VIP X1600

Network Video Server

BOSCH

en Installation and Operating Manual

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1 Preface

1.1 About this Manual

This manual is intended for persons responsible for the installation and operation of the VIP X1600. 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.

ⓘ **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 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). Audio signals can also be transmitted with the audio versions of the VIP X1600 modules. The VIP X1600 modules each contain RAM memory for short-term recording of connected cameras. 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
Robert-Koch-Straße 100
85521 Ottobrunn
Germany
www.bosch-sicherheitssysteme.de

1.4 EU Directives

The VIP X1600 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 bottom of the VIP X1600 base and on the rating plates on the circuit boards of the VIP X1600 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

- Never attempt to connect the unit to any power network other than the type for which it is intended.
- Only use power supply units approved by Bosch Security Systems.
- Never open the housing of the power supply unit.
- Always install a VIP X1600 module in the appropriate VIP X1600 base housing only.
- If a fault occurs, disconnect the VIP X1600 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 unit, make sure you have read and understood the documentation for the other equipment connected to it, such as cameras. 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 base. The unit does not contain any user-serviceable parts. Remove only the supplied cover when installing a VIP X1600 module.
- Do not change any components in a VIP X1600 base or VIP X1600 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 Scope of Delivery of VIP X1600 Base

- VIP X1600 base
- Mounting kit for installation in 19-inch racks
- Self-adhesive elastic bumpers
- Quick Installation Guide
- Product CD with the following content:
  - Quick Installation Guide
  - Manual
  - System Requirements document
  - Further documentation on Bosch Security Systems products
  - Configuration Manager
  - MPEG ActiveX control
  - Player and Archive Player
  - DirectX control
  - Microsoft Internet Explorer
  - Sun JVM
  - Adobe Acrobat Reader

3.2 Scope of Delivery of VIP X1600 Module

- VIP X1600 module
- Mounting kit for installation in the VIP X1600 base
- Terminal plugs
- Quick Installation Guide

NOTICE!
Check that the delivery is complete and in perfect condition. Have your unit checked by Bosch Security Systems if you detect any damage.

3.3 System Requirements

3.3.1 General Requirements

- Computer with Windows 2000 or Windows XP operating system
- Network access (Intranet or Internet)
- Screen resolution 1,024 × 768 pixels
- 16- or 32-bit color depth
- Installed Sun JVM

NOTICE!
Also note the information in the **System Requirements** document on the product CD supplied. If necessary, you can install the required programs and controls from the product CD supplied (see *Section 3.2 Scope of Delivery of VIP X1600 Module*, page 11).
You can find notes on using Microsoft Internet Explorer in the online Help in Internet Explorer.

3.3.2 Additional Configuration Requirements

- Microsoft Internet Explorer (version 6.0 or higher)
  or
- Installed Configuration Manager program (version 1.60 or higher)

3.3.3 Additional Operational Requirements

- Microsoft Internet Explorer (version 6.0 or higher)
  or
- Receiver software, for example VIDOS (version 3.11 or higher) or Bosch Video Management System
  or
- MPEG-4 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

3.4 Overview of Functions

3.4.1 Network Video Server

The VIP X1600 is a network video server for up to 16 independent video channels in four VIP X1600 modules. 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 with the audio versions of the VIP X1600 modules.

The use of existing networks means that integration with CCTV systems or local networks can be achieved quickly and easily.

The VIP X1600 offers a 2/3 D1 or 2CIF resolution at a complete image rate of 25 (PAL) or 30 (NTSC) images per second for up to 16 channels.

Two units, a VIP X1600 as a sender and a VIP XD as a receiver, for example, can create a standalone system for data transfer without a PC. Video images from a single sender can be received simultaneously on multiple receivers.

The VIP X1600 modules are designed for installation in the VIP X1600 base. 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

3.4.2 Receiver

Compatible MPEG-4 enabled hardware decoders such as VIP XD can be used as receivers. Computers with decoding software installed, such as VIDOS, or computers with the Microsoft Internet Explorer Web browser can also be used as receivers.

3.4.3 Video Encoding

The VIP X1600 uses the MPEG-4 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. In this manner, the simultaneous coding of all 16 video channels is supported.

3.4.4 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 per camera that can serve different purposes, for example one for recording and one optimized for transmission over the LAN.

3.4.5 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.

3.4.6 Encryption

The VIP X1600 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.

3.4.7 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 VIP X1600's bidirectional serial interface. This interface can also be used to transmit transparent data.

3.4.8 Tamper Detection and Motion Detectors

The VIP X1600 offers a wide range of configuration options for alarm signaling in the event of tampering with the connected cameras. An algorithm for detecting movement in the video image is also part of the scope of delivery and can optionally be extended to include special video analysis algorithms.

3.4.9 Snapshots

Individual video images (snapshots) can be called up from the VIP X1600, stored on the computer's hard drive or displayed in a separate browser window in JPEG format.

3.4.10 Backup

A function for storing the video images displayed on the hard drive of your computer is available on the LIVEPAGE as well as on the RECORDINGS page. Video sequences can be stored by means of a mouse click and can be redisplayed using the Player supplied as part of the scope of delivery.

3.4.11 Summary

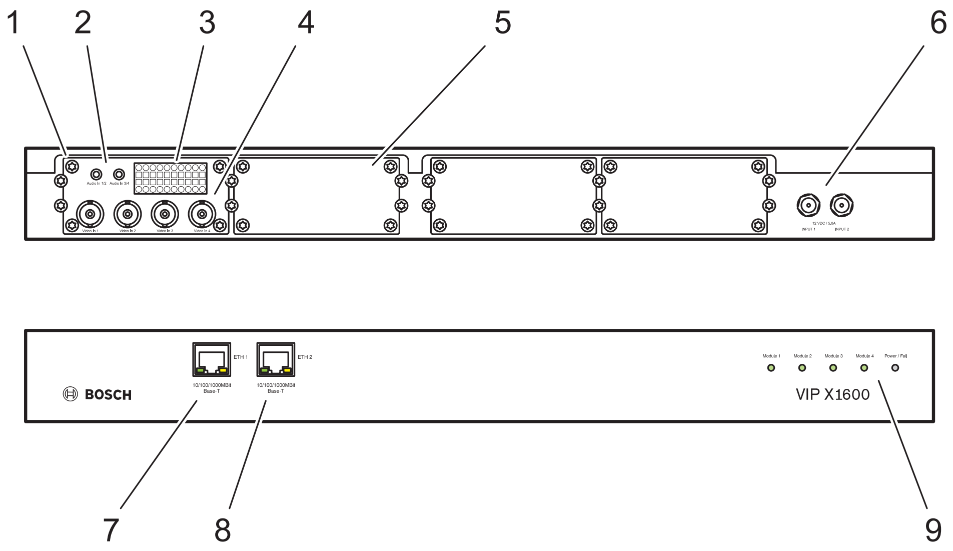
The VIP X1600 offers the following main functions:

- Up to 16 independent analog BNC composite video inputs (PAL/NTSC)
- Video and data transmission over IP data networks
- Dual Streaming function for each video input for simultaneous encoding with two individually definable profiles
- Multicast function for simultaneous image transmission to multiple receivers
- Video encoding to international standard MPEG-4
- Two redundant integrated Ethernet ports (10/100/1000 Base-T)
- Transparent, bidirectional data channel via RS232/RS422/RS485 serial interface
- 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 four relay outputs per VIP X1600 module
- Built-in video sensor for motion and tamper alarms
- Event-controlled automatic connection
- Optional completely redundant power supply
- Option for redundant network connection or direct connection to iSCSI system
- Convenient maintenance via uploads
- Flexible encryption of control and data channels
- Authentication according to international standard 802.1x

The audio versions of the VIP X1600 modules also offer:

- Audio signal transmission via IP data networks
- Audio encoding to international standard G.711

3.5 Connections and Displays



1 Installed VIP X1600 module

2 **Audio In 1/2** and **Audio In 3/4** audio line inputs (mono)
3.5 mm / 0.14 in stereo sockets line-out for connecting audio cables
(only audio versions of the VIP X1600 modules)

3 Terminal block
for alarm inputs, relay outputs and serial interface

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

5 Cover for vacant slot

6 Sockets for connecting one or two power supply units

7 **ETH 1** RJ45 socket
for connecting to an Ethernet LAN (local network), 10/100/1000 MBit Base-T

8 **ETH 2** RJ45 socket
for a redundant connection to the network or to an iSCSI system

9 LEDs, status information for the VIP X1600 modules and the VIP X1600 base

NOTICE!
For more information about the LEDs, see *Section 8.4 LEDs*, page 114.
For terminal block assignment, see *Section 8.7 Terminal Block*, page 115.

4 Installation

4.1 Preparations

The VIP X1600 modules are solely intended for installation in the VIP X1600 base. Installing the units is a quick and easy operation that does not require any additional tools.
The VIP X1600 is designed for installation in a switch cabinet. Mounting the unit in a 19-inch rack using the installation material supplied is a quick and easy operation.
It is also possible to operate this as a desktop unit. The four elastic bumpers included in the scope of delivery ensure a non-slip support.

⚠ **CAUTION!**
The unit is designed for indoor operation.
Select a suitable location for installation that guarantees to meet the environmental conditions. The ambient temperature must be between 0 and +50 °C (+32 and +122 °F). The relative humidity must be between 20% and 80% (non-condensing).
The VIP X1600 generates heat during operation. During installation, please note the maximum heat value of 205 BTU/h. Ensure that there is adequate ventilation and enough clearance between the unit and heat-sensitive objects or equipment.

Please ensure the following installation conditions:

- Do not install the unit close to heaters or other heat sources. Avoid locations exposed to direct sunlight.
- Allow sufficient space for running cables.
- Ensure that the unit has adequate ventilation. Bear the total heat output in mind, particularly when installing multiple units in a switch cabinet.
- When making connections, use only the cables supplied or use appropriate cables immune to electromagnetic interference.
- Position and run all cables so that they are protected from damage, and provide adequate cable strain relief where needed.
- Avoid impacts, blows and severe vibrations as these can irreparably damage the unit.

4.2 Installing VIP X1600 Modules

Installing the different VIP X1600 modules in the VIP X1600 base 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 VIP X1600 module in a different housing and do not operate the unit outside of the VIP X1600 base. The ambient temperature during installation must be between 0 and +50 °C (+32 and +122 °F), and the relative humidity must not exceed 80% (non-condensing).

4.2.1 Installation Sequence and Capacity of the VIP X1600 Base

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

You can install up to four VIP X1600 modules in a VIP X1600 base. 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.

4.2.2 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 side of the VIP X1600 base.

The installed VIP X1600 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.

4.2.3 Rating Plates

Every VIP X1600 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 base before installation so that you can later identify the module, even after it has been inserted, for example when performing fault diagnosis.

4.2.4 Removing and Exchanging VIP X1600 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 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.

4.3 Installing in a Switch Cabinet

4.3.1 Preparations

The VIP X1600 is set up for installation in a 19-inch rack. The necessary installation equipment is included in the scope of delivery.

CAUTION!

When installing in a switch cabinet, ensure that there is sufficient ventilation for the unit. There must be at least 5 cm (1.97 in.) of free space to the left and right of the unit and at least 10 cm (3.94 in.) at the rear.

The VIP X1600 generates heat during operation. During installation, please note the maximum heat value of 205 BTU/h.

When mounting additional units, direct contact with the VIP X1600 is permitted provided that the surface temperature of the adjacent units does not exceed +50 °C (+122 °F).

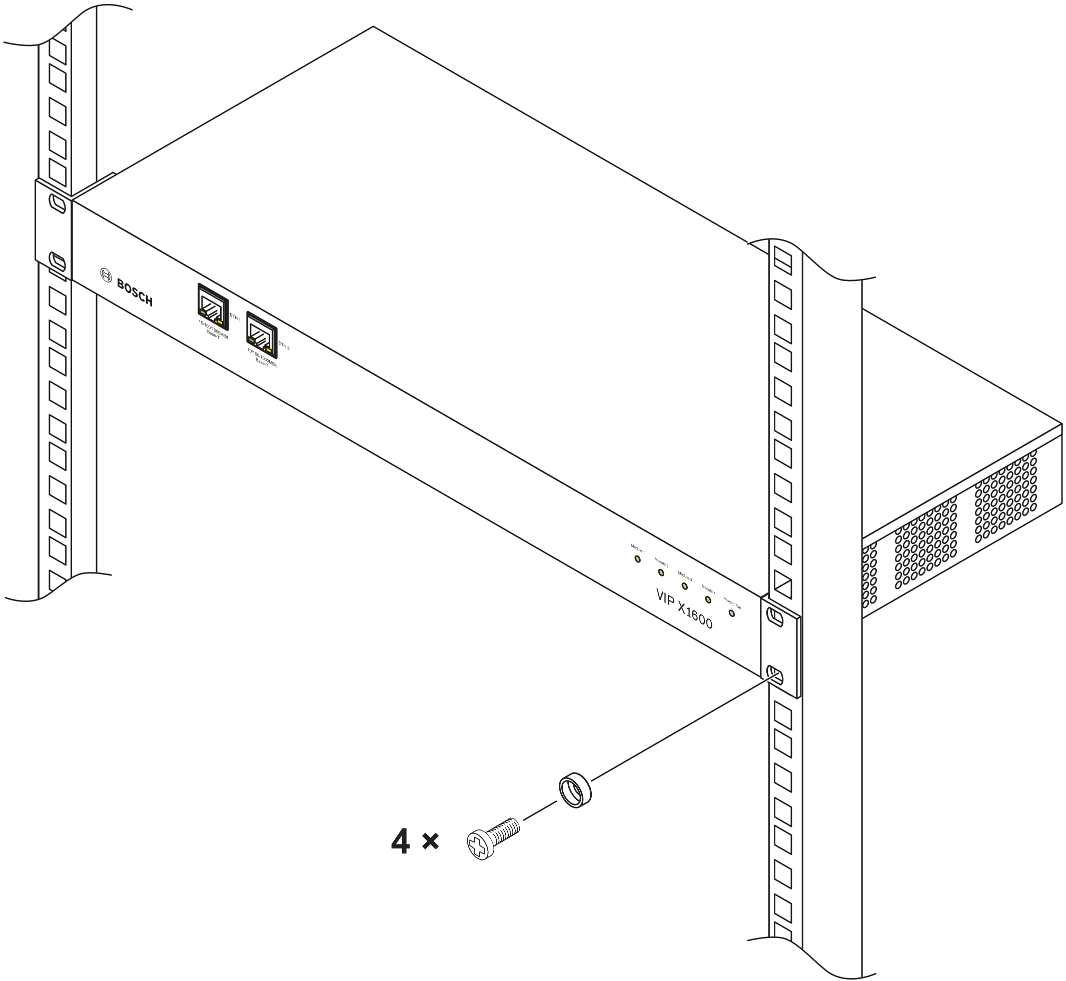
When installing in a switch cabinet, ensure that the screw joints are free of tension and subject to as little mechanical stress as possible. Ensure that the unit and the power supply units have sufficient grounding.

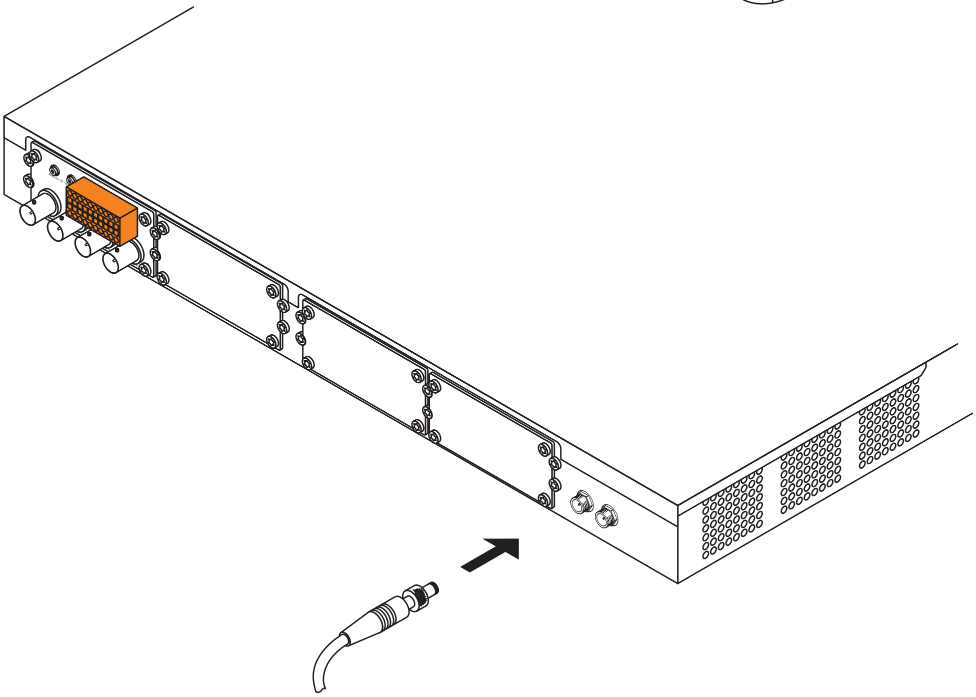
4.3.2 Installing and Connecting the VIP X1600

CAUTION!

Only use power supply units approved by Bosch Security Systems.

1. Prepare the switch cabinet in such a manner that you are easily able to insert the VIP X1600 directly at the installation point.
2. Place the cage nuts in the corresponding drillings or spaces in the switch cabinet frame.
3. Lift the VIP X1600 into the switch cabinet frame and insert the fastening screws together with the washers.
4. Tighten the screws one after the other and then check once more that all the screws are tight.
5. Connect one or two power supply units to the sockets on the rear of the housing and hand tighten the coupling nuts for the plug.


BOSCH
VIP X1600
4 ×



4.4 Connections

4.4.1 Cameras

You can connect a maximum of four standard video sources to each VIP X1600 module. Any cameras and other video sources that produce a standard PAL or NTSC signal are suitable.

1. Connect the cameras or other video sources to the BNC sockets **Video In 1** to **Video In 4** using a video cable (75 Ohm, BNC plug).
2. If the video signal is not looped through, termination is performed by a software setting if necessary (see *Section 5.13 Video Input*, page 42).

4.4.2 Audio Connections

The audio versions of the VIP X1600 modules contain two audio line inputs for a total of four mono inputs, which are automatically assigned to the four camera inputs.
The audio signals are transmitted at the same time as the video signals.
The stereo plugs must be connected as follows:

Contact	**Audio In 1/2**	**Audio In 3/4**
Tip	Line in 1 (Camera 1)	Line in 3 (Camera 3)
Middle ring	Line in 2 (Camera 2)	Line in 4 (Camera 4)
Lower ring	Ground	Ground

4.4.3 Network

You can connect the VIP X1600 to a 10/100/1000 Base-T network using a standard UTP category 5 cable with RJ45 plugs. The second Ethernet interface can be used to create a redundant connection to the network.

NOTICE!
You cannot create a connection to a second network.

1. Connect the VIP X1600 to the network via the **ETH 1** socket.
2. Connect the VIP X1600 to a redundant switch or hub on the same network via the **ETH 2** socket.

4.4.4 Direct iSCSI Connection

You can connect the VIP X1600 directly to an iSCSI system via the **ETH 2** interface. This connection is an alternative to using the second Ethernet interface as a redundant network connection. Use a UTP category 5 network cable with RJ45 plugs for a direct connection to an iSCSI system.

NOTICE!
You can obtain a list of compatible iSCSI systems from your supplier or directly from Bosch Security Systems. This list is constantly being updated and extended.

4.4.5 Data Interface

The bidirectional data interface of each VIP X1600 module is used to control the connected units, for example a dome camera with motorized lens. The connection supports the RS232, RS422 and RS485 transmission standards.

Each VIP X1600 module offers the serial interface via the orange terminal block (see *Section 8.7 Terminal Block*, page 115).

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.

4.4.6 Alarm Inputs

Each VIP X1600 module has four alarm inputs on the orange terminal block (see *Section 8.7 Terminal Block*, page 115). The alarm inputs are used to connect to external alarm devices such as door contacts or sensors. When configured appropriately, an alarm device can, for example, trigger the VIP X1600 module to automatically establish a connection with a remote station.

A zero potential make 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.

4.4.7 Relay Outputs

Each VIP X1600 module has four relay outputs for switching external units such as lamps or alarm sirens. You can operate these relay outputs manually while there is an active connection to the VIP X1600 module. The outputs can also be configured to automatically activate sirens or other alarm units in response to an alarm signal. The relay outputs are also located on the orange terminal block (see *Section 8.7 Terminal Block*, page 115).

⚠ **CAUTION!**

A maximum load of 30 V and 2 A may be applied to the relay contacts.

▶ Connect the lines to the appropriate terminals on the orange terminal block (**R1** to **R4**) and check that the connection is secure.

4.5 Power On/Power Off

4.5.1 Power Supply

The VIP X1600 does not have a power switch. Power is provided once one or two separate power supply units have been installed. Connect the VIP X1600 to a power supply unit and plug this into the mains. The unit is now ready for use. The VIP X1600 does not come supplied with a power supply unit.

CAUTION!

Use only power supply units approved by Bosch Security Systems.
Where necessary, use suitable equipment to ensure that the power supply is free from interference such as voltage surges, spikes or voltage drops.
Do not connect the VIP X1600 to the power supply until all other connections have been made.

The unit is ready for operation after the VIP X1600 has been connected to the power supply and the mounted VIP X1600 modules have been initialized.
The operational state of each module is indicated by an LED on the front panel of the VIP X1600.
If the network connection has been set up correctly, the green LED of the **ETH 1** RJ45 socket will light up. The flashing orange LED signals that data packets are being transmitted over the network. In the case of a redundant network connection, or a direct connection to an iSCSI system, these signals can also be seen on the LEDs in the **ETH 2** RJ45 socket.

4.6 Setup Using the Configuration Manager

The **Configuration Manager** program can be found on the product CD contained in the VIP X1600 base's scope of delivery. This program allows you to implement and set up new video servers in the network quickly and conveniently.

NOTICE!

Using the Configuration Manager to set all parameters in the VIP X1600 is an alternative to configuration by means of a Web browser, as described in chapter 5 of this manual.

