ABUS 5-channel network recorder
TVVR35002

User guide

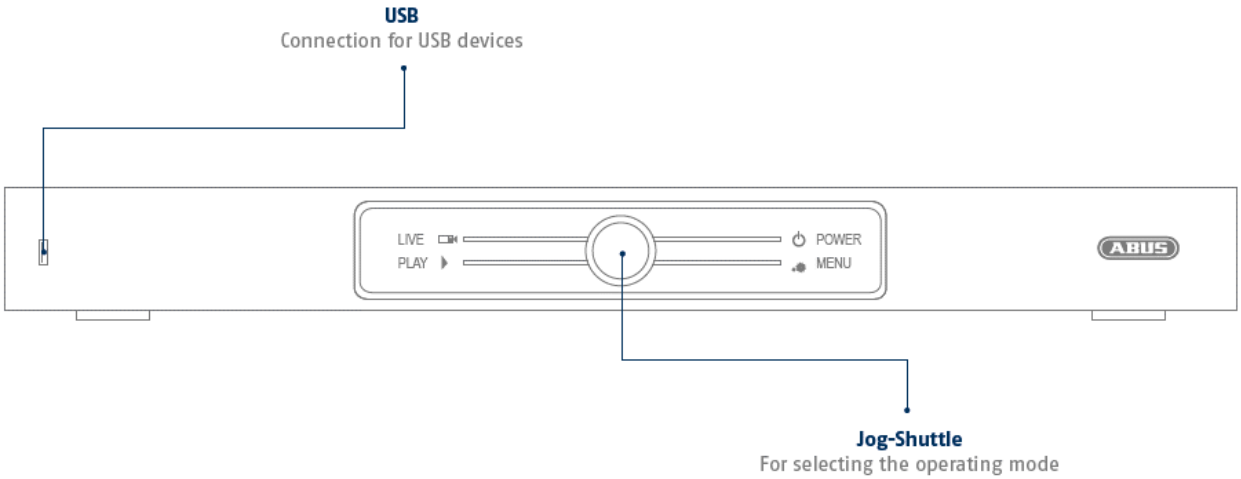
Version 1.0

English

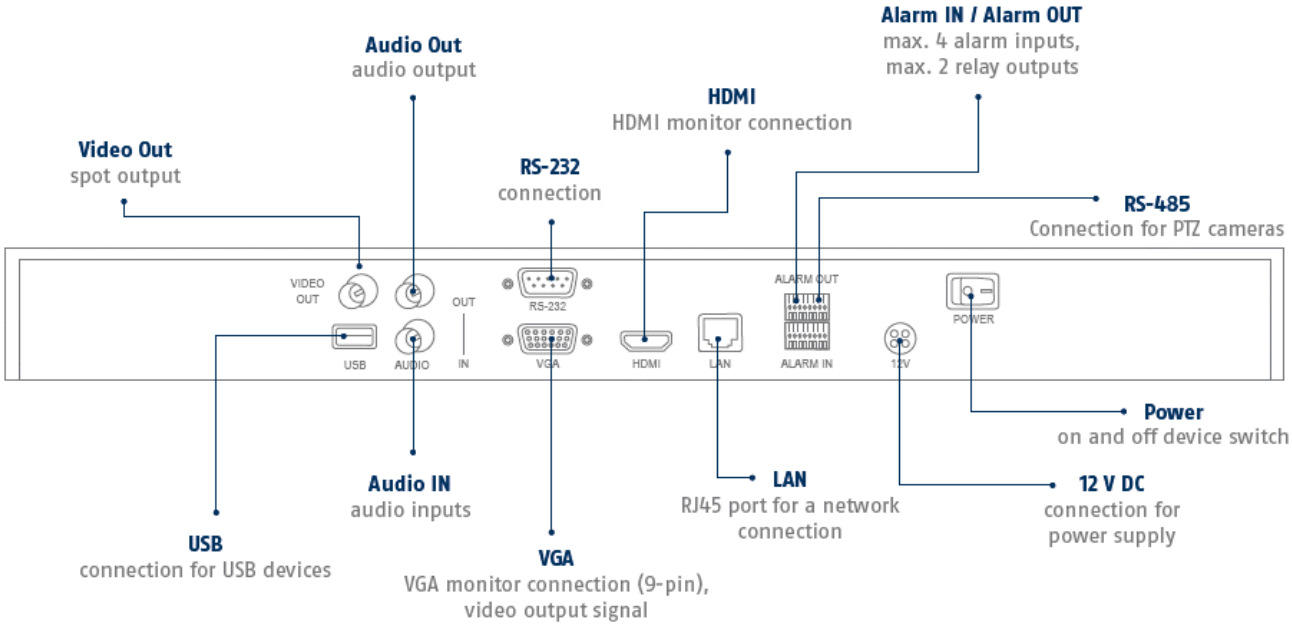
This user guide contains important information on starting operation and using the device.
Make sure that this user guide is handed over when the product is given to other persons.
Keep this user guide to consult later.
A list of contents with the corresponding page number can be found in the index.

Device overview

Front side



Rear side



System operation

General

The device can be controlled using the following:

- the jog dial on the front of the device
- a USB mouse

Connections at the back of the device

Note

Take a look at the overview on page 3.

No	Name Function
1	**AUDIO IN** • BNC audio input
2	**VIDEO OUT** • Spot output
3	**VGA:** • VGA monitor connection (9-pin), video output signal
4	**LAN:** • Ethernet LAN connection
5	**USB:** • USB connections for operating with a mouse and data export
6	**HDMI** • HDMI monitor connection
7	**AUDIO OUT:** • BNC audio output (synchronised with the video output)
8	**POWER SUPPLY** • 12 V DC connection for power supply
9	**ALARM IN/OUT** • Four alarm inputs, two alarm outputs
10	**RS-485** • Connection for pan tilt zoom cameras
11	**JOG DIAL** • For selecting the operating mode

Operating with a mouse

Note

The further descriptions contained in this user guide involve using a mouse.

The device is suitable for use with a USB mouse. Connect the mouse to the USB port.

Button	Function
Left	**Single click:** • Selection in the menu, activation of an input field or a tab, display of the Quick Set menu. **Double click:** • Switch between the screen display of single and multiple images in the live view and during playback. **Click and drag:** • Set up private masks or zones.
Right	**Single click:** • Open the pop-up menu. • Return to the previous menu.
Scroll wheel	**In live view:** • Display previous/next camera.

Operating with the jog dial

Note

The status display on the front of the device will depend on the menu item currently selected on the recorder. This can be changed by using either the jog dial or mouse to make your selection.

The jog dial, together with the status LEDs, provides a quick overview of the basic functions and the operating status.

Button	Function
Turn	Change the operating mode on the local recorder display: live image display, playback, power menu or settings overview.

Status overview

General

The following status displays provide information about the operating status:

- LEDs on the front of the device
- acoustic signal tones
- icons (display elements) on the monitor.

NVR LED four-way status display

Status	Function
Segment lights up blue continuously	System status OK; local display is on the selected setting.
All segments off	Device is switched off.

Displays on the monitor

The device shows the date and time, the camera name and whether a recording is in progress.

- Continuous record: "blue R"
- Motion detection record: "yellow R"

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Quick guide

Before you start

The following preparatory steps must be made:

1. Pay attention to the general information, safety information and notes on setting up and connecting the device (see page 67).
2. Check the contents of the package for completeness and damages.
3. Insert the batteries into the remote control.

Note

Pay attention to the information in the separate quick guide.

Installing the HDD

Warning

Switch off the device and disconnect it from the mains power supply.
Pay attention to the required earthing of the device to avoid static discharge.

1. Install a hard drive, see separate quickstart guide.
2. First make a connection to the motherboard with the blue data cable (small connector).
3. Connect the power supply cable (large 5-pin connector).
4. Check that the connections are secure.
5. Close the housing.

Note

Only use HDD's that are approved for video recording and 24/7 usage.

Establishing the connections

Note

Pay attention to the minimum radius when laying cables. Do not kink the cable.

1. Connect all cameras to the recorder.
2. Connect the monitor to the VGA or HDMI connection.
3. Connect the mouse to the USB port.
4. Connect the device to the mains power supply, it will then start automatically.

Configuring the device

Note

Pay attention to the information in the separate quick guide.

- Proceed through the individual steps in the setup wizard (see page 73).
- The following settings are configured in sequence:
  - Select the language selection for the user in terface
  - Administrator setup
  - Time settings (date, time ...)
  - Network settings
  - HDD management (initialisation etc.)
  - Camera settings
  - Recording settings

Note

Subsequent changes to the date and time can lead to the loss of data!

Note

Check the ABUS homepage (www.abus.com) if for this device any firmware updates are available and install these

- Pay attention to the menu overview on page **Fehler! Textmarke nicht definiert.**, plus the notes and explanations on basic system operation on page.

Pay attention to the notes on the following:

Live view	P. 75
Playback	P. 78
Data export	P. 101
Troubleshooting	P. 108

Important safety information

Explanation of symbols

The following symbols are used in this manual and on the device:

Symbol	Signal word	Meaning
	Warning	Indicates a risk of injury or health hazards.
	Warning	Indicates a risk of injury or health hazards caused by electrical voltage.
	Important	Indicates possible damage to the device/accessories.
	Note	Indicates important information.

The following labels are used in the text:

	Meaning
1.… 2.…	Set of tasks or instructions with a defined sequence in the text
• … • …	Set of points or warnings without a defined sequence in the text

Proper use

Only use the device for the purpose which it was designed and built for. Any other use is considered inappropriate.

This device may only be used for the following purpose(s):

- This 4-channel network recorder is used in combination with connected video signal sources (network cameras) and video output devices (TFT monitors) for object surveillance.

Note

Data storage is subject to national data-protection guidelines.

During installation, inform your customers regarding the existence of these guidelines.

General information

Before using the device for the first time, read the following instructions carefully and pay attention to all warnings, even if you are already familiar with electronic devices.

Warning

All guarantee claims become invalid for damages caused by non-compliance with these operating instructions.

We cannot be held liable for resulting damages.

Warning

We cannot be held liable in the event of material or personal damage caused by improper operation or non-compliance with the safety information.

All guarantee claims are invalid in such cases.

Keep this manual in a safe place for future reference.

If you pass on or sell the device, you must also include this user manual.

This device has been manufactured in accordance with international safety standards.

Power supply

- Only operate this device through a power source which supplies the mains power specified on the type plate.
- If you are unsure of the power supply at the installation location, contact your power supply company.

Warning

Avoid data loss!
Always use an uninterruptible power supply (UPS) with overvoltage protection.

- Disconnect the device from the mains power supply before carrying out maintenance or installation work.
- The on/off switch does not completely disconnect the device from the mains power supply.
- To disconnect the device completely from the mains power supply, the plug must be disconnected from the mains socket. Therefore, the device should be positioned so that direct and unobstructed access to the mains socket is guaranteed at all times and the plug can be disconnected immediately in an emergency.

To avoid the possibility of fires, the plug should always be disconnected from the network socket if the device is not used for long periods. Disconnect the device from the mains power supply before impending electrical storms, or use an uninterruptible power supply.

Warning

Never open the device on your own! There is a risk of electric shocks!
If it is necessary to open the device, consult trained personnel or your local maintenance specialist.

- The installation or modification of a HDD should only be made by trained personnel or your local maintenance specialist.

Warning

The installation of additional equipment or modification of the device invalidates your guarantee if not carried out by trained personnel.
We recommend having the HDD installed by a maintenance specialist.
Your guarantee is invalidated in the event of improper installation of the HDD.

Overloading / overvoltage

- Avoid overloading of mains sockets, extension cables and adapters as this can result in fires or electric shocks.
- Use overvoltage protection to prevent damages caused by overvoltage (e.g. electrical storms).

Cables

- Always hold cables by the connector, and do not pull the cable itself.
- Never touch the mains cable with wet hands, as this can lead to a short circuit or electric shock.
- Never position the device, furniture or other heavy items on the cable. Ensure that the cable does not become kinked, especially on the connector and sockets.
- Never knot the cable, and do not tie it to other cables.
- All cables should be laid so that they cannot be stepped on or cause an obstruction.
- A damaged mains cable can cause a fire or electric shock. Check the mains cable from time to time.
- Never modify or manipulate the mains cable or plug.
- Do not use plug adapters or extension cables that do not conform to the applicable safety standards, and do not make alterations to power supply cables or mains cables.

Installation location / operating environment

- Position the device on a firm, level surface and do not place any heavy objects on the device.
- The device is not designed for operation in rooms subject to high temperatures or moisture (e.g. bathrooms), or in excessively dusty rooms.
- Operating temperature and ambient humidity:
  -10 °C to 55 °C, maximum 85% relative humidity. The device may only be operated in moderate climate conditions.

Ensure the following:

- Sufficient ventilation must be present at all times (do not place the device in a storage rack, on thick carpets, on a bed or anywhere where the ventilation slots are covered. Make sure that a gap of at least 10 cm is present on all sides).
- The device must not be exposed to direct heat sources (e.g. heaters).
- The device must not be exposed to direct sunlight or strong artificial light.
- The device must not be placed in close proximity to magnetic fields (e.g. loudspeakers).
- Naked flames (e.g. candles) must not be placed on or near the device.
- Contact with spraying or dripping water and aggressive liquids must be avoided.
- The device must not be operated in close proximity to water, and must not be submerged under any circumstances (do not place objects containing water on or near the device, such as vases or drinks).
- Foreign objects must not penetrate the device.
- The device must not be exposed to strong variations in temperature, as this can lead to condensation and electrical short circuits.
- The device must not be exposed to excessive jolts or vibrations.

Remote control

- Remove all batteries if the device will not be used for a sustained period, as these can leak and damage the device.

Care and maintenance

Maintenance is necessary if the device has been damaged. This includes damage to the plug, mains cable and housing, penetration of the interior by liquids or foreign objects, exposure to rain or moisture or when the device does not work properly or has fallen.

- Disconnect the device from the mains power supply before maintenance (e.g. cleaning).
- If smoke develops or unusual noises or odours are detected, then switch off the device immediately and pull the mains plug from the socket. In such cases, the device should not be used until it has been inspected by a qualified technician.
- Maintenance work should only be carried out by qualified specialists.
- Never open the housing on the device or accessories. There is a risk of fatal injury due to an electric shock when the housing is opened.
- Clean the device housing and remote control with a damp cloth.
- Do not use solvents, white spirit or thinners as these can damage the surface of the device.
- Do not use any of the following substances:
- Salt water, insecticides, solvents containing chlorine or acids (ammonium chloride) or scouring powder.
- Gently rub the surface with a cotton cloth until it is completely dry.

Warning

The device works under dangerous voltages. The device must only be opened by authorised specialists. All maintenance and service work must be carried out by authorised firms. Improper repairs can expose device users to the risk of fatal injury.

Accessories

- Only connect devices that are suitable for the intended purpose. Otherwise, hazardous situations or damage to the device can occur.

Putting into operation

- Observe all safety and operating instructions before putting the device into operation for the first time.
- Only open the housing to install the HDD.

Warning

When installing the device in an existing video surveillance system, ensure that all devices are disconnected from the mains power supply and low-voltage circuit.

Warning

If in doubt, have a specialist technician carry out assembly, installation and connection of the device.

Improper or unprofessional work on the mains power supply or domestic installation puts both you and other persons at risk.

Connect the installations so that the mains power circuit and low-voltage circuit always run separately from each other. They should not be connected at any point or become connected as a result of a malfunction.

Children and the device

- Do not allow children access to electrical devices. Never allow children to use electrical devices without supervision. Children may not be able to accurately detect possible risks. Small parts can be life-threatening if swallowed.
- Keep batteries away from small children. Call for medical assistance immediately if a battery is swallowed.
- Keep packaging materials away from children (danger of suffocation).
- This device should not be used by children. If used improperly, spring-loaded parts can be ejected and cause injuries to children (e.g. eye injuries).

Introduction

Dear customers,

This device complies with the requirements of the applicable EU directives.
The declaration of conformity can be ordered from:

ABUS Security-Center GmbH & Co. KG
Linker Kreuthweg 5
86444 Affing
GERMANY

To maintain this status and to guarantee safe operation, it is your obligation to observe these operating instructions!

Read the entire operating manual carefully before putting the product into operation and pay attention to all operating and safety information!

All company names and product descriptions are trademarks of the corresponding owner. All rights reserved.

In the event of questions, please contact your local maintenance specialist or dealer.

Disclaimer

These operating instructions have been produced with the greatest care. Should you discover any missing information or inaccuracies, please contact us under the address shown on the back of the manual. ABUS Security-Center GmbH does not accept any liability for technical and typographical errors, and reserves the right to make changes to the product and operating instructions at any time and without prior warning. ABUS Security-Center GmbH is not liable or responsible for direct or indirect damages resulting from the equipment, performance and use of this product. No forms of guarantee are accepted for the contents of this document.

General information

In order to use the device correctly, read this user manual carefully and keep it in a safe place for later use.

This manual contains instructions on recorder operation and maintenance. Consult an authorised specialist if the device needs to be repaired.

Unpacking the device

Handle the device with extreme care when unpacking it.

The packaging is made of reusable materials, and should always be passed on for recycling.

We recommend the following:

Paper, plastic packaging, cardboard and corrugated cardboard should be disposed of in the appropriate recycling containers.

If recycling containers are not available in your local area, then you can dispose of these materials as domestic waste.

If the original packaging has been damaged, inspect the device. If the device shows signs of damage, then return it in the original packaging and contact the manufacturer.

Scope of delivery

- ABUS 4-channel network video recorder
- Power supply unit
- USB mouse
- SATA cable and screws for hard drives
- CD
- User manual
- Quick guide

Keyboard

The on-screen keyboard appears after clicking on a text entry field with the mouse:

The following screen keyboard appears during mere numerical entry:

The keys have the same function as on a computer keyboard.

- To enter the character, left-click the mouse.
- To finish data entry, press **Enter**.
- To delete the character in front of the cursor, click on ←.
- To switch between upper and lower case, click on the framed **a** symbol. The current setting is displayed above the keyboard.
- To cancel the entry or exit the field, press **ESC**.

Starting the device

Important

The device must only be operated with the mains power specified on the type plate.

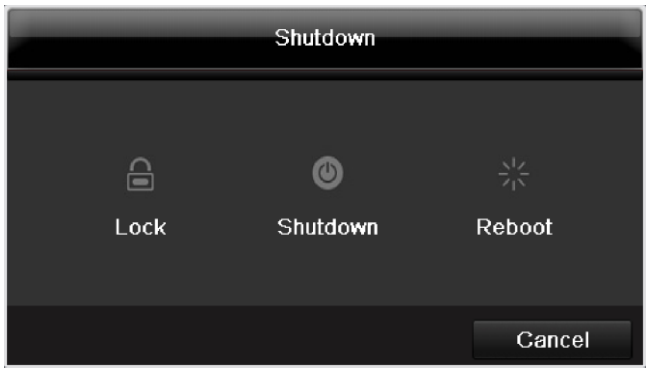
For safety reasons, use an uninterruptible power supply (UPS).

When the device is connected to the power supply, it starts up automatically and the LED status bar glows.

1. The device carries out a self-test during the start-up procedure.
2. The setup wizard appears. Exit the wizard to access the live view.

Switching off, locking and rebooting the device

Click on “ShutDown” in the main menu. The overview appears.



1. To switch off the device, select **ShutDown** and confirm by pressing **Yes**. The device is then switched off.
   - Do not press any keys during the shutdown procedure.
   - Now pull out the plug of the power supply unit.
2. To lock the system, select the corresponding **Lock** symbol on the left. The user interface is now locked and a password must be entered to access the menu.
3. To reboot the device, select the corresponding **Reboot** symbol on the right. The device is then rebooted.

Switching on the device

- Plug in the power supply unit to start the device.

