 1,024 × 768 pixels
- 16- or 32-bit color depth
- Installed Sun JVM

**NOTICE!**

Please note the information in the **System Requirements** document on the product CD supplied with the VIP X1600 XF base system. If necessary, you can install the required programs and controls from the product CD.

The Web browser must be configured to enable Cookies to be set from the IP address of the unit.

In Windows Vista, deactivate protected mode on the **Security** tab under **Internet Options**.

You can find notes on using Microsoft Internet Explorer in the online Help in Internet Explorer.

**Installing MPEG ActiveX**

Suitable MPEG ActiveX software must be installed on the computer to allow the live video images to be played back. If necessary, you can install the program from the product CD.

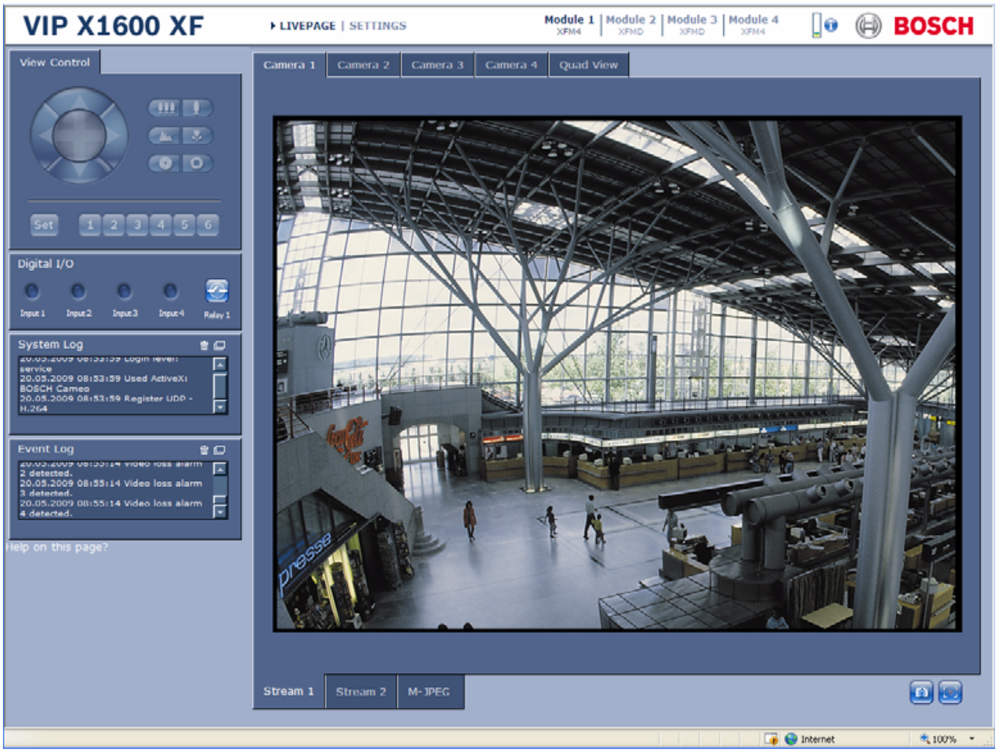
1. Insert the product CD into the computer's CD-ROM drive. If the CD does not start automatically, open the root directory of the CD in Windows Explorer and double-click **MPEGAx.exe**.
2. Follow the on-screen instructions.

### Establishing the Connection

At least the module in Slot 1 must be assigned a valid IP address and a compatible subnet mask to operate the VIP X1600 XF on your network.

The following default address is preset at the factory: **192.168.0.1**

1. Start the Web browser.
2. Enter the module's IP address as the URL.
3. During initial installation, confirm the security questions that appear. The connection is established and after a short time you will see the **LIVEPAGE** with the video image.



```
20.05.2009 08:53:59 Login level:
service
20.05.2009 08:53:59 Used ActiveX:
BOSCH Cameo
20.05.2009 08:53:59 Register UDP -
H.264
```

```
20.05.2009 08:55:14 Video loss alarm
2 detected.
20.05.2009 08:55:14 Video loss alarm
3 detected.
20.05.2009 08:55:14 Video loss alarm
4 detected.
```

### Maximum Number of Connections

If you do not connect, the unit may have reached its maximum number of connections. Depending on the unit and network configuration, each module can have up to 25 Web browser connections or up to 50 connections via VIDOS or Bosch Video Management System.

### Protected Module

If the module is password protected against unauthorized access, the Web browser displays a message to that effect and prompts you to enter the password when you call up access-protected areas.

**NOTICE!**

The module offers the option to limit the extent of access using various authorization levels (see *Section 5.10 Advanced Mode: Password, page 30*).

1. Enter the user name and associated password in the corresponding text fields.
2. Click **OK**. If the password is entered correctly, the Web browser displays the page that was called up.

**Protected Network**

If a RADIUS server is employed in the network for managing access rights (802.1x authentication), the module must be configured accordingly, otherwise no communication is possible.

To configure the unit, you must connect the VIP X1600 XF 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 (see *Section 5.38 Advanced Mode: Advanced, page 76*).

⚠ **CAUTION!**

The switch used for the network must support the multi-host operation when using 802.1x authentication and must be configured so that a VIP X1600 XF with several modules can try several hosts for communicating over the network.

## 5.2 Configuration Menu

You can access the configuration menu via the **SETTINGS** page. This menu displays all the parameters of the unit, arranged in groups. You can view the current settings by opening one of the configuration screens. You can change the settings by entering new values or by selecting a predefined value from a list field.

There are two options for configuring the unit or checking the current settings:

- Basic Mode
- Advanced Mode

In Basic Mode the most important parameters are arranged in seven groups. This allows you to change the basic settings with just a few entries and then put the device into operation.

Advanced Mode is recommended for expert users or system support personnel. You can access all device parameters in this mode. Settings that affect the fundamental functionality of the device (such as firmware updates) can only be altered in Advanced Mode.

All parameter groups are described in this chapter in the order in which they are listed in the configuration menu, from the top of the screen to the bottom.

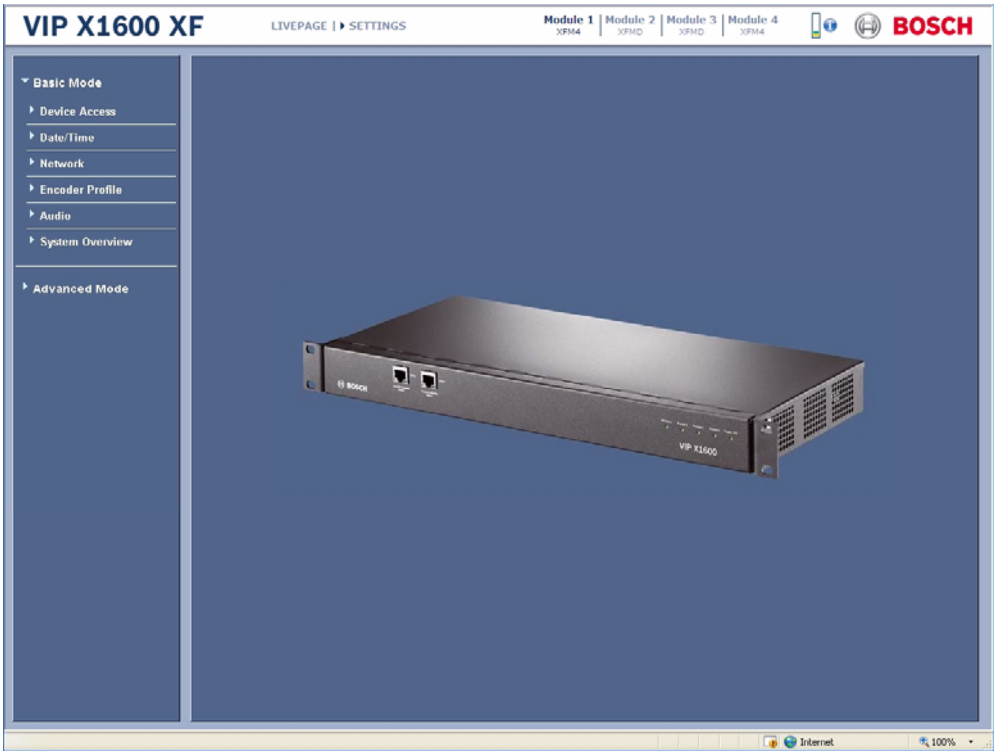
⚠ **CAUTION!**

The settings in the Advanced Mode should only be processed or modified by expert users or system support personnel.

All settings are stored in the module's memory so that they are retained even if the power supply is interrupted.

### Starting Configuration

▶ Click the **SETTINGS** link in the upper section of the window. The Web browser opens a new page with the configuration menu.



### Navigation

1. Click one of the menu items in the left window margin. The corresponding submenu is displayed.
2. Click one of the entries in the submenu. The Web browser opens the corresponding page.

### 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.

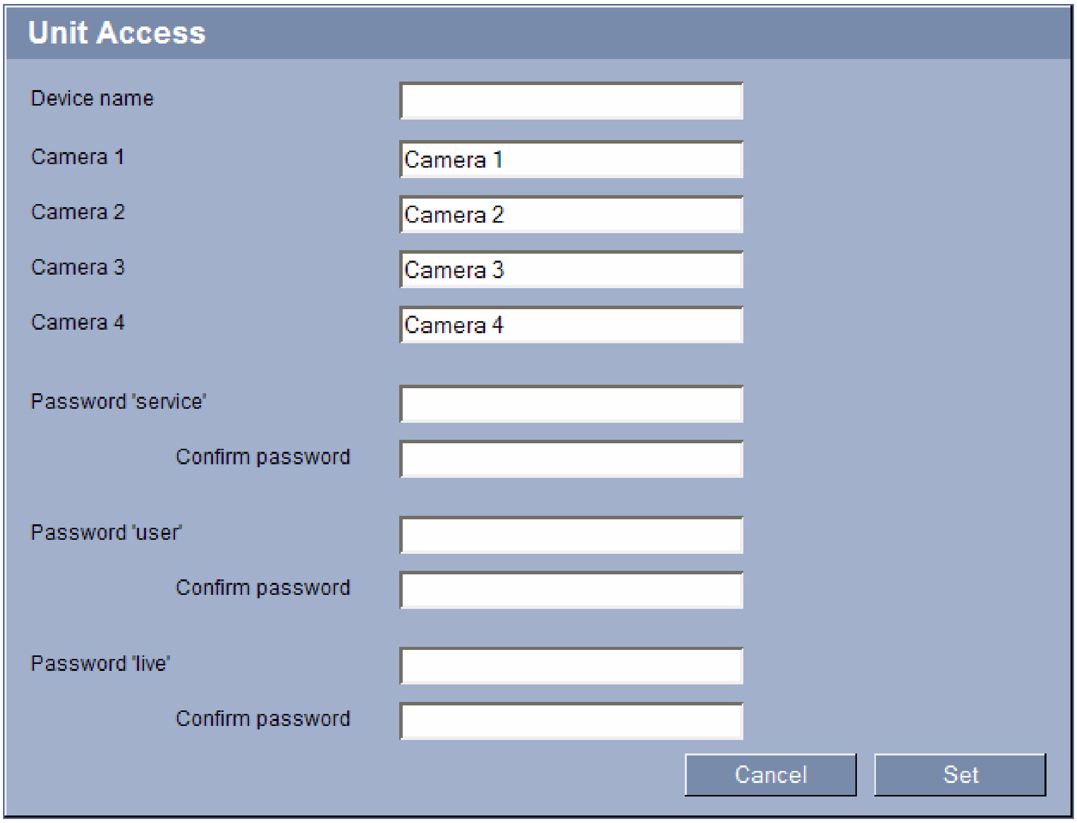
▶ After each change, click **Set** to save the change.

**CAUTION!**

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.

## 5.3 Basic Mode: Device Access



Unit Access

| | |
|---|---|
| Device name | |
| Camera 1 | Camera 1 |
| Camera 2 | Camera 2 |
| Camera 3 | Camera 3 |
| Camera 4 | Camera 4 |
| Password 'service' | |
| Confirm password | |
| Password 'user' | |
| Confirm password | |
| Password 'live' | |
| Confirm password | |

**Device name**

You can give the module a name to make it easier to identify. The name makes the task of administering multiple units in larger video monitoring systems easier, for example using the VIDOS or Bosch Video Management System programs.

The device name is used for the remote identification of a module, in the event of an alarm for example. For this reason, enter a name that makes it as easy as possible to quickly identify the location.

**CAUTION!**

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

Special characters are not supported by the system's internal recording management and may therefore result in the Player or Archive Player programs being unable to play back the recording.

**Camera 1 to Camera 4**

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 (see *Section  Camera name stamping, page 33*). The camera name makes the task of administering cameras in larger video monitoring systems easier, for example using the VIDOS or Bosch Video Management System programs.

Enter a unique, unambiguous name for the camera in this field.

**CAUTION!**
Do not use any special characters, for example **&**, in the name.
Special characters are not supported by the system's internal recording management and may therefore result in the Player or Archive Player programs being unable to play back the recording.

**Password**

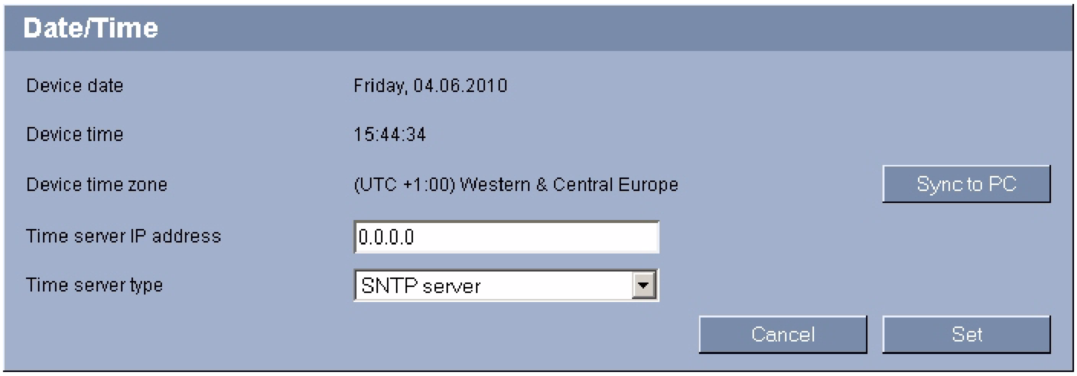
A module is generally protected by a password to prevent unauthorized access to the unit. You can use different authorization levels to limit access.
The module works with three authorization levels: **service**, **user** and **live**.
The highest authorization level is **service**. After entering the correct password, this user name allows you to use all the functions of the module and change all configuration settings.
For example, you can operate the unit and control cameras with the **user** authorization level, 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. The maximum password text length is 19 characters.

**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.

**Confirm password**

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

## 5.4 Basic Mode: Date/Time



Date/Time

| | |
|---|---|
| Device date | Friday, 04.06.2010 |
| Device time | 15:44:34 |
| Device time zone | (UTC +1:00) Western & Central Europe |
| Time server IP address | 0.0.0.0 |
| Time server type | SNTP server |

**Device date / Device time / Device time zone**

**NOTICE!**
The module in Slot 1 of the VIP X1600 XF is the time server for the modules in Slots 2 to 4. Consequently, the **Sync to PC** button is only active for the module in Slot 1. The button is deactivated for modules in Slots 2 to 4.

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. If necessary, you can synchronize the module with your computer's system settings.

▶ Click the **Sync to PC** button to copy your computer's system time to the module.

**Time server IP address**

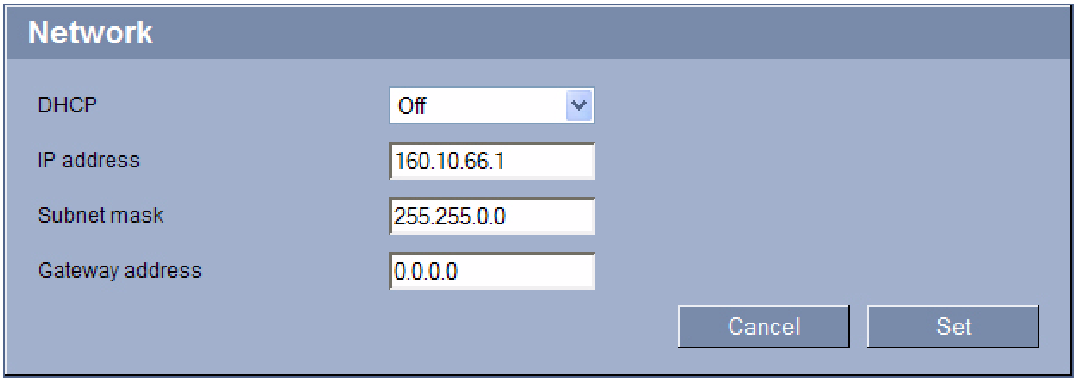
The module can receive the time signal from a time server using various time server protocols, and then use it to set the internal clock. The module polls the time signal automatically once every minute.

▶ 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 **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 protocol RFC 868.

## 5.5 Basic Mode: Network



DHCP: Off
IP address: 160.10.66.1
Subnet mask: 255.255.0.0
Gateway address: 0.0.0.0

The settings in this screen are used to integrate the module into an existing network.
Some changes only take effect after the module is rebooted. In this case, the **Set** button changes to **Set and Reboot**.

1. Make the desired changes.
2. Click **Set and Reboot**. The module is rebooted and the changed settings are activated.

**CAUTION!**
If you change the IP address, subnet mask or gateway address, the module is only available under the new addresses after the reboot.

**DHCP**

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 module.
Certain applications (VIDOS, Bosch Video Management System, Archive Player, Configuration Manager) use the IP address for the unique assignment of the unit. If you use these applications, the DHCP server must support the fixed assignment between IP address and MAC address, and must be appropriately set up so that, once an IP address is assigned, it is retained each time the system is rebooted.

**IP address**

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

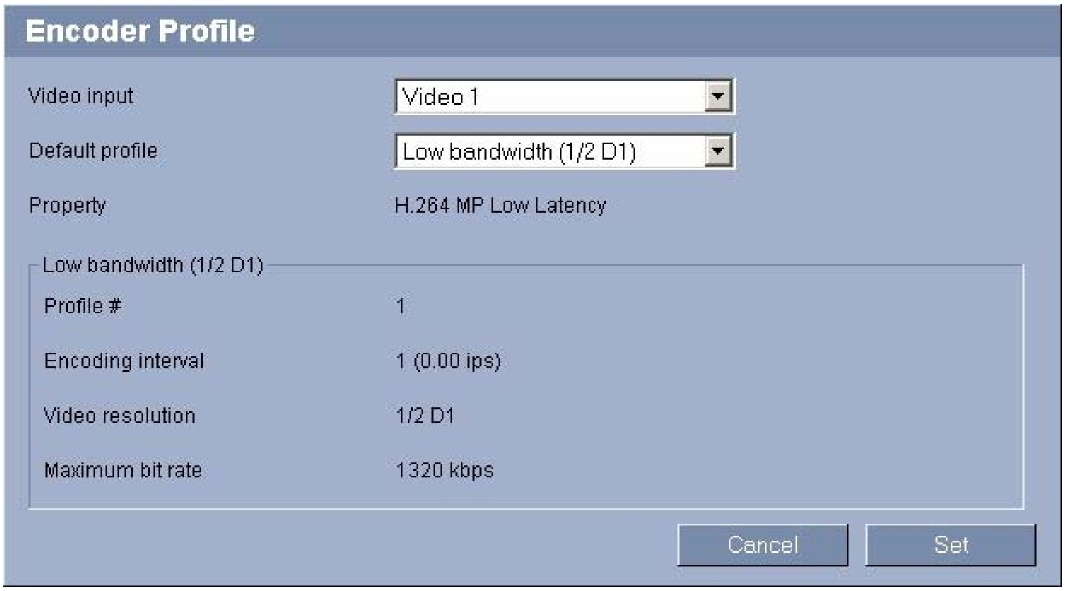
**Subnet mask**

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

**Gateway address**

If you want the module 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**).

## 5.6 Basic Mode: Encoder Profile



Encoder Profile

| | |
|---|---|
| Video input | Video 1 |
| Default profile | Low bandwidth (1/2 D1) |
| Property | H.264 MP Low Latency |

Low bandwidth (1/2 D1)

| | |
|---|---|
| Profile # | 1 |
| Encoding interval | 1 (0.00 ips) |
| Video resolution | 1/2 D1 |
| Maximum bit rate | 1320 kbps |

**Video input**

Select a video input for the module here; the profile selected in the next field will be applied to this input. You can select a specific profile for each video input.

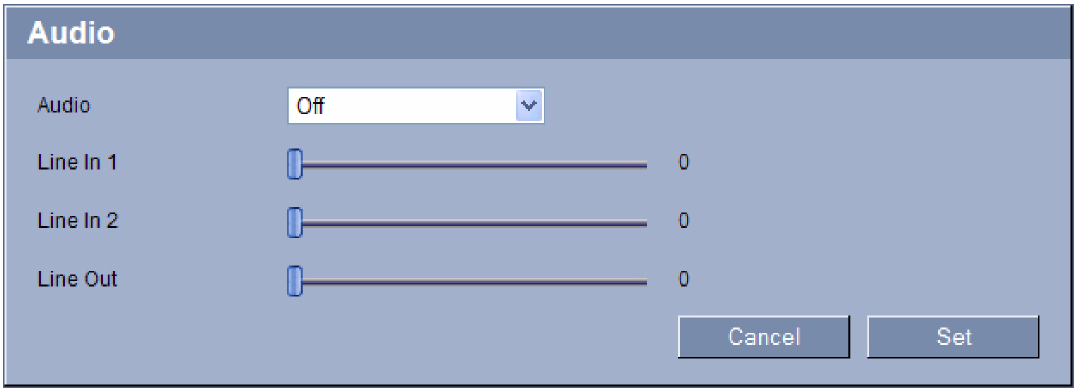
**Default profile**

You can select a profile for encoding the video signal.
You can use this to adapt the video data transmission to the operating environment (for example network structure, bandwidth, data load).
Pre-programmed profiles are available, each giving priority to different perspectives. When selecting a profile, details are displayed in the list field.

- **Low bandwidth (1/2 D1)**
  High quality for low bandwidth connections, resolution 352 × 288/240 pixels
- **Low delay (2/3 D1)**
  High quality with low delay, resolution 464 × 576/480 pixels
- **High resolution (4CIF/D1)**
  High resolution for high bandwidth connections, resolution 704 × 576/480 pixels
- **DSL**
  For DSL connections with 500 kbps, resolution 352 × 288/240 pixels
- **ISDN (2B)**
  For ISDN connections via two B-channels, resolution 352 × 288/240 pixels
- **ISDN (1B)**
  For ISDN connections via one B-channel, resolution 352 × 288/240 pixels
- **MODEM**
  For analog modem connections with 20 kbps, resolution 352 × 288/240 pixels

- **GSM**
  For GSM connections at 9,600 baud, resolution 176 × 144/120 pixels

## 5.7 Basic Mode: Audio



Audio

Audio: Off

Line In 1: 0

Line In 2: 0

Line Out: 0

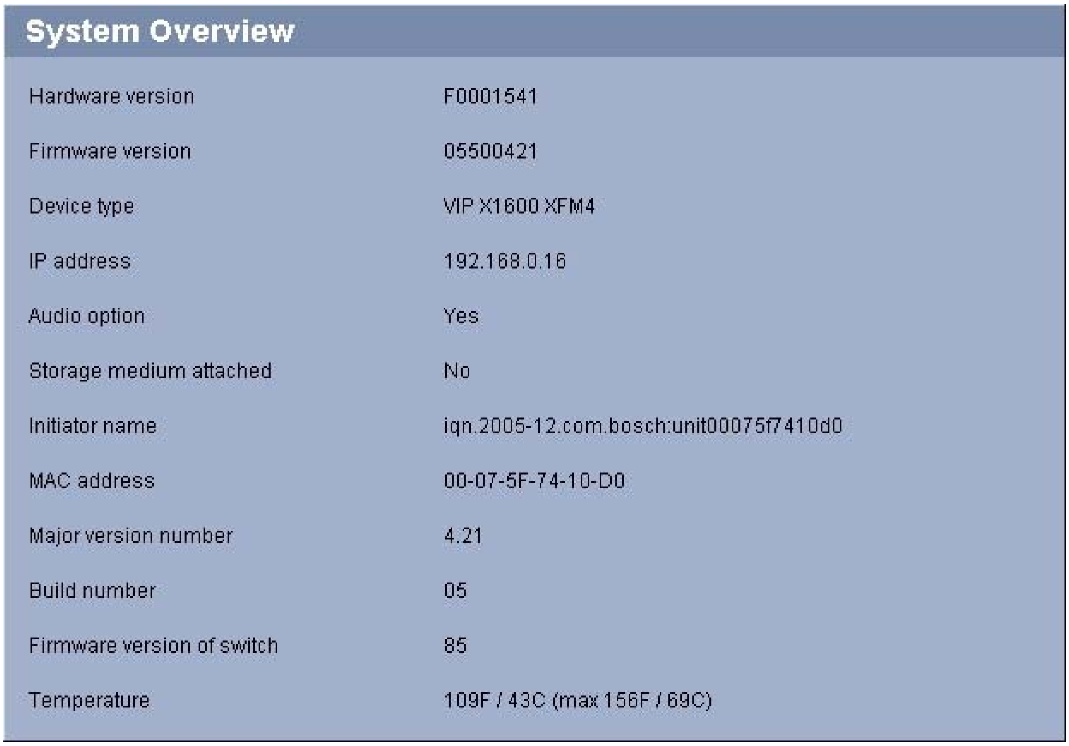
You can set the gain of the audio signals to suit your specific requirements. The current video image is shown in the small window next to the slide controls to help you check the audio source and improve assignments. Your changes are effective immediately.
If you connect via Web browser you must activate the audio transmission on the **LIVEPAGE Functions** page (see *Section 5.14 Advanced Mode: LIVEPAGE Functions, page 35*). For other connections, the transmission depends on the audio settings of the respective system.

**Audio**
The audio signals are sent in a separate data stream parallel to the video data, and so increase the network load. The audio data are encoded according to G.711 and require an additional bandwidth of approx. 80 kbps per connection in each direction. If you do not want any audio data to be transmitted, select **Off**.

**Line In 1 / Line In 2**
You can set the gain for the line inputs. Make sure that the display does not go beyond the green zone during modulation.

**Line Out**
You can set the line output gain. Make sure that the display does not go beyond the green zone during modulation.

## 5.8 Basic Mode: System Overview



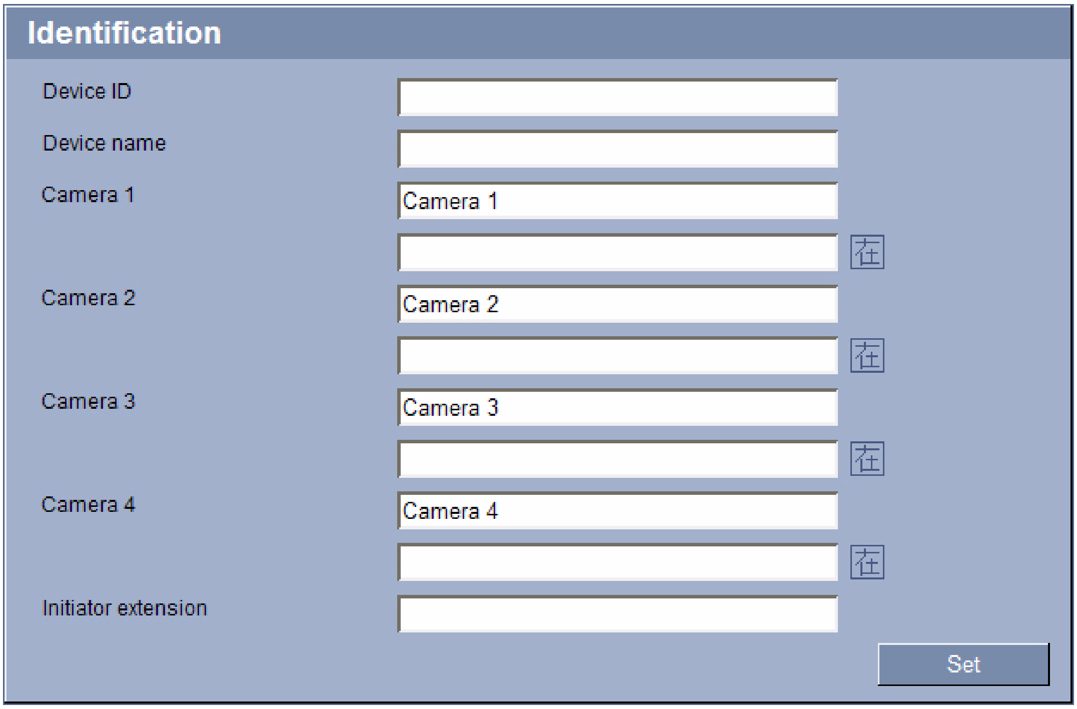
**System Overview**

| | |
|---|---|
| Hardware version | F0001541 |
| Firmware version | 05500421 |
| Device type | VIP X1600 XFM4 |
| IP address | 192.168.0.16 |
| Audio option | Yes |
| Storage medium attached | No |
| Initiator name | iqn.2005-12.com.bosch:unit00075f7410d0 |
| MAC address | 00-07-5F-74-10-D0 |
| Major version number | 4.21 |
| Build number | 05 |
| Firmware version of switch | 85 |
| Temperature | 109F / 43C (max 156F / 69C) |

The data on this page are for information purposes only and cannot be changed. Keep a record of these numbers in case technical assistance is required.