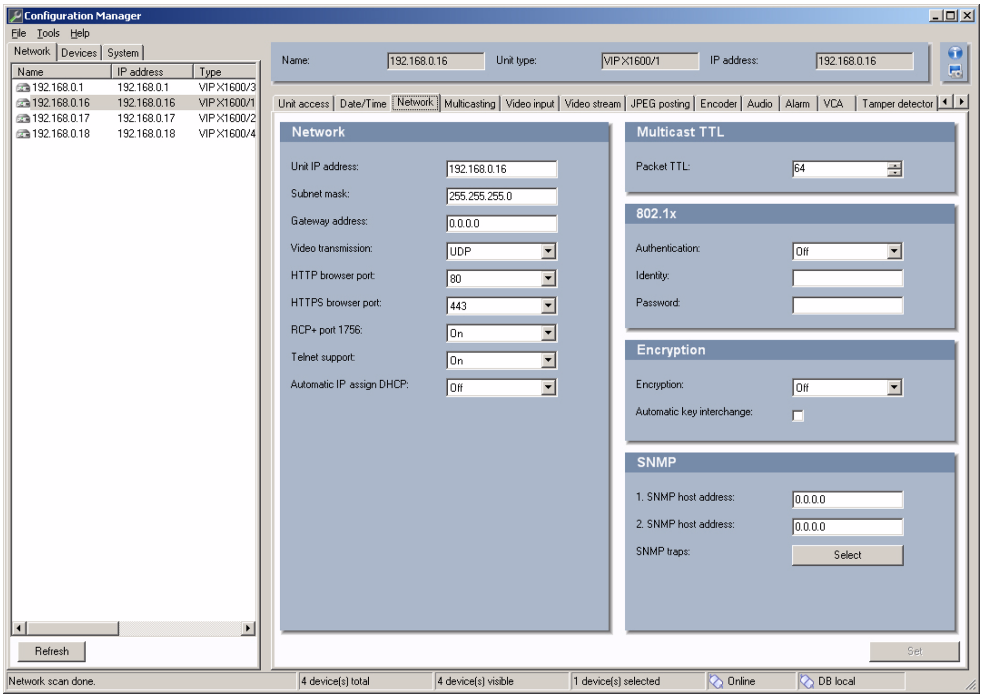
4.6.1 Installing the Program

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.

4.6.2 Configuring the VIP X1600 module

You can start the 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
192.168.0.1	192.168.0.1	VIP X1600/3
192.168.0.16	192.168.0.16	VIP X1600/1
192.168.0.17	192.168.0.17	VIP X1600/2
192.168.0.18	192.168.0.18	VIP X1600/4

Name: 192.168.0.16 Unit type: VIP X1600/1 IP address: 192.168.0.16

Network

Unit IP address: 192.168.0.16
Subnet mask: 255.255.255.0
Gateway address: 0.0.0.0
Video transmission: UDP
HTTP browser port: 80
HTTPS browser port: 443
RCP+ port 1756: On
Telnet support: On
Automatic IP assign DHCP: Off

Multicast TTL

Packet TTL: 64

802.1x

Authentication: Off
Identity:
Password:

Encryption

Encryption: Off
Automatic key interchange: □

SNMP

1. SNMP host address: 0.0.0.0
2. SNMP host address: 0.0.0.0
SNMP traps:

Network scan done. | 4 device(s) total | 4 device(s) visible | 1 device(s) selected | Online | DB local

2. You can start the configuration if a VIP X1600 module is shown in the list in the left section of the window. To do this, click the entry for the module.
3. Click the **Network** tab in the right section of the window. The current network settings are displayed.
4. In the **Unit IP address** field, enter the required IP address (for example **192.168.0.16**) and click the **Set** button at the bottom right of the window. The new IP address is valid the next time you start the unit.
5. If required, enter a new subnet mask and additional network data.

NOTICE!

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

4.6.3 Reboot

You can trigger the reboot directly with the assistance of the Configuration Manager.

▶ Right-click the entry for the unit in the list in the left section of the window and select the **Reset** command from the context menu.

4.6.4 Additional Parameters

You can check and set additional parameters with the assistance of the 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 VIP X1600 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.

5.1.1 System Requirements

- Computer with Windows 2000 or Windows XP operating system
- Network access (Intranet or Internet)
- Microsoft Internet Explorer (version 6.0 or higher)
- Screen resolution 1,024 × 768 pixels
- 16- or 32-bit color depth
- Installed Sun JVM

NOTICE!
Also note the information in the **System Requirements** document on the product CD supplied. If necessary, you can install the required programs and controls from the product CD supplied (see *Section 3.2 Scope of Delivery of VIP X1600 Module*, page 11).
You can find notes on using Microsoft Internet Explorer in the online Help in Internet Explorer.

5.1.2 Installing MPEG ActiveX

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

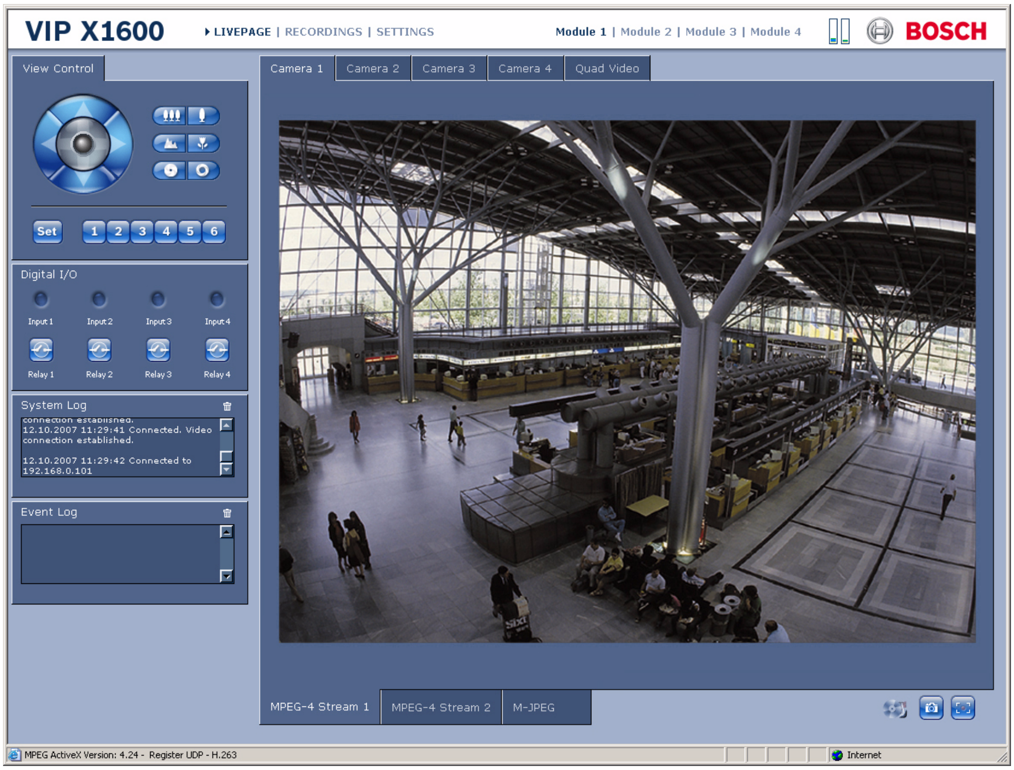
1. Insert the product CD into the computer's CD-ROM drive. If the CD does not start automatically, open the root directory of the CD in Windows Explorer and double-click **MPEGAx.exe**.
2. Follow the on-screen instructions.

5.1.3 Establishing the Connection

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

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

1. Start the Web browser.
2. Enter the IP address of the VIP X1600 module as the URL. The connection is established and after a short time you will see the **LIVEPAGE** with the video image.



```
connection established.
12.10.2007 11:29:41 Connected. Video
connection established.

12.10.2007 11:29:42 Connected to
192.168.0.101
```

MPEG ActiveX Version: 4.24 - Register UDP - H.263

5.1.4 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 VIP X1600 module can have up to 25 Web browser connections or up to 50 connections via VIDOS or Bosch Video Management System.

5.1.5 Protected VIP X1600 module

If the VIP X1600 module is password protected against unauthorized access, the Web browser displays a corresponding message and prompts you to enter the password when you attempt to access protected areas.

NOTICE!
The VIP X1600 modules offer the option to limit the extent of access using various authorization levels (see *Section 5.6 Password*, page 32).

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.

5.1.6 Protected Network

If a RADIUS server is employed in the network for managing access rights (802.1x authentication), the VIP X1600 module must be configured accordingly, otherwise no communication is possible.
To configure the unit, you must connect the VIP X1600 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 5.28.17 Authentication*, page 78).

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 with several modules can try several hosts for communicating over the network.

5.2 Configuration Menu

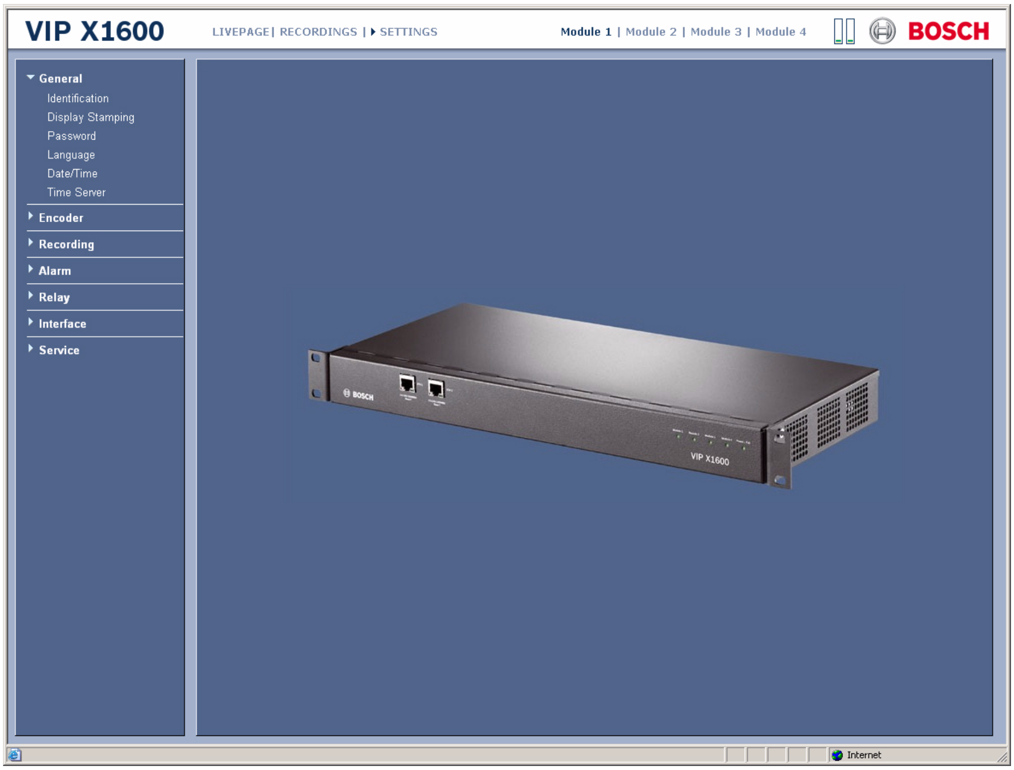
The **SETTINGS** page provides access to the configuration menu, which contains all the unit's parameters arranged in groups.
You can view the current settings by opening one of the configuration screens. You can change the settings by entering new values or by selecting a predefined value from a list field.
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 configuration menu should only be processed or modified by expert users or system support personnel.

All settings are stored in the VIP X1600 module's memory so that they are retained even if the power supply is interrupted.

5.2.1 Starting Configuration

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



5.2.2 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.

5.2.3 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.

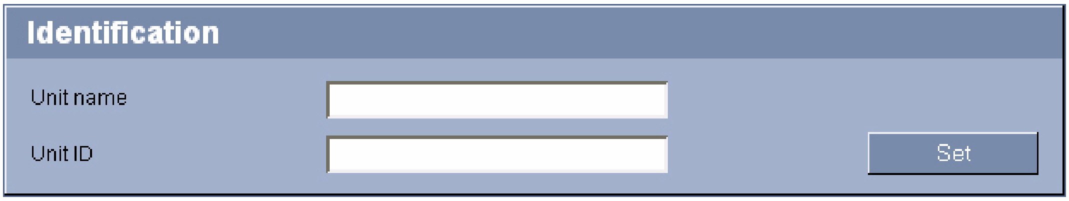
▶ After each change, click **Set** to save the change.

⚠ **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 Identification



Identification

Unit name		
Unit ID		Set

5.3.1 Unit name

You can give the VIP X1600 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 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!**

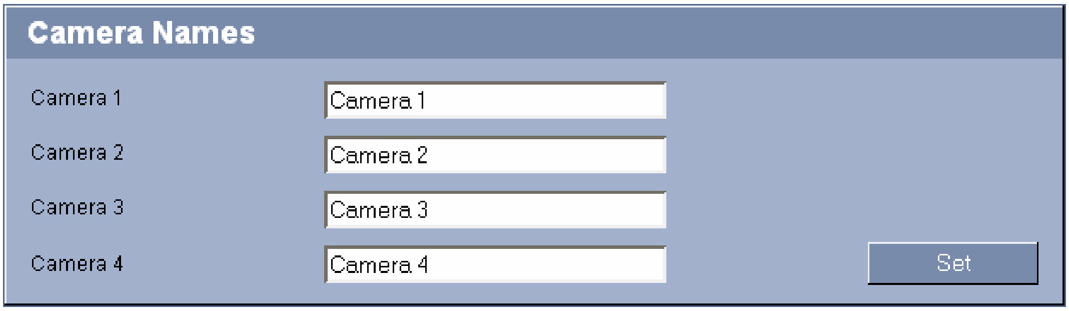
Do not use any special characters, for example **&**, in the name.

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.

5.3.2 Unit ID

Each VIP X1600 module should be assigned a unique identifier that you can enter here as an additional means of identification.

5.4 Camera Names



Camera Names

Camera 1	Camera 1	
Camera 2	Camera 2	
Camera 3	Camera 3	
Camera 4	Camera 4	Set

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 5.5.1 Camera name stamping*, page 30). 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.

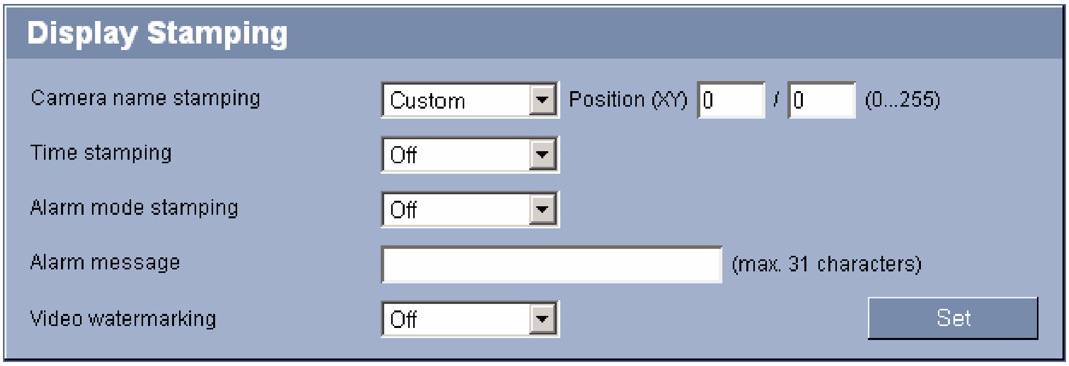
5.4.1 Camera 1 to Camera 4

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 being unable to play back the recording.

5.5 Display Stamping



Display Stamping

Camera name stamping	Custom	Position (XY) 0 / 0	(0...255)
Time stamping	Off		
Alarm mode stamping	Off		
Alarm message		(max. 31 characters)	
Video watermarking	Off		Set

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.

5.5.1 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.

5.5.2 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.

5.5.3 Alarm mode stamping

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

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

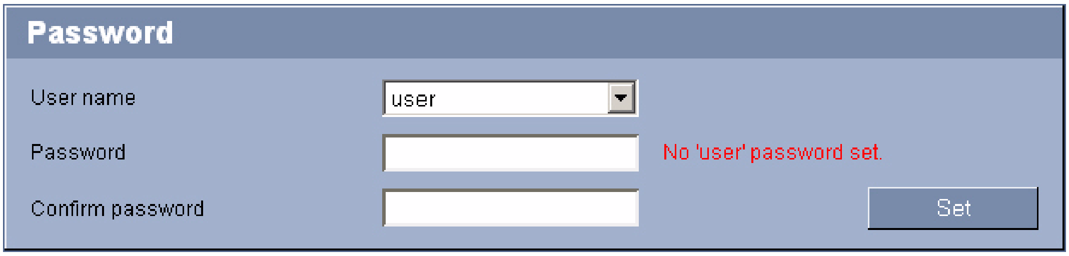
5.5.4 Alarm message

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

5.5.5 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.

5.6 Password



Password

User name	user	
Password		No 'user' password set.
Confirm password		Set

A VIP X1600 module is generally protected by a password to prevent unauthorized access to the unit. You can use different authorization levels (**User name**) 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.

5.6.1 User name

The VIP X1600 modules operate with three user names: **service**, **user** and **live**, which correspond to different authorization levels.
The **service** user name is the highest authorization level. After entering the correct password, this user name allows you to use all the functions of the VIP X1600 module and change all configuration settings.
The **user** user name is the middle authorization level. You use it to operate the unit and also to control cameras, for example, but you cannot change the configuration.
The **live** user name is the lowest authorization level. It can only be used to view the live video image and switch between the different live image displays.

5.6.2 Password

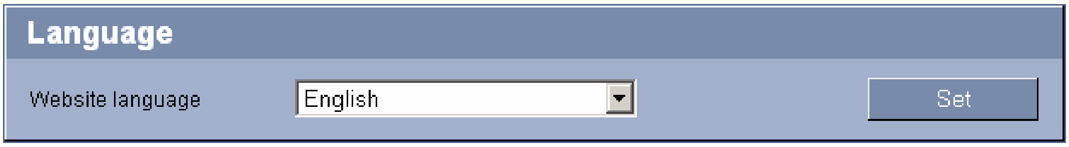
You can define and change a separate password for each user name if you are logged in as **service** or if the unit is not password protected.
Enter the password for the selected user name here.

5.6.3 Confirm password

Enter the new password a second time to eliminate typing mistakes.

NOTICE!
The new password is only saved when you click the **Set** button. You should therefore click the **Set** button immediately after entering and confirming a password, even if you also wish to subsequently assign a password to another user name.

5.7 Language

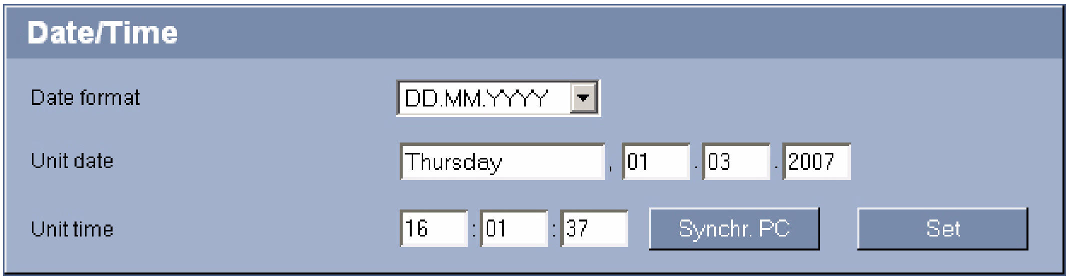


Website language English

5.7.1 Website language

Select the language for the user interface here.

5.8 Date/Time



Date format DD.MM.YYYY

Unit date Thursday , 01 . 03 . 2007

Unit time 16 : 01 : 37

5.8.1 Date format

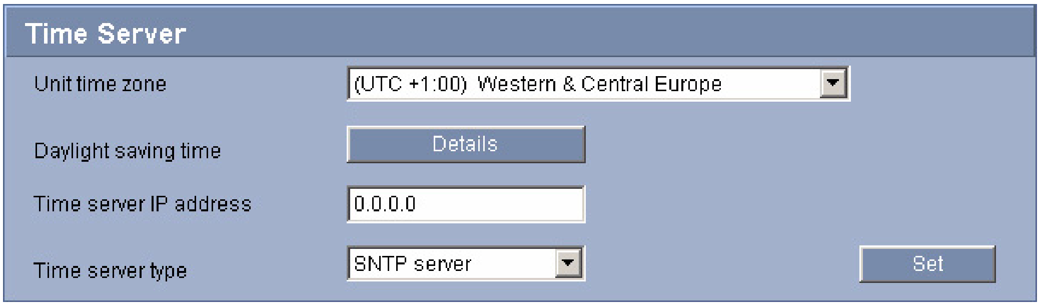
Select your required date format.

5.8.2 Unit date/Unit time

If there are multiple units operating in your system or network, it is important to synchronize their internal clocks. For example, it is only possible to identify and correctly evaluate simultaneous recordings when all 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 **Synchr. PC** button to copy your computer's system time to the VIP X1600 module.

5.9 Time Server



Time Server

Unit time zone: (UTC +1:00) Western & Central Europe

Daylight saving time: Details

Time server IP address: 0.0.0.0

Time server type: SNTP server

Set

The VIP X1600 modules can receive the time signal from a time server using various time server protocols, and then use it to set the internal clock. The unit polls the time signal automatically once every minute.
The VIP X1600 module in Slot 1 is the default time server for the modules in Slot 2 to Slot 4. In this case, the **Time server IP address** field can be empty for Slot 2 to Slot 4 (0.0.0.0).

5.9.1 Unit time zone

Select the time zone in which your system is located.

5.9.2 Daylight saving time

The internal clock can switch automatically between normal and daylight saving time (DST). The unit already contains the data for DST switch-overs up to the year 2015. You can use these data or create alternative time saving data if required.

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

1. First check whether the correct time zone is selected. If it is not correct, select the appropriate time zone for the system, and click the **Set** button.
2. Click the **Details** button. A new window will open and you will see the empty table.
3. Select the region or the city which is closest to the system's location from the list field below the table.
4. Click the **Generate** button to generate data from the database in the unit and enter it into the table.
5. Make changes by clicking an entry in the table. The entry is selected.
6. Clicking the **Delete** button will remove the entry from the table.
7. Select other values from the list fields below the table to change the entry. Changes are made immediately.
8. If there are empty lines at the bottom of the table, for example after deletions, you can add new data by marking the row and selecting required values from the list fields.
9. Now click the **OK** button to save and activate the table.

