

user's manual



NHDR-4xxxAHD

NoVus®

IMPORTANT SAFEGUARDS AND WARNINGS

EMC (2014/30/EC) and LVD (2014/35/EC) Directives



CE Marking

Our products are manufactured to comply with requirements of following directives and national regulations implementing the directives:

- Electromagnetic compatibility EMC 2014/30/EC.
- Low voltage LVD 2014/35/EC with further amendment. The Directive applies to electrical equipment designed for use with a voltage rating of between 50VAC and 1000VAC as well as 75VDC and 1500VDC.



WEEE Directive 2012/19/UE

Information on Disposal for Users of Waste Electrical and Electronic Equipment

This appliance is marked according to the European Directive on Waste Electrical and Electronic Equipment (2012/19/UE) and further amendments. By ensuring this product is disposed of correctly, you will help to prevent potential negative consequences for the environment and human health, which could otherwise be caused by inappropriate waste handling of this product.

The symbol on the product, or the documents accompanying the product, indicates that this appliance may not be treated as household waste. It shall be handed over to the applicable collection point for the waste electrical and electronic equipment for recycling purpose. For more information about recycling of this product, please contact your local authorities, your household waste disposal service or the shop where you purchased the product.



RoHS Directive 2011/65/EC

Concerning for human health protection and friendly environment, we assure that our products falling under RoHS Directive regulations, regarding the restriction of the use of hazardous substances in electrical and electronic equipment, were designed and manufactured in compliance with mentioned regulation. Simultaneously, we claim that our products were tested and do not contain hazardous substances exceeding limits which could have negative impact on human health or natural environment.

Information

The device, as a part of professional CCTV system used for surveillance and control, is not designed for self installation in households by individuals without technical knowledge.

The manufacturer is not responsible for defects and damages resulted from improper or inconsistent with user's manual installation of the device in the system.



The pictures from the cameras contained in this publication are simulations. Actual images from cameras may vary, depending on the model, settings, area of observation, and external conditions.

There are described all functions available in NHDR-4000AHD series in this publication. Depending on your NHDR model and/or firmware version, some features may not be available or not supported.

SAFETY REQUIREMENTS

ATTENTION!

KNOWLEDGE OF THIS MANUAL PLACED AT THE WEBSITE *WWW.NOVUSCCTV.COM* IS A PREREQUISITE FOR PROPER OPERATION OF THE DEVICE. PLEASE READ IT BEFORE PROCEEDING WITH THE INSTALLATION AND OPERATION OF THE RECORDER. DO NOT MAKE ANY REPAIRS. ALL REPAIRS CAN ONLY BE PERFORMED BY QUALIFIED SERVICE PERSONEL

1. Prior to undertaking any action please consult the following manual and read all the safety and operating instructions before starting the device.
2. Please keep this manual for the lifespan of the device in case referring to the contents of this manual is necessary;
3. All the safety precautions referred to in this manual should be strictly followed, as they have a direct influence on user's safety and durability and reliability of the device;
4. All actions conducted by the servicemen and users must be accomplished in accordance with the user's manual;
5. The device should be disconnected from power sources during maintenance procedures;
6. Usage of additional devices and components neither provided nor recommended by the producer is forbidden;
7. You are not allowed to use the device in high humidity environment (i.e. close to swimming pools, bath tubs, damp basements);
8. Mounting the device in places where proper ventilation cannot be provided (i. e. closed lockers, etc.) is not recommended, it cause lead to heat build-up and damaging the device itself as a consequence;
9. Mounting the device on unstable surface or using not recommended mounts is forbidden. Improperly mounted device may cause a fatal accident or may be seriously damaged itself. The device must be mounted by qualified personnel with proper authorization, in accordance with this user's manual.
10. Device should be supplied only from a power sources whose parameters are in accordance with those specified by the producer in the devices technical datasheet. Therefore, it is forbidden to supply the devices from a power sources with unknown parameters, unstable or incompatible with the producer's requirements;
11. You cannot allow any metal objects get inside the recorder. It might cause serious damage. If a metal object gets inside the device contact the authorised Novus service immediately.
12. Excluding of responsibility in case of damaging data on a disk or other devices: The manufacturer does not bear any responsibility in case of damaging or losing data on a hard disk or other media occurred during the usage of the product.

Due to the product is constantly being improved and optimized, some of parameters and functions described in the manual may have changed without further notice. Please refer to the latest version of the user manual on the website www.novuscctv.com. The instruction manual on the website www.novuscctv.com is always the most current version.

The NHDR-4000AHD series recorders are dedicated to work with NOVUS cameras. Using only NOVUS products guarantees the highest level of service. Connecting third-party cameras may result in lower video quality and functional limitations.

Technical changes reserved without prior notice and printing errors possible.

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DVR OPERATING

1. DVR OPERATING

1.1. Controlling via IR remote controller

The set includes an IR remote controller. Its range depends on battery status and may vary between a few and several meters. Some DVRs (i. e. NHDR-4116AHD, NHDR-4308AHD, NHDR-4316AHD) have a port to connect NV-RCEX5AHD to extend the range. Controller is supplied by two AAA batteries. Buttons functions are listed below.



| | |
|----------------|--|
| 0 - 9 | Numeric buttons for channel selection. Channel 10 and another can be selected using buttons combination. i.e. to open channel 15 press „1” and then „5”. |
| ALL | Toggles between different display formats: 1, 4, 9, 16, 25. |
| MENU | Enters to main menu. Pressing this button cancel the selection and leaving the menu also |
| SUBMENU | In live mode open the Popup menu. |
| | Navigation control „left”, „right”. In live mode open the Popup menu. |
| | Navigation control „up”, „down”. |
| SEL | Button is used for confirm the selection and start to editing fields. In live mode open the Popup menu. |
| | Switch on playback mode. Open Record Search menu. In live mode open the Popup menu. |
| | Slow down playback speed. |
| | Fast up playback speed. |
| | Turn on manual record. |
| | Playback pause, press again to play frame by frame. |
| | Stop the playback. In live mode stop the manual recording. |

1.2. Controlling via USB mouse

It is possible to control the NVR functions using a mouse with a USB interface connected to the NVR's USB port. The mouse button functions are described below:

- ❶ Left mouse button:
 - A single click displays the channel menu and selects options from the menu.
 - Double-clicking on any camera in the division displays it in full screen. Double-clicking again returns to the previous display format.
 - Clicking, holding and dragging any camera in the division changes the order of the channels. During playback - marks a part of recordings for export. When using digital zoom - changes the position of the enlarged part of the image.

FIRST LAUNCH WIZARD

- ② Right mouse button
 - A single click on any camera displays the menu bar. When a menu or any window is displayed - it closes.
- ③ Roll
 - Turning the roll changes the amount of digital zoom. Change the value of drop-down field in menu.

2. FIRST LAUNCH WIZARD

2.1. First launch - language selection and password creating

After the first launch a window to choose and set language, administrator name and password will be displayed.

Default language is **English**. If you change the language, all the descriptions will be translated automatically.

| | | |
|--------------------------------------|--|--|
| Language | ENGLISH | |
| Device ID | 000001 | (000001) |
| New Admin Name | admin | |
| Password Strength | <div><div></div><div></div><div></div></div> | Medium |
| New Admin Password | •••••• | <input type="checkbox"/> Show Password |
| Confirm Password | •••••• | <input type="checkbox"/> Show Password |
| Unlock Pattern Enable | Enable | Draw |
| <input type="button" value="Apply"/> | | |

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Clicking on each field expands drop-down list or displays on-screen keyboard.

Device ID - option is not used. Leave it unchanged.

New Admin Name - name of administrator account (default: **admin**).

Password Strenght - the scale showing how strong is the written password. It is updated on the fly while typing the password in the next fiels. Password strenght can be **Low**, **Medium** or **High** and marked with Red, Yellow or Green color.

FIRST LAUNCH WIZARD

New Admin Password - it is required to create access password. It must contain 5-15 characters.

Confirm password - enter the access password again to confirm.

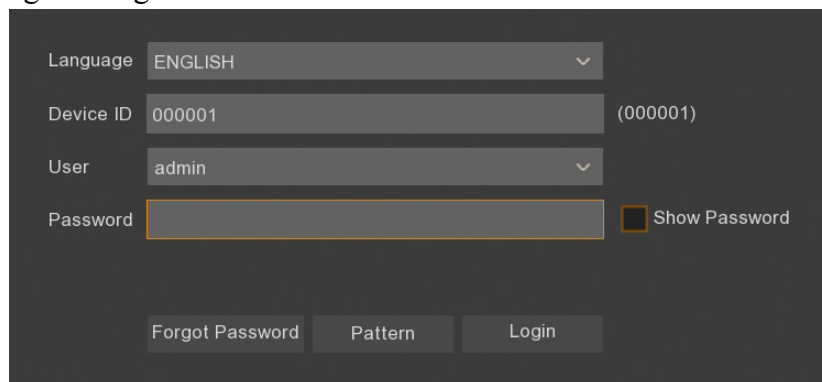
Show Password - shows password instead of masking marks.

Unlock Pattern Enable - enables an alternative authentication method for the password using the pattern. It allows to enter administrative settings and make changes. Some settings, such as disk formatting, import/export settings still require password authentication.

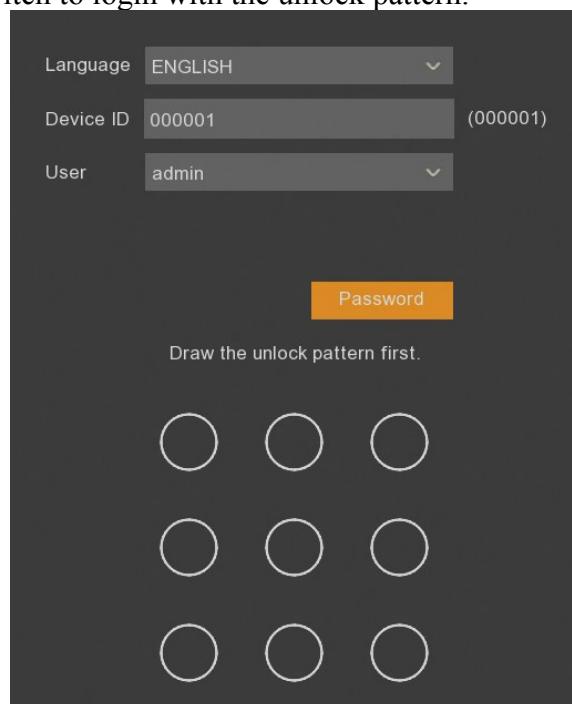
Draw - the function shows when Unlock Pattern function is enabled. It allows to create an unlock pattern. There is 3x3 board to create a pattern by dragging the mouse cursor. The pattern has to be confirmed by dragging the mouse cursor again.

Apply - saves settings.

The next step is to log in using the created user data.



Use the **Pattern** button to switch to login with the unlock pattern.



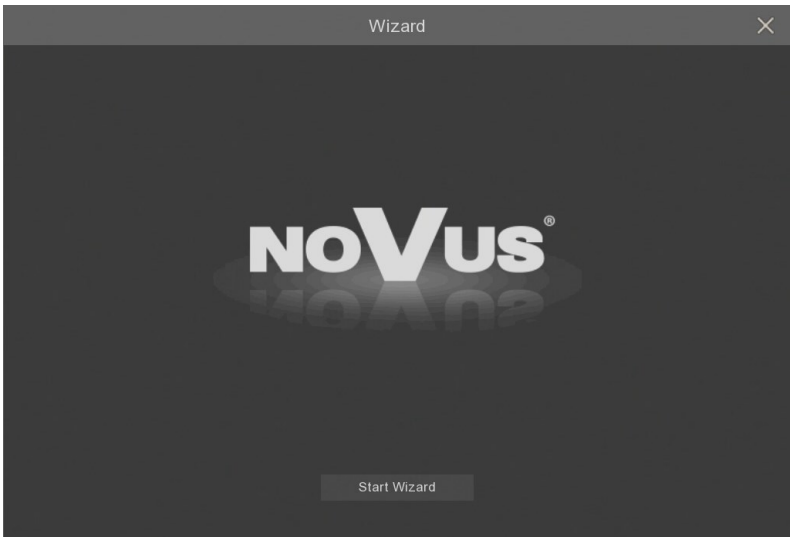
The **Password** button returns to the previous view.

After authentication the **First Launch Wizard** opens.

FIRST LAUNCH WIZARD

2.2. First launch wizard

The first launch wizard provides a quick way to configure basic DVR settings.



When the **Start Wizard** will be pressed, subsequent sections of the wizard will appear. The **Next** and **Previous** buttons allow to toggle between consecutive sections. The **Cancel** button exits the wizard without saving any changes.

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2.3. Network Settings

A screenshot of the "Wizard" window showing the "Network" configuration section. The window has a title bar with "Wizard" and a close button. The "Network" section is highlighted. It contains three sub-sections: "Local Connection", "DNS", and "Port".
Local Connection
DHCP: ☐
IP Address: 192.168.001.100
Subnet Mask: 255.255.255.000
Gateway: 192.168.001.001
DNS
DNS1: 192.168.001.254
DNS2: 008.008.008.008
Port
A table with 7 columns: Index, Service, Protocol, Internal Port, External Port, and UPNP Status.

| | Service | Protocol | Internal Port | External Port | UPNP Status |
|---|-------------|----------|---------------|---------------|-------------|
| 1 | Web Port | TCP | 00080 | 00080 | Inactive |
| 2 | Client Port | TCP | 09000 | 09000 | Inactive |
| 3 | RTSP Port | TCP | 00554 | 00554 | Inactive |

At the bottom right of the window are "Next" and "Cancel" buttons.

FIRST LAUNCH WIZARD

This section contains basic network settings.

DHCP - enable network settings retrieval from a DHCP server.

IP Address - network address of the recorder in the local network.

Subnet Mask - number dividing in IP address the network part.

Gateway - IP address of the router for Internet connection.

DNS1 - domain server address.

DNS2 - alternative domain server address.

Web Port - the port used to connect with the DVR network plugin by Internet Explorer browser.

Client Port - the port used to connect with the DVR by NHDR-5000Viewer, NMS, RxCamView.

RTSP Port - the port used for RTSP streaming from NVR.

HTTPS - the port used while the connection with HTTPS protocol.

UPnP - enable the UPnP discovery feature. The UPnP function must be supported by the router.

UPnP Status - informs if the UPnP function is active for the port (**Active** or **Inactive**).

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2.4. Time and date settings

This section contains all the date and time options in the recorder.

| Wizard | | | |
|-------------|---------------|-----|-----|
| Date/Time | | | |
| | Date and Time | NTP | DST |
| Date | 22/02/2019 | | |
| Time | 16:24:12 | | |
| Date Format | DD/MM/YYYY | | |
| Time Format | 24Hour | | |
| Time Zone | GMT+01:00 | | |

Date - select day from calendar.

Time - current DVR time. It can be written manually.

Date Format - display format of the date (MM/DD/YY, YY-MM-DD, DD/MM/YY).

Time Format - display format of time (12Hour or 24 Hour).

Time Zone - display a time zone depending on the region.

The recorder allows to synchronize time with the NTP server. The server can be selected from drop-down list. The **User-Defined** option allows to enter any IP address of the time server.

The correct network settings and connection are required to allow communication with the NTP server.

FIRST LAUNCH WIZARD

Wizard

Date/Time

Date and Time **NTP** DST

Enable NTP ☐

Server Address pool.ntp.org

Update Now

The recorder allows to set daylight saving time.

Wizard

Date/Time

Date and Time NTP **DST**

Enable DST ☐

Time Offset 1Hour

DST Mode Week

Start Time Mar. The 2nd Sun. 02:00:00

End Time Nov. The 1st Sun. 02:00:00

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Time Offset - defines time advancing (**1Hour**, **2Hour**).

DST Mode - defines method of switching by specified **Week**, or by specified **Day**.

Start Time - defines first day of DST.

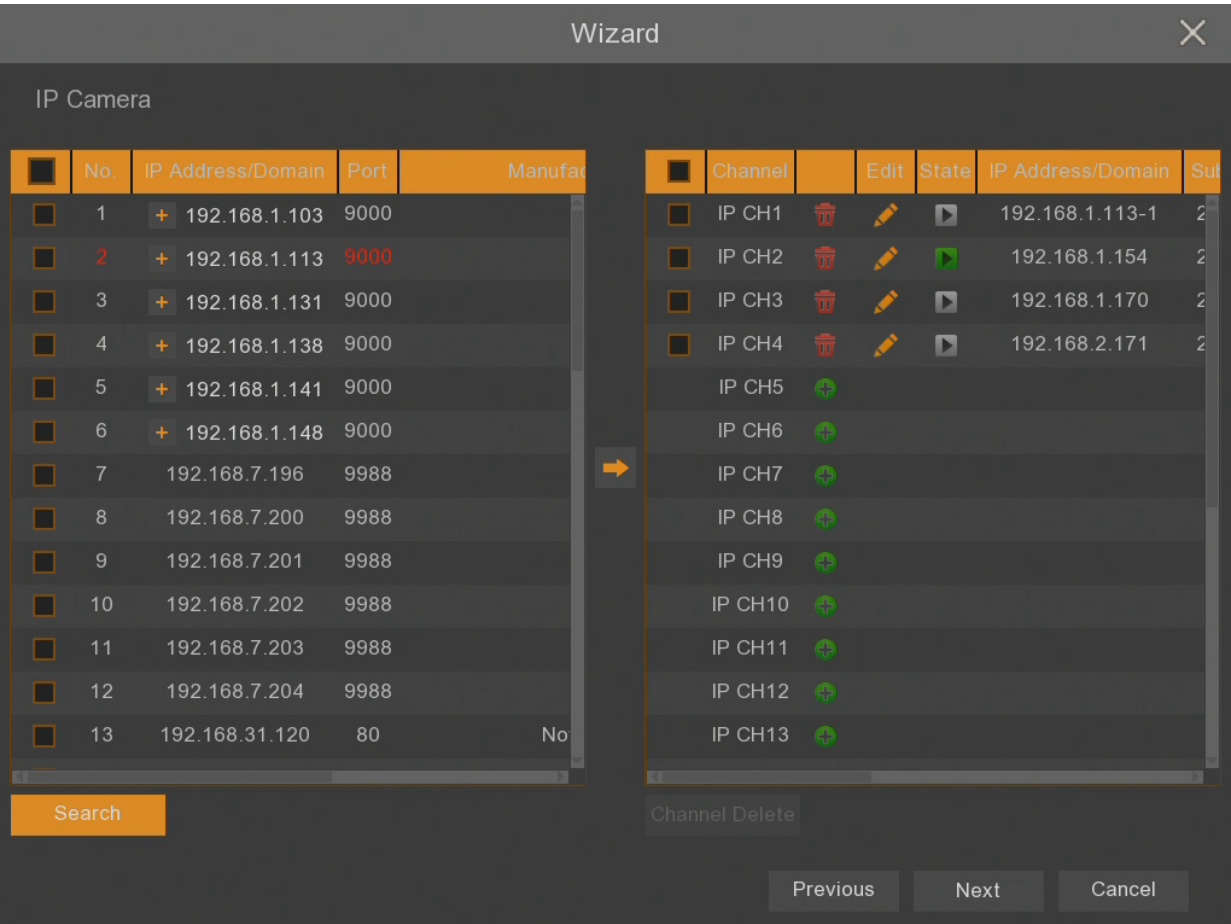
End Time - defines last day of DST.


2.5. Adding IP cameras


The next section allows to add IP channels to the recorder. The DVR automatically searches all IP cameras, NHDR and NVR-4000 from Novus in local IP network.

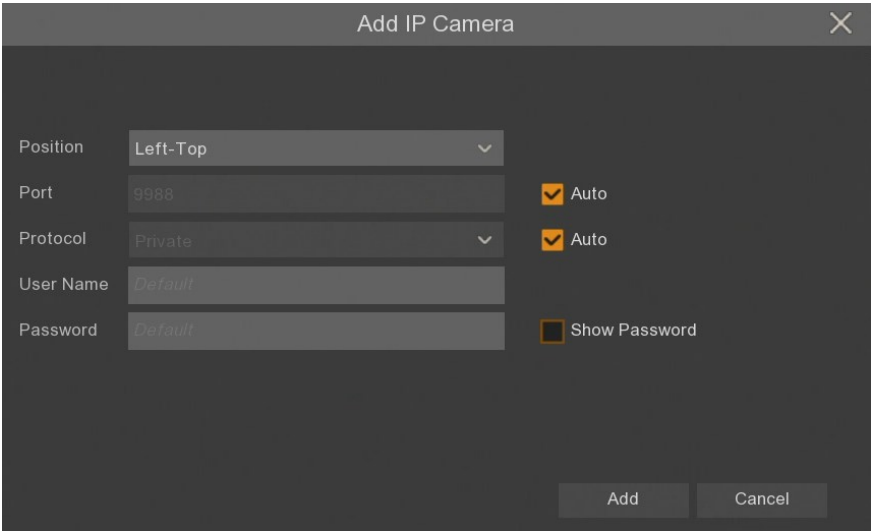
On the left side is a list of found devices, on the right side the list of connected channels.

FIRST LAUNCH WIZARD



The **Search** button starts researching IP devices. The recorders IP addresses are with  sign, which allow to add separated channels from recorders. If a channel has already been added from the recorder, then its IP address is indicated by a red color.

There is an arrow  in the center of the window which allows to add channels. If there are selected multiple channels, the following dialog box appears to add a group, where are defined the same **User Name** and **Password**.



FIRST LAUNCH WIZARD

Position - specifies the location of the channel name

Port - Port number to connect devices. It is automatically recognized by default

Protocol - protocol to connect devices. The Novus 2000 and 4000 series IP cameras, NHDR and NVR-4000 recorders are using **Private** protocol. Another devices are using **ONVIF** protocol. The protocol is automatically recognized by default

User Name - name of the user which is used to log in to the device. The default user name is **root**.

Password - user password which is used to log in to the device. The default password is **pass**

The **Add** button confirms the entered data.

Adding a single channel there shows the following window, where can be defined the above parameters, the IP address (or domain), channel name (Alias) and channel number to assign a specific camera.

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| No. | IP Address/Domain | Port | Manufacturer | Device Type | MAC Address |
|-----|-------------------|------|--------------|-----------------|-------------|
| 1 | + 192.168.1.103 | 9000 | | NVR-4104-H1-SET | 00-1B-9D-0E |
| 2 | + 192.168.1.113 | 9000 | | NHDR | 00-1B-9D-63 |
| 3 | + 192.168.1.131 | 9000 | | NHDR | 00-1B-9D-63 |
| 4 | + 192.168.1.138 | 9000 | | N5208EN | 00-23-63-70 |
| 5 | + 192.168.1.141 | 9000 | | N5816 | 00-23-63-75 |
| 6 | + 192.168.1.148 | 9000 | | NVR-4308P8-H1 | 00-1B-9D-6D |
| 7 | 192.168.7.196 | 9988 | | | 00-23-63-71 |
| 8 | 192.168.7.200 | 9988 | | IP CAMERA | 00-1B-9D-0B |
| 9 | 192.168.7.201 | 9988 | | IP CAMERA | 00-1B-9D-0E |
| 10 | 192.168.7.202 | 9988 | | IP CAMERA | 00-1B-9D-0E |

IP Address/Domain

192.168.7.202

Alias

IP CH5

Position

Left-Top

Port

9988

Protocol

Private

User Name

root

Password

••••

Bind channel

IP CH5

☐ Show Password

Search

Default Password

Add

Cancel

FIRST LAUNCH WIZARD

In the right part of the wizard window you can find the following indications:



- Adding a single camera. The Add IP Camera window from the previous page appears.



- Deleting a single camera.



- Editing added camera parameters. A completed window appears from the previous page.



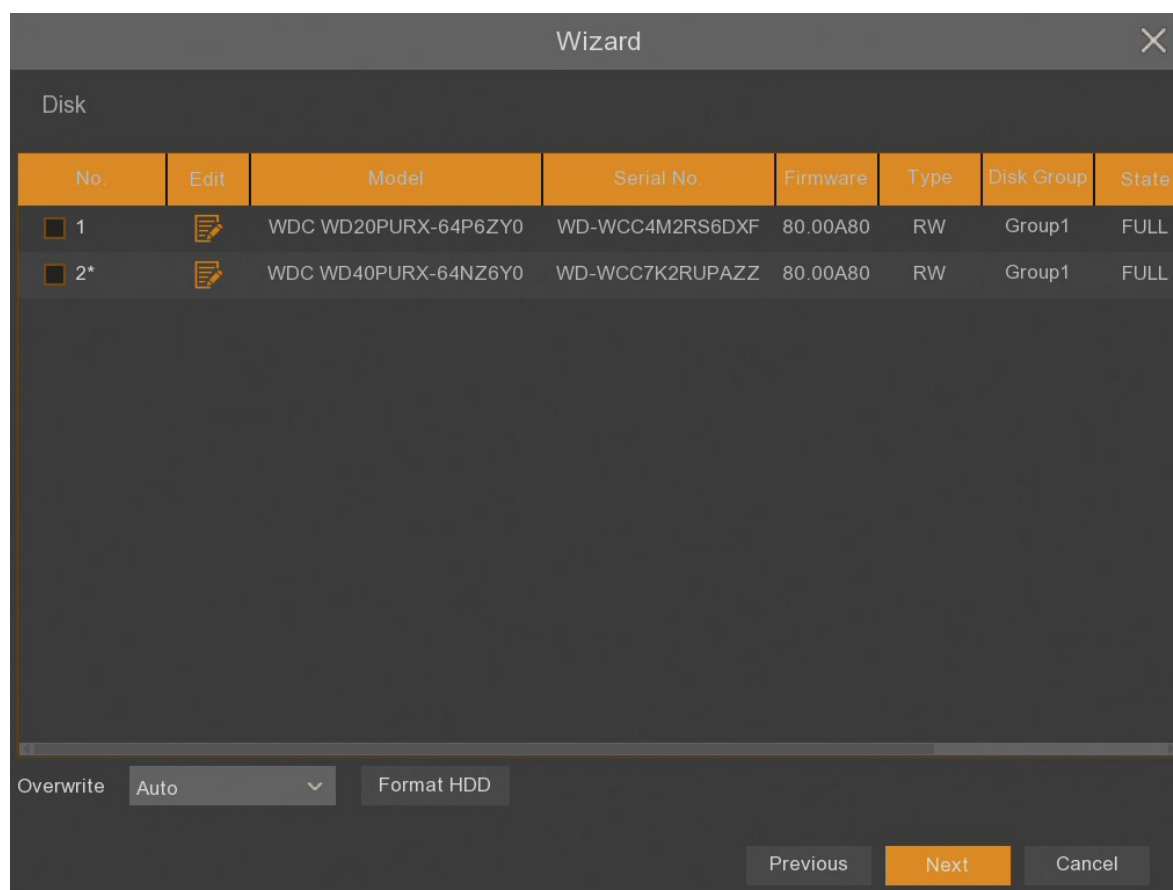
- Information, that the camera is connected.



- Information, that there is no connection to the camera. Check the entered parameters and the network connection.

2.6. Hard drives

The next section of the wizard displays a list of disks connected to the DVR.



No. - number of the disk. * means recording.

Edit - allow to change the HDD mode. HDD modes: Read/Write, Redundance, Read Only.

Model, Serial No., Firmware - disk information.

Type - information about HDD mode, which can be changed in Edit field. Default mode is Read/Write.

State - information about HDDs filling.

FIRST LAUNCH WIZARD

Free / Total - information about free and total HDD space.

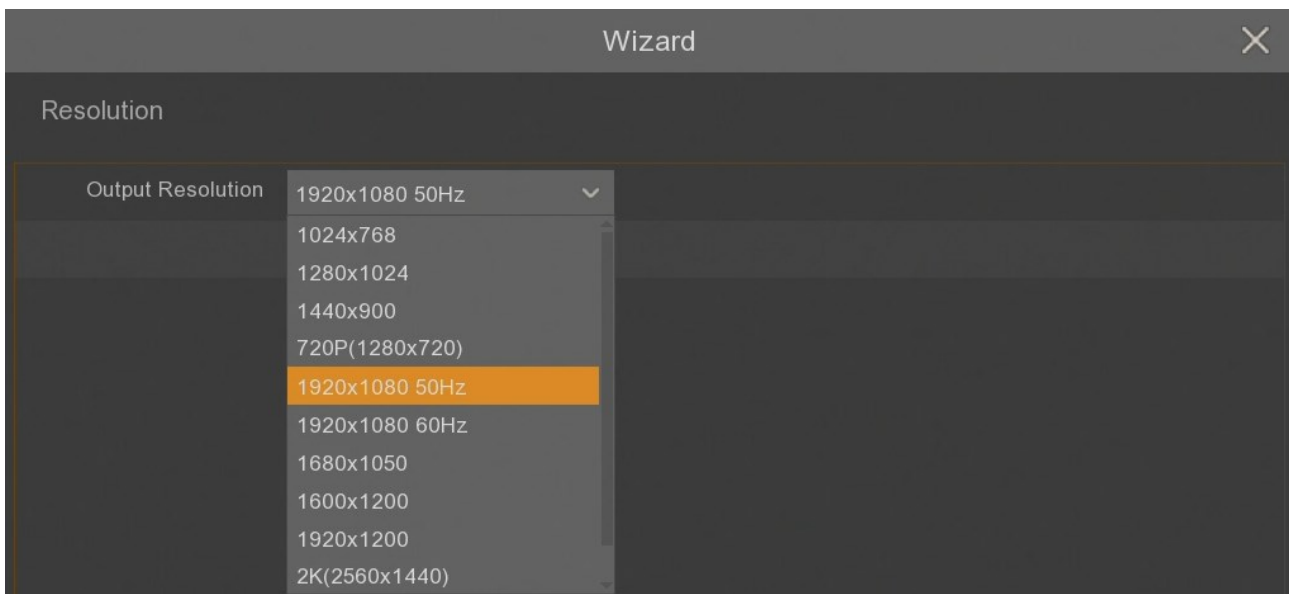
Free / Total Time - estimated time of recording, which should be recorded on the free hard disk space and the total recording time. The time depends on the encoding and the amount of video frames.

Overwrite - the default **Auto** setting cause recordings overwriting from the oldest when there is no free space on HDDs. When overwriting is **OFF**, the DVR will stop recording when the disk is full. It is also possible to set the time after which recordings will be overwritten: **1 day, 3 days, 7 days, 14 days, 30 days** and **90 days**. It means the longest time of stored recordings, after which the recordings will be deleted.

Format HDD - formatting the hard disk. Select the HDD before it.

Caution! You need to format the disk to start recording. Formatting deletes all data permanently from the hard disk.

2.7. Monitor output resolution



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The next section allows to select the monitor output resolution. Following HDMI output resolutions are supported: 1024x768, 1280x1024, 1440x900, 1280x720, 1920x1080, 1680x1050, 1600x1200, 1920x1200, 3840x2160. VGA output supports resolutions up to 1920x1080.

Press the **Apply** button after selecting the resolution. When you change the resolution, you are prompted to confirm the change. If the change is not confirmed within 20 seconds, the previous resolution is reverted.

Note! During the first launch the image resolution on the HDMI and VGA outputs is set to 1280x1024.

2.8. P2P identifier

DVR allows to connect over the Internet using P2P service. The connection to the recorder is done by an external server, even if the recorder does not have a public IP address. The recorder need Internet access only. The connection to the DVR via the **P2P ID** is available from the NHDR-5000viewer software or Rxcamview application.

FIRST LAUNCH WIZARD

The **QR code** contains the **P2P ID** and can be scanned eg. in the RXCAMview application.



The Wizard window displays the following configuration details:

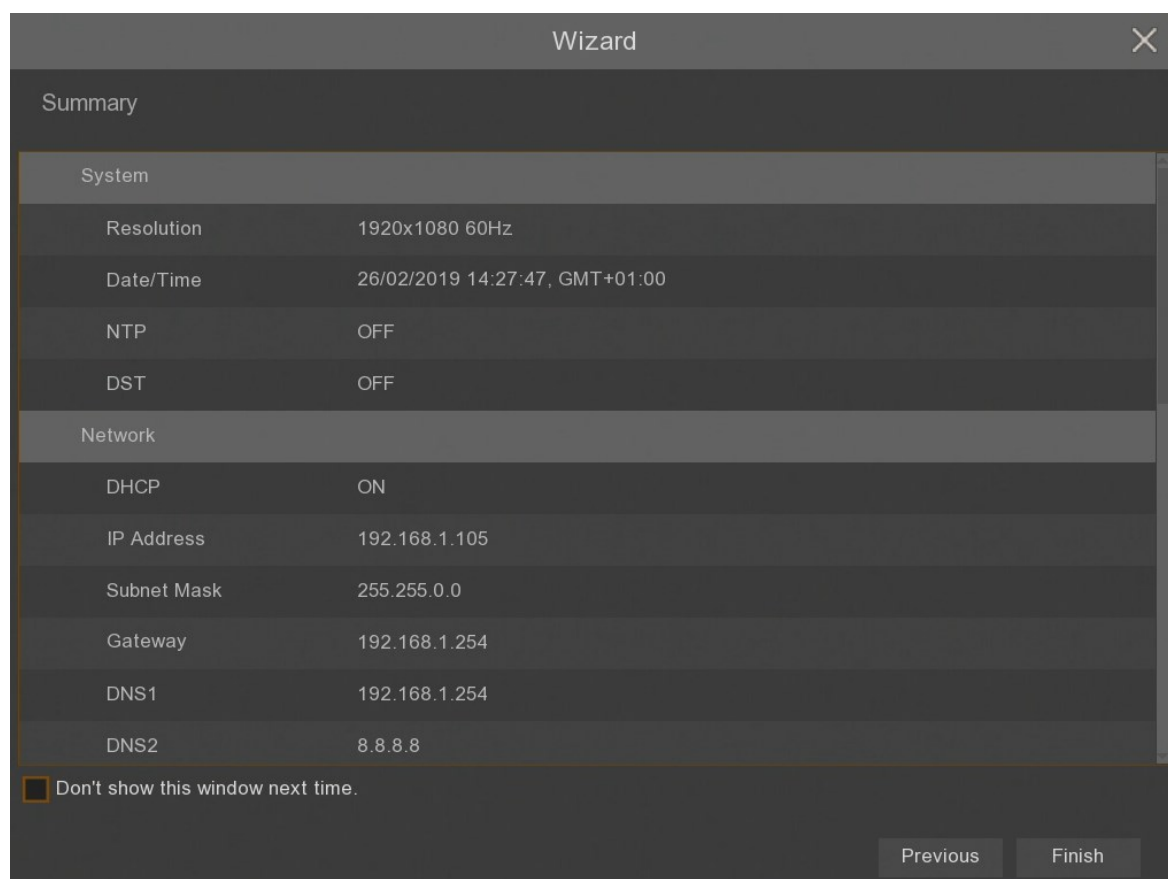
| Mobile | |
|------------------|------------------|
| P2P ID | |
| P2P ID | RSV1096514096575 |
| Local Connection | |
| IP Address | 192.168.1.105 |
| Subnet Mask | 255.255.0.0 |
| Port | |
| Web Port | 80 |
| Client Port | 9000 |

A QR code is displayed next to the P2P ID, which contains the P2P ID information.