Setup wizard

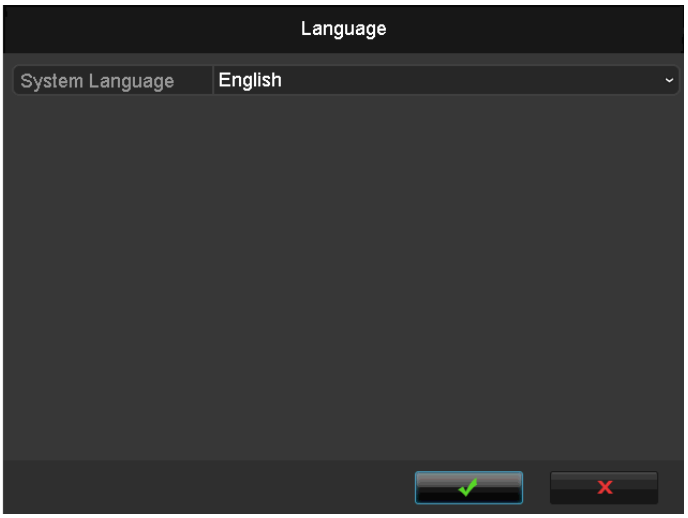
Setting up the system

The setup wizard guides you through the necessary basic system settings. The network video recorder is then set up for recording and surveillance.

Note

All detailed settings can be found in the device menu (see overview on page 60).

The language selection appears after switching on for the first time:



1. Click the entry field and select the desired language from the list. Click ✓ to confirm the message. The following query appears:

- Click on **Next** to start the wizard.

Note

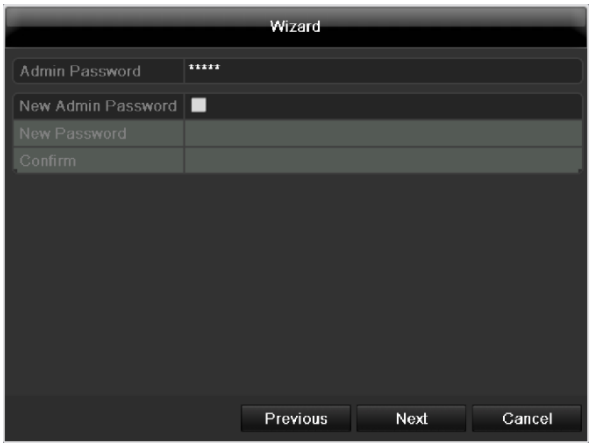
After the system is set up, you can untick the box. The setup wizard is then no longer started automatically.

Setting up the administrator

Warning

Note down the admin password.
The following password is preset

“1 2 3 4 5”

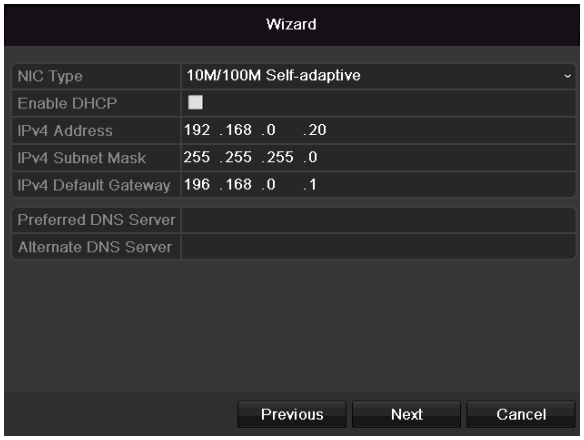


1. Click the entry field and enter your admin password.
2. To assign a new password, tick the box next to **New Admin Password**.
3. Enter the new password and confirm in the field below.
4. Click on **Next**.

Time / Date

Enter the system time (date and time). Click on **Next** to accept the data.

Network Settings



Note

To check whether DHCP can be selected (or if you have to set the IP address and other settings manually), consult your network administrator.

1. **DHCP activated:** If DHCP is set up in the network router, then tick the DHCP box. All network settings are then made automatically.
2. **DHCP not activated:** Enter the data manually (IPv4 address, IPv4 subnet mask and IPv4default gateway = IPv4 address of the router). You can also optionally enter the address of the DNS server that you need for sending the E-mail.

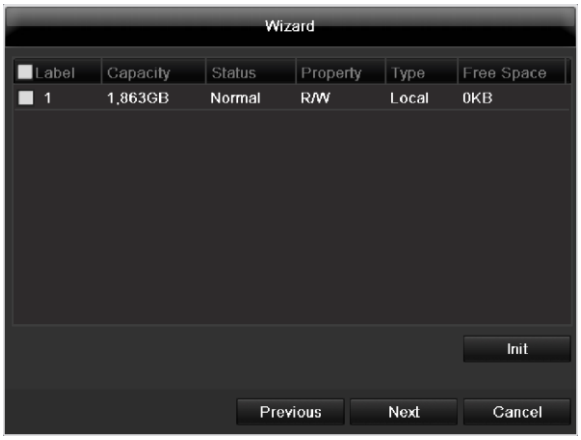
   A typical address specification is as follows:

   - IPv4 address: 192.168.0.50
   - IPv4 Subnet mask: 255.255.255.0
   - IPv4 Default gateway: 192.168.0.1
   - Preferred DNS server: 192.168.0.1

Note

When the device is accessed remotely via the internet, it should be given a fixed network address.

HDD Management



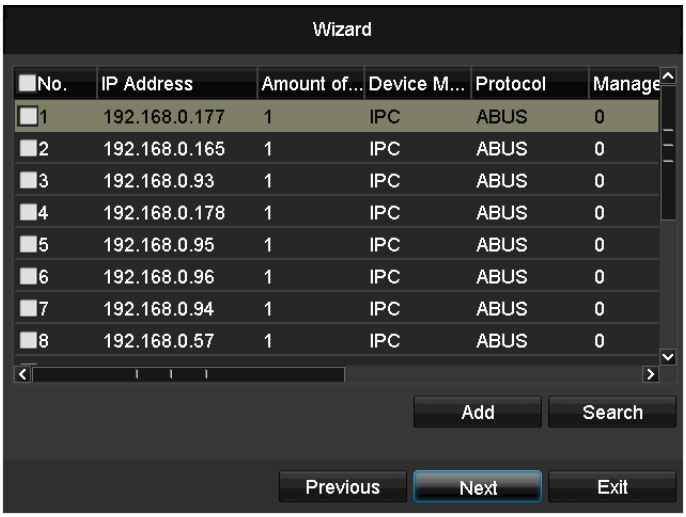
1. To set up a new hard disc, activate the “Check box” with a left click and then click on **Init.**

Warning

All data on the drive is deleted!

2. Confirm the prompt by pressing **OK**. The HDD is then set up for operation. The progress is displayed on the status bar.
3. Exit the setting by pressing **Next**.

Camera assistant



1. Click **Search** to see the network cameras in your network.
2. To add network cameras, activate the required cameras and click **Add**.
3. Click **Next** to proceed with the setup.

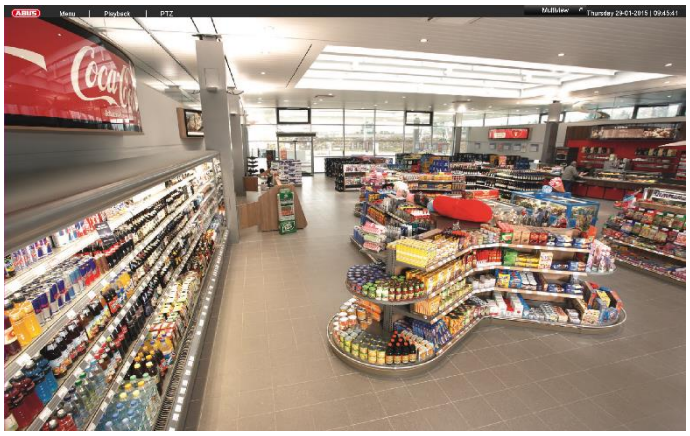
Camera recording

1. For “Camera”, select a network camera which you want to record with
2. Activate the check box “Start recording”.
3. Select the type of recording. You can choose between “Time plan” and “Motion recognition”. Arm the motion detection inside the camera for recording motion.
4. Press **Copy** to take on the setting for other cameras. For this, select the cameras that appear in the new window. Activate the respective check box with a mouse click.
5. Finalize the setting and end the installation assistant with **OK**.

Live view

Overview

Live view starts automatically when the device is switched on.

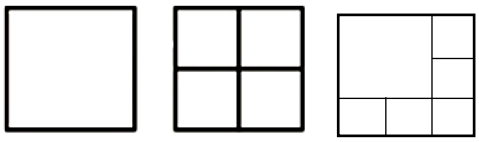


The following menus are found in the header:

- Menu and
- Playback

The device date and time are displayed on the right-hand side of the header. To the left, you will find multi view.

- Click on the icon to open the pop-up menu of the multi view.
- Click on one of the icons in the pop-up bar that appears in order to switch between the different views.



The signals of the connected cameras are displayed on the main screen.

- By double clicking with the left mouse button, you can display the selected camera image in full screen or switch back to the original view.

Status symbols

- The following symbols are displayed depending on the operating status of the device:

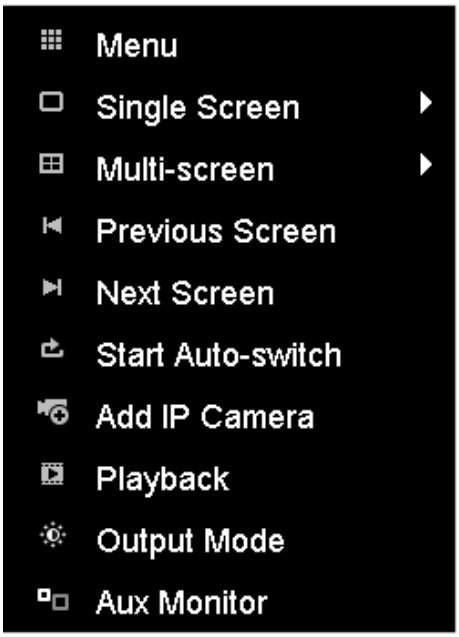
Symbol	Meaning
R	Yellow: motion recording • recording only upon motion detection
R	Blue: recording • continuous recording

Pop-up menu with mouse operation

Note

Right click when the mouse pointer is positioned on a live image.

The following settings can be made. The arrow pointing to the right indicates that a sub-menu opens for selection:



Menu	Opens the main menu
Single Screen	Full-screen view of the selected camera.
Multi-screen	Various camera layouts
Previous Screen	Displays the previous camera
Next Screen	Displays the next camera(s)
Start Auto-switch	Starts the camera sequence display
Add IP Camera	Adds additional IP cameras
Playback	Switches to playback mode
Output Mode	Sets the output mode for the screen display
Aux Monitor	Switches the mouse control to the AUX monitor

Note

Start Auto-switch:
Specify the display sequence delay in the display settings.

Note

Activation of "AUX monitor" without a connected spot monitor:

mouse pointer function is deactivated.

Selection bar in the camera image

In single or multi-screen, click on a camera image. A selection bar will appear:

(1) (2) (3) (4) (5) (6) (7) (8)

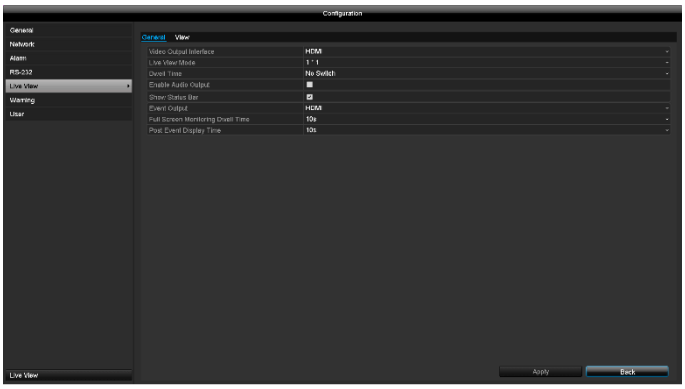
No	Meaning of the symbol
(1)	Area for moving the miniature bar
(2)	Activate/deactivate manual recording
(3)	Instant playback of the last 5 minutes
(4)	Activate/deactivate the audio function
(5)	Create a snapshot from the current camera
(6)	Open the PTZ control menu (for PTZ cameras only)
(7)	Image display settings
(8)	Close the selection bar

Settings

Note

The following settings are available for the live view.

Open the main menu and click on Configuration. Then click on Live View:



The following settings are available in the General tab:

Video Output Interface	VGA/HDMI Select the connection where the settings are changed.
Live View Mode	Various camera layouts 1x1, 2x2, 1+5.
Dwell Time	Switching time between the individual cameras during auto-switch.
Enable Audio Output	Activates the audio output (VGA/HDMI/BNC) for the live view.
Show Status Bar	Activate/deactivate the status bar.
Event Output	Allocate monitor for the output of events.
Full Screen Monitoring Dwell Time	The number of seconds for which the event will be displayed on the allocated monitor.
Post Event Display Time	The number of seconds for which the pop-up window should be displayed in the event of an alarm.

Note

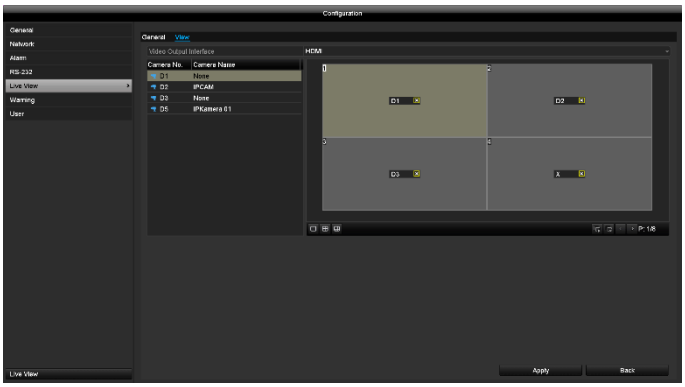
VGA monitor connected:
If a VGA monitor is connected, it will be recognised automatically when the device is started up. The main video signal will be displayed on the monitor.

No HDMI monitor connected:
If no HDMI cable is connected to the monitor when the device is started up, the main video signal will be emitted at the main VGA connection. Connect the VGA cable and restart the recorder to perform automatic detection.

Setting the camera output

You can display a maximum of five cameras simultaneously in the live view.

1. Click on the View tab:



2. Select the display mode.
   - 1 x 1
   - 2 x 2
   - 1 + 5

3. Use the navigation keys to allocate the camera signal required to the corresponding screen section.
   - The X setting means that this particular camera is not being displayed.

4.Click on **Apply** to apply the setting.

Playback in the Live view

General

There are three different options for playback:

- Through the event search in the main menu
- From the live display
- Via Log Information in the maintenance menu.

Note

The "Previous/Next file/day/event" buttons are allocated as follows, depending on the playback mode:

Normal playback:
Pressing one of the buttons switches playback to the previous/next day.

Event search:
Pressing one of the buttons switches playback to the previous/next event.

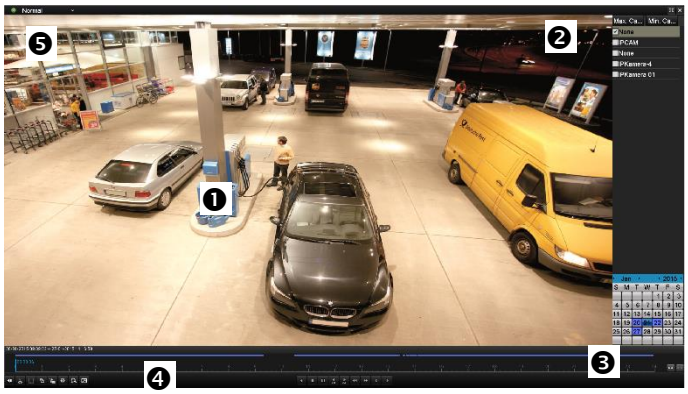
Data export:
Pressing one of the buttons switches playback to the previous/next file.

Note

It is possible to start playback on up to five camera channels at the same time.

Playback screen

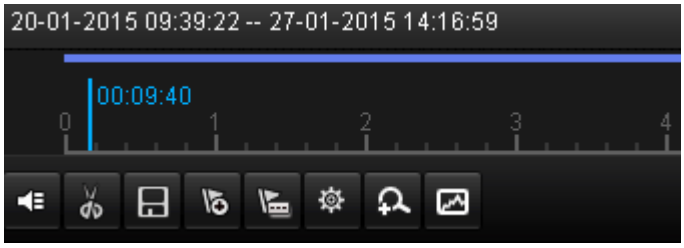
Playback is controlled via the control panel:



No	Area
❶	Running playback with date and time
❷	Selection of camera for playback
❸	Calendar with recording type
❹	Control panel with time bar (see right)
❺	Selection of playback type

Control via the control panel

The control panel (4) is used to control running playback. The symbols have the following meanings:



(1)

(2) (3) (4) (5) (6) (7) (8) (9)

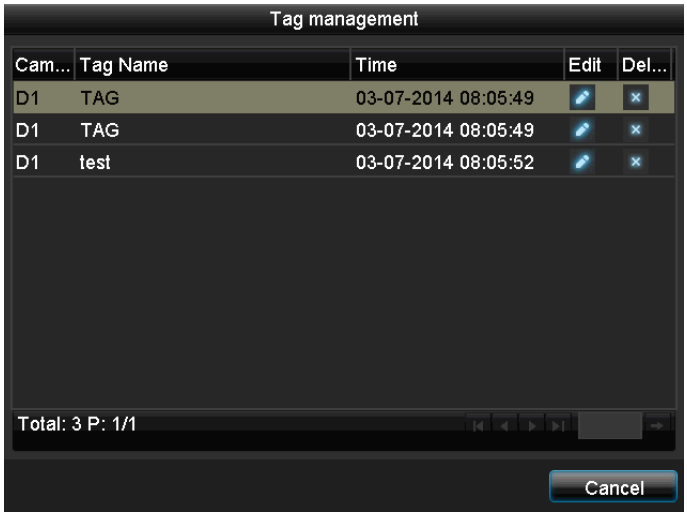
(10) (11) (12) (13) (14) (15) (16) (17) (18)

(19)(20)

No	Meaning of the symbol
1	Time bar: Click on the time bar with the mouse to continue playback from another point. • Click on the slider and drag it to a specific time to start playback from that point.
2	Enable/disable audio output.
3	Start/stop video clip export.
4	Save video clip.
5	Add tag (see "Tag" playback type).
6	Add customised tag (see "Tag" playback type).
7	Tag management.
8	Digital zoom.
9	Smart search: By creating a search window, motion data is displayed from the recordings in the selected viewing area in the time bar. Attention: Smart search is only possible for playback on one camera.

10	Reverse playback.
11	Stop playback.
12	Start/pause playback.
13	Go back 30 seconds.
14	Go forward 30 seconds.
15	Go forward in slow-motion (8x → 1x).
16	Fast forward (1x → 8x).
17	Previous day.
18	Next day.
19	Reduce time bar section.
20	Increase time bar section.

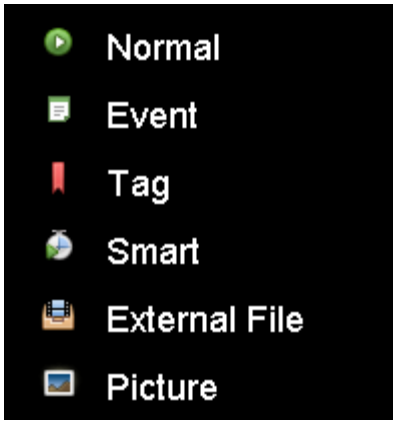
Click on "Tag management" (6):



- Click on the edit icon to change the description of your tag. To remove a tag, click on the delete icon.

Selecting playback type

Selecting the playback type (5) allows various types of recording and event to be displayed and filtered in the playback view.