5.9.3 Time server IP address

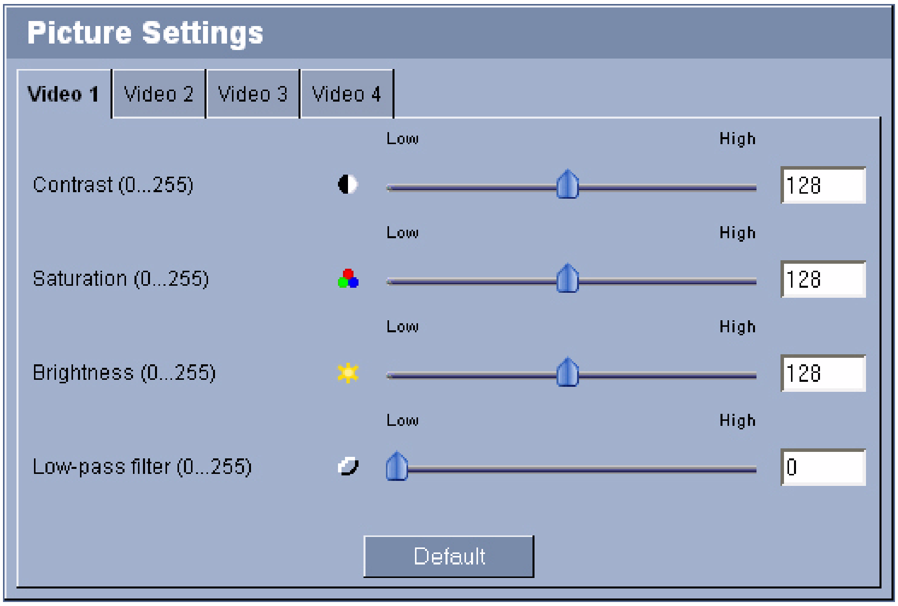
Enter the IP address of a time server.

5.9.4 Time server type

Select the protocol that is supported by the selected time server. Preferably, you should select the **SNTP server** as the protocol. This supports a high level of accuracy and is required for special applications and subsequent function extensions.
Select **Time server** for a time server that works with the protocol RFC 868.

NOTICE!
Select the same time server type for the modules in Slot 2 to Slot 4 as for the module in Slot 1.

5.10 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 value.

5.10.1 Contrast (0...255)

You can use this function to adapt the contrast of the video image to your working environment.

5.10.2 Saturation (0...255)

You can use this function to adjust the color saturation so as to make the reproduction of colors on your monitor as realistic as possible.

5.10.3 Brightness (0...255)

You can use this function to adapt the brightness of the video image to your working environment.

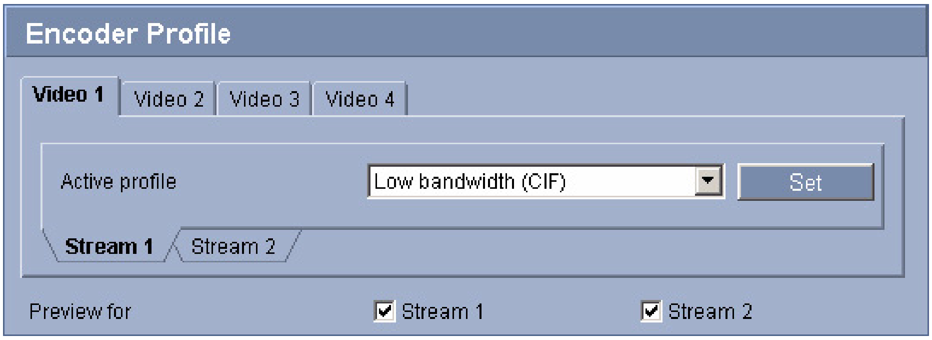
5.10.4 Low-pass filter (0...255)

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.

Also observe the processor load indicator that appears at the top of the window near the manufacturer's logo (see *Section 8.5 Processor Load*, page 114).

5.11 Encoder Profile


Encoder Profile

Video 1 | Video 2 | Video 3 | Video 4

Active profile: Low bandwidth (CIF) ▼ Set

Stream 1 | Stream 2

Preview for ☑ Stream 1 ☑ Stream 2

For encoding the video signal you can select two profiles for each encoder (video input) and change the presets for the profiles.
You can adapt the MPEG-4 data transmission to the operating environment (for example network structure, bandwidth, data load). To this end, the VIP X1600 module simultaneously generates two data streams (Dual Streaming) for each video input. 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.

NOTICE!
You must set the parameters for each camera input and for each stream individually. The names **Video 1** to **Video 4** correspond to the labeling of the video inputs on the module.

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

- Profile 1: **Low bandwidth (CIF)**
  High quality for low bandwidth connections,
  resolution 352 × 288/240 pixels
- Profile 2: **Low delay (2/3 D1)**
  High quality with low delay, resolution 464 × 576/480 pixels
- Profile 3: **High resolution (4CIF/D1)**
  High resolution for high bandwidth connections,
  resolution 704 × 576/480 pixels
- Profile 4: **DSL**
  For DSL connections with 500 kbps, resolution 352 × 288/240 pixels
- Profile 5: **ISDN (2B)**
  For ISDN connections via two B-channels, resolution 352 × 288/240 pixels
- Profile 6: **ISDN (1B)**
  For ISDN connections via one B-channel, resolution 352 × 288/240 pixels
- Profile 7: **Modem**
  For analog modem connections with 20 kbps, resolution 352 × 288/240 pixels
- Profile 8: **GSM**
  For GSM connections at 9,600 baud, resolution 176 × 144/120 pixels

5.11.1 Active profile

Here you can select the desired profile for each of the two streams. You will see a preview for each data stream in the right section of the window. The preview of the data stream currently selected is marked by a green frame. Above the previews, various additional items of information regarding data transmission are displayed and continually updated.

1. First, click a tab at the top to select the associated camera.
2. Click a tab at the bottom to select the associated stream.
3. Select the desired setting from the list.

NOTICE!

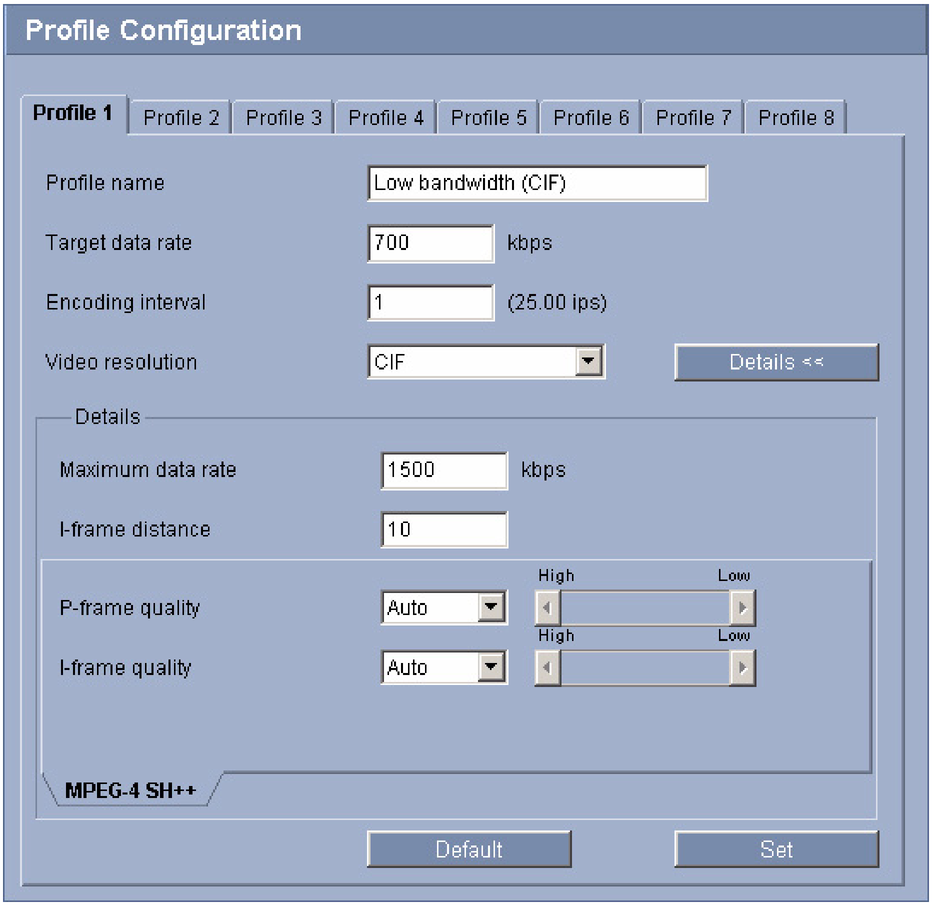
By default, Stream 2 is transmitted for alarm connections and automatic connections. Bear this fact in mind when assigning the profile.

5.11.2 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.

5.12 Profile Configuration



Profile Configuration

Profile name: Low bandwidth (CIF)

Target data rate: 700 kbps

Encoding interval: 1 (25.00 ips)

Video resolution: CIF

Details

Maximum data rate: 1500 kbps

I-frame distance: 10

P-frame quality: Auto

I-frame quality: Auto

You can change individual parameter values within a profile and you can also change the name. You can switch between profiles by clicking the appropriate tabs.

CAUTION!
The profiles are rather complex. They include a large number of parameters that interact with one another, so it is generally best to use the default profiles.
Change the profiles only once you are fully familiar with all the configuration options.

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

5.12.1 Profile name

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

5.12.2 Target data rate

You can limit the data rate for the VIP X1600 module to optimize utilization of the bandwidth in your network. The target data rate should be set according to the desired picture quality for typical scenes with no excessive motion.

For complex images or frequent changes of image content due to frequent movements, this limit can be temporarily exceeded up to the value you enter in the **Maximum data rate** field.

5.12.3 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.

5.12.4 Video resolution

Here you can select the desired resolution for the MPEG-4 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

5.12.5 Default

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

5.12.6 Details

Clicking the **Details >>** button displays further details on image quality and data transmission. These settings require extensive knowledge of the MPEG standard and video data compression. Incorrect settings can render the video images unusable.

5.12.7 Maximum data rate

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

5.12.8 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.

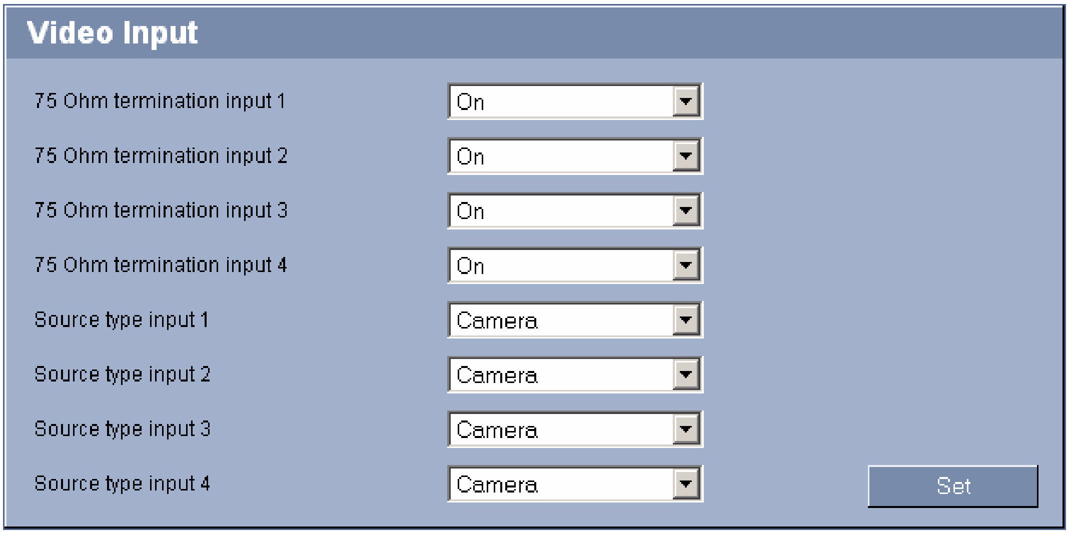
5.12.9 P-frame quality

This setting allows you to adjust the image quality of the P-frames depending on the movement within the image. The **Auto** option automatically adjusts to the optimum combination of movement and image definition (focus). Selecting **Manual** allows you to set a value between 4 and 31 on the slide control. The value **4** represents the best image quality with, if necessary, a lower frame refresh rate depending on the settings for the maximum data rate. A value of **31** results in a very high refresh rate and lower image quality.

5.12.10 I-frame quality

This setting allows you to adjust the image quality of the I-frames. The **Auto** option automatically adjusts the quality to the settings for the P-frame video quality. Selecting **Manual** allows you to set a value between 4 and 31 on the slide control. The value **4** represents the best image quality with, if necessary, a lower frame refresh rate depending on the settings for the maximum data rate. A value of **31** results in a very high refresh rate and lower image quality.

5.13 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

Source type input 1: Camera

Source type input 2: Camera

Source type input 3: Camera

Source type input 4: Camera

You can activate the 75 Ohm terminating resistance for each video input on the VIP X1600 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 module.

5.13.1 75 Ohm termination

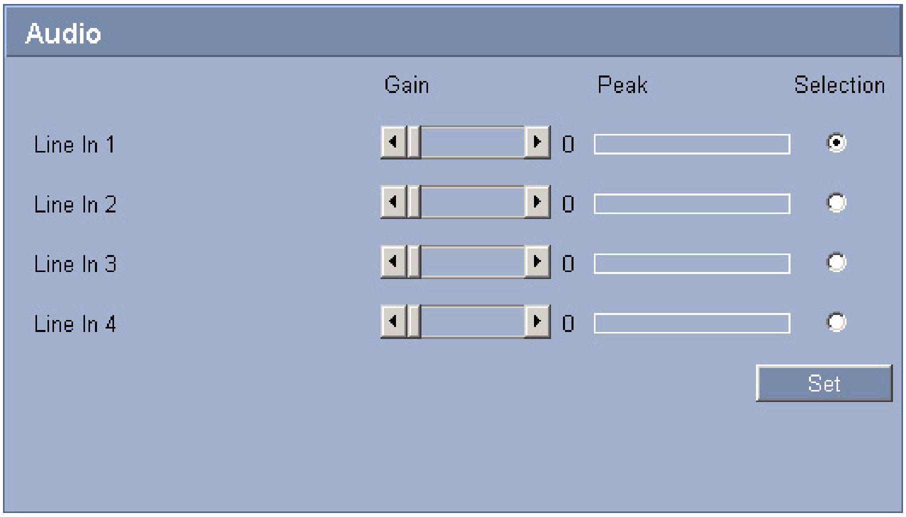
Select **Off** if the video signal is to be looped through.

5.13.2 Source type

To allow VCRs to be connected as a video source, you can change the characteristic of the video source from the preset value of **Camera** to **VCR**. VCRs require a more tolerant setting for the internal PLL as a result of jitter effects caused by the mechanical components of a VCR.

NOTICE!
In some cases, selecting the **VCR** option can lead to an improvement in the video image even with a camera connected.

5.14 Audio (Audio Versions only)



Audio

	Gain		Peak	Selection
Line In 1		0		●
Line In 2		0		○
Line In 3		0		○
Line In 4		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 selected 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 Configuration** page (see *Section 5.32 Livepage Configuration*, page 84). For other connections, the transmission depends on the audio settings of the respective system.

NOTICE!
The numbering of the audio inputs follows the labeling on the module and the assignment to the respective video inputs. The assignment cannot be changed for Web browser connections.

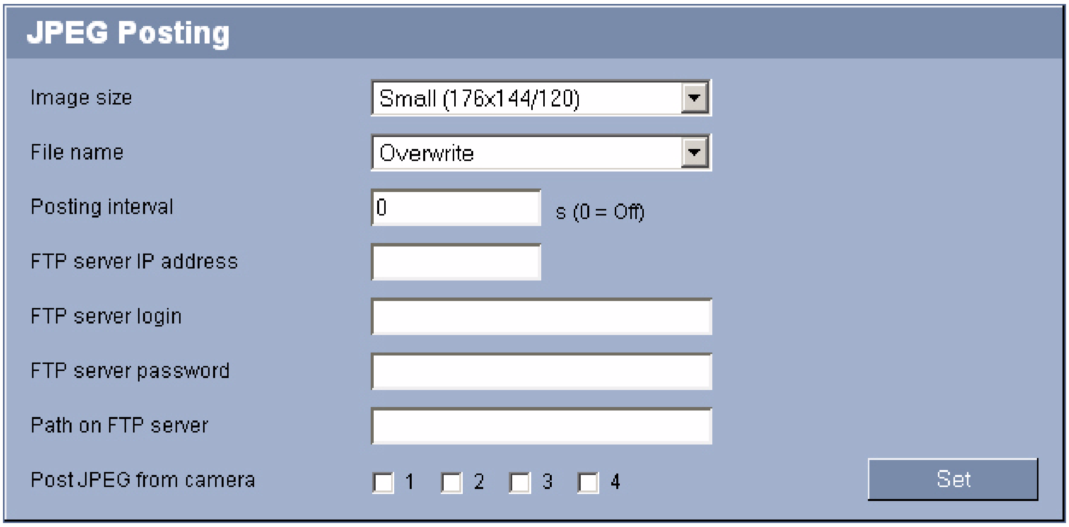
5.14.1 Line In

You can set the audio signal gain for the line inputs. Make sure that the display does not go beyond the green zone during modulation.

5.14.2 Selection

Click one of the option boxes and then click **Set** to display the level of the respective audio input for orientation and to set the gain.

5.15 JPEG Posting



JPEG Posting

Image size	Small (176x144/120)
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.

5.15.1 Image size

Select the resolution you wish the JPEG images to have:

- **Small**
  176 × 144/120 pixels (QCIF)
- **Medium**
  352 × 288/240 pixels (CIF)
- **Large**
  704 × 576/480 pixels (4CIF)

5.15.2 File name

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

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

5.15.3 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.

5.15.4 FTP server IP address

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

5.15.5 FTP server login

Enter your login name for the FTP server.

5.15.6 FTP server password

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

5.15.7 Path on FTP server

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

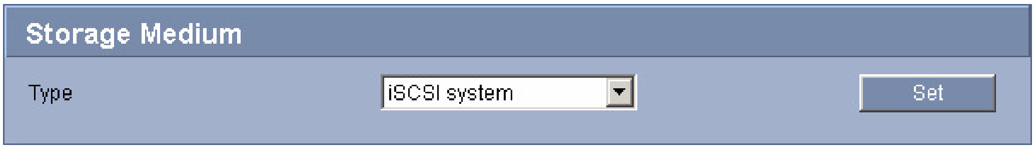
5.15.8 Post JPEG from camera

Click the checkbox to activate the camera input for the JPEG image. An enabled camera input is indicated by a check mark.

ⓘ **NOTICE!**

The numbering follows the labeling of the video inputs on the module.

5.16 Storage Medium



Type: iSCSI system

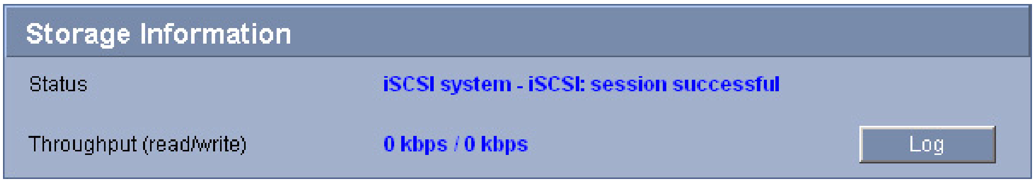
You can record the images from the cameras connected to the VIP X1600 module in the RAM memory of the module or on an appropriately configured iSCSI system.
The internal RAM memory is suitable for short-term recordings and pre-alarm recordings in ring mode operation.
For long-term, authoritative images, it is essential that you use an appropriately sized iSCSI system.
It is also possible to let the Video Recording Manager (**VRM**) control all recording when accessing an iSCSI system. The VRM is an external program for configuring recording tasks for video servers. For further information please contact your local customer service at Bosch Security Systems.

5.16.1 Type

Select the desired storage medium to subsequently configure the recording parameters.
If you select **VRM**, the Video Recording Manager will manage all recording, and you will not be able to make any further configurations here.

CAUTION!
If you switch the storage medium from **iSCSI system** to another option, the settings on the **iSCSI** page will be lost and can only be restored by reconfiguring them.

5.16.2 Storage Information



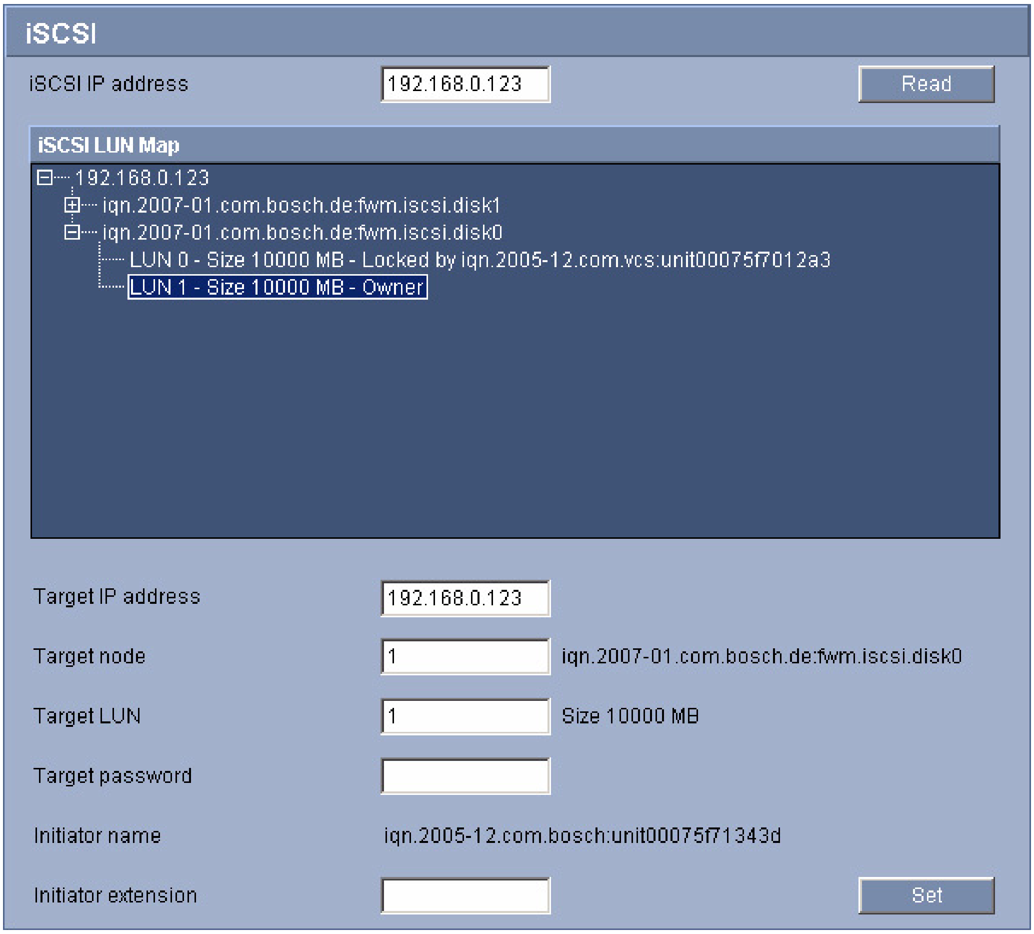
Status: iSCSI system - iSCSI: session successful

Throughput (read/write): 0 kbps / 0 kbps

The status of the currently selected storage medium and the data throughput are displayed here for information. You cannot change any of these settings.