**NOTICE!**
You can select all required text on this page with the mouse and copy it to the clipboard with the [Ctrl]+[C] key combination, for example if you want to send it via e-mail.

## 5.9 Advanced Mode: Identification



Identification

| | |
|---|---|
| Device ID | |
| Device name | |
| Camera 1 | Camera 1 |
| | |
| Camera 2 | Camera 2 |
| | |
| Camera 3 | Camera 3 |
| | |
| Camera 4 | Camera 4 |
| | |
| Initiator extension | |

**Device ID**

Each module should be assigned a unique identifier that you can enter here as an additional means of identification.

**Device name**

You can give the module a name to make it easier to identify. The name makes the task of administering multiple units in larger video monitoring systems easier, for example using the VIDOS or Bosch Video Management System programs.
The device name is used for the remote identification of a module, in the event of an alarm for example. For this reason, enter a name that makes it as easy as possible to quickly identify the location.

**CAUTION!**

Do not use any special characters, for example **&**, in the name.
Special characters are not supported by the system's internal recording management and may therefore result in the Player or Archive Player programs being unable to play back the recording.

**Camera 1 to Camera 4**

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 (see *Section  Camera name stamping, page 33*). The camera name makes the task of administering cameras in larger video monitoring systems easier, for example using the VIDOS or Bosch Video Management System programs.
Enter a unique, unambiguous name for the camera in this field. You can use both lines for this.

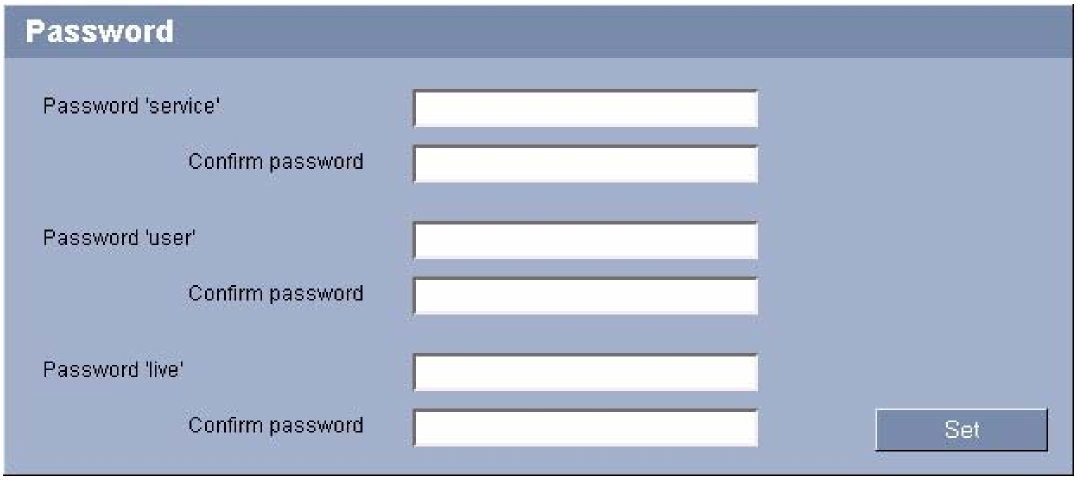
**CAUTION!**
Do not use any special characters, for example **&**, in the name.
Special characters are not supported by the system's internal recording management and may therefore result in the Player or Archive Player programs being unable to play back the recording.

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.

**Initiator extension**
You can attach your own text to the initiator name of the module to make the unit easier to identify 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 (see *Section 5.46 Advanced Mode: System Overview, page 86*).

## 5.10 Advanced Mode: Password



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

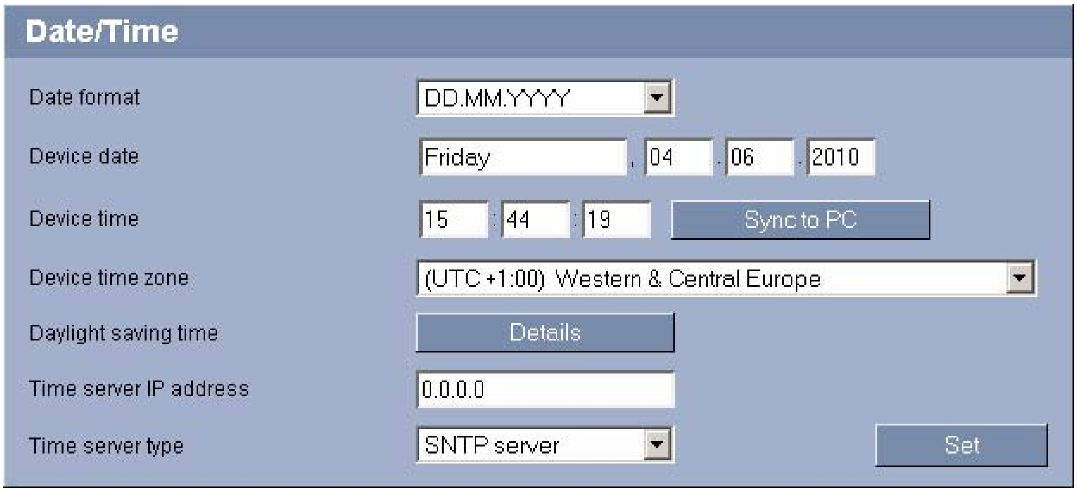
**NOTICE!**
Proper password protection is only guaranteed when all higher authorization levels are also protected with a password. If a **live** password is assigned, for example, a **service** and a **user** password must also be set. When assigning passwords, you should therefore always start from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

**Password**
The module works with three authorization levels: **service**, **user** and **live**.

The highest authorization level is **service**. After entering the correct password, this user name allows you to use all the functions of the module and change all configuration settings.
For example, you can operate the unit and control cameras with the **user** authorization level, 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. The maximum password text length is 19 characters.

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

## 5.11 Advanced Mode: Date/Time



Date/Time

| | |
|---|---|
| Date format | DD.MM.YYYY |
| Device date | Friday , 04 . 06 . 2010 |
| Device time | 15 : 44 : 19 |
| Device time zone | (UTC +1:00) Western & Central Europe |
| Daylight saving time | |
| Time server IP address | 0.0.0.0 |
| Time server type | SNTP server |

**NOTICE!**
The module in Slot 1 of the VIP X1600 XF is the time server for the modules in Slots 2 to 4. Consequently, the date and time settings can only be changed for the module in Slot 1. These parameters are deactivated for modules in Slots 2 to 4.

**Date format (only for the module in Slot 1)**
Select your required date format.

**Device date / Device time (only for the module in Slot 1)**
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 apply the system time from your computer to the module.

**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 your system, and click the **Set** button.
2. Click **Details**. 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 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 apply and activate the table.

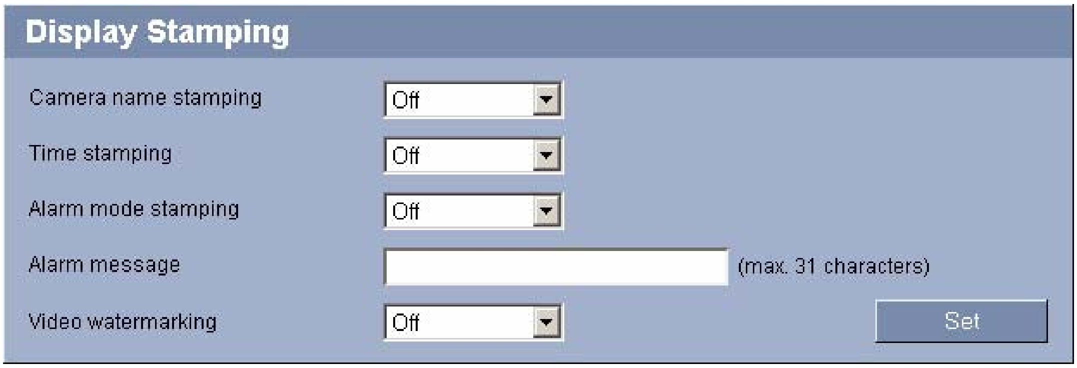
### Time server IP address

The module can receive the time signal from a time server using various time server protocols, and then use it to set the internal clock. The module 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 **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 protocol RFC 868.

## 5.12 Advanced Mode: Display Stamping



Display Stamping

Camera name stamping: Off

Time stamping: Off

Alarm mode stamping: Off

Alarm message: (max. 31 characters)

Video watermarking: Off

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.

**NOTICE!**
The settings on this page apply to all camera inputs of the module.

**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.

**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.

**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 by specifying the **Custom** option. Or it can be set to **Off** for no overlay information.

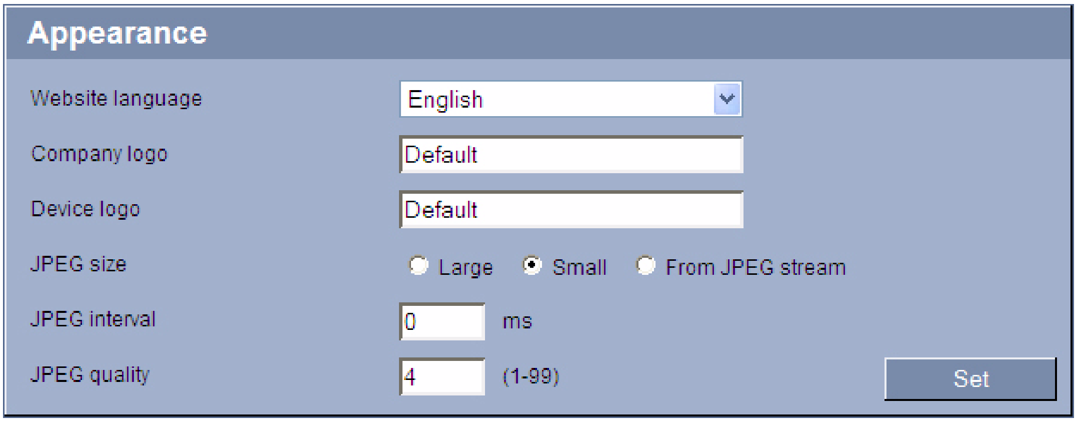
1. Select the desired option from the list.
2. If you select the **Custom** option, additional fields are displayed where you can specify the exact position (**Position (XY)**).
3. In the **Position (XY)** fields, enter the values for the desired position.

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

### Video watermarking

Choose **On** if you wish the transmitted video images to be "watermarked". After activation, all images are marked with a green **W**. A red **W** indicates that the sequence (live or saved) has been manipulated.

## 5.13 Advanced Mode: Appearance



Appearance

Website language: English

Company logo: Default

Device logo: Default

JPEG size: ○ Large ● Small ○ From JPEG stream

JPEG interval: 0 ms

JPEG quality: 4 (1-99)

On this page you can adapt the appearance of the web interface and change the website language to meet your requirements. If necessary, you can replace the manufacturer's logo (top right) and the product name (top left) in the top part of the window with individual graphics.

**NOTICE!**

You can use either GIF or JPEG images. The file paths must correspond to the access mode (for example **C:\Images\Logo.gif** for access to local files, or **http://www.mycompany.com/images/logo.gif** for access via the Internet/Intranet).

When accessing via the Internet/Intranet, ensure that a connection is always available to display the image. The image file is not saved in the module.

### Website language

Select the language for the user interface here.

**NOTICE!**

There are always two languages to choose from: English and another language. If the language you require is not available for selection, you can download the current firmware with another language combination from the website www.boschsecurity.com.

### 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!**

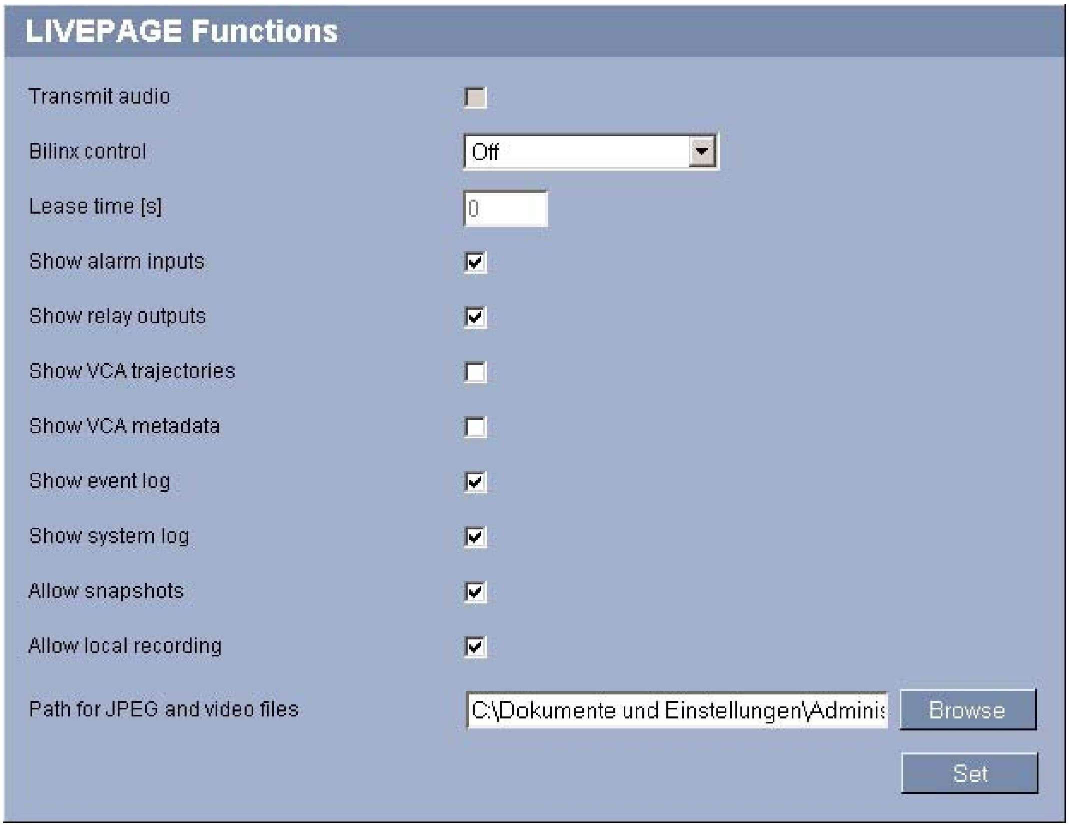
If you want to use the original graphics again, simply delete the entries in the **Company logo** and **Device logo** fields.

**JPEG size**
You can choose between three image sizes to display the M-JPEG image on the **LIVEPAGE**. The **Large** and **Small** options correspond to given image sizes. If the **From JPEG stream** option is selected, the image size defined in the encoder profile is used (see *Section 5.19 Advanced Mode: Encoder Profile, page 40*).

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

**JPEG quality**
You can specify the image quality for displaying M-JPEG on the **LIVEPAGE**.
This parameter is not accessible if you have selected the **From JPEG stream** option under **JPEG size**.

## 5.14 Advanced Mode: LIVEPAGE Functions



LIVEPAGE Functions

| | |
|---|---|
| Transmit audio | ☐ |
| Bilinx control | Off |
| Lease time [s] | 0 |
| Show alarm inputs | ☑ |
| Show relay outputs | ☑ |
| Show VCA trajectories | ☐ |
| Show VCA metadata | ☐ |
| Show event log | ☑ |
| Show system log | ☑ |
| Allow snapshots | ☑ |
| Allow local recording | ☑ |
| Path for JPEG and video files | C:\Dokumente und Einstellungen\Adminis |

On this page you can adapt the **LIVEPAGE** functions 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 **LIVEPAGE**. The selected items are indicated by a check mark.
2. Check whether the required functions are available on the **LIVEPAGE**.

**Transmit 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.

**Bilinx control (VIP-X1600-XFM4B only)**

Next to the field for view control at the top left of the **LIVEPAGE**, an additional field is displayed for the special Bosch Security Systems Bilinx control. Select the appropriate protocol for the connected camera here.

**Lease time [s]**

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

**Show alarm inputs**

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

**Show relay outputs**

Relay outputs are shown next to the video image as icons, along with their assigned names. If the relay is switched, the icon changes color.

**Show VCA trajectories**

The trajectories (motion lines of objects) from the video content analysis are displayed in the live video image if a corresponding analysis type is activated (see *Section 5.30 Advanced Mode: VCA Event triggered, page 65*).

**Show VCA metadata**

When the analysis function is activated, the additional information from the video content analysis (VCA) will be displayed in the live video image (see *Section 5.30 Advanced Mode: VCA Event triggered, page 65*). With the **MOTION+** analysis type, for example, the sensor fields in which motion is recorded will be marked with rectangles.

**Show event log**

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

**Show system log**

The system messages are displayed along with the date and time in a field next to the video image and provide information about establishing and ending connections, for example.

**Allow snapshots**

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

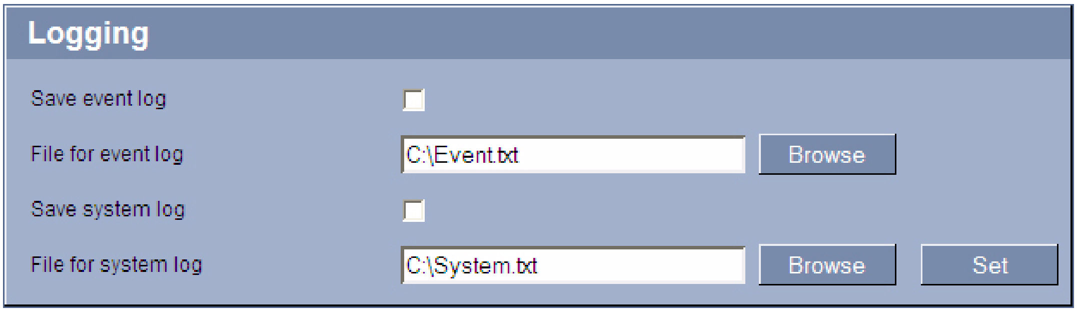
**Allow local recording**

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

**Path for JPEG and video files**

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

## 5.15 Advanced Mode: Logging



Logging

| | | | |
|---|---|---|---|
| Save event log | □ | | |
| File for event log | C:\Event.txt | Browse | |
| Save system log | □ | | |
| File for system log | C:\System.txt | Browse | Set |

**Save event log**
Check this option to save event messages in a text file on your local computer.
You can then view, edit and print this file with any text editor or the standard Office software.

**File for event log**

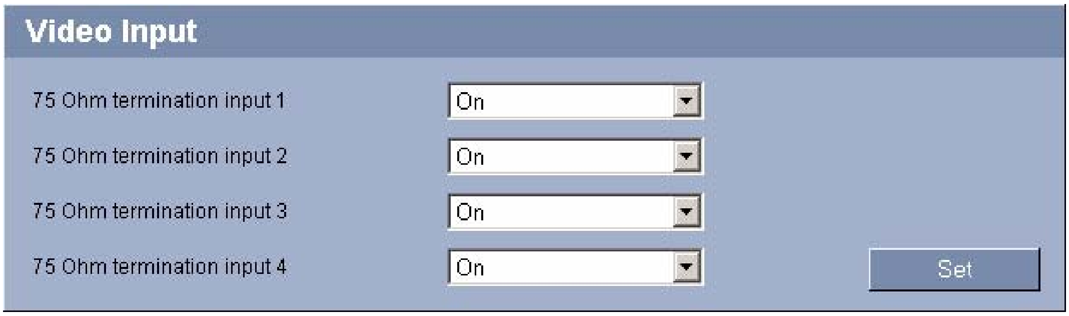
1. Enter the path for saving the event log here.
2. If necessary, click **Browse** to find a suitable directory.

**Save system log**
Check this option to save system messages in a text file on your local computer.
You can then view, edit and print this file with any text editor or the standard Office software.

**File for system log**

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

## 5.16 Advanced Mode: Video Input



Video Input

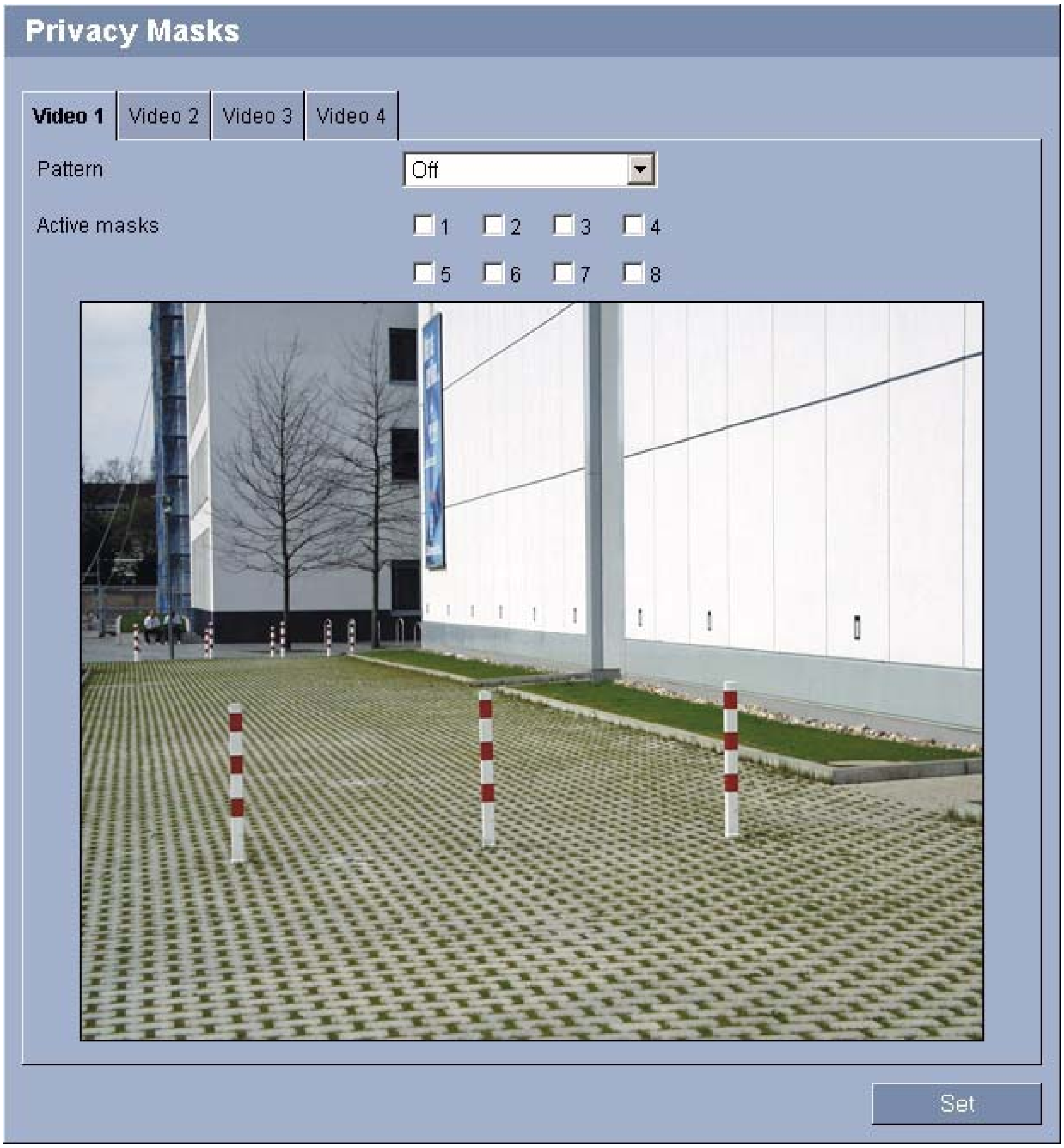
| | | |
|---|---|---|
| 75 Ohm termination input 1 | On | |
| 75 Ohm termination input 2 | On | |
| 75 Ohm termination input 3 | On | |
| 75 Ohm termination input 4 | On | Set |

You can activate the 75 Ohm terminating resistor for each video input on the module. The terminating resistance must be deactivated for the video signal to be looped through. Every video input is closed at the time of delivery.

**NOTICE!**
The numbering follows the labeling of the video inputs on the actual module.

**75 Ohm termination**
Select **Off** if the video signal is to be looped through.

## 5.17 Advanced Mode: Privacy Masks



Pattern: Off

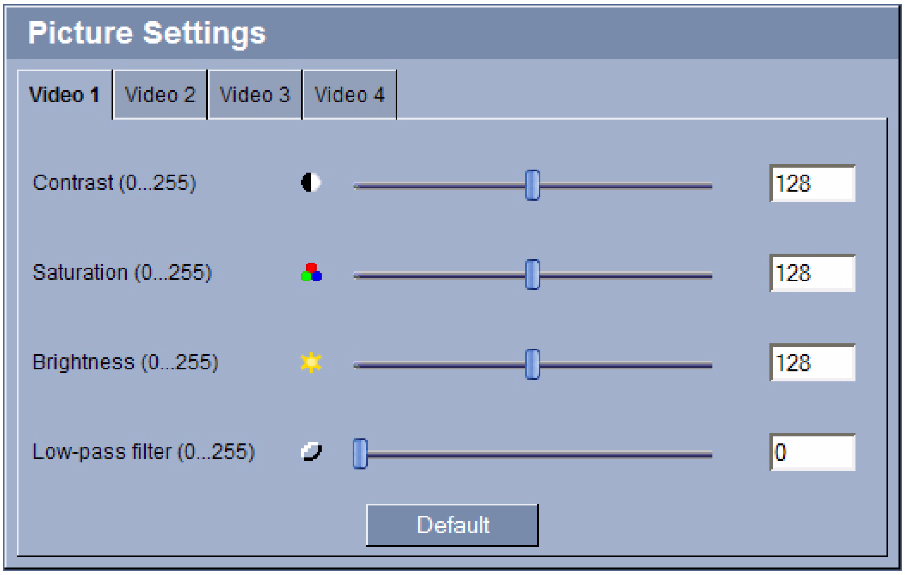
Active masks: □ 1 □ 2 □ 3 □ 4 □ 5 □ 6 □ 7 □ 8

You can cover up to eight different rectangular areas in the video image of each camera, so that private areas are protected in the camera's field of view. This can be useful when public spaces are in the coverage area or monitoring will be limited to a particular zone. The areas covered are indicated by a gray pattern in the video image.

1. Click a tab to select the corresponding camera.
2. In the list field **Pattern**, select option **Gray** to activate the function.
3. Click a checkbox in the **Active masks** area to activate the corresponding zone. A check mark appears and the zone is shown in the preview as a rectangular mark.
4. To reposition a zone, place the cursor over the zone, hold down the mouse button and drag into position.
5. 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.
6. Set other zones in the same way.

7. In the **Active masks** area, click one of checked boxes to deactivate the corresponding zone. The check mark is hidden and the zone is only displayed as a faint mark in the preview.
8. Click the zone with the right mouse button and then click **Remove** to delete the zone.