The following menus are available:

Type	Description
Normal	Playback of recorded video data.
Event	Search and playback of video data recorded by means of motion detection or alarm input.
Tag	Search and playback of video data provided with a tag.
Smart	Search and playback of video data via pre-defined full screen motion detection for all recorded data.
External File	Search and playback of video data found on a connected external data storage device (USB).
Image	Playback of saved snapshots with date and camera filter.

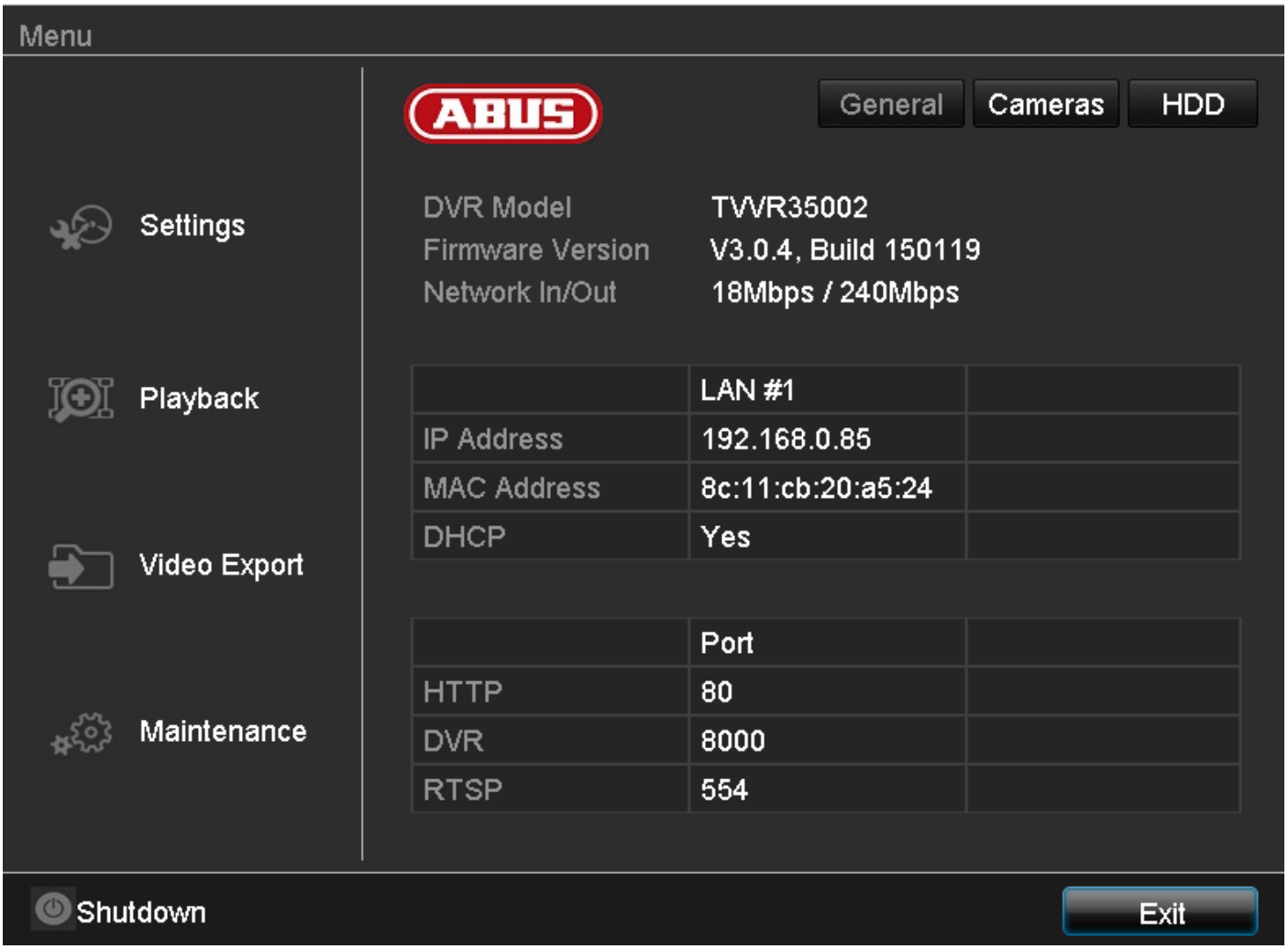
Device menu

Menu overview

The following menu overview shows the main menus used to set and control the device.

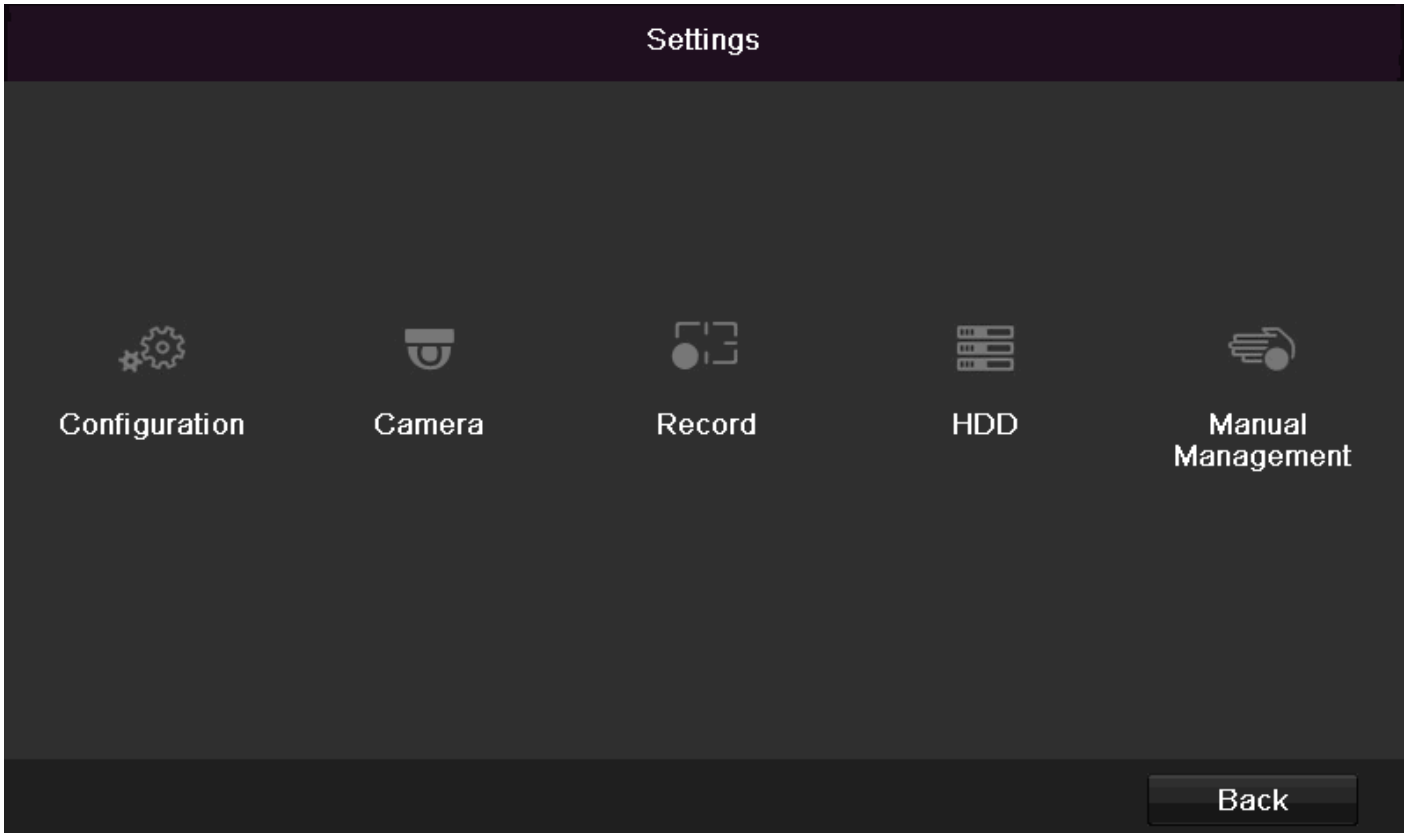
You can also see important information about your device on the right-hand side.

- Click on the menu you need to open it.
- Click on Exit to close the menu overview.



Menu	Description
Settings	Leads to the Configuration, Camera, Recording, HDD and Playback menus.
Playback	Parameter-controlled search for video and image recordings which were triggered by events such as motion detection, as well as tags set in playback.
Video Export	Parameter-controlled search for video and image recordings which were triggered by events such as alarms or motion detection, as well as alarm events and tags set in playback.
Maintenance	System information, searching logs, importing/exporting configurations, device maintenance such as upgrading to new firmware, loading defaults, displaying traffic.

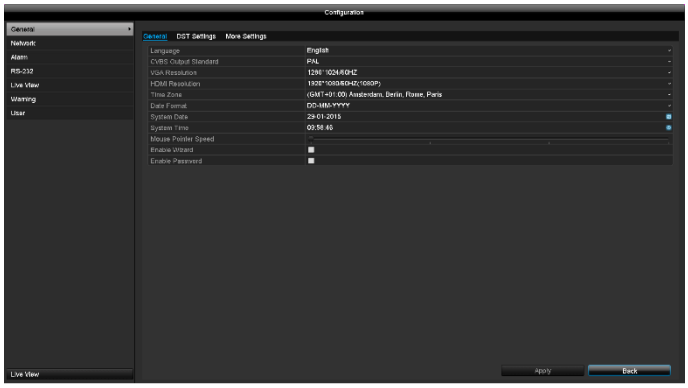
Settings



Menu description

Menu	Description
Configuration	Used to manage all device settings (General, Network, Live View, Warning and User).
Camera	Menu for setting camera parameters (OSD configuration, image mode, motion detection, private zone, tamper monitoring and video loss).
recording	Menu for setting recording parameters (schedule, camera resolution, holiday etc.)
HDD	Used to initialise and manage a built-in hard disk drive (assign read/write functionality, cameras, manage network drive etc.)
Manual Management	Menu for setting manual recordings.

Configuration



Note

The Configuration menu is used to manage all device settings.

Warning

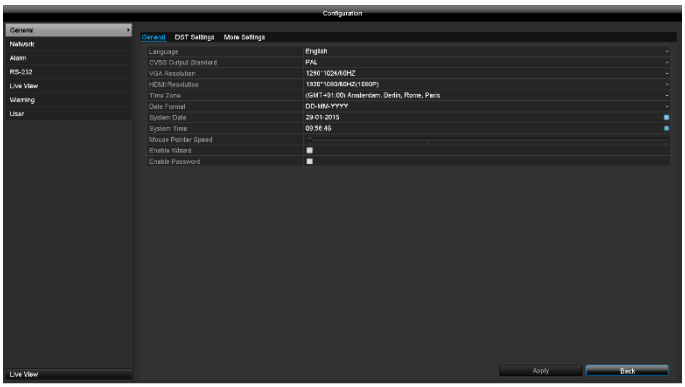
Ensure that the date and time are set correctly.
ATTENTION:
Subsequent alterations may lead to loss of data.

Ensure data is backed up promptly.

Overview

Menu	Setting
General	Language, video, time, date, mouse, password, daylight saving time and other settings.
Net Detect	Required network settings (manual IP, DHCP, PPPOE, DDNS etc.) and overview of network status.
RS-232	Settings for the serial interface (for servicing purposes only).
Alarm	Settings for the alarm I/Os for the IP cameras.
Live view	Display settings and assignment of the event output.
Warning	Response of the device in exceptional cases (hard disk drive full, network disconnected etc.)
User	Adding and changing users and assigning access rights.

General settings



General tab	Setting
Language	On-screen display language.
CVBS Output Standard	Video output format at BNC video output (PAL/NTSC).
Resolution	Monitor resolution
Time Zone	GMT (Greenwich Mean Time).
Date Format	MM-DD-YYYY, DD-MM-YYYY, YYYY-MM-DD.
System Time	Date, time
Mouse Pointer Speed	Slider (left = low speed, right = high speed)
Enable Wizard	Box ticked: The wizard will appear when the system is started up.
Enable Password	Box not ticked: A password does not need to be entered into the recorder itself. However, the password does need to be entered if accessing via the network. Box ticked: The password needs to be entered in order to use the menu.

DST Settings tab	Setting
Auto DST Adjustment	If the box is ticked, the device switches automatically to daylight saving time.
Enable DST	If the box is ticked, a specific start/end date can be selected.
From/to	Start/end date for daylight saving time.
DST Bias	Daylight Saving Time bias: correction of daylight saving time to reference time.
More Settings tab	**Settings**
Name	Unique specification of the device.
No	Used for unique identification when using CMS software.
CVBS Output Brightness	Slider (left = lower brightness, right = higher brightness).
Auto Log Off	Never/1–30 minutes: controls how long the menu is displayed before it is hidden again.
VGA/HDMI Simultaneous Output	Box ticked: The HDMI and VGA outputs are cloned. Box not ticked: The HDMI and VGA outputs can be controlled separately (different picture output).
Menu Output Mode	Use to specify the monitor output for the menu display. If set to auto, the recorder will detect the output.

Confirm the settings by clicking on **Apply** and exit the menu by clicking on **OK.**

Network configuration

General

It is essential that the network settings are correct if you

- want to control the device and monitor remotely via your browser.

Note

Please read the following general instructions before setting up the device.

A network is the connection of at least two network-compatible devices.

Transmission methods:

- wired networks (e.g. CAT5 cable)
- wireless networks (WLAN)
- other transmission types (Powerline)

All systems have significant similarities but are different in various ways.

Terms

Below there is an overview of terms related to using the device on networks.

Parameter	Setting
IP address	An IP address is the unique address of a network device on a network. It must only appear once on a network. Certain IP address ranges are reserved for public networks, such as the internet.
Private address range	E.g. 10.0.0.0–10.255.255.255 Subnet mask: 255.0.0.0 172.16.0.0–172.31.255.255 Subnet mask: 255.255.0.0 192.168.0.0–192.168.255.255 Subnet mask: 255.255.255.0
Subnet mask	A subnet mask is a bit mask that is used to make decisions and assignments during routing. The standard subnet mask on home networks is 255.255.255.0.
Gateway	A gateway is a network device that allows all other network devices to access the internet. It can be, for example, the computer to which the DSL modem is connected or, most frequently, the router or access point on the network.

Parameter	Setting
Name server	The name server, also known as the DNS (Domain Name Server), is responsible for assigning a unique IP address to a web address or URL (e.g. www.google.de). When a domain is entered into a browser, the DNS searches for the corresponding IP address of the server and forwards the query on to it. The IP of the provider's DNS can be entered here. However, it is often sufficient to select the IP of the gateway. This then forwards the queries independently to the provider DNS.
DHCP	The DHCP server automatically assigns the IP address, subnet mask, gateway and name server to a network device. DHCPs are available in current routers. The DHCP service must be specially set and activated (see the relevant manual for more information). Note: When using fixed IP addresses together with a DHCP server, you should ensure that the fixed IP addresses are outside of the addresses assigned by DHCP to

	avoid problems occurring.
Port	A port is an interface that enables different programs to communicate. Certain ports are fixed (23: Telnet, 21: FTP), whilst others can be freely selected. Ports are relevant for various applications, e.g. for external access to the device via a browser.
MAC Address	The MAC address (Media Access Control address or Ethernet ID) is the specific hardware address of the network adapter. It is used for the unique identification of the device on a computer network.

Network layout

The device must be physically connected to the network with a CAT5 cable (see Connections on page 3).

Note

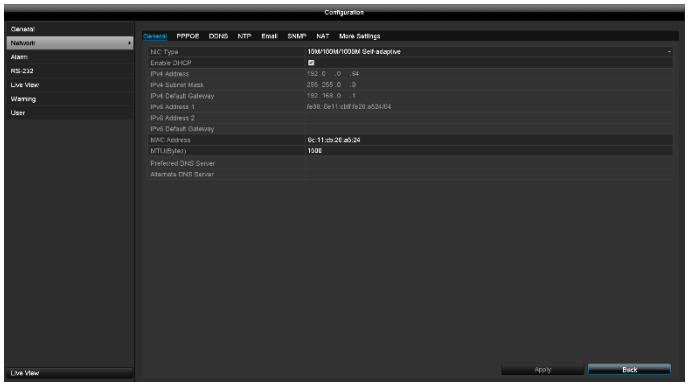
Please follow the instructions and notes for the network devices.

Several switches/routers/access points can be connected to one another. Firewalls and other security software may have a negative effect on the network.

Warning

When using a router, the network clients, and therefore the recorder, are "connected" to the internet and vice versa.
You should make sure that you take protective measures, such as using a firewall, changing your password and changing the port, to prevent unauthorised external access.

Network configuration



Tab	Setting
General	Settings for the local network and selecting the network mode.
PPPOE	PPPOE is used with ADSL connections and when using a modem in Germany. Click on Change to enter the access data (user name and password) for your provider.
DDNS	Server for Dynamic Domain Name System management used to update host names and DNS entries.
NTP	Network Time Protocol. Server for time synchronisation.
Email	Specify email settings to be used when an email is sent to a specific address in the event of an alarm.
SNMP	SNMP is a protocol for displaying the network status via corresponding SNMP software.
UPnP	Universal Plug and Play Settings for the convenient control of network devices on an IP network.
More Settings	Used to configure the IP address of the PC where a notification should be displayed in the event of an alarm.

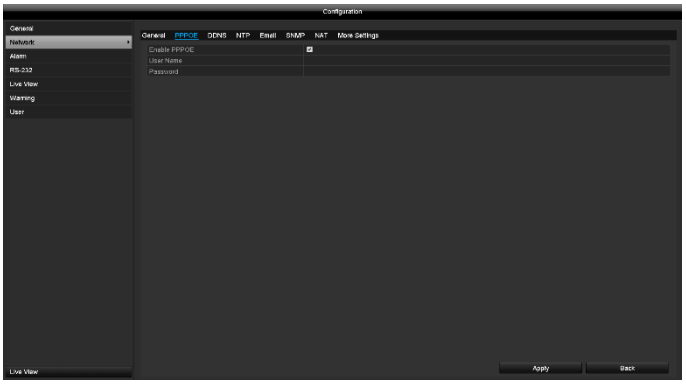
General tab

Parameter	Setting
NIC Type	Set the transmission speed of the integrated network card here. Tip: 10M/100M/1000M Self-adaptive.
DHCP	Tick the box if the IP addresses on the network are assigned dynamically via DHCP. DHCP enabled: subsequent entry fields are set to disabled because parameters are obtained via DHCP. Note: If the IP addresses are assigned manually, ensure that DCHP is not enabled (do not tick the box).
IPv4 Address	Address of the network device on the network when assigned manually.
IPv4 Subnet Mask	Usually 255.255.255.0.
IPv4 Default Gateway	Gateway address for internet access.
IPv6 Address 1	Local (link local) IPv6 address.
IPv6 Address 2	Global (global unicast) IPv6 address.
IPv6 Default Gateway	IPv6 gateway address for internet access.
MAC Address	Hardware address of the integrated network card.
MTU(Bytes)	Describes the maximum protocol packet size.
Preferred DNS Server	Address of the domain name server, usually the IP address of the gateway.
Alternate DNS Server	IP address of the alternative DNS server.
Report network interruption	Box ticked: Acoustic alarm in the event of a network interruption.

Note

In certain modes some of these settings cannot be selected.

PPPOE tab

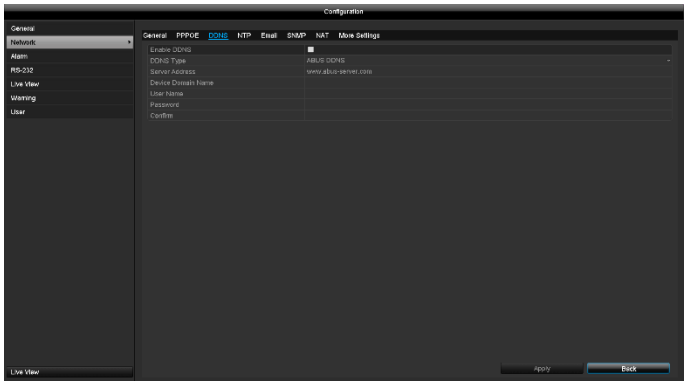


1. Tick the "Enable PPPOE" box. Then enter your user name (internet access ID) and password and confirm your password.
2. Apply the data by clicking on **Apply**.