1. Click **Log** to view a status report with logged actions. A new window will open.
2. In this window, click **Clear** to delete all entries. The entries will be deleted immediately. This action cannot be reversed.
3. Click the **Close** button to close the window.

5.17 iSCSI



iSCSI

iSCSI IP address: 192.168.0.123

iSCSI LUN Map

```
⊟ 192.168.0.123
   ⊞ iqn.2007-01.com.bosch.de:fwm.iscsi.disk1
   ⊟ iqn.2007-01.com.bosch.de:fwm.iscsi.disk0
      LUN 0 - Size 10000 MB - Locked by iqn.2005-12.com.vcs:unit00075f7012a3
      LUN 1 - Size 10000 MB - Owner
```

Target IP address: 192.168.0.123

Target node: 1 iqn.2007-01.com.bosch.de:fwm.iscsi.disk0

Target LUN: 1 Size 10000 MB

Target password:

Initiator name: iqn.2005-12.com.bosch:unit00075f71343d

Initiator extension:

If you select type **iSCSI system** as the storage medium, you then need to set up a connection to the desired iSCSI system and set the configuration parameters.

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

5.17.1 iSCSI IP address

1. Enter the IP address of the required iSCSI target here.
2. Click the **Read** button. The connection to the IP address will be established. The **iSCSI LUN Map** field contains the corresponding logical drives.

5.17.2 iSCSI LUN Map

The LUN map displays the logical drives configured for the iSCSI system. The current user is displayed for each drive.

1. Double-click a free drive (LUN). The associated information is called up and automatically displayed in the fields below the map.
2. If the logical drive is password protected, you must first enter the password in the **Target password** field and click the **Set** button.

In cases where the information cannot be read due to the network topology, you must enter the data manually, so that the VIP X1600 module can access the drive. In this case you should ensure that the entries correspond exactly with the configuration of the iSCSI system.

1. Enter the required data into the corresponding fields.
2. Click the **Set** button. The VIP X1600 module will now use this data to try and connect to the required drive.

As soon as a connection has been established, the selected drive is used for recordings.

5.17.3 Target IP address

Enter the IP address of the required iSCSI target here.

5.17.4 Target node

Enter the number of the iSCSI target node.

5.17.5 Target LUN

Enter the LUN of the required drive.

5.17.6 Target password

If the drive is password protected, enter the password.

NOTICE!

You may not enter a new password. This is only possible by configuring the iSCSI system.

5.17.7 Initiator name

The initiator name is automatically displayed after a connection has been established.

5.17.8 Initiator extension

Enter the initiator extension. For the sake of clarity, you can enter a name or the existing extension with a comment, for example "– Camera 2".

5.17.9 Decoupling the Drive in Use

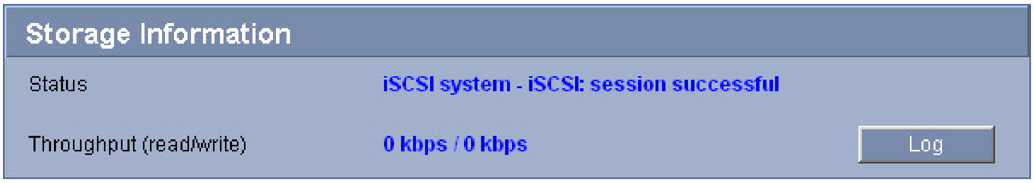
Each drive can only be associated with one user. If a drive is already being used by another user, you can decouple the user and connect the drive with the VIP X1600 module.

⚠ **CAUTION!**

Before decoupling, make absolutely sure that the previous user no longer needs the drive.

1. Double-click a drive that is already being used in the LUN map. You will see a warning message.
2. Confirm the decoupling of the current user. The drive is released and can now be connected to the VIP X1600 module.

5.17.10 Storage Information



Storage Information

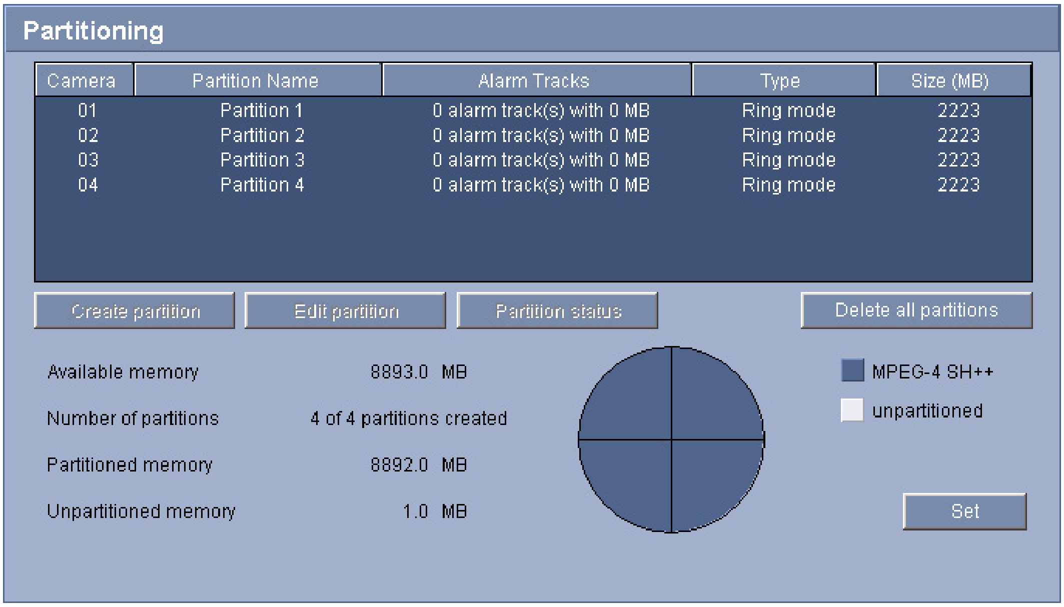
Status: iSCSI system - iSCSI: session successful

Throughput (read/write): 0 kbps / 0 kbps

The status of the currently selected storage medium and the data throughput are displayed here for information. You cannot change any of these settings.

1. Click **Log** to view a status report with logged actions. A new window will open.
2. In this window, click **Clear** to delete all entries. The entries will be deleted immediately. This action cannot be reversed.
3. Click the **Close** button to close the window.

5.18 Partitioning



Partitioning

Camera	Partition Name	Alarm Tracks	Type	Size (MB)
01	Partition 1	0 alarm track(s) with 0 MB	Ring mode	2223
02	Partition 2	0 alarm track(s) with 0 MB	Ring mode	2223
03	Partition 3	0 alarm track(s) with 0 MB	Ring mode	2223
04	Partition 4	0 alarm track(s) with 0 MB	Ring mode	2223

Available memory	8893.0 MB
Number of partitions	4 of 4 partitions created
Partitioned memory	8892.0 MB
Unpartitioned memory	1.0 MB

■ MPEG-4 SH++
□ unpartitioned

Four partitions can be set up for recordings of the cameras connected to the VIP X1600 module; this is similar to the partitioning often found on computer hard drives. Parameters such as size and type of video recording can be specified for each partition. Modifying these parameters leads to reorganization, during which stored data is lost.

The module requires a dedicated partition for the recordings of each connected camera. Each partition is linked to its own encoder or camera input: camera input **Video In 1** with partition number **01**, camera input **Video In 2** with partition **02** etc. This assignment cannot be modified. As a result, all numbers are always displayed in the list, regardless of whether a corresponding partition is available or has been deleted. All four potential partitions need to be configured in order to record four cameras.

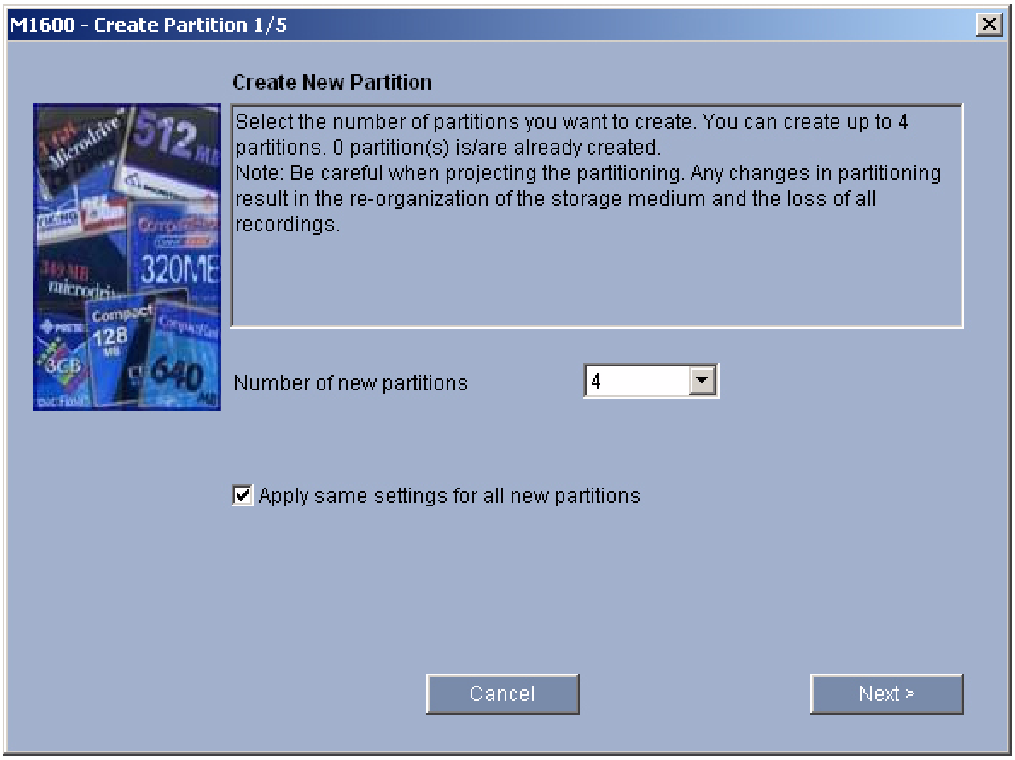
All partitions are listed in the table on the **Partitioning** page together with the number of the video input (**Camera**), their partition name, alarm tracks, type and size.
In addition, the page provides you with an overview of the drive data; for example total memory and number of partitions created. A pie chart indicates how much memory space is partitioned for recordings.

5.18.1 Creating a Partition

NOTICE!
The maximum number of partitions is predefined and corresponds to the number of video inputs on the module.
You can create multiple partitions of the same type in one process. To do this, check the box **Apply same settings for all new partitions** in the first window.

Creating a new partition is performed using separate windows in which information is presented to you and you are led step by step through the necessary settings.
The process must be completed for each partition to be set up on the hard drive. After startup, you can select the total number of partitions to be set up. The setup process is then started as often as is necessary to configure all partitions.

1. Click the **Create partition** button to start the assistant for creating partitions. The first window appears.



M1600 - Create Partition 1/5

Create New Partition

Select the number of partitions you want to create. You can create up to 4 partitions. 0 partition(s) is/are already created.
Note: Be careful when projecting the partitioning. Any changes in partitioning result in the re-organization of the storage medium and the loss of all recordings.

Number of new partitions: 4

☑ Apply same settings for all new partitions

2. You should always first read the information text in the upper section of the window.
3. Click in the text fields to enter values or use the other controls that are available, such as buttons, checkboxes or list fields.
4. Click the **Next >** button at the bottom of the window to continue with the next step.
5. Click the **< Back** button at the bottom of the window to view the previous step again.
6. Click the **Cancel** button to cancel the process and close the wizard.

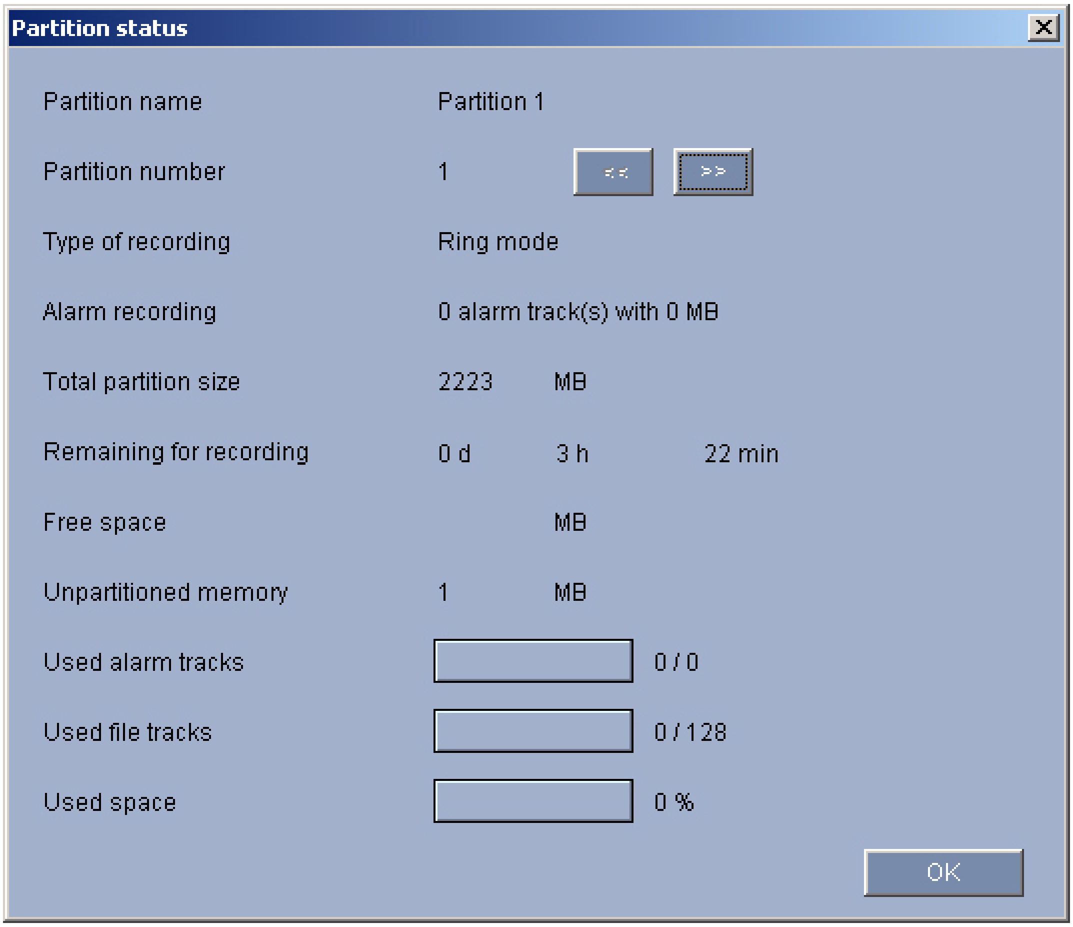
5.18.2 Saving Changes

After you have made all necessary settings, you must transfer the settings to the unit and save them.

CAUTION!
All modifications to settings are only effective if you complete the configuration in the last window by clicking **Finish**.

1. Switch to the last window.
2. Click **Finish** to complete the configuration. All settings are now transferred to the unit and subsequently become effective.

5.18.3 Partition status

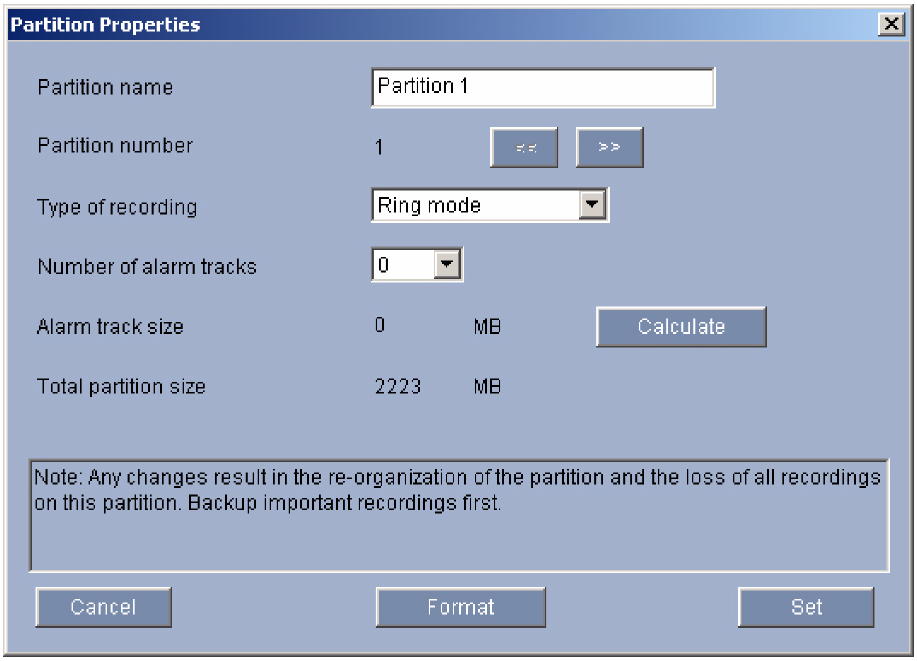


Partition name	Partition 1		
Partition number	1		
Type of recording	Ring mode		
Alarm recording	0 alarm track(s) with 0 MB		
Total partition size	2223	MB	
Remaining for recording	0 d	3 h	22 min
Free space		MB	
Unpartitioned memory	1	MB	
Used alarm tracks	0 / 0		
Used file tracks	0 / 128		
Used space	0 %		

The **Partition status** window provides you with an overview of the current partition configuration. No changes can be made here.

1. In the list, click the partition that you want to modify in order to select this partition.
2. Click the **Partition status** button. A new window with the entries for the selected partition is opened.
3. Click the **<<** and **>>** buttons to view the status of other partitions.
4. Click **OK** to close the window.

5.18.4 Editing a Partition



Partition Properties

Partition name: Partition 1

Partition number: 1

Type of recording: Ring mode

Number of alarm tracks: 0

Alarm track size: 0 MB

Total partition size: 2223 MB

Note: Any changes result in the re-organization of the partition and the loss of all recordings on this partition. Backup important recordings first.

You can modify the configuration of a partition at any time.

CAUTION!

All modifications result in the reorganization of the partition and all sequences stored on it are therefore lost.

Consequently, you should back up all important sequences on the computer's hard drive before modifying the partition.

You can perform the required modifications in the **Partition Properties** window.

1. In the list, click the partition that you want to modify in order to select this partition.
2. Click the **Edit partition** button. A new window with the entries for the selected partition is opened.
3. Make the desired changes.
4. Click the **<<** and **>>** buttons to edit other partitions.
5. Click the **Set** button to save the modifications.

5.18.5 Partition name

You can enter a new name for the partition.

5.18.6 Partition number

The partition number (= number of the video input) is displayed for information purposes.

5.18.7 Type of recording

Select the required recording type.

In the case of **Ring mode** the recording proceeds continuously. If the maximum hard drive space has been reached, the oldest recordings are automatically overwritten.

In the case of **Linear mode** the recording proceeds until the entire hard drive space is full. The recording is then stopped until old recordings have been deleted.

5.18.8 Number of alarm tracks

CAUTION!
Alarm tracks must be set up in the required partition for alarm recording.

The unit uses a special recording mode during alarm recording for optimal usage of storage capacity: as soon as a time gap for alarm recording begins, a recording is continuously made on one segment, which is the size of a complete alarm sequence (pre- and post-alarm time). This segment in the partition 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 subsequently used in the same manner.
Select the number of alarm tracks to be used in the partition. One alarm event can be recorded in each alarm track. Accordingly, the number of alarms entered can be recorded and archived. A partition can contain a maximum of 128 alarm recordings.
If the **Ring mode** option is set for the partition, the latest alarm recordings are always saved in the preset number. If the **Linear mode** option is selected for the partition, the recording is stopped as soon as the total number of alarm tracks has been recorded.

5.18.9 Alarm track size

The size for the alarm tracks can be calculated using various parameters. The calculated size applies for each of the alarm tracks.

1. Click the **Calculate** button. A new window will open.
2. Select the setting you require from individual parameter list fields.
3. Click the **Set** button to apply the calculated value.

5.18.10 Format

You can delete all recordings in a partition at any time.

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

▶ Click the **Format** button to delete all recordings in the currently selected partition.