## 5.18 Advanced Mode: Picture Settings



Picture Settings

Contrast (0...255) 128

Saturation (0...255) 128

Brightness (0...255) 128

Low-pass filter (0...255) 0

You can set the video image of each camera to suit your requirements. The current video image is displayed in the small window next to the slide controls as confirmation. Your changes are effective immediately.

1. Click a tab to select the corresponding camera.
2. Move the slide control to the required position.
3. Click **Default** to reset all settings to their default values.

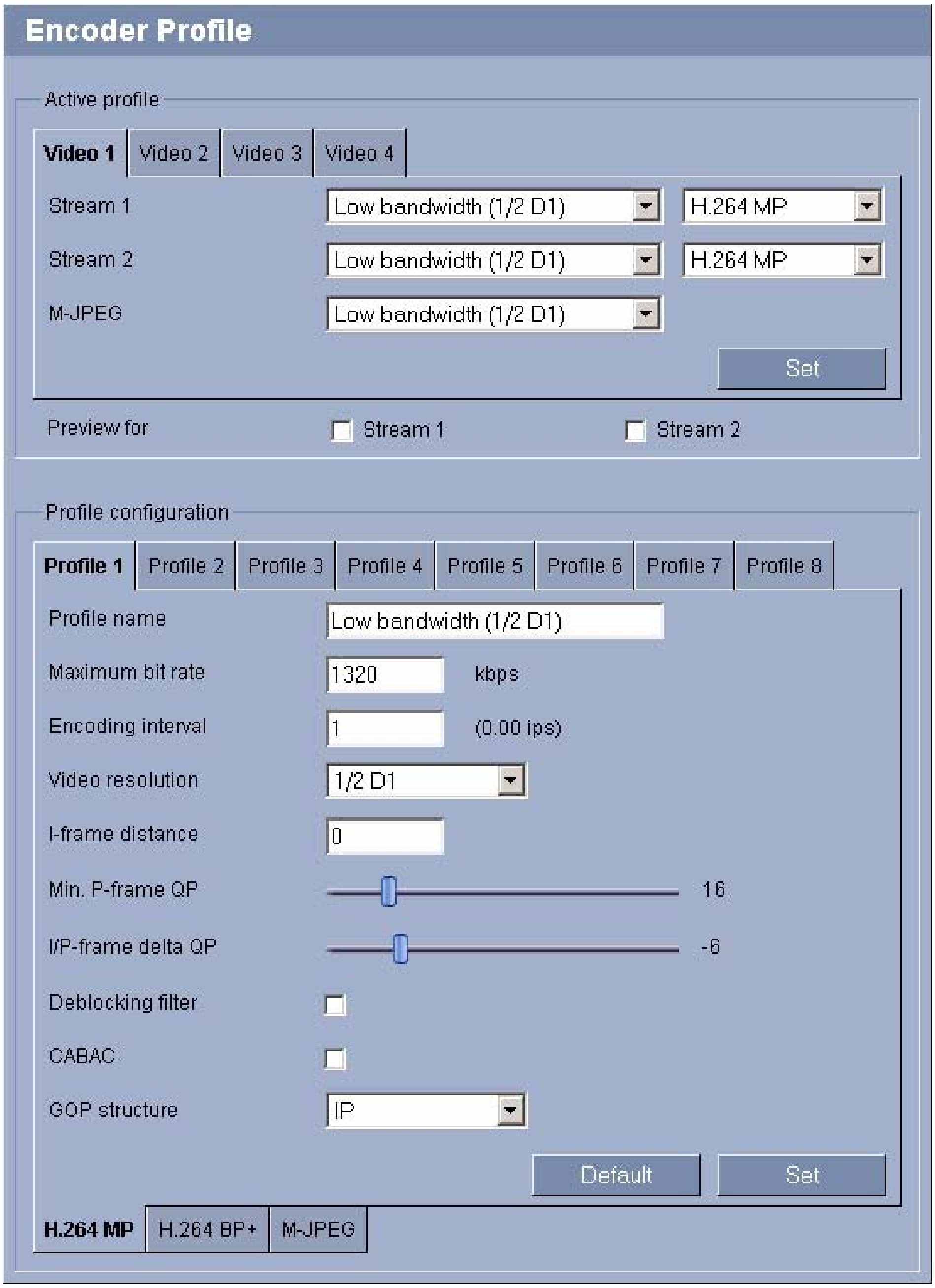
**Contrast (0...255)**
You can use this function to adapt the contrast of the video image to your working environment.

**Saturation (0...255)**
You can use this function to adjust color saturation in order to correct unnatural camera signal colors.

**Brightness (0...255)**
You can use this function to adapt the brightness of the video image to your working environment.

**Low-pass filter (0...255)**
You can use this function to filter very fine noise from the image. This reduces and optimizes the bandwidth necessary for image transmission over the network. The image resolution may be impaired.
The higher the value set with the slide control, the flatter the image signal. Check your setting in the image window next to the slide controls.

## 5.19 Advanced Mode: Encoder Profile



Encoder Profile

Active profile

Video 1 | Video 2 | Video 3 | Video 4

Stream 1: Low bandwidth (1/2 D1), H.264 MP

Stream 2: Low bandwidth (1/2 D1), H.264 MP

M-JPEG: Low bandwidth (1/2 D1)

Set

Preview for □ Stream 1 □ Stream 2

Profile configuration

Profile 1 | Profile 2 | Profile 3 | Profile 4 | Profile 5 | Profile 6 | Profile 7 | Profile 8

Profile name: Low bandwidth (1/2 D1)

Maximum bit rate: 1320 kbps

Encoding interval: 1 (0.00 ips)

Video resolution: 1/2 D1

I-frame distance: 0

Min. P-frame QP: 16

I/P-frame delta QP: -6

Deblocking filter: □

CABAC: □

GOP structure: IP

Default | Set

H.264 MP | H.264 BP+ | M-JPEG

For the video signal encoding, you can select two profiles and a code algorithm for each video input, 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 module simultaneously generates two data streams (Dual Streaming). You can select the compression settings of these data streams 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.

- **Low bandwidth (1/2 D1)**
  High quality for low bandwidth connections, resolution 352 × 288/240 pixels

- **Low delay (2/3 D1)**
  High quality with low delay, resolution 464 × 576/480 pixels
- **High resolution (4CIF/D1)**
  High resolution for high bandwidth connections, resolution 704 × 576/480 pixels
- **DSL**
  For DSL connections with 500 kbps, resolution 352 × 288/240 pixels
- **ISDN (2B)**
  For ISDN connections via two B-channels, resolution 352 × 288/240 pixels
- **ISDN (1B)**
  For ISDN connections via one B-channel, resolution 352 × 288/240 pixels
- **MODEM**
  For analog modem connections with 20 kbps, resolution 352 × 288/240 pixels
- **GSM**
  For GSM connections at 9,600 baud, resolution 176 × 144/120 pixels

You can choose between the code algorithms H.264 MP and H.264 BP+ for each H.264 data stream. As well as the Stream profiles, you can also select a profile for the M-JPEG image transmission.

⚠ **CAUTION!**
Hardware decoders VIP XD and VIP X1600 XFMD can only process algorithm H.264 BP+. Bear this in mind when configuring profile settings.

1. Select the required profile for every data stream.
2. Select the required code algorithm for every H.264 data stream.

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. Click **H.264 MP**, **H.264 BP+** and **M-JPEG** at the bottom of the tabs to change specific settings for the code algorithm in question:

- **H.264 MP**
  This profile setting represents H.264 Main Profile and offers the maximum configuration options for the H.264 code algorithm. With it, you can achieve the best image quality at the lowest bandwidth.
- **H.264 BP+**
  This profile setting represents H.264 Baseline Profile plus, which uses a function from the Main-Profile tool set to support interlace video. In contrast to the pure H.264 Baseline Profile, a resolution of 4CIF is possible. This setting should be selected if you want the video stream to be displayed by a hardware decoder. In the process, the bit rate is limited to 2.5 Mbps.
- **M-JPEG**
  The bit rate can be set at a higher value for the M-JPEG stream than for the video stream.

⚠ **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.
In the default setting, Stream 2 is transmitted for alarm connections and automatic connections. Bear this fact in mind when assigning the profile.

**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.

**Preview for**
Select which video data stream should be displayed in the previews. You can deactivate the display of the video images if the performance of the computer is affected too strongly by the decoding of the data streams.

▶ Check the box for the required data stream.

**Profile name**
You can enter a new name for the profile here. The name is then displayed in the list of available profiles.

**CAUTION!**
Do not use any special characters, for example **&**, in the name.
Special characters are not supported by the system's internal recording management and may therefore result in the Player or Archive Player programs being unable to play back the recording.

**Maximum bit rate**
The bit rate is determined by the complexity of the scene and by the quality settings, which are controlled by the Quantization Parameter (QP). In normally quiet scenes with sporadic movement, a high dynamic of the bit rate can be achieved in this way (see *Section  Min. P-frame QP, page 43*). However, this maximum bit rate will not be exceeded under any circumstances.

**Encoding interval**
The figure selected here determines the interval at which images are encoded and transmitted. For example, entering **4** means that only every fourth image is encoded, the following three are skipped – this can be particularly advantageous with low bandwidths. The image rate in ips (images per second) is displayed next to the text field.

**Video resolution**
Here you can select the desired resolution for the video image. The following resolutions are available:

- **QCIF**
  176 × 144/120 pixels
- **CIF**
  352 × 288/240 pixels
- **1/2 D1**
  352 × 576/480 pixels
- **2CIF**
  704 × 288/240 pixels
- **4CIF/D1**
  704 × 576/480 pixels
- **2/3 D1**
  464 × 576/480 pixels

**I-frame distance**

This parameter allows you to set the intervals in which the I-frames will be coded. **0** means auto mode, whereby the video server inserts I-frames as necessary. An entry of **1** indicates that I-frames are continuously generated. An entry of **2** indicates that only every second image is an I-frame, and **3** only every third image etc.; the frames in between are coded as P-frames.

**Min. P-frame QP**

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 QP value, the higher the encoding quality. A higher quality produces a higher data load. Typical QP values are between 18 and 30. Define the lower limit for the quantization of the P-frames here, and thus the maximum achievable quality of the P-frames.

**I/P-frame delta QP**

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

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

**Deblocking filter**

You can activate a filter that reduces blocking in the image, thereby providing a smoother image. Please note that this option requires additional computing power.

**CABAC (H.264 MP only)**

You can activate an additional lossless compression of the video data. The same image quality is retained while the data rate is reduced. This compression necessitates high computing power.

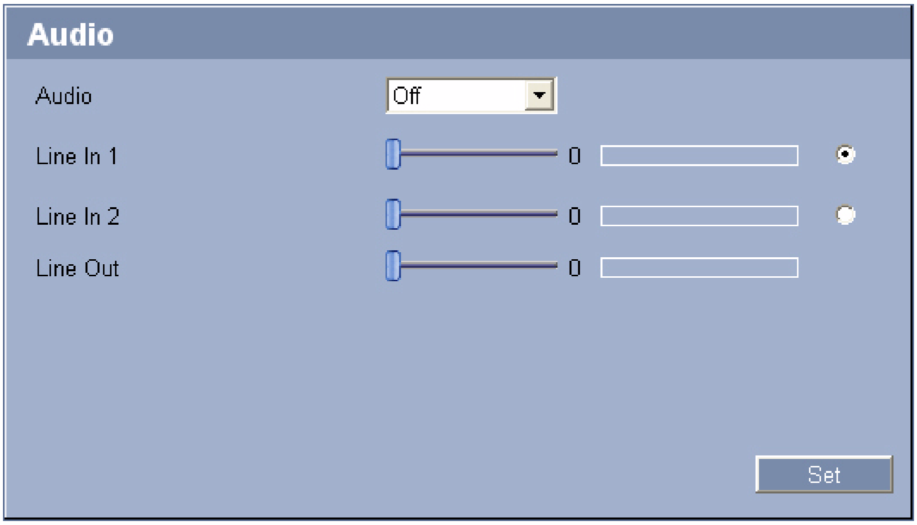
**GOP structure (H.264 MP only)**

Select the structure you require for the Group of Pictures here. Depending on whether you place greater priority on having the lowest possible delay (IP frames only) or using as little bandwidth as possible, you can choose between **IP**, **IBP**, **IBBP** and **IBBRBP**.

**Default**

Click **Default** to return the profile to the factory settings.

## 5.20 Advanced Mode: Audio



Audio

Audio: Off

Line In 1: 0 ●

Line In 2: 0 ○

Line Out: 0

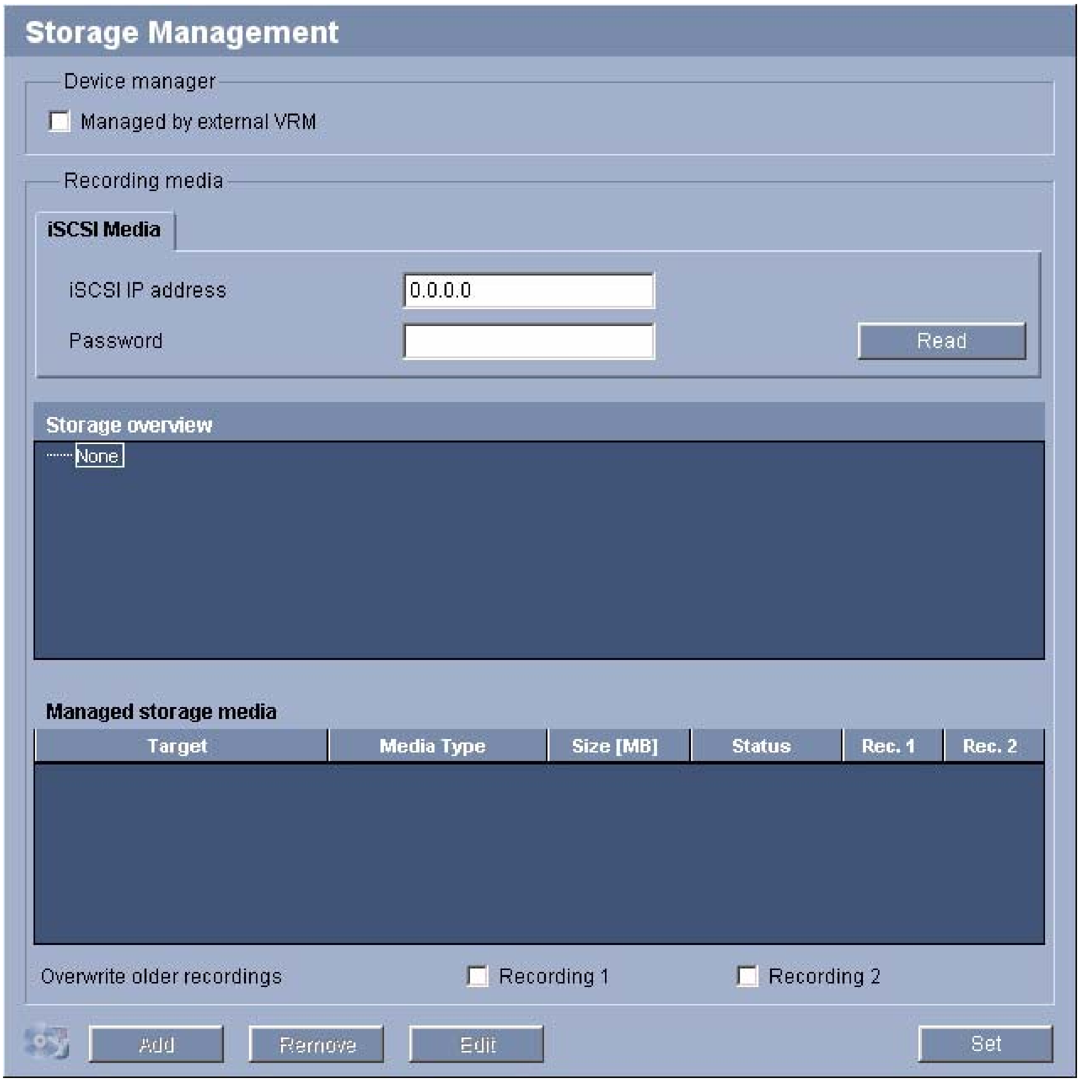
You can set the gain of the audio signals to suit your specific requirements. The current video image is shown in the small window next to the slide controls to help you check the audio source and improve assignments. Your changes are effective immediately.
If you connect via Web browser you must activate the audio transmission on the **LIVEPAGE Functions** page (see *Section 5.14 Advanced Mode: LIVEPAGE Functions, page 35*). For other connections, the transmission depends on the audio settings of the respective system.

**Audio**
The audio signals are sent in a separate data stream parallel to the video data, and so increase the network load. The audio data are encoded according to G.711 and require an additional bandwidth of approx. 80 kbps per connection in each direction. If you do not want any audio data to be transmitted, select **Off**.

**Line In 1 / Line In 2**
You can set the gain for the line inputs. Make sure that the display does not go beyond the green zone during modulation.

**Line Out**
You can set the line output gain. Make sure that the display does not go beyond the green zone during modulation.

## 5.21 Advanced Mode: Storage Management


Storage Management

Device manager

□ Managed by external VRM

Recording media

iSCSI IP address: 0.0.0.0

Password:

Storage overview

None

Managed storage media

| Target | Media Type | Size [MB] | Status | Rec. 1 | Rec. 2 |
|---|---|---|---|---|---|

Overwrite older recordings □ Recording 1 □ Recording 2

You can record the images from the camera connected to the module on an appropriately configured iSCSI system.
It is also possible to let the VRM Video Recording Manager control all recording when accessing an iSCSI system. This is an external program for configuring recording tasks for video servers. For further information please contact your local customer service at Bosch Security Systems.

### Device manager

If you activate the **VRM** option in this screen, the VRM Video Recording Manager will manage all recording and you will not be able to configure any further settings here.

**CAUTION!**
Activating or deactivating VRM causes the current settings to be lost; they can only be restored through reconfiguration.

### Recording media

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

**iSCSI Media**

If you want to use an iSCSI system as a recording medium, you must set up a connection to the required iSCSI system and set the configuration parameters.

**NOTICE!**

The iSCSI storage system selected must be available on the network and completely set up. Amongst other things, it must have an IP address and be divided into logical drives (LUN).

1. Enter the IP address of the desired iSCSI target in the **iSCSI IP address** field.
2. If the iSCSI target is password protected, enter this into the **Password** field.
3. Click **Read**. The connection to the IP address will be established. In the **Storage overview** field, you can see the corresponding logical drives.

**Activating and Configuring Storage Media**

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

**CAUTION!**

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

1. In the **Storage overview** section, double-click an ISCSI LUN. The medium is added to the **Managed storage media** list. In the **Status** column, newly added media are indicated by the **Not active** status.
2. Click the **Set** button to activate all media in the **Managed storage media** list. In the **Status** column, these are indicated by the **Online** status.
3. Check the box in the **Rec. 1** or **Rec. 2** column to specify which data stream should be recorded on the storage media selected. **Rec. 1** saves Stream 1, **Rec. 2** saves Stream 2.
4. Check the boxes for the **Overwrite older recordings** option to specify which older recordings can be overwritten once all the available memory capacity has been used. **Recording 1** corresponds to Stream 1, **Recording 2** corresponds to Stream 2.

**CAUTION!**

If older recordings are not allowed to be overwritten when the available memory capacity has been used, the recording in question will be stopped. You can specify limitations for overwriting old recordings by configuring the retention time (see *Section 5.23 Advanced Mode: Retention Time, page 50*).

**Formatting Storage Media**

You can delete all recordings on a storage medium at any time.

**CAUTION!**

Check the recordings before deleting and back up important sequences on the computer's hard drive.

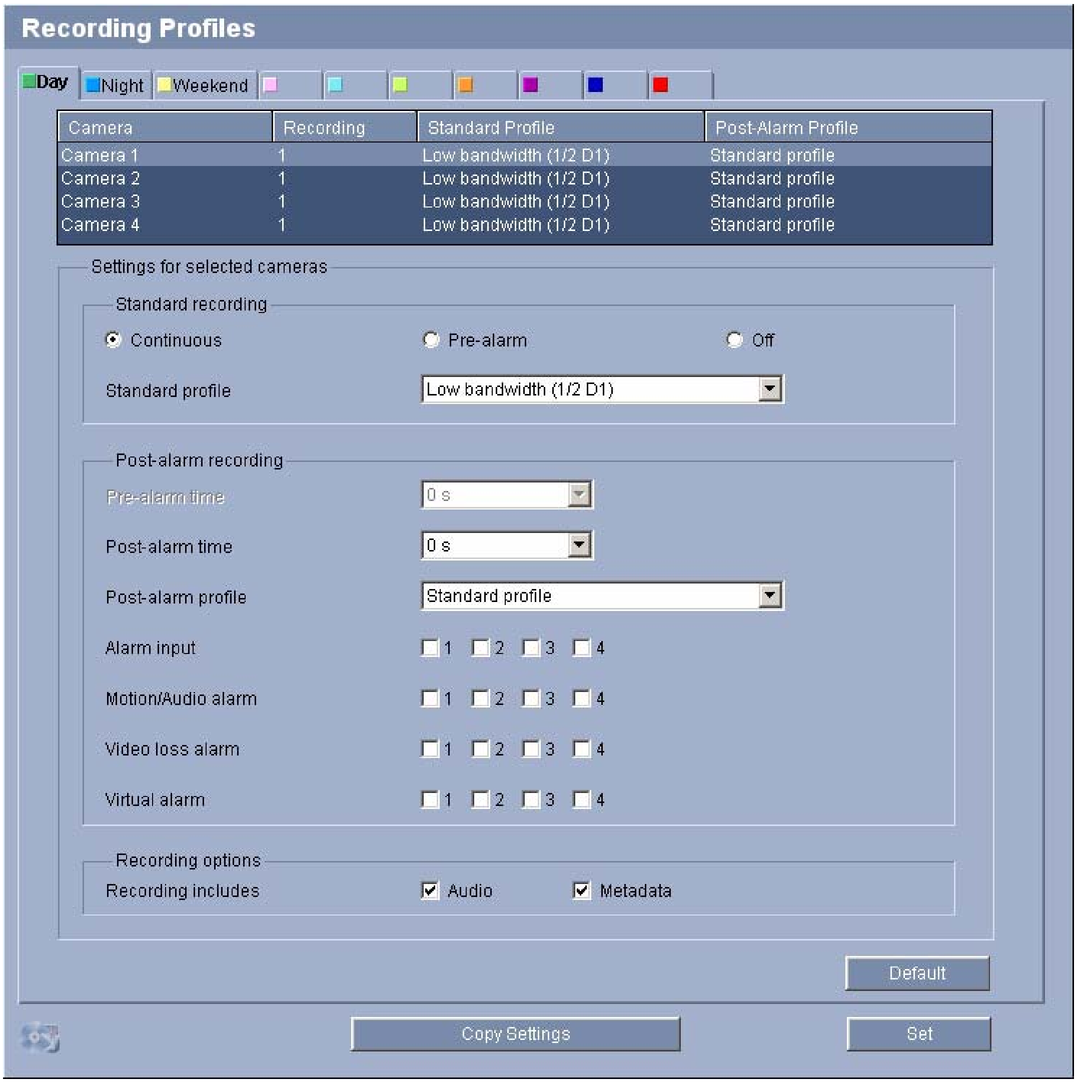
1. Click a storage medium in the **Managed storage media** list to select it.
2. Click the **Edit** button below the list. A new window will open.
3. Click the **Formatting** button to delete all recordings in the storage medium.
4. Click **OK** to close the window.

**Deactivating Storage Media**

You can deactivate any storage medium from the **Managed storage media** list. It is then no longer used for recordings.

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

## 5.22 Advanced Mode: Recording Profiles



| Camera | Recording | Standard Profile | Post-Alarm Profile |
|---|---|---|---|
| Camera 1 | 1 | Low bandwidth (1/2 D1) | Standard profile |
| Camera 2 | 1 | Low bandwidth (1/2 D1) | Standard profile |
| Camera 3 | 1 | Low bandwidth (1/2 D1) | Standard profile |
| Camera 4 | 1 | Low bandwidth (1/2 D1) | Standard profile |

Settings for selected cameras

Standard recording

● Continuous ○ Pre-alarm ○ Off

Standard profile: Low bandwidth (1/2 D1)

Post-alarm recording

Pre-alarm time: 0 s

Post-alarm time: 0 s

Post-alarm profile: Standard profile

Alarm input □ 1 □ 2 □ 3 □ 4

Motion/Audio alarm □ 1 □ 2 □ 3 □ 4

Video loss alarm □ 1 □ 2 □ 3 □ 4

Virtual alarm □ 1 □ 2 □ 3 □ 4

Recording options

Recording includes ☑ Audio ☑ Metadata

You can define up to ten different recording profiles. You will then use these recording profiles in the recording scheduler, where they are linked with the individual days and times (see *Section 5.24 Advanced Mode: Recording Scheduler, page 51*).

**NOTICE!**
You can change or add to the recording profile description on the tabs on the **Recording Scheduler** page (see *Section  Time periods, page 52*).

1. Click one of the tabs to edit the corresponding profile.
2. In the table, click the name of the camera input for which you want to edit the settings.

3. You can select multiple camera inputs by holding down the shift or [Ctrl] key as usual in Windows. The following settings apply to all selected entries.
4. If necessary, click the **Default** button to return all settings to their default values.
5. Click the **Copy Settings** button if you want to copy the currently visible settings to other profiles. A new window will open and you can select the profiles in which you want to copy the settings.
6. For each profile, click the **Set** button to save the settings in the unit.

**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, the unit uses a special recording mode for optimal usage of storage capacity: As soon as a time window for alarm recording begins, recording takes place continuously on one segment that corresponds in size to a complete alarm sequence (pre- and post-alarm time). This segment functions in a similar manner to a ring buffer and is overwritten until an alarm is actually triggered. Recording occurs on the segment only for the duration of the preset post-alarm time and a new segment is used subsequently in the same manner.
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 *Section 5.23 Advanced Mode: Retention Time, page 50*).

**Standard profile**

From this field, you can select the encoder profile to be used for recording (see *Section 5.19 Advanced Mode: Encoder Profile, page 40*).

ℹ **NOTICE!**
The recording profile can differ from the setting for the stream on the **Encoder Profile** page and is only used during an active 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.

**Post-alarm profile**

You can select the encoder profile to be used for recording during the post-alarm time (see *Section 5.19 Advanced Mode: Encoder Profile, page 40*).
The **Standard profile** option adopts the selection at the top of the page.

**Alarm input / Motion/Audio alarm / Video loss alarm**

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

**NOTICE!**

The alarm inputs are configured and activated on the **Alarm Inputs** page (see *Section 5.34 Advanced Mode: Alarm Inputs, page 70*).

The numbering of the checkboxes for the alarm inputs corresponds to the labeling of the alarm inputs on the module.

The motion alarm is configured and activated on the **VCA** page (see *Section 5.27 Advanced Mode: VCA, page 57* onwards).

The audio alarm is configured and activated on the **Audio Alarm** page (see *Section 5.31 Advanced Mode: Audio Alarm, page 66*).

**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. These documents can be found on the product CD supplied with the VIP X1600 XF base system.