Warning

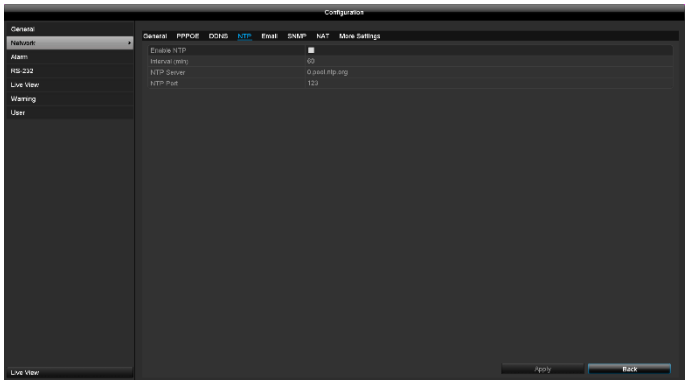
If possible, only use PPPOE when no router is available.

DDNS tab



1. To be able to use the ABUS DDNS function, you first need to set up an account at www.abus-server.com. Please read the FAQs on this topic on the website.
2. Tick the "Enable DDNS" box. Then select "DynDNS" as the DDNS Type and enter the www.abus-server.com IP address in the "Server Address" field.
3. Apply the data by clicking on **Apply**. The IP address of your internet connection is now updated on the server every minute.

NTP tab



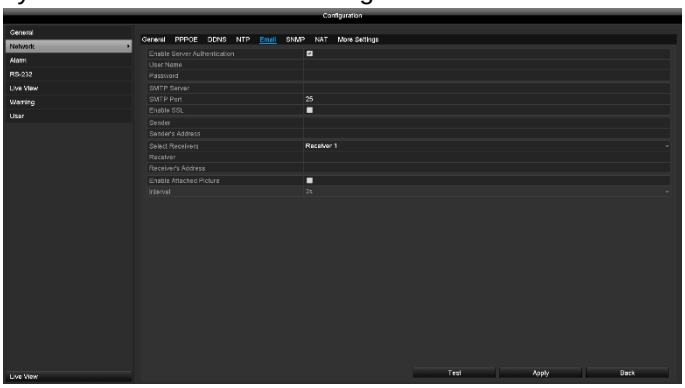
Note

The recorder can synchronise the time with an external server. Several server addresses are available on the internet for this purpose.

1. Tick the "Enable NTP" box and enter the interval after which synchronisation should be repeated. Enter the IP address of the NTP server and the NTP port.
2. Apply the data by clicking on **Apply**.

Email tab

In the event of an alarm, the device can send a message by email. Enter the email configuration here.



Parameter	Setting
Enable Server Authentication	Tick the box when logged onto the internet provider's server
User Name	Email account with the provider
Password	Password used to protect the email account
SMTP Server	SMTP server address of the provider.
SMTP Port	Enter the SMTP port (default: 25)
Enable SSL	Tick the box to enable email encryption
Sender	Name of the sender
Sender's Address	The email address linked to the email account
Select Receivers	Select three potential recipients for the email
Receiver	Enter the name of the recipient here
Receiver's Address	Enter the email address of the recipient
Enable Attached Picture	Tick the box if camera recordings should also be sent with the email as photo files
Interval	Select a trigger time of between two and five seconds. The pictures will only be sent if motion is detected during the time frame defined.

1. Enter the parameters of the email notification.
2. Then click on **Test** to send a test email.
3. If you have entered everything correctly and have received a confirmation email, click on **Apply**.

Note

The device will send an email to the specified recipients.

If no email is received, check the settings and correct them where necessary.
If necessary, check the junk mail settings for your email client.

Note

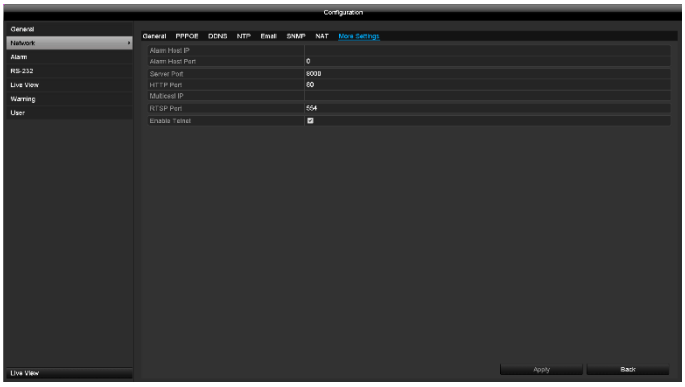
You can obtain the access data and settings for sending SMTP from your email provider. Some email providers only provide SSL encryption for sending emails. This recorder has been tested for SSL compatibility with the following providers: GMX, Web.de and Gmail.

UPnP tab

Parameter	Setting
Enable UPnP	Tick the box to enable visibility on an IP network. When this function is activated, port forwarding is automatically entered in the router for all network ports (provided that UPnP is enabled in the router). If UPnP is enabled, the network ports configured by UPnP are transferred to the ABUS server (provided that ABUS DDNS is enabled).
Mapping Type	For "manual" settings, the network ports can be manually defined using the "Edit" button. For "auto" settings, the recorder checks for free network ports on the router and defines the port numbers in a random pattern.

Confirm the settings by clicking on **Apply** and exit the menu by clicking on **Back**.

More Settings tab



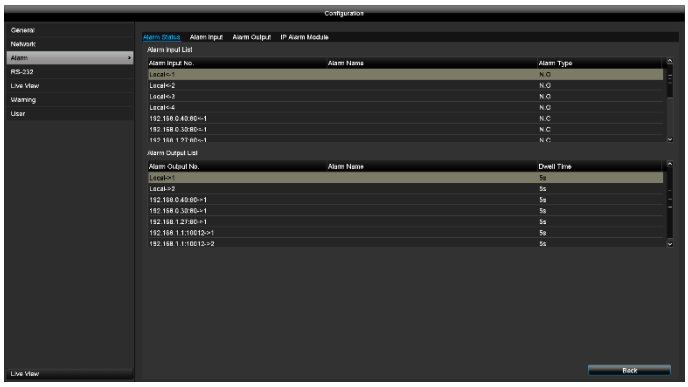
Parameter	Setting
Alarm Host IP	Network address of the CMS station
Alarm Host Port	Port for your CMS station
Server Port	Port for data communication (default: 8000)
HTTP Port	Port for the web server (default: 80)
Multicast IP	You can enter the multicast IP here too in order to minimise traffic. The IP address must correspond to the one in the video surveillance software.
RTSP Port	Enter the RTSP port (Default: 554).
Enable Telnet	For servicing purposes only

Note

Server port 8000 and HTTP port 80 are the standard ports for remote clients and remote internet browser access.

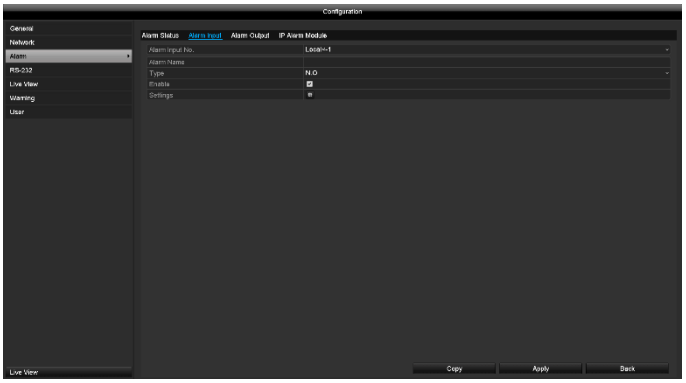
Alarm

Alarm Status tab



Here you can see a list of all the alarm inputs and outputs and their current status.

Alarm Input tab

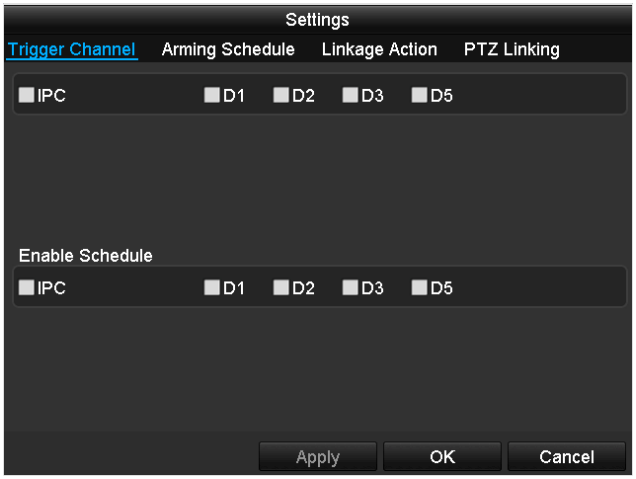


Parameter	Setting
Alarm Input No.	Select the alarm input to adjust the settings. You can select the alarm input for an IP camera using the network address data.
Alarm Name	Enter a clear description, e.g. warehouse door contact.
Type	N.O.: normally open circuit N.C.: normally closed circuit

- Activate the alarm input by ticking the "Settings" box.
- Define the response of the recorder in the event of an alarm under **"Settings"**.
- Click on **Copy** to apply these settings to other cameras.
- Confirm the settings by clicking on **Apply** and exit the menu by clicking on **Back**.

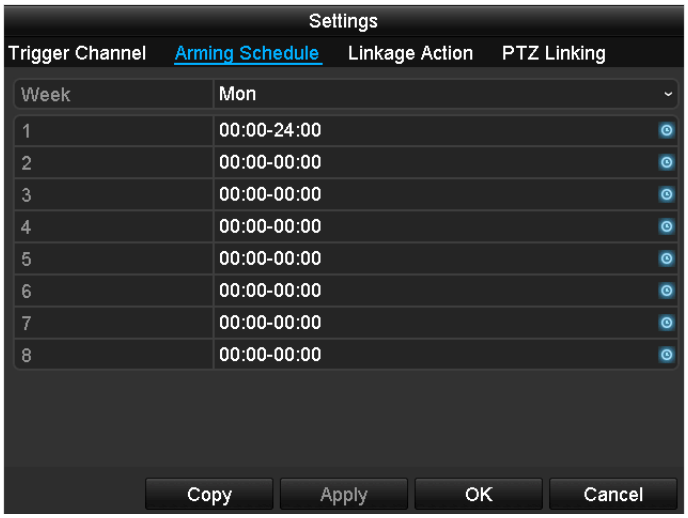
Settings

Trigger Channel tab



Tick the corresponding box to select which camera channel is triggered in the event of an alarm.

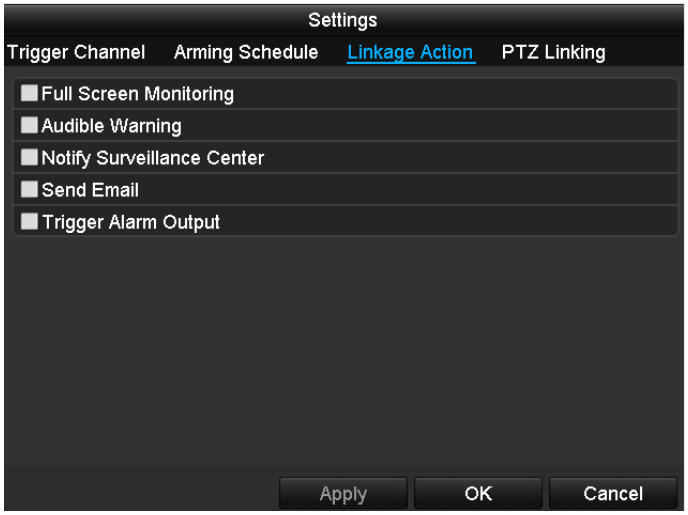
Arming Schedule tab



- Define the time at which the responses selected in the "Reaction" tab are activated when there is an alarm.
- Click on "Copy" to apply these settings to other days of the week or the entire week.

Linkage Action tab

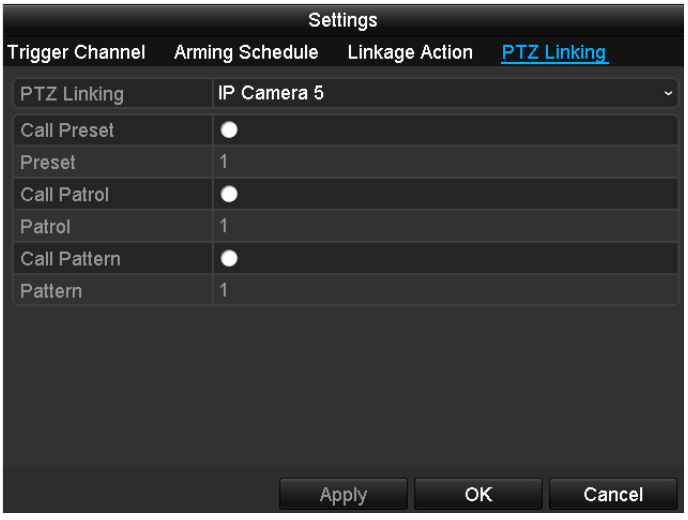
Select the **Linkage Action** tab. Here you can configure the response of the recorder in the event of an alarm by ticking the corresponding box.



Parameter	Notifications
Full Screen Monitoring	The camera is displayed in full screen in live view.
Audible Warning	The device emits a repeated signal tone.
Notify Surveillance Center	The CMS emits an audible warning tone.
Send Email	An email is sent to a specified email address. See page 29.
Trigger Alarm Output	The alarm output is triggered in the event of an alarm.

PTZ Linking tab

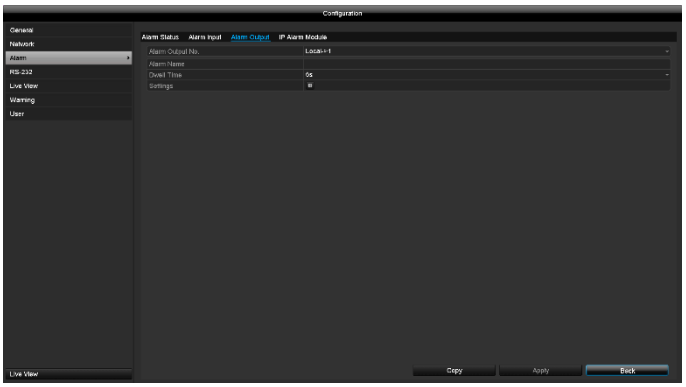
Here you can control specific PTZ presets, patrols or patterns for a taught-in camera.



Parameter	Notifications
PTZ Linking	Select the camera to be controlled using a PTZ command in the event of an alarm.
Call Preset	Select the preset number.
Call Patrol	Select the patrol number.
Call Pattern	Select the pattern number.

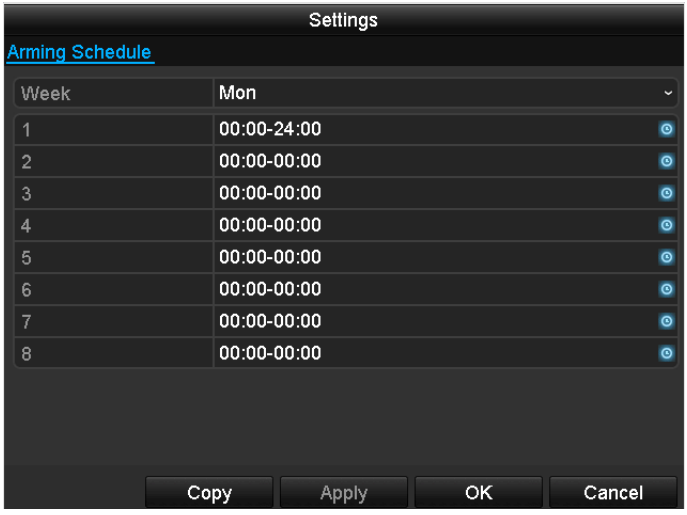
- Confirm the settings by clicking on **Apply** and exit the menu by clicking on **OK.**

Alarm Output tab



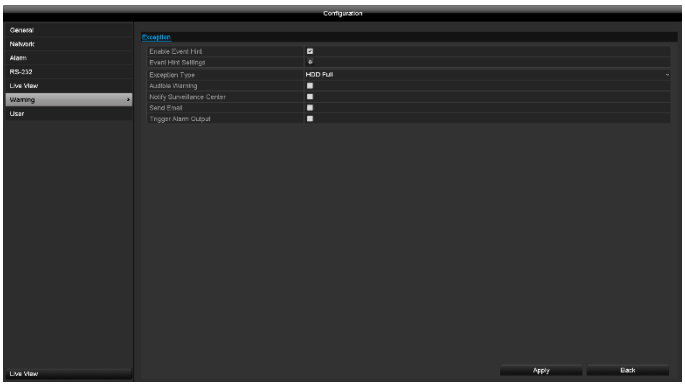
Parameter	Setting
Alarm Output No.	Select the alarm output to adjust the settings. You can select the alarm output for an IP camera using the network address data.
Alarm Name	Enter a clear description, e.g. warehouse door contact.
Dwell Time	Select the dwell time for switching the alarm output.

- Activate the alarm output by ticking the "Settings" box.
- Define the schedule for the recorder alarm output in the event of an alarm under **"Settings"**.



- Click on **Copy** to apply these settings to other cameras.
- Confirm the settings by clicking on **Apply** and exit the menu by clicking on **Back**.

Warning



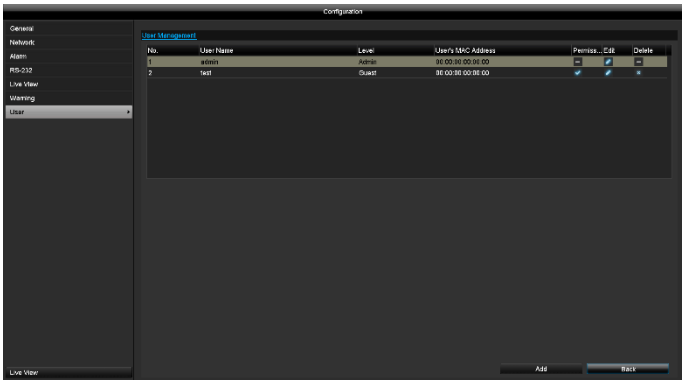
Set the response of the recorder for warning messages and system events here. To do this, activate the "Enable Event Hint" setting.

You can trigger a warning for the following error types:

- HDD Full
- HDD Error
- Network Disconnected
- IP Conflicted
- Illegal Login
- Exception Error

Parameter	Notifications
Audible Warning	The device emits a repeated signal tone.
Notify Surveillance Center	A notification is sent to the CMS software event log.
Send Email	An email is sent to a specified email address.
Trigger Alarm Output	The selected alarm output is switched in the event of a fault.

User

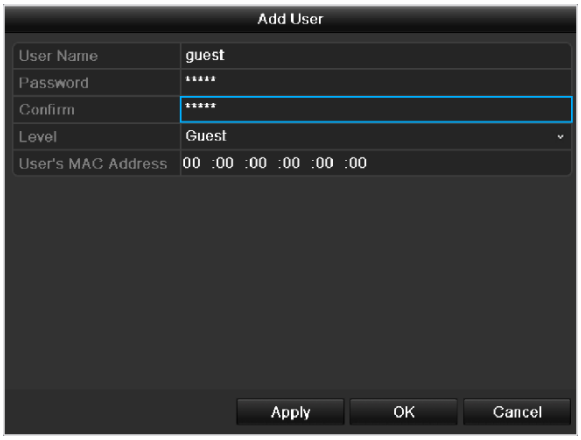


Warning

Note down the admin password.
The preset password is:
"**1 2 3 4 5**".