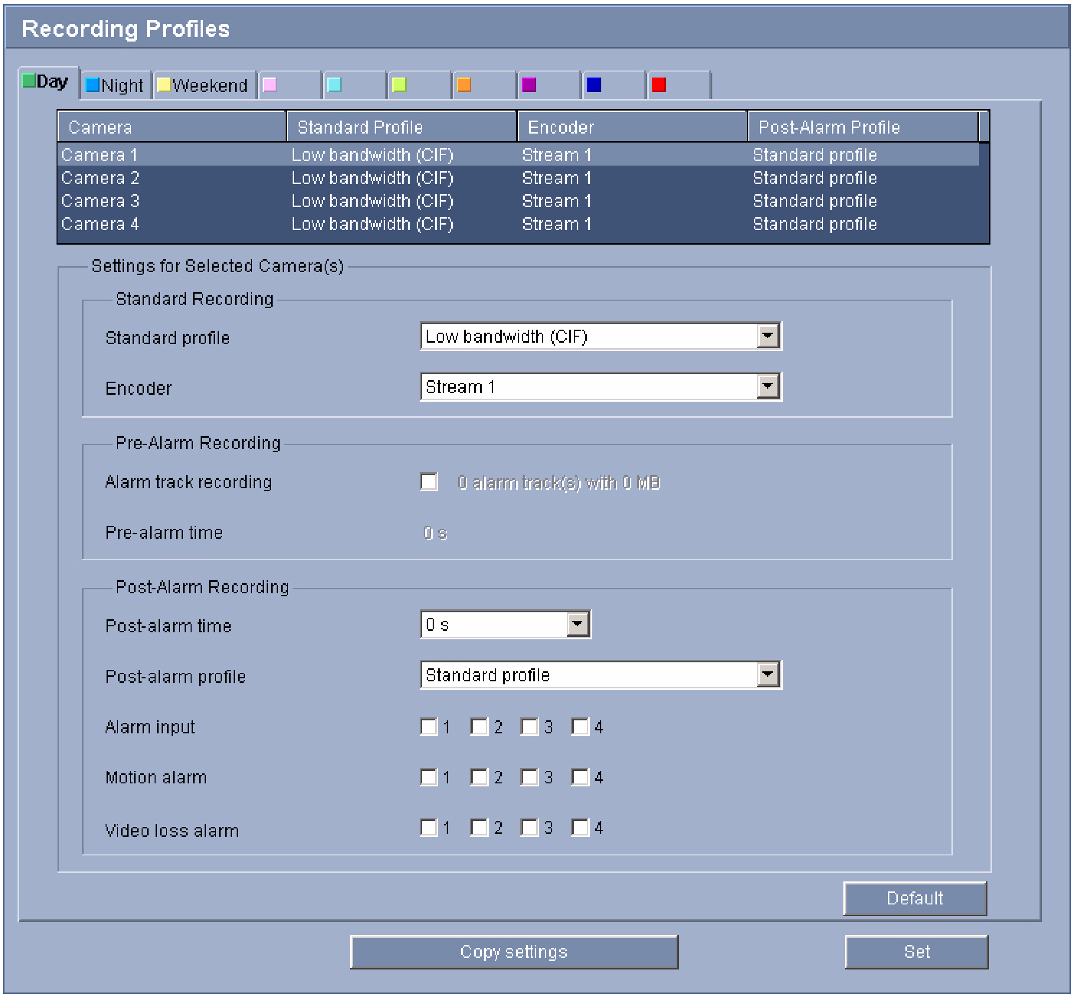
5.18.11 Deleting All Partitions

You can delete all partitions at any time. Individual partitions cannot be deleted.

CAUTION!
Deleting partitions causes reorganization of the entire hard drive and all sequences stored on it are therefore lost.
Consequently, you should check the recordings before deleting any partitions and back up important sequences on the computer's hard drive.

▶ Click the **Delete all partitions** button. The display retains the lines containing the numbers, the partition names are deleted and **0** is specified as the size in each case.

5.19 Recording Profiles



Camera	Standard Profile	Encoder	Post-Alarm Profile
Camera 1	Low bandwidth (CIF)	Stream 1	Standard profile
Camera 2	Low bandwidth (CIF)	Stream 1	Standard profile
Camera 3	Low bandwidth (CIF)	Stream 1	Standard profile
Camera 4	Low bandwidth (CIF)	Stream 1	Standard profile

Settings for Selected Camera(s)

Standard Recording

Standard profile: Low bandwidth (CIF)

Encoder: Stream 1

Pre-Alarm Recording

Alarm track recording: ☐ 0 alarm track(s) with 0 MB

Pre-alarm time: 0 s

Post-Alarm Recording

Post-alarm time: 0 s

Post-alarm profile: Standard profile

Alarm input: ☐ 1 ☐ 2 ☐ 3 ☐ 4

Motion alarm: ☐ 1 ☐ 2 ☐ 3 ☐ 4

Video loss alarm: ☐ 1 ☐ 2 ☐ 3 ☐ 4

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 5.20 Recording Scheduler*, page 57).
In each profile you can configure different settings for each camera input.

NOTICE!
You can change or add to the recording profile description on the tabs on the **Recording Scheduler** page (see *Section 5.20.3 Time Periods*, page 58).

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. Click the **Default** button to return all settings to their default, if appropriate.
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.

5.19.1 Standard profile

From this field, you can select the encoder profile to be used for continuous recording (see *Section 5.11 Encoder Profile*, page 37).

NOTICE!
The recording profile can deviate from the standard setting **Active profile** for the video input set and is only used during an active recording.

5.19.2 Encoder

Here you can select the data stream to be used for the recording.

5.19.3 Alarm track recording

NOTICE!
This parameter is active only if alarm tracks have been configured for the camera input concerned, i.e. the corresponding partition (see *Section 5.18.8 Number of alarm tracks*, page 54).

- ▶ Click the checkbox to activate alarm track recording. The pre-alarm time is automatically displayed for information.

5.19.4 Post-alarm time

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

5.19.5 Post-alarm profile

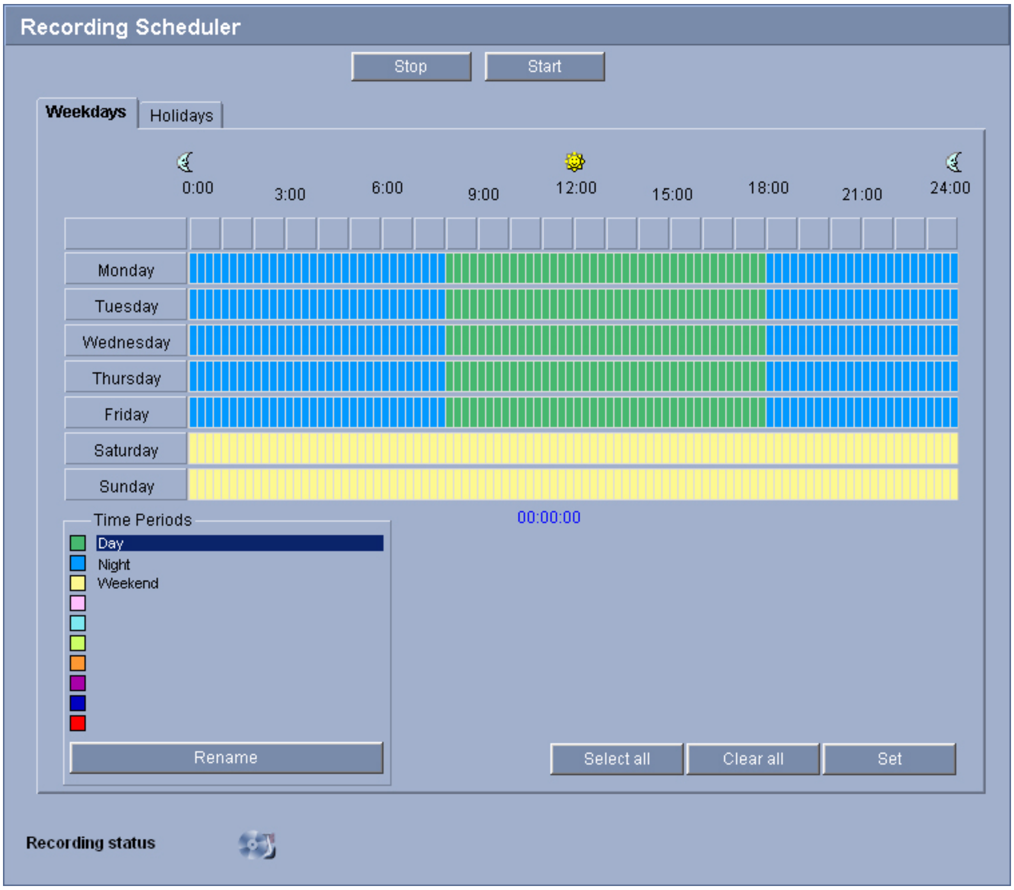
You can select the encoder profile to be used for recording during the post-alarm time (see *Section 5.11 Encoder Profile*, page 37).
The **Standard profile** option adopts the selection for continuous recordings at the top of the page.

5.19.6 Alarm input / Motion alarm / Video loss alarm

Here you can select the alarm sensor that is to trigger a recording. You can also use the motion and video alarm for a camera to trigger the alarm recording by another camera.

NOTICE!
The motion alarms are configured and activated for each camera on the **VCA** page (see *Section 5.23 VCA*, page 63).
The alarm inputs are configured and activated on the **Alarm Sources** page (see *Section 5.21 Alarm Sources*, page 59).
The numbering of the checkboxes for the alarm inputs corresponds to the labeling of the alarm inputs on the VIP X1600 module. The motion and video alarm numbers correspond to the labeling of the video inputs.

5.20 Recording Scheduler



The recording scheduler allows you to link the created recording profiles with the days and times at which the images of selected cameras 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.

5.20.1 Holidays

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

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

5.20.2 Deleting Holidays

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

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

5.20.3 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.

5.20.4 Activating the Recording

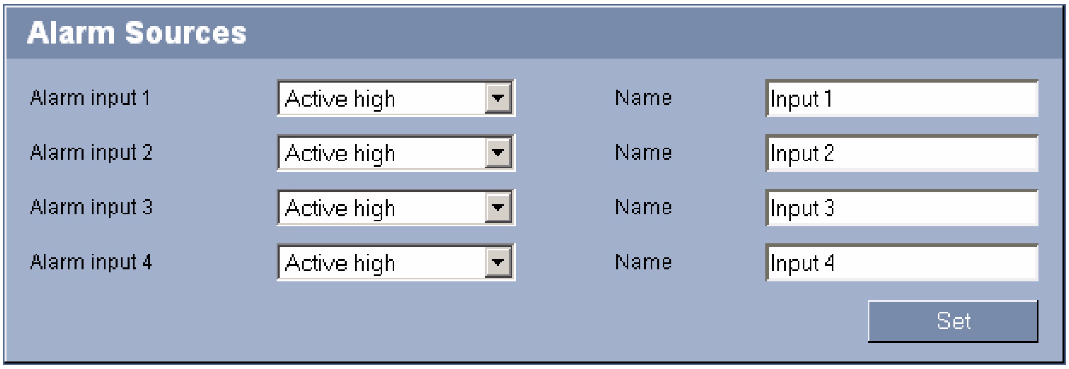
After completing configuration you must activate the recording scheduler and start the recording. Once recording is underway, the **Recording Profiles** and **Recording Scheduler** pages are deactivated and the configuration cannot be modified.
You can stop the recording activity at any time and modify the settings.

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

5.20.5 Recording status

The graphic indicates the recording activity of the VIP X1600 module. You will see an animated graphic while recording is taking place.

5.21 Alarm Sources



Alarm Sources

Alarm input 1	Active high	Name	Input 1
Alarm input 2	Active high	Name	Input 2
Alarm input 3	Active high	Name	Input 3
Alarm input 4	Active high	Name	Input 4

You can configure the alarm inputs of the VIP X1600 module.

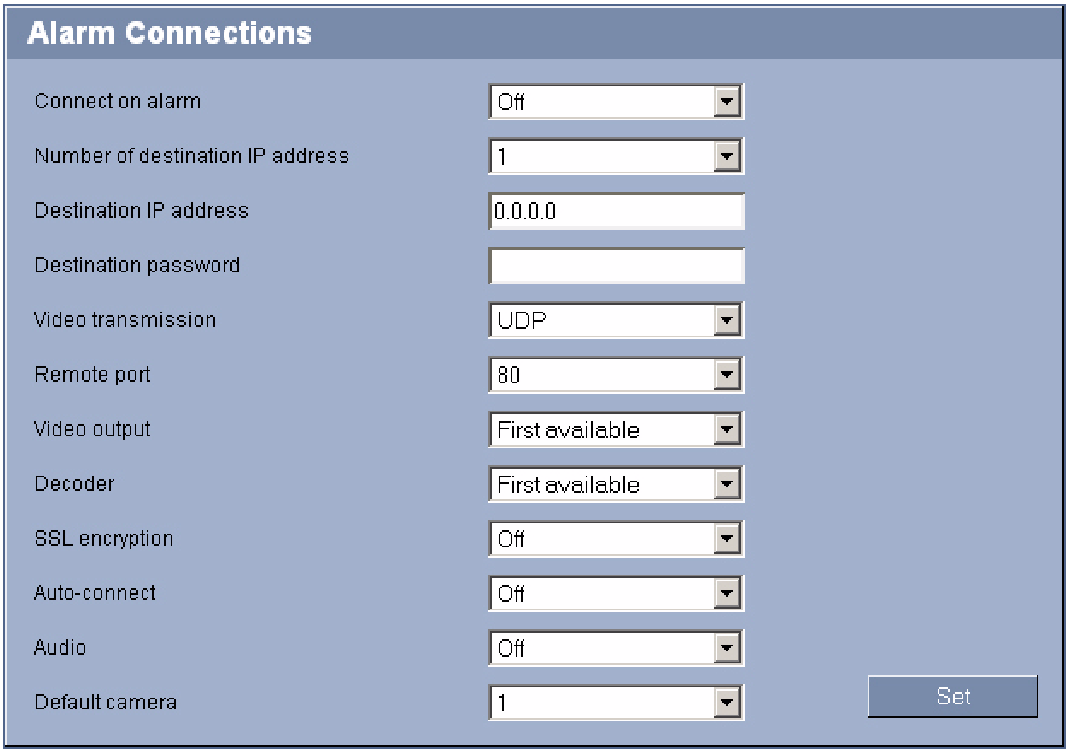
5.21.1 Alarm input

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

5.21.2 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 5.32 Livepage Configuration*, page 84).

5.22 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 VIP X1600 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 VIP X1600 module will contact in order in the event of an alarm, until a connection is made.

5.22.1 Connect on alarm

Select **On** so that the VIP X1600 module automatically connects to a pre-defined IP address in the event of an alarm.

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

NOTICE!

By default, Stream 2 is ransmitted for alarm connections. Bear this fact in mind when assigning the profile (see *Section 5.11 Encoder Profile*, page 37).

5.22.2 Number of destination IP address

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

5.22.3 Destination IP address

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

5.22.4 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 VIP X1600 module can use this general password to connect to all remote stations protected with the same password. In this case, proceed as follows:

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

NOTICE!

If you enter the destination IP address 0.0.0.0 for destination 10, the VIP X1600 module will no longer use this address for the tenth attempt at automatic connection in the event of an alarm. The parameter is then used only to save the general password.

5.22.5 Video transmission

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

CAUTION!

Please note that in some circumstances, a larger bandwidth must be available on the network for additional video images in the event of an alarm, in case multicast operation is not possible. To enable multicast operation, select the **UDP** option for the **Video transmission** parameter here and on the **Network** page (see *Section 5.28.5 Video transmission*, page 76).

5.22.6 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.

5.22.7 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.

5.22.8 Decoder

Select a decoder of the receiver to display the alarm image. The decoder selected has an impact on the position of the image in a split screen. For example, you can specify via a VIP XD that the upper-right quadrant should be used to display the alarm image by selecting decoder 2.

5.22.9 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 VIP X1600 module (see *Section 5.36.4 Maintenance log*, page 90).

You can activate and configure encryption of the media data (video, audio and metadata) on the **Encryption** page (see *Section 5.30 Encryption*, page 81).

5.22.10 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!

By default, Stream 2 is transmitted for automatic connections. Bear this fact in mind when assigning the profile (see *Section 5.11 Encoder Profile*, page 37).

5.22.11 Audio

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

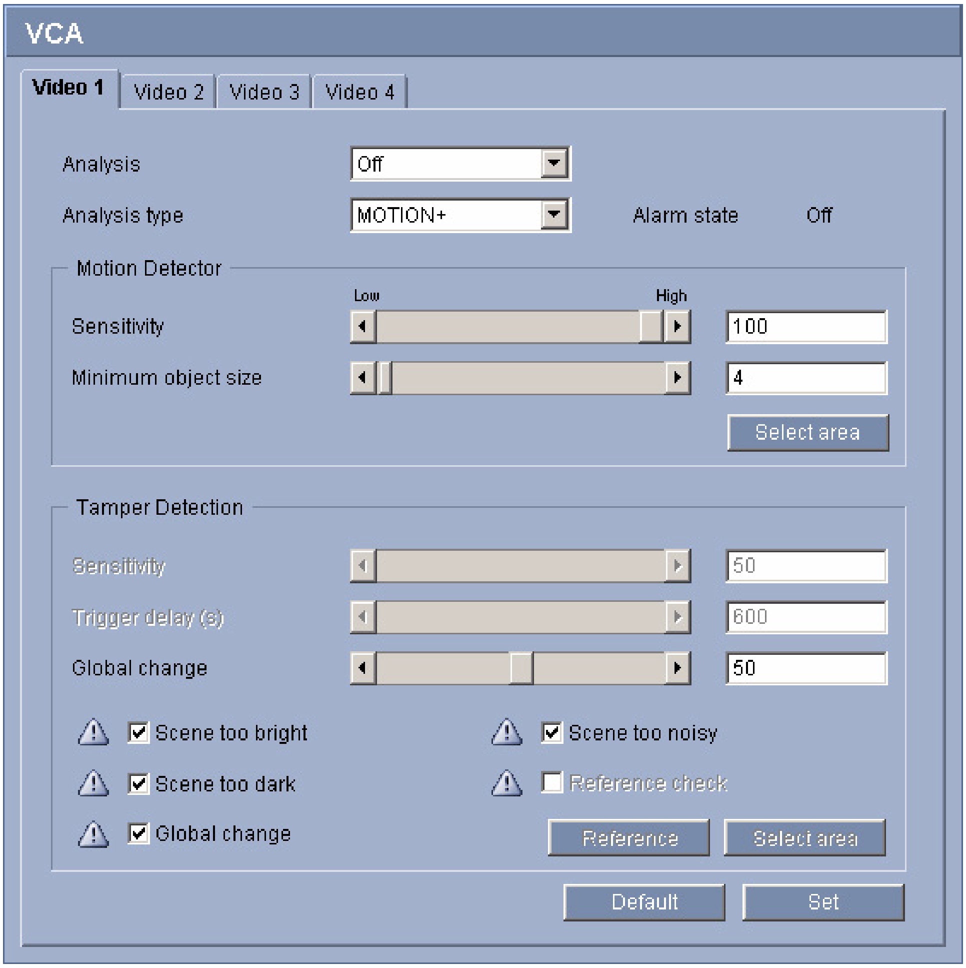
5.22.12 Default camera

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 module.

5.23 VCA


VCA

Video 1 | Video 2 | Video 3 | Video 4

Analysis: Off

Analysis type: MOTION+ Alarm state: Off

Motion Detector

Sensitivity: 100

Minimum object size: 4

Tamper Detection

Sensitivity: 50

Trigger delay (s): 600

Global change: 50

☑ Scene too bright ☑ Scene too noisy

☑ Scene too dark ☐ Reference check

☑ Global change

The VIP X1600 modules feature an integrated video content analysis (VCA), which can detect and analyze changes in the signal. Such changes can be due to movements in the camera's field of view.

NOTICE!

If computing power becomes short, the highest priority is always the live images and recordings. This can lead to impairment of the video content analysis. You should therefore observe the processor load and optimize the encoder settings or the video content analysis settings as necessary (see *Section 8.5 Processor Load*, page 114).

You can configure the video content analysis for each video input individually.

1. Click one of the tabs to open the configuration of the corresponding video input.
2. Enter the desired settings.
3. Click the **Default** button to return all settings to their default, if appropriate.

5.23.1 Analysis

Select the option **On** to activate the video content analysis.

As soon as the video content analysis is activated, metadata are created. 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 Configuration** page, you can also enable additional information overlays for the **LIVEPAGE** (see *Section 5.32 Livepage Configuration*, page 84).

5.23.2 Analysis type

Select the required analysis algorithm. By default, only **MOTION+** is available – this offers a motion detector and essential recognition of tampering. The current alarm status is displayed for information purposes.

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 (see *Section 3.2 Scope of Delivery of VIP X1600 Module*, page 11).

5.23.3 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.

5.23.4 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.

5.23.5 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.

5.23.6 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.

5.23.7 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.

5.23.8 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.

5.23.9 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.

5.23.10 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.

5.23.11 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.

5.23.12 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.

5.23.13 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.

5.23.14 Global change

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

5.23.15 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.

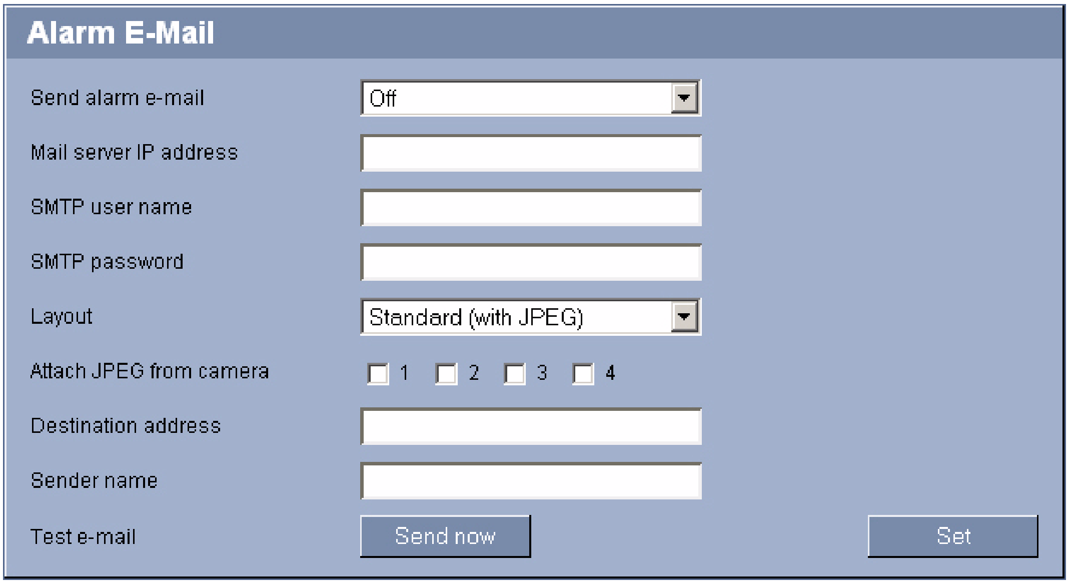
5.23.16 Select area

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.