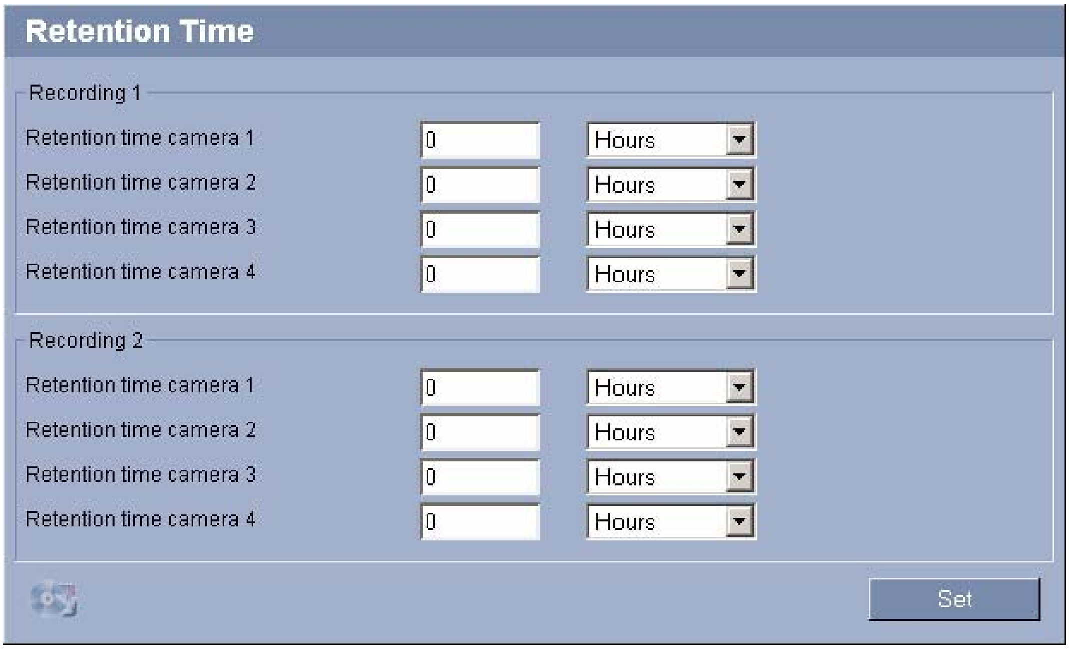
**Recording includes**

You can specify whether, in addition to video data, audio 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.

## 5.23 Advanced Mode: Retention Time



Retention Time

Recording 1

| | | |
|---|---|---|
| Retention time camera 1 | 0 | Hours |
| Retention time camera 2 | 0 | Hours |
| Retention time camera 3 | 0 | Hours |
| Retention time camera 4 | 0 | Hours |

Recording 2

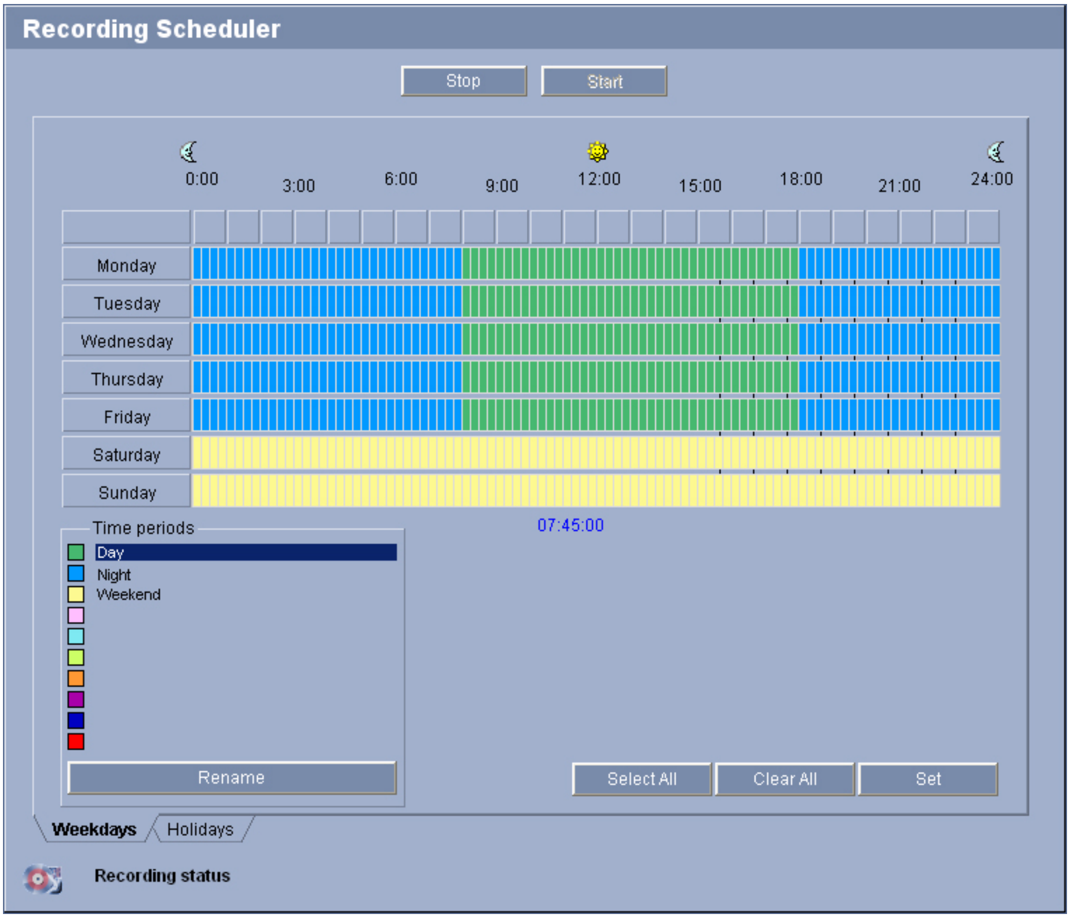
| | | |
|---|---|---|
| Retention time camera 1 | 0 | Hours |
| Retention time camera 2 | 0 | Hours |
| Retention time camera 3 | 0 | Hours |
| Retention time camera 4 | 0 | Hours |

You can specify the retention times for recordings. If the available memory capacity of a medium has been used, older recordings are only overwritten if the retention time entered here has expired.

**NOTICE!**
Make sure that the retention time corresponds with the available memory capacity. A rule of thumb for the memory requirement is as follows: 1 GB per hour retention time with 4CIF for complete frame rate and high image quality.

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

## 5.24 Advanced Mode: Recording Scheduler



The recording scheduler allows you to link the created recording profiles with the days and times at which the cameras' 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 **Add**. 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 **Delete**. 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

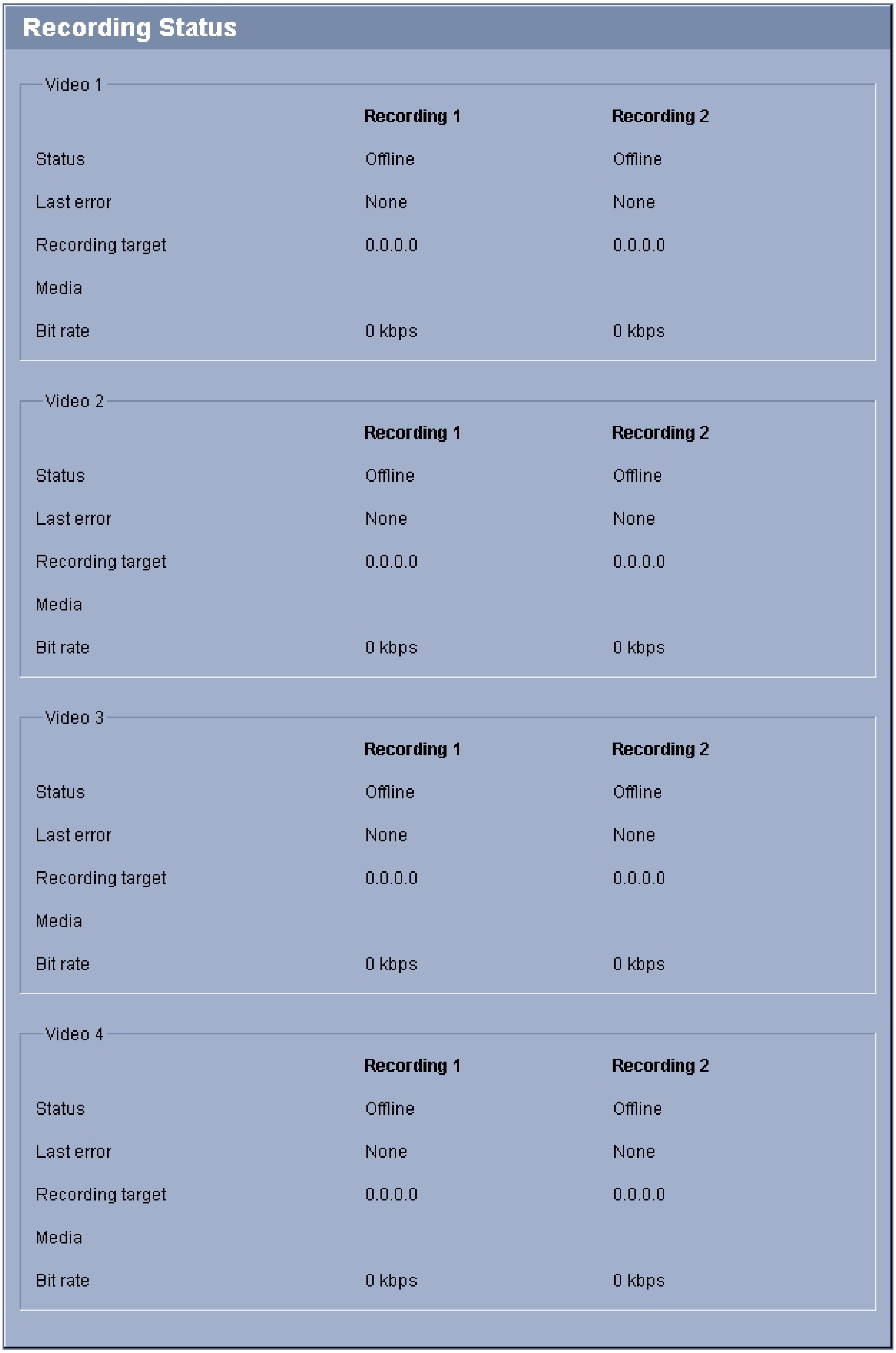
After completing configuration you must activate the recording scheduler and start the recording. The configuration can be changed at any time.

1. Click **Start** to activate the recording scheduler.
2. Click **Stop** to deactivate the recording scheduler. Running recordings are interrupted.

### Recording status

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

## 5.25 Advanced Mode: Recording Status



Recording Status

Video 1

| | Recording 1 | Recording 2 |
|---|---|---|
| Status | Offline | Offline |
| Last error | None | None |
| Recording target | 0.0.0.0 | 0.0.0.0 |
| Media | | |
| Bit rate | 0 kbps | 0 kbps |

Video 2

| | Recording 1 | Recording 2 |
|---|---|---|
| Status | Offline | Offline |
| Last error | None | None |
| Recording target | 0.0.0.0 | 0.0.0.0 |
| Media | | |
| Bit rate | 0 kbps | 0 kbps |

Video 3

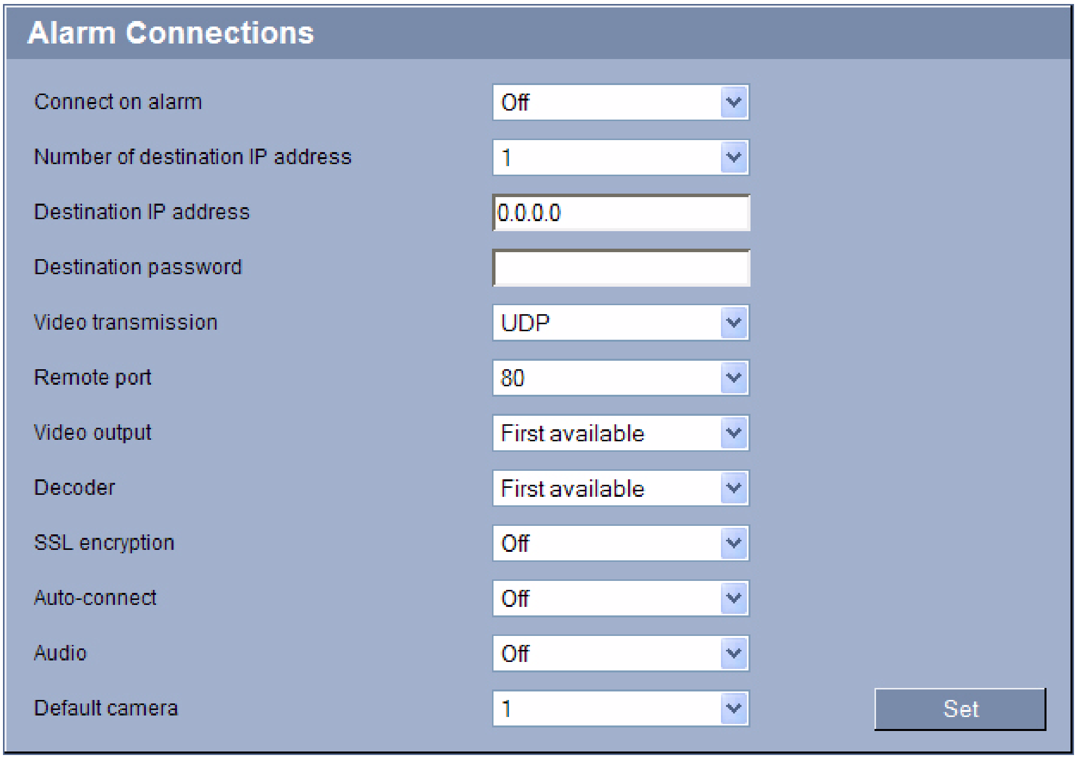
| | Recording 1 | Recording 2 |
|---|---|---|
| Status | Offline | Offline |
| Last error | None | None |
| Recording target | 0.0.0.0 | 0.0.0.0 |
| Media | | |
| Bit rate | 0 kbps | 0 kbps |

Video 4

| | Recording 1 | Recording 2 |
|---|---|---|
| Status | Offline | Offline |
| Last error | None | None |
| Recording target | 0.0.0.0 | 0.0.0.0 |
| Media | | |
| Bit rate | 0 kbps | 0 kbps |

Certain details on the recording status are displayed here for information purposes. You cannot change any of these settings.

## 5.26 Advanced Mode: Alarm Connections



Alarm Connections

| | |
|---|---|
| Connect on alarm | Off |
| Number of destination IP address | 1 |
| Destination IP address | 0.0.0.0 |
| Destination password | |
| Video transmission | UDP |
| Remote port | 80 |
| Video output | First available |
| Decoder | First available |
| SSL encryption | Off |
| Auto-connect | Off |
| Audio | Off |
| Default camera | 1 |

You can select how the module 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 which the module will select in order, until a connection is made.

**Connect on alarm**

Select **On** so that the module automatically establishes a connection to a pre-defined IP address in the event of an alarm.
With setting **Follows input 1**, the unit maintains the automatically established connection 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 *Section 5.19 Advanced Mode: Encoder Profile, page 40*).

**Number of destination IP address**

Specify the numbers of the IP addresses to be contacted in the event of an alarm. The module 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

module can use this general password to connect to all remote stations protected with the same password. In this case, proceed as follows:

1. In the **Number of destination IP address** list field, select **10**.
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 by the module 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 VIP X1600 XF is operated behind a firewall, **TCP (HTTP port)** should be selected as the transfer protocol. For use in a local network, select **UDP**.

**CAUTION!**
Please note that in some circumstances, a larger bandwidth must be available on the network for additional video images in the event of an alarm, in case multicast operation is not possible. To enable multicast operation, select the **UDP** option for the **Video transmission** parameter here and on the **Network** page (see *Section  Video transmission, page 74*).

**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 that the upper-right quadrant should be used to display the alarm image on a VIP XD 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 module (see *Section  Maintenance log, page 84*).

You can activate and configure encryption of the media data (video, audio and metadata) on the **Encryption** page (see *Section 5.42 Advanced Mode: Encryption, page 83*).

**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.

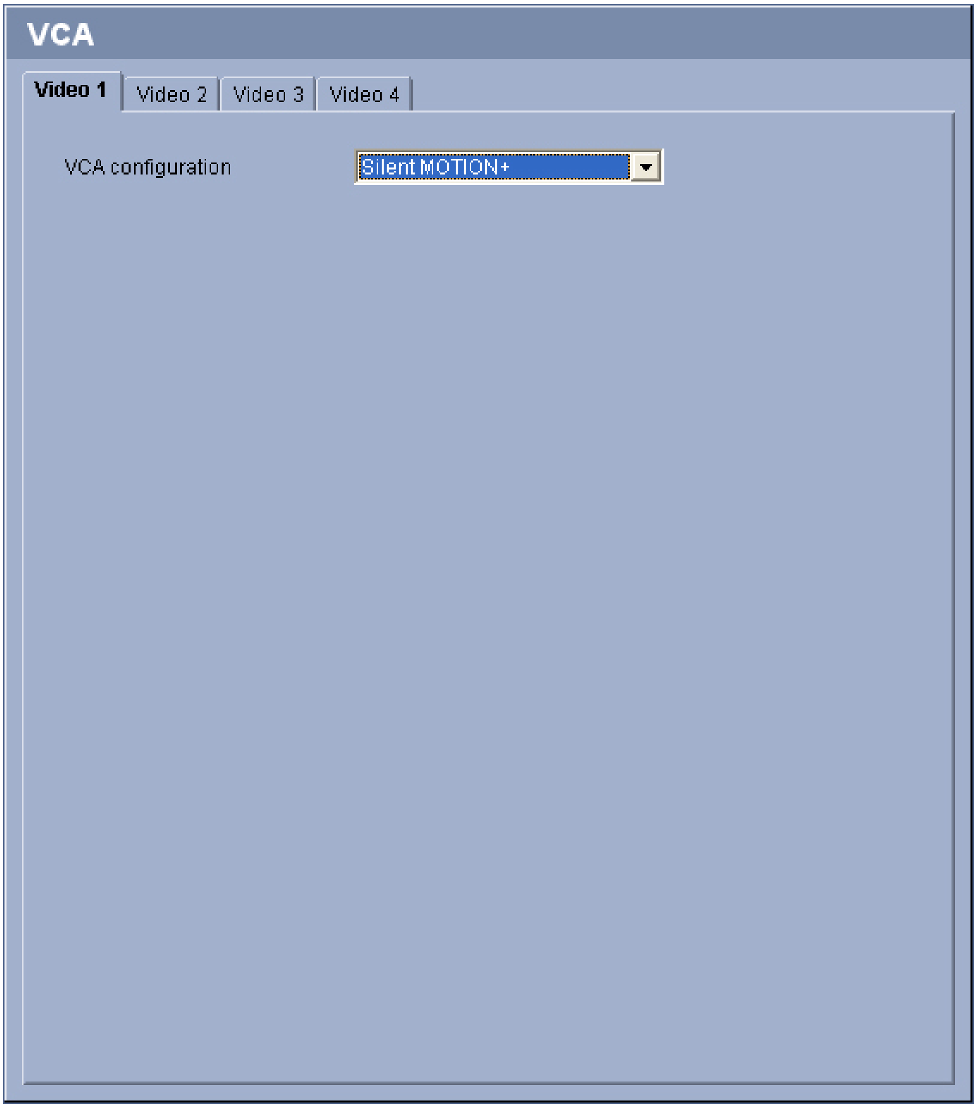
**NOTICE!**
In the default setting, Stream 2 is transmitted for automatic connections. Bear this fact in mind when assigning the profile (see *Section 5.19 Advanced Mode: Encoder Profile, page 40*).

**Audio**
Select the **On** option if you wish to additionally transmit a standalone G.711 encoded audio stream with alarm connections.

**Default camera**
Here you can select the camera whose image will be automatically displayed first on the receiver when the alarm connection is made. Depending on the system configuration, the receiver can then select the other cameras as well.

**NOTICE!**
The numbering follows the labeling of the video inputs on the actual unit.

## 5.27 Advanced Mode: VCA



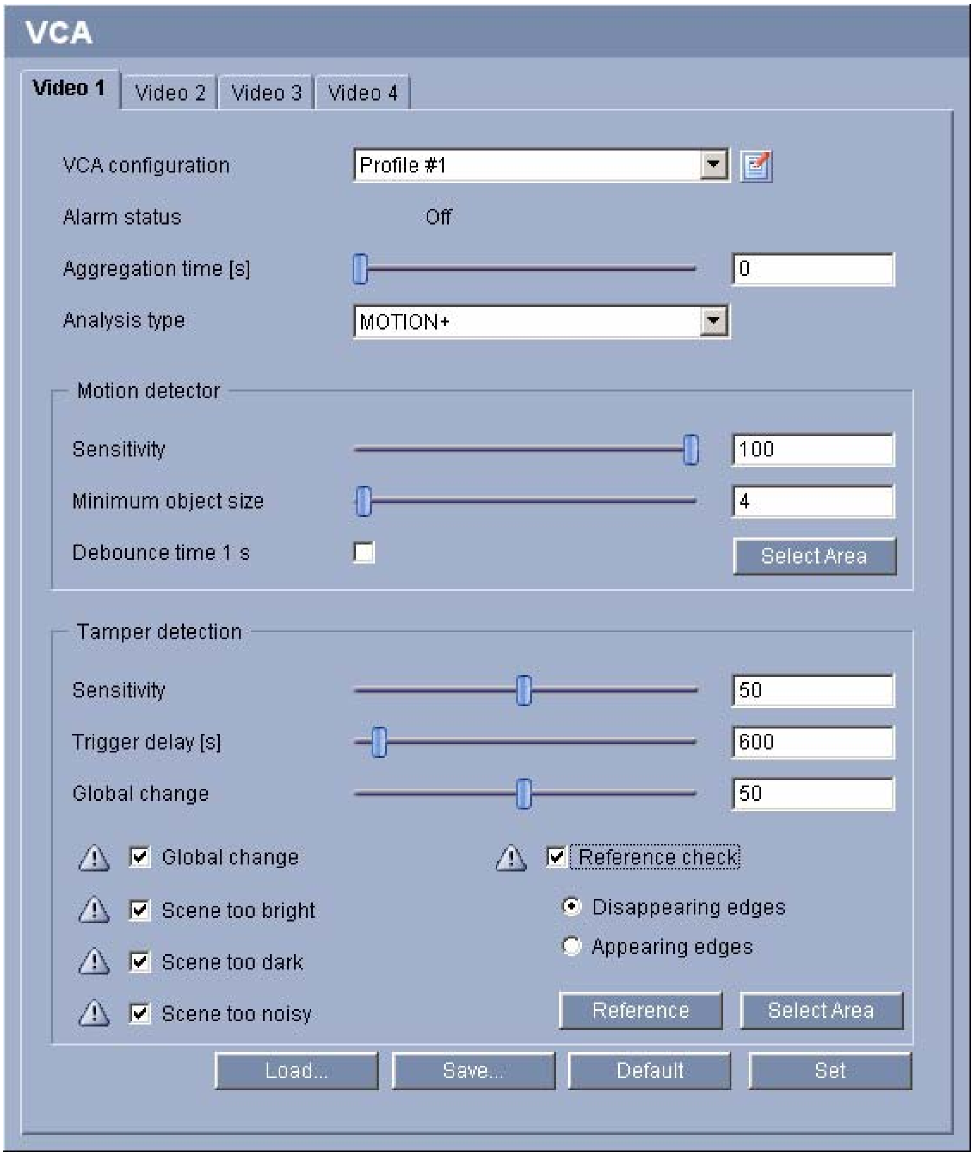
VCA configuration: Silent MOTION+

The VIP X1600 XFM4 encoder module contains an integrated video content analysis (VCA), which can detect and analyze changes in the signal on the basis of image processing. Such changes can be due to movements in the camera's field of view.

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

1. Click one of the tabs to open the configuration of the corresponding video input.
2. Select a VCA configuration and make the required settings.
3. If necessary, click the **Default** button to return all settings to their default values.

## 5.28 Advanced Mode: VCA Profiles



VCA configuration: Profile #1

Alarm status: Off

Aggregation time [s]: 0

Analysis type: MOTION+

Motion detector

Sensitivity: 100

Minimum object size: 4

Debounce time 1 s ☐

Tamper detection

Sensitivity: 50

Trigger delay [s]: 600

Global change: 50

☑ Global change

☑ Scene too bright

☑ Scene too dark

☑ Scene too noisy

☑ Reference check

● Disappearing edges

○ Appearing edges

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

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

**VCA configuration**

Select one of the profiles here to activate it or edit it.
You can rename the profile.

⚠ **CAUTION!**

Do not use any special characters, for example **&**, in the name.
Special characters are not supported by the system's internal recording management and may therefore result in the Player or Archive Player programs being unable to play back the recording.

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.

**Alarm status**

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

**Aggregation time [s]**

You can set an aggregation time of between 0 and 20 seconds if necessary. 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.
Note that the value for the pre-alarm time must be greater than the value for the aggregation time, so that the alarm event is also recorded. The post-alarm time set for alarm recordings only starts once the aggregation time has expired (see *Section 5.22 Advanced Mode: Recording Profiles, page 47*).

**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.
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. With the **MOTION+** analysis type, for example, the sensor fields in which motion is recorded will be marked with rectangles.

**NOTICE!**

On the **LIVEPAGE Functions** page, you can also enable additional information overlays for the **LIVEPAGE** (see *Section 5.14 Advanced Mode: LIVEPAGE Functions, page 35*).

**Motion detector (MOTION+ only)**

For the detector to function, the following conditions must be met:

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

**CAUTION!**

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

**Sensitivity (MOTION+ only)**

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

**Minimum object size (MOTION+ only)**

You can specify the number of sensor fields that a moving object must cover to generate an alarm. This is to prevent objects that are too small from triggering an alarm.
A minimum value of **4** is recommended. This value corresponds to four sensor fields.

**Debounce time 1 s (MOTION+ only)**

The debounce time is intended to prevent very brief alarm events from triggering individual alarms. If the **Debounce time 1 s** option is activated, an alarm event must last at least 1 second to trigger an alarm.

**Select Area (MOTION+ only)**

The areas of the image to be monitored by the motion detector can be selected. The video image is subdivided into 858 square fields. Each of these fields can be activated or deactivated individually. If you wish to exclude particular regions of the camera's field of view from monitoring due to continuous movement (by a tree in the wind, etc.), the relevant fields can be deactivated.

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

**Tamper detection**

You can reveal the tampering of cameras and video cables by means of various options. Run a series of tests at different times of the day and night to ensure that the video sensor is operating as intended.

**NOTICE!**
The options for tamper detection can only be set for fixed cameras. Dome cameras or other motorized cameras cannot be protected in this manner as the movement of the camera itself causes changes in the video image that are too great.

**Sensitivity**

**NOTICE!**
This and the following parameter are only accessible if the reference check is activated.

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

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

**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.

**Reference check**

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

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

**Disappearing edges**

The area selected in the reference image should contain a prominent structure. If this structure is concealed or moved, the reference check triggers an alarm. If the selected area is too homogenous, so that concealing and moving the structure would not trigger an alarm, then an alarm is triggered immediately to indicate the inadequate reference image.

**Appearing edges**

Select this option if the selected area of the reference image includes a largely homogenous surface. If structures appear in this area, then an alarm is triggered.