In user management, you can add new users, delete users, and amend existing settings.

1. To add a new user, select **Add**.



Parameter	Setting
User Name	Unique identification
Password	Access code for the device, for the purpose of device management. Note: change your passwords regularly, using a combination of letters and numbers etc. and note them down to be stored in a safe place.
Confirm	Enter the access code again for security.
Level	IMPORTANT: More rights can be set on the **Operator** level than on the **Guest** level.
User's MAC Address	MAC address of the network adapter of the PC used by the corresponding user. **Note:** This limits access to the PC, for which the MAC address has been entered here.

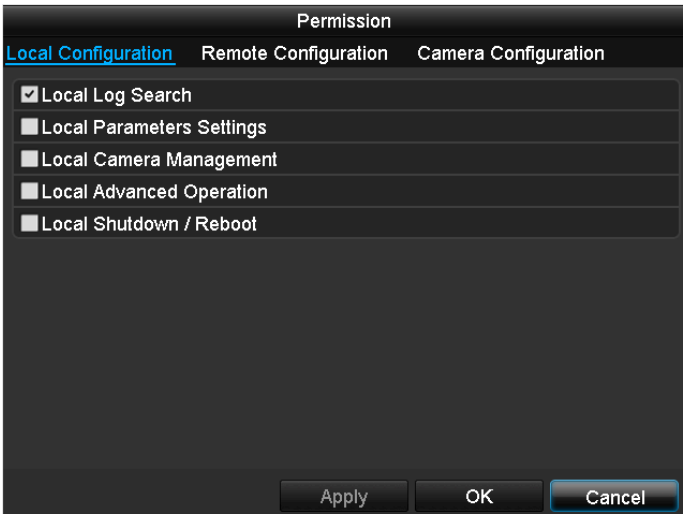
2. Enter the name and password and confirm the password in the field below.
3. Select the level and enter the MAC address.
1. Confirm the settings by clicking on OK.

Warning

Follow the instructions below on assigning access rights.

Setting permissions

Control the access permission of the user by clicking on the "Permission" icon. Only the access data of users added manually can be changed:



Note

The user can adjust the settings locally, i.e. on the device, or change the parameters.

The user can access the device via the network connection.

Settings relating to permission to access individual cameras (via the network or locally) can be found in the Camera tab.

Parameter	Setting
Local Configuration	Local Log Search Local Parameters Settings Local Camera Management Local Advanced Operation Local Shutdown/Reboot
Remote Configuration	**Camera Permission:** Remote Log Search Remote Parameters Settings Remote Camera Management Remote Video Output Control Two-way Audio Remote Alarm Control Local Advanced Operation Remote Reboot
Camera Configuration	**Camera Permission:** Remote Live View Local Manual Operation Remote Manual Operation Local Playback Remote Playback Local Video Export

Warning

Change the general settings of the user (name, password, level, MAC address) by clicking on the "Edit" icon or in the "Change Password" tab.

Camera

Camera

Here you can see an overview of all cameras currently found on the network and a status display of cameras already integrated.

IP Camera tab

Parameter	Setting
Camera No.	Channel port starting with D1–D5.
Add/Delete	**X:** manually delete the camera **+:** quickly add the camera. To do this, the camera must be set to the standard user and port settings.
Status	**>:** camera is online, click to view a preview !: there is a camera fault or the camera is offline.
IP Camera Address	Displays the IP address.
Edit	Manually change the settings for the IP address, protocol, port and user name.
Name	Displays the camera name (see OSD menu item).
Protocol	Displays the manufacturer device protocol.
Device Model	Displays the camera model number.

Click on **Refresh** to display the cameras on your network.

Click on **Delete** to delete the cameras you have already added.

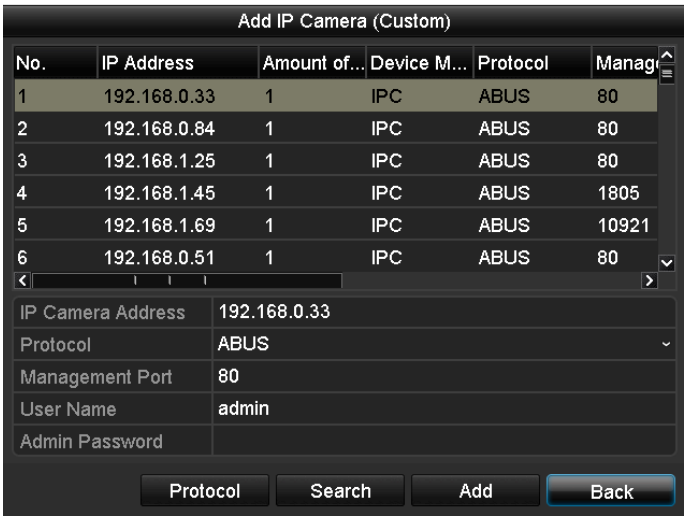
Click on **Add All** to add all the cameras displayed. Note that no more than five cameras can be added.

Select **Custom Adding** to manually add a camera.

Custom Adding

Here you can manually add IP cameras by entering the IP address and protocol and specifying the port and user ID.

You can also use this menu to add IP cameras from other manufacturers, ONVIF-compatible cameras and RTSP profiles.



Click on **Search** to refresh the device list.

Select a camera from the list and add to/change the corresponding parameters when necessary:

Parameter	Setting
IP Camera Address	IP address of the IP camera.
Protocol	Manufacturer communication protocol Check the compatibility list for this for third-party manufacturers at www.abus.com.
Port	Communication port of the IP camera (usually port 80 or 8000).
User Name	User name for the admin account of the IP camera.
Admin Password	Password for the admin account of the IP camera.

Note

If you are using a third party manufacturer's camera, please check in advance that it is on the compatibility list at www.abus.com. The camera functionality supported by the recorder may be restricted if using cameras of certain models or from certain manufacturers.

Click on **Add** to transfer all manual settings for adding a camera to the recorder.

Click on **Protocol** to create a custom RSTP profile for the selected camera.

Note

If your camera model is not included in the compatibility list, you also have the option of setting up the camera on the recorder using an RTSP streaming profile. To do this, you will need the RTSP URL for the camera live stream, which you can find in the user guide for your camera or request from the manufacturer.

Protocol

Here you can create a custom RTSP profile, which can then be assigned to a camera in the "Custom Adding" menu.

Note

If you integrate a camera using RTSP, only the video image from the camera will be available on the recorder. Camera control functions (e.g. PTZ) and motion detection are not supported.

Parameter	Setting
User Protocol	Select a value between 1 and 16. The settings will be saved here.
Protocol Name	Select any name.
Stream Type	All values below "Main Stream" will be used for the main stream (live+recording). All values below "Substream" will be used for the substream (multi view live).
Substream	Enables the substream.
Type	RTSP
Transfer Protocol	Use the auto settings, provided that there are no special requirements.
Port	RTSP port entered
Path	Specifies the RTSP streaming path on the IP camera.

Note

You can usually find information on the RTSP streaming path in the camera manual or on the manufacturer's website. Ask the manufacturer directly when required if there is not enough information on the path.

Typical layout of an RTSP streaming path:

rtsp://192.168.0.1:554/video.h264

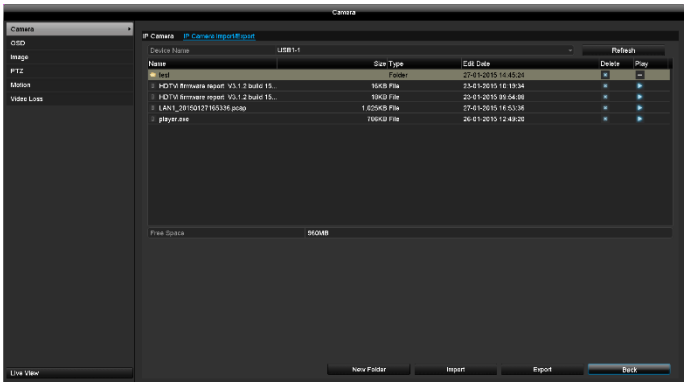
Parameter	Setting
Rtsp://	The protocol followed by "//"
192.168.0.1	IP address of the camera, separated by dots
:554	Colon followed by the RTSP port of the IP camera
/video.h264	"/" followed by the path and streaming parameter

Note

If your camera supports several streams, we recommend using the high-quality stream for the "Main Stream" setting and an alternative stream of a lower quality for the "Substream" setting.

IP Camera Import/Export tab

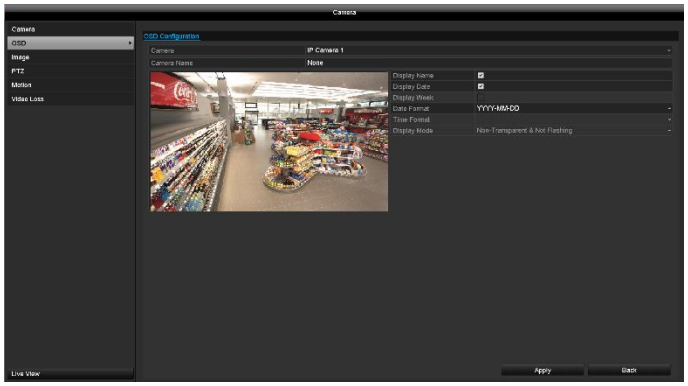
Here you can export and import all camera settings and configured camera lists from/to an external data storage device.



Click on **Import** to import a camera list from a data storage device.

Click on **Export** to export a list of all saved cameras to an external data storage device.

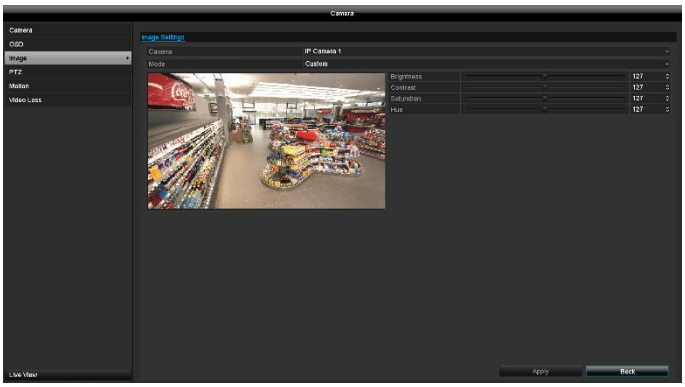
OSD



Select the camera channel to be processed under "Camera". **Parameter**	**Setting**
Camera	Selection of the camera channel to be processed
Name	Allocation of camera name
Display Name	Activate/deactivate display of camera name in the live view
Display Date	Activate/deactivate display of date in the live view

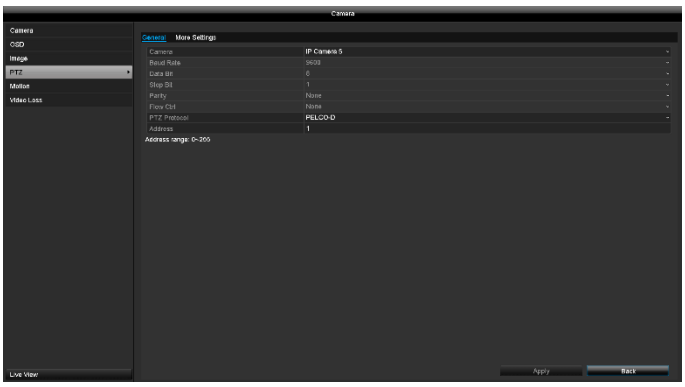
Display Week	Display the calendar week for the playback search
Date Format	Select the display format for the date of the playback search
Time Format	Select the display format for the time of the playback search
Display Mode	Settings for displaying the camera name and date

Image



Select the camera channel to be processed under "Camera" and adjust the image settings based on the lighting conditions.

PTZ Linking



General tab

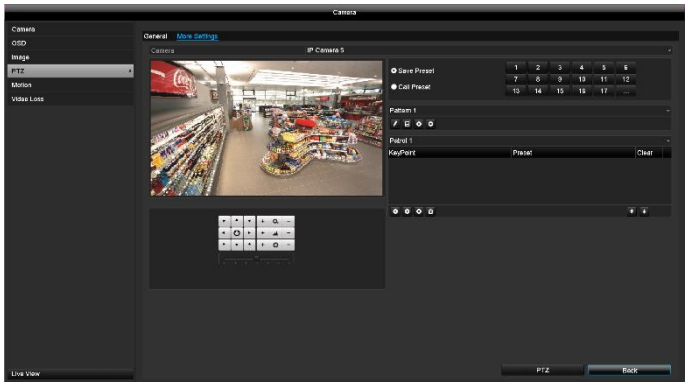
Select the camera channel to be processed under "Camera". This menu item is used for the configuration of a PTZ camera controlled via the RS-485 interface.

Parameter	Setting
Camera	Select the camera channel
Baud Rate	Define the transmission rate
Data Bit	Standard: 8
Stop Bit	Standard: 1
Parity	Standard: none
Flow Ctrl	Standard: none
PTZ Protocol	Select the PTZ protocol
IP Camera Address	Select the camera ID

Note

These settings are only relevant for cameras with external PTZ control.

More Settings tab



Select the camera channel to be processed under "Camera".

Presets	Save and retrieve individual preset positions.
Pattern	Save and retrieve a motion pattern.
Patrol	Save and retrieve patrols.

Saving and retrieving presets

1. Use the arrow keys to navigate the camera to the desired image section.
2. Save the preset position by selecting the "Save Preset" option and clicking on a position on the keypad.
3. Click on "Call Preset" and select a position on the keypad to retrieve the saved presets.

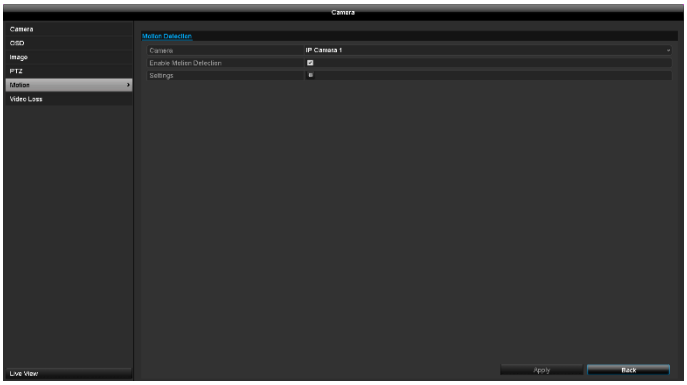
Saving and retrieving a pattern

1. Click on to start recording.
2. Use the arrow keys to navigate the camera to the desired image sections and positions.
3. Click on to save the recording.
4. Click on to retrieve the pattern you just saved.

Setting up and calling up patrols

1. Create several presets to use for the patrol
2. Click on to select a preset and define the dwell time and speed.
3. Add more presets to set up the required patrol.
4. Then click on to start the patrol.

Motion



Motion detection is controlled solely using the motion information on the recorder, which has been detected by the camera. When the camera is connected to the system, the recorder automatically sets a standard setting for motion detection directly on the IP camera web interface. The settings therefore have to be manually adjusted on the camera's web interface based on the current conditions.

To set up motion detection, proceed as follows:

1. Select the camera channel to be processed under **"Camera"**.
2. Tick the "Enable Motion Detection" box and define any other optional parameters under **"Settings"**.
3. On a PC, open the web interface for the camera you have selected and adjust the advanced settings for the motion mask, threshold and sensitivity.
4. Repeat the process for any additional cameras.
5. Click on Apply to save the settings.
6. If you wish to record based on motion detection, switch to the **"Record"** menu item and select the relevant cameras under **"Schedule"**. Here you can configure the schedule using the **"Motion"** event in order to set up a motion-detection-based recording.
7. Click on Apply to save the settings.

Note

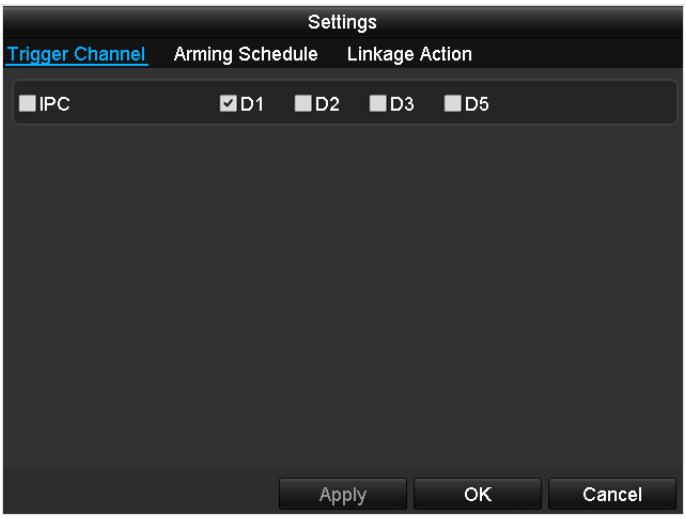
To record with the aid of motion detection, you must set up the schedule under **Record**.

Note

The sensitivity settings for motion detection need to be adjusted on the camera web interface.

Trigger Channel

When you click on "Settings", the **Trigger Channel** tab will appear (only for motion detection):

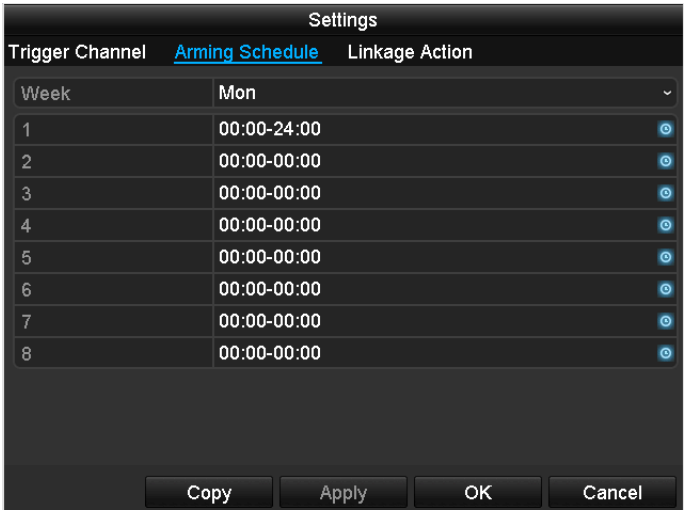


Select one or more camera channel(s) to react in the event of an alarm.
Confirm the settings by clicking on **Apply** and exit the menu by clicking on **OK.**

Arming Schedule

Select the **Arming Schedule** tab.

Here you set the times at which the reactions set in the **Linkage Action** tab are triggered.



1. Select the day and enter the schedule.

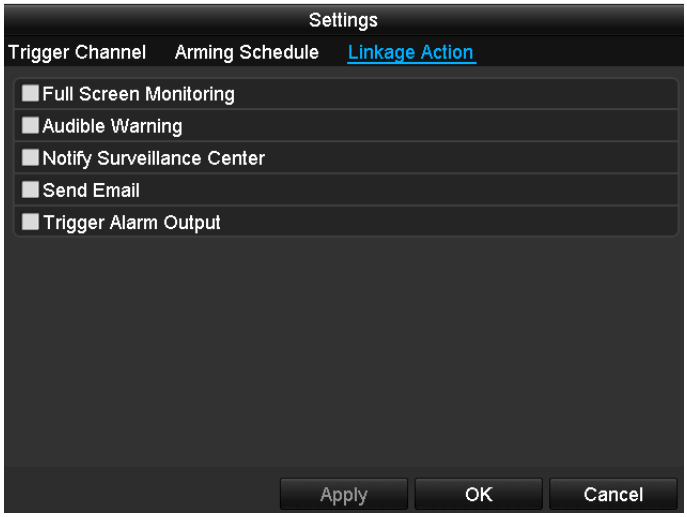
Note

You can define up to eight time slots, between 00:00 and 00:00 in each case, but the individual time slots must not overlap.