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Caution! P2P service is provided by third-party companies. AAT HOLDING S.A. is not responsible for the operation of the service.

2.9. Wizard Summary



The Wizard Summary window displays the following configuration details:

| System | |
|-------------|--------------------------------|
| Resolution | 1920x1080 60Hz |
| Date/Time | 26/02/2019 14:27:47, GMT+01:00 |
| NTP | OFF |
| DST | OFF |
| Network | |
| DHCP | ON |
| IP Address | 192.168.1.105 |
| Subnet Mask | 255.255.0.0 |
| Gateway | 192.168.1.254 |
| DNS1 | 192.168.1.254 |
| DNS2 | 8.8.8.8 |

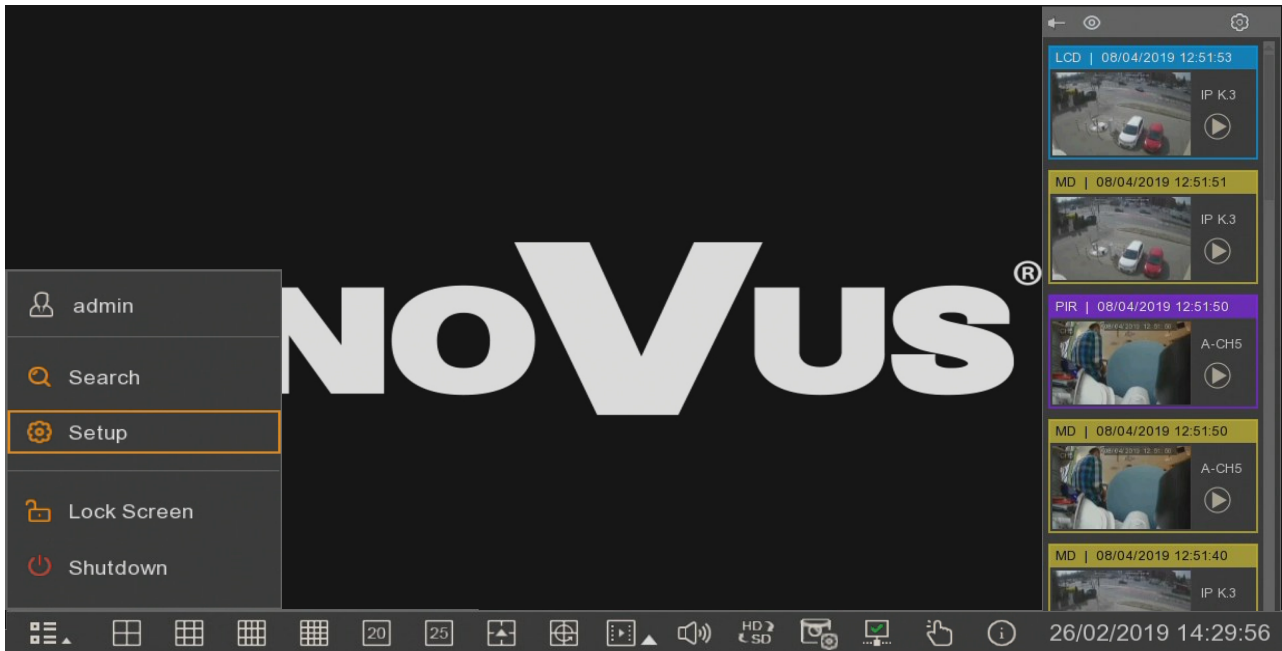
At the bottom, there is a checkbox labeled "Don't show this window next time." and two buttons: "Previous" and "Finish".

MAIN SCREEN


The summary displays parameters settings. The user can select **Don't show this window next time** check box to stop displaying the wizard after DVR restart. The **Finish** button saves all settings and closes the wizard.

3. MAIN SCREEN

When the initialization process is complete, live camera images are displayed on the monitor screen. Moving the mouse cursor to the bottom of the screen displays the menu bar.



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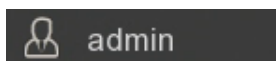
To display the menu in the recorder, press menu button , then select **Settings**. A detailed description of the menu can be found later in this manual.

Then, log in with the using created datas.

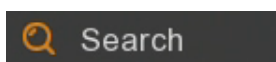
The menu bar contains the following options:



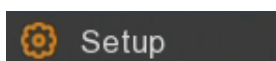
-Expands the additional menu described below.



-Currently logged in user, click to switch user.



-Starts the playback mode of recordings.



-Displays the recorder menu.



- User logout.



-Allows to disable DVR, reboot, log out.



-Select the split video window (double-click on the image displays the camera in full screen mode. Double-click again reverts to split.).

MAIN SCREEN



- Start sequence display.



- Start playback mode. Click on triangle mark to start quick playback recent recordings (5sec. - 5min).



- Switches on/off audio, change audio level, mute.



- Switches the stream of all cameras, HD means main stream, SD means substream.



- Preview policy - allow to select Realtime, Balanced, Smooth. Mode defines buffer used for smoothness the video.



- Network connection status: no connection.



- Network connection status: no connection with the router.



- Network connection status: connection OK.



- Manual mode allows for switch on record manually.

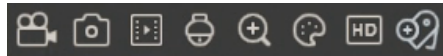


- Displays DVR information window, recorded channels, network.

26/02/2019 14:29:56

- Displays date and time.

The channel menu is displayed when you press the left mouse button on the selected video window



- Switches on/off manual record.



- Takes a screenshot of a given channel.



- Starts quick playback last 5 minutes recordings.



- Open PTZ panel.



- Turns on digital zoom.



- Picture settings - allows to adjust hue, brightness, contrast, saturation, sharpness levels (only for analog cameras, Novus 2000 and 4000 series IP cameras).



- Switches the stream of camera, HD means main stream, SD means substream (only for IP channels).




- Add tags (the camera must be in recording process).

MAIN SCREEN

Note! For IP cameras, the DVR displays main or substream depending on the display performance. If the main stream is chosen, depending on the available hardware resources, some channels may not be displayed. The message "Resource not enough" will appear in the place of the channel that cannot be displayed.

A pop-up window with current events appears on the right side of the screen. It shows the events with different colours: yellow (motion detection), red (alarm input), purple (PIR), blue (intelligent analysis). Each event has an additional summary description, date and time of occurrence and the

camera name. The  icon allows to quick play a records with a specific event.



-Pin allows to clip the window permanently so that it does not obscor the video images.

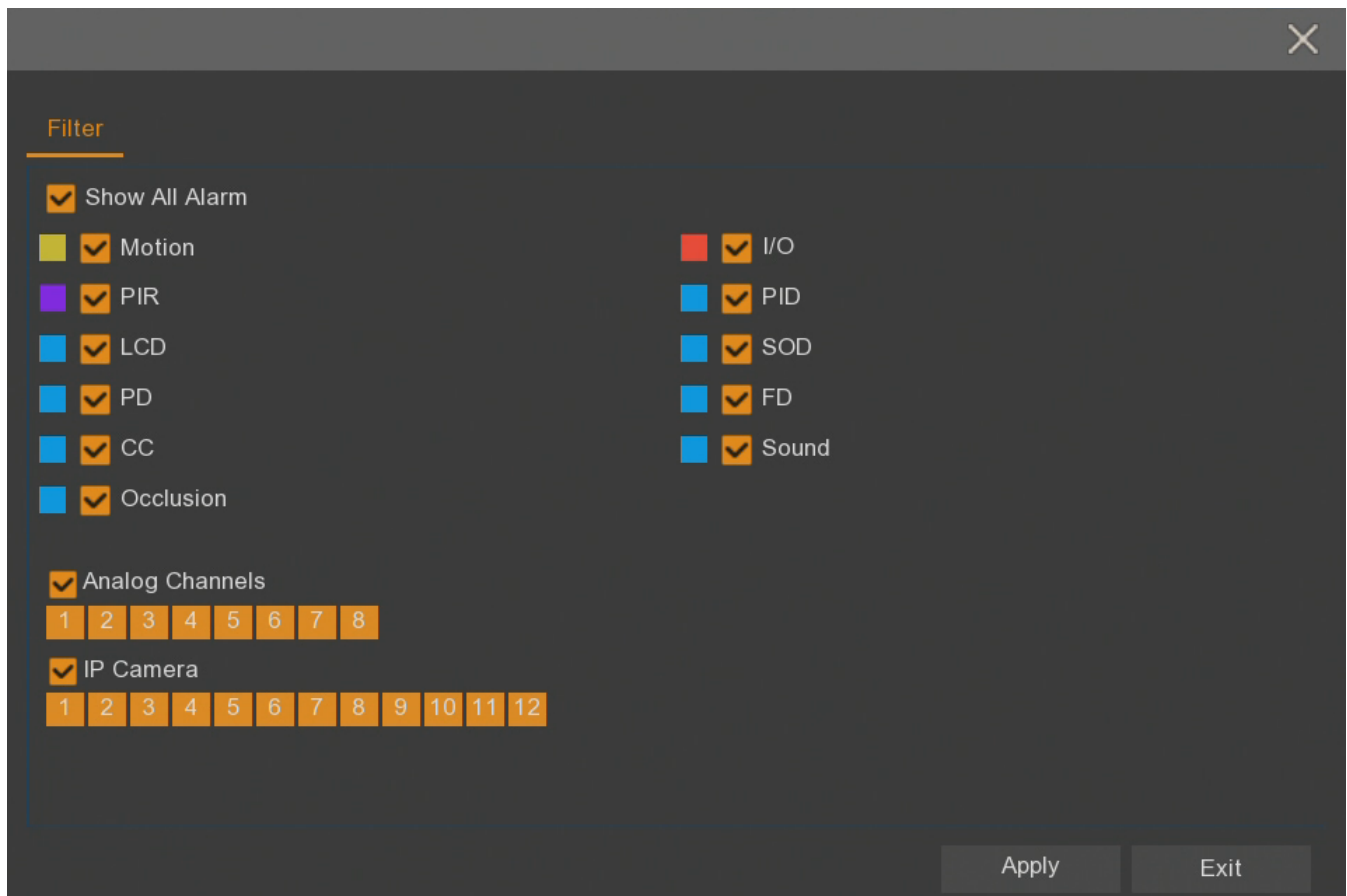


- Hide / show pop-up window.



- Opens the filter window.

There are icons at the top of the pop-up window:



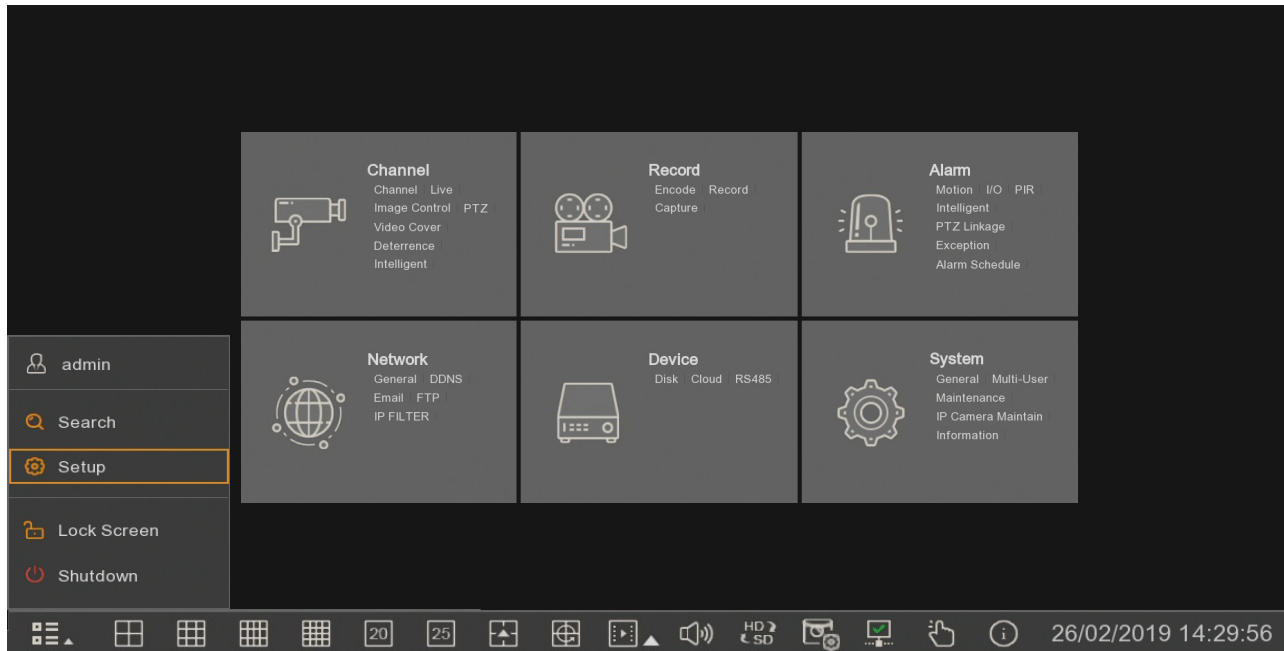
The filter window allow to define what kind of events and which cameras appears in the pop-up window.

ARCHIVING AND EXPORTING RECORDS

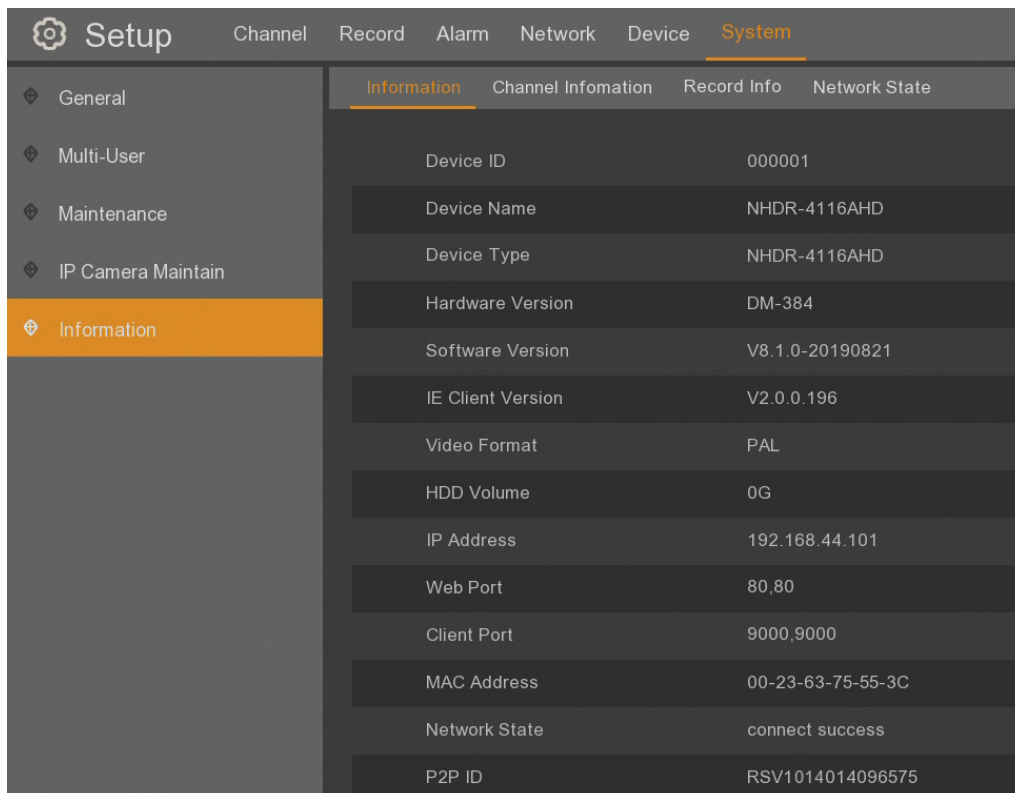
4. MAIN MENU

To display the main menu, press the button on the menu bar and select **Settings**. Then log in using created administrator datas.

The menu is shown below.



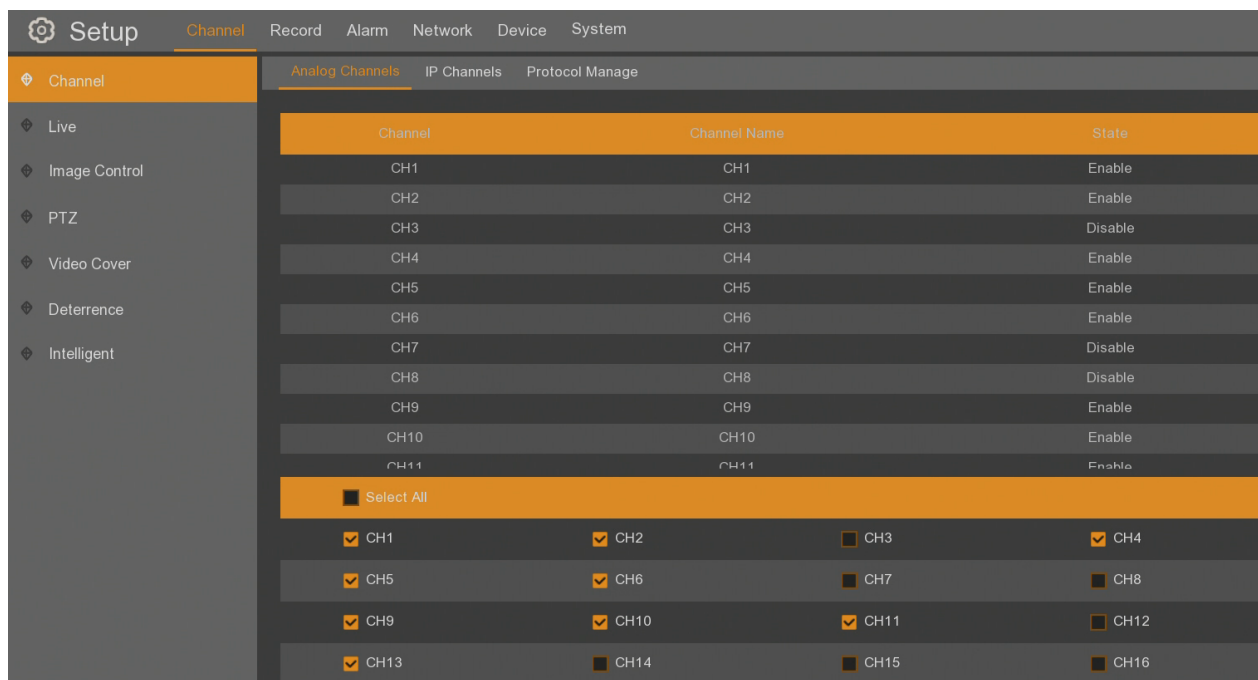
Sample menu screen:



5. CHANNEL SETTINGS

5.1. Switching on/off analog channels

The first tab of **Channel** submenu - **Analog Channels** shows the table of DVR analog channels, quantity, names and states. Channel name can be changed in **Live** subsection.




| Channel | Channel Name | State |
|---------|--------------|---------|
| CH1 | CH1 | Enable |
| CH2 | CH2 | Enable |
| CH3 | CH3 | Disable |
| CH4 | CH4 | Enable |
| CH5 | CH5 | Enable |
| CH6 | CH6 | Enable |
| CH7 | CH7 | Disable |
| CH8 | CH8 | Disable |
| CH9 | CH9 | Enable |
| CH10 | CH10 | Enable |
| CH11 | CH11 | Enable |
| CH12 | CH12 | Disable |
| CH13 | CH13 | Enable |
| CH14 | CH14 | Disable |
| CH15 | CH15 | Disable |
| CH16 | CH16 | Disable |

The bottom part contains list of checkboxes which allows to switch on/off analog channels. All channels are switched on as default. Disabling analog channels increases the number of IP cameras that can be connected to DVR - one to one. Disabling all analog channels, the recorder starts working in IP mode.

The recorder has to be restarted after changing the channels state.

Note! NHDR-4316AHD model do not allow to switch off analog channels. It can work only in hybrid mode.

5.2. Adding IP channels

The **IP Channels** tab allow to add IP cameras. The DVR automatically search local network to find all IP cameras and Novus recorders (NHDR recorders and NVR-4000 series). The **Search** button start researching IP devices. List of found devices is located at the top of the window. Recorders on the list have  icon which allows to open list of recorder channels and choose the channels to connect. If any of its channels is already connected, the DVR is marked with red color.

CHANNEL SETTINGS

To add cameras, select the checkboxes. For registrator select the checkbox, open the list of channels using icon and specify the channels. The **Add** button allow to add marked group of devices. The window below appears to provide common parameters for the whole group:

Position - specifies the position of the channel name

Port - port number used for the connection. It is automatically recognized. The Novus 2000 and 4000 series IP cameras connect using 9988 port, the Novus NHDR recorders and NVR-4000 series connect using 9000 port by default. Other cameras connect using 80 port be default.

CHANNEL SETTINGS

Protocol - protocol used for connection. Novus 2000 and 4000 series IP cameras., NHDR and NVR-4000 series recorders connect using **Private** protocol. Other cameras connect using **ONVIF** protocol. It is recognized automatically by default. It can be chosen one of the **Custom** protocols, which allow to add video stream using RTSP protocol. **Custom** protocols are described in next chapter.

User Name - device user name which is used to log in for connection. Default user name is **root**.

Password - device user password which is used to log in for connection. Default password is **pass**.

To confirm data use **Add** button.

If one or no channel on the device list is selected the **Add** button show following window. In addition to the previous parameters it can be added IP address (or domain), channel name (Alias) and channel number (Bind channel) to be assigned.

| No. | IP Address/Domain | Port | Manufacturer | Device Type | MAC Address |
|-----|-------------------|------|--------------|-----------------|-------------------|
| 1 | 192.168.1.14 | 9000 | | NHDR | 00-1B-9D-63-AE-21 |
| 2 | 192.168.1.44 | 80 | Novus | | 68-05-CA-71-CA-53 |
| 3 | 192.168.1.119 | 9000 | | NVR-4104-H1-SET | 00-1B-9D-0F-92-43 |
| 4 | 192.168.1.124 | 9000 | | IP CAMERA | 00-23-63-7C-25-FF |
| 5 | 192.168.1.138 | 9000 | | N5208EN | 00-23-63-70-9E-AA |
| 6 | 192.168.1.177 | 9000 | | HY-DVR | 00-23-63-6A-D9-E8 |
| 7 | 192.168.1.196 | 80 | Novus | | 68-05-CA-71-CA-49 |
| 8 | 192.168.2.170 | 9988 | | IP CAMERA | 00-1B-9D-0B-A1-FE |
| 9 | 192.168.7.201 | 9988 | | IP CAMERA | 00-1B-9D-0B-C6-0D |
| 10 | 192.168.7.204 | 9988 | | IP CAMERA | 00-1B-9D-0B-BE-7A |

IP Address/Domain: 192.168.25.10

Alias: IP CH10

Position: Left-Top

Port: 9988

Protocol: Private

User Name: root

Password: ••••

Bind channel: IP CH10

Buttons: Search, Default Password, Add, Cancel

There is also **Search** button which allow to research IP devices and **Default Password** button to define default user names and passwords for each protocol.

CHANNEL SETTINGS

Another button in the **IP channels** window is **Add All**. After using this function, the recorder adds all the cameras found in the local network. If the quantity of cameras in the network is bigger than the number of possible IP channels, the recorder will display the message **No available channel to add more cameras**.

In the bottom part of **IP Channels** window is the list of connected cameras. Below icons can be found there:



- Adding single camera. Add IP camera window appears (like on the previous page).



- Removing single camera.



- Edit parameters of added camera. Filled Add IP camera window appears (like on the previous page).



- Information that the camera is connected properly. After clicking shows video stream.



- Information that there is no connection to the camera. Entered parameters and network connection have to be checked.



- Edit network parameters in added camera. The icon is active only for added cameras.

Buttons below the list:

Auto Assign IP to Camera(s) - add cameras to free DVR channels.

Channel Delete - remove marked channel(s).

Default Password - allows to define defined user names and passwords for each protocol. It makes adding of IP channel faster.

There is an information in bottom right corner **Total Band Width** showing the maximum total bandwidth for all IP cameras (depends on the DVR model and the number of enabled analog cameras) and **Used Band Width** showing actual bandwidth used by connected cameras.

CHANNEL SETTINGS

5.3. Protocol Manage menu

The **Protocol Manage** tab allows to define any RTSP streams to be retrieved by the recorder.

Setup Channel Record Alarm Network Device System

Channel Analog Channels IP Channels Protocol Manage

Live

Image Control

PTZ

Video Cover

Deterrence

Intelligent

Custom Protocol Custom Protocol1

Protocol Name Custom 1

Stream Type Mainstream Substream

Enable Substream ☒

Type RTSP RTSP

Port 554 554

Resources Path rtsp://192.168.1.150:554/ch01/0 rtsp://192.168.1.150:554/ch01/1

Example :
[type]//[IP address]:[port]/[resources path]
rtsp://192.168.0.1:554/resourcesPath

eng

The options of submenu:

Custom Protocol - number of protocol.

Protocol Name - name of protocol defined by the user.

Enable Substream - marked checkbox informs, if defined channel gets one or two video streams.

Type - type of stream - RTSP.

Port - port number of video stream (554 as default).

Resources Path - template for the path to the mainstream and substream. There can be entered the entire path of the RTSP stream with IP address and port. There can be entered only the last part of the path after the port number.

Below these options is an example of RTSP path.

CHANNEL SETTINGS

5.4. „Live” tab - OSD settings

Live submenu shows the table with connected cameras. The table columns are described below. Some columns may not be visible, to see them you need to move the scroll bar at the bottom of the screen:

Channel - show number of channel.

Setup - open the settings panel with video stream from camera. It allow to change camera settings (all described below as next columns) and image settings: **Hue**, **Bright**, **Contrast**, **Saturation** and **Sharpness**. It is possible to change position of channel name and date on the video image (drag and drop).

Covert - enables / disables covering of live camera image.

Channel Name - allows to enter the channel name that will be displayed in the image

Show Name - enables / disables the display of the channel name.

Date Format - the format of displayed date (**MM/DD/YYYY**, **YYYY-MM-DD**, **DD/MM/YYYY**).

Time Format - the format of displayed time (**12 hours**, **24 hours**).

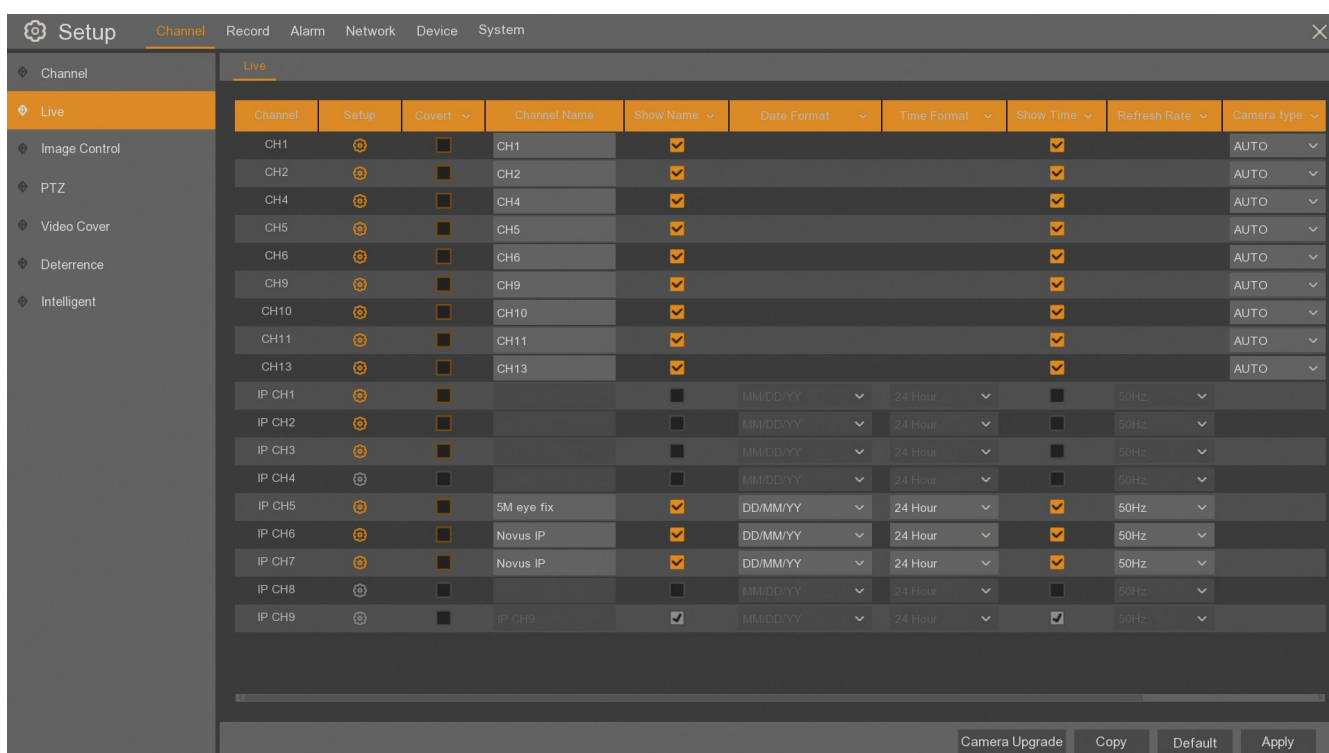
Show Time - enables / disables the display of time and date.

Refresh Rate - selection of refresh rate (**50Hz**, **60Hz**) - available for Novus 2000 and 4000 series IP cameras.

Camera type - selection of camera type (**AUTO**, **AHD**, **TVI**, **CVI**, **AHD-3MP**, **AHD-4MP**, **AHD-5MP**, **AHD-8MP**). It is set to **AUTO** as default, the recorder automatically recognizes the type of camera - the function is available only for analog channels.

EQ levels - selection of amplification level for different coaxial cable lenght: **1(0-50m)**, **2(50-150m)**, **3(150-250m)**, **4(250-350m)**, **5(350-450m)**. It is set to **AUTO** as default, the recorder automatically recognizes the signal strenght of camera - the function is available only for analog channels.