**Select Area**

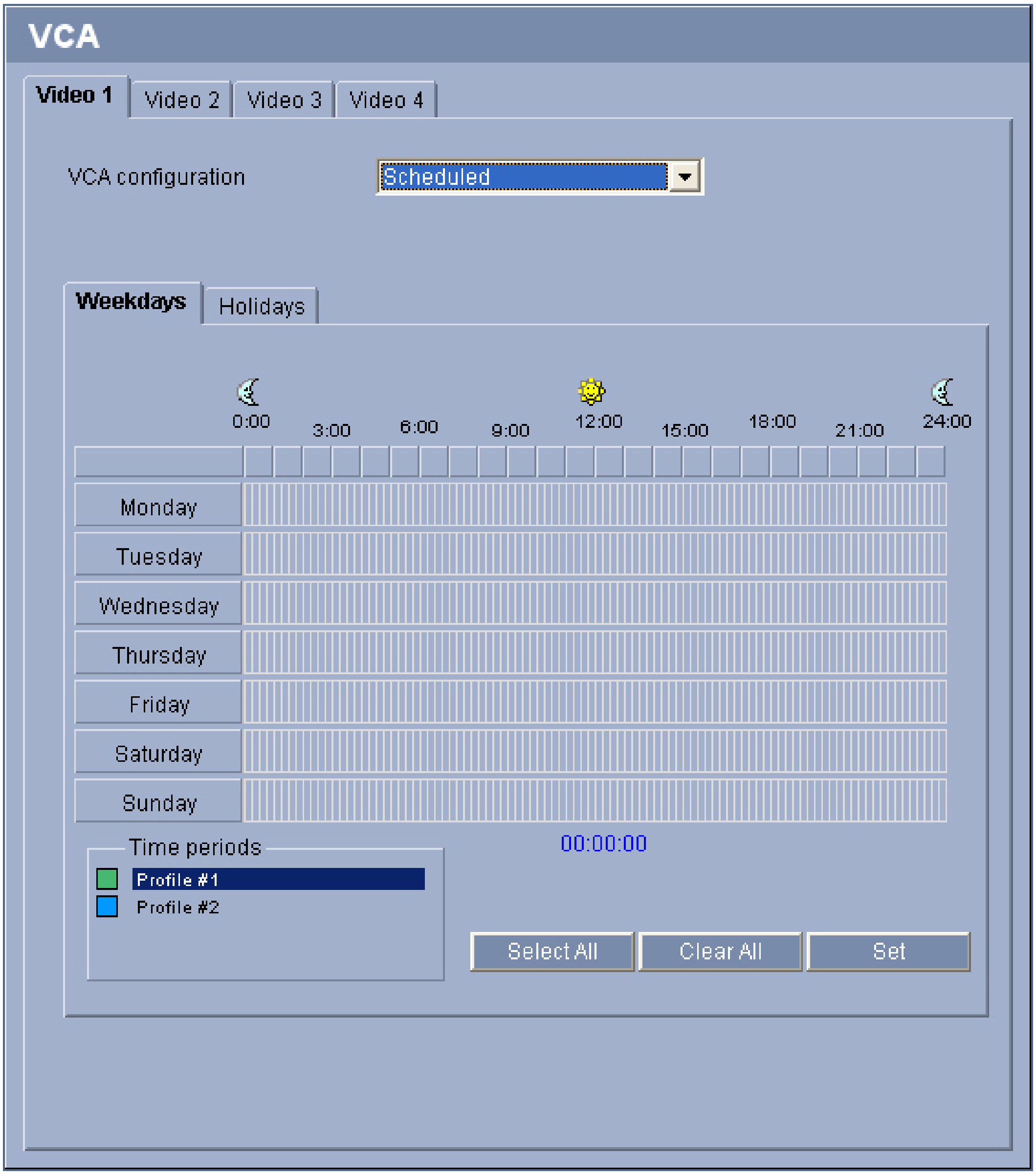
You can select the image areas in the reference image that are to be monitored. The video image is subdivided into 858 square fields. Each of these fields can be activated or deactivated individually.

**NOTICE!**

Select only those areas for reference monitoring in which no movement takes place and that are always evenly lit, as false alarms could otherwise be triggered.

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

## 5.29 Advanced Mode: VCA Scheduled



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

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

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

1. Click the profile you want to link in the **Time periods** field.
2. Click in a field in the table, hold down the mouse button and drag the cursor over all the periods to be assigned to the selected profile.
3. Use the right mouse button to deselect any of the intervals.
4. Click 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 on which a profile should be active that are different to the standard weekly schedule. This allows you to apply a schedule for Sundays to other days with dates that fall on varying weekdays.

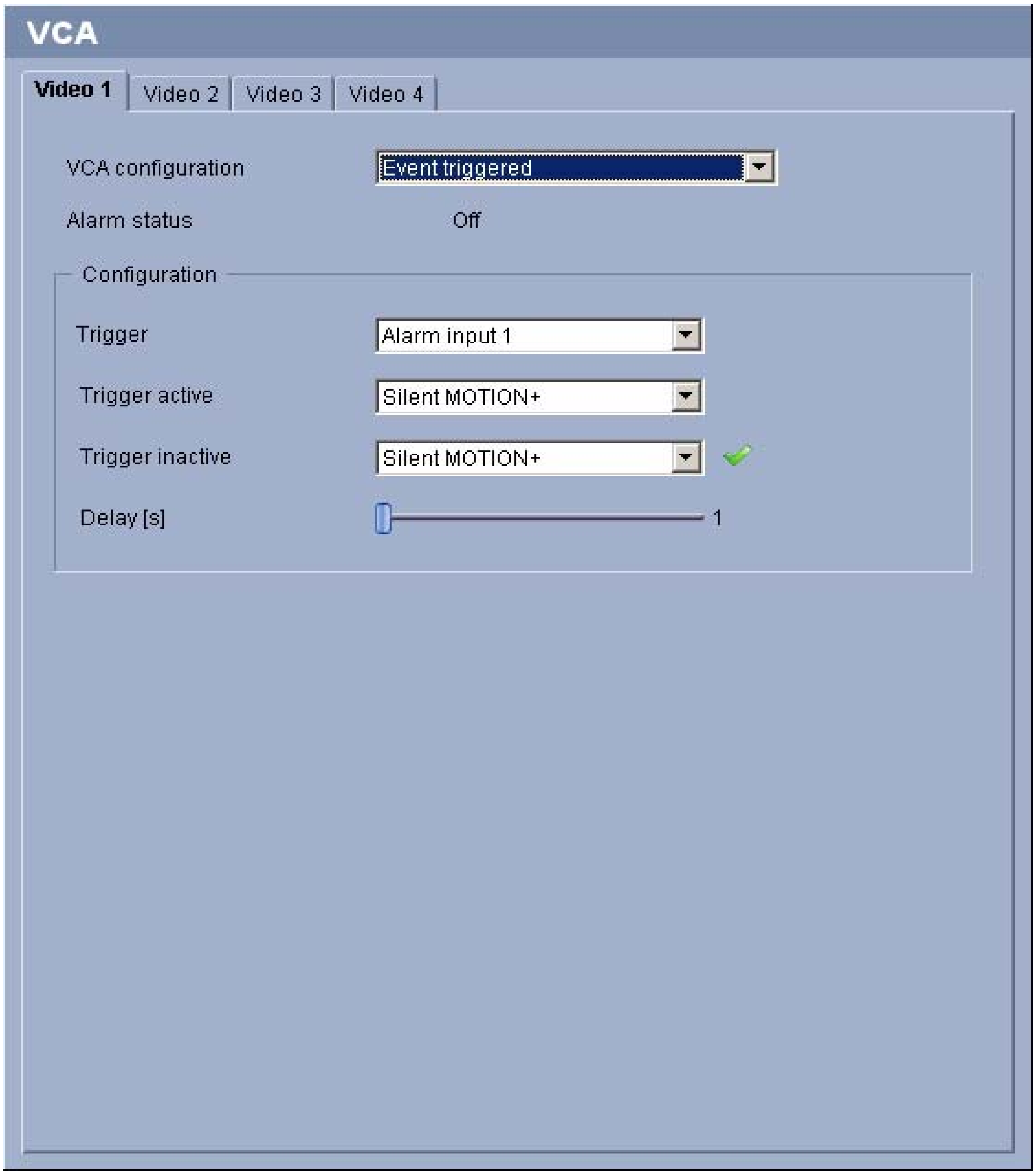
1. Click the **Holidays** tab. Any days that have already been selected will be shown in the table.
2. Click **Add**. A new window will open.
3. Select the desired date from the calendar. You can select several consecutive calendar days by holding down the mouse button. These will later be displayed 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 VCA profiles, as described above.

### Deleting Holidays

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

1. Click **Delete**. 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.

## 5.30 Advanced Mode: VCA Event triggered



VCA configuration: Event triggered

Alarm status: Off

Configuration

Trigger: Alarm input 1

Trigger active: Silent MOTION+

Trigger inactive: Silent MOTION+ ✓

Delay [s]: 1

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

**Trigger**
You can select one of the physical alarms on the device's alarm inputs or one of the virtual alarms as a trigger. A virtual alarm is created using software, with RCP+ commands or alarm scripts, for example.

**NOTICE!**
For more information, please see the **Alarm Task Script Language** document and the RCP+ documentation. These documents can be found on the product CD supplied with the VIP X1600 XF base system.

**Trigger active**

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

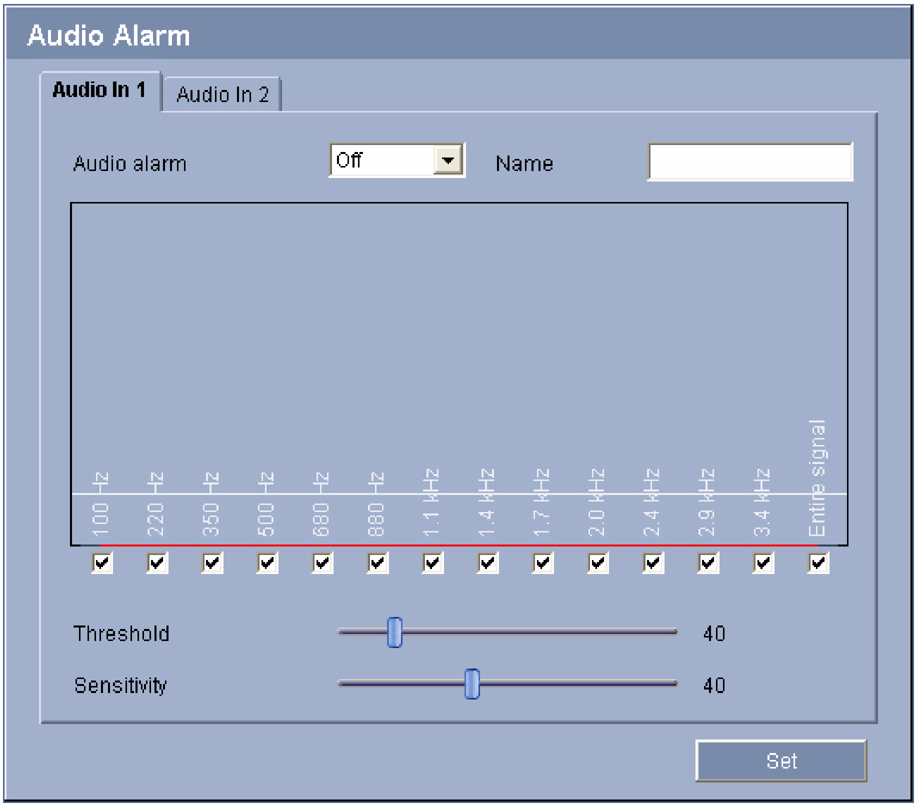
**Trigger inactive**

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

**Delay [s]**

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

## 5.31 Advanced Mode: Audio Alarm



Audio alarm Off

Name

Threshold 40

Sensitivity 40

The module 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. Configure the required settings for each audio input.

**NOTICE!**

First set up normal audio transmission before you configure the audio alarm here (see *Section 5.20 Advanced Mode: Audio, page 44*).

**Audio alarm**

Select **On** if you want the unit to generate audio alarms from the input in question.

**Name**

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

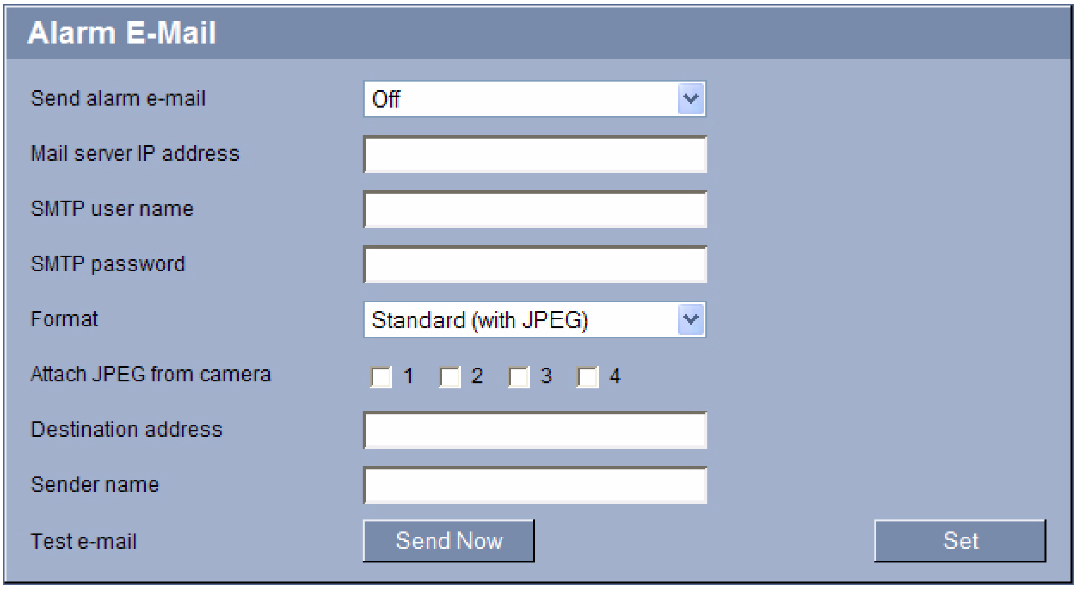
**CAUTION!**
Do not use any special characters, for example **&**, in the name.
Special characters are not supported by the system's internal recording management and may therefore result in the Player or Archive Player programs being unable to play back the recording.

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

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

**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.

## 5.32 Advanced Mode: Alarm E-Mail



Alarm E-Mail

| | |
|---|---|
| Send alarm e-mail | Off |
| Mail server IP address | |
| SMTP user name | |
| SMTP password | |
| Format | Standard (with JPEG) |
| Attach JPEG from camera | □ 1 □ 2 □ 3 □ 4 |
| Destination address | |
| Sender name | |
| Test e-mail | Send Now |

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 module automatically sends an e-mail to a previously defined e-mail address.

**Send alarm e-mail**
Select **On** if you want the module 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 JPEG image file attachment.
- **SMS**
  E-mail in SMS format to an e-mail-to-SMS gateway (for example, to send an alarm by cell phone) 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.

**Attach JPEG from camera**

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

**Destination address**

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

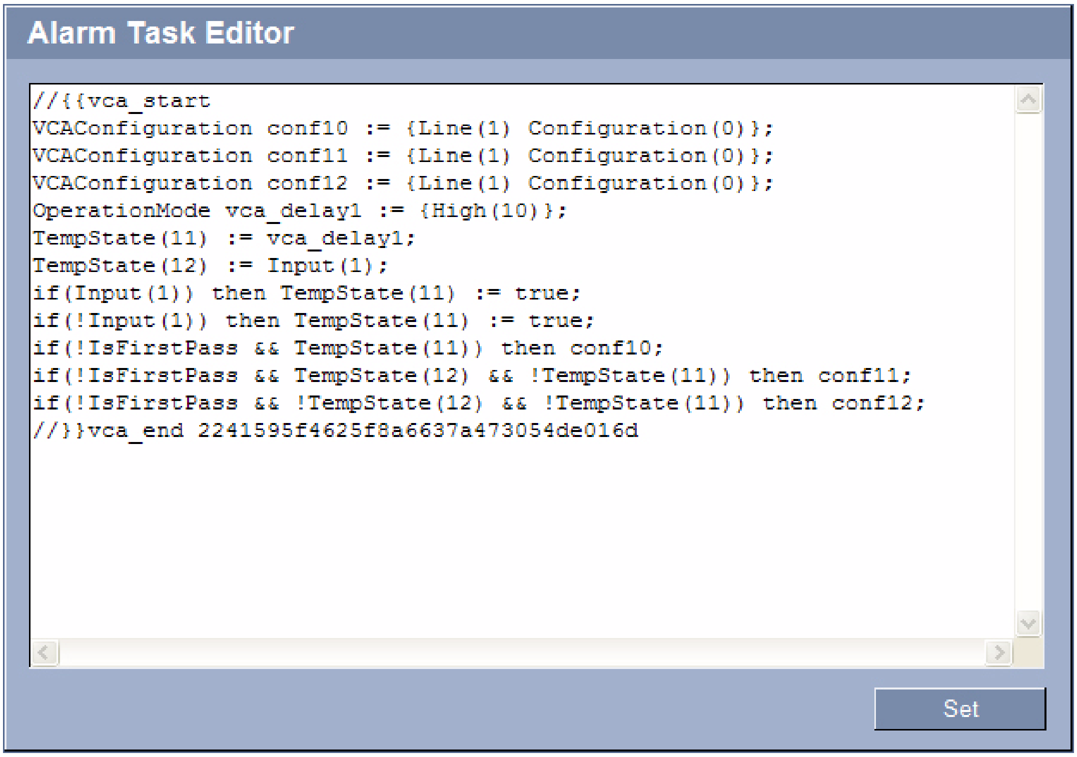
**Sender name**

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

**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.

## 5.33 Advanced Mode: Alarm Task Editor



```
//{{vca_start
VCAConfiguration conf10 := {Line(1) Configuration(0)};
VCAConfiguration conf11 := {Line(1) Configuration(0)};
VCAConfiguration conf12 := {Line(1) Configuration(0)};
OperationMode vca_delay1 := {High(10)};
TempState(11) := vca_delay1;
TempState(12) := Input(1);
if(Input(1)) then TempState(11) := true;
if(!Input(1)) then TempState(11) := true;
if(!IsFirstPass && TempState(11)) then conf10;
if(!IsFirstPass && TempState(12) && !TempState(11)) then conf11;
if(!IsFirstPass && !TempState(12) && !TempState(11)) then conf12;
//}}vca_end 2241595f4625f8a6637a473054de016d
```

**CAUTION!**

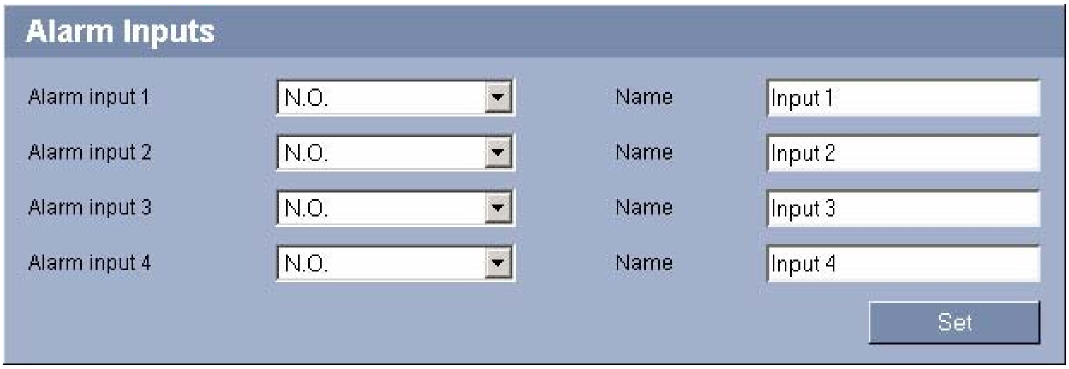
Editing scripts on this page overwrites all settings and entries on the other alarm pages. This procedure cannot be reversed.

In order to edit this page, you must have programming knowledge and be familiar with the information in the **Alarm Task Script Language** document. The document is located on the product CD supplied with the VIP X1600 XF base system.

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.

## 5.34 Advanced Mode: Alarm Inputs


Alarm Inputs

| | | | |
|---|---|---|---|
| Alarm input 1 | N.O. | Name | Input 1 |
| Alarm input 2 | N.O. | Name | Input 2 |
| Alarm input 3 | N.O. | Name | Input 3 |
| Alarm input 4 | N.O. | Name | Input 4 |

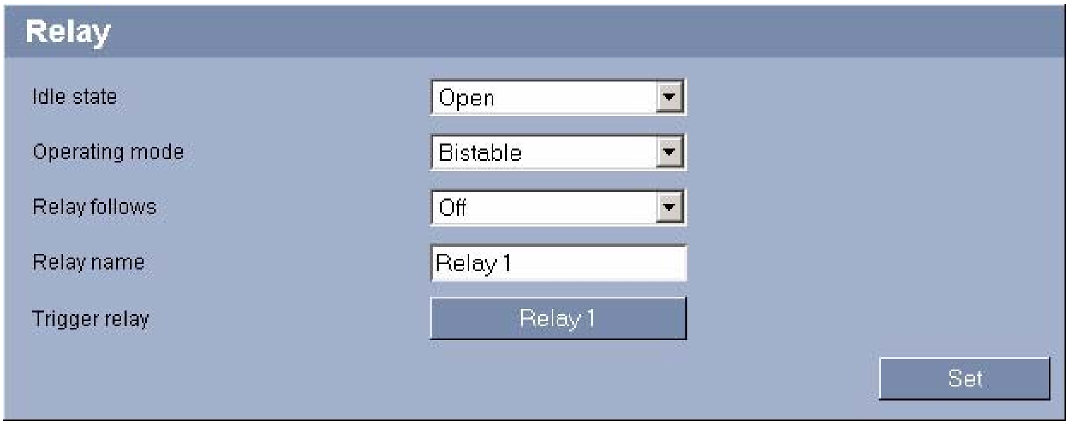
You can configure the alarm inputs for the module.

**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, which is then displayed below the icon for the alarm input on the **LIVEPAGE** if configured correctly (see *Section 5.14 Advanced Mode: LIVEPAGE Functions, page 35*). You can also use the name in the Forensic Search program function as a filter option for quick search in recordings.

**CAUTION!**
Do not use any special characters, for example **&**, in the name.
Special characters are not supported by the system's internal recording management and may therefore result in the Player or Archive Player programs being unable to play back the recording.

## 5.35 Advanced Mode: Relay


Relay

| | |
|---|---|
| Idle state | Open |
| Operating mode | Bistable |
| Relay follows | Off |
| Relay name | Relay 1 |
| Trigger relay | Relay 1 |

You can configure the switching behavior of the relay output. You can specify an open switch relay (normally closed contact) or a closed switch relay (normally open contact).
You can also specify whether the output should operate as a bistable or monostable relay. In bistable mode, the triggered state of the relay is maintained. In monostable mode, you can set the time after which the relay will return to the idle state.

You can select different events that automatically activate the output. It is possible, for example, to turn on a floodlight by triggering a motion alarm and then turning the light off again when the alarm has stopped.

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

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

**Relay follows**
If required, select a specific event that will trigger the relay. The following events are possible triggers:

- **Off**
  Relay is not triggered by events
- **Connection**
  Triggering when connection established with Camera 1
- **Video alarm**
  Triggering by interruption of the video signal at the corresponding input
- **Motion alarm**
  Triggering by motion alarm at the corresponding input, as configured on the **VCA** page (see *Section 5.30 Advanced Mode: VCA Event triggered, page 65*)
- **Local input %s**
  Triggering by corresponding external alarm input
- **Remote input**
  Triggering by remote station's corresponding switching contact (only if a connection exists)

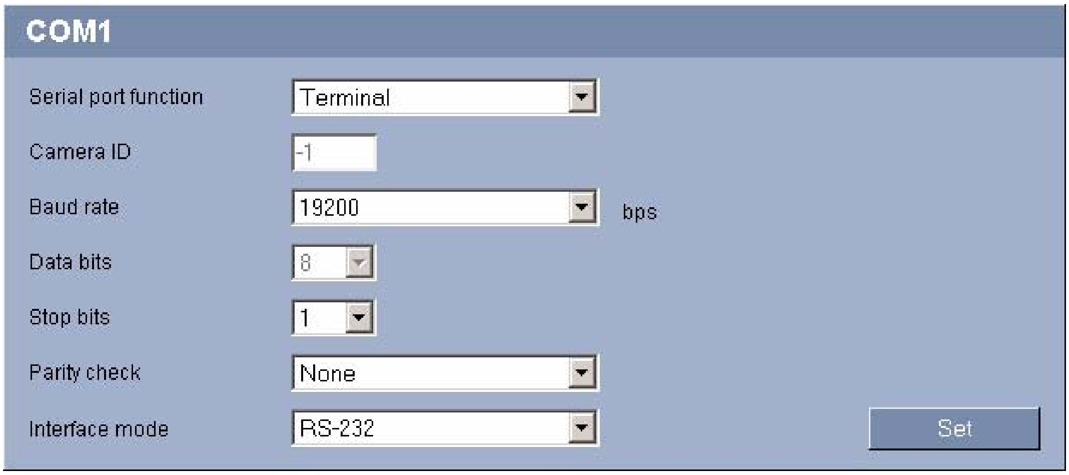
**NOTICE!**
The numbers in the lists of selectable events relate to the corresponding connections on the unit, **Video alarm 1**, for example to the **Video In 1** connection.

**Relay name**
You can assign a name for the relay here. The name is shown on the button next to **Trigger relay**. The Livepage can also be configured to display the name under the relay icon. You can also use the name in the Forensic Search program function as a filter option for quick search in recordings.

**CAUTION!**
Do not use any special characters, for example **&**, in the name.
Special characters are not supported by the system's internal recording management and may therefore result in the Player or Archive Player programs being unable to play back the recording.

**Trigger relay**
Click the button to trigger the relay manually (for testing or to operate a door opener, for example).

## 5.36 Advanced Mode: COM1


COM1

Serial port function: Terminal

Camera ID: -1

Baud rate: 19200 bps

Data bits: 8

Stop bits: 1

Parity check: None

Interface mode: RS-232

You can configure the serial interface parameters (orange terminal block) to meet your requirements.

**NOTICE!**
If the module is working in multicast mode (see *Section 5.40 Advanced Mode: Multicast, page 80*), the first remote location to establish a video connection to the unit is also assigned the transparent data connection. However, after about 15 seconds of inactivity the data connection is automatically terminated and another remote location can exchange transparent data with the unit.

**Serial port function**
Select a controllable unit from the list. If you wish to use the serial port to transmit transparent data, select the **Transparent** entry. Select **Terminal** if you wish to operate the unit from a terminal.

**NOTICE!**
After selecting a unit, the remaining parameters in the window are set automatically and should not be changed.

**Camera ID**
If necessary, enter the ID of the peripheral you wish to control (for example a dome camera or pan/tilt head). The entered ID relates to the peripheral that is connected to the first video input. For further video inputs, the ID is automatically counted up. The connected peripheral devices are addressed via the respective ID.

**Baud rate**
Select the value for the transmission rate in bps.

**Data bits**
The number of data bits per character cannot be changed.

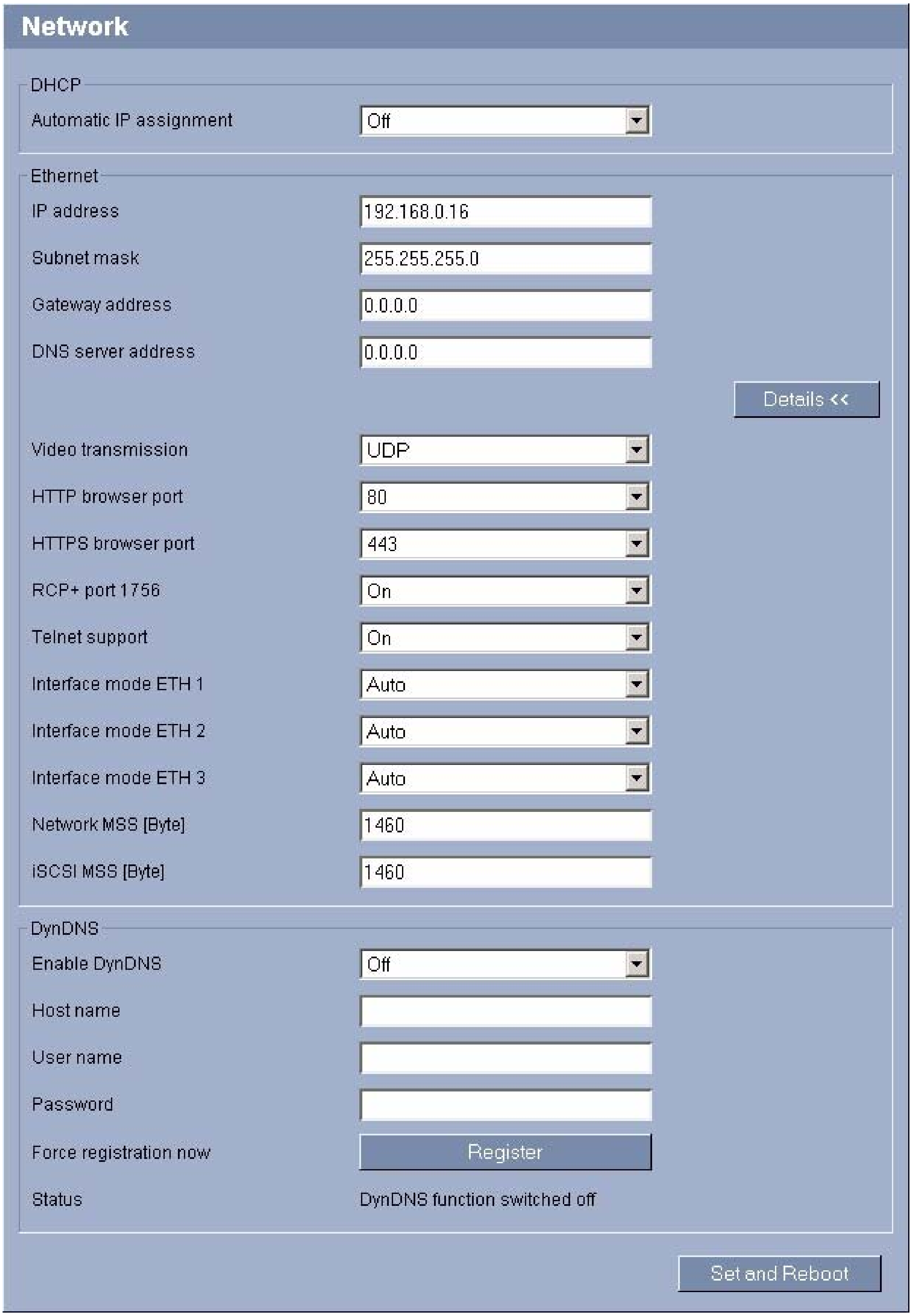
**Stop bits**
Select the number of stop bits per character.