2. Under **Copy**, select whether or not the setting should be applied to every day of the week and the holiday settings.
3. Confirm the settings by clicking on **Apply** and exit the menu by clicking on **OK.**

Linkage Action

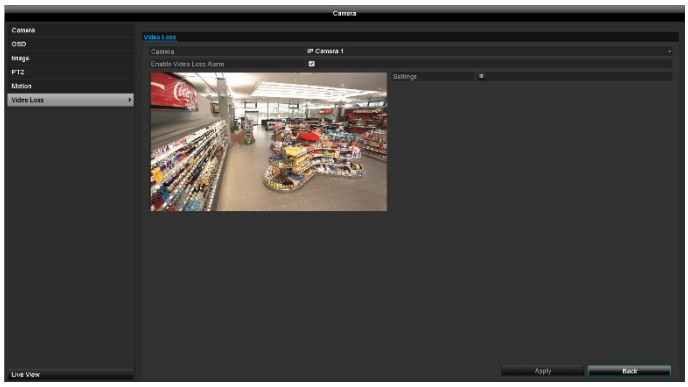
Select the **Linkage Action** tab.
Here you can configure the response of the recorder in the event of an alarm by ticking the corresponding box.



Parameter	Notifications
Full Screen Monitoring	The camera is displayed in full screen in live view.
Audible Warning	The device emits a repeated signal tone.
Notify Surveillance Center	The CMS sends out a warning message.
Send Email	An email is sent to a specified email address. See page 29.
Trigger Alarm Output	The alarm output is triggered in the event of an alarm.

- Confirm the settings by clicking on **Apply** and exit the menu by clicking on **OK.**

Video Loss



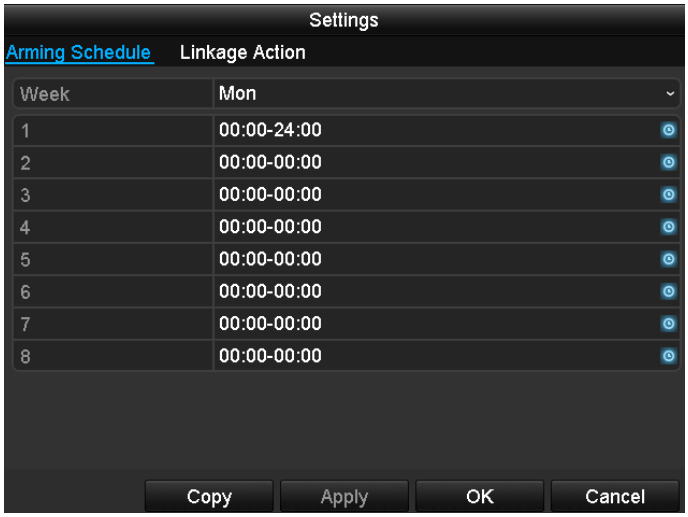
Select the camera channel to be processed under "Camera".

Tick the **Enable Video Loss Alarm** box and define any other optional parameters under **"Settings"**.

Arming Schedule

Select the **Arming Schedule** tab.

Here you set the times at which the reactions set in the **Linkage Action** tab are triggered.



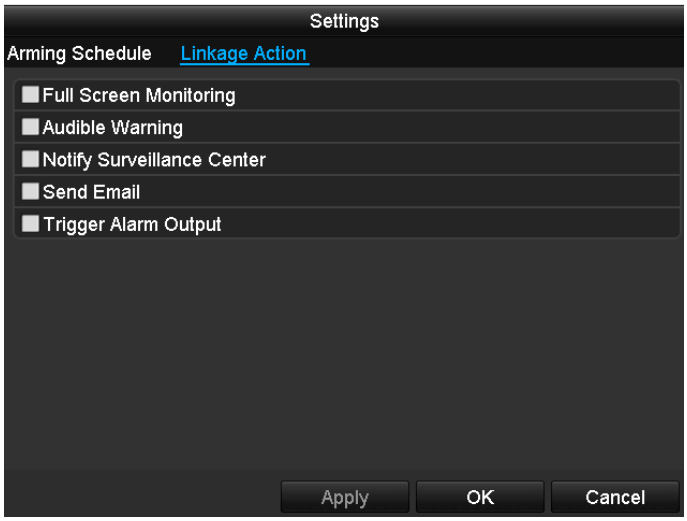
1. Select the day and enter the schedule.

> **Note**
> You can define up to eight time slots, between 00:00 and 00:00 in each case, but the individual time slots must not overlap.

2. Under **Copy**, select whether or not the setting should be applied to every day of the week and the holiday settings.
3. Confirm the settings by clicking on **Apply** and exit the menu by clicking on **OK.**

Linkage Action

Select the **Linkage Action** tab.
Here you can configure the response of the recorder during an event (e.g. motion detected) by ticking the corresponding box.



Parameter	Notifications
Full Screen Monitoring	The camera is displayed in full screen in live view.
Audible Warning	The device emits a repeated signal tone.
Notify Surveillance Center	The CMS sends out a warning message.
Send Email	An email is sent to a specified email address. See page 29.
Trigger Alarm Output	The alarm output is triggered in the event of an alarm.

- Confirm the settings by clicking on **Apply** and exit the menu by clicking on **OK.**

Recording

Schedule

Open the main menu and click on Record. There are two types of configuration and data recording available:

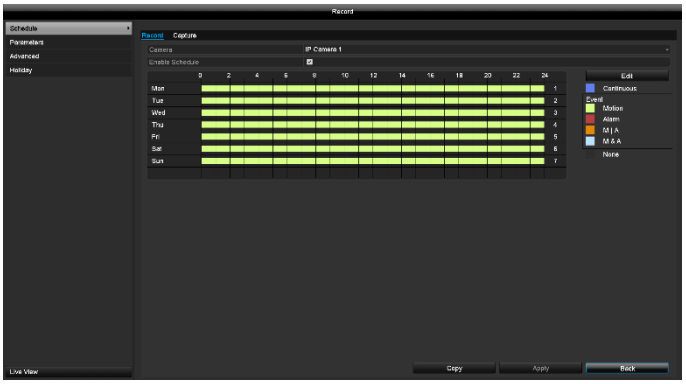
recording	Configuration of video stream recording from connected IP cameras. Continuous data streams are saved on the recorder.
Capture	Configuration of single image capture from connected IP cameras. Only single images are saved on the recorder.

Note
Both types of recording can be configured in parallel for each camera.

Record tab

The schedule is used to specify the recording times and triggers (recording type) for the cameras.

Note
As there is no difference between the settings for the Record and Capture tabs, they are only listed once.



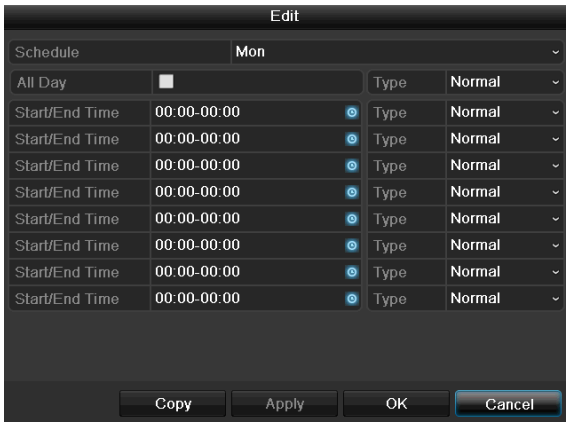
On the on-screen display, the hours for each day are listed from left to right, and the days are listed from top to bottom. On the right of the display, there is a colour key, i.e. the time frames for recording are

displayed in the schedule in a different colour depending on the "trigger" (recording type) in question.

Coloured icon	Key
Blue	Continuous: period in hours
Yellow	Motion detection
Red	Alarm
Orange	Motion or alarm
Light blue	Motion and alarm
Grey	No selection

- Select the camera and tick the **Enable Schedule** box.
- Click on a **trigger** and use your mouse to highlight the time period within the schedule.

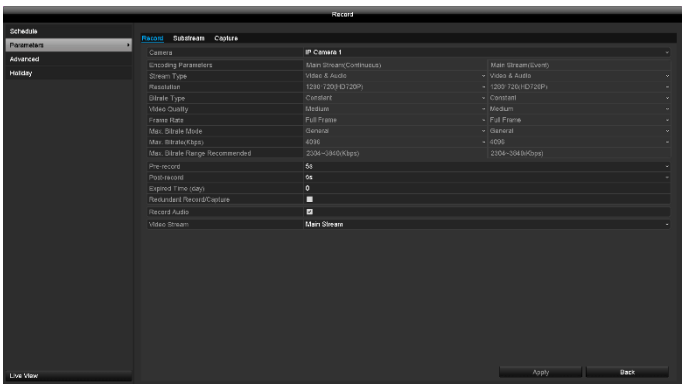
Alternatively, click on **Edit** to configure the type and duration of the schedule down to the minute.



1. In the drop-down menu for "Schedule", select the day to be set.
2. Activate/deactivate "All Day". If "All Day" is activated, you cannot enter specific times as the setting now applies to the whole day.
3. If you wish to enter specific time settings, deactivate "All Day".

Application example
If you want recording to run from 11:00 to 07:00, you need to set up two time zones:
1. 11:00–24:00
2. 00:00–07:00

4. Specify the recording type in the drop-down menu for "Type":
   - Normal
   - Motion
   - Alarm
   - Motion or alarm



> **Note**
>
> For "Normal", you define the time period for recording.
>
> The other triggers, such as motion detection, only trigger recording when the specific trigger has occurred.

   - Motion and alarm

5. If you are entering time-dependent settings, you can define up to eight time slots, between 00:00 and 00:00 in each case, but the individual time slots must not overlap.

- Click on **Copy** to apply these settings to other days or the entire week.

Finalise your settings on the record screen by clicking on **Apply** and then **OK**.

Parameters

"Parameters" is where the quality settings for the individual video streams are set up on the recorder.

> **Note**
>
> If it is not possible to change the advanced settings for resolution and bitrate, this means that the current recorder firmware does not support this function.

There are three types of configuration available:

recording	Quality settings for continuous and event-based recording.
Substream	Quality settings for the substream, which is used for the live image display.
Capture	Quality settings for capturing single images.

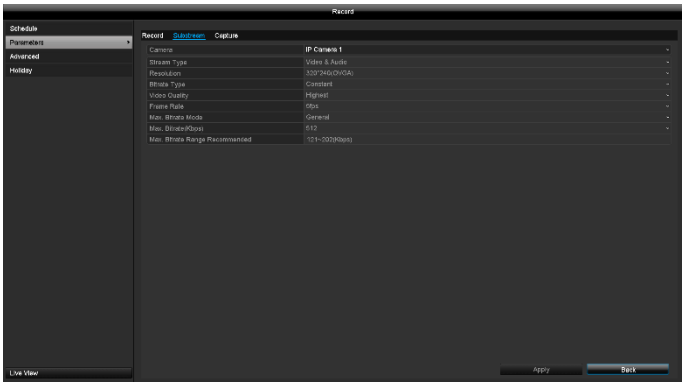
Record tab

The following setting options are available in this submenu:

Parameter	Setting
Camera	Camera to be set
Encoding Parameters	Stream to be set
Stream Type	Predefined video stream
Resolution	Resolution of the camera
Bitrate	Select a variable or constant bitrate
Video Quality	There are various quality levels: +++: medium quality ++++++: high quality
Frame Rate	Settings for the stream frame rate
Max. Bitrate Mode	Select the mode for setting the bitrate Custom (32–3072)
Max. Bitrate(Kbps)	Settings for the maximum bitrate
Max. Bitrate Range Recommended	Recommended bit rate depending on the set resolution, frame rate etc.
Pre-record	Recording period before an alarm (in seconds)
Post-record	Recording period after an alarm (in seconds)
Expired Time (day)	Setting for the maximum retention time for recorded files
Record Audio	Box ticked: recording with audio data
Video Stream	Stream type allocated for recording

Confirm the settings by clicking on **Apply** and exit the menu by clicking on **Back**.

Substream tab

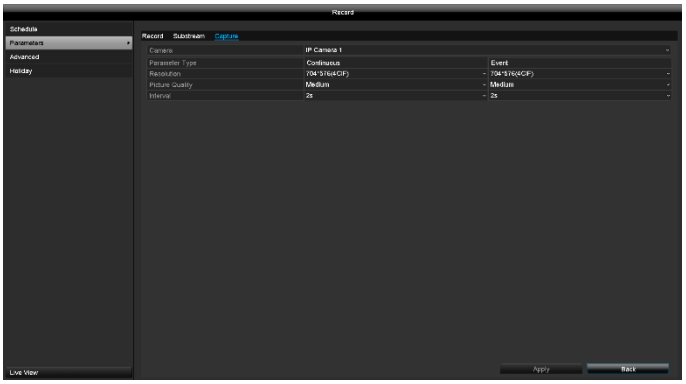


The following parameters can be set:

Parameter	Setting
Camera	Camera to be set
Stream Type	Predefined video stream
Resolution	Auto, 4CIF(704x576), CIF(352x288), QCIF(176x144)
Bitrate Type	Select a variable or constant bitrate
Video Quality	There are various quality levels: +++: medium quality ++++++: high quality
Frame Rate	Settings for the stream frame rate
Max. Bitrate Mode	General, custom (32–3072)
Max. Bitrate(Kbps)	Display of the maximum bitrate
Max. Bitrate Range Recommended	192~320 (Kbps)

Confirm the settings by clicking on **Apply** and exit the menu by clicking on **Back**.

Capture tab

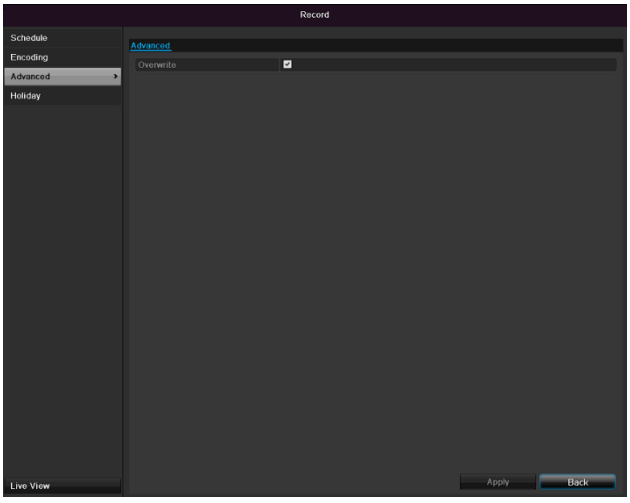


The following parameters can be set:

Parameter	Setting
Camera	Camera to be set
Parameter Type	Individual settings for continuous and event recording.
Resolution	Auto, 4CIF(704x576), CIF(352x288), QCIF(176x144)
Picture Quality	There are various quality levels: +++: medium quality ++++++: high quality
Interval	Period after which single images are saved (between 1 second and 24 hours)

Confirm the settings by clicking on **Apply** and exit the menu by clicking on **Back**.

Advanced



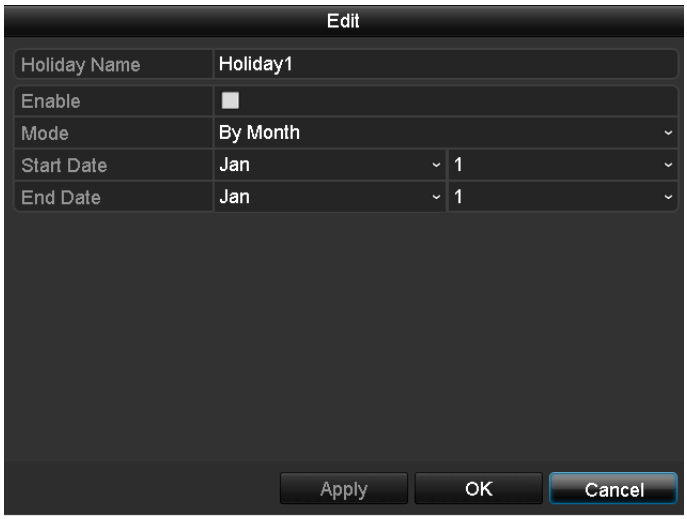
Overwrite	Specify whether older recordings should be overwritten when the hard disk drive is full.

Holiday

In this submenu, there are 32 different recording settings for holidays or bank holidays.

Name	Manually enter the name of the holiday or bank holiday
Enable	Enable or disable the holiday set
Mode	By Date/By Week/By Month
Start Date	Select the start date/start time
End Date	Select the end date/end time

Click on the "Edit" icon to apply these settings



Confirm your settings by clicking on **Apply** and then **OK**.

HDD

HDD

Note

The device can manage two 3.5" SATA hard disk drives.

The installed hard disk drives have to be initialised before the device can be used for recording. It is only then that the device will recognise the hard disk drive.

Warning

All data will be deleted from the hard disk drive during initialisation.

Ensure data is backed up promptly.

Installing the hard disk drive

1. Disconnect the device from the mains power and open the cover.
2. Follow the ESD guidelines when handling electronic devices and ensure that they are earthed.
3. Do not open the housing in rooms with carpets or other surfaces that may be electrostatically charged.
4. Avoid bodily contact with all components on the PCB.

Warning

If you have any questions about the instructions, or if the instructions do not help you, your specialist installation contractor will be more than happy to help.

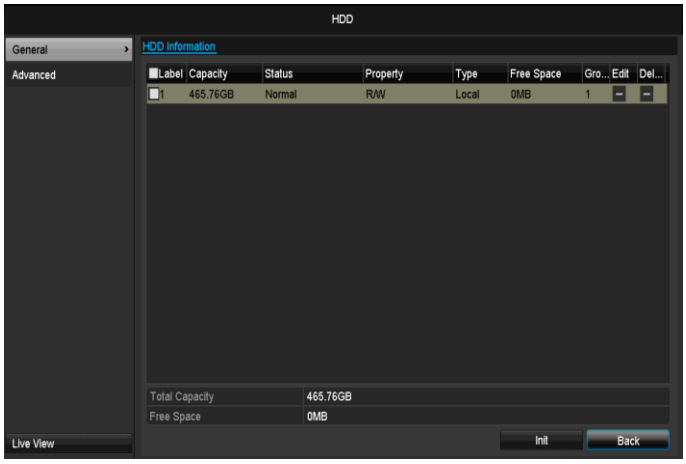
5. Install the hard disk drive and establish the connections.
6. Reattach the housing and connect the device to the mains power supply.

Note

If the installed hard disk drive is not displayed, check the connections.

Click on "HDD" in the menu to adjust settings relating to management of the hard disk drive.

General



HDD Information	Description
Label	Shows the internal connection number.
Capacity	Hard disk drive capacity (in GB).
Status	Shows the current status of the hard disk drives: Not initialised Normal Error Standby
Property	• Read-only: write protection • R/W: read and write
Type	Local: device hard disk drive
Free Space	Shows the approximate amount of free memory for recordings
Group	Group ID
Edit	Edit settings (only in group mode)
Delete	Remove the hard disk drive.

Initialising the hard disk drive

1. Select the hard disk drive by ticking the box.
2. Click on **Init** to start the process.
3. Click on **OK** to acknowledge the security prompt.
4. The status bar will show the progress of the initialisation.
5. Once the process has finished, the hard disk drive will appear.

Add NetHDD

Additional data storage devices can be added to enable storage across the network.

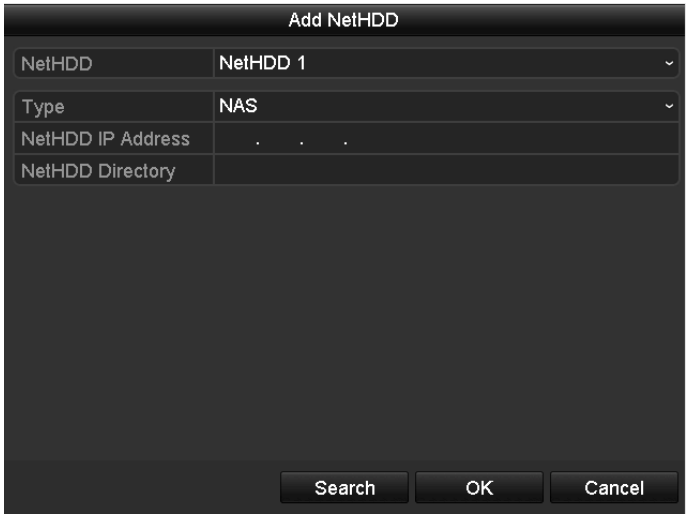
Warning

When using NetHDDs, ensure that your network is of a sufficient size.