Camera Upgrade - allows to upgrade analog cameras. The specified camera has to be marked in this column and confirmed by **Camera Upgrade** button. Function is inactive.



| Channel | Setup | Covert | Channel Name | Show Name | Date Format | Time Format | Show Time | Refresh Rate | Camera type |
|---------|-------|--------------------------|--------------|-------------------------------------|-------------|-------------|-------------------------------------|--------------|-------------|
| CH1 | | <input type="checkbox"/> | CH1 | <input checked="" type="checkbox"/> | | | <input checked="" type="checkbox"/> | | AUTO |
| CH2 | | <input type="checkbox"/> | CH2 | <input checked="" type="checkbox"/> | | | <input checked="" type="checkbox"/> | | AUTO |
| CH4 | | <input type="checkbox"/> | CH4 | <input checked="" type="checkbox"/> | | | <input checked="" type="checkbox"/> | | AUTO |
| CH5 | | <input type="checkbox"/> | CH5 | <input checked="" type="checkbox"/> | | | <input checked="" type="checkbox"/> | | AUTO |
| CH6 | | <input type="checkbox"/> | CH6 | <input checked="" type="checkbox"/> | | | <input checked="" type="checkbox"/> | | AUTO |
| CH9 | | <input type="checkbox"/> | CH9 | <input checked="" type="checkbox"/> | | | <input checked="" type="checkbox"/> | | AUTO |
| CH10 | | <input type="checkbox"/> | CH10 | <input checked="" type="checkbox"/> | | | <input checked="" type="checkbox"/> | | AUTO |
| CH11 | | <input type="checkbox"/> | CH11 | <input checked="" type="checkbox"/> | | | <input checked="" type="checkbox"/> | | AUTO |
| CH13 | | <input type="checkbox"/> | CH13 | <input checked="" type="checkbox"/> | | | <input checked="" type="checkbox"/> | | AUTO |
| IP CH1 | | <input type="checkbox"/> | | <input type="checkbox"/> | MM/DD/YY | 24 Hour | <input type="checkbox"/> | 50Hz | |
| IP CH2 | | <input type="checkbox"/> | | <input type="checkbox"/> | MM/DD/YY | 24 Hour | <input type="checkbox"/> | 50Hz | |
| IP CH3 | | <input type="checkbox"/> | | <input type="checkbox"/> | MM/DD/YY | 24 Hour | <input type="checkbox"/> | 50Hz | |
| IP CH4 | | <input type="checkbox"/> | | <input type="checkbox"/> | MM/DD/YY | 24 Hour | <input type="checkbox"/> | 50Hz | |
| IP CH5 | | <input type="checkbox"/> | 5M eye fix | <input checked="" type="checkbox"/> | DD/MM/YY | 24 Hour | <input checked="" type="checkbox"/> | 50Hz | |
| IP CH6 | | <input type="checkbox"/> | Novus IP | <input checked="" type="checkbox"/> | DD/MM/YY | 24 Hour | <input checked="" type="checkbox"/> | 50Hz | |
| IP CH7 | | <input type="checkbox"/> | Novus IP | <input checked="" type="checkbox"/> | DD/MM/YY | 24 Hour | <input checked="" type="checkbox"/> | 50Hz | |
| IP CH8 | | <input type="checkbox"/> | | <input type="checkbox"/> | MM/DD/YY | 24 Hour | <input type="checkbox"/> | 50Hz | |
| IP CH9 | | <input type="checkbox"/> | IP CH9 | <input checked="" type="checkbox"/> | MM/DD/YY | 24 Hour | <input checked="" type="checkbox"/> | 50Hz | |

Camera Upgrade Copy Default Apply

CHANNEL SETTINGS

5.5. Image Control - camera settings

The **Image Control** submenu contains IP camera settings related to the image. The options are summarized in the table. To enter to the edit mode press icon in the **Setup** column. The edit mode is enable only for Novus 2000 and 4000 series IP cameras.

Setup

Channel

Record

Alarm

Network

Device

System

Channel

Live

Image Control

PTZ

Video Cover

Deterrence

Intelligent

Image Control

Channel

Setup

IR-CUT Mode

IR-CUT Delay

Lens Flip

Angle Flip

Angle Trad

BLC Level

3D Noise Reduction

DWDR

AGC

White Balance

Time Exposure

Defog Level

IP CH1

GPIO Auto

0

OFF

OFF

0

OFF

Disable

OFF

OFF

Auto

Auto

Disable

IP CH2

GPIO Auto

0

OFF

OFF

0

OFF

Disable

OFF

OFF

Auto

Auto

Disable

IP CH3

GPIO Auto

0

OFF

OFF

0

OFF

Disable

OFF

OFF

Auto

Auto

Disable

IP CH4

GPIO Auto

0

OFF

OFF

0

OFF

Disable

OFF

OFF

Auto

Auto

Disable

IP CH5

GPIO Auto

2

OFF

OFF

0

OFF

Auto

OFF

Middle

Auto

Auto

Disable

IP CH6

GPIO Auto

2

OFF

OFF

180

OFF

Auto

OFF

Middle

Auto

Auto

Disable

IP CH7

GPIO Auto

2

OFF

OFF

0

OFF

Auto

OFF

Middle

Auto

Auto

Disable

IP CH8

GPIO Auto

0

OFF

OFF

0

OFF

Disable

OFF

OFF

Auto

Auto

Disable

IP CH9

GPIO Auto

2

OFF

OFF

0

OFF

Auto

OFF

Middle

Auto

Auto

Auto

Channel - show number of channel.

IR-CUT Mode - choice of camera operating mode. Available options: **GPIO Auto**, **Color Mode**, **Black White Mode**, **Schedule(B/W)**.

IR-CUT Delay - the delay time between turning on/off IR illuminator and switching the camera operating mode. The adjustment range of delay: 1 ~ 36 sec.

IR LED - switching the IR iluminator (**OFF**, **ON**, **Auto**).

Lens Flip, **Angle Flip**, **Corridor Mode**, **Angle Rotation** - options to modify the displayed image.

Backlight - enables / disables backlight function, set level and area.

3D Noise Reduction - there is the ability to set three modes: **Auto** - camera automatic decides to enable reduction and by slider, **Manual** - manually adjust the level of noise correction and **Disable** - digital noise reduction is turned off.

WDR - enables or disables the WDR (Wide Dynamic Range) function, set level.

HLC - enables or disables the HLC (Highlight Compensation) function, set level and area.

AGC - defines the strength of the AGC (Automatic Gain Control).

White Balance - allows to set way of working a white balance automation. Available options: **Auto** - automatics itself corrects the color balance, **Manual** - after selecting this option, the sliders to manually adjust the level of color components appears, **Indoor** - an option dedicated when the camera works inside the room.

Shutter - allows selection of shutter mode. Available options: **Auto** and **Manual**.

Time Exposure - function closely associated with option **Shutter**, has a twofold effect: when the Shutter option is set to **Auto** determines the longest shutter speed, which can use AE. When the Shutter option is set to **Manual**, AE takes as a constant value selected shutter speed.

Defog Mode - feature to improved visibility in bad weather (fog, rain etc). Available options: **Disable**, **Auto**, **Manual**. If you select **Manual** the slider appears for setting the strength of the function.

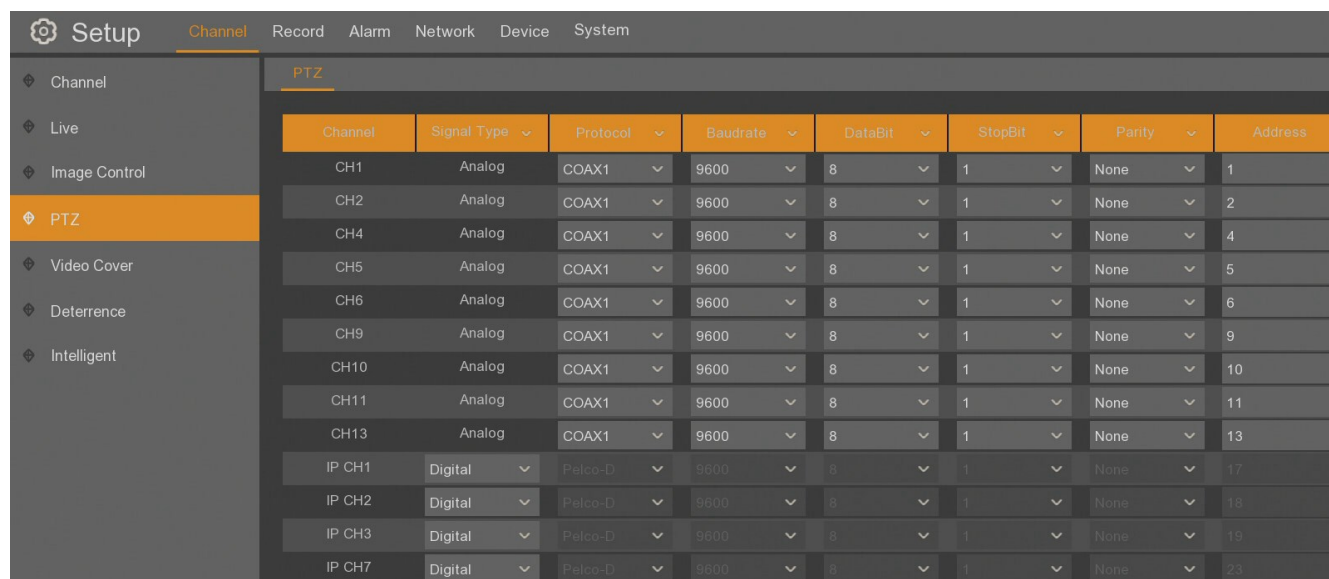
| | |
|--------------------|--------------------------|
| Channel | IP CH6 |
| IR-CUT Mode | GPIO Auto |
| IR-CUT Delay | 2 |
| IR-LED | Auto |
| Lens Flip | <input type="checkbox"/> |
| Angle Flip | <input type="checkbox"/> |
| Corridor Mode | <input type="checkbox"/> |
| Angle Trad | 180 |
| Back Light | Disable |
| 3D Noise Reduction | Auto |
| WDR | Disable |
| HLC | Disable |
| AGC | 64 |
| White Balance | Auto |
| Shutter | Auto |
| Time Exposure | 1/8 |
| Defog Mode | Disable |

Default

CHANNEL SETTINGS

5.6. PTZ - control settings for speeddome and motorzoom cameras

The **PTZ** submenu allows to configure how to control speeddome and motorzoom cameras.



| Channel | Signal Type | Protocol | Baudrate | DataBit | StopBit | Parity | Address |
|---------|-------------|----------|----------|---------|---------|--------|---------|
| CH1 | Analog | COAX1 | 9600 | 8 | 1 | None | 1 |
| CH2 | Analog | COAX1 | 9600 | 8 | 1 | None | 2 |
| CH4 | Analog | COAX1 | 9600 | 8 | 1 | None | 4 |
| CH5 | Analog | COAX1 | 9600 | 8 | 1 | None | 5 |
| CH6 | Analog | COAX1 | 9600 | 8 | 1 | None | 6 |
| CH9 | Analog | COAX1 | 9600 | 8 | 1 | None | 9 |
| CH10 | Analog | COAX1 | 9600 | 8 | 1 | None | 10 |
| CH11 | Analog | COAX1 | 9600 | 8 | 1 | None | 11 |
| CH13 | Analog | COAX1 | 9600 | 8 | 1 | None | 13 |
| IP CH1 | Digital | Pelco-D | 9600 | 8 | 1 | None | 17 |
| IP CH2 | Digital | Pelco-D | 9600 | 8 | 1 | None | 18 |
| IP CH3 | Digital | Pelco-D | 9600 | 8 | 1 | None | 19 |
| IP CH7 | Digital | Pelco-D | 9600 | 8 | 1 | None | 23 |

Channel - show number of channel.

Signal type - **Digital** or **Analog**. Digital option allow to control the camera via Ethernet network using the Onvif protocol. Analog option allow to control the camera via the RS485 bus (if available)

The following options are available after selecting an analog control type:

Protocol - transmission protocol (**Pelco-D**, **Pelco-P**, **COAX1**, **COAX2**). To use Pelco protocol, the control cables of cameras have to be connected to the RS485 connectors on the DVR backpanel.

Baudrate - defines transmission baudrate (transmission speed) (**1200**, **2400**, **4800**, **9600**).

Data bit - number of data bits (**8**, **7**, **6**, **5**).

Stop bit - number of stop bits (**1**, **2**).

Parity - Parity Bit (**None**, **Even**, **Odd**, **Always 0**, **Always 1**).

Address - address assigned to the camera.

5.7. Video Cover (Privacy Zones)

The **Video Cover** submenu contains settings of privacy zones excluded from monitoring. The zones can be set for analog cameras and Novus 2000 and 4000 series IP cameras. The DVR allows to set 4 zones per channel.

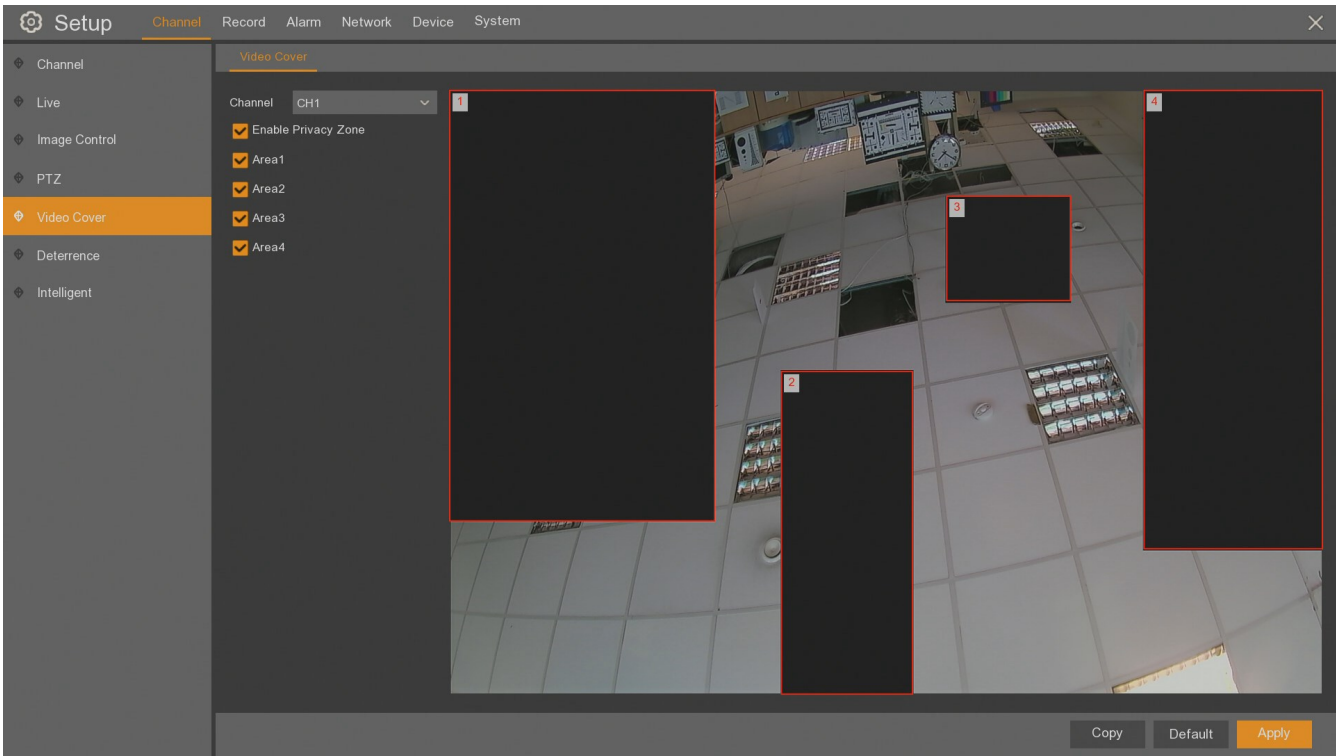
Channel - select the camera to set the privacy zone

Enable privacy zones - enables / disables the function for the selected channel.

Area 1 2 3 4 - enables / disables the selected zone. It is possible to set up to 4 zones per channel.

The zones will be displayed in the video image. The zone can be dragged to any position. Pressing at the edge of the zone allows to change its dimensions. **Apply** button saves the settings of privacy zones.

CHANNEL SETTINGS



eng

5.8. Deterrence

Inactive menu.

5.9. Intelligent

Intelligent video functions are available in NHDR-43xxAHD models for one analog channel. It is possible to use three intelligent functions in the same time:

If one of that function is switched on for one camera, it is not possible to switch on any intelligent function for another camera. Additionally it is possible to switch intelligent functions for Novus 2000 and 4000 series IP cameras. The settings are set in IP cameras. Intelligent functions depend on IP camera model and firmware.

Setup

Channel

Record

Alarm

Network

Device

System

Channel

Live

Image Control

PTZ

Video Cover

Deterrence

Intelligent

PID

LCD

SOD

PD

FD

CC

Sound Detection

Occlusion Detection

Schedule

Intelligent Analysis

Channel

CH1

CH2

CH4

CH5

CH6

IP CH1

IP CH4

IP CH5

Intelligent menu contains tabs for all available functions. Each tab shows a table with camera list which can use such functions. The user can switch on/off function in the table, get into the settings, set the sensitivity and scene.

Additionally NHDR-43xxAHD models have audio detection and occlusion detection for up to 8 analog cameras.

CHANNEL SETTINGS

Note! Intelligent functions for analog camera and spot monitor function are mutually exclusive. To activate one function, disable the other. The recorder must be restarted after the change.

There are buttons in the bottom right corner:

- **Alarm** - contains settings of the system reaction to events. These settings are located in the menu **Alarm / Intelligent**. The button allows to quickly access these settings. Response configuration for intelligent analysis is described in chapter 7.4.
- **Copy** - copy the intelligent settings of one camera to another.
- **Default** - restore the intelligent settings to default parameters.
- **Apply** - saves all the intelligent settings.

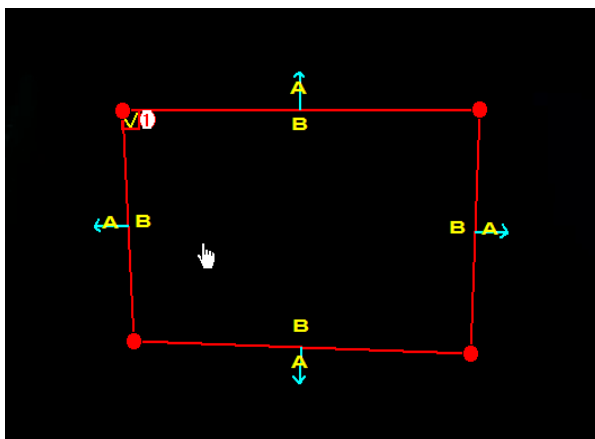
Intelligent analysis event is marked with “S” letter on the camera image.

5.9.1. PID - Perimeter Intrusion Detection

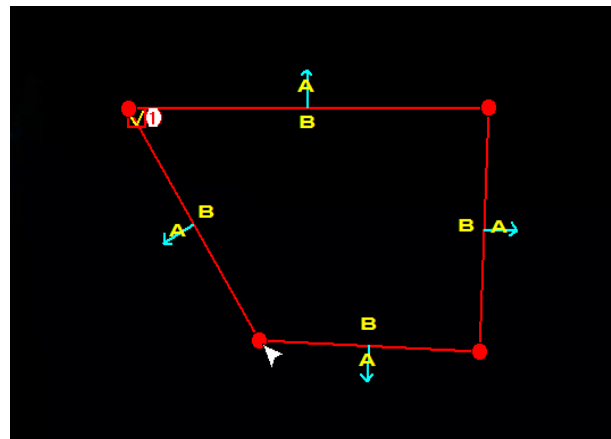
The function detects the entry and / or exit of an object from defined zones. It is available for one analog camera (NHDR-43xxAHD recorders), Novus 2000 and 4000 series IP cameras supporting this function. The camera table allows to switch on / off the function, set detection sensitivity (from 1 to 4) and define the scene (**Indoor** or **Outdoor**).

After entering the settings, enable **IVA Lines**, select **Rule number**, switch it on and create the zone on the camera image. The menu allows to configure up to four detection zones. An alarm event is generated when object crossing the border zone in the direction specified in the settings (**Rule Type**).

To draw a zone left-click on the video image in the selected place and drag with the mouse - drawing the zone begins. In the place, where the end of the border should be, click again and move to drawing next edge. The zone can only have the shape of a convex quadrangle. After changing the rule number, another zones can be created in the same way.



By placing the cursor inside the zone, we can move it to another location.



To change the shape or size of the zone, place the cursor on one of the corners of the zone and drag it to another location.

CHANNEL SETTINGS

After creating the zones it is possible to modify the shape, position and parameters of detection. To modify the selected zone click on the red square next to the zone number that you want to modify. As confirmation of the selection, the zone will change color from yellow to red. Then it is possible to move edges of the zone. The **Save** button saves the changes.

Channel - selection of the camera for editing parameters.

IVA Lines - displaying zone lines and moving objects on the video image - option available only for analog cameras. IP cameras display zone lines and moving objects only in the main stream.

Rule number - selection of the zone to be set (1, 2, 3 or 4).

Rule switch - activating selected zone.

Rule type - defines the direction of the object movement that will trigger the alarm event: entry into the zone (**A->B**), exit from the zone (**B->A**) or both directions (**A<->B**). The direction is additionally indicated by arrows in the image.

Remove button deletes the chosen zone (the zone have to be selected), **Remove All** button deletes all zones, **Save** button confirm all changes. Right click of the mouse exits from the settings.

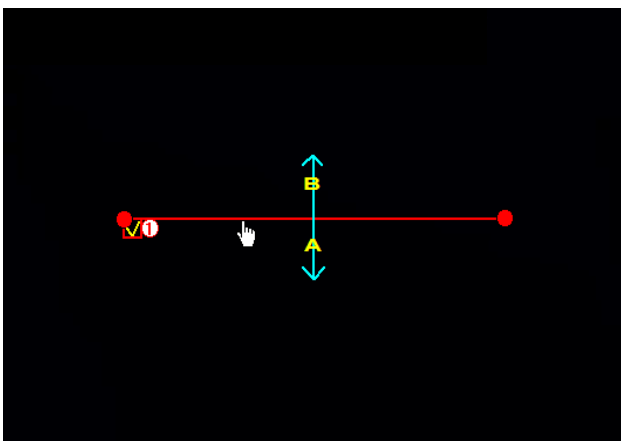
Note! The "Perimeter Intrusion Detection" function can not be activated if one of the functions: "Pedestrian Detection", "Face Detection" or "Cross Counting" is activated.

eng

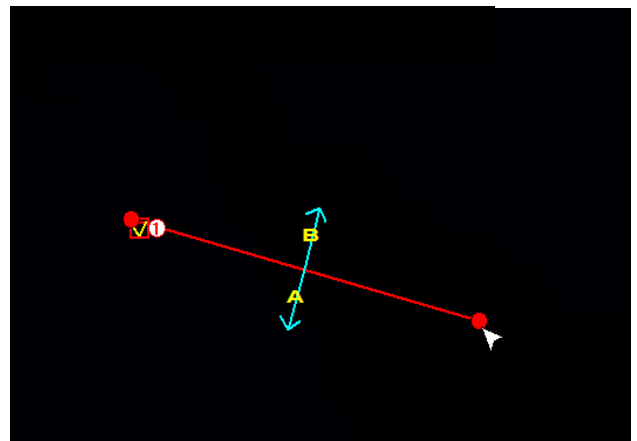
5.9.2. LCD - Line Crossing Detection

The function detects the crossing of defined line. It is available for one analog camera (NHDR-43xxAHD recorders), Novus 2000 and 4000 series IP cameras supporting this function. The camera table allows to switch on / off the function, set the detection sensitivity (from 1 to 4) and define the scene (**Indoor** or **Outdoor**).

After entering the settings, enable **IVA Lines**, select **Rule number**, switch it on and create the line on the camera image. An alarm event is generated when an object crosses a line in the direction specified in the settings (**Rule Type**).



By placing the cursor near the line, we can move it to another location.



To change the direction or the length of the line, place the cursor at one end and drag it to another location

CHANNEL SETTINGS

To draw the detection line, left click on the preview window in the place where the line should start. Move the mouse to the place where line ends and click again. After changing the **Rule Number**, subsequent detection lines can be drawn in the same way.

After creating the line, it is possible to modify their length and position. To modify the selected line, click on the red square next to the line number you want to modify. Confirm the change with the **Save** button.

Channel - selection of the camera for editing parameters.

IVA Lines - displaying detection lines and moving objects on the video image - option available only for analog cameras. IP cameras display detection lines and moving objects only in the main stream.

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Rule number - selection of the line to be set (1, 2, 3 or 4).

Rule switch - activating selected line.

Rule type - defines the direction of the object movement that will trigger the alarm event: move from zone A to zone B (**A->B**), move from zone B to zone A (**B->A**) or both directions (**A<->B**). The direction is additionally indicated by arrows in the image.

Remove button deletes the chosen line (the line have to be selected), **Remove All** button deletes all lines, **Save** button confirm all changes. Right click of the mouse exits from the settings.

Note! The "Line Crossing Detection" function can not be activated if one of the functions: "Pedestrian Detection", "Face Detection" or "Cross Counting" is activated.

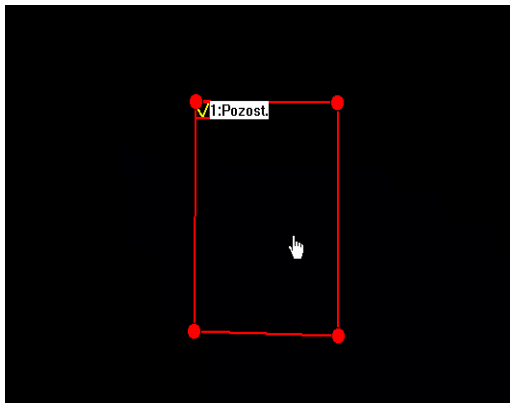
5.9.3. SOD - Stationary Object Detection

The function detects object leaving or disappearing from defined zones. It is available for one analog camera (NHDR-43xxAHD recorders), Novus 2000 and 4000 series IP cameras supporting this function. The camera table allows to switch on / off the function, set detection sensitivity (from 1 to 4) and define the scene (**Indoor** or **Outdoor**).

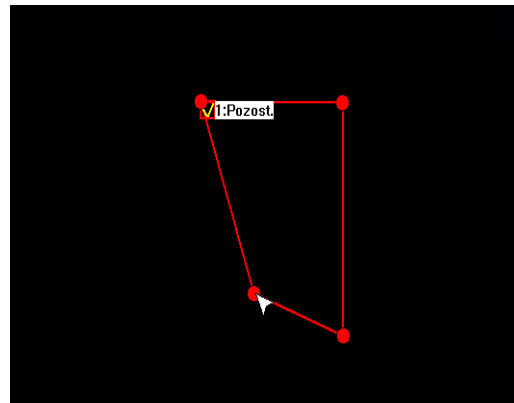
After entering the settings, enable **IVA Lines**, select **Rule number**, switch it on and create the zone on the camera image. The menu allows to configure up to four detection zones. An alarm event is generated when object is appears or disappears in a specific zone. (**Rule Type**).

To draw a zone, click the left mouse button on the preview window at the desired location and drag the mouse - drawing the border zone begins. Click again in the place where should be end of the border and go to the next edge. The zone can only have the shape of a convex quadrilateral and its borders can not intersect. After changing the **Rule type** another zone can be created. If several zones are enabled, thereof areas may overlap.

CHANNEL SETTINGS



By placing the cursor inside the zone, we can move it to another location.



To change the shape or size of the zone, place the cursor on one of the corners of the zone and drag it to another location.

After creating zones it is possible to modify the shape, position and parameters of detection. To modify the selected zone click on the red square next to the zone number. As confirmation of the selection, the zone will change colour from yellow to red. Then it is possible to move the corners of the zone. Changes have to be confirmed by clicking **Save** button.

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Channel - selection of the camera for editing parameters.

IVA Lines - displaying zone lines and moving objects on the video image - option available only for analog cameras. IP cameras display zone lines and moving objects only in the main stream.

Rule number - selection of the zone to be set (1, 2, 3 or 4).

Rule switch - activating selected zone.

Rule type - defines whether the function should work on leaving or disappearing the object. **Lost & Legacy** function is available for analog cameras. It is possible to choose in IP cameras **Legacy**, **Lost** or **Lost & Legacy**.

Remove button deletes the chosen zone (the zone have to be selected), **Remove All** button deletes all zones, **Save** button confirm all changes. Right click of the mouse exits from the settings.

Depending on the complexity of the observation scene and the type of object, the time needed to analyze the scene and the occurrence of an alarm event may be several seconds.

Note! The "Stationary Object Detection" function can not be activated if one of the functions: "Pedestrian Detection", "Face Detection" or "Cross Counting" is activated.

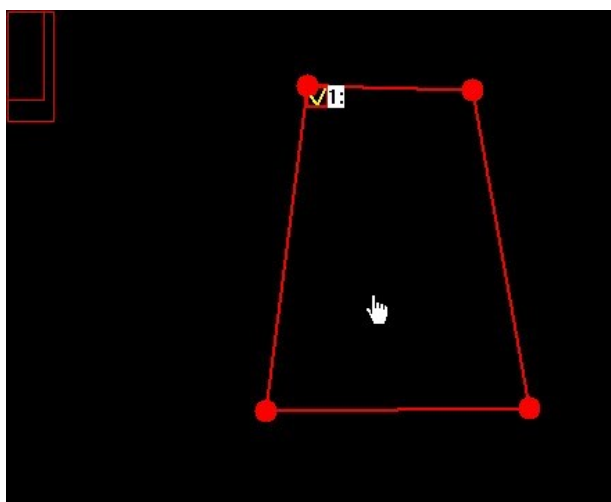
CHANNEL SETTINGS

5.9.4. PD - Pedestrian Detection

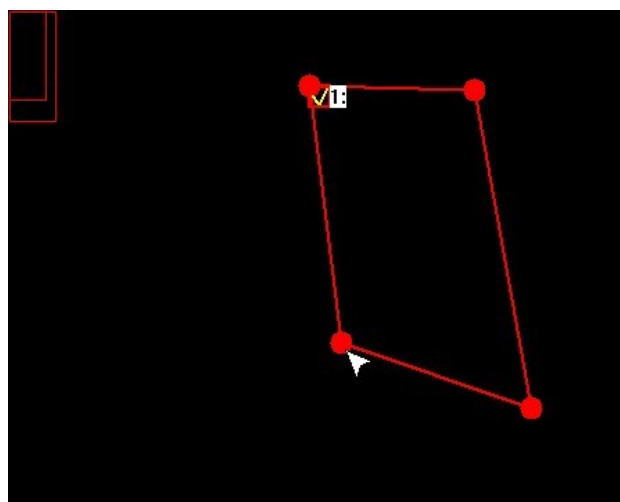
The function detects appearance of people in the defined zone. It is available only for Novus 2000 and 4000 series IP cameras supporting this function. The camera table allows to switch on / off the function, set object detection level (**Low**, **Medium** or **High**) and define the scene (**Indoor** or **Outdoor**).

After entering the settings, switch on the rule and create the zone on the camera image. To draw a zone, click the left mouse button on the preview window at the desired location and drag the mouse - drawing the border zone begins. Click again in the place where should be end of the border and go to the next edge. The zone can only have the shape of a convex quadrilateral and its borders can not intersect.

After creating the zone it is possible to modify its shape and position. To modify the zone click on the red square next to the zone number. As confirmation of the selection, the zone will change colour from yellow to red. Then it is possible to move the corners of the zone. Changes have to be confirmed by



By placing the cursor inside the zone, we can move it to another location.



To change the shape or size of the zone, place the cursor on one of the corners of the zone

clicking **Save** button.

Channel - selection of the camera for editing parameters.

Rule number - selection of the zone to be set (**1**).

Rule switch - activating selected zone.

Rule type - defines how the function should work (**Normal**).

Remove button deletes the chosen zone (the zone have to be selected), **Remove All** button deletes all zones, **Save** button confirm all changes. Right click of the mouse exits from the settings.

There are two red rectangles in the up-left corner of the camera image. Their size depend on the sensitivity of people detection. The value of the **Level** option defines the size of rectangles. The human

CHANNEL SETTINGS

Note! The borders of the set zone are not visible in the live preview window in any stream.

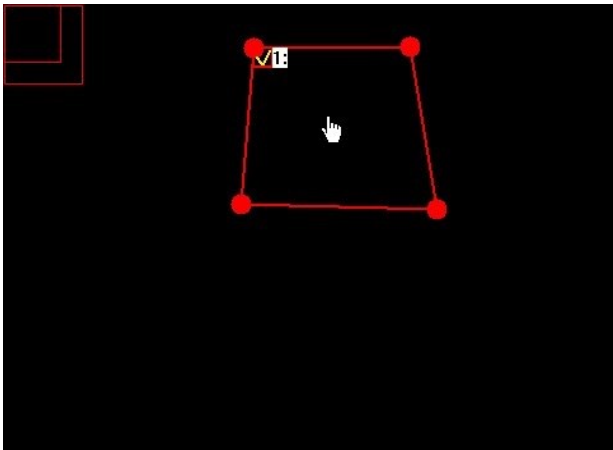
Note! The "Pedestrian Detection" function can not be activated if one of the functions: "Perimeter Intrusion Detection", "Line Crossing Detection" or "Stationary Object Detection" is activated.

5.9.5. FD - Face Detection

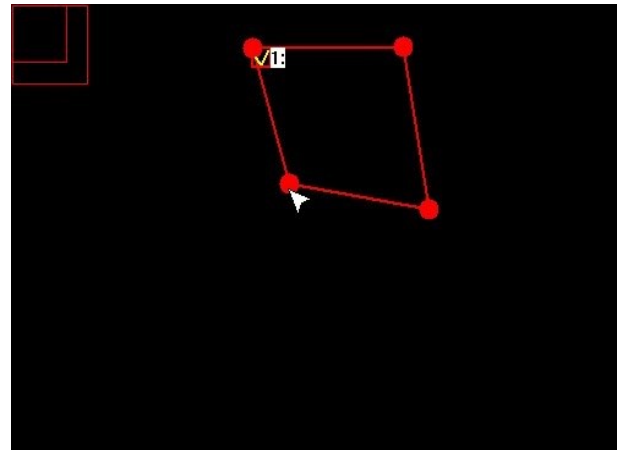
The function detects appearance of an aobject looking like a human face in the defined zone. It is available only for Novus 2000 and 4000 series IP cameras supporting this function. The camera table allows to switch on / off the function and enter the settings.

After entering the settings create the zone on the camera image. To draw a zone, click the left mouse button on the preview window at the desired location and drag the mouse - drawing the border zone begins. Click again in the place where should be end of the border and go to the next edge. The zone can only have the shape of a convex quadrilateral and its borders can not intersect.

After creating the zone it is possible to modify its shape and position. To modify the zone click on the red square next to the zone number. As confirmation of the selection, the zone will change colour from yellow to red. Then it is possible to move the corners of the zone. Changes have to be confirmed by clicking **Save** button.



By placing the cursor inside the zone, we can move it to another location.



To change the shape or size of the zone, place the cursor on one of the corners of the zone

Channel - selection of the camera for editing parameters.