5.24 Alarm E-Mail



Alarm E-Mail

Send alarm e-mail	Off
Mail server IP address	
SMTP user name	
SMTP password	
Layout	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 VIP X1600 module automatically sends an e-mail to a previously defined e-mail address.

5.24.1 Send alarm e-mail

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

5.24.2 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**).

5.24.3 SMTP user name

Enter a registered user name for the chosen mailserver here.

5.24.4 SMTP password

Enter the required password for the registered user name here.

5.24.5 Layout

You can select the data format of the alarm message.

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

CAUTION!

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

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

5.24.6 Attach JPEG from camera

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

5.24.7 Destination address

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

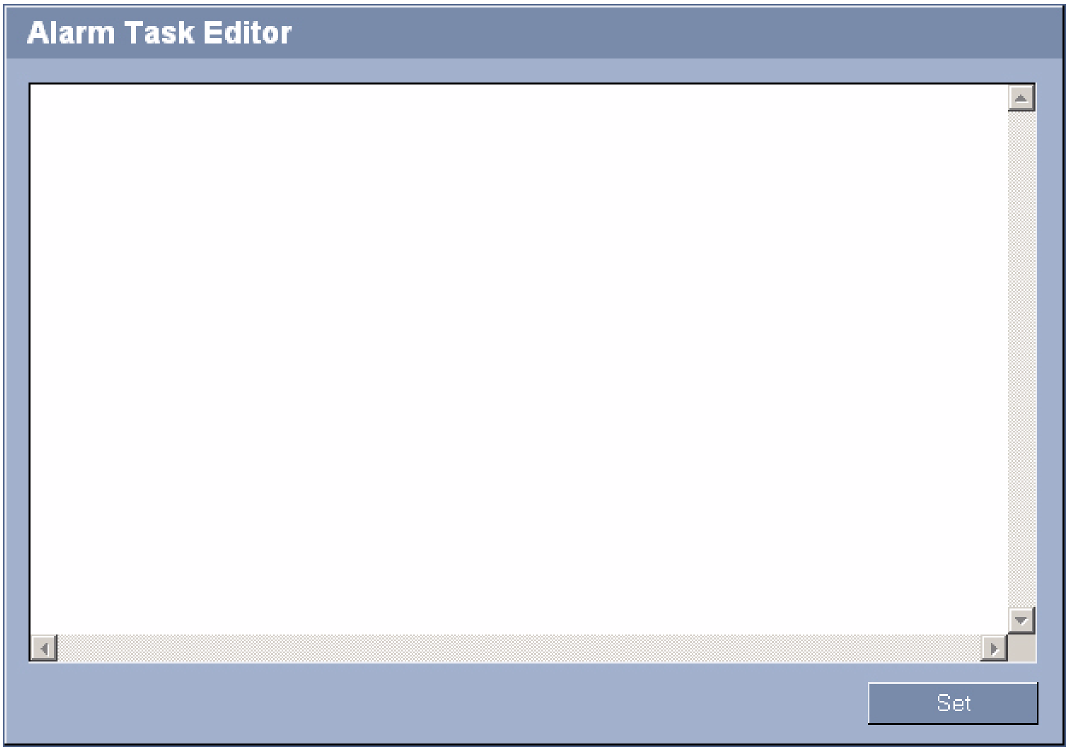
5.24.8 Sender name

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.

5.24.9 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.

5.25 Alarm Task Editor

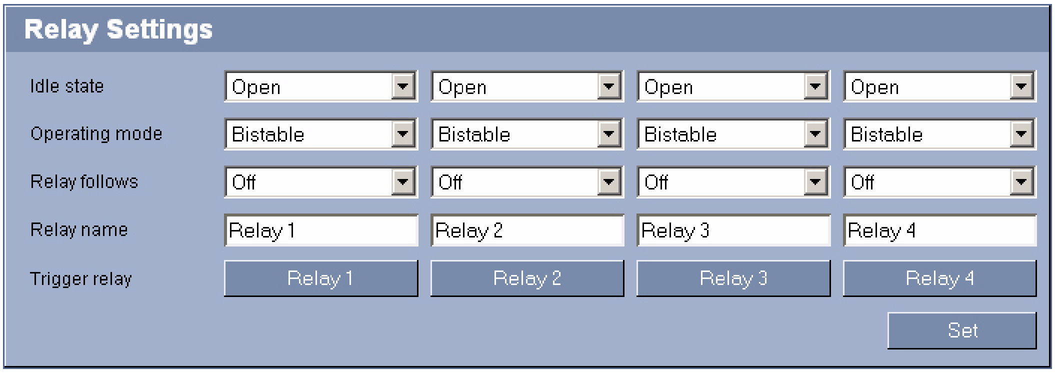


CAUTION!
Editing scripts on this page overwrites all settings and entries on the other alarm pages. This procedure cannot be reversed.
In order to edit this page, you must have programming knowledge and be familiar with the information in the **Alarm Task Script Language** document. You can find the document on the product CD supplied (see *Section 3.2 Scope of Delivery of VIP X1600 Module*, page 11).

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.

5.26 Relay Settings



Idle state	Open	Open	Open	Open
Operating mode	Bistable	Bistable	Bistable	Bistable
Relay follows	Off	Off	Off	Off
Relay name	Relay 1	Relay 2	Relay 3	Relay 4
Trigger relay	Relay 1	Relay 2	Relay 3	Relay 4

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

5.26.1 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.

5.26.2 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**.

5.26.3 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**
  Trigger whenever a connection is made
- **Video alarm**
  Trigger by interruption of the video signal at the corresponding input
- **Motion alarm**
  Trigger by motion alarm at the corresponding input, as configured on the **VCA** page (see *Section 5.23 VCA*, page 63)
- **Local input**
  Trigger by the corresponding external alarm input
- **Remote input**
  Trigger 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 VIP X1600 module, **Video alarm 1**, for example to the **Video In 1** connection.

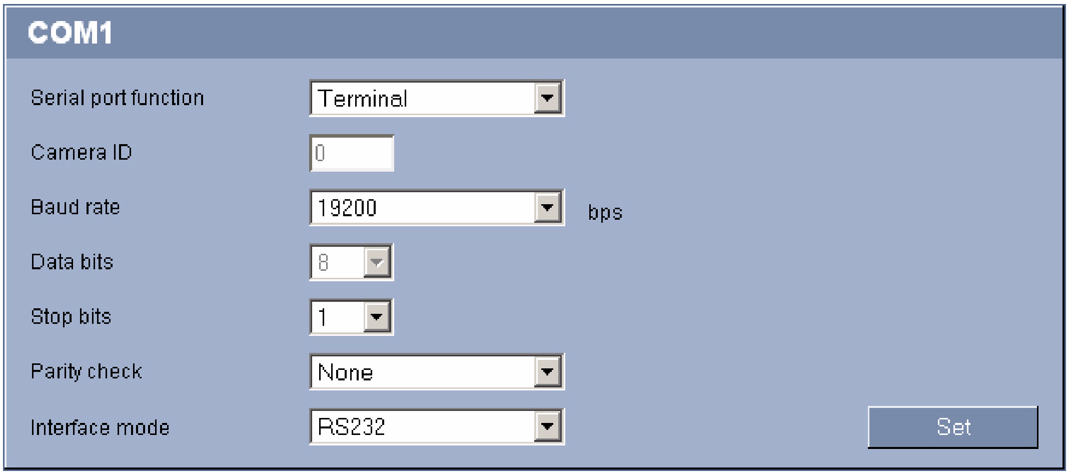
5.26.4 Relay name

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.

5.26.5 Trigger relay

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

5.27 COM1



Serial port function: Terminal
Camera ID: 0
Baud rate: 19200 bps
Data bits: 8
Stop bits: 1
Parity check: None
Interface mode: RS232

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

NOTICE!
If the VIP X1600 module is working in multicast mode (see *Section 5.29 Multicasting*, page 79), 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.

5.27.1 Serial port function

Select a controllable unit from the list. If you wish to use the serial port to transmit transparent data, select **Transparent**. 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.

5.27.2 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 and assigned to the peripheral connected to it.

5.27.3 Baud rate

Select the value for the transmission rate in bps.

5.27.4 Data bits

The number of data bits per character cannot be changed.

5.27.5 Stop bits

Select the number of stop bits per character.

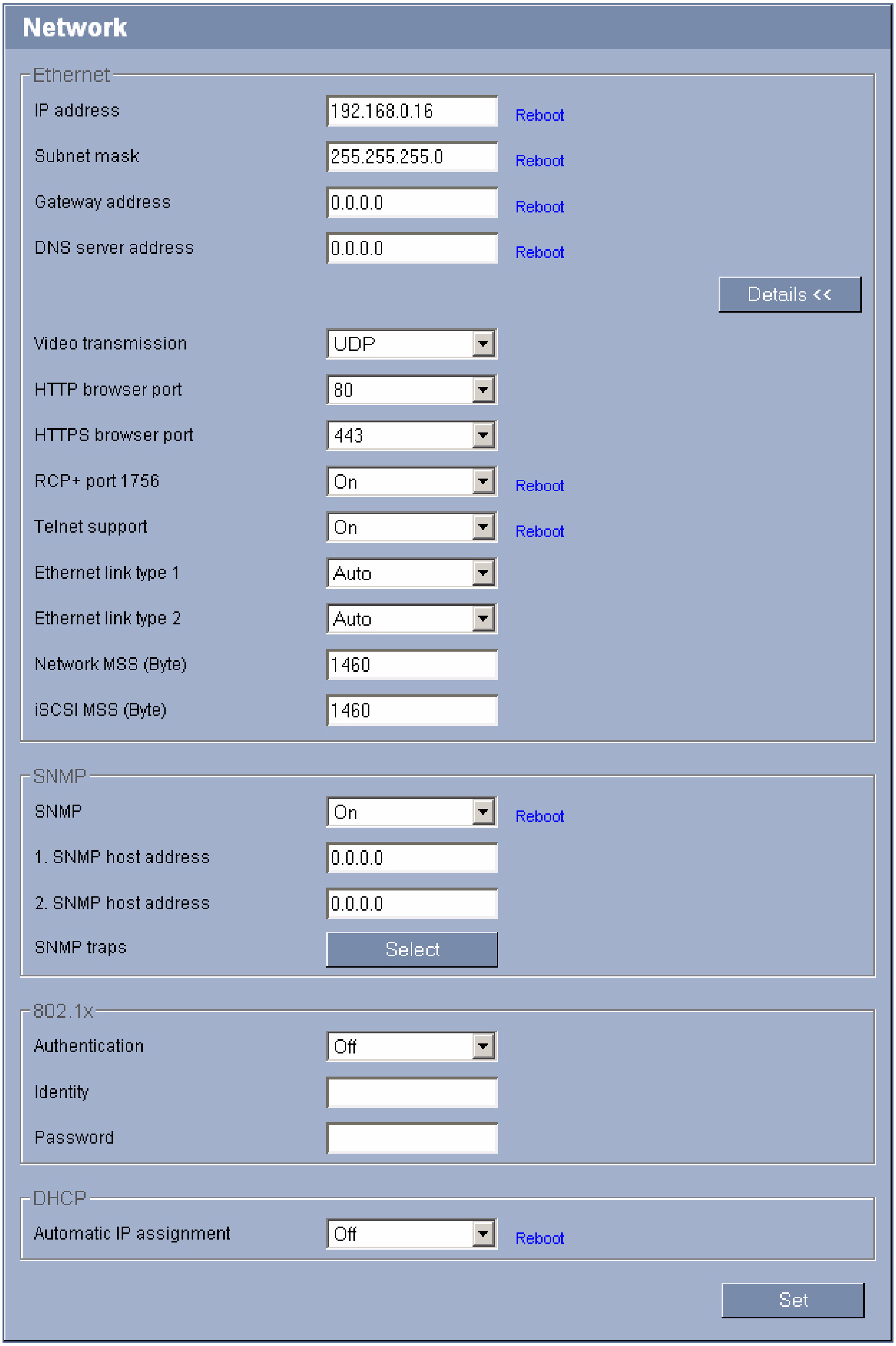
5.27.6 Parity check

Select the type of parity check.

5.27.7 Interface mode

Select the required protocol for the serial interface.

5.28 Network



Network

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
Ethernet link type 1	Auto
Ethernet link type 2	Auto
Network MSS (Byte)	1460
iSCSI MSS (Byte)	1460

SNMP

SNMP	On
1. SNMP host address	0.0.0.0
2. SNMP host address	0.0.0.0
SNMP traps	

802.1x

Authentication	Off
Identity	
Password	

DHCP

Automatic IP assignment	Off

The settings in this screen are used to integrate the VIP X1600 module into an existing network.

Changes to fields followed by the **Reboot** link are transmitted to the unit by clicking the **Set** button; however, they will only be activated once the unit is rebooted.

1. Make the desired changes.
2. Click the **Set** button.
3. Click a **Reboot** link to trigger a reboot. The VIP X1600 module is rebooted and the changed settings are activated.

CAUTION!
If you change the IP address, subnet mask or gateway address, the VIP X1600 module is only available under the new addresses after the reboot.

5.28.1 IP address

Enter the desired IP address for the VIP X1600 module. The IP address must be valid for the network.

5.28.2 Subnet mask

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

5.28.3 Gateway address

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

5.28.4 DNS server address

The VIP X1600 module is easier to access if the unit is listed on a DNS server. If you wish, for example, to establish an Internet connection to the VIP X1600 module, it is sufficient to enter the name given to the unit on the DNS server as a URL in the browser. Enter the DNS server's IP address. Servers are supported for secure and dynamic DNS.

5.28.5 Video transmission

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

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

5.28.6 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**.

5.28.7 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 VIP X1600 modules use the TLS 1.0 encryption protocol. You may have to activate this protocol via your browser configuration. You must also activate the protocol for the Java applications (via the Java control panel in the Windows control panel).

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

You can activate and configure encryption of the media data (video, audio and metadata) on the **Encryption** page (see *Section 5.30 Encryption*, page 81).

5.28.8 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.

5.28.9 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 module will then no longer be accessible using the Telnet protocol.

5.28.10 Ethernet link type 1

If necessary, select the Ethernet link type for interface **ETH 1**. Depending on the unit connected, it may be necessary to select a special operation type.

5.28.11 Ethernet link type 2

If necessary, select the Ethernet link type for interface **ETH 2**. Depending on the unit connected, it may be necessary to select a special operation type.

5.28.12 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.

5.28.13 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.

5.28.14 SNMP

The VIP X1600 modules support 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 units here.
If you select **On** for the **SNMP** parameter and do not enter an SNMP host address, the VIP X1600 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.

5.28.15 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.

5.28.16 SNMP traps

You can select which traps are to be sent.

1. Click **Select**. A new window will open.
2. Click the checkboxes to select the required traps. All the checked traps will be sent.
3. Click **OK** to apply the selection.

5.28.17 Authentication

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

⚠ **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 with several modules can try several hosts for communicating over the network.

Settings for authentication are only neccessary for the module in slot 1. This makes for the automatic authentication of the other modules.
To configure the unit, you must connect the VIP X1600 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.

5.28.18 Identity

Enter the name that the RADIUS server is to use for identifying the VIP X1600 module.

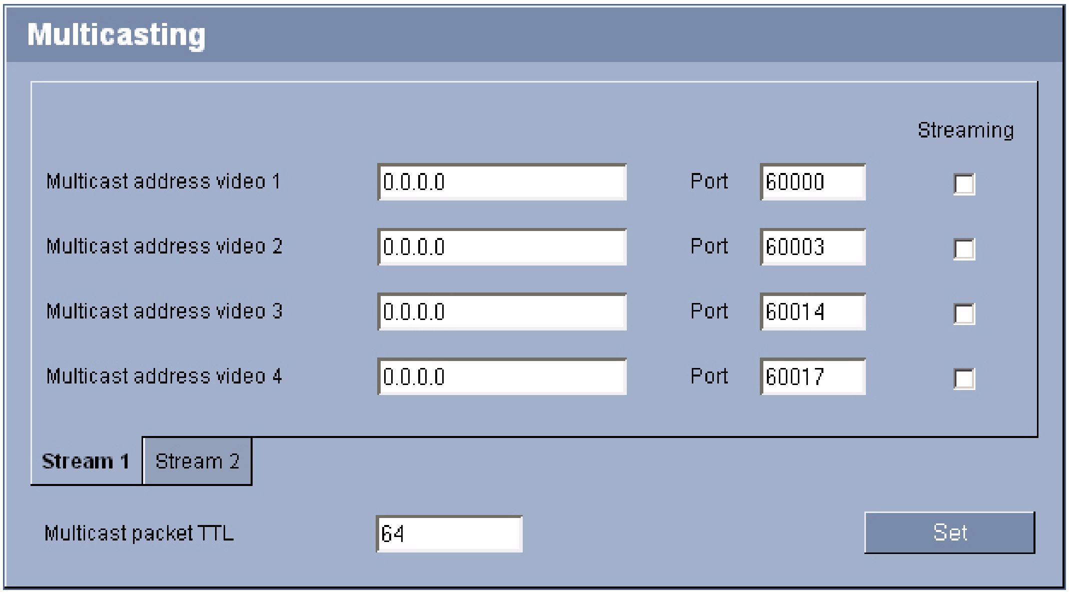
5.28.19 Password

Enter the password that is stored in the RADIUS server.

5.28.20 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 VIP X1600 module.
Certain applications (VIDOS, Bosch Video Management System, Archive Player, Configuration Manager) use the IP address for the unique allocation of the unit. When using such applications, the DHCP server must support the allocation of static IP addresses based on MAC addresses and must be configured accordingly, so that the unit receives the same IP address after each restart.

5.29 Multicasting



Multicasting

				Streaming
Multicast address video 1	0.0.0.0	Port	60000	□
Multicast address video 2	0.0.0.0	Port	60003	□
Multicast address video 3	0.0.0.0	Port	60014	□
Multicast address video 4	0.0.0.0	Port	60017	□

Multicast packet TTL: 64

In addition to a 1:1 connection between an encoder and a single receiver (unicast), the VIP X1600 modules can enable multiple receivers to receive the video signal from an encoder simultaneously. The module 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 module.

5.29.1 Multicast address video 1 to Multicast address video 4

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 VIP X1600 modules support multi-unicast connections for up to five simultaneously connected receivers.

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

5.29.2 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.

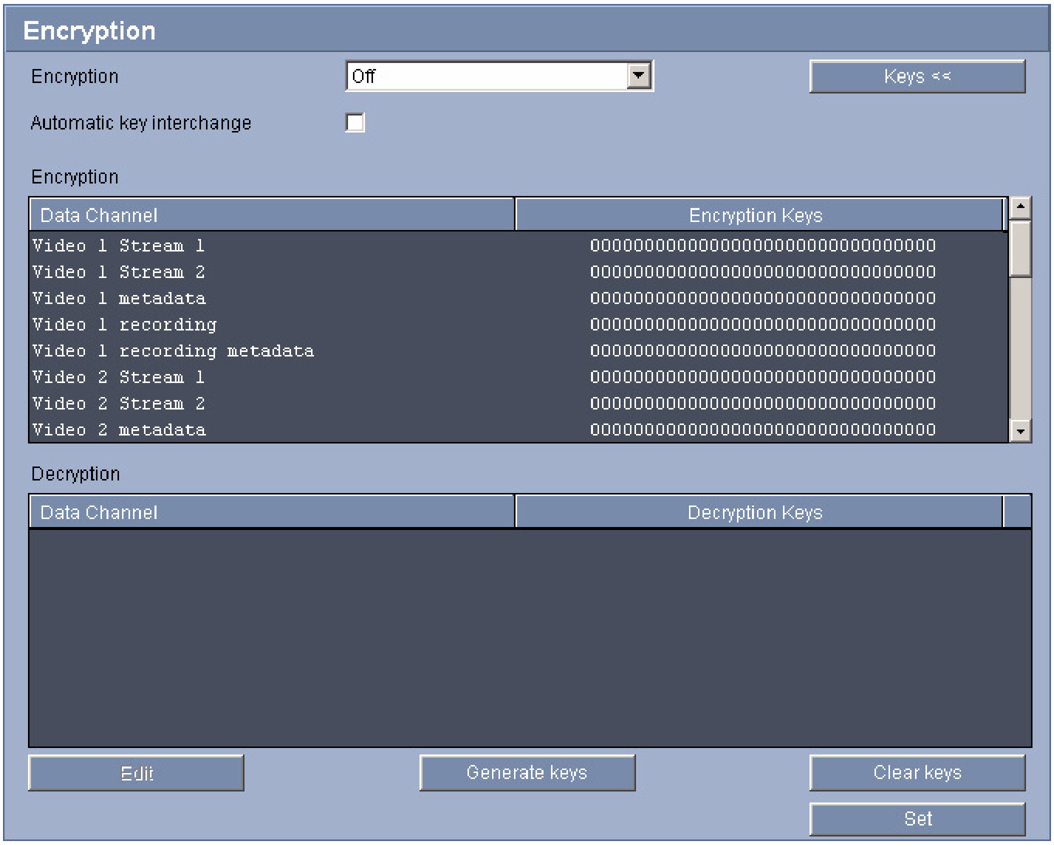
5.29.3 Streaming

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

5.29.4 Multicast packet TTL

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

5.30 Encryption



Encryption: Off

Automatic key interchange □

Encryption

Data Channel	Encryption Keys
Video 1 Stream 1	00000000000000000000000000000000
Video 1 Stream 2	00000000000000000000000000000000
Video 1 metadata	00000000000000000000000000000000
Video 1 recording	00000000000000000000000000000000
Video 1 recording metadata	00000000000000000000000000000000
Video 2 Stream 1	00000000000000000000000000000000
Video 2 Stream 2	00000000000000000000000000000000
Video 2 metadata	00000000000000000000000000000000

Decryption

Data Channel	Decryption Keys

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 5.35 Licenses*, page 88).

Here you can activate encryption of media data (video, audio and metadata). If you activate encryption here, the exchange of connection data (RCP+) is also automatically encrypted.

CAUTION!

If you want to work with encrypted data transmission, you should allow only secured Web browser connections with SSL encryption. This is done by deactivating all open ports and protocols (see *Section 5.28 Network*, page 75).

Connections will then only be possible via the HTTPS port.

You have the option of selecting individual data channels for the encryption. As soon as a key has been generated, the data for the corresponding channel is transmitted only if encrypted. If you delete a key, the data for this channel will be transferred unencrypted.