Note

The playback of recorded data may be slower if you use NetHDDs than if you are using the internal hard disk drives.

Click on **Add** to add a NetHDD.



NetHDD	Choose from eight NetHDDs.
Type	**NAS:** For this setting, your network storage must support the NFS file system. **IP SAN:** For this setting, your network storage must support the iSCSI protocol.
NetHDD IP Address	Enter the network storage IP address.
NetHDD Directory	Enter the storage path or iSCSI target.

Click on **Search** to identify the network storage and then click on **OK** to add the NetHDD.

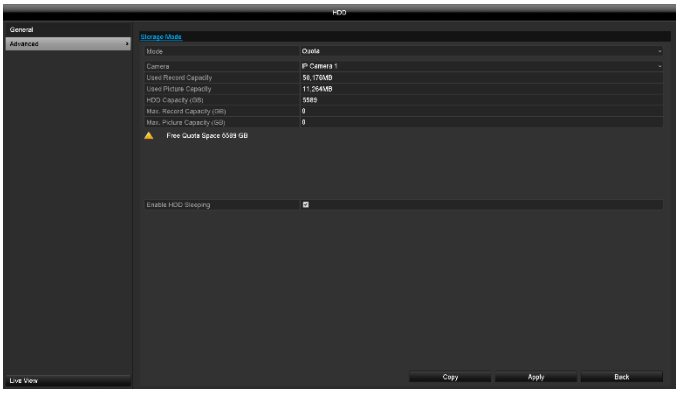
The NetHDD must be initialised before use.

Local Advanced Operation

Here you can define the settings for the storage mode.

Mode: Quota

In this mode, video data is divided between the total number of data storage devices connected and written onto them.

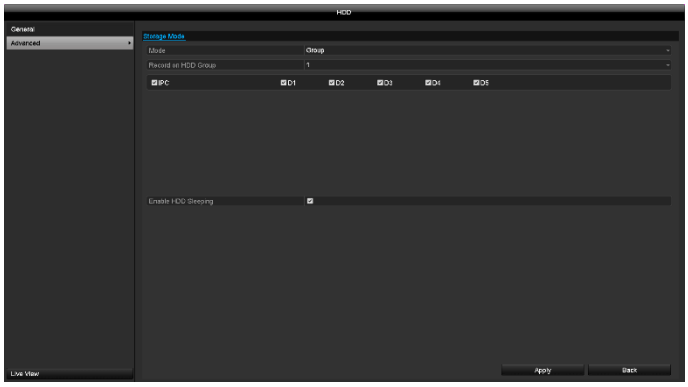


Camera	Selection of the camera channel to be processed
Used Record Capacity	Video storage space currently in use on the linked data storage devices.
Used Picture Capacity	Picture storage space currently in use on the linked data storage devices.
HDD Capacity (GB)	Total available hard disk drive capacity (in GB).
Max. Record Capacity (GB)	Specify the maximum video recording size on the linked data storage devices for each camera.
Max. Picture Capacity (GB)	Specify the maximum picture recording size on the linked data storage devices for each camera.
Enable HDD Sleeping	When this function is activated, idle hard disk drives go into standby mode.

1. Use **Copy** to specify if the setting is to be applied to all cameras.
2. Confirm the settings by clicking on **Apply** and exit the menu by clicking on **OK.**
   The group of hard disk drives will be saved.
3. Click on **Apply** and confirm the reboot in the next window by clicking on **OK**.

Mode: Group

In this mode, video data can be specifically (and also redundantly) stored on selected data storage devices.



Parameter	Setting
Record on HDD Group	Select HDD group.
IP Camera	Select which cameras should be stored in the group currently selected.
Enable HDD Sleeping	When this function is activated, idle hard disk drives go into standby mode.

The HDD groups are configured in the General menu. To do this, click on to open the HDD group settings.

Parameter	Description
HDD No.	Internal hard disk drive number for the recorder.
R/W	In this mode, video data is written onto the data storage device and can also be read (default setting).
Read-only	In this mode, no video data is written onto the data storage device. This setting is useful if you want to stop data from being overwritten after an event.
Redundancy	In this mode, video data is stored in parallel. All data storage devices with the R/W setting are also stored on all data storage devices with the "Redundancy" setting.
Group	Allocate the data storage device to an HDD group.

Attention:
If only one hard disk drive is installed and this is set to "Read-only", the device cannot be used for recording.

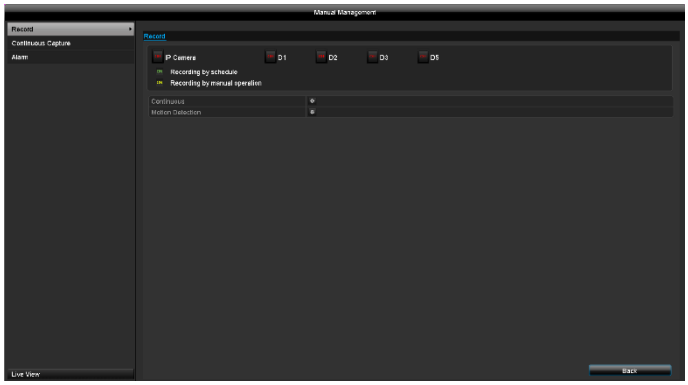
Panic Recording

Recording

Press the REC button or navigate to **Manual Management** in the main menu to start manual picture/video recording. The settings are identical for snapshots and so will only be described once.

If a recording is started manually, it also has to be stopped manually. All manual recordings will be deactivated when the recorder is rebooted.

Click on the "Record" submenu.



Select the settings for all cameras. Click on "Off" or "On" to change the settings.

"On (green)" → "Off (red)"
Manually stop recording

"Off (red)" → "On (yellow)"
Manual continuous recording

"On (yellow)" → "Off (red)"

Manual continuous recording is stopped and if a schedule has been configured for the camera, it will be activated automatically (green).

Parameter	Description
Normal	Click on the icon to activate continuous recording for all channels for the whole day. Click on "Yes" to confirm your selection.
Motion detection	Click on the icon to activate motion detection for all channels for the whole day. Click on "Yes" to confirm your selection.

Alarm

Here you can select the alarm output which should be switched in the event of manual management.

You can switch several alarm outputs in the event of a manual response.

Select **Trigger** to activate the selected alarm output.

Click on **Trigger All** to activate all of the alarm outputs.

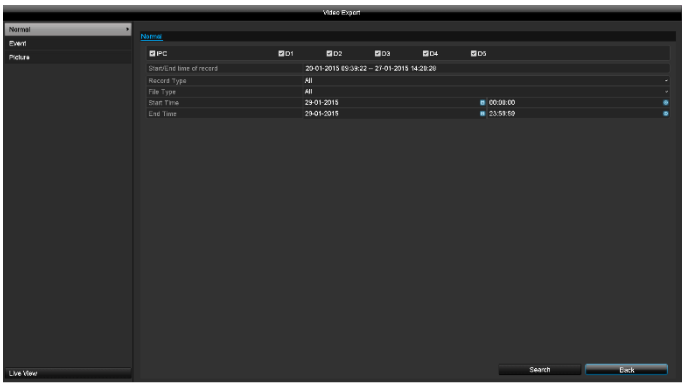
Click on **Clear All** to remove the settings.

Video Export

In the menu, go to **Video Export** to export recorded video data and images from the recorder. The following options are available:

Normal	Export video data which was recorded with continuous record.
Event	Export video data which was recorded with event record.
Image	Export snapshots.

Normal

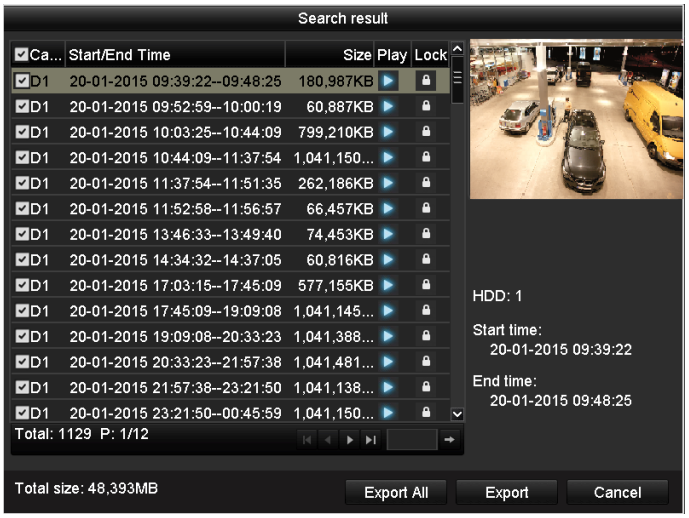


Note

The export function is used to store important recordings on connected external media, such as:

- USB media
- USB hard disk drives
- DVD writers

1. Enter the parameters.
2. Click on **Search** to start the search and the events screen will appear.



- The file size of each of the recordings and the total size of all recordings found are displayed.
- Click on to view the corresponding recording.
- Click on to lock and unlock a file. Locked files can no longer be overwritten by the system.

3. Click on **Export** to go to the Export screen.

1. Select the connected medium to be used for storage from the drop-down menu.
2. If the medium is not displayed in the list, click on **Refresh**.

- If the medium is still not displayed in the list, disconnect it from the device and then reconnect it. See also the manufacturer's specifications.

3. Click on **Export** to start exporting. The progress of the storage process will then be displayed.

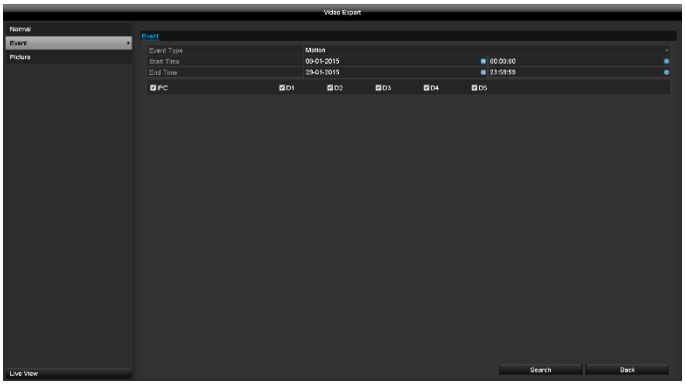
Note

Once the storage process is completed, you can select the data on the medium and play it back on the player (which has to be exported separately). This way you can check that the export was successful.

Note
Pre-play recordings can only be viewed if recording was started before the alarm.

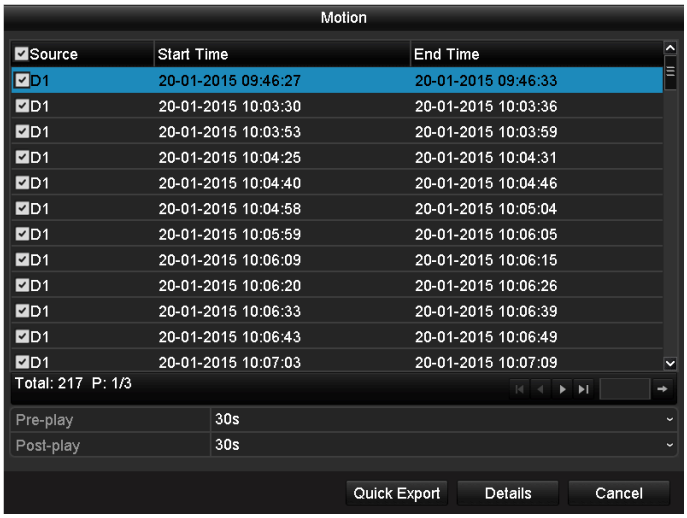
Event

Note
The "Normal" and "Picture" submenus are similar and will therefore not be described separately.



Define the period of the recordings to be searched for using the "Start Time" and "End Time" selection fields. Select the camera by ticking or unticking the box and then click on **Search**.

For both types of event, the following window will appear after clicking on the **Search** button:

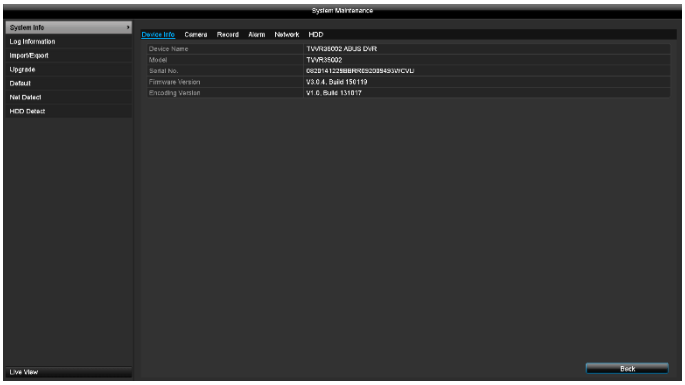


Select the files to be exported by ticking or unticking the box. Under "Pre-play" and "Post-play", you can set the time before and after the alarm, which allows you to define the length of the video you export.

Click on **Details** to view the selected video. See **NORMAL** (page **Fehler! Textmarke nicht definiert.**) for more information about the **Details** window.

Maintenance

Note
This menu is used for device maintenance and should only be used by experienced users.

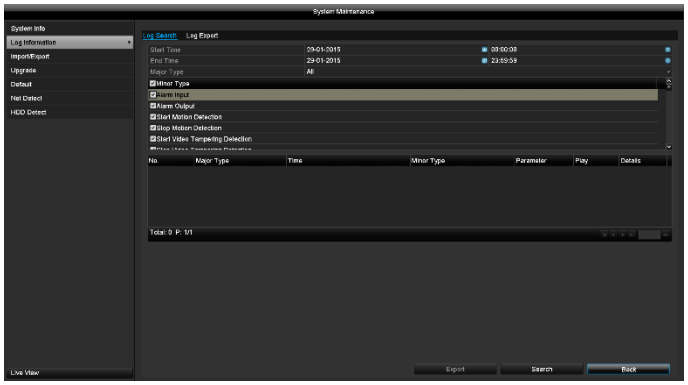


Menu	Setting
System Info	Device Info (Serial No., Firmware Version etc.)
Log Information	In Log Information (=log file), you can search for recordings or information (S.M.A.R.T. hard disk drive status) by certain criteria, such as alarm, exception, operation or information.
Import/Export	Import and export settings
Upgrade	Performs a firmware upgrade
Default	Resets the system
Net Detect	Displays the transmission and reception rate of the recorder
HDD Detect	Checks the hard disk drive for errors

System Info

Note
The information menu shows the technical data for the device and information on the various settings of the cameras, recording, alarm, network and HDD.
This can be useful for support queries, for example.

Log Information



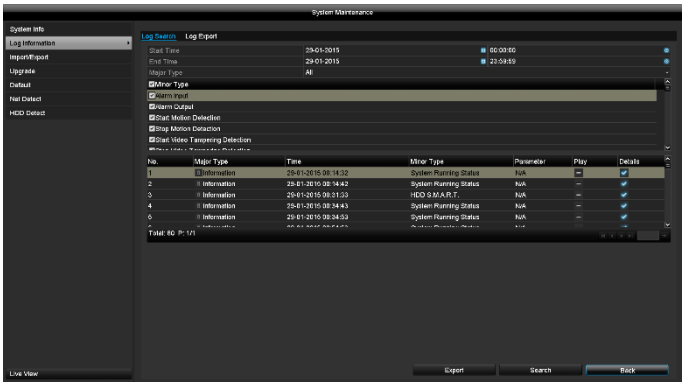
Note
You can search for "events" according to the following main types/events/parameters:

- All
- Alarm
- Warning
- Operation
- Information

Major Type	Minor Type
All	-
Alarm	• All • Motion detection Start/stop • Start/Stop Video Tampering Detection
Warning	• All • Video Signal Loss • Illegal Login • HDD Full • HDD Error • IP Conflicted • Network Disconnected • Exception Recording • Input/Output Video Standard Mismatch • Recording Buffer
Operation	• All • Power On • Local: Unscheduled Shutdown • Local: Shutdown, Reboot,

	Login, Logout • Local: Change Settings • Local: Upgrade • Local: Start Recording
Information	• All • HDD Information • HDD S.M.A.R.T. • Start Recording • Stop Recording • Delete Expired Record

1. Select the event you wish to search for in the log and then select a sub-parameter.
2. Enter the date and time under Start Time and End Time, then click on **Search**.
3. The results will then be displayed:



- You can change the page using the navigation bar:

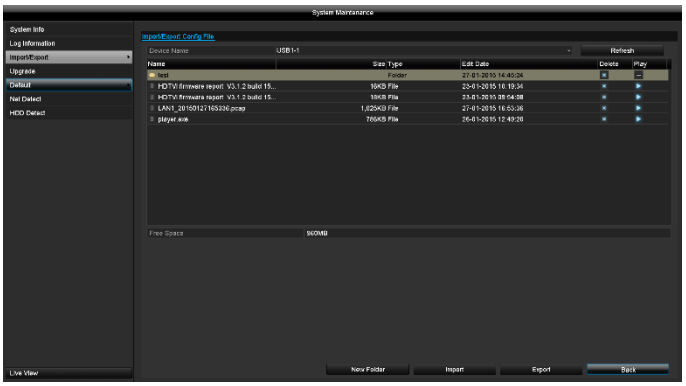
(1) (2) (3) (4) (5) (6)

Note

To scroll forwards or backwards press (3) or (2).
To jump to the first or last page press (4) or (1).
To go to a specific page number enter it in field (5) and confirm by clicking on (6).

- Click on the "Details" icon for more information.
- Click on the "Play" icon to start the recording for the event as required.
- Click on **Export** to save the log file on a USB medium.

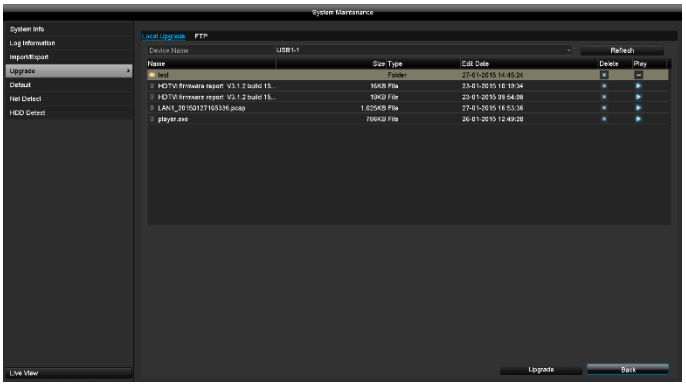
Import/Export



Note

The configuration data contains all of the settings for the device that have been adjusted since it was started up. This data can be saved on a USB medium and then used to configure another device in exactly the same way, for example.

Upgrade



Note

A device can be upgraded from a USB medium or over the network
via FTP.

- Copy the upgrade file with the *.mav file extension onto the main directory of a USB stick.
- Insert the USB stick into one of the device's USB ports.