Rule number - selection of the zone to be set (1).

Rule switch - activating selected zone.

Rule type - defines how the function should work (Normal).

Remove button deletes the chosen zone (the zone have to be selected), **Remove All** button deletes all zones, **Save** button confirm all changes. Right click of the mouse exits from the settings.

| | |
|-------------|-------------------------------------|
| Channel | IP CH1 |
| Rule Number | 1 |
| Rule Switch | <input checked="" type="checkbox"/> |
| Rule Type | Normal |
| Remove | |
| Remove All | |
| Save | |

CHANNEL SETTINGS

There are two red rectangles in the up-left corner of the camera image. Their size depend on the sensitivity of face detection. The value of the **Level** option defines the size of rectangles. The face size on the camera image should be bigger than smaller rectangle and smaller than larger one. The detection level setting must be done in IP camera menu.

Note! The borders of the set zones are not visible in the live preview window in any stream.

Note! The "Face Detection" function can not be activated if one of the functions: "Perimeter Intrusion Detection", "Line Crossing Detection" or "Stationary Object Detection" is activated.

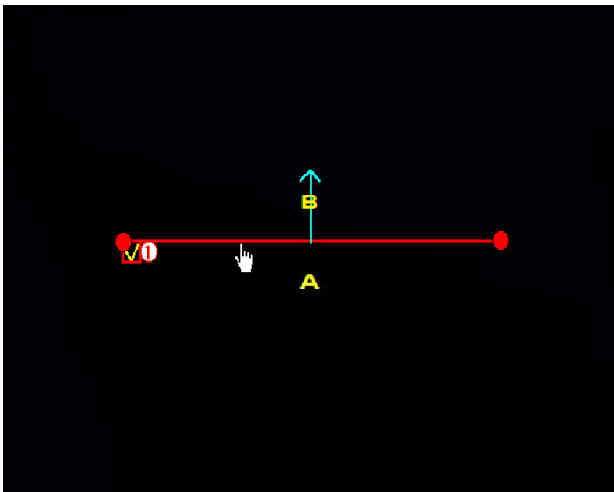
5.9.6. CC - Cross Counting

The function counts the number of defined line crossing. It is available only for Novus 2000 and 4000 series IP cameras supporting this function. The camera table allows to switch on / off the function, set the detection sensitivity (from 1 to 4) and define the scene (**Indoor** or **Outdoor**).

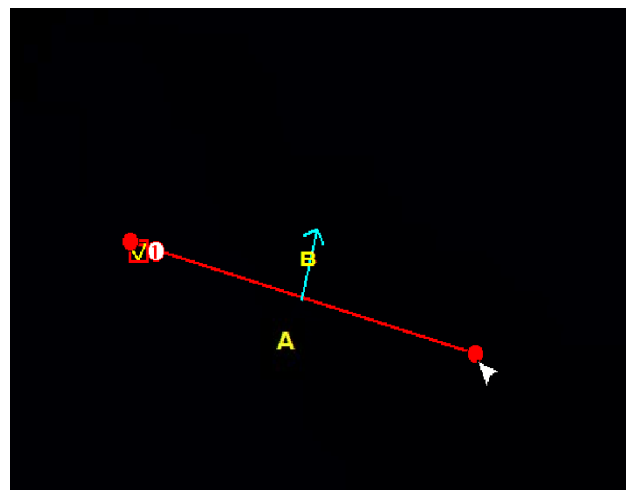
After entering the settings switch the rule on and create the line on the camera image. Counting event is generated when an object crosses a line in the direction specified in the settings (**Rule Type**).

To draw the detection line, left click on the preview window in the place where the line should start. Move the mouse to the place where line ends and click again.

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By placing the cursor near the line, we can move it to another location.



To change the direction or the length of the line, place the cursor at one end and drag it to another location.

After creating the line, it is possible to modify their length and position. To modify the selected line, click on the red square next to the line number you want to modify. Confirm the change with the **Save** button.

CHANNEL SETTINGS

Channel - selection of the camera for editing parameters.

Rule number - selection of the line to be set (1).

Rule switch - activating selected line.

Rule type - defines the direction of the object movement that will trigger the alarm event: move from zone A to zone B (**A->B**), move from zone B to zone A (**B->A**). The direction is additionally indicated by arrows in the image.

Remove button deletes the chosen line (the line have to be selected), **Remove All** button deletes all lines, **Save** button confirm all changes. Right click of the mouse exits from the settings.

After defining the function, virtual line and the counted object are shown in the main stream. In addition the number of passes are shown in the upper-left corner - in accordance with the defined direction (**In**), opposite to the defined direction (**Out**) and the sum of all counted objects (**Total**).

Note! The "Cross Counting" function can not be activated if one of the functions: "Perimeter Intrusion Detection", "Line Crossing Detection" or "Stationary Object Detection" is activated.

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5.9.7. Sound Detection

The function detects the sound based on defined thresholds. The function is available for 8 analog channels and for Novus 2000 and 4000 series IP cameras supporting this function. It is necessary to connect microphones to analog input of recorder or to IP camera with this function.

| Setup Channel Record Alarm Network Device System | | | | | | | | |
|--|-------------------------------------|---------|------------------|-----------------|---------|---------------------|-----------------|---|
| | PID | LCD | SOD | PD | FD | CC | Sound Detection | Occlusion Detection Schedule Intelligent Analysis |
| Channel | Switch | Rise | Rise Sensitivity | Sound Intensity | Decline | Decline Sensitivity | | |
| CH1 | <input checked="" type="checkbox"/> | Enable | 50 | 50 | Disable | 50 | | |
| CH2 | <input checked="" type="checkbox"/> | Enable | 50 | 50 | Disable | 50 | | |
| CH3 | <input checked="" type="checkbox"/> | Enable | 50 | 50 | Enable | 50 | | |
| CH4 | <input checked="" type="checkbox"/> | Disable | 50 | 50 | Enable | 50 | | |
| CH5 | <input checked="" type="checkbox"/> | Disable | 50 | 50 | Disable | 50 | | |
| CH6 | <input type="checkbox"/> | Disable | 50 | 50 | Disable | 50 | | |
| CH7 | <input checked="" type="checkbox"/> | Disable | 50 | 50 | Disable | 50 | | |

The table has the following columns:

Channel - channel number with possible audio detection.

Enable - enable the function for the selected channel.

Rise - enable detection of audio intensity increase.

Rise Sensitivity - the level of increase in audio intensity, from 0 to 100. The higher the value, the easier it is to trigger an alarm.

Sound Intensity - the sound intensity threshold, from 0 to 100. The lower the threshold, the easier it is to trigger an alarm.

Decline - enable detection of audio intensity decrease.

Decline Sensitivity - the level of decrease in audio intensity, from 0 to 100. The higher the value, the easier it is to trigger an alarm.

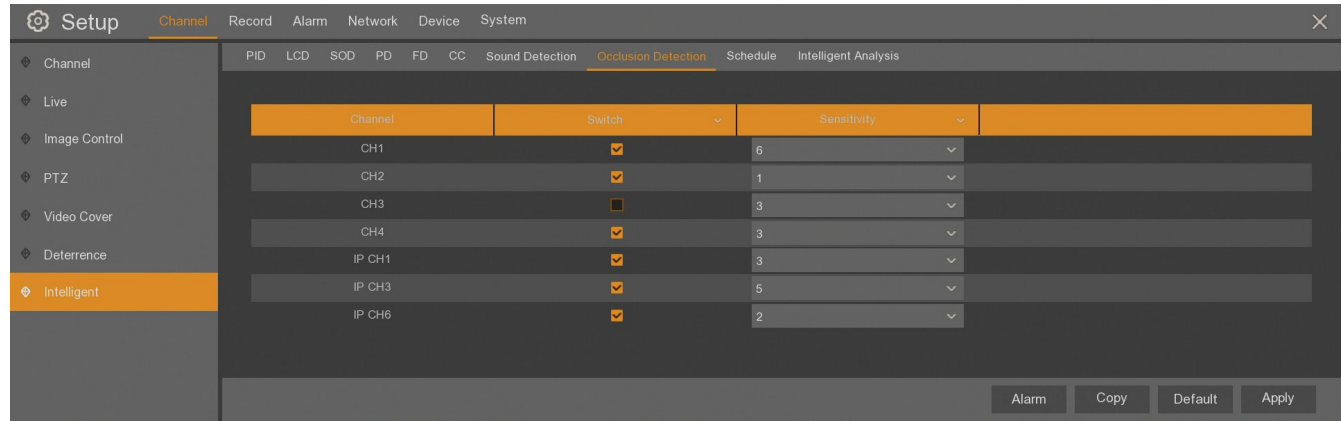
Schedule - audio detection schedule for the declared channel. It allows to activate the function at specified time.

CHANNEL SETTINGS

5.9.8. Occlusion Detection

The function detects camera tampering by covering it, changing the scene and loosing focus.

The camera table allows to switch on / off the function and set the detection sensitivity (from 1 to 6). It is available for analog cameras (NHDR-43xxAHD recorders), Novus 2000 and 4000 series IP cameras supporting this function.

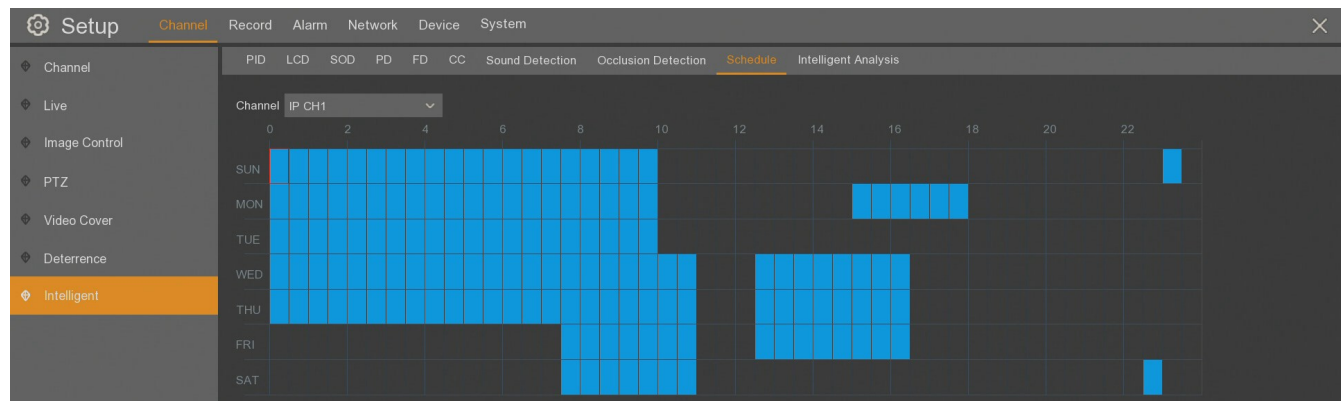


The table has the following columns:

- Channel** - channel number with possible audio detection.
- Switch** - enable the function for the selected channel.
- Sensitivity** - the level of detection, from 1 to 6.

5.9.9. Schedule of intelligent functions

The **Schedule** tab in **Intelligent** submenu contains a graphic presentation of the periods, when intelligent analysis events are to be recorded. The table in rows contains the days of the week (SUN-Sunday, MON-Monday, TUE-Tuesday, WED-Wednesday, THU-Thursday, FRI-Friday, SAT-Saturday). The columns contain hours. A single field corresponds to 30 minutes. The schedule is empty by default. While setting the intelligent analysis function, it should be set too.



The settings apply to single channel only. The **Copy** button allows to copy individual camera schedule settings to other cameras. The **Default** button deletes the analysis schedule for all days of the week of the selected camera. The **Confirm** button saves the changes.

CHANNEL SETTINGS

5.9.10. Intelligent - report on crossing

The tab is associated with the Crossing Counting function. It allows to generate a report (daily, weekly, monthly or yearly) regarding the number of passes through the virtual line in a specific direction.

| Hour | Count(Cross In) |
|---------------|-----------------|
| 00:00 - 00:59 | 0 |
| 01:00 - 01:59 | 0 |
| 02:00 - 02:59 | 0 |
| 03:00 - 03:59 | 0 |
| 04:00 - 04:59 | 0 |
| 05:00 - 05:59 | 0 |
| 06:00 - 06:59 | 0 |
| 07:00 - 07:59 | 0 |
| 08:00 - 08:59 | 7 |
| 09:00 - 09:59 | 37 |
| 10:00 - 10:59 | 504 |
| 11:00 - 11:59 | 396 |
| 12:00 - 12:59 | 379 |
| 13:00 - 13:59 | 447 |
| 14:00 - 14:59 | 86 |
| 15:00 - 15:59 | 0 |
| 16:00 - 16:59 | 0 |
| 17:00 - 17:59 | 0 |
| 18:00 - 18:59 | 0 |
| 19:00 - 19:59 | 0 |
| 20:00 - 20:59 | 0 |

Channel - select the camera to display the report.

Report type:

Daily report - displays the exceedance counter for the selected day, broken down by hour.

Weekly report - displays the exceedance counter for the selected week, broken down by day.

Monthly report - displays the exceedance counter for the selected month, broken down by day.

Annual report - displays the exceedance counters for the given year, broken down by month.

Cross type - **Cross In** or **Cross Out** depending on the movement of the object and how the line is configured in the menu **Alarm \ Intelligent \ Cross Counting**.

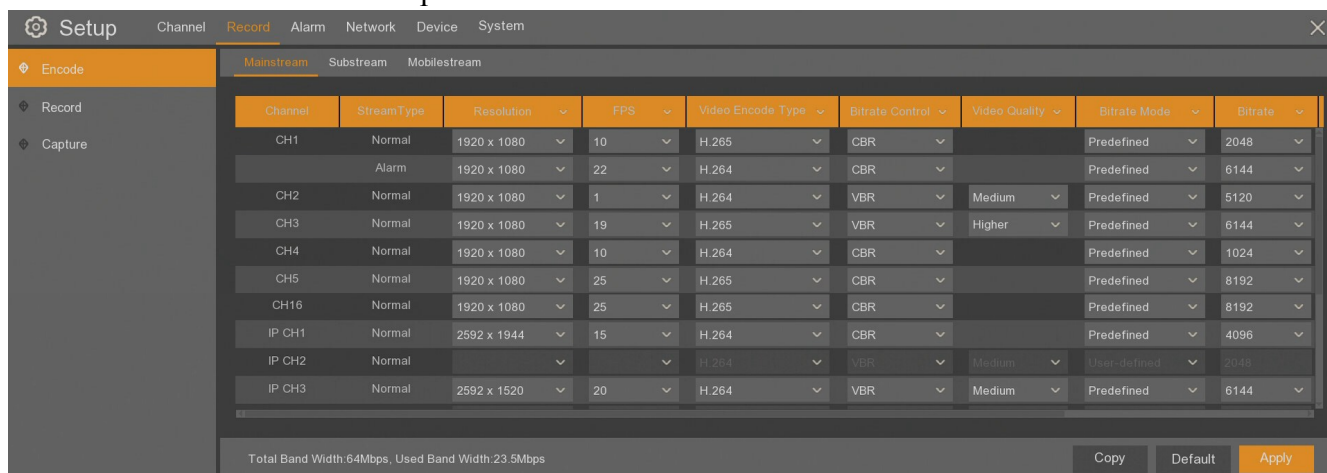
Start date - daily report date. For other types of report the selected day will be included in the report.

Search - displays the exceedance report.

RECORDING

6. RECORDING

The **Record** menu allows to set parameters and how to record video.



The **Encode** submenu has three tabs containing settings for video streams: **Mainstream**, **Substream** and **Mobilestream**. The parameters of each stream can be configured independently. The **Mobilestream** is available only for Novus 2000 and 4000 series IP cameras supporting this function. The table columns are described below. Some columns may not be visible, to see them you need to move the scroll bar at the bottom of the screen:

Channel - channels number.

Stream type - stream type information (**Normal** or **Alarm**). The type is **Normal** by default, if the ETR option is enabled for the channel, the **Alarm** stream also appears for it.

Resolution - selection of recording resolution. It depends on camera resolution and its settings.

FPS - setting the number of frames per second of the recorded stream (from 1 to 30, depend on the recorder model and set resolution).

Video Encode Type - selection of the video coding method (**H.264** or **H.265**).

Bitrate Control - the type of bit rate. **CBR** - constant bitrate stream, **VBR** - variable bitrate stream.

Video Quality - defines the quality of recordings for the variable bitrate stream (**Lowest**, **Lower**, **Low**, **Medium**, **Higher** or **Highest**).

Bitrate mode: **Predefined** - bitrate selection from the list, **User-defined** - value entered manually.

Bitrate - bitrate (kbps), defines the quality and the size of recordings. The higher the value, the better quality of recordings. If **Bitrate mode** is set to **Predefined**, **Bitrate** value is selected from the list. Maximum **Bitrate** value for analog cameras is **8192** in NHDR-43xxAHD recorders, **4096** in NHDR-41xxAHD recorders.

Audio - allows to record the sound together with the video image.

I Frame Interval - determines the interval between base frames. Option available only for IP cameras.

ETR - allow to set different stream parameters for events (event recording). It is available analog cameras and IP cameras supporting this function.

Note! NHDR-41xxAHD recorders save the 4Mpx video streams in 2560x1440 or 1280x1440 resolution depending on the camera settings (NRT option).

RECORDING

Streams parameters can be set for all cameras at once by clicking on the top bar. Individual camera settings can also be copied for other cameras by using the **Copy** button in the bottom-right corner.

Note! Depending on the IP camera model, some functions may not be available. The number of available streams, configuration parameters and range of settings depends on the capabilities of the IP camera.

At the bottom of the menu displays information about **Total Band Width** available for IP cameras (depends on the recorder model and enabled analog cameras) and the current **Used Band Width** used by connected IP cameras. By changing the Bitrate Value for IP cameras (in all three streams) the information about the bandwidth used is updated.

Record tab in the **Record** submenu contain the below table:

| Channel | Record Switch | Stream Mode | PreRecord |
|---------|-------------------------------------|-------------|-------------------------------------|
| CH1 | <input checked="" type="checkbox"/> | DualStream | <input type="checkbox"/> |
| CH2 | <input type="checkbox"/> | DualStream | <input checked="" type="checkbox"/> |
| CH3 | <input checked="" type="checkbox"/> | DualStream | <input checked="" type="checkbox"/> |
| CH4 | <input checked="" type="checkbox"/> | Mainstream | <input checked="" type="checkbox"/> |
| CH5 | <input type="checkbox"/> | Mainstream | <input checked="" type="checkbox"/> |
| CH6 | <input checked="" type="checkbox"/> | Mainstream | <input checked="" type="checkbox"/> |
| CH7 | <input checked="" type="checkbox"/> | DualStream | <input type="checkbox"/> |
| CH8 | <input checked="" type="checkbox"/> | DualStream | <input type="checkbox"/> |
| CH9 | <input checked="" type="checkbox"/> | DualStream | <input checked="" type="checkbox"/> |
| CH10 | <input checked="" type="checkbox"/> | DualStream | <input checked="" type="checkbox"/> |
| CH11 | <input checked="" type="checkbox"/> | DualStream | <input checked="" type="checkbox"/> |
| CH12 | <input type="checkbox"/> | DualStream | <input checked="" type="checkbox"/> |
| CH13 | <input type="checkbox"/> | DualStream | <input checked="" type="checkbox"/> |
| CH14 | <input type="checkbox"/> | DualStream | <input checked="" type="checkbox"/> |
| CH15 | <input checked="" type="checkbox"/> | DualStream | <input checked="" type="checkbox"/> |
| CH16 | <input checked="" type="checkbox"/> | DualStream | <input checked="" type="checkbox"/> |
| IP CH1 | <input checked="" type="checkbox"/> | DualStream | <input checked="" type="checkbox"/> |
| IP CH2 | <input checked="" type="checkbox"/> | DualStream | <input checked="" type="checkbox"/> |
| IP CH3 | <input checked="" type="checkbox"/> | DualStream | <input checked="" type="checkbox"/> |
| IP CH4 | <input checked="" type="checkbox"/> | DualStream | <input checked="" type="checkbox"/> |
| IP CH5 | <input checked="" type="checkbox"/> | DualStream | <input checked="" type="checkbox"/> |

Channel - channel name.

Record Switch - switch on / off channel record. All channels are switched on by default.

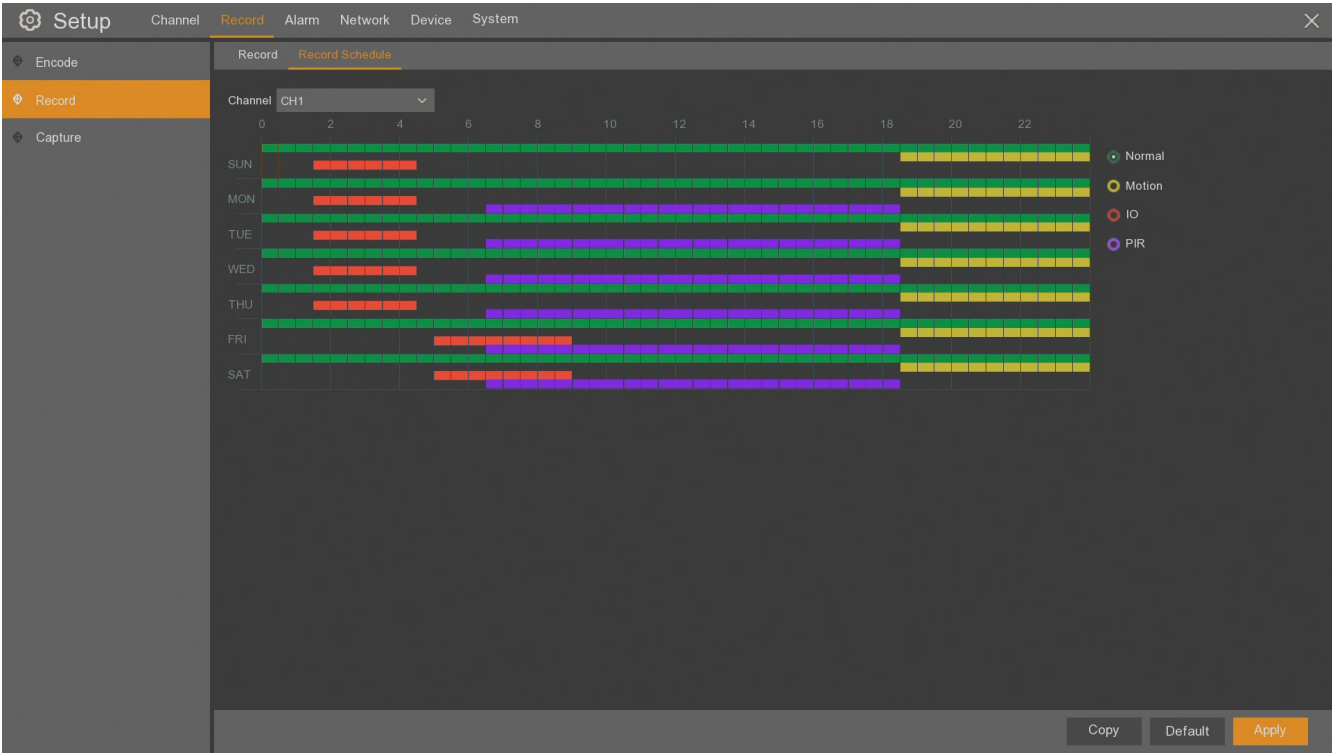
Stream Mode - recording mode selection. If **Mainstream** is selected, only main stream is recorded. If **DualStream** is selected, both stream are recorded. **DualStream** is set for all cameras by default.

PreRecord - switch on / off prealarm record. **PreRecord** is switched on for all channels by default.

Record settings can be set for all cameras at once by clicking on the top bar. Individual camera settings can also be copied for other cameras by using the **Copy** button in the bottom-right corner.

RECORDING

The **Record Schedule** tab contains a graphical presentation of the periods when video material is to be recorded. The table rows contain the days of the week (SUN - Sunday, MON - Monday, TUE - Tuesday, WED - Wednesday, THU - Thursday, FRI - Friday, SAT - Saturday). The columns contain hours. A single field corresponds to 30 minutes of registration.



Select the channel to edit in the **Channel** field. Then select the recording mode and use the mouse to select the fields corresponding to the time of day when the image should be recorded. Each mode is marked with a different color:

Normal - normal recording, continuous recording (green color bar).

Motion - recording in the event of motion detection (yellow color bar).

IO - recording in the event of activation of the alarm input (red color bar).

PIR - recording in the event of PIR detection (purple color bar).

Gray color means no recordings in a given period.

Individual modes can be combined as in the example above.

The settings in the table apply only to a single channel. The **Copy** button allows to copy individual channel schedule settings to other channels. The **Default** button restore schedule to default parameters of all cameras (sets continuous recording for whole week). The **Apply** button saves all the changes.

RECORDING

The **Capture** submenu allows to switch on automatic recording of camera images. It is independent of video recordings, has separate resolution and quality settings, and a separate schedule.

The pictures are saved on the hard disk on the same partition as the video recordings. The storage time of photos is identical to the storage time of recordings. They are subject to the same overwrite rules as video recordings.

The **Capture** tab contain the below table:

| Channel | Auto Capture | Stream Type | Normal Interval | Alarm Interval | Alarm Resolution | Alarm Quality |
|---------|-------------------------------------|-------------|-----------------|----------------|------------------|---------------|
| CH1 | <input type="checkbox"/> | Substream | 1 Min | 5 s | 704 x 480 | Highest |
| CH2 | <input type="checkbox"/> | Substream | 5 s | 5 s | 704 x 576 | Higher |
| CH3 | <input checked="" type="checkbox"/> | Mainstream | 30 s | 5 s | 1920 x 1080 | Medium |
| CH4 | <input type="checkbox"/> | Mainstream | 5 s | 5 s | 1920 x 1080 | Low |
| CH5 | <input type="checkbox"/> | Mainstream | 1 Hour | 5 s | 1920 x 1080 | Lower |
| CH6 | <input checked="" type="checkbox"/> | Mainstream | 5 s | 5 s | 1920 x 1080 | Lowest |
| CH7 | <input type="checkbox"/> | Mainstream | 5 s | 10 Min | 1920 x 1080 | Medium |
| CH8 | <input type="checkbox"/> | Mainstream | 5 s | 5 s | 1920 x 1080 | Medium |
| CH9 | <input checked="" type="checkbox"/> | Mainstream | 5 s | 5 s | 1920 x 1080 | Medium |
| CH10 | <input type="checkbox"/> | Mainstream | 5 s | 5 s | 1920 x 1080 | Medium |
| CH11 | <input type="checkbox"/> | Mainstream | 5 s | 5 s | 1920 x 1080 | Medium |
| CH12 | <input type="checkbox"/> | Mainstream | 5 s | 5 s | 1920 x 1080 | Medium |
| CH13 | <input type="checkbox"/> | Mainstream | 5 s | 5 s | 1920 x 1080 | Medium |
| CH14 | <input type="checkbox"/> | Mainstream | 5 s | 5 s | 1920 x 1080 | Medium |
| CH15 | <input type="checkbox"/> | Mainstream | 5 s | 5 s | 960 x 576 | Medium |
| CH16 | <input type="checkbox"/> | Mainstream | 5 s | 5 s | 1920 x 1080 | Medium |
| IP CH1 | <input type="checkbox"/> | Mainstream | 5 s | 5 s | | |
| IP CH2 | <input type="checkbox"/> | Mainstream | 5 s | 5 s | | |
| IP CH3 | <input type="checkbox"/> | Mainstream | 5 s | 5 s | | |
| IP CH4 | <input type="checkbox"/> | Mainstream | 5 s | 5 s | | |
| IP CH5 | <input type="checkbox"/> | Mainstream | 5 s | 5 s | | |

⚠ Digital channel maximum capture resolution is 1080P

Copy Default Apply

Channel - channel name.

Auto capture - enable or disable automatic saving of pictures. Picture recording is switched off for all channels by default.

Stream Type - **Mainstream** or **Substream** - type of stream for pictures.

Normal Interval - (**5 s**, **10 s**, **30 s**, **1 Min**, **10 Min**, **30 Min**, **1 Hour**) - interval time for continuous picture recording.

Alarm Interval - (**5 s**, **10 s**, **30 s**, **1 Min**, **10 Min**, **30 Min**, **1 Hour**) - the minimum time interval for saved pictures in the alarm mode.

Alarm Resolution - the resolution of pictures saved in the alarm mode. It depends on the camera resolution and **Stream Type**.

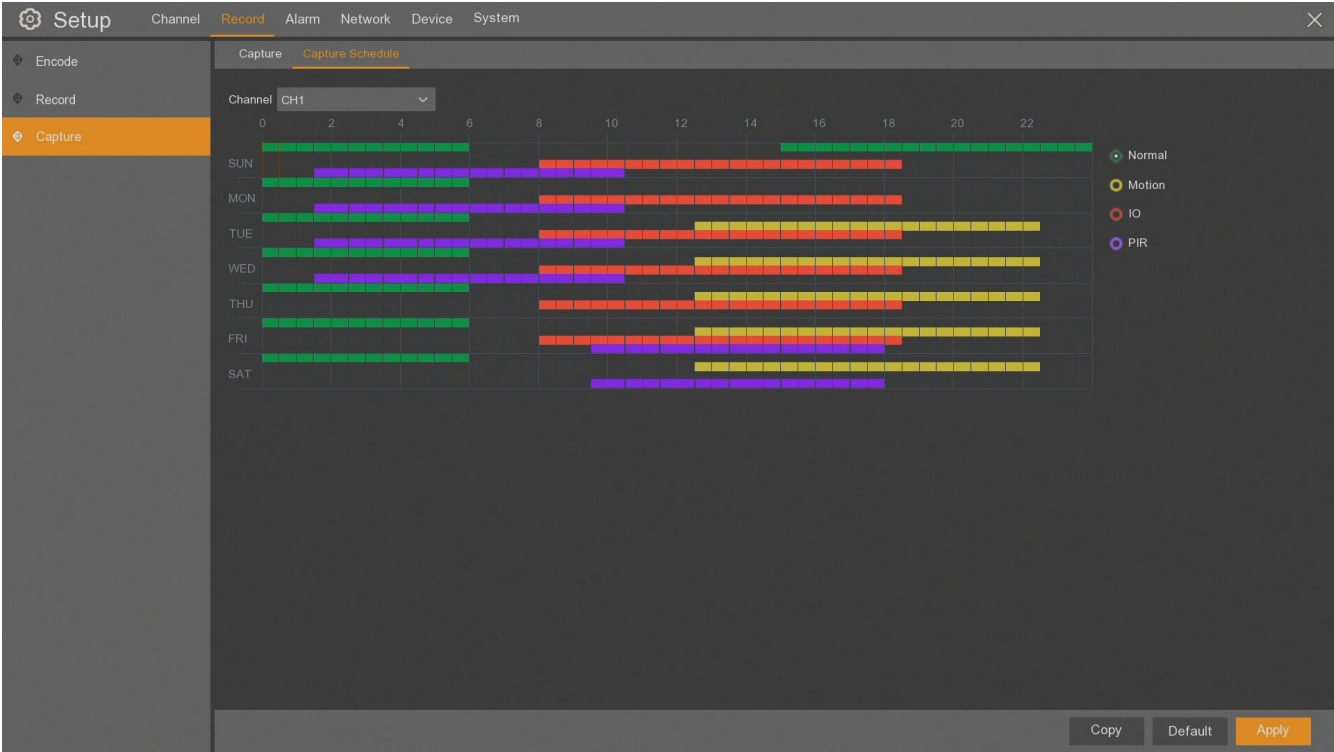
Alarm Quality - picture quality saved in alarm mode (**Lowest**, **Lower**, **Low**, **Medium**, **Higher** or **Highest**).

Capture settings can be set for all cameras at once by clicking on the top bar. Individual camera settings can also be copied for other cameras by using the **Copy** button in the bottom-right corner.

Note! The maximum resolution of saved photos is 1920x1080.

RECORDING

The **Capture Schedule** tab in the **Capture** submenu contains a graphic presentation of the periods when pictures are to be saved. The table rows contain the days of the week (SUN - Sunday, MON - Monday, TUE - Tuesday, WED - Wednesday, THU - Thursday, FRI - Friday, SAT - Saturday). The columns contain hours. A single field corresponds to 30 minutes of registration.



Select the channel to edit in the **Channel** field. Then select the recording mode and use the mouse to select the fields corresponding to the time of day when the image should be recorded. Each mode is marked with a different color:

Normal - normal recording, continuous recording (green color bar).

Motion - recording in the event of motion detection (yellow color bar).

IO - recording in the event of activation of the alarm input (red color bar).

PIR - recording in the event of PIR detection (purple color bar).

Gray color means no recordings in a given period.

Individual modes can be combined as in the example above.