NOTICE!

The encryption of video data requires increased computing power.

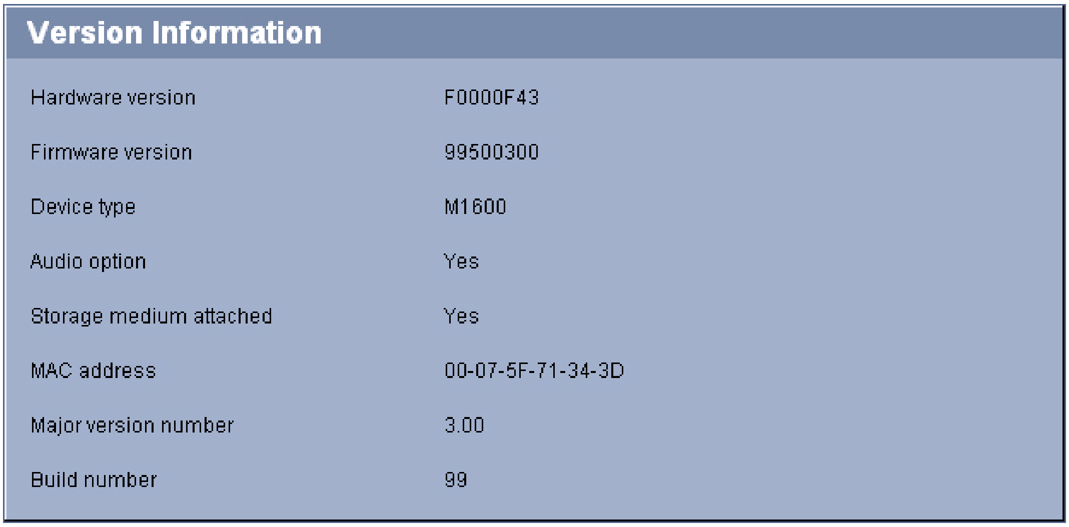
5.30.1 Encryption

1. From the **Encryption** list field, select the **On** option to activate the encryption. Keys will then be generated for all data channels.
2. Click the **Keys >>** button. The keys for the individual data channels will be displayed.
3. Click an entry in the list to select it.
4. Hold the [Ctrl] key down to select multiple entries.
5. Click the **Clear keys** button to delete the selected key. The data for this channel will now be transmitted unencrypted.
6. Click the **Generate keys** button to generate a new key for a selected channel.
7. Click the **Edit** button to enter a key for a selected entry yourself.

5.30.2 Automatic key interchange

You can activate automatic key interchange between two units (or unit and software decoder) over a secure connection. If the box is checked, keys will be automatically exchanged.

5.31 Version Information



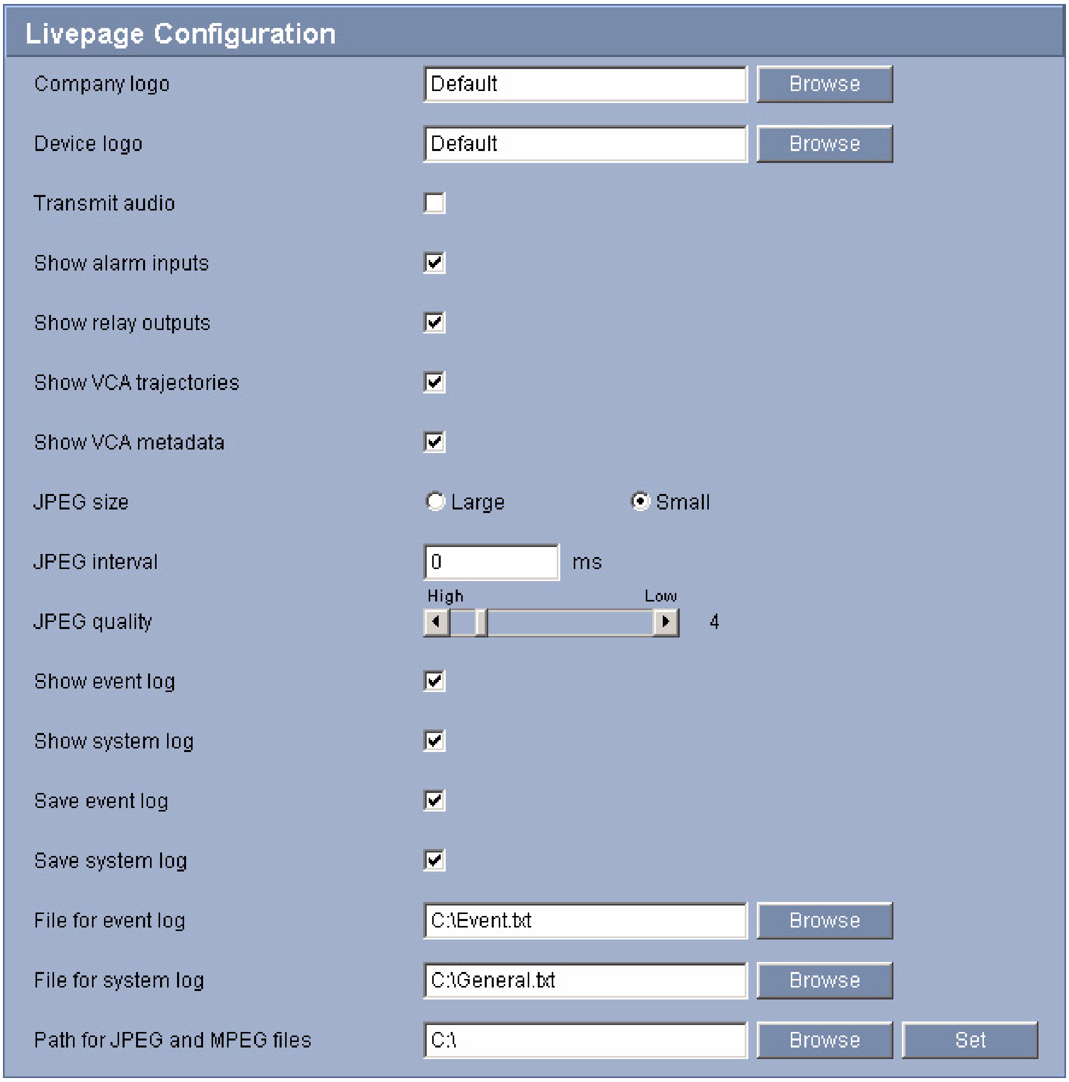
Version Information

Hardware version	F0000F43
Firmware version	99500300
Device type	M1600
Audio option	Yes
Storage medium attached	Yes
MAC address	00-07-5F-71-34-3D
Major version number	3.00
Build number	99

The data on this page are for information purposes only and cannot be changed. Keep a record of this information 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.

5.32 Livepage Configuration



Livepage Configuration

Company logo	Default	Browse	
Device logo	Default	Browse	
Transmit audio	☐		
Show alarm inputs	☑		
Show relay outputs	☑		
Show VCA trajectories	☑		
Show VCA metadata	☑		
JPEG size	○ Large	● Small	
JPEG interval	0 ms		
JPEG quality	High – Low: 4		
Show event log	☑		
Show system log	☑		
Save event log	☑		
Save system log	☑		
File for event log	C:\Event.txt	Browse	
File for system log	C:\General.txt	Browse	
Path for JPEG and MPEG files	C:\	Browse	Set

In this window you can customize the appearance of the **LIVEPAGE** to suit your requirements. You can opt to have selected information and controls displayed in addition to the video image.

If necessary, you can also 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 stored in the VIP X1600 module.

1. Check the box for the items that are to be displayed on the **LIVEPAGE**. The selected items are indicated by a check mark.
2. Go to the **LIVEPAGE** to check whether and how the required items are displayed.

5.32.1 Company logo

1. 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.
2. If necessary, click **Browse** to search for an appropriate graphic in the local network.

5.32.2 Device logo

1. 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.
2. If necessary, click **Browse** to search for an appropriate graphic in the local network.

NOTICE!

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

5.32.3 Transmit audio (Audio Versions only)

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 for each connection.

5.32.4 Show alarm inputs

The 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.

5.32.5 Show relay outputs

The 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.

5.32.6 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 5.23 VCA*, page 63).

5.32.7 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 5.23 VCA*, page 63). With the **MOTION+** analysis type, for example, the sensor fields in which motion is recorded will be marked with rectangles.

5.32.8 JPEG size

You can choose between two given image sizes to display the M-JPEG image.

5.32.9 JPEG interval

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

5.32.10 JPEG quality

You can specify the image quality for displaying M-JPEG on the **LIVEPAGE**.

5.32.11 Show event log

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

5.32.12 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.

5.32.13 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.

5.32.14 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.

5.32.15 File for event log

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

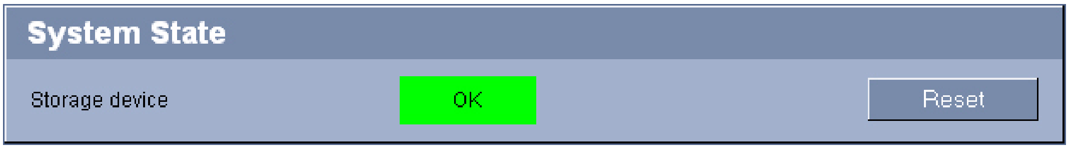
5.32.16 File for system log

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

5.32.17 Path for JPEG and MPEG 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.

5.33 System State

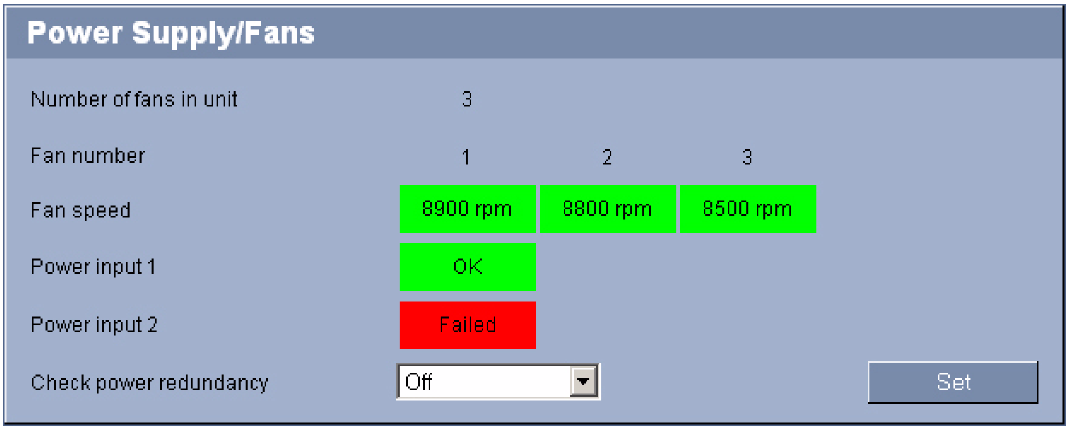


System State

Storage device OK

The storage devices used by the VIP X1600 module are monitored. If a storage device is no longer available for recordings, for example due to a technical defect, a **Failed** message will be displayed in this window. You can reset the error message to establish whether the error still exists.

5.34 Power Supply/Fans



Power Supply/Fans

Number of fans in unit	3		
Fan number	1	2	3
Fan speed	8900 rpm	8800 rpm	8500 rpm
Power input 1	OK		
Power input 2	Failed		
Check power redundancy	Off		

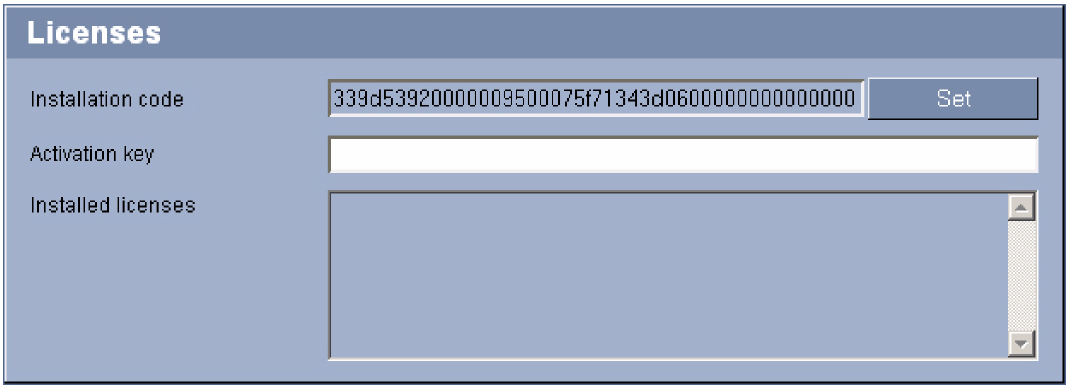
Information about the status of the fans and the power supply is displayed in this window.

NOTICE!
This window is only visible for a VIP X1600 module in Slot 1.

5.34.1 Check power redundancy

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

5.35 Licenses



Licenses

Installation code: 339d53920000009500075f71343d0600000000000000

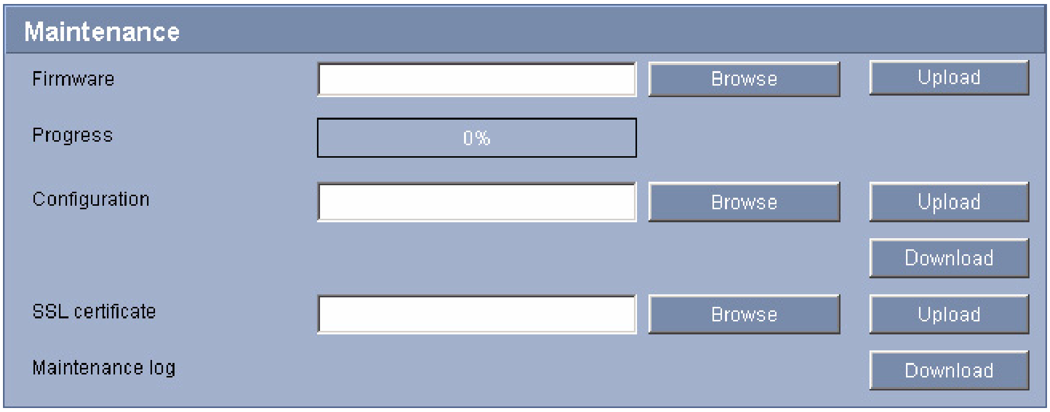
Activation key:

Installed licenses:

You can enter the activation key to enable additional functions or software modules in this window.

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

5.36 Maintenance



5.36.1 Firmware

The VIP X1600 modules are designed in such a way that their functions and parameters can be updated with firmware. To do this, transfer the current firmware package to the module via the selected network. It will then be automatically installed there.

In this way, a VIP X1600 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 on our Internet site.

CAUTION!

Before launching the firmware upload make sure that you have selected the correct upload file. Uploading the wrong files can result in the module no longer being addressable, in which case you must replace the module.

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 module 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 module. 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 by the message **going to reset Reconnecting in ... seconds**. The module reboots automatically once the upload has successfully completed.

If the LED of the corresponding module on the front panel of the VIP X1600 is showing 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 VIP X1600 module (for example **192.168.0.16/main.htm**).
2. Repeat the upload.

5.36.2 Configuration

You can save configuration data for the VIP X1600 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 module you want to configure.
3. Next, click **Upload** to begin transferring the file to the module. The progress bar allows you to monitor the transfer.

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

Download

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

5.36.3 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 VIP X1600 module.
If you wish to upload multiple files onto the VIP X1600 module, you must select them consecutively.

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 module.
3. Once all files have been successfully uploaded, the module must be rebooted. In the address field of your browser, enter **/reset** after the IP address of the VIP X1600 module (for example **192.168.0.16/reset**).

The new SSL certificate is valid.

5.36.4 Maintenance log

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

5.37 Function Test

The VIP X1600 offers a variety 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 VIP X1600 operates as expected in the event of an alarm.
Your check should include the following functions:

- Can the VIP X1600 be called up remotely?
- Does the VIP X1600 transmit all the required data?
- Does the VIP X1600 respond 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 modules, control cameras or other peripherals and replay saved video sequences.

6.1.1 System Requirements

- Computer with Windows 2000 or Windows XP operating system
- Network access (Intranet or Internet)
- Microsoft Internet Explorer (version 6.0 or higher)
- Screen resolution 1,024 × 768 pixels
- 16- or 32-bit color depth
- Installed Sun JVM
- For playing back recordings: connection to storage medium

NOTICE!

Also note the information in the **System Requirements** document on the product CD supplied. If necessary, you can install the required programs and controls from the product CD supplied (see *Section 3.2 Scope of Delivery of VIP X1600 Module*, page 11).

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

6.1.2 Installing MPEG ActiveX

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

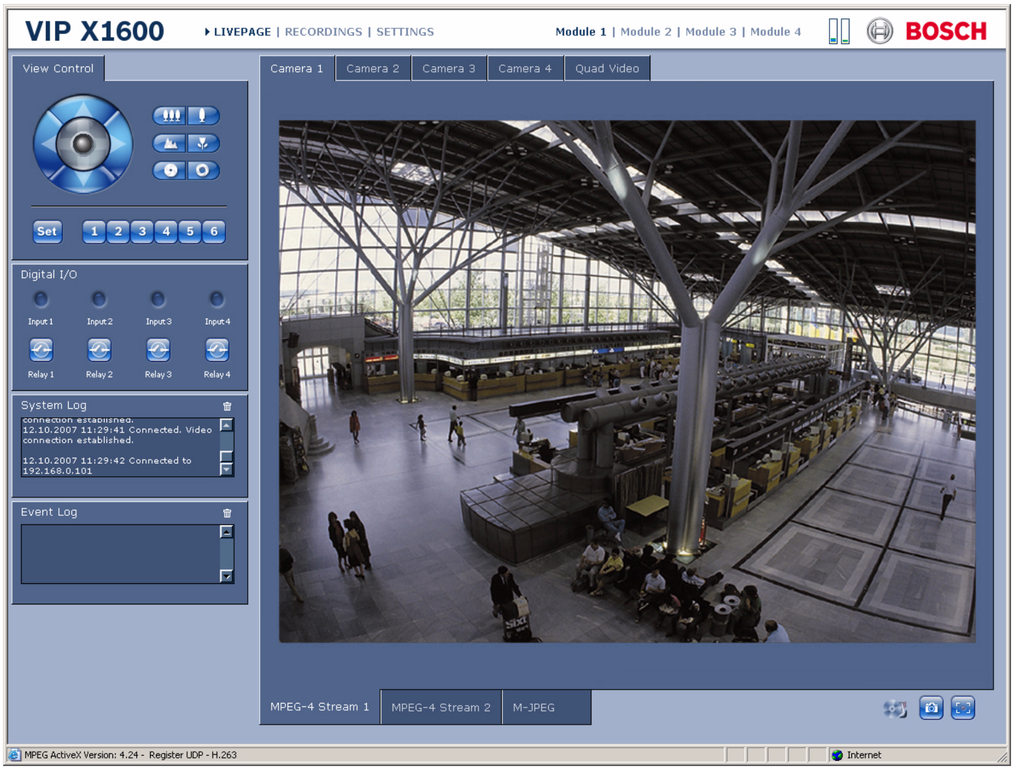
1. Insert the product CD into the computer's CD-ROM drive. If the CD does not start automatically, open the root directory of the CD in Windows Explorer and double-click **MPEGAx.exe**.
2. Follow the on-screen instructions.

6.1.3 Establishing the Connection

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

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

1. Start the Web browser.
2. Enter the IP address of the VIP X1600 module as the URL. The connection is established and after a short time you will see the **LIVEPAGE** with the video image.



```
connection established.
12.10.2007 11:29:41 Connected. Video
connection established.

12.10.2007 11:29:42 Connected to
192.168.0.101
```

MPEG ActiveX Version: 4.24 - Register UDP - H.263

6.2 The LIVEPAGE

Once the connection is established, the Web browser displays the **LIVEPAGE**. It displays 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 5.5 Display Stamping*, page 30).
Other information may be shown next to the live video image on the **LIVEPAGE.** The display depends on the settings on the **Livepage Configuration** page (see *Section 5.32 Livepage Configuration*, page 84).

6.2.1 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 VIP X1600 module can have up to 25 Web browser connections or up to 50 connections via VIDOS or Bosch Video Management System.

6.2.2 Protected VIP X1600 module

If the VIP X1600 module is password protected against unauthorized access, the Web browser displays a corresponding message and prompts you to enter the password when you attempt to access protected areas.

NOTICE!
The VIP X1600 modules offer the option to limit the extent of access using various authorization levels (see *Section 5.6 Password*, page 32).

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.

6.2.3 Protected Network

If a RADIUS server is employed in the network for managing access rights (802.1x authentication), the VIP X1600 must be configured accordingly, otherwise no communication is possible (see *Section 5.28.17 Authentication*, page 78).

6.2.4 Switching Between VIP X1600 modules

If multiple modules have been installed in a VIP X1600, 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.

NOTICE!
A VIP X1600 module that is installed in another VIP X1600 must be selected via its IP address.

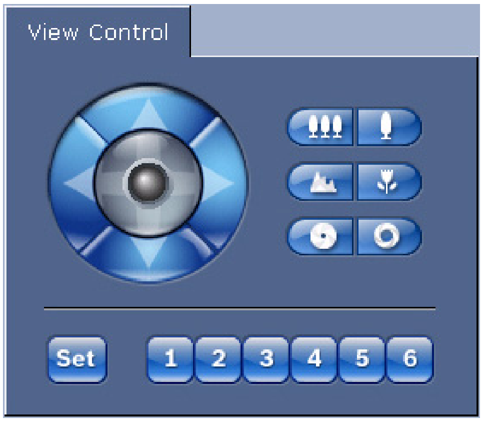
6.2.5 Image Selection

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 Video**).

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 **MPEG-4 Stream 1**, **MPEG-4 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.

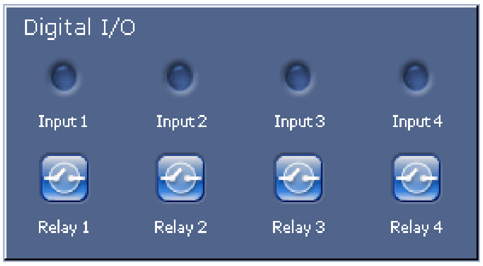
6.2.6 View Control

Control options for peripherals (for example a pan/tilt camera head or dome camera) depend on the type of unit installed and on the VIP X1600 module's configuration.
If a controllable unit is configured and connected to the VIP X1600 module, the controls for the peripheral are displayed next to 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.