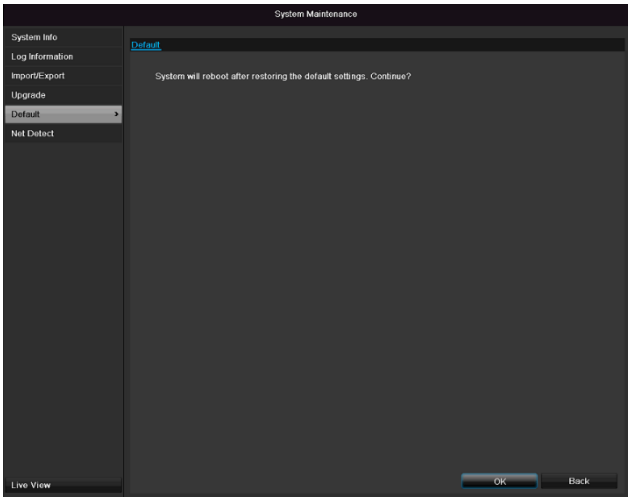
1. Select the USB port, clicking on Refresh, if necessary.
2. Select the upgrade file and click on Upgrade.
3. Wait until the device reboots.
4. If necessary, check the firmware status under System Info in the System Maintenance menu. Reset the system.

Note

Upgrades via FTP are carried out in the same way as detailed above.

- The PC must be on the same local network.
- Set up a PC as an FTP server.
- Enter the IP address of the FTP server .

Default



Note
This process involves the device being reset to the default factory settings.

Warning
All settings adjusted since the device was started up will be deleted (cameras, recording settings, PTZ, alarms etc.)
Avoid loss of data by saving the settings beforehand. It can be re-imported once the system has been reset.

Net Detect

Information regarding the network traffic and network interfaces is shown here.

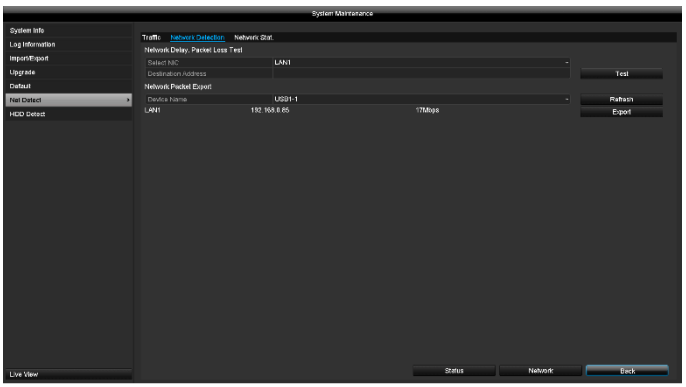
Traffic tab

The network graphs can be used to measure continuous traffic on the recorder. The amount of data sent and received is shown in graph form.
Depending on the network settings, the status and information for one or two network connections is shown in the field underneath the graph.

Sending	Shows the amount of data (in Mbit/s) currently being sent out by the recorder. The value increases as more users access video streams from the recorder over the network (web, app, PC application and network storage). Once the recorder limit value has been reached or exceeded, it will no longer be possible for all requested streams to be displayed.
Receiving	Shows the amount of data (in Mbit/s) currently being received by the recorder. The value increases as more IP cameras are added and as the bitrate of the camera stream is set to be higher. Once the recorder limit value has been reached or exceeded, the recorder will switch off camera channels.

Network Detection tab

Note
This view allows for the analysis of network and performance problems with the recorder.



Under "Network Delay, Packet Loss Test", you can check the connection to another device, such as a computer (‘pinging’). Enter the network address of the device to be checked (e.g. 192.168.0.25) and click on **Test**.

Information on two parameters will appear:

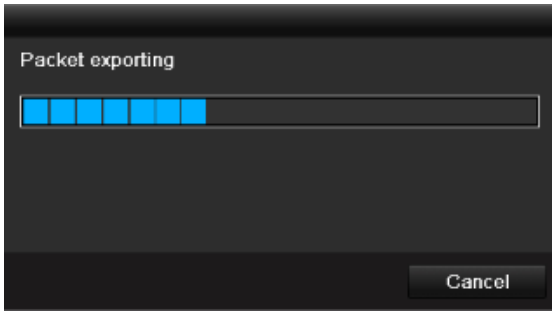
Parameter	Setting
Average delay	The time the pinged device needs to reply.
Packet loss rate:	Displays the percentage of packets that were not transmitted.

Note
If the packet loss rate is high, we recommend that the "Network Delay, Packet Loss Test" is repeated.

Note
If the packet loss rate is still high, you should check that the network cables are correct and not damaged.
The higher the packet loss rate, the poorer the connection between the pinged device and the recorder.

Under "Network Packet Export", you can export the settings of the individual connections or, depending on the setting,
the connection.

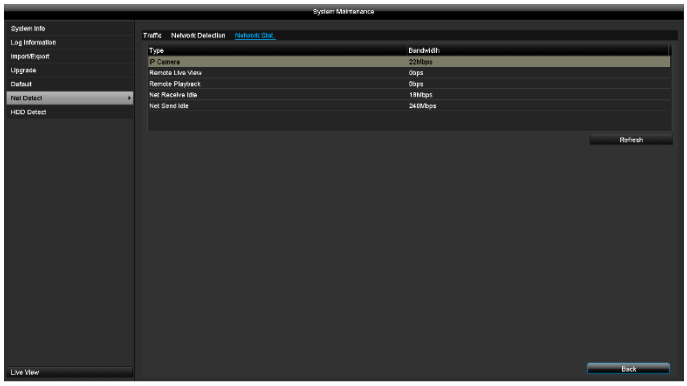
1. For "Device Name", select a storage medium to save the settings to.
2. Click on **Export**.



After the progress display finishes and initialisation is successful, an information window will appear. Close it by clicking on **OK**.

- Click on Status to display the status of the LAN connections (connected/not connected).
- Click on **Network** to change your network settings.

Network Stat. tab



The bandwidth used by the device is displayed under this tab.

You can refresh the data by clicking on **Refresh**.

HDD Detect

Click on the "HDD Detect" submenu.

This submenu gives you the option to check your hard disk drive for errors.

HDD	Selection of the hard disk drive to be processed
Self-test Status	Shows the status of the current self-test
Self-test Type	Select the type of self-test Short Test/Expanded Test/Conveyance Test
S.M.A.R.T	Click on the icon to start the self-test

Temperature (°C)	Shows the hard disk drive temperature
Power On (days)	Shows the operating days of the hard disk drive
Self-evaluation	Shows the status of the self-evaluation
Complete evaluation	Shows the status of the evaluation

Confirm the settings by clicking on **Apply** and exit the menu by clicking on **OK.**

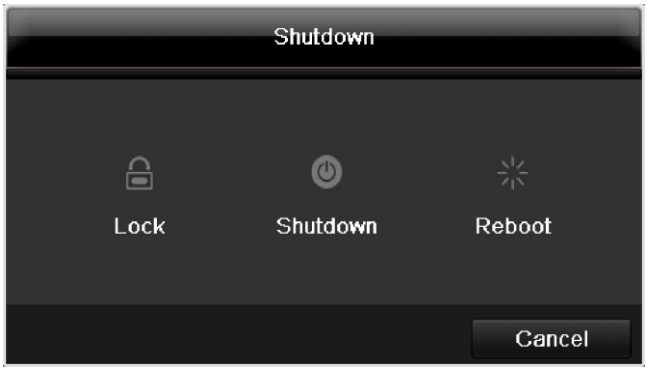
Checking the hard disk drive status

You can check the status of each hard disk drive in the "System Maintenance" menu. The S.M.A.R.T (Self-Monitoring, Analysis and Reporting Technology) information is stored in the log data.

- Open the log file and search by information/S.M.A.R.T. hard disk drive. Setting up the hard disk drive alarms
- You can specify which alarms will inform you of hard disk drive errors.

To do this, open "Exception" in the "Settings" menu.

Shutdown



Note

- Select **Lock** to lock the operating menu.
- Select **Shutdown** to switch the device off.
- Select **Reboot** to reboot the system (switch off and back on).

Display

Note
See description on page 18.

Settings: recording

Note
See description on page **Fehler! Textmarke nicht definiert.**.

Settings: Net Detect

Note
See description on page 27.

Troubleshooting

Before calling the Service department, read the following information to determine the possible cause of a malfunction.

Malfunction	Cause	Solution
No power	Mains cable not connected	Connect the mains cable securely to the socket
	Power switch set to OFF	Turn the power switch to ON
	No current in the power socket	Use another device on the socket, where necessary
No image	Screen not set for reception	Set the correct video input mode until an image from the recorder appears
	Video cable not connected properly	Connect the video cable securely
	Connected modem is switched off	Switch on the monitor
No sound	Audio cables not connected properly	Connect the audio cables securely
	Devices connected over the audio cables are not switched on	Switch on the devices connected over the audio cables
	Audio connection cable is damaged	Replace the cable
HDD is not working	Connection cables not connected properly	Connect the cables securely
	HDD defective or not system-compatible	Replace with a recommended HDD
USB port not working	Device not supported	Connect a compatible USB medium (USB 2.0)
	USB hub is in use	Connect the USB medium directly
Network access not possible	Network cable connections are loose	Connect the network cable
	Network settings are incorrect (DHCP, IP address etc.)	Check the network configuration and correct it, ifnecessary (see page **Fehler! Textmarke nicht definiert.**).
Remote control is not working	Batteries inserted with the wrong polarity or are empty	Replace the batteries. To control the device with the remote control, point it at the remote control sensor on the device
	Remote control too far away from the recorder	Use the remote controller within 7 metres from the device
	Signal blocked by obstruction between the remote control and recorder	Remove the obstruction
	Lighting too bright or fluorescent tubes in use?	Switch off strong fluorescent lighting in the immediate vicinity
Recording not possible	No HDD or HDD is not initialised	Install and initialise the HDD
Sudden deactivation of the device	Temperature inside the device is too high	Clean the device and remove any obstructions from the ventilation area

Device cleaning and care

Note

- Your device requires no maintenance.
- Protect the device from dust, dirt and moisture.

Technical data

Subject is to alterations and errors. The dimensions are approximate values.

ABUS digital recorder	TVVR35002
Video compression	H.264, MPEG-4
Camera inputs	5 x IP
Monitor outputs	1 x VGA, 1 x HDMI
Operating mode	Triplex
Resolution (live view)	VGA: 1080P: 1920*1080/60Hz, 1280*1024/60Hz, 720P: 1280*720/60Hz, 1024*768/60Hz BNC Output: PAL: 704×576, NTSC: 704×480
Resolution @ frame rate per camera (recording)	5MP /3MP /1080P /UXGA /720P /VGA /4CIF /DCIF /2CIF /CIF /QCIF @ 25fps
Total frame rate	125 fps
Compression levels	6
Post-alarm memory	0–30 sec. / 5–900 sec.
Storage medium	2 x 3,5“ SATA HDD
Data backup	2 x USB 2.0
Views	1 / 4 / 5+1
Recording modes	Manual, schedule, motion detection, alarm
Search modes	By event, date and time, S.M.A.R.T.
User levels	2 (max. 31 users)
Network access	1 x RJ45 10/100/1000 Mbps
Parallel network access	128 camera connections
Network functions	Live view, playback, data export
DDNS	√
NTP	√
Alarms	Acoustic warning, OSD signal, e-mail, CMS
Control	USB mouse
OSD languages	German, English, French, Dutch, Danish, Italian, Polish, Spanish, Swedish, Russian
Power supply	12 VDC, 5 A, 50~60 Hz
Power consumption	<10 W (without HDD)
Operating temperature	-10 °C ~ +55 °C
Dimensions (W x H x D)	440 x 45 x 275 mm
Weight	≤ 4,0 Kg ohne Festplatte
Certifications	CE

HDD storage capacity

In addition to the actual storage capacity of the installed HDD, the required storage space for recording and surveillance depends on the set resolution and frame rate of the recording.

On the included CD you can find a program in order to calculate the required amount of memory. In addition you find this software for download on our homepage.

Overview monitor output combination

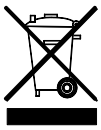
It is possible to connect a SPOT monitor. Use the table below to find out what combinations are possible. A tick indicates that the combination is possible, a cross shows that it is not.

VGA + HDMI	VGA only	HDMI only
✓	✓	✓

Disposal

Information on the EU directive on waste electrical and electronic equipment

To protect the environment, do not dispose of the device with domestic waste at the end of its service life. It can be disposed of at one of the appropriate collection points in your country. Please obey your local regulations when disposing of material.



Dispose of the device in accordance with EU directive 2002/96/EC – WEEE (Waste Electrical and Electronic Equipment). If you have any questions, please contact the department of your local authority which is responsible for waste disposal. Used equipment can be disposed of, for example, by your local or municipal authority, the local waste disposal company or your dealer.

Information on handling batteries

- Always insert batteries with the correct polarity. Never attempt to recharge the batteries supplied and do not throw them into naked flames under any circumstances. Do not use different batteries at the same time (old and new, alkaline and zinc-carbon etc.). Remove the batteries if the device is not used for a long period of time. If used improperly, there is a risk of explosion and leaking batteries!
- Take environmental protection into account – used batteries should not be disposed of in domestic waste! They must be taken to a collection point for used batteries.
- Make sure that batteries are kept away from small children. Children may put batteries in their mouths and swallow them. This can cause serious harm to their health. If this happens, consult a doctor immediately.
- Do not charge normal batteries, heat them up or throw them into naked flames (they may explode).
- Change low batteries in good time.
- Always change all the batteries at the same time and use batteries of the same type.

Important

Leaky or damaged batteries can cause chemical burns on contact with the skin.

- In this case, wear protective gloves.
- Clean the battery compartment with a dry cloth.

Important information on disposing of batteries

Your product uses batteries which are subject to the European directive 2006/66/EC and may not be disposed of with domestic waste.

Find out about the regulations for the separate collection of batteries which apply in your country.

Proper disposal of batteries helps prevent harm to health and the environment.

Batteries that contain harmful chemicals are labelled with these signs:

Pb = battery contains lead

Cd = battery contains cadmium

Hg = battery contains mercury

Information on the European RoHS directive

The device complies with the RoHS directive.

Compliance with the RoHS directive means that the product or component does not contain more than the following maximum concentrations of the following substances in homogeneous materials, unless the substance is part of an application that is excluded from the RoHS directive:

a)0.1% lead (by weight)

b)Mercury

c)Hexavalent chromium

d)Polybrominated biphenyl (PBB) and polybrominated diphenyl ether

e)0.01% cadmium (by weight)

Glossary

Overview of specialist terms

1080i

HDTV image signal with 1080 pixels and interlaced display.

16:9

Cinematographic aspect ratio on widescreen displays.

720p

HDTV image signal with 1280 x 720 pixels and progressive display.

CIF

Common Intermediate Format

Originally planned for converting PAL to the NTSC standard. CIF corresponds to a video resolution of 352 x 288 pixels (2CIF = 704 x 288 pixels; 4CIF = 704 x 576 pixels).

CINCH

Socket type used for analogue audio or CVBS video signals.

CVBS

Colour, Video, Blank and Sync – The simplest variation of video signals (also known as composite video). The image quality is comparatively low.

DDNS

Dynamic Domain Name System entry

Network service which provides and updates IP addresses of its clients in a database.

DHCP

Dynamic Host Configuration Protocol

Network protocol which allows the automatic connection of devices (clients) in existing networks. DHCP servers (e.g. Internet routers) automatically assign the IP address, network mask, gateway, DNS server and WINS server (when required). Only the automatic acquisition of IP addresses must be activated for the client in this case.

Domain

Name used for the identification of websites on the Internet (e.g. www.abus-sc.de).

Dual Stream

Dual stream is a video transmission method. A high-resolution recording and lower-resolution transmission are made over the network, for example. The main stream has a 4CIF resolution and the sub-stream has a CIF resolution.

DVR

Digital Video Recorder – A device used for recording different video and audio sources (analogue, digital). The data is compressed for recording and saved on hard disk drives (HDD).

H.264

(MPEG-4 AVC) – Standard method for the highly-efficient compression of video signals. Used on Blu-ray discs or video conference systems, for example.

HDD

Hard Disk Drive

Digital data storage on computers or DVRs.

GIGABYTE

Unit of capacity for storage media (HDD, USB, SD/MMC cards).

HDVR

Hybrid DVR – DVR used for recording analogue cameras and network cameras.

http

Hypertext Transfer Protocol

Method for transmitting data across networks. Primarily used for displaying websites in a browser.

INTERLACED

Method for improving the picture quality of a video signal without consuming extra bandwidth (scan pattern on every second line).

IP address

An address in the computer network based on the Internet protocol. Allows different devices to identify themselves in a network so that they are accessed specifically.

JPEG

Compression method for photo images with minimal loss. Most digital cameras save photos in JPEG format.

MPEG

Moving Picture Experts Group – International standard for the compression of moving images. On some DVDs, the digital audio signals are compressed and recorded in this format.

NTP

Network Time Protocol

Method for synchronising the time across networks. SNTP (Simple Network Time Protocol) is also available, offering a simplified protocol.

NTSC

Standard television format in the USA. The method is different from the European PAL system in certain ways. A full-screen NTSC image is comprised of 480 visible lines and a total of 525 lines. 60 half-images are displayed per second. Compared to PAL, the system is more susceptible to colour errors.

PAL

Phase Alternating Line – European colour TV system. Uses 576 visible image lines. Together with the lines used for signal management, a full-screen image is comprised of 625 lines. 50 half-images are displayed per second. The phase position of the colour signal changes from line to line in the image.

PANEL

Interior of a flatscreen display (e.g. LCD or plasma panels).

PC

Personal Computer – Can be used as a remote site, either with the software supplied or over a browser.

Pixel

Short for “picture element”, the smallest unit for digital image transmission or display.

PIP

Picture in Picture – Where two signal sources are shown on the screen at the same time. The second signal source is stored above the first.

PPPoE

PPP over Ethernet (point-to-point protocol)

Network transmission method used for establishing a connection over dial-up lines. Used in ADSL connections, for example).

PROGRESSIVE

Method for displaying, storing or transmitting moving images in which all the lines of each frame are drawn in sequence. This is in contrast to the interlacing used in traditional television systems.

PTZ

Pan-Tilt-Zoom

Pan, tilt and zoom function on motor-driven cameras.

RESOLUTION

Normal PAL television systems show images in 576 lines, normally with 768 pixels. HDTV works with at least 1280 x 720 pixels.

SCREEN SIZE

Size of the display from the bottom-left corner to the top-right corner in inches or centimetres.

Browser

Program for viewing websites on the Internet.

USB

Universal Serial Bus

Serial bus connection, used for connecting media whilst in operation. Maximum data rate for USB 2.0: ca. 320 Mbit/s (ca. 40 MB/s).

VGA

Video Graphics Array – Standard interface for analogue video signals in PCs (primarily deals with RGB signals).

ZOLL (inches)

Typical unit of screen size. One inch is equivalent to 2.54 centimetres. The most common sizes of 16:9 displays are 26 inch (66 cm), 32 inch (81 cm), 37 inch (94 cm), 42 inch (106 cm), 50 inch (127 cm) and 65 inch (165 cm).

Internal HDD

The internal hard disk drive (HDD) is very sensitive.
Operate the device according to the following instructions in order to avoid drive errors. Important recordings should be backed up on external media to avoid unexpected data loss.

Note

- Do not move the device during operation.
- Moisture inside the device can condense and lead to HDD malfunctions.
- When the device is turned on, never remove the mains plug from the socket or interrupt the power supply using the safety switch.
- Do not move the device immediately after switching it off. To move the device, carry out the following steps:
  1. Wait until OFF has been shown on the display for at least two minutes.
  2. Remove the mains plug from the socket.
  3. Move the device.
- Data on the HDD can be lost in the event of a power failure during operation. Use an uninterruptible power supply (UPS)!
- The HDD is very sensitive. Improper use or unsuitable surroundings can damage the HDD after some years of use. This may be indicated by the playback stopping unexpectedly or visible “mosaic” effects in the image. In some circumstances, there are no prior signs of a HDD malfunction.
- In the event of a malfunction, no recordings can be played. The HDD must be replaced in this case.

ABUS 5-channel network recorder

TVVR35002

Manufacturer:
ABUS Security-Center GmbH & Co. KG
Linker Kreuthweg 5
86444 Affing (Germany

ABUS - The good feeling of security www.abus-sc.com