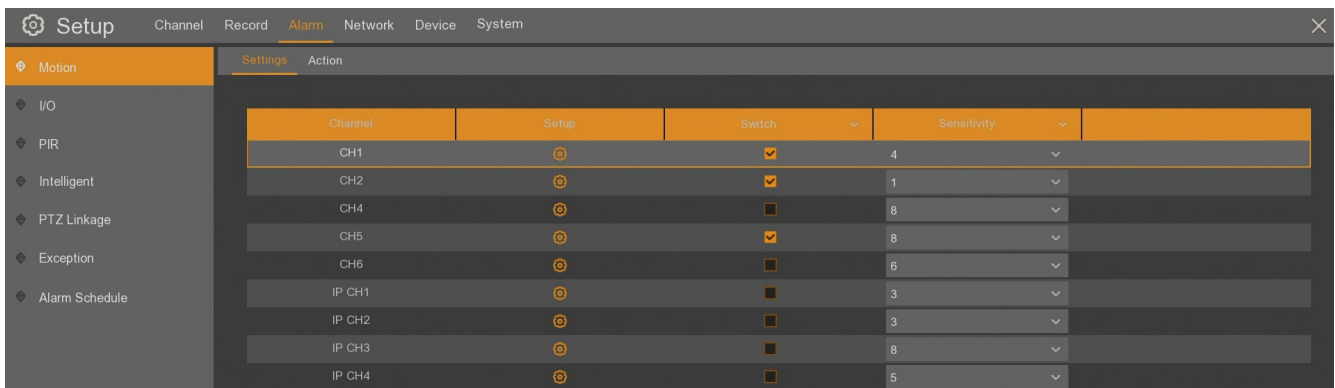
The settings in the table apply only to a single channel. The **Copy** button allows to copy individual channel schedule settings to other channels. The **Default** button restore schedule to default parameters of all cameras (sets no recording for whole week). The **Apply** button saves all the changes.

7. ALARMS

The **Alarm** menu allows to configure alarm settings and reactions. Each action that triggers an alarm can be individually configured. It is possible to assign a different reaction to each action.

7.1. Motion detection

The **Motion** menu allows to configure motion detection. Configuration menu has two tabs: **Settings** and **Action**. The first tab presents a table of connected analog and IP cameras.



| Channel | Setup | Switch | Sensitivity |
|---------|-------|-------------------------------------|-------------|
| CH1 | | <input checked="" type="checkbox"/> | 4 |
| CH2 | | <input checked="" type="checkbox"/> | 1 |
| CH4 | | <input type="checkbox"/> | 8 |
| CH5 | | <input checked="" type="checkbox"/> | 8 |
| CH6 | | <input type="checkbox"/> | 6 |
| IP CH1 | | <input type="checkbox"/> | 3 |
| IP CH2 | | <input type="checkbox"/> | 3 |
| IP CH3 | | <input type="checkbox"/> | 8 |
| IP CH4 | | <input type="checkbox"/> | 5 |

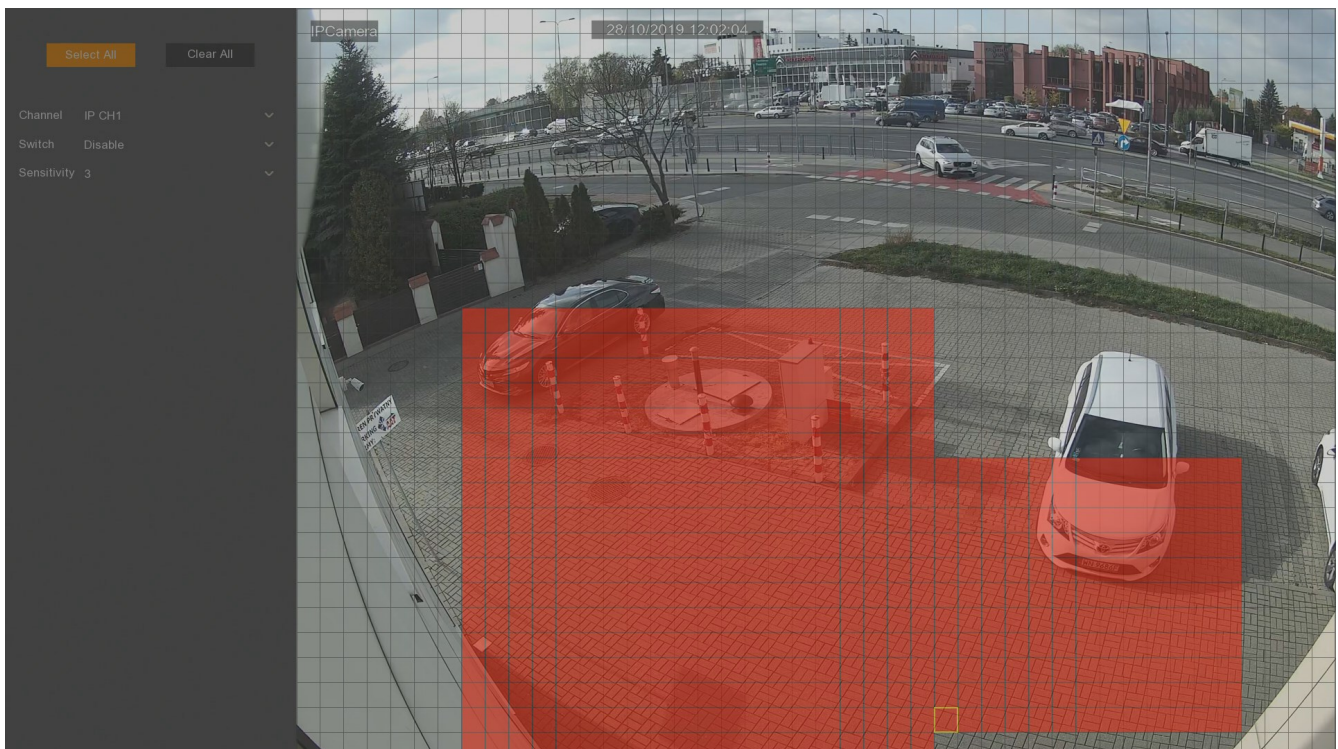
Channel - channel name.

Setup - enter the motion detection settings.

Switch - switch on the motion detection function for the selected channel.

Sensitivity - set motion detection sensitivity (from 1 to 8).

After entering the selected camera settings, video preview displays. Select the desired area in the image where detection should operate - the red rectangles indicate the detection area. The **Select All** button marks the whole image, **Clear All** button removes the detection area.

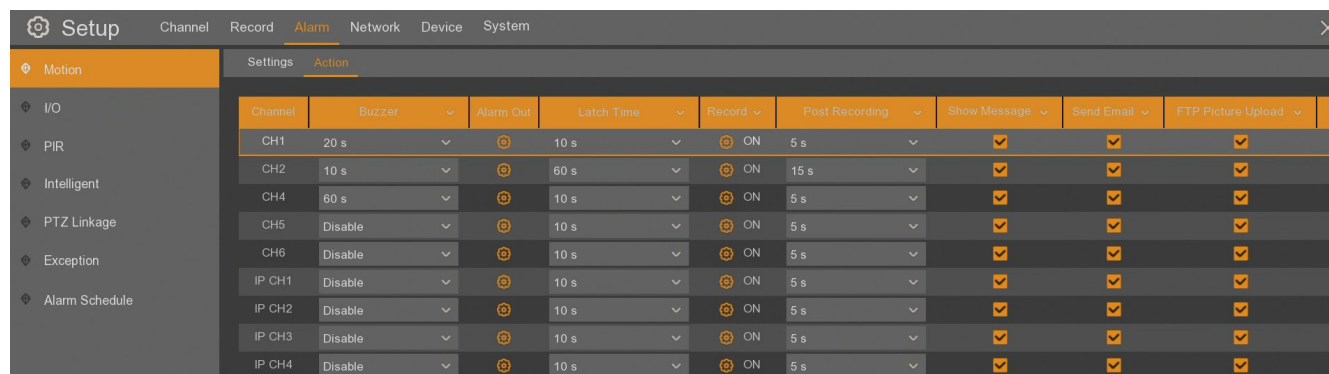


ALARMS

Note! Editing the detection zone from the recorder is possible only for Novus 2000 and 4000 series IP cameras. It is not possible to set the motion detection zone in cameras connected by another recorder or using RTSP streams (Custom protocol).

It is not possible to switch on motion detection function in cameras connected by RTSP protocol.

The motion detection analysis of analog cameras takes place in the recorder. IP cameras analyze the image themselves, they send only information about motion detection to the recorder.



| Channel | Buzzer | Alarm Out | Latch Time | Record | Post Recording | Show Message | Send Email | FTP Picture Upload |
|---------|---------|-----------|------------|--------|----------------|--------------|------------|--------------------|
| CH1 | 20 s | ON | 10 s | ON | 5 s | ON | ON | ON |
| CH2 | 10 s | ON | 60 s | ON | 15 s | ON | ON | ON |
| CH4 | 60 s | ON | 10 s | ON | 5 s | ON | ON | ON |
| CH5 | Disable | ON | 10 s | ON | 5 s | ON | ON | ON |
| CH6 | Disable | ON | 10 s | ON | 5 s | ON | ON | ON |
| IP CH1 | Disable | ON | 10 s | ON | 5 s | ON | ON | ON |
| IP CH2 | Disable | ON | 10 s | ON | 5 s | ON | ON | ON |
| IP CH3 | Disable | ON | 10 s | ON | 5 s | ON | ON | ON |
| IP CH4 | Disable | ON | 10 s | ON | 5 s | ON | ON | ON |

The **Action** tab contains settings of response to detection.

The table columns are described below. Some columns may not be visible, to see them you need to move the scroll bar at the bottom of the screen:

Channel - channel name.

Buzzer - duration time of sound alarm after motion detection (**Disable**, **10s**, **20s**, **40s**, **60s**).

Alarm Out - enable alarm output. It is possible to change alarm output status on the recorder (**Local->1**) or in Novus 2000 or 4000 series IP camera (eg. **IP K.1->1**).

Latch Time - time of the alarm output duration: **10s**, **20s**, **40s**, **60s**.

Record - switching on the video stream recording when the detection occurs (it depends on the recording schedule settings). It is possible to set the recording of multiple cameras to an event from a single camera.

Post Recording - defines the time of active alarm after the alarm ends: **5s**, **10s**, **15s**, **20s**, **30s**, **1min**, **2min**, **5min**. It also specifies full screen display and alarm recording time.

Show Message - displays the icon on the screen when the motion detection is activated.

Send email - send an e-mail message when detection occurs. The camera image will be sent as attachment. Requires e-mail configuration in the **Network / Email** menu.

Full screen - displays the camera image in full screen mode when the motion detection is activated.

FTP picture Upload - saves image from camera to FTP server. Requires ftp configuration in the **Network / FTP** menu.

FTP video Upload - saves short video film from camera to FTP server. Requires ftp configuration in the **Network / FTP** menu.

Picture to Cloud - saves image from camera to the cloud. Requires e-mail configuration in the **Network / Email** menu and cloud activation in **Device / Cloud** menu.

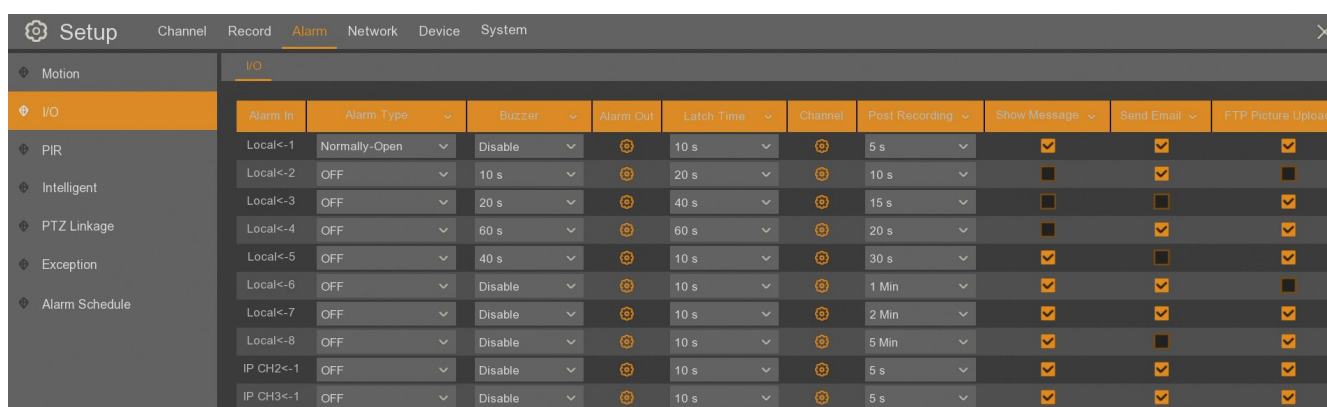
Video to Cloud - saves short video film from camera to the cloud. Requires e-mail configuration in the **Network / Email** menu and cloud activation in **Device / Cloud** menu.

There are buttons in the bottom right corner:

- **Alarm** or **Motion** - opens a separate action or detection settings window.
- **Copy** - copies selected parameters of one camera to another.
- **Default** - restores the default settings of this screen.
- **Apply** - saves all settings.

7.2. Alarm inputs

The **IO** submenu contains settings for responding to changes in the status of alarm inputs in DVR and Novus 2000 and 4000 series IP cameras.



| | Alarm In | Alarm Type | Buzzer | Alarm Out | Latch Time | Channel | Post Recording | Show Message | Send Email | FTP Picture Upload |
|----------------|-----------|---------------|---------|-----------|------------|---------|----------------|--------------|------------|--------------------|
| PIR | Local<-1 | Normally-Open | Disable | ☺ | 10 s | ☺ | 5 s | ☑ | ☑ | ☑ |
| Intelligent | Local<-2 | OFF | 10 s | ☺ | 20 s | ☺ | 10 s | ☐ | ☑ | ☐ |
| PTZ Linkage | Local<-3 | OFF | 20 s | ☺ | 40 s | ☺ | 15 s | ☐ | ☐ | ☐ |
| Exception | Local<-4 | OFF | 60 s | ☺ | 60 s | ☺ | 20 s | ☐ | ☑ | ☑ |
| Alarm Schedule | Local<-5 | OFF | 40 s | ☺ | 10 s | ☺ | 30 s | ☑ | ☐ | ☑ |
| | Local<-6 | OFF | Disable | ☺ | 10 s | ☺ | 1 Min | ☑ | ☑ | ☐ |
| | Local<-7 | OFF | Disable | ☺ | 10 s | ☺ | 2 Min | ☑ | ☑ | ☑ |
| | Local<-8 | OFF | Disable | ☺ | 10 s | ☺ | 5 Min | ☑ | ☐ | ☑ |
| | IP CH2<-1 | OFF | Disable | ☺ | 10 s | ☺ | 5 s | ☑ | ☑ | ☑ |
| | IP CH3<-1 | OFF | Disable | ☺ | 10 s | ☺ | 5 s | ☑ | ☑ | ☑ |

The table columns are described below. Some columns may not be visible, to see them you need to move the scroll bar at the bottom of the screen:

Alarm In - number of alarm input. **Local** means alarm input on the recorder, **IP CH** means alarm input on IP camera.

Alarm type - specify the type of alarm input: **Normally-Open** - high state activation, **Normally-Closed** - low state activation, or **OFF** - inactive.

Buzzer - duration time of sound alarm after detection (**Disable**, **10s**, **20s**, **40s**, **60s**).

Alarm Out - enable alarm output. It is possible to change alarm output status on the recorder (**Local->1**) or in Novus 2000 or 4000 series IP camera (eg. **IP K.1->1**).

Latch Time - time of the alarm output duration: **10s**, **20s**, **40s**, **60s**.

Channel - switching on the video stream recording when the alarm input is activated (it depends on the recording schedule settings). It is possible to set the recording of multiple cameras to an event from a single alarm input.

Post Recording - defines the time of active alarm after the alarm ends: **5s**, **10s**, **15s**, **20s**, **30s**, **1min**, **2min**, **5min**. It also specifies full screen display and alarm recording time.

Show Message - displays the icon on the screen when the alarm input is activated.

Send email - send an e-mail message when an alarm occurs. The camera image will be sent as attachment. Requires e-mail configuration in the **Network / Email** menu.

Full screen - displays the camera image in full screen mode when the alarm input is activated.

ALARMS

FTP picture Upload - saves image from camera to FTP server. Requires ftp configuration in the **Network / FTP** menu.

FTP video Upload - saves short video film from camera to FTP server. Requires ftp configuration in the **Network / FTP** menu.

Picture to Cloud - saves image from camera to the cloud. Requires e-mail configuration in the **Network / Email** menu and cloud activation in **Device / Cloud** menu.

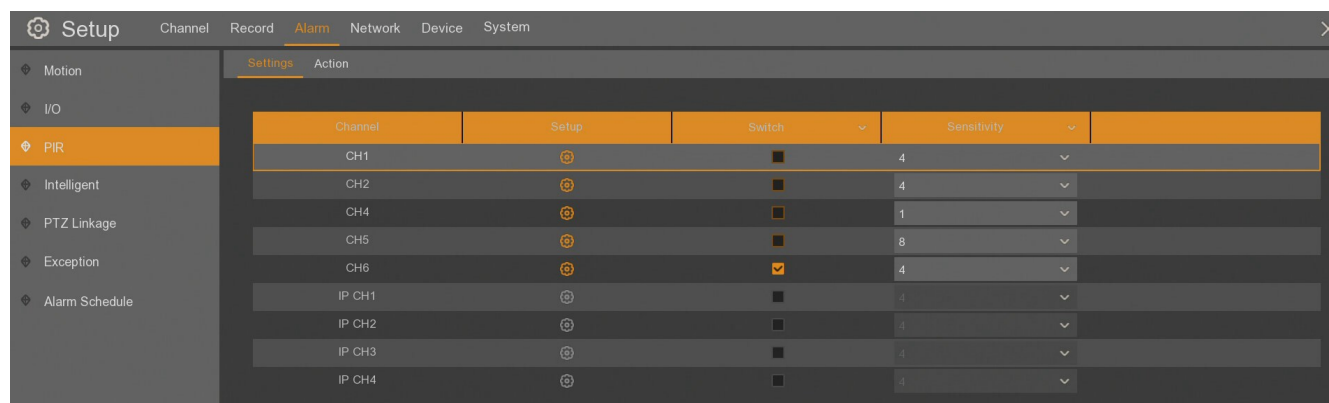
Video to Cloud - saves short video film from camera to the cloud. Requires e-mail configuration in the **Network / Email** menu and cloud activation in **Device / Cloud** menu.

There are buttons in the bottom right corner:

- **Copy** - copies selected parameters of one camera to another.
- **Default** - restores the default settings of this screen.
- **Apply** - saves all settings.

7.3. PIR

The **PIR** menu allows to configure the PIR detection in analog and IP cameras. Configuration menu has two tabs: **Settings** and **Action**. The PIR event is triggered if the camera detector detects motion while motion in camera image. The first tab presents a table of connected analog and IP cameras.



| Channel | Setup | Switch | Sensitivity |
|---------|-------|-------------------------------------|-------------|
| CH1 | ⊕ | <input type="checkbox"/> | 4 |
| CH2 | ⊕ | <input type="checkbox"/> | 4 |
| CH4 | ⊕ | <input type="checkbox"/> | 1 |
| CH5 | ⊕ | <input type="checkbox"/> | 8 |
| CH6 | ⊕ | <input checked="" type="checkbox"/> | 4 |
| IP CH1 | ⊕ | <input type="checkbox"/> | 4 |
| IP CH2 | ⊕ | <input type="checkbox"/> | 4 |
| IP CH3 | ⊕ | <input type="checkbox"/> | 4 |
| IP CH4 | ⊕ | <input type="checkbox"/> | 4 |

Channel - channel name.

Setup - enter the PIR settings.

Switch - switch on PIR function for the selected channel.

Sensitivity - set PIR detection sensitivity (from 1 to 8).

Note! The recorder allows to enable PIR detection and make PIR settings for all analog cameras, however, the function depends on the camera model. The camera must have a built-in PIR detector. For IP cameras, the PIR function can only be enabled only for 2000 and 4000 cameras equipped with a PIR detector.

After entering the selected camera settings, video preview displays. Select the desired area in the image where detection should operate. The area is polygonal zone for analog cameras. The red rectangles indicate the detection area for IP cameras. The **Select All** button marks the whole image, **Clear All** button removes the detection area.

ALARMS

The **Action** tab contains settings of response to PIR detection.

| Channel | Buzzer | Alarm Out | Latch Time | Record | Post Recording | Show Message | Send Email | FTP Picture Upload |
|---------|---------|-----------|------------|--------|----------------|--------------|------------|--------------------|
| CH1 | 10 s | | 10 s | ON | 5 s | | | |
| CH2 | 20 s | | 20 s | ON | 10 s | | | |
| CH4 | 40 s | | 40 s | ON | 15 s | | | |
| CH5 | 60 s | | 60 s | ON | 20 s | | | |
| CH6 | Disable | | 10 s | ON | 30 s | | | |
| IP CH1 | Disable | | 10 s | ON | 1 Min | | | |
| IP CH2 | Disable | | 10 s | ON | 2 Min | | | |
| IP CH3 | Disable | | 10 s | ON | 5 Min | | | |
| IP CH4 | Disable | | 10 s | ON | 5 s | | | |

The table columns are described below. Some columns may not be visible, to see them you need to move the scroll bar at the bottom of the screen:

Channel - channel name.

Buzzer - duration time of sound alarm after PIR detection (**Disable**, **10s**, **20s**, **40s**, **60s**).

Alarm Out - enable alarm output. It is possible to change alarm output status on the recorder (**Local->1**) or in Novus 2000 or 4000 series IP camera (eg. **IP K.1->1**).

Latch Time - time of the alarm output duration: **10s**, **20s**, **40s**, **60s**.

Record - switching on the video stream recording when the PIR detection occurs (it depends on the recording schedule settings). It is possible to set the recording of multiple cameras to an event from a single camera.

Post Recording - defines the time of active alarm after the alarm ends: **5s**, **10s**, **15s**, **20s**, **30s**, **1min**, **2min**, **5min**. It also specifies full screen display and alarm recording time.

Show Message - displays the icon on the screen when the PIR detection is activated.

Send email - send an e-mail message when PIR detection occurs. The camera image will be sent as attachment. Requires e-mail configuration in the **Network / Email** menu.

Full screen - displays the camera image in full screen mode when the PIR detection is activated.

FTP picture Upload - saves image from camera to FTP server. Requires ftp configuration in the **Network / FTP** menu.

FTP video Upload - saves short video film from camera to FTP server. Requires ftp configuration in the **Network / FTP** menu.

Picture to Cloud - saves image from camera to the cloud. Requires e-mail configuration in the **Network / Email** menu and cloud activation in **Device / Cloud** menu.

Video to Cloud - saves short video film from camera to the cloud. Requires e-mail configuration in the **Network / Email** menu and cloud activation in **Device / Cloud** menu.

There are buttons in the bottom right corner:

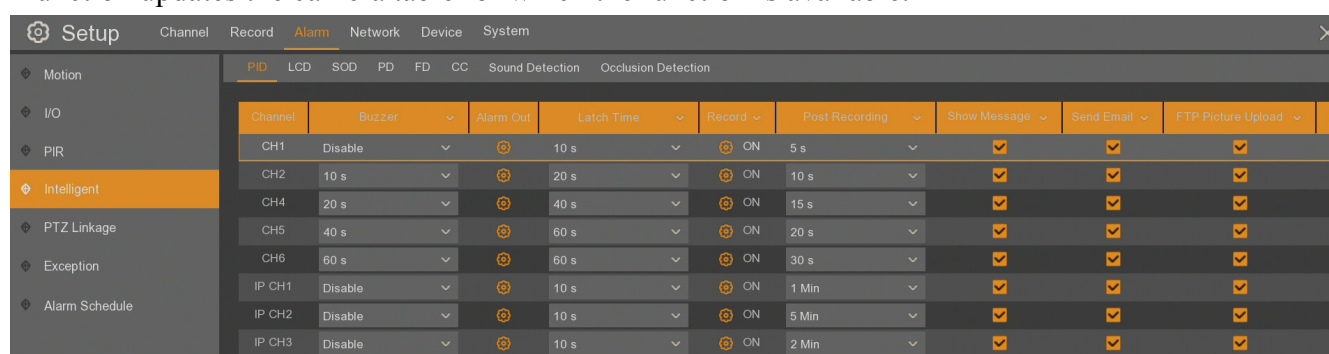
- **Alarm** or **PIR Detection** - opens a separate action or PIR detection settings window.
- **Copy** - copies selected parameters of one camera to another.
- **Default** - restores the default settings of this screen.
- **Apply** - saves all settings.

ALARMS

7.4. Intelligent

The **Alarm / Intelligent** menu allows to configure responses to intelligent analysis functions. Configuration menu has two tabs: **Settings** and **Action**. The function is configured in the **Channel / Intelligent** menu. Configuration can be quickly accessed using the **Intelligent** button in the bottom right corner. Instructions for configuring these functions are described in chapter 5.9.

The menu has tabs corresponding to all functions of intelligent image analysis. Selecting a specific function updates the camera table for which the function is available.



The screenshot shows the 'Setup' menu with 'Alarm' selected. Under 'Alarm', the 'Intelligent' tab is active. A table lists configurations for various channels. The table has columns: Channel, Buzzer, Alarm Out, Latch Time, Record, Post Recording, Show Message, Send Email, and FTP Picture Upload. The 'Intelligent' menu item in the left sidebar is highlighted.

| Channel | Buzzer | Alarm Out | Latch Time | Record | Post Recording | Show Message | Send Email | FTP Picture Upload |
|---------|---------|-----------|------------|--------|----------------|--------------|------------|--------------------|
| CH1 | Disable | ON | 10 s | ON | 5 s | ON | ON | ON |
| CH2 | 10 s | ON | 20 s | ON | 10 s | ON | ON | ON |
| CH4 | 20 s | ON | 40 s | ON | 15 s | ON | ON | ON |
| CH5 | 40 s | ON | 60 s | ON | 20 s | ON | ON | ON |
| CH6 | 60 s | ON | 60 s | ON | 30 s | ON | ON | ON |
| IP CH1 | Disable | ON | 10 s | ON | 1 Min | ON | ON | ON |
| IP CH2 | Disable | ON | 10 s | ON | 5 Min | ON | ON | ON |
| IP CH3 | Disable | ON | 10 s | ON | 2 Min | ON | ON | ON |

The table columns are described below. Some columns may not be visible, to see them you need to move the scroll bar at the bottom of the screen:

Channel - channel name.

Buzzer - duration time of sound alarm after intelligent detection (**Disable**, **10s**, **20s**, **40s**, **60s**).

Alarm Out - enable alarm output. It is possible to change alarm output status on the recorder (**Local->1**) or in Novus 2000 or 4000 series IP camera (eg. **IP K.1->1**).

Latch Time - time of the alarm output duration: **10s**, **20s**, **40s**, **60s**.

Record - switching on the video stream recording when the intelligent detection occurs (it depends on the recording schedule settings). It is possible to set the recording of multiple cameras to an event from a single camera.

Post Recording - defines the time of active alarm after the alarm ends: **5s**, **10s**, **15s**, **20s**, **30s**, **1min**, **2min**, **5min**. It also specifies full screen display and alarm recording time.

Show Message - displays the icon on the screen when the intelligent detection is activated.

Send email - send an e-mail message when intelligent detection occurs. The camera image will be sent as attachment. Requires e-mail configuration in the **Network / Email** menu.

Full screen - displays the camera image in full screen mode when the intelligent detection is activated.

FTP picture Upload - saves image from camera to FTP server. Requires ftp configuration in the **Network / FTP** menu.

FTP video Upload - saves short video film from camera to FTP server. Requires ftp configuration in the **Network / FTP** menu.

ALARMS

Picture to Cloud - saves image from camera to the cloud. Requires e-mail configuration in the **Network / Email** menu and cloud activation in **Device / Cloud** menu.

Video to Cloud - saves short video film from camera to the cloud. Requires e-mail configuration in the **Network / Email** menu and cloud activation in **Device / Cloud** menu.

There are buttons in the bottom right corner:

- **Intelligent** - opens a separate intelligent settings window.
- **Copy** - copies selected parameters of one camera to another.
- **Default** - restores the default settings of this screen.
- **Apply** - saves all settings.

7.5. PTZ Linkage

The recorder is able to call preset in the PTZ camera, as a reaction to an alarm event. The **Alarm / PTZ Linkage** menu contains settings for its option.

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Channel - channel name.

Switch - switch on / off the function for the selected channel.

Motion - determines whether motion detection on the selected channel should trigger a preset in the PTZ camera.

IO - determines whether activating the alarm input on the selected channel should trigger a preset in the PTZ camera.

PIR - determines whether PIR detection on the selected channel should trigger a preset in the PTZ camera.

PTZ1, PTZ2, PTZ3, PTZ4 - allows to select the channel on which the PTZ camera is present and preset to call. It is possible to define up to four PTZ cameras and presets, which can be called as alarm reaction for selected channel.

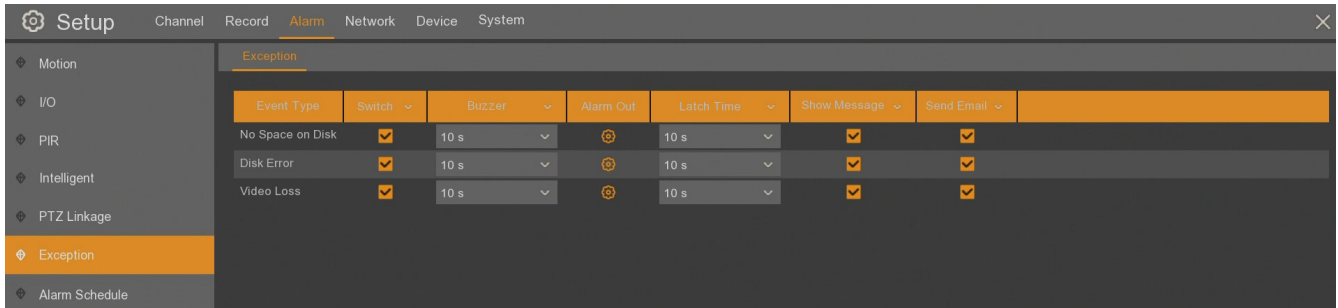
| Setup Channel Record Alarm Network Device System | | | | | | | | | |
|--|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|---|---|---|---|---|
| PTZ Linkage | | | | | | | | | |
| Channel | Switch | Motion | IO | PIR | PTZ1 | PTZ2 | PTZ3 | PTZ4 | |
| CH1 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> OFF | <input checked="" type="checkbox"/> OFF | <input checked="" type="checkbox"/> OFF | <input checked="" type="checkbox"/> OFF | <input checked="" type="checkbox"/> OFF |
| CH2 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> OFF | <input checked="" type="checkbox"/> OFF | <input checked="" type="checkbox"/> OFF | <input checked="" type="checkbox"/> OFF | <input checked="" type="checkbox"/> OFF |
| CH4 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> OFF | <input checked="" type="checkbox"/> OFF | <input checked="" type="checkbox"/> OFF | <input checked="" type="checkbox"/> OFF | <input checked="" type="checkbox"/> OFF |
| CH5 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> OFF | <input checked="" type="checkbox"/> OFF | <input checked="" type="checkbox"/> OFF | <input checked="" type="checkbox"/> OFF | <input checked="" type="checkbox"/> OFF |
| CH6 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> OFF | <input checked="" type="checkbox"/> OFF | <input checked="" type="checkbox"/> OFF | <input checked="" type="checkbox"/> OFF | <input checked="" type="checkbox"/> OFF |
| IP CH1 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> OFF | <input checked="" type="checkbox"/> OFF | <input checked="" type="checkbox"/> OFF | <input checked="" type="checkbox"/> OFF | <input checked="" type="checkbox"/> OFF |
| IP CH2 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> OFF | <input checked="" type="checkbox"/> OFF | <input checked="" type="checkbox"/> OFF | <input checked="" type="checkbox"/> OFF | <input checked="" type="checkbox"/> OFF |
| IP CH3 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> OFF | <input checked="" type="checkbox"/> OFF | <input checked="" type="checkbox"/> OFF | <input checked="" type="checkbox"/> OFF | <input checked="" type="checkbox"/> OFF |
| IP CH4 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> OFF | <input checked="" type="checkbox"/> OFF | <input checked="" type="checkbox"/> OFF | <input checked="" type="checkbox"/> OFF | <input checked="" type="checkbox"/> OFF |

Note! Presets in PTZ cameras must be set via the recorder menu before.

ALARMS

7.6. Exception

The **Exception** menu contains reaction settings in the event of system alarms, i.e. **No Space on Disk**, **Disk Error**, **Video Loss**.



Event type - system event : **No Space on Disk**, **Disk Error**, **Video Loss**.

Switch - activates the reaction to a selected event.

Buzzer - duration time of sound alarm after exception event (**Disable**, **10s**, **20s**, **40s**, **60s**).

Alarm Out - enable alarm output. It is possible to change alarm output status on the recorder (**Local->1**) or in Novus 2000 or 4000 series IP camera (eg. **IP K.1->1**).

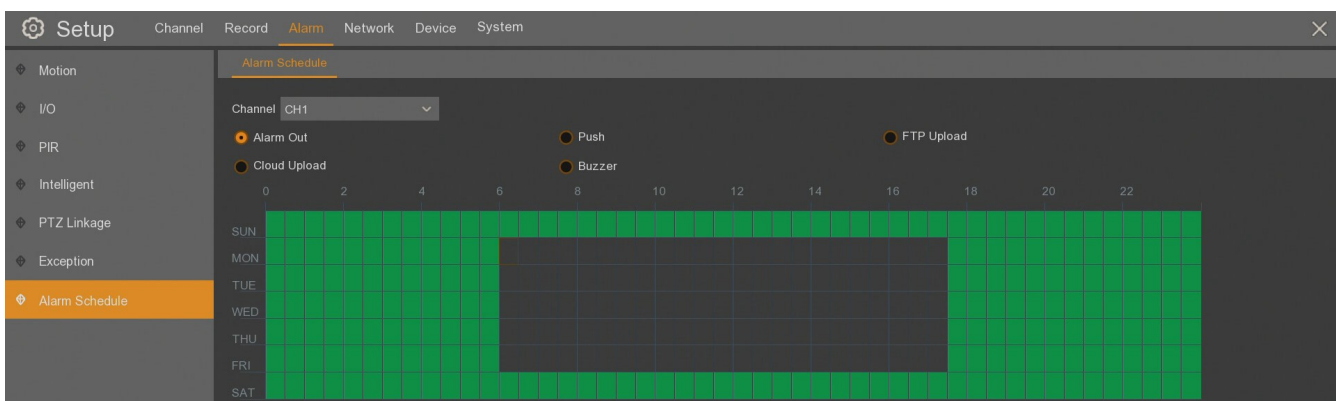
Latch time - alarm output activation time (**10s**, **20s**, **40s**, **60s**). For operation, the **Alarm Out** field must be checked.