**Parity check**
Select the type of parity check.

**Interface mode**

Select the desired protocol for the serial interface.

## 5.37 Advanced Mode: Network



Network

DHCP

| | |
|---|---|
| Automatic IP assignment | Off |

Ethernet

| | |
|---|---|
| IP address | 192.168.0.16 |
| Subnet mask | 255.255.255.0 |
| Gateway address | 0.0.0.0 |
| DNS server address | 0.0.0.0 |
| Video transmission | UDP |
| HTTP browser port | 80 |
| HTTPS browser port | 443 |
| RCP+ port 1756 | On |
| Telnet support | On |
| Interface mode ETH 1 | Auto |
| Interface mode ETH 2 | Auto |
| Interface mode ETH 3 | Auto |
| Network MSS [Byte] | 1460 |
| iSCSI MSS [Byte] | 1460 |

DynDNS

| | |
|---|---|
| Enable DynDNS | Off |
| Host name | |
| User name | |
| Password | |
| Force registration now | Register |
| Status | DynDNS function switched off |

The settings in this screen are used to integrate the module into an existing network.

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 **Set and Reboot**. The module is rebooted and the changed settings are activated.

**CAUTION!**
If you change the IP address, subnet mask or gateway address, the module is only available under the new addresses after the reboot.

**Automatic IP assignment**
If a DHCP server is employed in the network for the dynamic assignment of IP addresses, you can activate acceptance of IP addresses automatically assigned to the module.
Certain applications (VIDOS, Bosch Video Management System, Archive Player, Configuration Manager) use the IP address for the unique assignment of the unit. If you use these applications, the DHCP server must support the fixed assignment between IP address and MAC address, and must be appropriately set up so that, once an IP address is assigned, it is retained each time the system is rebooted.

**IP address**
Enter the desired IP address for the module. 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 module 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**
The unit can use a DNS server to resolve a mail or FTP server address specified as a name. Enter the IP address of the DNS server here.

**Video transmission**
If the VIP X1600 XF is operated behind a firewall, **TCP (HTTP port)** should be selected as the transfer protocol. For use in a local network, select **UDP**.

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

**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 module 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 **HTTP browser port**, **RCP+ port 1756** and **Telnet support** parameters. 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, audio and metadata) on the **Encryption** page (see *Section 5.42 Advanced Mode: Encryption, page 83*).

**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 1/ETH 2/ETH 3 (only for the module in Slot 1)**
If required, select the Ethernet link type for the **ETH1**, **ETH2** and **ETH3** interfaces on the VIP X1600 XF. Depending on the unit connected, it may be necessary to select a special operation type. These settings can only be configured for the module in Slot 1.

**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 VIP X1600 XF.

**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 module 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.

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

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

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

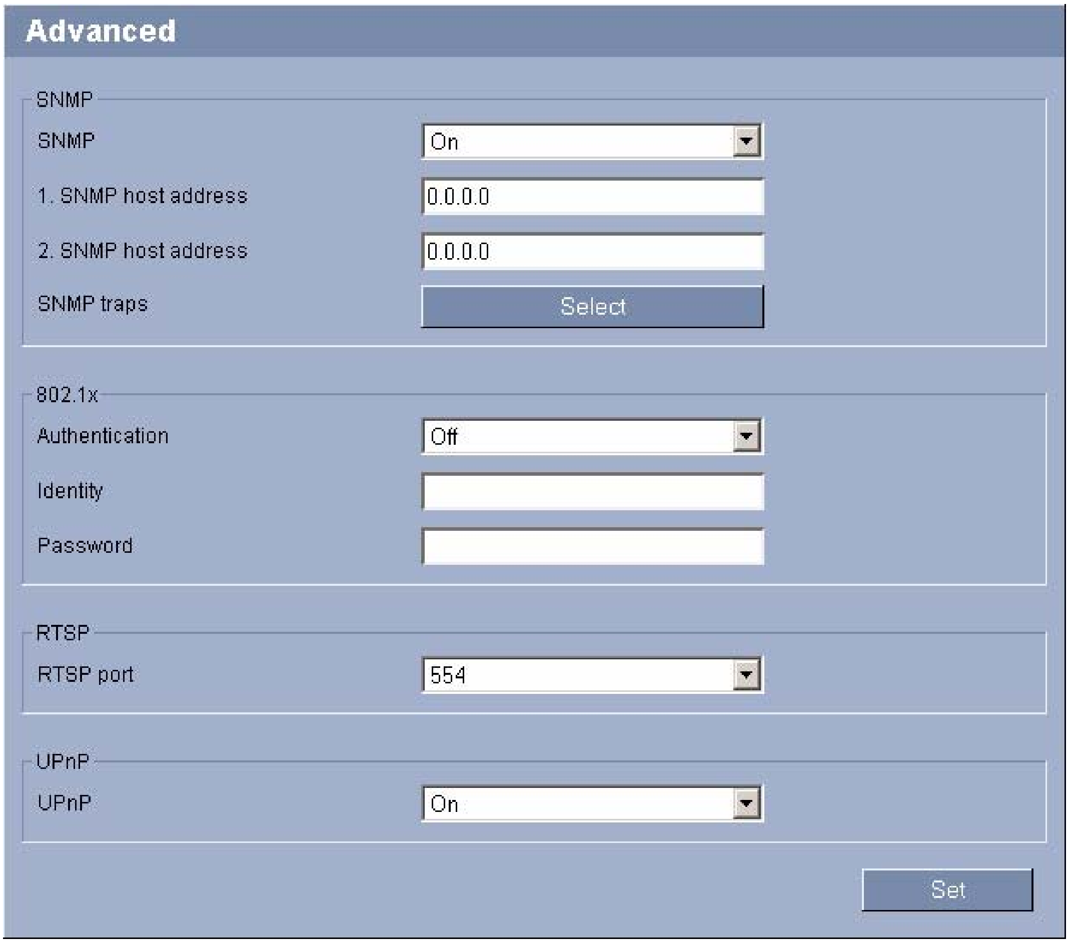
**Force registration now**

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 module, click the **Register** button.

**Status**

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

## 5.38 Advanced Mode: Advanced



Advanced

SNMP

| | |
|---|---|
| SNMP | On |
| 1. SNMP host address | 0.0.0.0 |
| 2. SNMP host address | 0.0.0.0 |
| SNMP traps | Select |

802.1x

| | |
|---|---|
| Authentication | Off |
| Identity | |
| Password | |

RTSP

| | |
|---|---|
| RTSP port | 554 |

UPnP

| | |
|---|---|
| UPnP | On |

The settings on this page are used to implement advanced settings for the network.
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 **Set and Reboot**. The module is rebooted and the changed settings are activated.

**SNMP**

The module supports the SNMP V2 (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 module 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.

**Authentication (only for the module in Slot 1)**
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 VIP X1600 XF directly to a computer. This is because communication via the network is not enabled until the **Identity** and **Password** parameters have been set and successfully authenticated.

**CAUTION!**
The switch used for the network must support the multi-host operation when using 802.1x authentication and must be configured so that a VIP X1600 XF with several modules can try several hosts for communicating over the network.

**Identity (only for the module in Slot 1)**
Enter the name that the RADIUS server is to use for identifying the VIP X1600 XF.

**Password (only for the module in Slot 1)**
Enter the password that is stored in the RADIUS server.

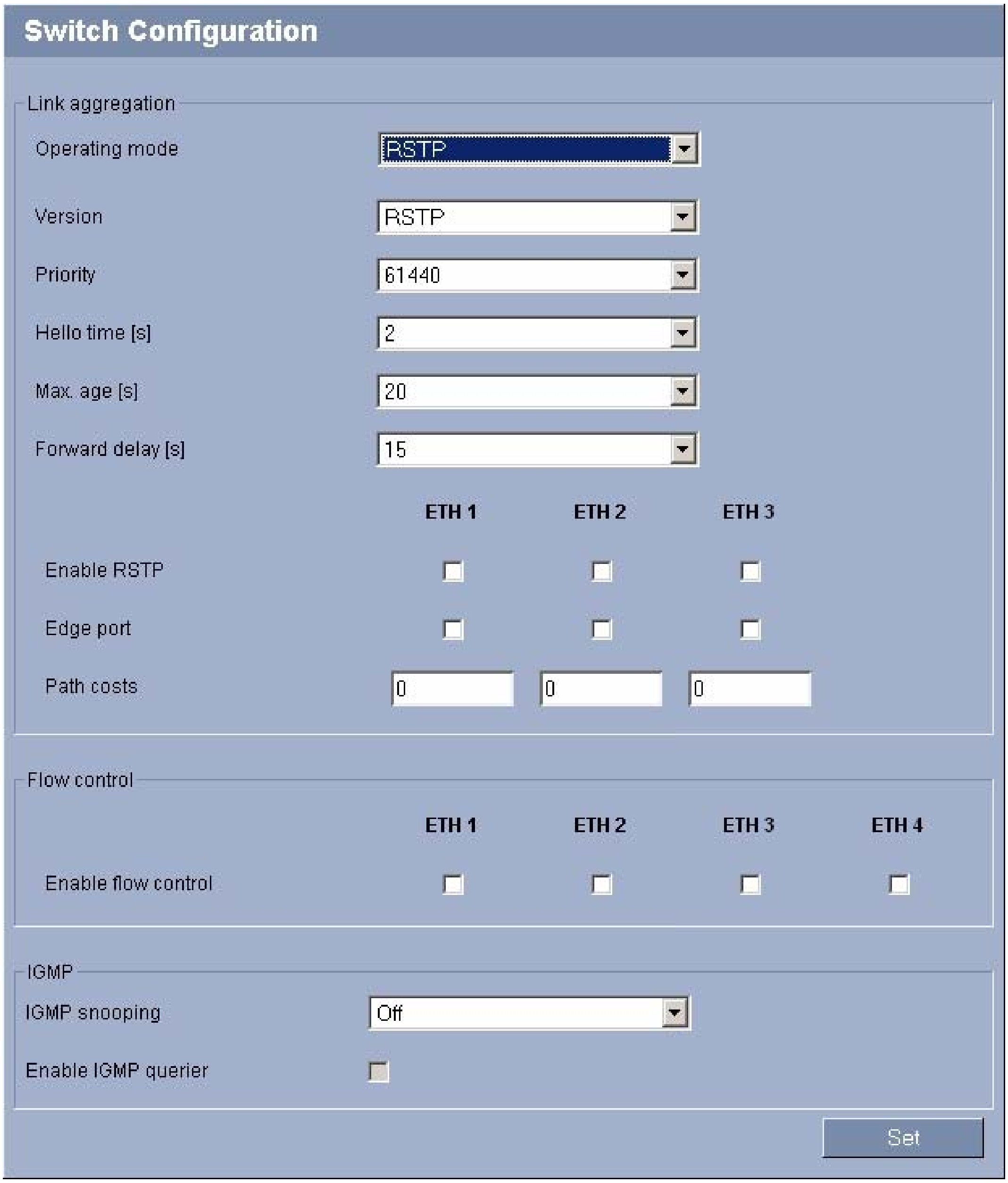
**RTSP port**
If necessary, select a different port for the exchange of the RTSP data from the list. The standard RTSP port is 554. Select **Off** to deactivate the RTSP function.

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

**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 Vista.

This function should not be used for large installations because of the variety of potential registration notifications.

## 5.39 Advanced Mode: Switch Configuration



Switch Configuration

Link aggregation

Operating mode: RSTP

Version: RSTP

Priority: 61440

Hello time [s]: 2

Max. age [s]: 20

Forward delay [s]: 15

| | ETH 1 | ETH 2 | ETH 3 |
|---|---|---|---|
| Enable RSTP | □ | □ | □ |
| Edge port | □ | □ | □ |
| Path costs | 0 | 0 | 0 |

Flow control

| | ETH 1 | ETH 2 | ETH 3 | ETH 4 |
|---|---|---|---|---|
| Enable flow control | □ | □ | □ | □ |

IGMP

IGMP snooping: Off

Enable IGMP querier □

The parameters on this page can be used to configure the switch integrated into VIP X1600 XF and adapt it to the network. If several Ethernet interfaces of the VIP X1600 XF are connected with the network, you can use different protocols to optimize data transfer. Detailed knowledge of the network in which the VIP X1600 XF is located is essential in order to configure the parameters on this page.

**NOTICE!**
The parameters for switch configuration can only be changed for the module in Slot 1. This page cannot be viewed for modules in Slots 2 and 4.

**Operating mode**
Select the required operating mode for the switch. The operating mode is used to determine the communication protocol.

**Static port trunking** enables increased data transfer by bundling Ethernet interfaces. Through a process of continuous checking, the **RSTP** (Rapid Spanning Tree Protocol) determines the fastest possible route for data packets in the network. Other parameters are used to define detailed settings.

### Port trunking (Static port trunking only)

Select the Ethernet interfaces of the VIP X1600 XF, which should be bundled.

### Version (RSTP only)

Here you are required to select the current protocol (**RSTP**) or the compatibility mode for the older version (**STP compatible**), depending on which is supported by the devices available in the network.

### Priority (RSTP only)

Select the required priority for the switch. Selection is carried out in steps with increments of 4096. The smallest, and therefore the most important, priority is 0. The lower the priority, the greater precedence it is accorded in its route through the network.

### Hello time [s] (RSTP only)

Select the required Hello time here. In the interval specified here, the switch sends a message to other network components stating its availability (alive message). If this message fails, the network reorganizes itself.

### Max. age [s] (RSTP only)

The maximum age describes the time during which the route information is still valid.

### Forward delay [s] (RSTP only)

The forward delay defines the period during which the unit is in recording status before information can be forwarded. When starting up the unit, this is the time until the first information retrieval in the network.

### Enable RSTP (RSTP only)

Select the VIP X1600 XF Ethernet interfaces to which RSTP is to be applied.

### Edge port (RSTP only)

Select the VIP X1600 XF Ethernet interfaces that are to be identified as the end points of an RSTP chain.

### Path costs (RSTP only)

One way of prioritizing within the network is to define path costs. As required, define different path costs for each Ethernet interface of the VIP X1600 XF. The path costs are used for the evaluation of the data transfer routes.

### Enable flow control

You can enable flow control of packets during transmission via switches. Different switches have different buffers for holding packets that cannot be passed on immediately. When these buffers are full, a switch can use flow control to tell a counterpart to transmit more slowly in order to prevent data loss and repetition.

### IGMP snooping

If you activate IGMP snooping, the switch assigns the multicast data traffic to the relevant interfaces. This function can reduce data traffic in the network as well as within the individual modules, and can respond when the network is overloaded, particularly when numerous VIP X1600 XF modules are switched in quick succession.

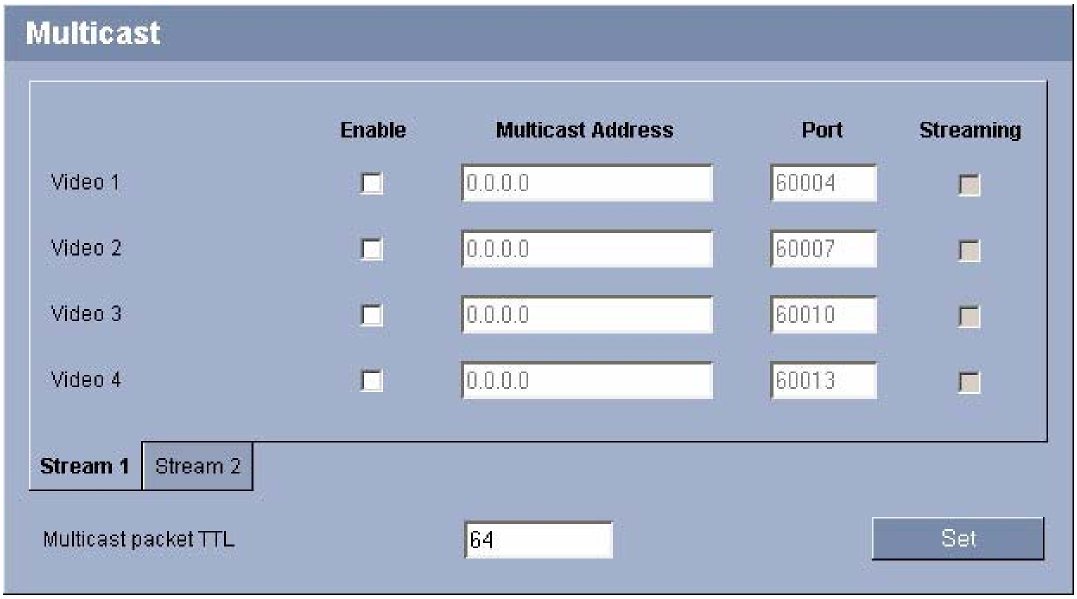
**Enable IGMP querier**

You can enable the IGMP querier; this defines the VIP X1600 XF switch as the central administrator of multicast data traffic in the network. If the VIP X1600 XF is located in an installation that is some distance away, in which the multicast data is also needed, then this option can be useful if the connection to the central unit is lost. Once activation is complete, you must enter the required IP address.

**IGMP source IP**

Enter the IP address, under which the IGMP queries are answered. The IP address that you use should be as high as possible and at least higher than that of the standard IGMP querier.

## 5.40 Advanced Mode: Multicast



Multicast

| | Enable | Multicast Address | Port | Streaming |
|---|---|---|---|---|
| Video 1 | □ | 0.0.0.0 | 60004 | □ |
| Video 2 | □ | 0.0.0.0 | 60007 | □ |
| Video 3 | □ | 0.0.0.0 | 60010 | □ |
| Video 4 | □ | 0.0.0.0 | 60013 | □ |

Multicast packet TTL: 64

In addition to a 1:1 connection between an encoder and a single receiver (unicast), the module 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). For each encoder (video input) 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!**
You must set the parameters for each encoder (video input) and for each stream individually. The numbering follows the labeling of the video inputs on the actual unit.

**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 from the relevant encoder (video input) 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 module supports multi-unicast connections for up to five simultaneously connected receivers.

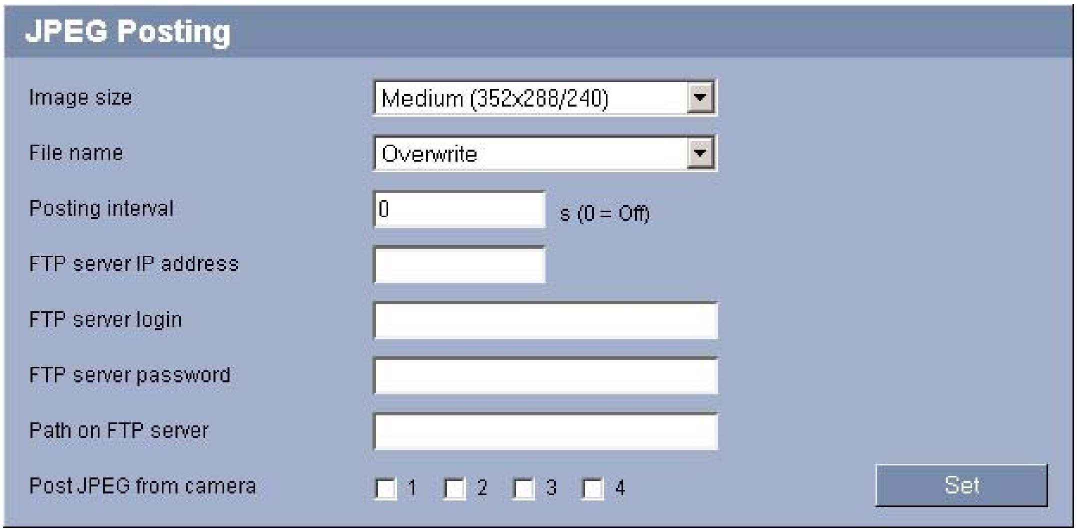
**NOTICE!**
Duplication of data places a heavy demand on the module and can lead to impairment of the image quality under certain circumstances.

**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.
The device streams multicast data even if there is no active connection.
Streaming is typically not required for standard multicast operation.

**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 1 if multicast is to be run via a router.

## 5.41 Advanced Mode: JPEG Posting



JPEG Posting

| | |
|---|---|
| Image size | Medium (352x288/240) |
| File name | Overwrite |
| Posting interval | 0 s (0 = Off) |
| FTP server IP address | |
| FTP server login | |
| FTP server password | |
| Path on FTP server | |
| Post JPEG from camera | □ 1 □ 2 □ 3 □ 4 |

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.

**Image size**

Select the resolution you wish the JPEG images to have:

- **Medium (352x288/240)**
  352 × 288/240 pixels (CIF)
- **Large (704x576/480)**
  704 × 576/480 pixels (4CIF)

**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 AM and 30 seconds.

**Posting interval**

Enter the interval in seconds at which the images will be sent to an FTP server. Enter zero if you do not want any images to be sent.

**FTP server IP address**

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

**FTP server login**

Enter your login name for the FTP server.

**FTP server password**

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

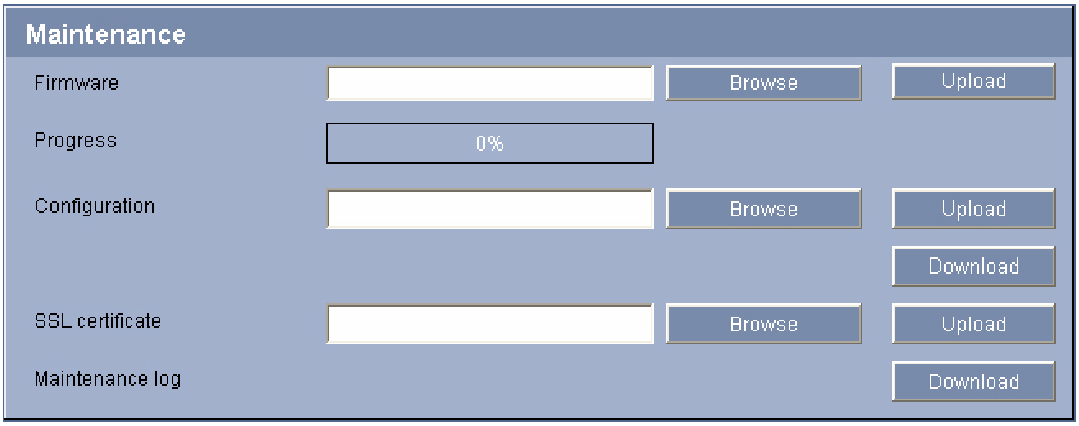
**Path on FTP server**
Enter the exact path on which you wish to post the images on the FTP server.

**Post JPEG from camera**
Click the checkbox to select the cameras from which JPEG images are sent. An enabled video input is indicated by a check mark.

## 5.42 Advanced Mode: Encryption

A special license, with which you will receive a corresponding activation key, is required to encrypt user data. You can enter the activation key to release the function on the **Licenses** page (see *Section 5.44 Advanced Mode: Licenses, page 85*).

## 5.43 Advanced Mode: Maintenance



**Firmware**
The module is designed in such a way that its functions and parameters can be updated with firmware. To do this, transfer the current firmware package to the unit via the selected network. It will then be automatically installed there.
In this way, a module can be serviced and updated remotely without a technician having to change the installation on site.
You obtain the current firmware from your customer service or from the download area at www.boschsecurity.com.

**CAUTION!**
Before launching the firmware upload make sure that you have selected the correct upload file. Uploading the wrong files can result in the unit no longer being addressable, in which case you must replace the unit.
You should never interrupt the installation of firmware. An interruption can lead to the flash-EPROM being incorrectly programmed. This in turn can result in the unit no longer being addressable, in which case it will have to be replaced. Even changing to another page or closing the browser window leads to an interruption.

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

The new firmware is unpacked and the Flash EPROM is reprogrammed. The time remaining is shown in the message **going to reset Reconnecting in ... seconds**. The unit reboots automatically once the upload has successfully completed.
If the module LED lights up red, the upload has failed and must be repeated. To perform the upload you must now switch to a special page:

1. In the address bar of your browser, enter **/main.htm** after the IP address of the module (for example **192.168.0.16/main.htm**).
2. Repeat the upload.

### Configuration

You can save configuration data for the module on a computer and then load saved configuration data from a computer to the module.

**Upload**

1. Enter the full path of the file to upload or click **Browse** to select the required file.
2. Make certain that the file to be loaded comes from the same unit type as the unit you want to configure.
3. Next, click **Upload** to begin transferring the file to the unit. The progress bar allows you to monitor the transfer.

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

**Download**

1. Click **Download**. A dialog box opens.
2. Follow the on-screen instructions to save the current settings.

### SSL certificate

To be able to work with an SSL encrypted data connection, both ends of a connection must hold the relevant certificates. You can upload the SSL certificate, comprising one or multiple files, onto the module.
If you wish to upload multiple files onto the module, you must select them consecutively.

**NOTICE!**
The certificate must be created in the format *.pem so that it can be accepted by the unit.

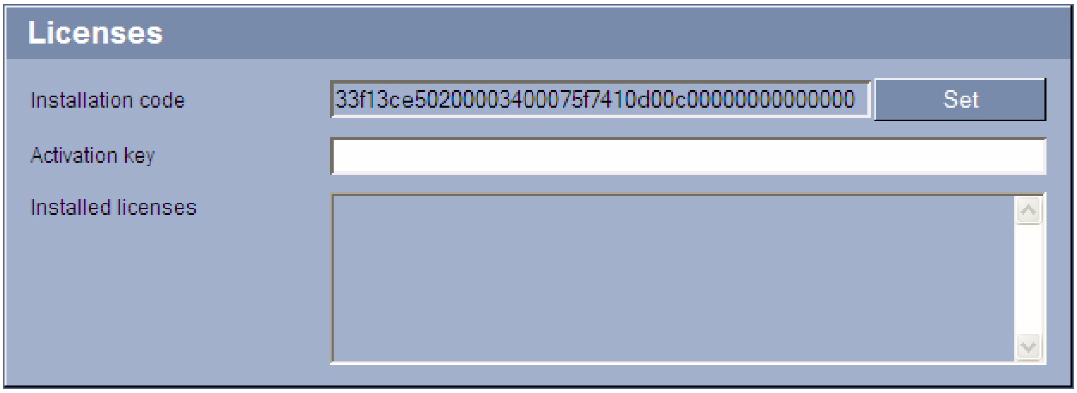
1. Enter the full path of the file to upload or click **Browse** to select the required file.
2. Next, click **Upload** to begin transferring the file to the unit.
3. Once all files have been successfully uploaded, the unit must be rebooted. In the address bar of your browser, enter **/reset** after the IP address of the module (for example **192.168.0.16/reset**).

The new SSL certificate is valid.