6.2.7 Digital I/O



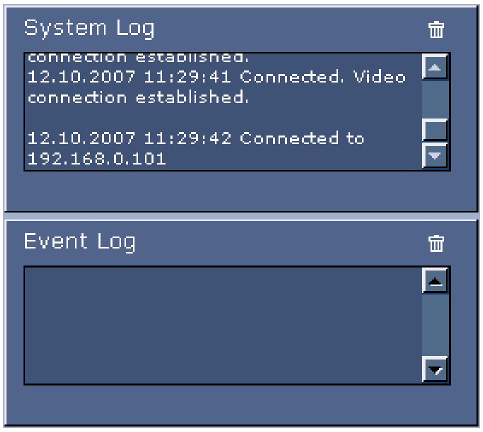
The alarm icons **Input 1** to **Input 4** are for information purposes and indicate the status of an alarm input: When an alarm is triggered, the corresponding icon lights up blue. The module's configuration determines whether the alarm is displayed, as well as additional details (see *Section 5.32 Livepage Configuration*, page 84).

6.2.8 Trigger Relay

You can switch connected units using the relays in the VIP X1600 module (for example lights or door openers).

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

6.2.9 System Log / Event Log



```
connection established.
12.10.2007 11:29:41 Connected. Video
connection established.

12.10.2007 11:29:42 Connected to
192.168.0.101
```

The **System Log** field contains information about the operating status of the VIP X1600 module and the connection. You can save these messages automatically in a file (see *Section 5.32 Livepage Configuration*, page 84).
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 5.32 Livepage Configuration*, page 84).
You can delete the entries from the fields. To do this, click the icon in the top right-hand corner of the relevant field.

6.2.10 Audio Function (Audio Versions only)

Depending on the configuration, audio data can be transmitted from the module. All users who are connected by browsers receive the audio signals sent by the module.

NOTICE!
It is not possible to send audio signals to the unit.

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.
You can save snapshots from each of the four cameras in the **Quad Video** 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 for saving single images. The image is saved at a resolution of 704 × 576 pixels (4CIF). The storage location depends on the configuration of the VIP X1600 module (see *Section 5.32.17 Path for JPEG and MPEG files*, page 86).

6.4 Recording Video Sequences

You can save sections of the video sequence currently shown on the **LIVEPAGE** on your computer's hard drive.
You can save video sequences from each of the four cameras in the **Quad Video** 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 for recording video sequences to start recording. The storage location depends on the configuration of the VIP X1600 module (see *Section 5.32.17 Path for JPEG and MPEG files*, page 86). A red dot in the icon indicates that recording is in progress.

2. Click the icon again to stop recording.

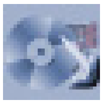
NOTICE!
You can play back saved video sequences using the Player from Bosch Security Systems, which can be installed from the product CD supplied (see *Section 3.1 Scope of Delivery of VIP X1600 Base*, page 11).

6.4.1 Image Resolution

Sequences are saved at the resolution that has been preset in the configuration for the encoder (see *Section 5.11 Encoder Profile*, page 37).

6.5 Running Recording Program

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



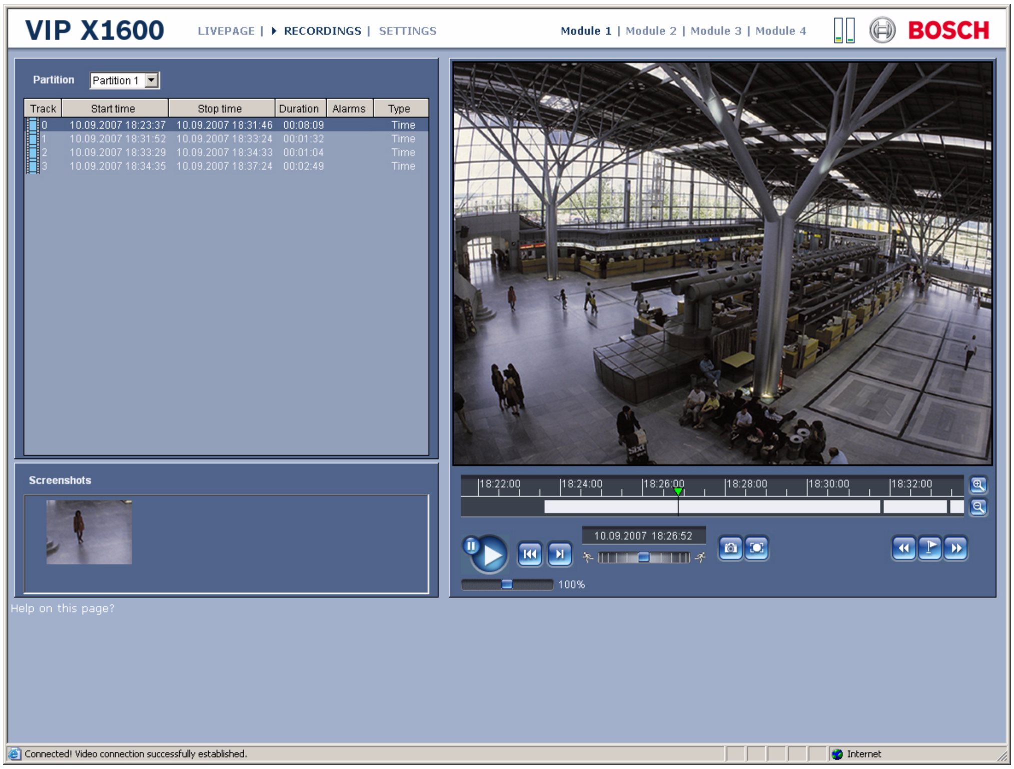
A moving graphic will appear to indicate a running recording. If no recording is taking place, a static icon is displayed.

NOTICE!
You can ascertain from the **Quad Video** view for which camera a recording is running by moving the mouse cursor over the icon. A message is displayed below the mouse 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 5.16 Storage Medium*, page 46).

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



VIP X1600
LIVEPAGE | RECORDINGS | SETTINGS
Module 1 | Module 2 | Module 3 | Module 4
BOSCH
Screenshots
18:22:00
18:24:00
18:26:00
18:28:00
18:30:00
18:32:00
10.09.2007 18:26:52
100%
Help on this page?
Connected! Video connection successfully established.
Internet

Partition: Partition 1

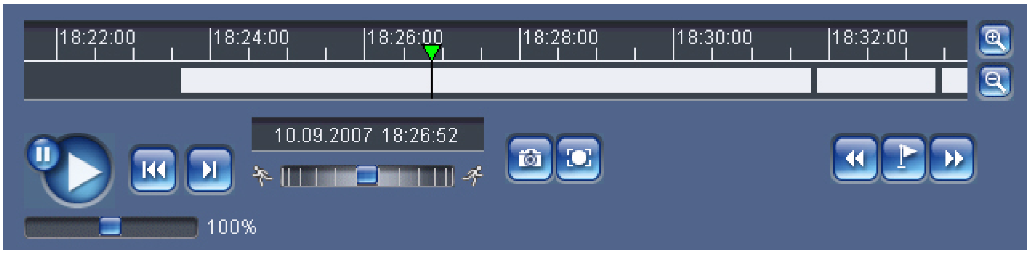
Track	Start time	Stop time	Duration	Alarms	Type
0	10.09.2007 18:23:37	10.09.2007 18:31:46	00:08:09		Time
1	10.09.2007 18:31:52	10.09.2007 18:33:24	00:01:32		Time
2	10.09.2007 18:33:29	10.09.2007 18:34:33	00:01:04		Time
3	10.09.2007 18:34:35	10.09.2007 18:37:24	00:02:49		Time

6.6.1 Selecting Recordings

In the left section of the page, first select the partition whose recordings you want to view. All sequences that are saved in the partition are displayed in the list. A running number (track) is assigned to each sequence. Start time and stop time, recording duration, number of alarms, and recording type are displayed.

1. Click a partition name from the list to display the recordings for this partition.
2. Click a list entry. The playback for the selected sequence starts immediately in the video window.

6.6.2 Controlling a Playback



You will see a time bar below the video image for quick orientation. If a particular sequence has been clicked and selected for playback, the selected sequence is marked in the list. The associated time interval is displayed in the bar in gray. A green arrow above the bar indicates the position of the image currently being played back within the sequence.

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

1. You can change the time interval displayed by moving the gray area to the left or right while holding down the mouse button.
2. You can change the time interval displayed by clicking the zoom keys (magnifying glass icons). The display can span a range from two months to a few seconds.
3. You can select a different sequence for playback by clicking the corresponding gray marking.
4. If required, drag the green arrow to the point in time at which the playback should begin. Alternatively you can click directly in the gray time interval or in the timescale to jump to the position selected in this manner. The date and time display below the bar provides orientation to the second.

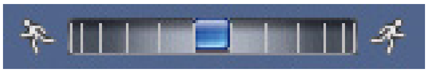
6.6.3 Buttons

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

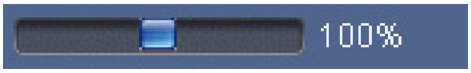
⏯	Start or pause playback
⏮	Jump to the start of the active video sequence or to the previous sequence in the list
⏭	Jump to the start of the next video sequence in the list

6.6.4 Slide Control

You can use the slide control to control playback speed and fast forward/rewind: positioning in the middle indicates playback at recording speed, left indicates rewind, and right fast forward. The fast forward or rewind speed changes, depending on how far you move the slide control toward the runner icons.



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



Red bars within the gray sequence fields indicate the points in time where alarms were triggered. Drag the green arrow to navigate to these points quickly.

6.6.5 Bookmarks

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

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

- Right-click a bookmark to delete it.

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.

6.7 Backup

You can back up the video sequences or single images saved on the storage medium of the VIP X1600 module to the computer's hard drive.
First select the required sequence as described in the previous section. The following buttons are available for the backup:

Back up a sequence to the computer's hard drive

Back up a single image to the computer's hard drive

1. Start playback of the sequence that you want to save either completely or partially on the computer's hard drive.
2. Click the icon for the sequence backup. The backup starts immediately – this process is displayed by a red dot in the icon.
3. Click the sequence backup icon again to end the backup.

This procedure can be repeated many times within the sequence to back up multiple extracts from a longer sequence.

- Click the button for backing up a single image to back up only snapshots from the running sequence to your computer's hard drive.

The single images are immediately displayed in the **Screenshots** area after clicking. The storage location for the sequences and single images can be specified in the configuration of the VIP X1600 module (see *Section 5.32.17 Path for JPEG and MPEG files*, page 86).

6.7.1 Printing a Screenshot

You can view and print the saved screenshots individually.

1. Click a preview in the **Screenshots** area. A new window will open.
2. Click the **Print** button to start the printing process.
3. Click the close button **X** in the window title bar to close the window again.

6.8 Installing the Player

You can play back saved video sequences using the Player from Bosch Security Systems, which can be found on the product CD supplied (see *Section 3.1 Scope of Delivery of VIP X1600 Base*, page 11).

NOTICE!
In order to play back saved sequences using the 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** option. The installation will start. Follow the instructions in the installation program. The Archive Player will be installed at the same time as the Player.
4. After successful installation, you will find two new icons on your desktop for the Player and the Archive Player.
5. Start the Player by double-clicking the **Player** icon.

6.9 Hardware Connections Between Video Servers

You can easily connect a VIP X1600 with connected cameras as a sender, and a suitable MPEG-4 compatible hardware decoder (for example VIP XD) with a connected monitor 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.

6.9.1 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 on the **Alarm Connections** configuration page (see *Section 5.22 Alarm Connections*, page 60).

6.9.2 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.

6.9.3 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 5.22 Alarm Connections*, page 60). 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.

6.9.4 Connecting with a Terminal Program

Various requirements must be met in order to operate with a terminal program (see *Section 8.8 Communication with Terminal Program*, page 116).

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 VIP X1600 module 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 the command **5** to activate the automatic connection.

6.9.5 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 the command **5** to deactivate the automatic connection.

6.10 Operation Using Software Decoders

The VIP X1600 video server combines with VIDOS to provide a high-performance system solution.
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 with VIDOS. Please refer to the software documentation for more details.

Another program that supports the VIP X1600 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 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 on the VIP X1600 video server, 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 is not properly connected to the network. Check the cable connections in this case.
- The VIP X1600 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 VIP X1600 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 5.36 Maintenance*, page 89).

NOTICE!
After a reset, the VIP X1600 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 4.6 Setup Using the Configuration Manager*, page 23).

1. If necessary, back up the current configuration using the **Download** button on the **Maintenance** configuration page (see *Section 5.36 Maintenance*, page 89).
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 flashes red (see *Section 3.5 Connections and Displays*, page 16). All module settings will revert to their defaults.
3. Change the IP address of the VIP X1600 module if necessary.
4. Configure the module to meet your requirements.

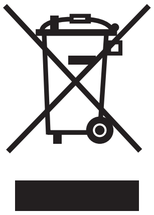
7.3 Repairs

CAUTION!
Do not change any components in the VIP X1600 module or VIP X1600 base. 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

The VIP X1600, VIP X1600 base or a VIP X1600 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 **Version Information** page (see *Section 5.31 Version Information*, page 83). 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 5.36.4 Maintenance log*, page 90).

The following tables are 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 transmission to remote station.	Camera error.	Connect local monitor to the camera and check the camera 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 audio parameters on the **Audio** configuration and **Livepage Configuration** pages.

Malfunction	Possible causes	Recommended solution
The module does not report an alarm.	Alarm source is not selected.	Select possible alarm sources on the **Alarm Sources** configuration page.
	No alarm response specified.	Specify the desired alarm response on the **Alarm Connections** configuration page, 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.

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 initiator extension on the **iSCSI** configuration page.

8.4 LEDs

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

8.4.1 RJ45 sockets 10/100/1000 Base-T

Green LED does not light up:	No network connection.
Green LED lights up:	Network connection established.
Orange LED flashes:	Data being transmitted over the network.

8.4.2 Module 1 / Module 2 / Module 3 / Module 4

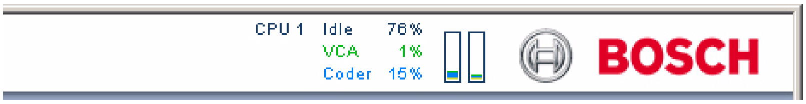
Does not light up:	Slot not occupied.
Lights up green:	VIP X1600 module is switched on.
Flashes green:	VIP X1600 module is being accessed.
Flashes red:	Startup in progress.
Lights up red:	VIP X1600 module is faulty, for example following failed firmware upload.

8.4.3 Power / Fail

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

8.5 Processor Load

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



```
CPU 1  Idle    76%
       VCA      1%
       Coder   15%
```

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

8.6 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 RS232, RS422 and RS485 transmission standards. The mode used depends on the current configuration (see *Section 5.27 COM1*, page 73). Connection is via the terminal block.

8.7 Terminal Block

The terminal block has several contacts for:
- 4 alarm inputs
- 4 relay outputs
- Serial data transmission

The contacts are divided into three plug blocks to make them easier to use.

8.7.1 Pin Assignment

The pin assignment of the serial interface depends on the interface mode used (see *Section 5.27 COM1*, page 73).

Contact	**RS232 mode**	**RS422 mode**	**RS485 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	Input alarm 1
IN2	Input alarm 2
IN3	Input alarm 3
IN4	Input alarm 4
GND	Ground
R1	Relay output 1
R2	Relay output 2
R3	Relay output 3
R4	Relay output 4

Connect each alarm input to a ground contact (GND) when connecting alarm inputs.

8.8 Communication with Terminal Program

8.8.1 Data Terminal

If a VIP X1600 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 module 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 VIP X1600 module (see *Section 8.7.1 Pin Assignment*, page 115).

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

8.8.2 Configuring the Terminal

Before the terminal program can communicate with the VIP X1600 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

8.8.3 Command Inputs

After the connection has been established, you must log onto the VIP X1600 module to access the main menu. Other submenus and functions can be accessed using the on-screen commands.

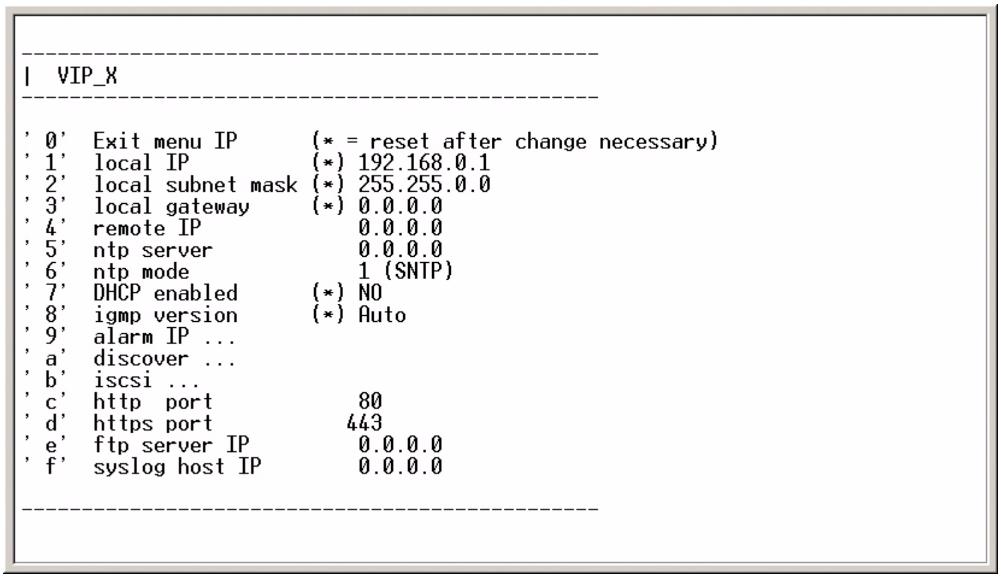
1. If necessary, turn off the local echo so that entered values are not repeated on the display.
2. Enter one command at a time.
3. When you have entered a value (such as an IP address), check the characters you have entered before pressing Enter to transfer the values to the VIP X1600 module.

8.8.4 Assigning an IP Address

To use a VIP X1600 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 which you require.

NOTICE!

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

8.8.5 Reboot

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

8.8.6 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.

9 Glossary

Symbols

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

C

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 Service

F

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

G

GoP	Group of Pictures

H

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

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-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).

P

Parameters	Values used for configuration

Q

QCIF	Quarter CIF, video format with 176 × 144/120 pixels

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
RS232/RS422/RS485	Standards for serial data transmission
RTP	Realtime Transport Protocol; a transfer protocol for real-time video and audio

S

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	Transfer 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
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

10 Specifications

10.1 VIP X1600 Base

Operating voltage	12 V DC, redundant
Power consumption	Max. 60 W with 4 VIP X1600 modules
LAN interfaces	2 × Ethernet 10/100/1000 Base-T, automatic adjustment, half/full duplex, RJ45
Displays	5 × LED (status modules, operation/error), 2 × LED (network connection, data transmission) on every LAN interface
Thermal value	Max. 205 BTU/h
Operating conditions	Temperature: 0 to +50 °C / +32 to +122 °F, relative humidity: 20 to 80%, non-condensing, elevation 0 to 3,000 m / 1.86 mi
Approvals	IEC 60950; UL 1950; AS/NZS 3548; EN 55103-1, -2; EN 55130-4; EN 55022; EN 55024; EN 61000-3-2; EN 61000-3-3; FCC 47 CFR Chapter 1 Part 15
Dimensions (H × W × D)	44 × 440 × 210 mm / 1.73 × 17.32 × 8.27 in, including BNC module connections
Weight	Approx. 4 kg / 8.82 lb with 4 VIP X1600 modules

10.2 VIP X1600 Module

Operating voltage	Supply via VIP X1600 base housing
Power consumption	Max. 12 W
Data interfaces	1 × RS232/RS422/RS485, bidirectional, push-in terminal
RAM memory	8 MB per channel
Alarm inputs	4 × push-in terminals (non-isolated closing contact), maximum activation resistance 10 Ohm
Relay outputs	4 × push-in terminal, 30 $V_{p\text{-}p}$, 2 A, 8 contacts
Video inputs	4 × BNC socket, 0.7 to 1.2 $V_{p\text{-}p}$, 75 Ohm, PAL/NTSC
Audio inputs (Line In)	Audio versions only: 2 × 3.5 mm / 0.14 in stereo socket, mono 5.5 $V_{p\text{-}p}$ max., impedance 9 kOhm typ.
Thermal value	41 BTU/h
Operating conditions	Temperature: 0 to +50 °C / +32 to +122 °F, relative humidity: 20 to 80%, non-condensing, elevation 0 to 3,000 m / 1.86 mi

Approvals	IEC 60950; UL 1950; AS/NZS 3548; EN 55103-1, -2;
	EN 55130-4; EN 55022; EN 55024; EN 61000-3-2;
	EN 61000-3-3; FCC 47 CFR Chapter 1 Part 15

Weight	Approx. 120 g / 0.27 lb

10.3 Protocols/Standards

Video standards	PAL, NTSC
Video coding protocols	MPEG-4, M-JPEG, JPEG
Video data rate	9.6 kbps to 6 Mbps
Image resolutions (PAL/NTSC)	704 × 576/480 pixels (4CIF/D1) 704 × 288/240 pixels (2CIF) 464 × 576/480 pixels (2/3 D1) 352 × 576/480 pixels (1/2 D1) 352 × 288/240 pixels (CIF) 176 × 144/120 pixels (QCIF)
Total delay	120 ms (PAL/NTSC, MPEG-4, no network delay)
Image refresh rate	25/30 ips max.
Network protocols	RTP, Telnet, UDP, TCP, IP, HTTP, HTTPS, DHCP, IGMP V2, IGMP V3, ICMP, ARP, SNTP, SNMP (V1/V2c/V3 MIB-II), 802.1x

Audio versions only:

Audio coding protocol	G.711, 300 Hz to 3.4 kHz
Audio sampling rate	8 kHz
Audio data rate	80 kbps

10.4 Image Refresh Rate

	4 cameras	**2 cameras**	**1 camera**
4CIF	12.5/15 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

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Bosch Security Systems
Robert-Koch-Straße 100
D-85521 Ottobrunn
Germany
Telefon 089 6290-0
Fax 089 6290-1020
www.bosch-securitysystems.com