Show Message - the recorder displays the icon on the screen, when the exception event occurs.

Send Email - send an e-mail message when an exception event occurs. Requires e-mail configuration in the **Network / Email** menu.

7.7. Alarm Schedule

The **Alarm Schedule** menu contains additional schedules for alarm responses. It is possible to define time intervals when alarm responses will be turned off.



ALARMS

The **Alarm Schedule** menu contains a graphic presentation of the periods when alarm reactions are to be performed. The table rows contain the days of the week (SUN - Sunday, MON - Monday, TUE - Tuesday, WED - Wednesday, THU - Thursday, FRI - Friday, SAT - Saturday). The columns contain hours. A single field corresponds to 30 minutes of registration. The schedules are enabled all the time by default.

The video channel should be chosen first and the alarm response configured for that channel. Then the period in the schedule should be marked when the reaction should be turned off. For example, if an alarm response in the form of a saved image to the FTP server is set for the first channel in the motion detection, PIR alarm or intelligent analysis event, after disabling it in the first channel schedule of the FTP Upload function, the images will not be saved at certain times.

Note! The response schedule of a selected channel applies to all alarms that can be triggered by that camera - motion detection, PIR and intelligent analysis.

Alarm responses which can have the schedules:

- **Alarm Out** - activation of the alarm output on the recorder or IP camera.
- **Push** - sending a push message to the mobile device.
- **FTP Upload** - save a photo or video on an FTP server.
- **Cloud Upload** - save a photo or video in the cloud.
- **Sound** - recorder beep.

There are buttons in the bottom right corner:

- **Copy** - copies selected parameters of one channel to another.
- **Default** - restores the default settings of this screen.
- **Apply** - saves all settings.

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NETWORK SETTINGS

8. NETWORK SETTINGS

The **Network** menu allows to configure all recorder settings related to network operation. Correct settings of IP address and network mask are necessary for remote connection with the recorder as well as with cameras. DNS and network gateway settings are necessary when using the Internet. The first **General** submenu contains network settings, the next ones contain individual functions related to network.

- The **General** tab contains network settings for the LAN port enabling client connection to the recorder, as well as with network cameras.

The screenshot shows the 'Setup' window with the 'Network' tab selected. Under the 'General' sub-tab, the 'WLAN' section is visible. The 'DHCP' checkbox is unchecked. The following fields are populated:

| Field | Value |
|-------------|-----------------|
| IP Address | 192.168.001.113 |
| Subnet Mask | 255.255.000.000 |
| Gateway | 192.168.001.254 |
| DNS1 | 192.168.001.254 |
| DNS2 | 008.008.008.008 |

DHCP - enable the function of dynamic assignment of network settings. The network parameters are downloaded automatically from the DHCP server. Deselecting this option requires to enter the network settings manually. To ensure connection stability, it is recommended to use a static IP address.

IP address - network address of the recorder in the LAN.

Subnet mask - a number used to extract the subnet address in the IP address.

Gateway - the address of the router which enable the Internet connection.

DNS1 - DNS domain server address.

DNS2 - address of the alternative DNS domain server.

- The PPPoE tab allows to enable Point to Point Protocol over Ethernet support. To activate the service, enter the username, password and correct address.

The screenshot shows the 'Setup' window with the 'Network' tab selected. Under the 'PPPoE' sub-tab, the 'Enable PPPOE' checkbox is unchecked. The following fields are populated:

| Field | Value |
|-------------|-----------------|
| User | |
| Password | |
| IP Address | 192.168.001.113 |
| Subnet Mask | 255.255.000.000 |
| Gateway | 192.168.001.254 |
| DNS1 | 192.168.001.254 |
| DNS2 | 008.008.008.008 |

- Setup

Channel

Record

Alarm

Network

Device

System

General

DDNS

Email

FTP

IP FILTER

General

PPPoE

3G

SNMP

Port Configuration

Enable 3G

☐

APN

3gnet

Dial Code

*99#

User

card

Password

••••

☐ Show Password

IP Address

192.168.0.113

Subnet Mask

255.255.0.0

Gateway

192.168.0.254

DNS1

192.168.0.254

DNS2

008.008.008.008

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- Setup

ChannelRecordAlarmNetworkDeviceSystem

General

GeneralPPPoE3G**SNMP**Port Configuration

DDNS

Email

FTP

IP FILTER

Enable SNMP

SNMP Version

SNMP Port

Read Community

Write Community

Trap IP Address

Trap Port

Read-Only User Name

Authentication Type

Authentication Password

Encrypted Type

Encrypted Password

Read/Write User Name

Authentication Type

Authentication Password

Encrypted Type

Encrypted Password

☒

V3

00161

public

private

127.0.0.0.0.0.1

00162

authOnlyUser

MD5

••••••

CBC-DES

••••••

authPrivUser

SHA

••••••

CBC-DES

••••••

Default

Apply

NETWORK SETTINGS

- The **Port configuration** tab contain additional network settings.

| | Service | Protocol | Internal Port | External Port | UPNP Status | Mapping Strategy | UPNP |
|---|-------------|----------|---------------|---------------|-------------|------------------|--------------------------|
| 1 | Web Port | TCP | 00080 | 00080 | Inactive | Auto | <input type="checkbox"/> |
| 2 | Client Port | TCP | 09000 | 09000 | Inactive | Auto | <input type="checkbox"/> |
| 3 | RTSP Port | TCP | 00554 | 00554 | Inactive | Auto | <input type="checkbox"/> |
| 4 | Https | TCP | 00443 | 00443 | Inactive | Auto | <input type="checkbox"/> |

Instruction:
 Analog Channel: rtsp://IP:Port/chA/B
 IP Channel: rtsp://IP:Port/IpA/B
 A:01(ch1),02(ch2) ...
 B:0(main stream),1(sub stream)

External IP:
 P2P Switch: ☒
 download bandwidth limit: 00 (0-40)Mb/s

The first part allow to set:

- **Web port** for HTTP connection via Internet Explorer (default port number 80).
- **Client port** for connections from the NMS software, NHDR-5000Viewer or the RXcamView mobile application (default port number 9000).
- **RTSP port** -for obtaining RTSP video streams (default port number 554).
- **HTTPS** for encrypted connections (default port number 443).

Each of these ports may be different for LAN connections (**Internal Port**) and for external connections (**External Port**). It is possible to enable the UPNP discovery function for each of them by checking the appropriate checkbox. This function requires a router that supports this function. After establishing a UPNP connection, the **UPNP Status** column changes from **Inactive** to **Active**.

The description and example of obtaining RTSP video streams from the recorder is described in chapter 8.5.

At the bottom of the screen are the fields:

- **External IP** - displays the external IP address after UPNP activation.
- **P2P Switch** - enables / disables the option enabling remote connection with the recorder using the P2P protocol.
- **Download bandwidth limit** - allows to set a limit for the downloaded data during archiving of recordings over the network, not to interfere with the recorder's current network operation. The default value "00" means no restrictions.

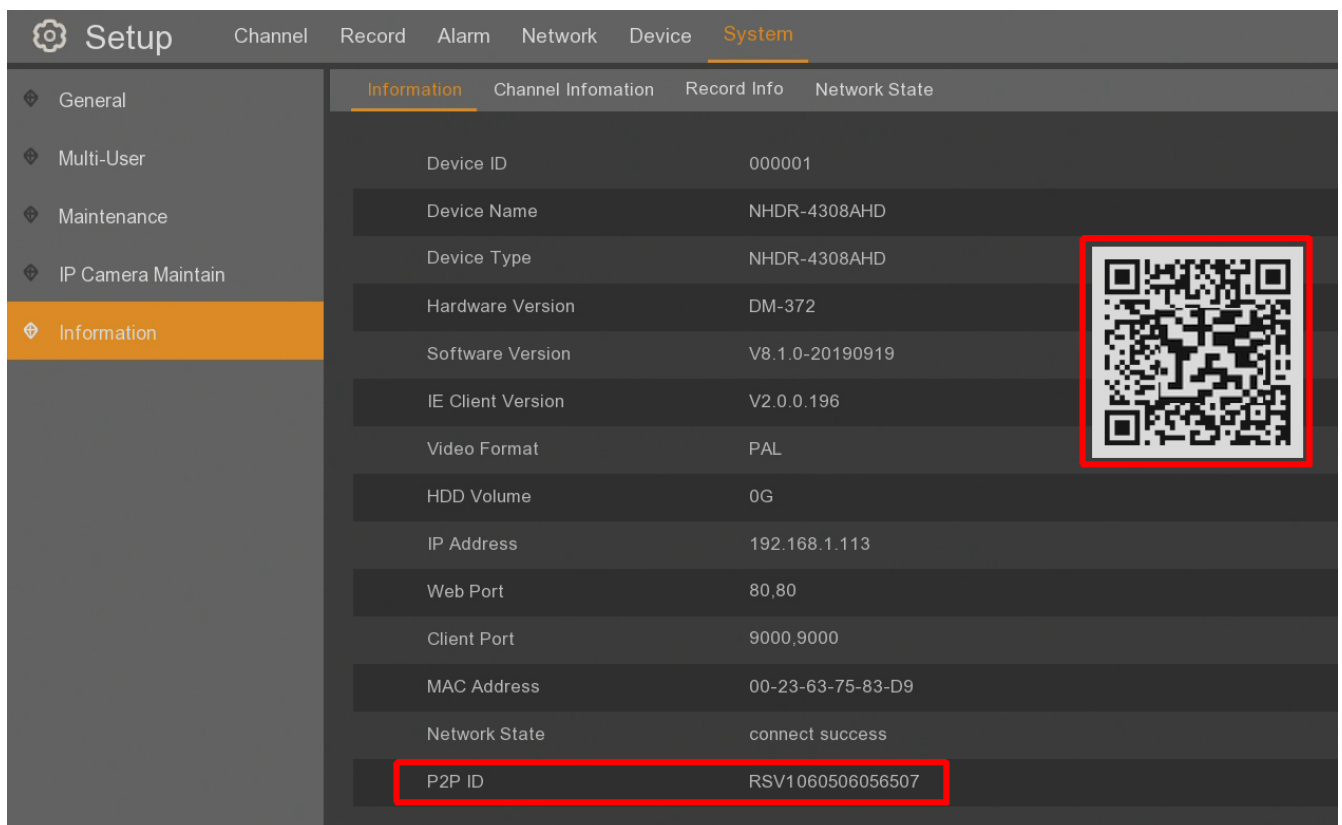
NETWORK SETTINGS

- **P2P identifier**

NHDR recorders enable remote network connection using P2P service. Connection to the recorder is established by an external server, even if the recorder does not have a public IP address. The recorder just need to have access to the Internet. The connection with the P2P ID is available from the NHDR-5000Viewer or RXCamView application. The QR code also contains an identifier and can be scanned e.g. by the RXCamView application.

The QR code and P2P identifier can be found in the **System \ Information** menu or on the

Information screen available by pressing the icon .



The screenshot shows the 'Setup' menu with 'System' selected. Under 'System', 'Information' is selected. The 'Information' screen displays the following details:

| Information | Value |
|-------------------|-------------------|
| Device ID | 000001 |
| Device Name | NHDR-4308AHD |
| Device Type | NHDR-4308AHD |
| Hardware Version | DM-372 |
| Software Version | V8.1.0-20190919 |
| IE Client Version | V2.0.0.196 |
| Video Format | PAL |
| HDD Volume | 0G |
| IP Address | 192.168.1.113 |
| Web Port | 80,80 |
| Client Port | 9000,9000 |
| MAC Address | 00-23-63-75-83-D9 |
| Network State | connect success |
| P2P ID | RSV1060506056507 |

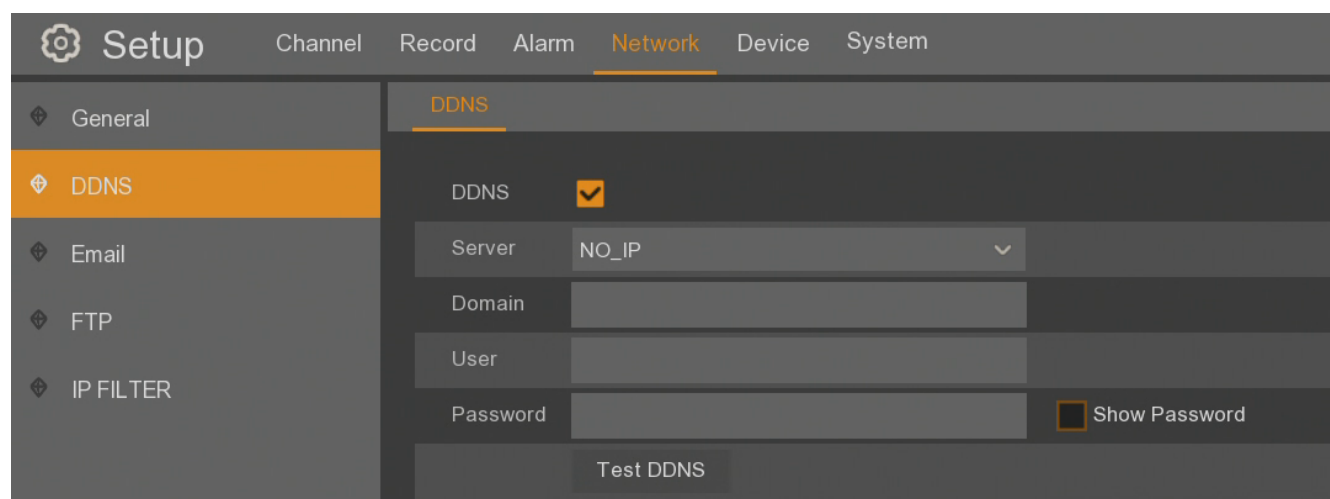
A QR code is displayed on the right side of the screen, and the P2P ID is highlighted with a red box.

Note! The P2P service is provided by third parties and AAT Holding S.A. is not responsible for the operation of this service.

NETWORK SETTINGS

8.1. DDNS settings

DDNS is a function that assigns a fixed domain name to a dynamic IP address. Before connecting, make sure that the port is not used or blocked. Then enter the settings for the server, ie. **Server name, domain, username, password.**



The screenshot shows the 'Setup' menu with the 'Network' tab selected. Under the 'Network' tab, the 'DDNS' sub-tab is active. The 'DDNS' checkbox is checked. The 'Server' dropdown menu is set to 'NO_IP'. The 'Domain', 'User', and 'Password' fields are empty. There is a 'Show Password' checkbox which is unchecked. A 'Test DDNS' button is located at the bottom of the form.

DDNS - enable the DDNS function.

Server - selection of the DDNS server which has registered the domain.

Domain - the name of the registered domain.

User - username registered in the DDNS server.

Password - user password.

Test DDNS - run the function check. If an error occurs in the connection, an error message will be displayed.

Before starting the configuration, please register the address in one of the DDNS services supported by the recorder. The recommended service is www.dyndns.com.

Before configuring the DDNS function, please contact the administrator of the network in order to obtain the permitted parameters that will be entered in this menu.

Note! Despite the fact that the recorder enables the support of dynamic IP addresses, it is recommended to use DDNS function on the router which provides internet connection.

NETWORK SETTINGS

8.2. Email settings

The recorder allows to define e-mail addresses, to send notifications about alarm events such as motion detection, alarm input activation, intelligence events, PIR alarm, video loss, disk alarm etc. The e-mail may contain a screenshot of the image as an attachment.

The **Email Configuration** submenu allows to configure emails sending.

The screenshot shows the 'Setup' menu with the 'Network' tab selected. Under 'Network', the 'Email Configuration' submenu is active. The settings are as follows:

| Setting | Value |
|---|--|
| Email | <input checked="" type="checkbox"/> |
| Encryption | Auto |
| SMTP Port | 00025 |
| SMTP Server | |
| User Name | |
| Password | <input type="password"/> Show Password |
| Sender | |
| Receiver 1 | |
| Receiver 2 | |
| Receiver 3 | |
| Interval | 3 Min |
| <input type="button" value="Test Email"/> | |

Email - enable / disable sending of email messages.

Encryption - SSL, TLS, Auto, Disable, encryption can be selected.

SMTP port - SMTP mail server port.

SMTP server - the address of the SMTP mail server.

User name - e-mail address of the sending account.

Password - password for the sending account.

Sender - name of the sender, e.g. specifying the location of the recorder.

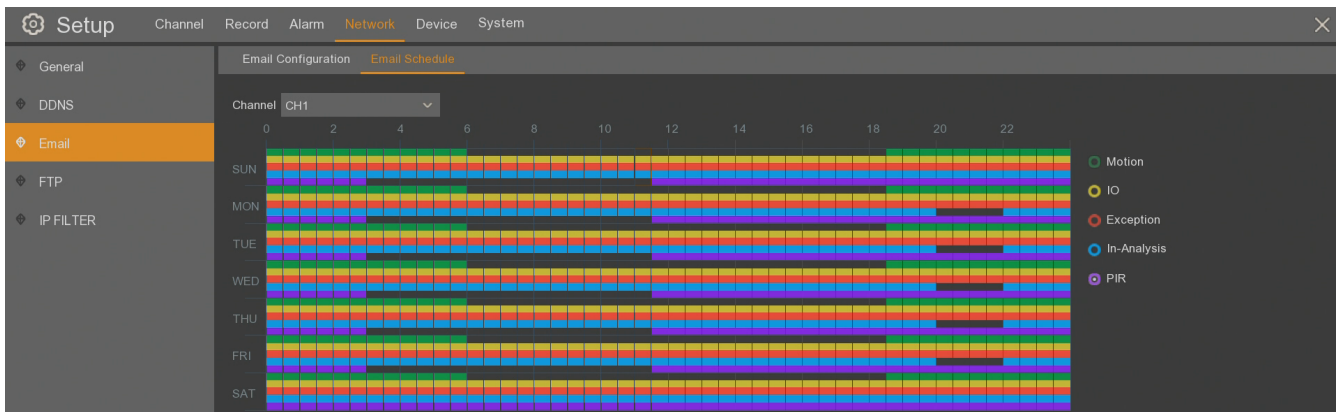
Receiver address 1/2/3 - recipients e-mail addresses.

Interval - the time interval between e-mail messages (1, 3, 5, 10 minutes).

Test Email - configuration and network validation test. The recorder sends a test e-mail message and displays a message of success or error.

NETWORK SETTINGS

The **Email Schedule** tab contains a graphic presentation of the periods when e-mails are to be sent. The table rows contain the days of the week (SUN - Sunday, MON - Monday, TUE - Tuesday, WED - Wednesday, THU - Thursday, FRI - Friday, SAT - Saturday). The columns contain hours. A single field corresponds to 30 minutes. The schedules are enabled for all types of events all the time by default.



The schedule can be defined individually for each channel. E-mail can be sent in the case of:

- motion detection - **green** color.
- activation of alarm inputs - **yellow** color.
- system exception (full disk, damage disk, video loss) - **red** color.
- intelligent analysis events - **blue** color.
- PIR alarm - **purple** color.

Lack of color means turning off the mailing function at a specific time. Individual modes can be combined, as in the example above.

There are buttons in the bottom right corner:

Copy - copies the schedule parameters from the selected channel to other channels.

Default - restores the default settings for this screen.

Apply - saves the settings.

8.3. FTP settings

The recorder allows to define FTP server, to send pictures or video records.

Enter the FTP server settings in the FTP tab:

- **FTP Enable** - enable / disable FTP server settings.
- **Server IP** - name or IP address of the FTP server.
- **Port** - the port for FTP connection (the port is set to 21 by default).

NETWORK SETTINGS

- **User Name** - the user account name on the FTP server.
- **Password** - the user's password on the FTP server.
- **Picture resolution** - selection of the resolution of the recorded image (**1920x1080, 1280x720, 1024x768, 640x480, 320x240, 176x144**).
- **Picture quality** - picture quality depends on image compression (**Best, Very Good, Good, Low, Lower, Lowest**).
- **Video Stream Type** - selection of the video stream which will be saved (**Mainstream, Substream**).
- **Max Package Interval** - maximum length of video recordings (**10 Min, 20 Min, 30 Min, 45 Min, 60 Min**).
- **Directory Name** - name of the directory to save files from the recorder. The directory name have to be typed to save changes. The first time the file is saved on the FTP server, the directory will be created.
- **Upload Normal Video** - defining which channels can be saved continuously to an FTP server.
- **Upload Alarm Video** - buttons **Motion, I/O, PIR Alarm Settings, Intelligent**, to quick go to the alarm responses settings to configure the alarm recording on the FTP server.

The screenshot shows the 'Setup' menu with 'Network' selected. The 'FTP' section is expanded, showing the following settings:

- FTP Enable:** ☒
- Server IP:** [Empty field]
- Port:** 00021
- User Name:** [Empty field]
- Password:** [Empty field] ☐ Show Password
- Picture Resolution:** 1280 x 720
- Picture Quality:** Higher
- Video Stream Type:** Substream
- Max Package Interval:** 30 Min
- Directory Name:** [Empty field]
- Upload Normal Video:** ☒ OFF
- Upload Alarm Video:**
 - ☒ Motion
 - ☐ I/O
 - ☐ PIR Alarm Settings
 - ☐ Intelligent

A 'Test FTP' button is located next to the 'Server IP' field.

Test FTP button check the configuration after entering the above data. If the configuration is correct, the recorder will save the **ftpctest.txt** file to the server in the indicated directory.

Note! The recorder is not designed for continuous video recording on an FTP server.

NETWORK SETTINGS

The **FTP Schedule** tab contains a graphic presentation of the periods when pictures and video recordings are to be sent to the FTP server. The table rows contain the days of the week (SUN - Sunday, MON - Monday, TUE - Tuesday, WED - Wednesday, THU - Thursday, FRI - Friday, SAT - Saturday). The columns contain hours. A single field corresponds to 30 minutes. The schedules are enabled all the time for motion detection, alarm inputs, PIR alarm and intelligent video analysis events by default.



The schedule can be defined individually for each channel. Pictures and video records can be sent to FTP server in the case of:

- continuous recording - **green** color.
- motion detection - **yellow** color.
- activation of alarm inputs - **red** color.
- PIR alarm - **purple** color.
- intelligent analysis events - **blue** color.

Lack of color means disabling the FTP function at a specified time. Individual modes can be combined, as in the example above.

There are buttons in the bottom right corner:

Copy - copies the schedule parameters from the selected channel to other channels

Default - restores the default settings for this screen.

Apply - saves the settings.

NETWORK SETTINGS

8.4. IP filtering

The **IP FILTER** submenu is an additional mechanism of recorder network security that allows limiting access to devices with specific IP addresses. It is possible to use the allow list (list of IP addresses with access allowed) or the block list (list of IP addresses with access denied).

IP FILTER

☒ Enable ☒ Enable Allow List ☐ Enable Block List

Restricted Type: Allow List

Start Address: Single Add:

End Address: Network Segment Add:

| | No | Start Address | End Address | Edit | Delete |
|-------------------------------------|----|---------------|--------------|-------------------------------------|---------------------------------------|
| <input checked="" type="checkbox"/> | 1 | 10.1.1.1 | 10.1.255.255 | <input type="button" value="Edit"/> | <input type="button" value="Delete"/> |
| <input checked="" type="checkbox"/> | 2 | 10.11.1.1 | 10.11.1.1 | <input type="button" value="Edit"/> | <input type="button" value="Delete"/> |
| <input type="checkbox"/> | 3 | 10.11.1.12 | 10.11.1.12 | <input type="button" value="Edit"/> | <input type="button" value="Delete"/> |

- **Enable** - enables / disables IP address filtering.

- **Enable Allow List / Enable Block List** - choose between using an address list with allowed or denied access. Choosing to use the allow list, only IP addresses from this list will be able to connect to the recorder. Choosing to use the block list, all IP addresses will be able to connect to the recorder except the IP addresses from this list.

- **Restricted Type** - choice of configuration and display below the **Allow List** or **Block List** of IP addresses.

- **Start Address / End address** - defining the range of IP addresses added to the selected list.

- **Single Add** - adds to the list the address from the field **Start Address**.

- **Network Segment Add** - adds to the list a group of addresses from the defined range.

Below these settings is a table with defined ranges of IP addresses. Each range can be edited with the button or deleted with the button. IP addresses selected in the left column can be removed using the **Remove IP** button at once.

There are buttons in the bottom right corner:

Default - restores the default settings for this screen.

Apply - saves the settings.

NETWORK SETTINGS

8.5. RTSP streaming

The NHDR recorders are able to send RTSP streams with the image of AHD and IP cameras. The **Network \ General \ Port Configuration** menu shows how to get the RTSP streams.

The screenshot shows the 'Setup' menu with 'Network' selected. Under 'Network', 'Port Configuration' is chosen. A table lists four ports:

| | Service | Protocol | Internal Port |
|---|-------------|----------|---------------|
| 1 | Web Port | TCP | 00080 |
| 2 | Client Port | TCP | 09000 |
| 3 | RTSP Port | TCP | 00554 |
| 4 | Https | TCP | 00443 |

Below the table, a red box highlights the following instructions:

```

Instruction:
Analog Channel: rtsp://IP:Port/chA/B
IP Channel: rtsp://IP:Port/ipA/B
A:01(ch1),02(ch2)...
B:0(main stream),1(sub stream)
  
```

The streaming configuration consists of the RTSP transmission port setting (it is recommended to use the default port 554).

To receive and display the RTSP stream, enter the access path in the player or application as follows:

rtsp://IP:Port/chA/B rtsp://IP:Port/ipA/B

Where:

IP - IP address of the recorder.

Port - RTSP port (default 554).

A - means channel number 01 (channel1), 02 (channel2), etc.

B - means the stream that we want to display: 0 (main stream), 1 (sub stream).

For example: **rtsp://172.18.6.11:554/ch04/0** opens the fourth analog channel (main stream) from the NHDR with the 172.18.6.11 IP address by 554 port.

Changing **ch** to **ip** in the path, the command opens IP channel.

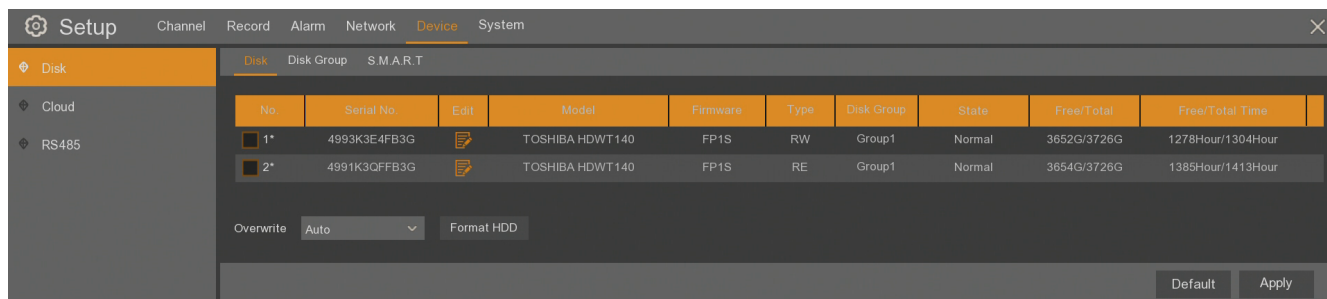
For example: **rtsp://172.18.6.11:554/ip04/0** opens the fourth IP channel (main stream) from the NHDR with the 172.18.6.11 IP address by 554 port.

Note! To get the RTSP stream user authentication is required using data of the user having access to the recorder. Permission for *Remote Login* and *Live View* of the channel is required.

9. DEVICE MENU

9.1. Disk management

The **Disk** submenu displays the list of hard disks connected to the recorder.



No. - the ordinal number of the disk. An asterisk (*) next to the number indicates disk is writing. The checkbox next to the disk number should be marked to format it.

Edit - displays the disk edit window.

Model, Serial No, Firmware - disk informations.

Type - disk status: **RW** (read/write), **RE** (redundant), **RE** (Read only).

Disk Group - defines the group the disk was assigned.

State - informs about the current state of the disk: **OK**, **Unformatted**, **Full**.

Free / Total - the remaining and total hard disk space.

Free / Total Time - estimated time of recordings, which should be saved in the free disk space. The time depends on the coding and number of video frames, video streams.

Overwrite - set to **Auto**, makes recordings overwritten starting with the oldest, when there is no free disk space. When overwrite is turned **OFF**, the DVR will stop recording when the hard disk is full. It is also possible to set the time when the recordings will be overwritten. Available periods are **1 day**, **3 days**, **7 days**, **14 days**, **30 days**, **60 days** and **90 days**. It defines the longest time of stored recordings, after this time the recordings will be deleted.

Format HDD - format the hard drive. The checkbox next to the disk number should be marked.

Note! Formatting the hard disk is necessary to start recording. Formatting removes data from the hard disk irretrievably.

Pressing the **Edit** button displays the disk editing window. The user can specify:

- **Disk type**. Available options:

- **Write / read** - the option can be assigned within the write groups.

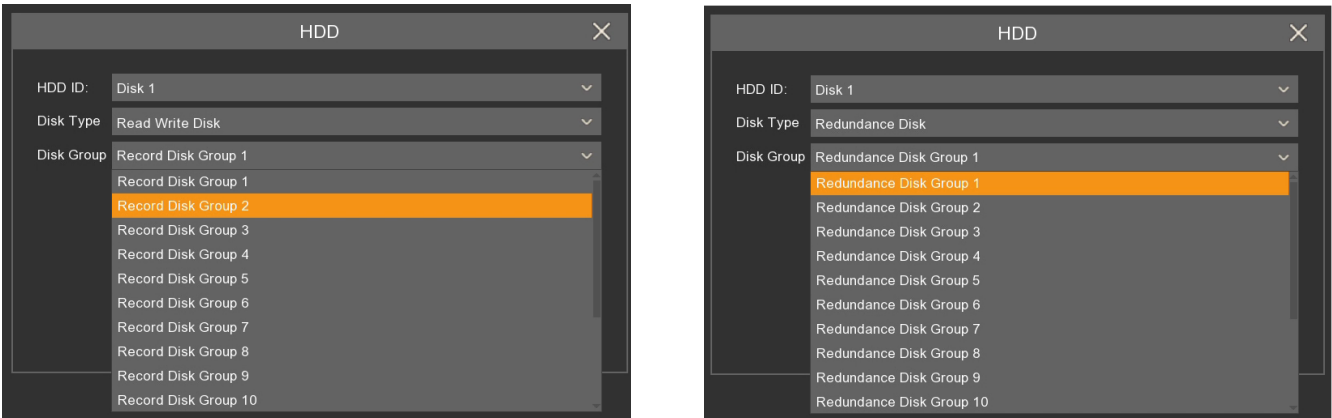
- **Redundant** - this option can be assigned within redundant disk groups.

- **Read-only**.

- **Disk group** - selects the group where the hard disk is assigned.

DEVICE MENU

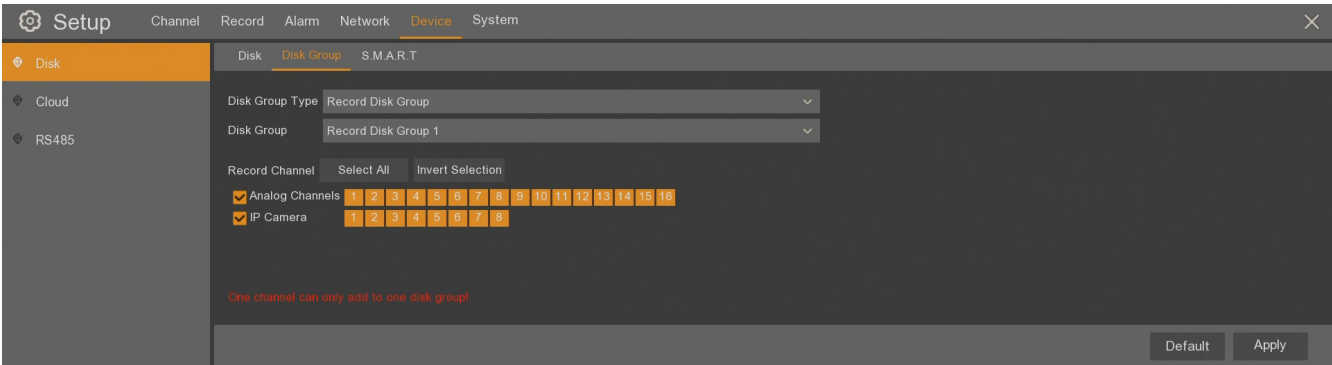
A **read / write disk** can be assigned to a **Record Disk Group**. A **redundant disk** can be assigned to a **Redundance Disk Group**.