### Maintenance log

You can download an internal maintenance log from the module to send it to Customer Service for support purposes. When doing this, ensure that **HTTPS browser port** is not set to **Off** and the TLS 1.0-support is activated for your browser (see *Section  HTTPS browser port, page 74*). Click **Download** and select a storage location for the file.

## 5.44 Advanced Mode: Licenses



Licenses

Installation code: 33f13ce50200003400075f7410d00c0000000000000

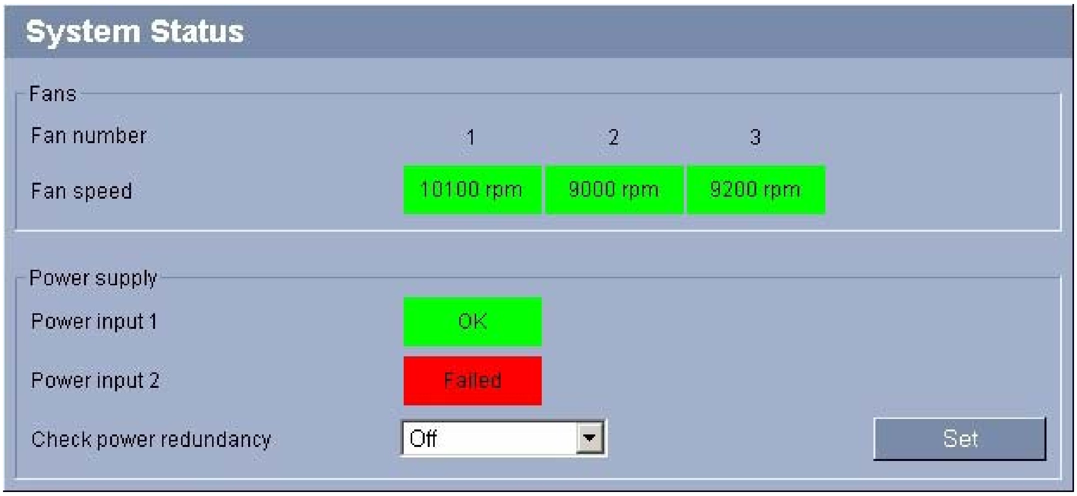
Activation key:

Installed licenses:

You can enter the activation key to release additional functions or software modules.

**NOTICE!**
The activation key cannot be deactivated again and is not transferable to other units.

## 5.45 Advanced Mode: System Status



System Status

Fans

| Fan number | 1 | 2 | 3 |
|---|---|---|---|
| Fan speed | 10100 rpm | 9000 rpm | 9200 rpm |

Power supply

Power input 1: OK

Power input 2: Failed

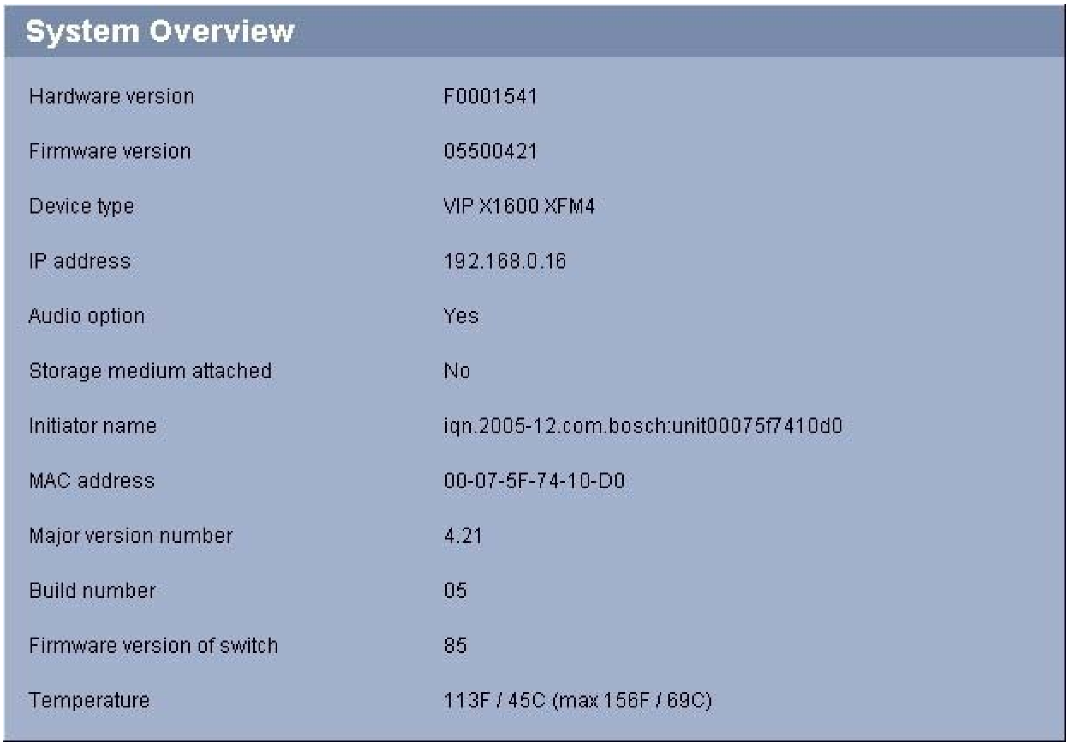
Check power redundancy: Off

Information about the status of the fans and the power supply is displayed in this window.

**NOTICE!**
This page is only visible for the module in Slot 1.

**Check power redundancy**
Select the option **On** if the VIP X1600 XF is to be supplied by two power supply units. This selection is important for displaying the power supply status messages correctly.

## 5.46 Advanced Mode: System Overview



### System Overview

| | |
|---|---|
| Hardware version | F0001541 |
| Firmware version | 05500421 |
| Device type | VIP X1600 XFM4 |
| IP address | 192.168.0.16 |
| Audio option | Yes |
| Storage medium attached | No |
| Initiator name | iqn.2005-12.com.bosch:unit00075f7410d0 |
| MAC address | 00-07-5F-74-10-D0 |
| Major version number | 4.21 |
| Build number | 05 |
| Firmware version of switch | 85 |
| Temperature | 113F / 45C (max 156F / 69C) |

The data on this page are for information purposes only and cannot be changed. Keep a record of these numbers in case technical assistance is required.

**NOTICE!**

You can select all required text on this page with the mouse and copy it to the clipboard with the [Ctrl]+[C] key combination, for example if you want to send it via e-mail.

## 5.47 Function Test

The VIP X1600 XFM4 encoder module offers a range of configuration options.  You should therefore check that it is functioning correctly after installation and configuration.

The function test is the only way to ensure that the module operates as expected in the event of an alarm.

Your check should include the following functions:

- Can the module be called up remotely?
- Is all the required data transferred?
- Does the module react to alarm events as required?
- Do the recordings occur as intended?
- Is it possible to control peripherals if necessary?

# 6 Operation

## 6.1 Operation with Microsoft Internet Explorer

A computer with Microsoft Internet Explorer (version 6.0 or higher) can receive live images from the VIP X1600 XFM4 encoder module, control cameras or other peripherals and replay stored video sequences.

**System Requirements**

- Computer with Windows XP or Windows Vista operating system
- Network access (Intranet or Internet)
- Microsoft Internet Explorer (version 6.0 or higher)
- Screen resolution at least 1,024 × 768 pixels
- 16- or 32-bit color depth
- Installed Sun JVM
- For playing back recordings: connection to storage medium

**NOTICE!**

Please note the information in the **System Requirements** document on the product CD supplied with the VIP X1600 XF base system. If necessary, you can install the required programs and controls from the product CD.
The Web browser must be configured to enable Cookies to be set from the IP address of the unit.
In Windows Vista, deactivate protected mode on the **Security** tab under **Internet Options**.
You can find notes on using Microsoft Internet Explorer in the online Help in Internet Explorer.

**Installing MPEG ActiveX**

Suitable MPEG ActiveX software must be installed on the computer to allow the live video images to be played back. If necessary, you can install the program from the product CD.

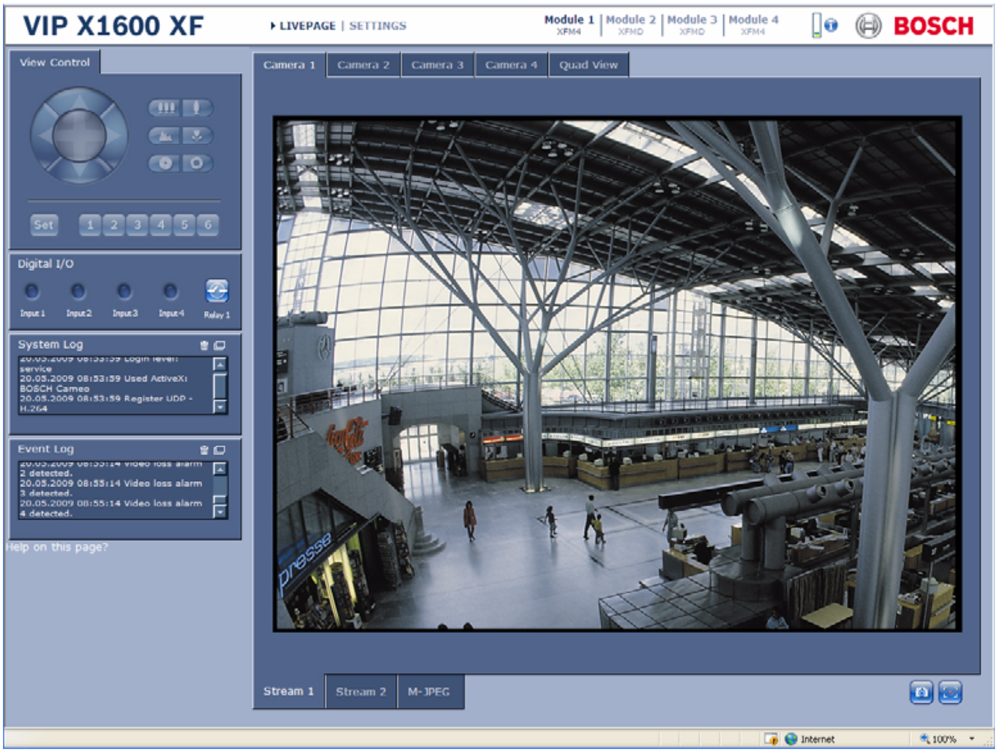
1. Insert the product CD into the computer's CD-ROM drive. If the CD does not start automatically, open the root directory of the CD in Windows Explorer and double-click **MPEGAx.exe**.
2. Follow the on-screen instructions.

### Establishing the Connection

At least the module in Slot 1 must be assigned a valid IP address and a compatible subnet mask to operate the VIP X1600 XF on your network.

The following default address is preset at the factory: **192.168.0.1**

1. Start the Web browser.
2. Enter the module's IP address as the URL.
3. During initial installation, confirm the security questions that appear. The connection is established and after a short time you will see the **LIVEPAGE** with the video image.



System Log:

```
20.05.2009 08:53:59 Login level:
service
20.05.2009 08:53:59 Used ActiveX:
BOSCH Cameo
20.05.2009 08:53:59 Register UDP -
H.264
```

Event Log:

```
20.05.2009 08:55:14 Video loss alarm
2 detected.
20.05.2009 08:55:14 Video loss alarm
3 detected.
20.05.2009 08:55:14 Video loss alarm
4 detected.
```

## 6.2 The LIVEPAGE

Once the connection is established, the **LIVEPAGE** is 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 (see *Section 5.12 Advanced Mode: Display Stamping, page 33*).
Other information may be shown next to the live video image on the **LIVEPAGE**. The display depends on the settings on the **LIVEPAGE Functions** page (see *Section 5.14 Advanced Mode: LIVEPAGE Functions, page 35*).

**Maximum Number of Connections**
If you do not connect, the unit may have reached its maximum number of connections. Depending on the unit and network configuration, each module can have up to 25 Web browser connections or up to 50 connections via VIDOS or Bosch Video Management System.

**Protected Module**
If the module is password protected against unauthorized access, the Web browser displays a message to that effect and prompts you to enter the password when you call up access-protected areas.

**NOTICE!**
The module offers the option to limit the extent of access using various authorization levels (see *Section 5.10 Advanced Mode: Password, page 30*).

1. Enter the user name and associated password in the corresponding text fields.
2. Click **OK**. If the password is entered correctly, the Web browser displays the page that was called up.

**Protected Network**
If a RADIUS server is employed in the network for managing access rights (802.1x authentication), the module must be configured accordingly, otherwise no communication is possible.
To configure the unit, you must connect the VIP X1600 XF 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 (see *Section 5.38 Advanced Mode: Advanced, page 76*).

**CAUTION!**
The switch used for the network must support the multi-host operation when using 802.1x authentication and must be configured so that a VIP X1600 XF with several modules can try several hosts for communicating over the network.

**Switching between the Modules**
If multiple modules have been installed in a VIP X1600 XF base system, you can easily switch between the modules in the same unit.

▶ In the upper section of the window, click one of the links **Module 1** to **Module 4** to switch to the corresponding module in the same VIP X1600 XF.

**NOTICE!**
A module that is installed in another base must be selected via its IP address.

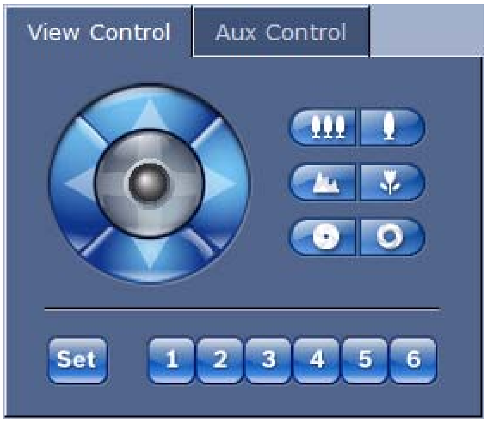
### Image Selection

You can view the image from each camera separately on a full screen. Alternatively, you can display the camera images from all four video inputs together (**Quad View**).

1. Click one of the tabs above the video image to view one or all of the camera images.
2. Click one of the tabs **Stream 1**, **Stream 2** or **M-JPEG** below the video image to toggle between the different displays of the camera images. The selection applies to all camera images.

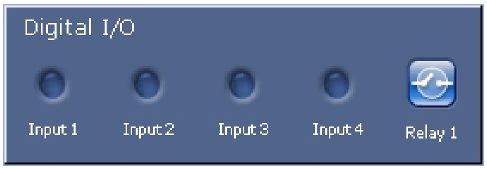
### View Control

The options for controlling peripheral devices (for example a pan/tilt camera head or a dome camera) are dependent on the unit type installed and on the configuration of the module.
If a controllable unit is configured and connected to the module, the controls for the peripheral are displayed to the left of the video image.



1. To control a peripheral, click the appropriate controls.
2. Move the mouse cursor over the video image. Additional options for controlling peripherals are displayed with the mouse cursor.

### Digital I/O



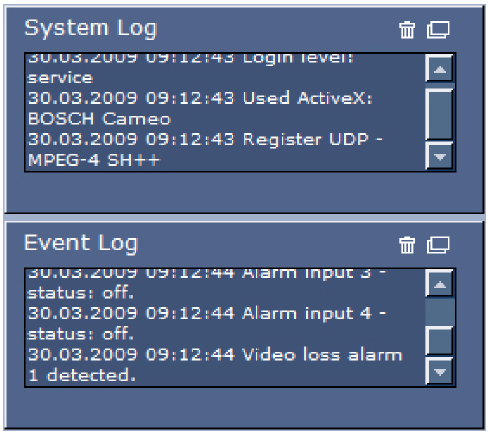
The alarm icons **Input 1** to **Input 4** are for information purposes and indicate the status of an alarm input: When an alarm is triggered, the corresponding icon lights up blue. The unit's configuration determines whether the alarm is displayed, as well as additional details (see *Section 5.14 Advanced Mode: LIVEPAGE Functions, page 35*).

### Triggering Relay

You can switch a connected unit by means of the relay in the module (for example a light or a door opener).

- ▶ To activate this, click the icon for the relay next to the video image. The icon will be red when the relay is activated.

### System Log / Event Log



```
30.03.2009 09:12:43 Login level:
service
30.03.2009 09:12:43 Used ActiveX:
BOSCH Cameo
30.03.2009 09:12:43 Register UDP -
MPEG-4 SH++
```

```
30.03.2009 09:12:44 Alarm input 3 -
status: off.
30.03.2009 09:12:44 Alarm input 4 -
status: off.
30.03.2009 09:12:44 Video loss alarm
1 detected.
```

The **System Log** field contains information about the operating status of the module and the connection. You can save these messages automatically in a file (see *Section 5.14 Advanced Mode: LIVEPAGE Functions, page 35*).
Events such as the triggering or end of alarms are shown in the **Event Log** field. You can save these messages automatically in a file (see *Section 5.14 Advanced Mode: LIVEPAGE Functions, page 35*).

1. If you want to delete the entries, click the delete icon in the top right-hand corner of the relevant field.
2. If you want to view a detailed log, click the icon in the top right-hand corner of the relevant field. A new window will open.

**Audio Function**

Depending on the configuration, the module can send and receive audio signals. All users who are connected by browsers receive the audio signals sent by the module.
Only the user who first connected to the unit can send audio signals to the module.

1. On the **LIVEPAGE**, click anywhere next to the video image to remove the focus from the ActiveX.
2. Hold down the **F12** key to establish a voice connection with the VIP X1600 XFM4. The browser's status bar displays the message **Send Audio ON**.
3. Release the **F12** key when you want to stop sending audio signals to the VIP X1600 XFM4. The status bar in Internet Explorer displays the message **Send Audio OFF**.

**NOTICE!**
When the connection maintaining voice contact with the VIP X1600 XFM4 is broken, the next user to make a connection to the module can send audio data to the module.
If the **Camera 1** tab is selected, Audio 1 is transferred. If the **Camera 2** tab is selected, Audio 2 is transferred. If tab **Camera 3**, **Camera 4** or **Quad View** is selected, no audio can be transferred.

## 6.3 Saving Snapshots

You can save individual images from the video sequence currently shown on the **LIVEPAGE** in JPEG format on your computer's hard drive. The icon for recording single images is only visible if the unit is configured to enable this process (see *Section  Allow snapshots, page 36*).
You can save snapshots from each of the four cameras in the **Quad View** view. The icons below the camera images apply to the four camera images in the following sequence: top left, top right, bottom left, bottom right.

▶ Click the icon. The image is saved at a resolution of 704 × 576 pixels (4CIF). The storage location depends on the configuration of the module (see *Section  Path for JPEG and video files, page 36*).

## 6.4 Recording Video Sequences

You can save sections of the video sequence currently shown on the **LIVEPAGE** on your computer's hard drive. The icon for recording video sequences is only visible if the unit is configured to enable this process (see *Section  Allow local recording, page 36*).
You can save video sequences from each of the four cameras in the **Quad View** view. The icons below the camera images apply to the four camera images in the following sequence: top left, top right, bottom left, bottom right.

1. Click the icon to start recording. The storage location depends on the configuration of the module (see *Section  Path for JPEG and video files, page 36*). A red dot in the icon indicates that recording is in progress.
2. Click the icon again to stop recording.

**NOTICE!**
You can play back saved video sequences using program Player from Bosch Security Systems, which can be installed from the product CD supplied with the VIP X1600 XF base system.

**Image Resolution**

Sequences are saved at the resolution that has been preset in the configuration for the encoder (see *Section 5.19 Advanced Mode: Encoder Profile, page 40*).

## 6.5 Running Recording Program

The hard drive icon below the camera images on the **LIVEPAGE** changes during an automatic recording.

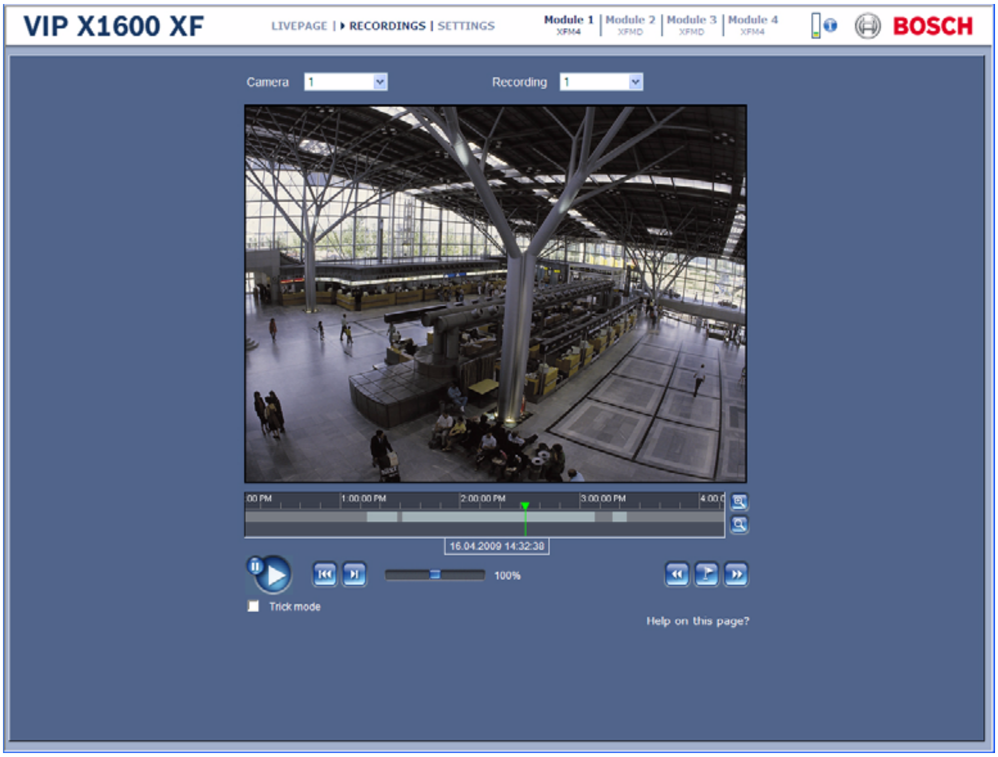
A moving graphic will appear to indicate a running recording. If no recording is taking place, a static icon is displayed.

**NOTICE!**
You can ascertain from the **Quad View** view for which camera a recording is running by moving the cursor over the icon. A message is displayed below the cursor.

## 6.6 The RECORDINGS Page

The **RECORDINGS** page for playing back recorded video sequences can be accessed from the **LIVEPAGE** and from the **SETTINGS** menu.
The **RECORDINGS** link is only visible if a storage medium has been selected (see *Section 5.21 Advanced Mode: Storage Management, page 45*).

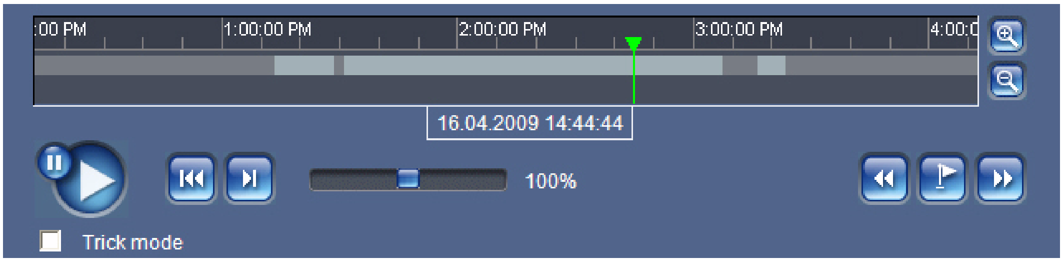
▶ In the navigation bar in the upper section of the window, click the **RECORDINGS** link.
The playback page appears.



**Camera**
Here you can select the camera from which you want to view the recordings. Playback of the recordings starts immediately in the video window.

**Recording**
Here you can select the recording that you want to view. Playback of the recording starts immediately in the video window.

**Controlling a Playback**



You will see a time bar below the video image for quick orientation. A green arrow above the bar indicates the position of the image currently being played back within the sequence.

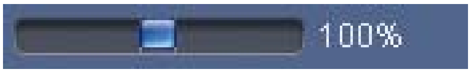
The time bar offers various options for navigation.
Red bars indicate the points in time where alarms were triggered. Drag the green arrow to navigate to these points quickly.

1. You can change the time interval by clicking the zoom keys (magnifying glass icons). The display can span a range from two months to a few seconds.
2. Drag the green arrow to the point in time at which playback should begin. The date and time display below the bar provides orientation to the second.

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

| | |
|---|---|
| ⏯ | Start or pause playback |
| ⏮ | Leap to the start of the active video sequence or to the previous sequence |
| ⏭ | Leap to the start of the next video sequence |

**Slide Control**
You can use the slide control to control playback speed.



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

| | |
|---|---|
| ⏪ | Jump to the previous bookmark |
| ⚑ | Set bookmark |
| ⏩ | Jump to the following bookmark |

**NOTICE!**
Bookmarks are only valid while you are in the **RECORDINGS** page; they are not saved with the sequences. As soon as you leave the page all bookmarks are deleted.

**Trick mode**
If you are using a mouse with a scroll wheel, you can view recordings frame by frame in Trick Mode. To do this, place the mouse cursor in the timeline below the timescale and turn the scroll wheel. Playback is automatically stopped (paused) during scrolling.

## 6.7 Installing Player

You can play back saved video sequences using program Player from Bosch Security Systems, which can be found on the product CD supplied with the VIP X1600 XF base system.

**NOTICE!**
In order to play back saved sequences using Player, suitable MPEG ActiveX software must be installed on the computer.

1. Insert the CD into the computer's CD-ROM drive. If the CD does not start automatically, open the CD in Windows Explorer and double-click the **index.html** file to start the menu.
2. From the list field at the top, select the language you require and click **Tools** in the menu.
3. Click the **Archive Player** entry. The installation will start. Follow the instructions in the installation program. Archive Player is installed at the same time as Player.
4. After successful installation, you will find two new icons on your desktop for Player and Archive Player.
5. Start Player by double-clicking the **Player** icon.

## 6.8 Hardware Connections between Video Servers

You can easily connect a VIP X1600 XFM4 encoder module with cameras connected to it, acting as a sender, to a compatible hardware decoder (such as the VIP XD) with a connected monitor, acting as a receiver, via an Ethernet network. In this way it is possible to cover long distances without the need for major installation or cabling work.

**NOTICE!**
The sender and receiver must be located in the same subnet to establish a hardware connection.

**CAUTION!**
Hardware decoders VIP XD and VIP X1600 XFMD can only process algorithm H.264 BP+. Bear this in mind when configuring a profile (see *Section 5.19 Advanced Mode: Encoder Profile, page 40*).

**Installation**

Compatible video servers are designed to connect to one another automatically, provided they are correctly configured. They only need to be part of a closed network. Proceed as follows to install the units:

1. Connect the units to the closed network using Ethernet cables.
2. Connect them to the power supply.

**NOTICE!**
Make sure that the units are configured for the network environment and that the correct IP address for the remote location to be contacted in the event of an alarm is set in the **Alarm Connections** section (see *Section 5.26 Advanced Mode: Alarm Connections, page 54*).

**Connecting**

There are three options for establishing a connection between a sender and a compatible receiver in a closed network:

- an alarm
- a terminal program, or
- Internet Explorer.

**NOTICE!**
Connecting with a Web browser is described in the manual of the relevant unit that is to be used as the receiver, for example VIP XD.

**Connecting on Alarm**

With the appropriate configuration, a connection between a sender and a receiver is made automatically when an alarm is triggered (see *Section 5.26 Advanced Mode: Alarm Connections, page 54*). After a short time the live video image from the sender appears on the connected monitor.
This option can also be used to connect a sender and a compatible receiver using a switch connected to the alarm input. You do not need a computer to make the connection in this case.

**Connecting with a Terminal Program**

Various requirements must be met in order to operate with a terminal program (see *Section 8.9 Communication with Terminal Program, page 109*).

1. Start the terminal program and enter the command **1** in the main menu to switch to the **IP** menu.
2. Enter the command **4** in the **IP** menu to change the remote IP address, then enter the IP address of the unit you wish to connect to.
3. Enter the command **0** to return to the main menu and then enter the command **4** to switch to the **Rcp+** menu.
4. In the **Rcp+** menu, enter command **5** to activate automatic connection.