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The **Disk Group** tab allow to assign channels to disk groups. Preferred channels can be assigned a larger disk space than the others. The **Group type** have to be selected first, then the group number from the **Disk Group** field. A channel can only be assigned to one group of drives of a selected type.

For example, channel 1 can not be assigned to the **Record Disk Group 1** and **Record Disk Group 2**. However, it can be assigned to the **Record Disk Group 1** and the **Redundance Disk Group 1**.



NHDR recorders have a S.M.A.R.T. hard disk monitoring system. The **S.M.A.R.T** tab contains settings related to this function.

HDD ID - disk selection.

Self-check type - allows to run disk tests.

Short - a quick test detecting the most important problems.

Long - an extensive test detecting all problems that S.M.A.R.T is able to recognize.

Conveyance - a test designed to detect damage caused during transport of the device.

DEVICE MENU

Self-check state - result of the test, during the test shows the percentage of test execution.

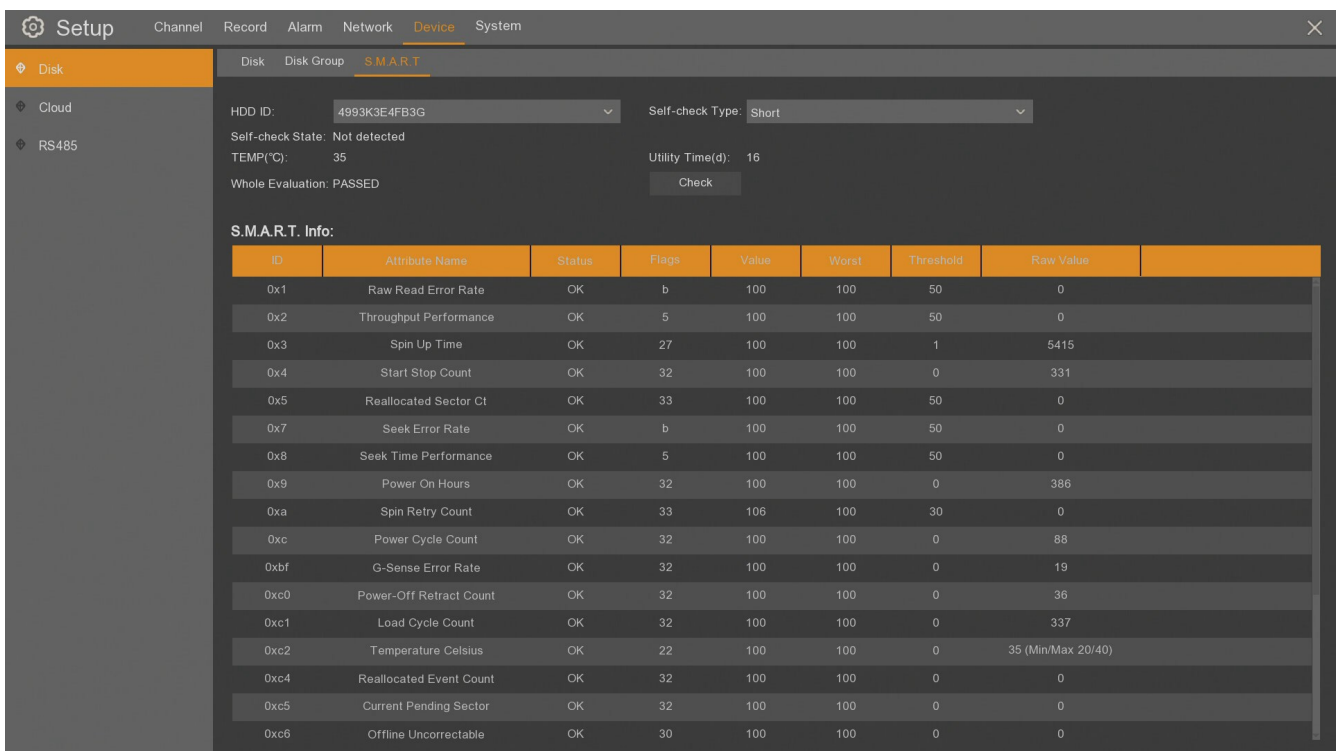
TEMP - displays the temperature of the hard disk in degrees Celsius.

Utility Time(d) - disk working time (calculated in days).

Whole evaluation - a summary assessment of the disk's condition.

The **Check** button starts the specified test. During the test, it turns into a **Stop** button to stop the test.

SMART Info - contains all disk attributes and their values.



The screenshot shows the 'Device' menu in the NHDR-4xxxAHD interface. The 'Disk' tab is selected, and the 'S.M.A.R.T.' sub-tab is active. The interface displays the following information:

- HDD ID:** 4993K3E4FB3G
- Self-check Type:** Short
- Self-check State:** Not detected
- TEMP(°C):** 35
- Utility Time(d):** 16
- Whole Evaluation:** PASSED
- Check** button

S.M.A.R.T. Info:

| ID | Attribute Name | Status | Flags | Value | Worst | Threshold | Raw Value |
|------|-------------------------|--------|-------|-------|-------|-----------|--------------------|
| 0x1 | Raw Read Error Rate | OK | b | 100 | 100 | 50 | 0 |
| 0x2 | Throughput Performance | OK | 5 | 100 | 100 | 50 | 0 |
| 0x3 | Spin Up Time | OK | 27 | 100 | 100 | 1 | 5415 |
| 0x4 | Start Stop Count | OK | 32 | 100 | 100 | 0 | 331 |
| 0x5 | Reallocated Sector Ct | OK | 33 | 100 | 100 | 50 | 0 |
| 0x7 | Seek Error Rate | OK | b | 100 | 100 | 50 | 0 |
| 0x8 | Seek Time Performance | OK | 5 | 100 | 100 | 50 | 0 |
| 0x9 | Power On Hours | OK | 32 | 100 | 100 | 0 | 386 |
| 0xa | Spin Retry Count | OK | 33 | 106 | 100 | 30 | 0 |
| 0xc | Power Cycle Count | OK | 32 | 100 | 100 | 0 | 88 |
| 0xbf | G-Sense Error Rate | OK | 32 | 100 | 100 | 0 | 19 |
| 0xc0 | Power-Off Retract Count | OK | 32 | 100 | 100 | 0 | 36 |
| 0xc1 | Load Cycle Count | OK | 32 | 100 | 100 | 0 | 337 |
| 0xc2 | Temperature Celsius | OK | 22 | 100 | 100 | 0 | 35 (Min/Max 20/40) |
| 0xc4 | Reallocated Event Count | OK | 32 | 100 | 100 | 0 | 0 |
| 0xc5 | Current Pending Sector | OK | 32 | 100 | 100 | 0 | 0 |
| 0xc6 | Offline Uncorrectable | OK | 30 | 100 | 100 | 0 | 0 |

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DEVICE MENU

9.2. Cloud

The **Cloud** submenu contains the cloud disk settings associated with e-mail account. There can be saved pictures and video recordings triggered by alarm events (motion detection, activation of the alarm input, PIR alarm or intelligent image analysis).

| Channel | Driver Name |
|---------|-------------|
| CH1 | CH1 |
| CH2 | CH2 |
| CH3 | CH3 |
| CH4 | CH4 |
| IP CH1 | IP CH1 |
| IP CH2 | IP CH2 |

- **Cloud Storage** - enables / disables the cloud storage function.
- **Cloud Type** - choice of cloud type (Dropbox or Google Drive).
- **Activate Cloud** - a button activating the connection with the cloud.
- **Cloud Status** - information about the cloud status **Unactivated** or **Activated**.
- **Capacity** - the percentage of free disk space to the total capacity.
- **Cloud Overwrite** - overwrite function. The **Auto** setting overwrites the oldest recordings when there is not enough free disk space. If overwriting is set to **OFF**, the recorder will finish recording to the cloud disk when the cloud disk is full. There are also time settings when recordings will be overwritten: **1 Day**, **3 Days**, **7 Days**, **14 Days**, **30 Days** and **90 Days**. It means the longest storage time, older recordings will be deleted.
- **Video Type** - the type of video recordings (**MP4**, **AVI**, **RF**).

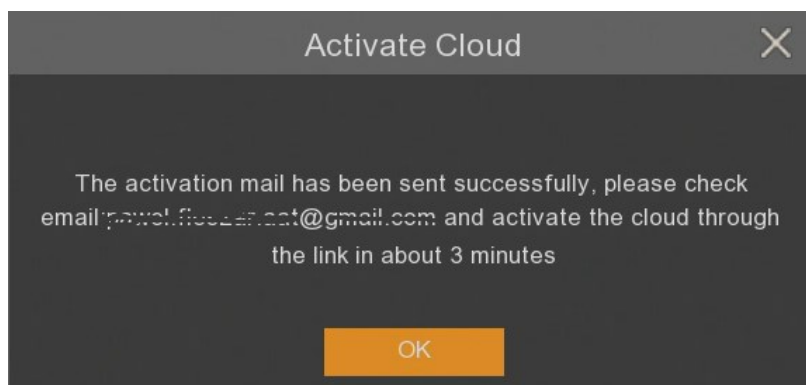
The next part of the window shows the camera table and directory names for each camera.

Note! The Dropbox and Google Drive services are provided by third parties and AAT Holding S.A. is not responsible for the operation of these services.

DEVICE MENU

Note! The cloud function requires access to the Internet, a configured e-mail account in the recorder (Menu \ Network \ Email) with a Dropbox or Google Drive account connected.

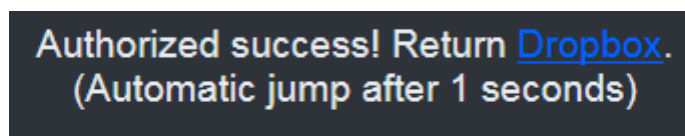
To activate the cloud, press the **Activate Cloud** button. An authorization link will be sent to the recipient's e-mail address. If the Email configuration is correct, information about sending the activation e-mail will be displayed. The e-mail contains a link to log in to Dropbox or Google Drive which is active for 3 minutes.



If the **Dropbox Cloud Type** is chosen, an activation link will be sent to the e-mail which direct to the Dropbox page. You must be log in to the **Dropbox**. Then the window below appear in the browser. Enter the local IP address of the recorder, and then enter the login details of the administrator account.



Successful authorization ends the screen as below. You will be automatically switched to your Dropbox account. Save all the changes using the **Apply** button. After successful activation **Cloud Status** will indicate **Activated**, the **Capacity** shows the values of cloud capacity and currently used space.



Note! To activate Dropbox cloud it is required to have the recorder and the computer in the same local network.

DEVICE MENU

If the **Google Drive Cloud Type** is chosen, the link <https://www.google.com/device> and the activation code for the recorder will be sent to the e-mail address.

Activate Cloud at Google Drive 2019/11/05 12:52:01 Inbox x



AAT
to me ▾

Your activation code is: **QZG-SYM-KPT**

Click the following link to enter your code:
<https://www.google.com/device>

Reply

Forward

Click the provided link, enter the code that temporarily identifies the recorder. Then log in to **Google Drive** service using the e-mail account data. The website will display the message that "CloudStorage wants to access your Google account". Click the **Allow** button and the service will be activated.

CloudStorage wants to access
your Google Account

This will allow **CloudStorage** to:



View and manage Google Drive files and folders that you have opened or created with this app ⓘ

Make sure you trust CloudStorage

You may be sharing sensitive info with this site or app. Learn about how CloudStorage will handle your data by reviewing its terms of service and privacy policies. You can always see or remove access in your [Google Account](#).

[Learn about the risks](#)

Cancel

Allow

Success! Device connected



Continue on your device

To see all apps connected to your Google Account go to [Google Account](#)

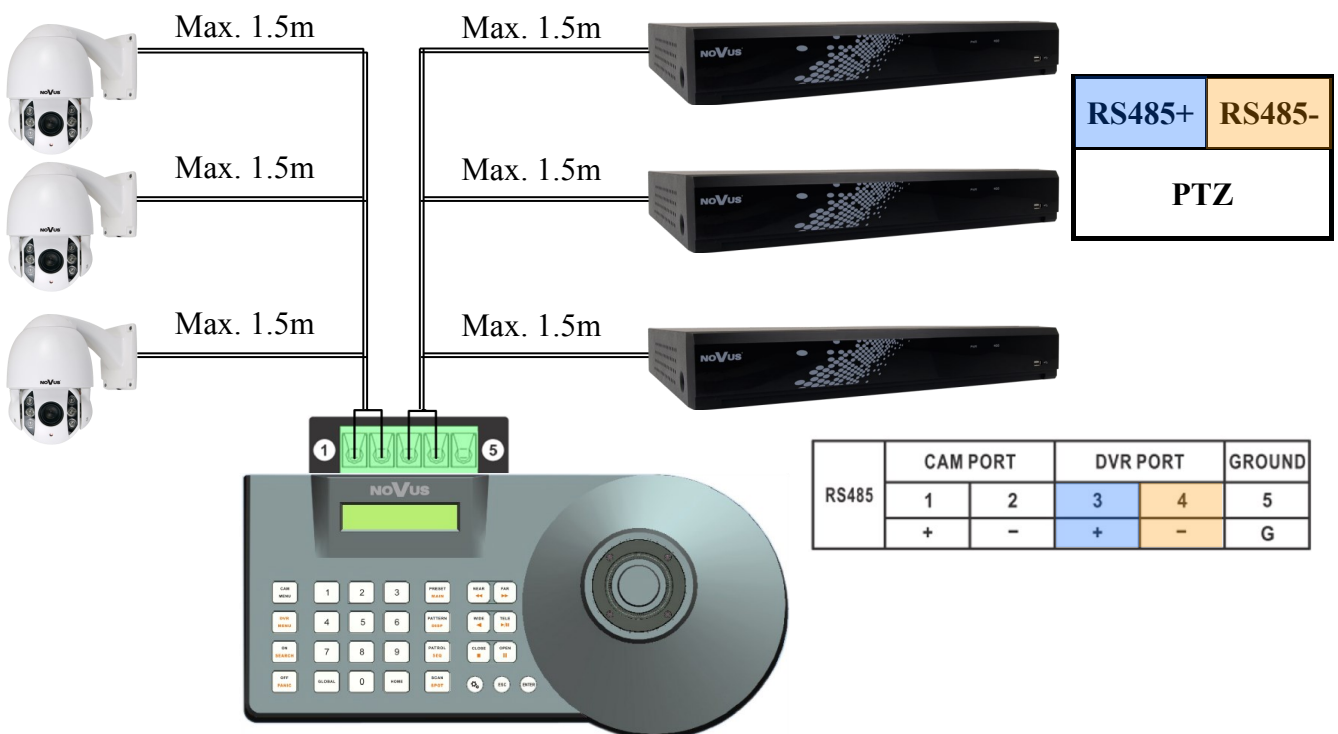
After successful activation **Cloud Status** will indicate **Activated**, the **Capacity** shows the values of cloud capacity and currently used space.

The recorder creates a directory on the disk in the cloud consisting of the recorder name and MAC number, including subdirectories with recording dates.

9.3. RS485

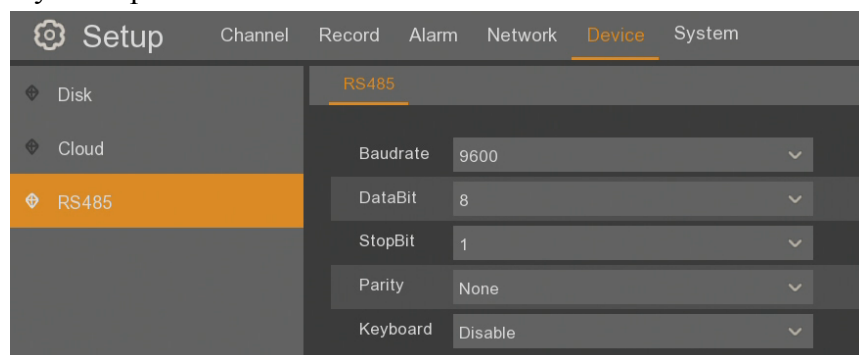
The NHDR 4000 series recorders can be controlled by NOVUS NV-KBD50 system keyboard using N-Control protocol.

Diagram of keyboard connection to the RS485 bus



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Configuration of keyboard parameters is in the **Device \ RS485** menu.



Enabling the **RS485** function (**Keyboard Enable**) means that the RS485 port will be used by the keyboard to control the recorder. **Keyboard Disable** allows to control PTZ cameras by the recorder using RS485 port. It is not possible to simultaneously operate the recorder by the keyboard and PTZ cameras by the recorder.

The recorder address (**Device ID**) is located in the **System \ General \ General** menu (default 1).

SYSTEM SETTINGS

10. SYSTEM SETTINGS

The **System \ General \ General** tab contains the basic settings:

Device Name - a specific name, edited by the user.

Device ID - ID required at login (default 000001).

Language - OSD language selection (**English**, **Polish**, etc.).

Video Format - video format selection (**PAL** or **NTSC**).

Menu Timeouts - the time of inactivity to log out the user (exit from the menu) **30s**, **1Min**, **2Min**, **5Min**, **10Min**, **OFF**.

Mode - the recorder mode: **Hybrid** (default) or **DVR**.

Show wizard - enables / disables the display of the settings wizard after system startup.

The screenshot shows the 'Setup' menu with the 'System' tab selected. Under 'System', the 'General' sub-tab is active. The settings are as follows:

| Setting | Value |
|---------------|-------------------------------------|
| Device Name | 5M-HY04 |
| Device ID | 000001 |
| Language | ENGLISH |
| Video Format | PAL |
| Menu Timeouts | OFF |
| Mode | Hybrid |
| Show wizard | <input checked="" type="checkbox"/> |

10.1. Date and time settings

The **Date and Time** tab allows to set the date and time in the recorder.

The screenshot shows the 'Setup' menu with the 'System' tab selected. Under 'System', the 'Date and Time' sub-tab is active. The settings are as follows:

| Setting | Value |
|---|-------------------------------------|
| Date | 07/11/2019 |
| Time | 10:53:45 |
| Date Format | DD/MM/YY |
| Time Format | 24Hour |
| Time Zone | GMT+01:00 |
| NTP Settings | |
| Enable NTP | <input checked="" type="checkbox"/> |
| Server Address | pool.ntp.org |
| <input type="button" value="Update Now"/> | |
| DST Settings | |
| Enable DST | <input checked="" type="checkbox"/> |
| Time Offset | 1Hour |
| DST Mode | Week |
| Start Time | Mar. The last Sun. 02:00:00 |
| End Time | Oct. The last Sun. 02:00:00 |

SYSTEM SETTINGS

Date - the current date can be set by selecting from the calendar.

Time - the current time of the device.

Date format - displaying date format selection (**MM/DD/YY**, **RR-MM-DD**, **DD/MM/YY**).

Time format - displaying time format selection (**12 hours**, **24 hours**).

Time zone - time zone selection.

The DVR is able to synchronize the time with the NTP server. The NTP server can be selected from the list. The **User Defined** option allows to enter any time server IP address. The **Update Now** button starts time synchronization with the selected NTP server.

The recorder allows to set the **DST**.

Time Offset - specifies the time offset (**1 hour**, **2 hours**).

DST Mode - selection of the type of time change (specific week or date).

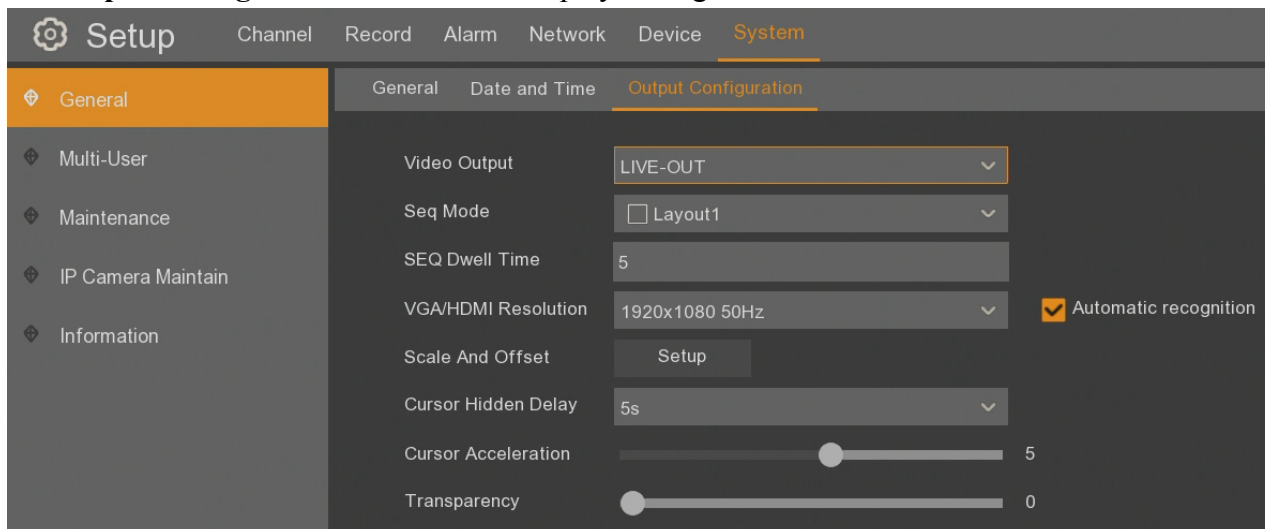
Start time - beginning of daylight saving time.

End time - end of daylight saving time.

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10.2. Monitor output settings

The **Output Configuration** tab contains display settings.



Video output - output selection, depends on the model: **LIVE-OUT** or **SPOT-OUT**.

Seq Mode - selection of the division displayed in the sequence.

SEQ Dwell Time - sequence time to display one camera or division. Default value is 5 seconds, maximum 5 minutes.

Output resolution - resolution of the monitor output: **1024x768**, **1280x1024**, **1440x900**, **720P (1280x720)**, **1920x1080 50Hz**, **1920x1080 60Hz**, **1680x1050**, **1600x1200**, **1920x1200**, **2K (2560x1440)**, **4K(3840x2160)**. The **Automatic recognition** option causes the recorder to check the resolution of the connected monitor at startup and, if it is higher, proposes to change the settings.

Scale and offset - changing the display format, applies to monitors that have problems to display the entire image.

SYSTEM SETTINGS

Cursor Hidden Delay - the time of inactivity to hide the cursor from the screen. Moving the mouse displays the cursor again.

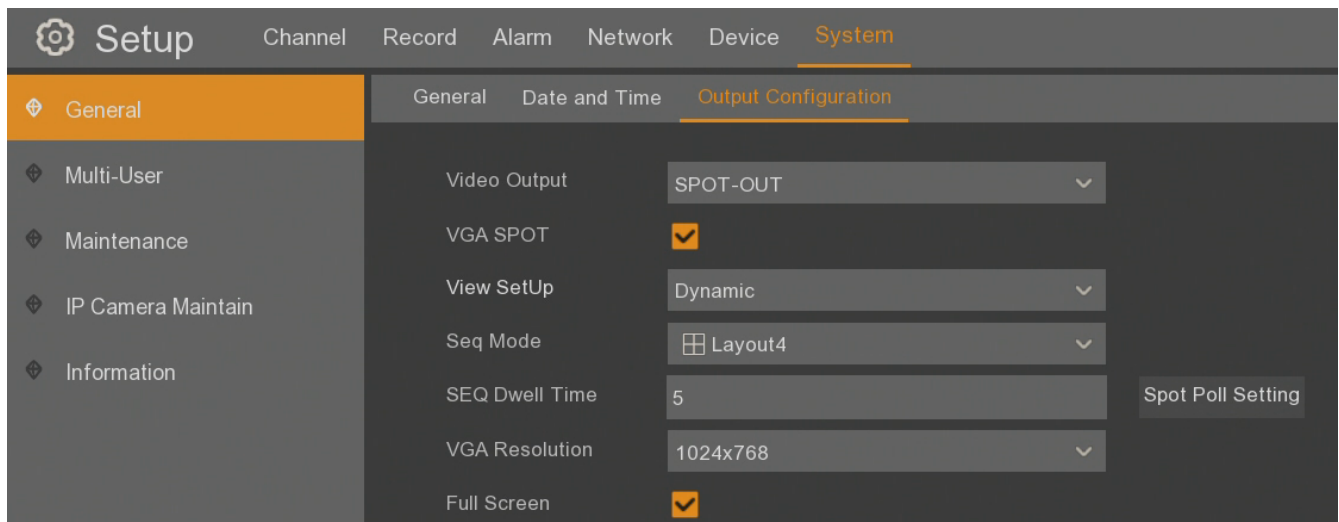
Cursor Acceleration - cursor movement speed.

Transparency - main menu OSD transparency.

The NHDR-4304AHD, NHDR-4308AHD and NHDR-4316AHD models allow to turn on the spot monitor at the VGA output. The recorder menu cannot be displayed on it. After enabling this function, the recorder must be restarted.

Note! One of the functions: SPOT monitor, Intelligent Image Analysis of analog camera can be switched on at the same time. To activate one function, the other has to be turned off.

Switching the **Video output** to **SPOT-OUT**, spot monitor settings are displayed like below:



VGA SPOT - enable / disable the spot monitor.

View Setup - view mode settings: **Dynamic** (sequence of cameras) or **Static** (fixed view with selected cameras).

Seq Mode - split screen selection to display cameras.

SEQ Dwell Time - time to switch cameras (from 5 seconds to 5 minutes).

Define SEQ Setting - selection of cameras to appear in the defined view.

VGA resolution - selection of the display resolution on the spot monitor (**1024x768**, **1280x1024**, **1440x900** or **720P(1280x720)**).

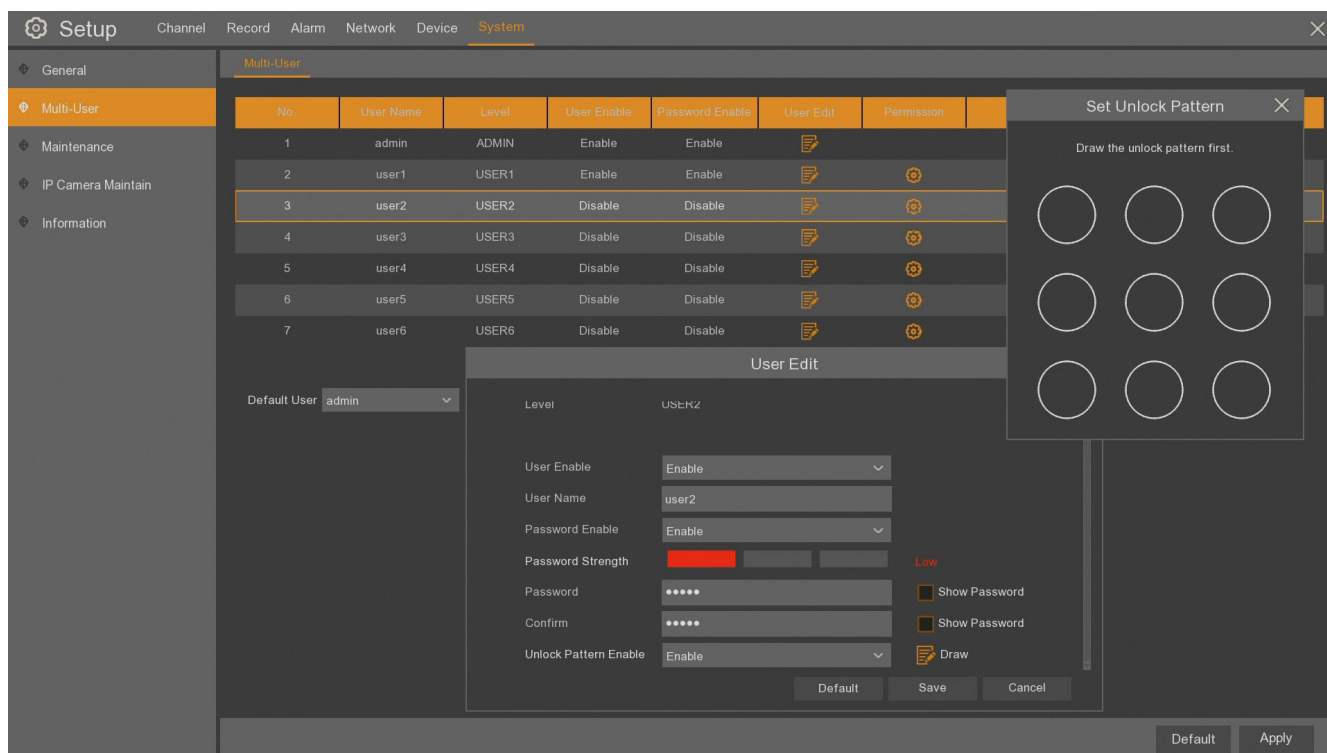
Full Screen - enable the function of switching to full screen camera with motion detection event.

When **Static** view mode is selected, choose the division to be used and which cameras are to be displayed.

SYSTEM SETTINGS

10.3. User account management

The recorder allows to configure 7 users accounts in the **System \ Multi-User** menu (one administrator and 6 users with assigned rights).



Note! The default user is "admin". During the first start an access password have to be created.

Only the administrator account is active by default. Icons in the **User Edit** column allow to activate users, change their name and enter their access password.

User Enable - enables / disables the selected user.

User Name - name of the user.

Password Enable - enables / disables login of the selected user using the access password.

Password Strenght - information about the security level of the entered password. It is updated while entering the password in the next field. Password strength can be **Low**, **Medium** or **High**, indicated by red, yellow or green color.

Password - the user's access password.

Confirm - a place to re-enter the user's access password.

Show Password - checkbox to display password characters instead of the mask.

SYSTEM SETTINGS

Unlock Pattern Enable - enables / disables the possibility of pattern unlocking. The first user login requires a password, with a later blockade it is possible to unlock the recorder with a defined pattern.

Draw - the icon appears after enabling the unlock pattern function. Allow to create unlock pattern for the user. 3x3 board appear to create a pattern by dragging the mouse cursor. Drag the mouse again to confirm the pattern.

Default User - allows to choose the user which will be selected by default in the login window.

The first user has full rights, can manage all recorder settings. Users with numbers from 2 to 7 have limited permissions. They can have remote logging rights, live view, playback and PTZ control of selected cameras. To set user permissions, select the icon in the **Permission** column:

The screenshot shows the 'User Permission' window for 'user1'. It contains several sections for configuring permissions:

- General Settings:**
 - ☐ Log Search
 - ☐ Parameter
 - ☐ Auto Reboot
 - ☐ Manual Record
 - ☐ Disk
 - ☒ Remote Login
 - ☐ SEQ Control
 - ☐ Manual Capture
 - ☐ Backup
- Camera Selection:**
 - ☐ Analog Channels: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
 - ☐ IP Camera: 1 2 3 4 5 6 7 8
- Live View:**
 - ☒ Live
 - ☐ Analog Channels: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
 - ☐ IP Camera: 1 2 3 4 5 6 7 8
- Playback:**
 - ☒ Playback
 - ☐ Analog Channels: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
 - ☐ IP Camera: 1 2 3 4 5 6 7 8
- PTZ Control:**
 - ☒ PTZ
 - ☐ Analog Channels: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
 - ☐ IP Camera: 1 2 3 4 5 6 7 8

At the bottom, there are buttons for 'All', 'Clear', 'Save', and 'Cancel'.

Log search - allows to browse the logs (available to administrator only).

Parameter - allows to change the recorder settings (available to administrator only).

Auto reboot - allows automatic restart (available to administrator only).

Manual record - allows to enable / disable manual recording (available to administrator only).

SYSTEM SETTINGS

Disk - allows to manage hard disks (available to administrator only).

Remote login - allows remote login to the device, e.g. via browser, NHDR-5000Viewer, RXCAMView, NMS, RTSP streaming.

SEQ. Control - allows to run sequences of cameras (available to administrator only).

Backup - enables selection of channels that can be archived (available to administrator only).

Live - enables selection of channels that can be viewed live by the user, also required for RTSP preview.

Playback - enables selection of channels that can be played by the user.

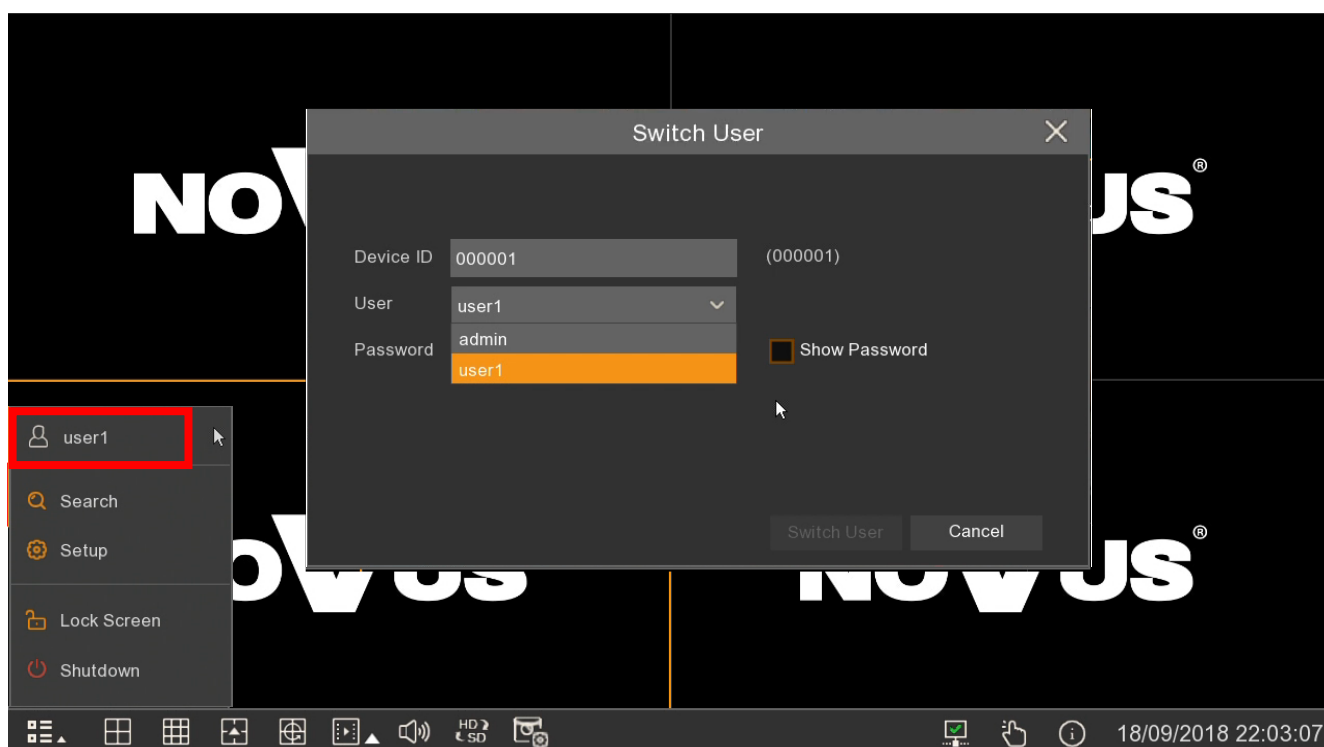
PTZ - enables selection of channels that can be controlled by the user.