**Closing the Connection with a Terminal Program**

1. Start the terminal program and enter the command **4** in the main menu to switch to the **Rcp+** menu.
2. In the **Rcp+** menu, enter command **5** to deactivate automatic connection.

## 6.9 Operation Using Software Decoders

The video server VIP X1600 XF provides a highly efficient systems solution together with the VIDOS software.
VIDOS is a software package for operating, controlling and managing CCTV installations (such as surveillance systems) at remote locations. It runs under Microsoft Windows operating systems. It is primarily designed for decoding video, audio and control data received from a remote sender.
There are many options available for operation and configuration when using a VIP X1600 XF with VIDOS. Please refer to the software documentation for more details.

Another program that supports the VIP X1600 XF is Bosch Video Management System.
Bosch Video Management System is an IP video security solution that enables the seamless management of digital video, audio and data over any IP network. It was developed for use with Bosch CCTV products as one component of an extensive video security management system. It allows you to integrate your existing components into a simple-to-control system or into the entire Bosch range, benefiting from a complete security solution based on the latest technology and years of experience.

The VIP X1600 XF video server is also designed for use with the DiBos 8 digital recorder.
DiBos 8 records up to 32 video and audio streams and is available as IP software or hybrid DVR with additional analog camera and audio inputs. DiBos supports the most diverse functions of the VIP X1600 XF, for example relay activation, remote control of peripherals and remote configuration. DiBos 8 can use the alarm inputs for event triggering and, on release of the MOTION+ motion detector, record the activated cells to enable intelligent motion search.

# 7 Maintenance and Upgrades

## 7.1 Testing the Network Connection

You can use the **ping** command to check the connection between two IP addresses. This allows you to test whether a unit in the network is active.

1. Open the DOS command prompt.
2. Type **ping** followed by the IP address of the unit.

If the unit is found, the response appears as **Reply from ...** followed by the number of bytes sent and the transmission time in milliseconds. If not, the unit cannot be accessed over the network. This might be because:

- The VIP X1600 XF is not correctly connected to the network. Check the cable connections in this case.
- The module is not correctly integrated into the network. Check the IP address, subnet mask and gateway address.

## 7.2 Unit Reset

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

**CAUTION!**
All configured settings will be discarded during a reset.
If necessary, back up the current configuration using the **Download** button on the **Maintenance** configuration page (see *Section 5.43 Advanced Mode: Maintenance, page 83*).

**NOTICE!**
After a reset, the module can only be addressed via the factory default IP address. The IP address can be changed as described in the **Installation** chapter (see *Section 4.4 Setup Using Configuration Manager, page 17*).

1. If necessary, back up the current configuration using the **Download** button on the **Maintenance** configuration page (see *Section 5.43 Advanced Mode: Maintenance, page 83*).
2. Using a pointed object, press the Factory Reset button located below the orange terminal block until the module's LED on the front panel of the VIP X1600 XF flashes red. All module settings will revert to their defaults.
3. Change the IP address of the module if necessary.
4. Configure the module to meet your requirements.

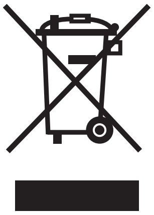
## 7.3 Repairs

**CAUTION!**
Do not change any component of the module or the VIP X1600 XF base system. The unit does not contain any user-serviceable parts.

Ensure that all maintenance or repair work is carried out only by qualified personnel (electrical engineers or network technology specialists). In case of doubt, contact your dealer's technical service center.

## 7.4 Transfer and Disposal

A VIP X1600 XF, the VIP X1600 XF base system or a module should only be passed on together with this Installation and Operating Manual.
Your Bosch product is designed and manufactured with high-quality materials and components which can be recycled and reused.



This symbol means that electrical and electronic equipment, at their end-of-life, should be disposed of separately from your household waste.
In the European Union, there are separate collection systems for used electrical and electronic products. Please dispose of this equipment at your local community waste collection/recycling center.

# 8 Appendix

## 8.1 Troubleshooting

If you are unable to resolve a malfunction, please contact your supplier or system integrator, or go directly to Bosch Security Systems Customer Service.
You can view a range of information about your unit version on the **System Overview** page (see *Section 5.46 Advanced Mode: System Overview, page 86*). Make a note of this information before contacting Customer Service. You can download an internal maintenance log from the unit on the **Maintenance** page if you wish to send it to Customer Service by e-mail (see *Section  Maintenance log, page 84*).

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

## 8.2 General Malfunctions

| Malfunction | Possible causes | Recommended solution |
|---|---|---|
| No connection between module and terminal program. | Incorrect cable connections. | Check all cables, plugs, contacts, terminals and connections. |
| | The computer's serial interface is not connected. | Check the other serial interface. |
| | Interface parameters do not match. | If necessary select a different interface and make sure that the computer's interface parameters match those of the module. Try the following standard parameters: 19,200 baud, 8 data bits, no parity, 1 stop bit. Next, disconnect the unit from the power supply and reconnect it again after a few seconds. |
| No image on the monitor. | Monitor error. | Connect local camera or other video source to the monitor and check the monitor function. |
| | Faulty cable connections. | Check all cables, plugs, contacts and connections. |
| No connection established, no image transmission. | The module's configuration. | Check all configuration parameters. |
| | Faulty installation. | Check all cables, plugs, contacts and connections. |
| | Wrong IP address. | Check the IP addresses (terminal program). |
| | Faulty data transmission within the LAN. | Check the data transmission with **ping**. |
| | The maximum number of connections has been reached. | Wait until there is a free connection and then call the sender again. |
| No audio transmission to remote station. | Hardware fault. | Check that all connected audio units are operating correctly. |
| | Faulty cable connections. | Check all cables, plugs, contacts and connections. |
| | Incorrect configuration. | Check the audio parameters on the **Audio** configuration page. |
| | The audio voice connection is already in use by another receiver. | Wait until the connection is free and then call the sender again. |

| Malfunction | Possible causes | Recommended solution |
|---|---|---|
| The module does not report an alarm. | Alarm source is not selected. | Select possible alarm sources on the **Alarm Inputs** configuration page. |
| | No alarm response specified. | Specify the desired alarm response on the **Alarm Connections** configuration page and change the IP address if necessary. |
| Control of cameras or other units is not possible. | The cable connection between the serial interface and the connected unit is not correct. | Check all cable connections and ensure all plugs are properly fitted. |
| | The interface parameters do not match those of the other unit connected. | Make sure that the settings of all units involved are compatible. |
| The module is not operational after a firmware upload. | Power failure during programming by firmware file. | Have the module checked by Customer Service and replace if necessary. |
| | Incorrect firmware file. | Enter the IP address of the module followed by **/main.htm** in your Web browser and repeat the upload. |
| Placeholders with a red cross are displayed instead of the ActiveX components. | Sun JVM is not installed on the computer or is not enabled. | Install Sun JVM from the product CD. |
| Web browser contains empty fields. | Active proxy server in network. | Create a rule in the local computer's proxy settings to exclude local IP addresses. |

## 8.3 Malfunctions with iSCSI Connections

| Malfunction | Possible causes | Recommended solution |
|---|---|---|
| After connecting to the iSCSI destination, no LUNs are displayed. | Incorrect LUN mapping during iSCSI system configuration. | Check the iSCSI system configuration and reconnect. |
| After connecting to the iSCSI destination, "LUN FAIL" appears below a node. | The LUN list could not be read, as it was assigned to the wrong network interface. | Check the iSCSI system configuration and reconnect. |
| LUN mapping is not possible. | Some iSCSI systems do not support the use of an initiator extension. | Delete the registered initiator extension on the **Identification** configuration page. |

## 8.4 LEDs

The VIP X1600 XF network video server is equipped with a number of LEDs that show the operating status and can give indications of possible malfunctions.

### RJ45 Sockets 10/100/1000 Base-T

| | |
|---|---|
| Green LED lights up: | 10 MB network connection established. |
| Green LED flashes: | Data transmission via 10 MB network connection. |
| Green and orange LEDs light up: | 100 MB network connection established. |
| Green and orange LEDs flash: | Data transmission via 100 MB network connection. |
| Orange LED lights up: | 1 GB network connection established. |
| Orange LED flashes: | Data transmission via 1 GB network connection. |

### SFP

| | |
|---|---|
| Does not light up: | No connection. |
| Lights up yellow: | Connection established. |
| Flashes yellow: | Data being transmitted. |

### Module 1 / Module 2 / Module 3 / Module 4

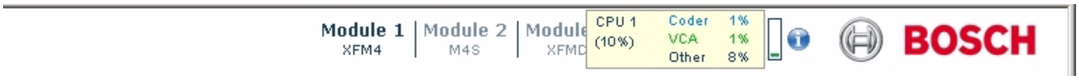
| | |
|---|---|
| Does not light up: | Slot not occupied. |
| Lights up green: | Module is switched on. |
| Flashes green: | The module is being accessed. |
| Flashes red: | Startup in progress. |
| Lights up red: | Module is faulty, for example following failed firmware upload. |

### Power/Fail

| | |
|---|---|
| Does not light up: | VIP X1600 XF is switched off. |
| Lights up green: | Startup complete, VIP X1600 XF is operational. |
| Flashes red: | Defect in fans or redundant power supply unit. |

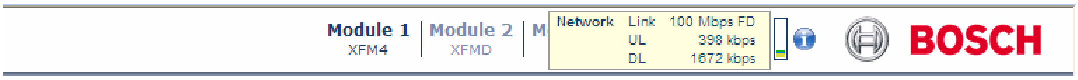
## 8.5 Processor Load

If the VIP X1600 XFM4 encoder module is accessed via the Web browser, you will see the processor load indicator in the top left of the window next to the manufacturer's logo.



Moving the mouse cursor over the graphic indicator displays the status of the processor together with the numerical values. This information may help you with troubleshooting or fine tuning the unit.

## 8.6 Network Connection



You can display information about the network connection. To do this, move the cursor over the **i** icon.

| | |
|---|---|
| Link | Ethernet link type |
| UL | Uplink, speed of the outgoing data traffic |
| DL | Downlink, speed of the incoming data traffic |

## 8.7 Serial Interface

Options for using the serial interface include transferring transparent data, controlling connected units or operating the unit with a terminal program.
The serial interface supports the RS-232/RS-422/RS-485 transmission standards. The mode used depends on the current configuration (see *Section 5.36 Advanced Mode: COM1, page 72*).
Connection is via the terminal block.

## 8.8 Terminal Block

The terminal block has several contacts for:

- 4 alarm inputs
- 1 relay output
- Serial data transmission

**Pin Assignment**

The pin assignment of the serial interface depends on the interface mode used (see *Section 5.36 Advanced Mode: COM1, page 72*).

| **Contact** | **RS-232 mode** | **RS-422 mode** | **RS-485 mode** |
|---|---|---|---|
| CTS | CTS (clear to send) | RxD- (receive data minus) | Data- |
| TXD | TxD (transmit data) | TxD- (transmit data minus) | |
| RXD | RxD (receive data) | RxD+ (receive data plus) | Data+ |
| RTS | RTS (ready to send) | TxD+ (transmit data plus) | |
| GND | GND (ground) | – | – |

| **Contact** | **Function** |
|---|---|
| IN1 | Alarm input 1 |
| IN2 | Alarm input 2 |
| IN3 | Alarm input 3 |
| IN4 | Alarm input 4 |
| GND | Ground |
| R1 | Relay output 1 |

Connect the alarm input **IN** to the ground contact **GND** when connecting alarm signals.

## 8.9 Communication with Terminal Program

### Data Terminal

If a module cannot be found in the network or the connection to the network is interrupted, you can connect a data terminal to the VIP X1600 XF for initial setup and setting of important parameters. The data terminal consists of a computer with a terminal program.
You require a serial transmission cable with a 9-pin Sub-D plug to connect to the computer and open ends for connection to the terminal block of the module (see *Section 8.8 Terminal Block, page 108*).
HyperTerminal, a communications accessory included with Microsoft Windows, can be used as the terminal program.

**NOTICE!**
Information on installing and using HyperTerminal can be found in the manuals or in the online help for MS Windows.

1. Disconnect the VIP X1600 XF from the Ethernet network before working with the terminal program.
2. Connect the serial interface of the module using any available serial interface on the computer.

### Configuring the Terminal

Before the terminal program can communicate with the module, the transmission parameters must be matched. Make the following settings for the terminal program:
- 19,200 bps
- 8 data bits
- No parity check
- 1 stop bit
- No protocol

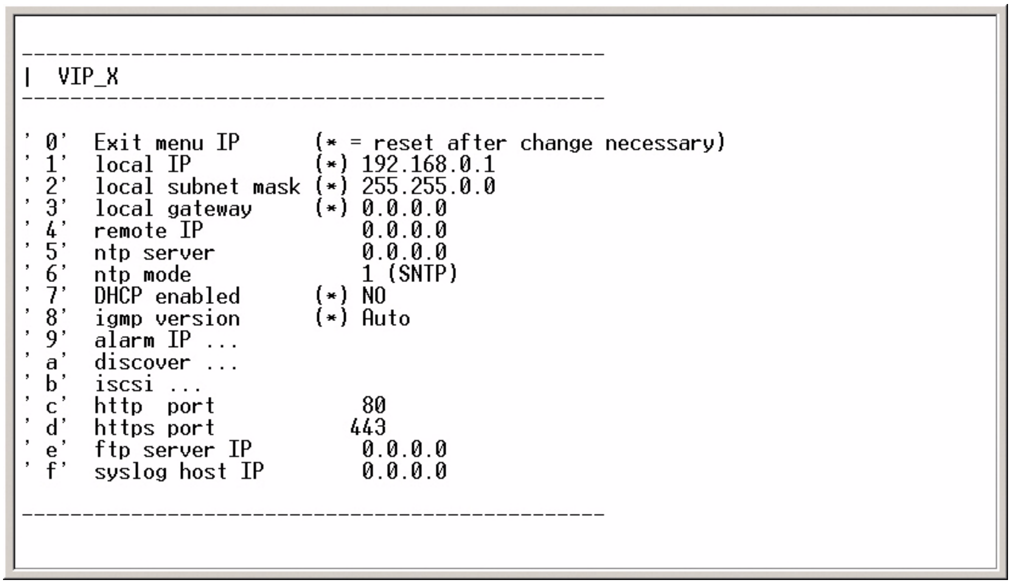
### Command Inputs

After the connection has been established, you must log onto the module to access the main menu. Other submenus and functions can be accessed using the on-screen commands.
1. If necessary, turn off the local echo so that entered values are not repeated on the display.
2. Enter one command at a time.
3. When you have entered a value (such as an IP address), check the characters you have entered before pressing Enter to transfer the values to the module.

### Assigning an IP Address

To use a module in your network, you must assign it an IP address that is valid for your network.
The following default address is preset at the factory: **192.168.0.1**
1. Start a terminal program such as HyperTerminal.
2. Enter the user name **service**. The terminal program displays the main menu.

3. Enter command **1** to open the **IP** menu.



```
------------------------------------------------
|  VIP_X
------------------------------------------------

' 0'  Exit menu IP      (* = reset after change necessary)
' 1'  local IP          (*) 192.168.0.1
' 2'  local subnet mask (*) 255.255.0.0
' 3'  local gateway     (*) 0.0.0.0
' 4'  remote IP             0.0.0.0
' 5'  ntp server            0.0.0.0
' 6'  ntp mode              1 (SNTP)
' 7'  DHCP enabled      (*) NO
' 8'  igmp version      (*) Auto
' 9'  alarm IP ...
' a'  discover ...
' b'  iscsi ...
' c'  http  port            80
' d'  https port           443
' e'  ftp server IP         0.0.0.0
' f'  syslog host IP        0.0.0.0

------------------------------------------------
```

4. Enter **1** again. The terminal program displays the current IP address and prompts you to enter a new IP address.
5. Enter the desired IP address and press Enter. The terminal program displays the new IP address.
6. Use the displayed commands for any additional settings you require.

**NOTICE!**

You must reboot to activate the new IP address, a new subnet mask or a gateway IP address.

**Reboot**

Briefly interrupt the power supply to the VIP X1600 XF for a reboot (disconnect the power supply unit from the mains supply and switch on again after a few seconds).

**Additional Parameters**

You can use the terminal program to check other basic parameters and modify them where necessary. Use the on-screen commands in the various submenus to do this.

## 8.10 Copyrights

The firmware 4.2 uses the fonts "Adobe-Helvetica-Bold-R-Normal--24-240-75-75-P-138-ISO10646-1" and "Adobe-Helvetica-Bold-R-Normal--12-120-75-75-P-70-ISO10646-1" under the following copyright:
Copyright 1984-1989, 1994 Adobe Systems Incorporated.
Copyright 1988, 1994 Digital Equipment Corporation.
Permission to use, copy, modify, distribute and sell this software and its documentation for any purpose and without fee is hereby granted, provided that the above copyright notices appear in all copies and that both those copyright notices and this permission notice appear in supporting documentation, and that the names of Adobe Systems and Digital Equipment Corporation not be used in advertising or publicity pertaining to distribution of the software without specific, written prior permission.

This software is based in part on the work of the Independent JPEG Group.

# 9 Specifications

## 9.1 VIP X1600 XFM4 Encoder Module

| | |
|---|---|
| Operating voltage | Supply via VIP X1600 XF base system housing |
| Power consumption | Max. 12 W |
| Data interfaces | 1 × RS-232/RS-422/RS-485, bidirectional, push-in terminal |
| Alarm inputs | 4 × push-in terminals (non-isolated closing contact),<br>maximum activation resistance 10 Ohm |
| Relay output | 1 × push-in terminal, 30 $V_{p\text{-}p}$ (SELV), 0.2 A, 2 contacts |
| Video inputs | 4 × BNC socket 0.7 to 1.2 $V_{p\text{-}p}$, 75 Ohm, PAL/NTSC |
| Audio inputs | 1 × 3.5 mm stereo socket<br>5.5 $V_{p\text{-}p}$ max., impedance 9 kOhm typ. |
| Audio output | 1 × 3.5 mm stereo socket, mono<br>3.0 $V_{p\text{-}p}$ max., impedance 10 kOhm typ.<br>1.7 $V_{p\text{-}p}$ max., impedance 16 Ohm min. |
| Thermal value | 41 BTU/h |
| Operating conditions | Temperature: 0 to +40 °C / +32 to +104 °F<br>relative humidity: 0 to 95%, non-condensing |
| Approvals | IEC 60950; UL-listed; AS/NZS 3548; EN 50121-4;<br>EN 50130-4; EN 50132-5; EN 55022; EN 55024;<br>EN 55103-1; EN 55103-2; EN 61000-3-2; EN 61000-3-3;<br>EN 61000-6-2; EN 61000-6-4; FCC 47 CFR Chap. 1 Part 15;<br>VCCI-3/2008.04 Class B |
| Weight | Approx. 120 g / 0.27 lb |

## 9.2 Protocols/Standards

| | |
|---|---|
| Video standards | PAL, NTSC |
| Video coding protocols | H.264 MP, H.264 BP+ (ISO/IEC 14496-10)<br>M-JPEG |
| Video data rate | 9.6 kbps to 6 Mbps per channel |
| Image resolutions (PAL/NTSC) | 704 × 576/480 pixels (4CIF/D1)<br>704 × 288/240 pixels (2CIF)<br>464 × 576/480 pixels (2/3 D1)<br>352 × 576/480 pixels (1/2 D1)<br>352 × 288/240 pixels (CIF)<br>176 × 144/120 pixels (QCIF) |
| Total delay | 120 ms (PAL/NTSC, no network delay) |
| Image refresh rate | 25/30 ips max. |
| Network protocols | RTP, Telnet, UDP, TCP, IP, HTTP, HTTPS, FTP, DHCP,<br>IGMP V2/V3, ICMP, ARP, RTSP, SMTP, SNTP, SNMP,<br>iSCSI, DynDNS, UPnP, 802.1x |
| Audio coding protocol | G.711, 300 Hz to 3.4 kHz |
| Audio sampling rate | 8 kHz |
| Audio data rate | 80 kbps |

## 9.3 Image Refresh Rate

| | **4 cameras** | **2 cameras** | **1 camera** |
|---|---|---|---|
| **4CIF** | 25/30 ips | 25/30 ips | 25/30 ips |
| **2/3 D1** | 25/30 ips | 25/30 ips | 25/30 ips |
| **2CIF** | 25/30 ips | 25/30 ips | 25/30 ips |

# Glossary

## 0...9

| | |
|---|---|
| 10/100/1000 Base-T | IEEE-802.3 specification for 10, 100 or 1000 Mbps Ethernet |
| 802.1x | The IEEE 802.1x standard provides a general method for authentication and authorization in IEEE-802 networks. Authentication is carried out via the authenticator, which checks the transmitted authentication information using an authentication server (*see* RADIUS server) and approves or denies access to the offered services (LAN, VLAN or WLAN) accordingly. |

## A

| | |
|---|---|
| ARP | Address Resolution Protocol: a protocol for mapping MAC and IP addresses |

## B

| | |
|---|---|
| Baud | Unit of measure for the speed of data transmission |
| bps | Bits per second, the actual data rate |
| BVIP | Bosch Video over IP unit |

## C

| | |
|---|---|
| CABAC | Context-based Adaptive Binary Arithmetic Coding; an effective way to compress binary data without loss. In the video standard MPEG-4/Part10 (H.264/AVC), CABAC is characterized by high picture quality, a high compression rate and high computing requirements. |
| CF | CompactFlash; interface standard, for digital storage media amongst other things. Used in computers in the form of CF cards, digital cameras and Personal Digital Assistants (PDA). |
| CIF | Common Intermediate Format, video format with 352 × 288/240 pixels |

## D

| | |
|---|---|
| DHCP | Dynamic Host Configuration Protocol: uses an appropriate server to enable dynamic assignment of an IP address and other configuration parameters to computers on a network (Internet or LAN) |
| DNS | Domain Name System, mainly used for converting domain names to IP addresses |
| DynDNS | DNS hosting service that works according to RFC 2845 and stores the IP addresses of its clients in a database, ready for use |

## F

| | |
|---|---|
| FTP | File Transfer Protocol |
| Full duplex | Simultaneous data transmission in both directions (sending and receiving) |

## G

| | |
|---|---|
| GBIC | GigaBit Interface Converter; applied in network technology to render interfaces flexible, for converting an electrical interface into an optical interface, for example. This enables flexible operation of an interface as a Gigabit Ethernet via twisted-pair cables or fiber optic cables. |
| GOP | Group of Pictures; group of consecutive frames in a video stream of images. A GOP always begins with an I-frame, followed by one or more P-frames. B-frames and R-frames can also be included. Each MPEG-encoded video stream consists of successive GOPs. |

## H

| | |
|---|---|
| H.264 | Standard for high-efficiency video compression, based on the predecessors MPEG-1, MPEG-2 and MPEG-4. H.264 typically achieves a coding efficiency around three times as high as MPEG-2. This means that comparable quality can be achieved at around a third of MPEG-2 data quantity. |
| HTTP | Hypertext Transfer Protocol: protocol for transmitting data over a network |
| HTTPS | Hypertext Transfer Protocol Secure: encrypts and authenticates communication between Web server and browser |

## I

| | |
|---|---|
| I-frame | GOP image type intra-coded picture; reference picture that corresponds to a still image and is independent of other types of images. Each GOP begins with this image type. |
| ICMP | Internet Control Message Protocol |
| ID | Identification: a machine readable character string |
| IEEE | Institute of Electrical and Electronics Engineers |
| IGMP | Internet Group Management Protocol |
| Internet Protocol | The main protocol used on the Internet, normally in conjunction with the Transfer Control Protocol (TCP): TCP/IP |
| IP | *See* Internet Protocol |
| IP address | A 4-byte number uniquely defining each unit on the Internet. It is usually written in dotted decimal notation, for example "209.130.2.193" |
| iSCSI | Storage over IP process for storage networks; specifies how storage protocols are operated over IP |
| ISDN | Integrated Services Digital Network |

## J

| | |
|---|---|
| JPEG | An encoding process for still images (Joint Photographic Experts Group) |

## K

| | |
|---|---|
| kbps | Kilobits per second, the actual data rate |

## L

| | |
|---|---|
| LAN | *See* Local Area Network |
| Local Area Network | A communications network serving users within a limited geographical area such as a building or university campus. It is controlled by a network operating system and uses a transfer protocol. |
| LUN | Logical Unit Number; logical drive in iSCSI storage systems |

## M

| | |
|---|---|
| MAC | Media Access Control |
| MIB | Management Information Base; a collection of information for remote servicing using the SNMP protocol |
| MPEG-2 | Improved video/audio compression standard, compression on highest level allows images in studio quality; now established as broadcast standard |
| MPEG-4 | A further development of MPEG-2 designed for transmitting audiovisual data at very low transfer rates (for example over the Internet) |
| MSS | Maximum Segment Size; maximum byte figure for the user data in a data packet |

## N

| | |
|---|---|
| Net mask | A mask that explains which part of an IP address is the network address and which part is the host address. It is usually written in dotted decimal notation, for example "255.255.255.192." |
| NTP | Network Time Protocol; a standard for synchronizing computer system clocks via packet-based communication networks. NTP uses the connectionless network protocol UDP. This was developed specifically for enabling time to be reliably transmitted over networks with variable packet runtime (Ping). |

## O

| | |
|---|---|
| OF | Optical Fiber; now used predominantly as the transmission medium for line-borne telecommunication processes (glass fiber cable) |

## P

| | |
|---|---|
| P-Frame | GOP image type predictive-coded picture; contains difference information from the preceding I or P-frame. |
| Parameters | Values used for configuration |

## Q

| | |
|---|---|
| QCIF | Quarter CIF, video format with 176 × 144/120 pixels |
| QP | Quantization parameter; specifies the degree of compression in the H.264 protocol and thus the image quality for each frame. The lower the QP value, the higher the encoding quality. |

## R

| | |
|---|---|
| RADIUS server | Remote Authentication Dial-In User Service: a client/server protocol for the authentication, authorization and accounting of users with dial-up connections on a computer network. RADIUS is the de-facto standard for central authentication of dial-up connections via Modem, ISDN, VPN, Wireless LAN (*see* 802.1x) and DSL. |
| RFC 868 | A protocol for synchronizing computer clocks over the Internet |
| RS-232/-422/-485 | Standards for serial data transmission |
| RTP | Real-Time Transport Protocol; a transmission protocol for real-time video and audio |
| RTSP | Real-Time Streaming Protocol; network protocol for controlling the continuous transmission of audiovisual data (streams) or software over IP-based networks |

## S

| | |
|---|---|
| SD card | Secure Digital Memory Card; digital memory card that works on the flash principle |
| SFP | Small Form-factor Pluggable; small, standardized module for network connections, designed as a plug connector for high-speed network connections |
| SNIA | Storage Networking Industry Association; association of companies for defining the iSCSI standard |
| SNMP | Simple Network Management Protocol; a protocol for network management, for managing and monitoring network components |
| SNTP | Simple Network Time Protocol; a simplified version of NTP (*see* NTP) |
| SSL | Secure Sockets Layer; an encryption protocol for data transmission in IP-based networks |
| Subnet mask | *See* Net mask |

## T

| | |
|---|---|
| TCP | Transmission Control Protocol |
| Telnet | Login protocol with which users can access a remote computer (Host) on the Internet |
| TLS | Transport Layer Security; TLS 1.0 and 1.1 are the standard advanced developments of SSL 3.0 (*see* SSL) |
| TTL | Time-To-Live; life cycle of a data packet in station transfers |

## U

| | |
|---|---|
| UDP | User Datagram Protocol |
| UPnP | Universal Plug and Play; the protocol used for device actuation over an IP network regardless of the manufacturer. As soon as a UPnP device has an IP address, it must report its existence in the network to the control points via UDP. Similarly, control points can search the network for UPnP devices and make them accessible. |
| URL | Uniform Resource Locator |
| UTP | Unshielded Twisted Pair |

## W

| | |
|---|---|
| WAN | *See* Wide Area Network |
| Wide Area Network | A long distance link used to extend or connect remotely located local area networks |

# Index

**Bosch Security Systems**
Werner-von-Siemens-Ring 10
85630 Grasbrunn
Germany
**www.boschsecurity.com**