There are buttons in the bottom right corner:

- **All** - marks all possible permissions for a selected user.
- **Clear** - clear all possible permissions for a selected user.
- **Save** - saves all settings.
- **Cancel** - leave the user permission menu without saving changes.

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To switch the user, expand the menu bar, and then click in the user field. The screen for switching the user will be displayed.



SYSTEM SETTINGS

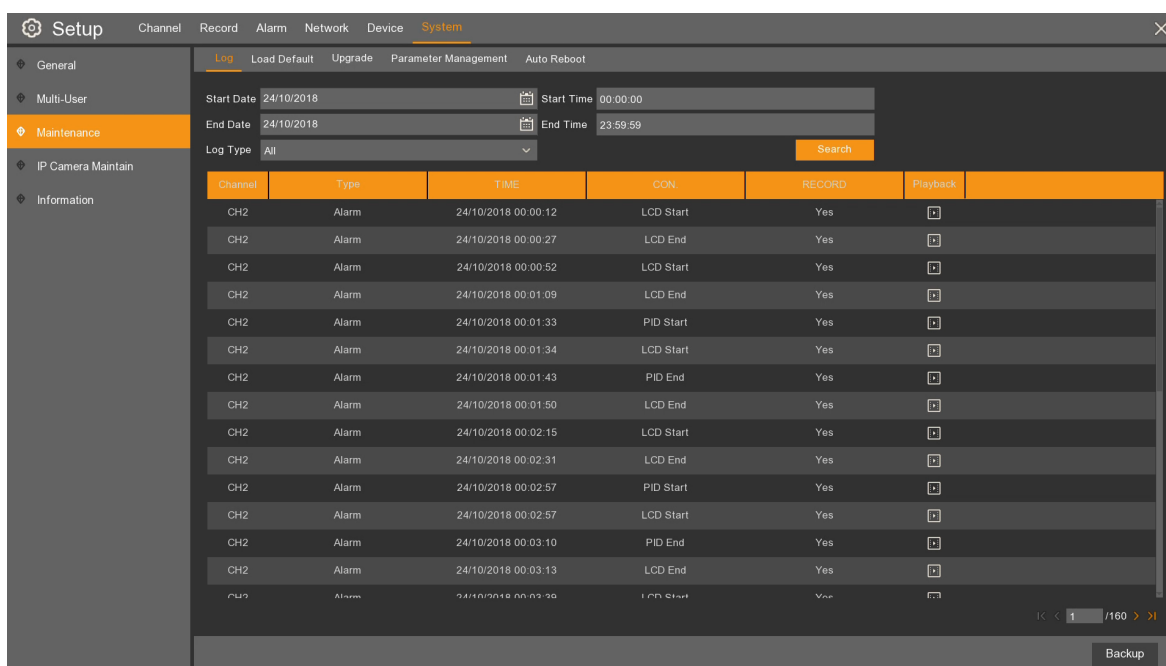
10.4. Recorder operating system management

The **System \ Maintenance** menu contains 5 tabs regarding the operating system's operation:

- The **Log** tab allows viewing the event log. It contains information about events, their types and date of occurrence.

To view the logs, define the time interval (**Start Date**, **Start Time**, **End Date**, **End Time**) and choose the **Log Type** (**All**, **System**, **Configuration**, **Alarm**, **Account**, **Record**, **Storage**) and press the **Search** button. A list of logs will be displayed, 30 on each page. The buttons in the bottom right corner allow to switch between pages.

Note! The maximum number of displayed logs is 16000 (displayed on 534 pages). If there are more events in the range, the search range should be narrowed, because some logs will not be displayed.



The screenshot shows the 'System' menu with the 'Log' tab selected. The search filters are set to Start Date: 24/10/2018, Start Time: 00:00:00, End Date: 24/10/2018, End Time: 23:59:59, and Log Type: All. The table displays 16 log entries for channel CH2, all of type 'Alarm'. The events include LCD Start/End, PID Start/End, and LCD Start/End. The 'RECORD' column shows 'Yes' for all events, and the 'Playback' column shows a play icon for each. The bottom right corner has a 'Backup' button and pagination controls showing 1/160.

| Channel | Type | TIME | CON | RECORD | Playback |
|---------|-------|---------------------|-----------|--------|----------|
| CH2 | Alarm | 24/10/2018 00:00:12 | LCD Start | Yes | ▶ |
| CH2 | Alarm | 24/10/2018 00:00:27 | LCD End | Yes | ▶ |
| CH2 | Alarm | 24/10/2018 00:00:52 | LCD Start | Yes | ▶ |
| CH2 | Alarm | 24/10/2018 00:01:09 | LCD End | Yes | ▶ |
| CH2 | Alarm | 24/10/2018 00:01:33 | PID Start | Yes | ▶ |
| CH2 | Alarm | 24/10/2018 00:01:34 | LCD Start | Yes | ▶ |
| CH2 | Alarm | 24/10/2018 00:01:43 | PID End | Yes | ▶ |
| CH2 | Alarm | 24/10/2018 00:01:50 | LCD End | Yes | ▶ |
| CH2 | Alarm | 24/10/2018 00:02:15 | LCD Start | Yes | ▶ |
| CH2 | Alarm | 24/10/2018 00:02:31 | LCD End | Yes | ▶ |
| CH2 | Alarm | 24/10/2018 00:02:57 | PID Start | Yes | ▶ |
| CH2 | Alarm | 24/10/2018 00:02:57 | LCD Start | Yes | ▶ |
| CH2 | Alarm | 24/10/2018 00:03:10 | PID End | Yes | ▶ |
| CH2 | Alarm | 24/10/2018 00:03:13 | LCD End | Yes | ▶ |
| CH2 | Alarm | 24/10/2018 00:03:30 | LCD Start | Yes | ▶ |

The table has the following columns:

Channel - number of the channel that the event relates.

Type - event type.

TIME - date and time of the event occurrence.

CON. - description of the event that caused the log to be saved.

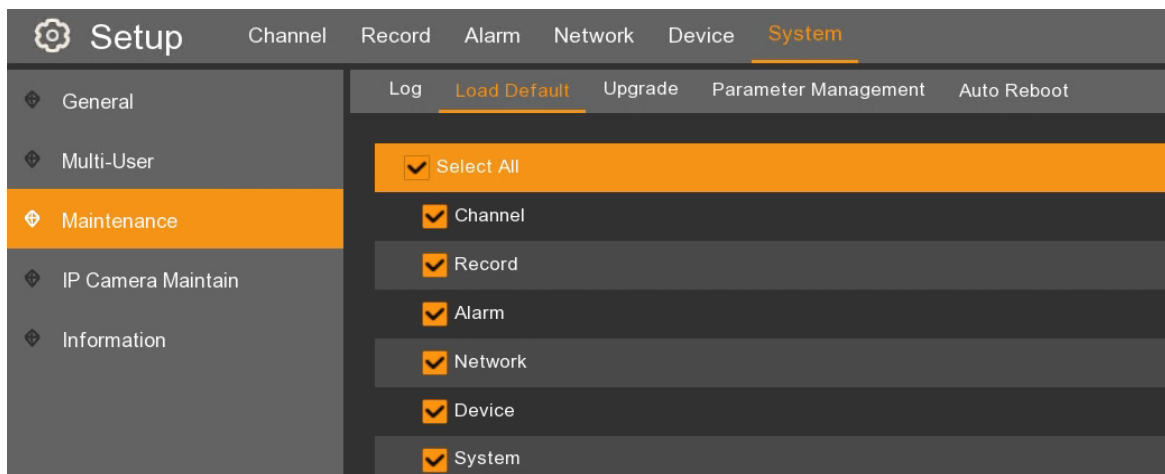
RECORD - information if a video recording has been made for the event.

Playback - icon that allows to quickly play the recording of the indicated event (if it exists).

The **Backup** button displays the window for saving log files found on a USB flash drive. Logs are saved in .txt format. The file name contains the time interval of searched logs and the log type.

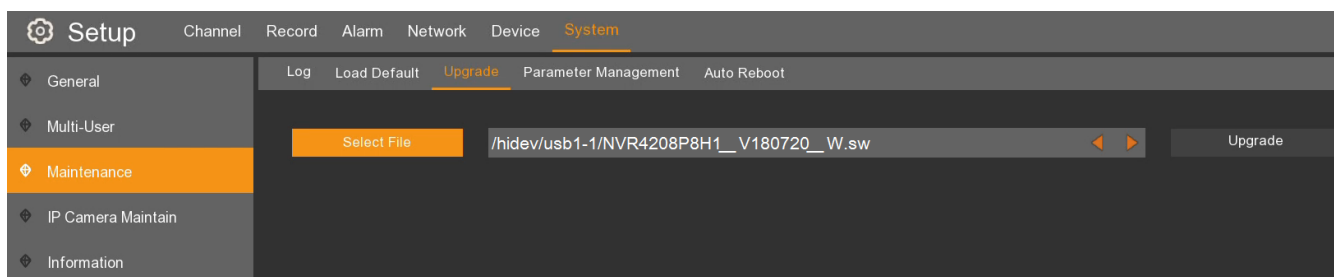
SYSTEM SETTINGS

- The **Load default** allows to restore the default settings of the recorder. You can restore settings for the entire recorder (**Select All** option) or only for individual parts of the menu: **Channel**, **Record**, **Alarm**, **Network**, **Device**, **System**. The **Apply** button starts restoring factory settings of selected menus. The function must be confirmed by entering the administrator password. After approval the recorder will restart.



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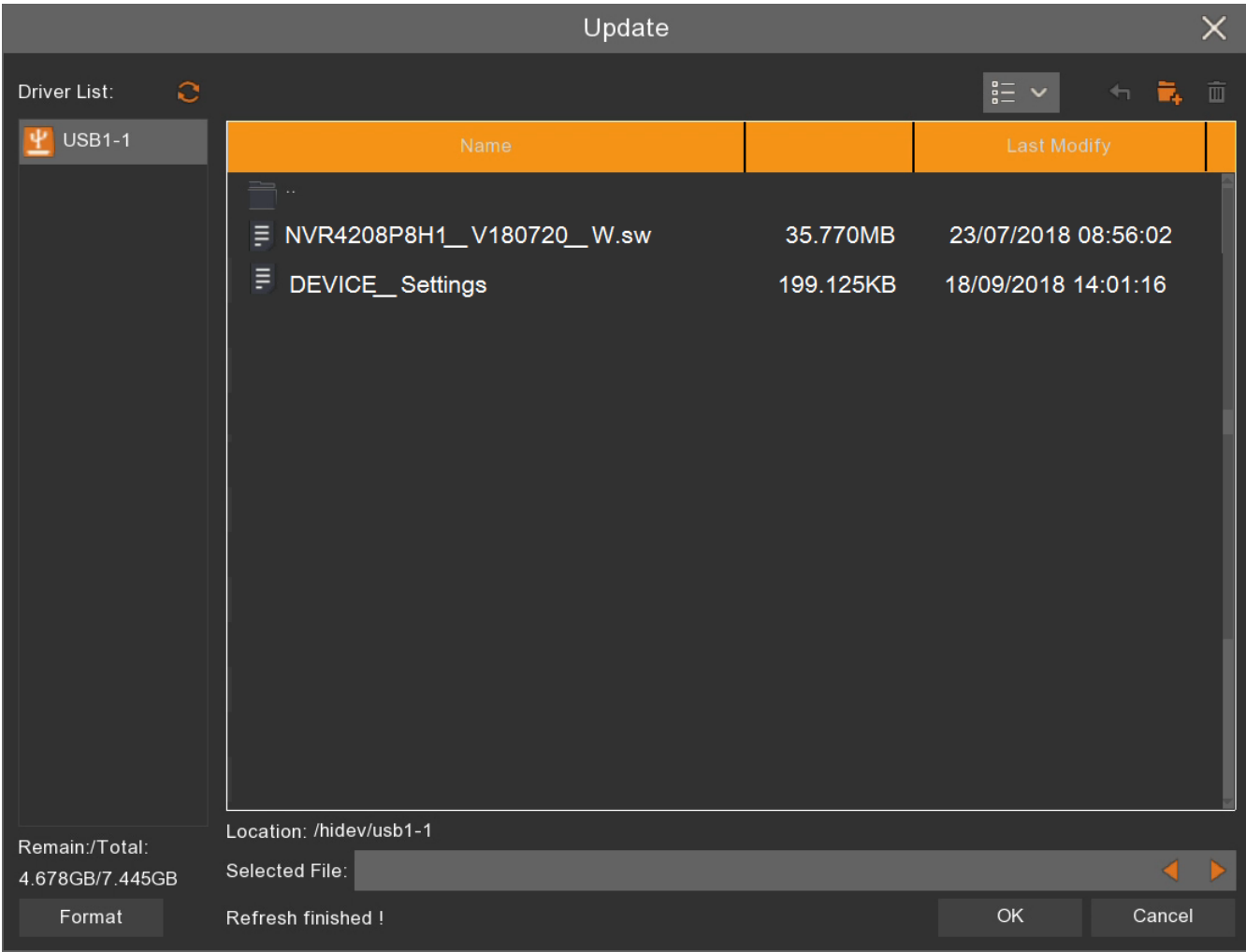
- The **Update** tab allows to update the recorder software.



The **Select File** button displays an explorer window that allows to select the update file from a USB flash drive. After selecting the firmware file, press the **Ok** button and then the **Upgrade** button. The function must be confirmed by entering the administrator password. After approval, the recorder will upload new software and restart.

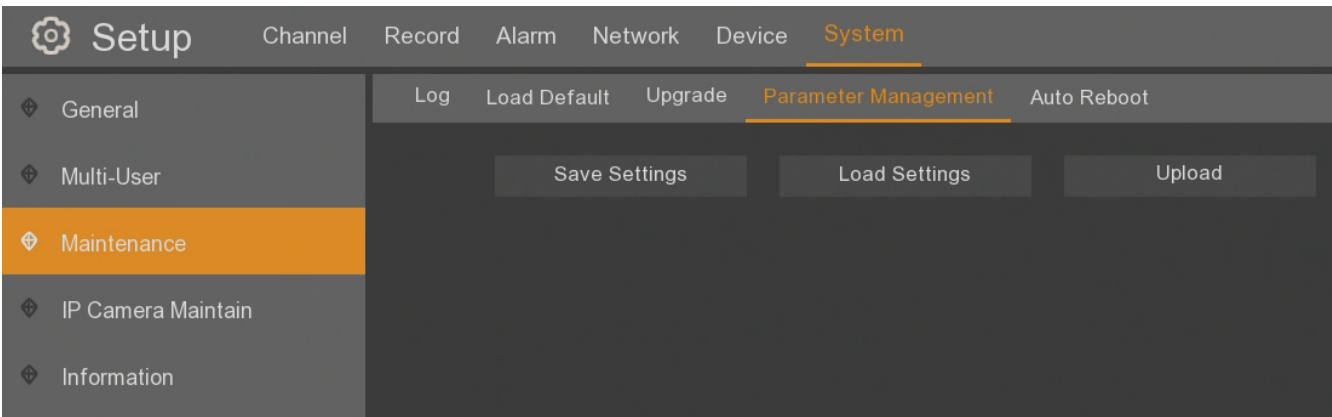
Note! During the firmware upgrade, do not disconnect the power supply or the flash memory - it may cause irreparable damage of the recorder. After the system is updated, the recorder will be restarted. After approx. 5 minutes, the update will be completed. It is recommended to restore the default settings after upgrading the firmware.

SYSTEM SETTINGS



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- The **Parameter Management** tab allows to save and load the recorder configuration. It contains 3 buttons.



Save Settings - saves the file with the device configuration to the flash memory connected to the USB port. Pressing the button displays the explorer window to indicate the recording path. The file will be named **DEVICE_Settings**.

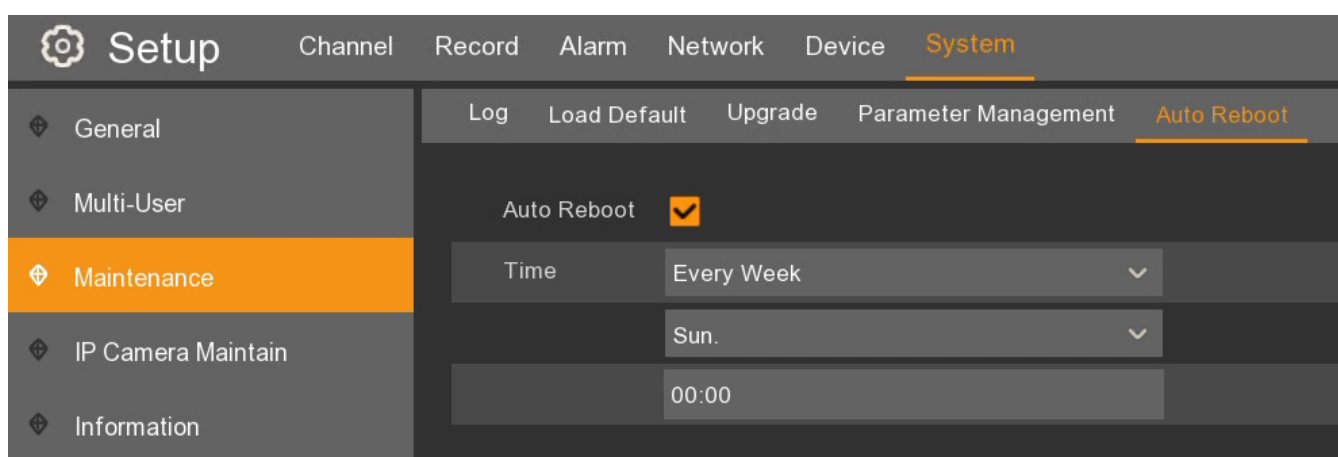
SYSTEM SETTINGS

Load Settings - allows to load a file with the configuration of the device located on the flash memory connected to the USB port. Pressing the button displays the explorer window to indicate the file.

Note! Import and export requires administrator password authorization.

Upload - allows to upload the player to the recorder disk. The player will be automatically uploaded to a DVD during archiving.

- The **Auto Reboot** tab allows for periodic rebooting of the device (every day, week, month) for maintenance.



Auto Reboot - enables / disables the function.

Time - defines the day and time of restart. When selecting the **Everyday** value, enter the time the restart should happen. When selecting **Every Week** or **Every Month**, specify the time and moreover day of the week or month.

10.5. IP Camera Management

The **System \ IP Camera Maintain** menu allows to manage Novus 2000 and 4000 series IP cameras directly from the recorder menu, without logging in to them from a computer. The same operations can be performed on Novus NVR 4000 series recorders and AHD recorders.

Entering the **IP Camera Maintain** menu, a table with IP channels connected to the recorder is displayed. The individual columns show:

- Channel - IP channel number.
- IP Address - IP address of the connected camera or recorder which make available the stream of the selected channel.
- State - information about the operation status with the camera (**On-line**, **Off-line**, **Success**, **Failure**).
- Software Version - the firmware version number of the connected device.

SYSTEM SETTINGS

The screenshot shows the 'System' tab selected in the top navigation bar. The left sidebar has 'IP Camera Maintain' highlighted. The main area displays a table with columns: Channel, IP Address, State, and Software Version. There are four rows representing different IP cameras. The 'Reboot IPC' button is visible at the bottom of the table.

| Channel | IP Address | State | Software Version |
|---------|---------------|----------|------------------|
| IP CH1 | 192.168.1.23 | On-line | V4.41.4.8_181011 |
| IP CH2 | 192.168.1.171 | Off-line | V4.43.5.0_190802 |
| IP CH3 | 192.168.1.194 | Success | V4.31.5.0_181226 |
| IP CH4 | 192.168.7.152 | On-line | V4.41.4.8_181011 |

Depending on the selected tab, we can perform the following functions in connected cameras:

- **Upgrade** - allows to update the IP camera. Select the IP camera, press the **Select File** button at the bottom, select the appropriate file with the camera firmware on the USB stick and press the **IPC Update** button. The software of the selected camera will be updated, the current status will be shown in the **State** column.

Note! Do not disconnect the camera's power supply during the update. It may cause irreparable damage. When the update is completed, the camera will be restarted. It is recommended to restore the default camera settings after the upgrade.

- **Load Default** - allows to restore the default settings of the camera. Select the camera, press the **Load Default** button at the bottom.


- **Reboot IPC** - allows to reset the camera remotely. Select the camera, press the **Reboot IPC** button at the bottom.

- **Parameter Management** - allows to save camera settings or upload a file with camera settings. To save the camera settings, select it in the table, press the **Save Settings** button at the bottom and then indicate the storage location on the USB stick. To upload the camera settings, select it in the table, press the **Load Settings** button at the bottom and then select the file with the camera settings on the USB stick.

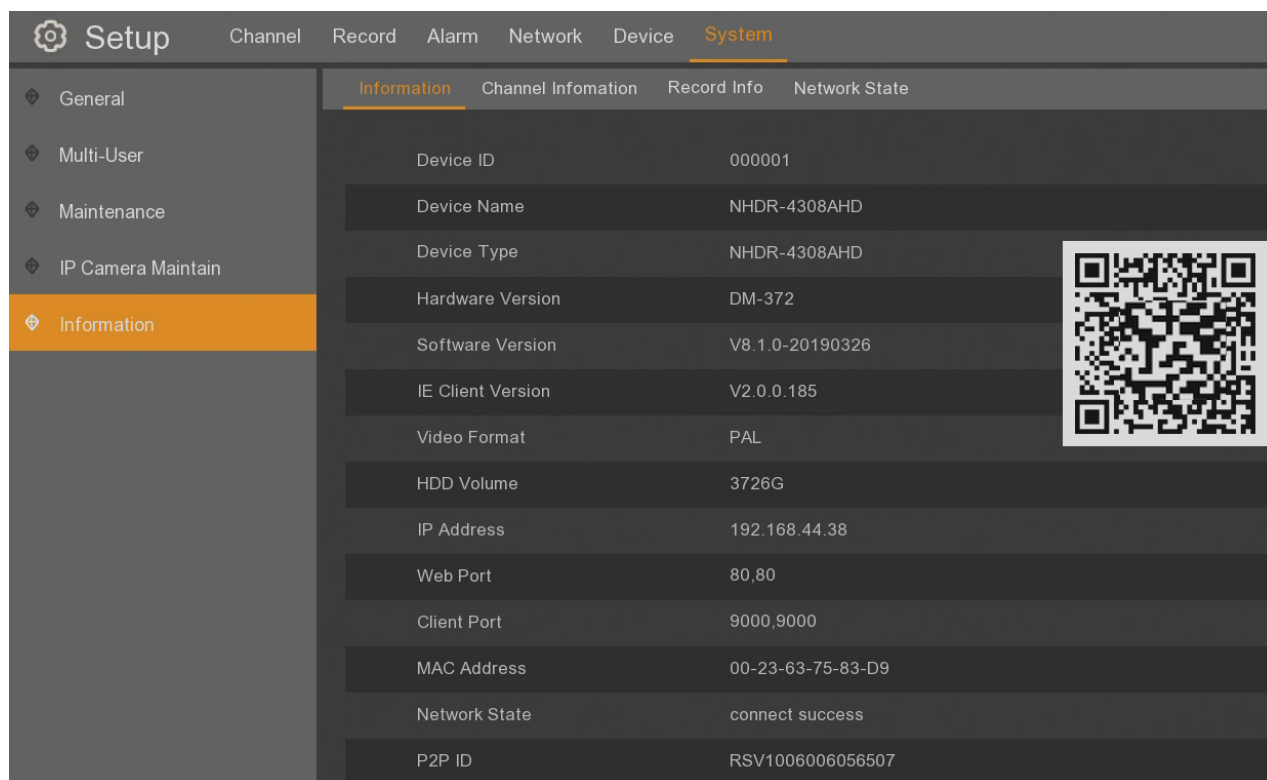
Note! Each of the above operations should be confirmed by providing the administrator access password. If the camera is connected to the recorder through a Novus NVR-4000 series recorder or AHD recorder, operations in the IP Camera Maintain menu will apply to the indicated recorder, not the camera.

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10.6. Recorder informations

The **System \ Information** menu contains recorder system information in four tabs. This information can be displayed from the main screen of the recorder using  icon.

The **Information** tab contains informations about the recorder, installed disk capacity, network parameters, P2P ID and QR code with P2P communication device number.

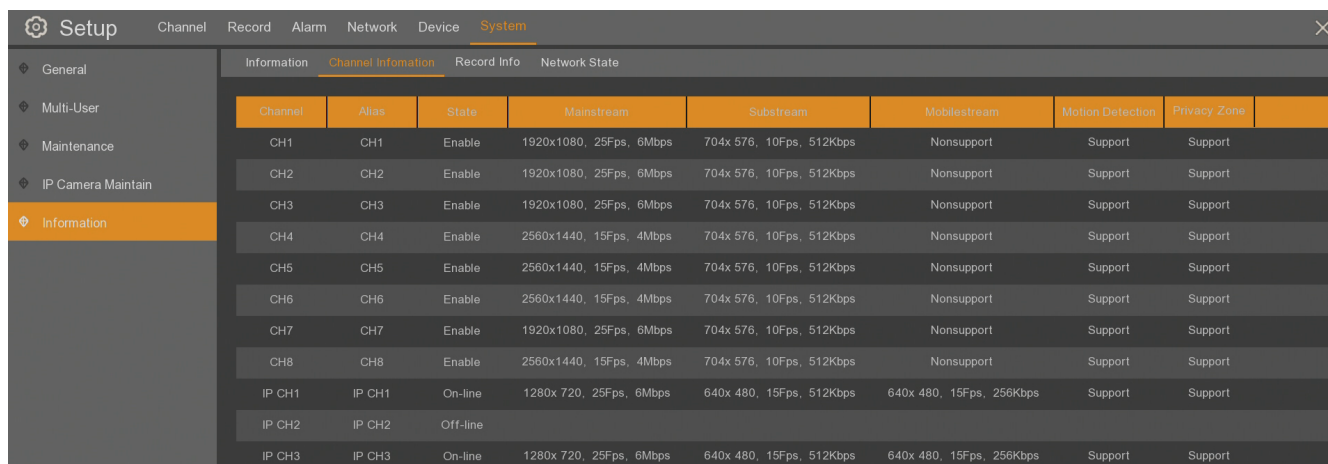


The screenshot shows the 'Setup' menu with 'System' selected. Under 'System', the 'Information' tab is active. It displays various system parameters and a QR code.

| Parameter | Value |
|-------------------|-------------------|
| Device ID | 000001 |
| Device Name | NHDR-4308AHD |
| Device Type | NHDR-4308AHD |
| Hardware Version | DM-372 |
| Software Version | V8.1.0-20190326 |
| IE Client Version | V2.0.0.185 |
| Video Format | PAL |
| HDD Volume | 3726G |
| IP Address | 192.168.44.38 |
| Web Port | 80,80 |
| Client Port | 9000,9000 |
| MAC Address | 00-23-63-75-83-D9 |
| Network State | connect success |
| P2P ID | RSV1006006056507 |

A QR code is displayed on the right side of the information list.

The **Channel Information** tab contains informations about connected cameras. The table shows camera names (**Alias**), **State**, streams data (image resolution, number of frames, stream size) and informations if the recorder supports **Motion Detection** and **Privacy Zone** settings on cameras.



The screenshot shows the 'Setup' menu with 'System' selected. Under 'System', the 'Channel Information' tab is active. It displays a table of camera information.

| Channel | Alias | State | Mainstream | Substream | Mobilestream | Motion Detection | Privacy Zone |
|---------|--------|----------|-------------------------|--------------------------|--------------------------|------------------|--------------|
| CH1 | CH1 | Enable | 1920x1080, 25Fps, 6Mbps | 704x 576, 10Fps, 512Kbps | Nonsupport | Support | Support |
| CH2 | CH2 | Enable | 1920x1080, 25Fps, 6Mbps | 704x 576, 10Fps, 512Kbps | Nonsupport | Support | Support |
| CH3 | CH3 | Enable | 1920x1080, 25Fps, 6Mbps | 704x 576, 10Fps, 512Kbps | Nonsupport | Support | Support |
| CH4 | CH4 | Enable | 2560x1440, 15Fps, 4Mbps | 704x 576, 10Fps, 512Kbps | Nonsupport | Support | Support |
| CH5 | CH5 | Enable | 2560x1440, 15Fps, 4Mbps | 704x 576, 10Fps, 512Kbps | Nonsupport | Support | Support |
| CH6 | CH6 | Enable | 2560x1440, 15Fps, 4Mbps | 704x 576, 10Fps, 512Kbps | Nonsupport | Support | Support |
| CH7 | CH7 | Enable | 1920x1080, 25Fps, 6Mbps | 704x 576, 10Fps, 512Kbps | Nonsupport | Support | Support |
| CH8 | CH8 | Enable | 2560x1440, 15Fps, 4Mbps | 704x 576, 10Fps, 512Kbps | Nonsupport | Support | Support |
| IP CH1 | IP CH1 | On-line | 1280x 720, 25Fps, 6Mbps | 640x 480, 15Fps, 512Kbps | 640x 480, 15Fps, 256Kbps | Support | Support |
| IP CH2 | IP CH2 | Off-line | | | | | |
| IP CH3 | IP CH3 | On-line | 1280x 720, 25Fps, 6Mbps | 640x 480, 15Fps, 512Kbps | 640x 480, 15Fps, 256Kbps | Support | Support |

SYSTEM SETTINGS

The **Record Info** tab contains informations which cameras are connected, which cameras are recorded and recording parameters (number of streams, resolutions, number of frames, bitrates).

| Setup | Channel | Record | Alarm | Network | Device | System |
|--------------------|-------------|---------------------|---------------|---------------|---------------------|---------------|
| General | Information | Channel Information | Record Info | Network State | | |
| Multi-User | Channel | Record State | Record Switch | Stream Type | Resolution | FPS |
| Maintenance | CH1 | ON | Enable | DualStream | 1920x1080 704x576 | 25Fps 10Fps |
| IP Camera Maintain | CH2 | ON | Enable | DualStream | 1920x1080 704x576 | 25Fps 10Fps |
| Information | CH3 | ON | Enable | DualStream | 1920x1080 704x576 | 25Fps 10Fps |
| | CH4 | OFF | Enable | | | |
| | CH5 | OFF | Enable | | | |
| | CH6 | OFF | Enable | | | |
| | CH7 | ON | Enable | DualStream | 1920x1080 704x576 | 25Fps 10Fps |
| | CH8 | OFF | Enable | | | |
| | IP CH1 | ON | Enable | DualStream | 1280x720 640x480 | 25Fps 15Fps |
| | IP CH2 | OFF | Enable | | | |
| | IP CH3 | ON | Enable | DualStream | 1280x720 640x480 | 25Fps 15Fps |
| | IP CH4 | ON | Enable | DualStream | 1280x720 640x480 | 25Fps 15Fps |

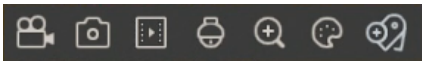
The **Network State** tab contains a summary list of recorder network parameters.


| Setup | Channel | Record | Alarm | Network | Device | System |
|--------------------|-------------------|----------------------------|-------------|---------------|--------|--------|
| General | Information | Channel Information | Record Info | Network State | | |
| Multi-User | Attribute | Value | | | | |
| Maintenance | WLAN | | | | | |
| IP Camera Maintain | IP Address | 192.168.44.38 | | | | |
| Information | Subnet Mask | 255.255.0.0 | | | | |
| | Gateway | 192.168.1.254 | | | | |
| | MAC Address | 00-23-63-75-83-D9 | | | | |
| | DHCP | Disable | | | | |
| | DNS1 | 192.168.1.254 | | | | |
| | DNS2 | 8.8.8.8 | | | | |
| | PPPoE | Disable | | | | |
| | 3G | Disable | | | | |
| | Port | | | | | |
| | Web Port | 80,80,Inactive,Disable | | | | |
| | Client Port | 9000,9000,Inactive,Disable | | | | |
| | RTSP Port | 554,554,Inactive,Disable | | | | |
| | Https | 443,443,Inactive,Disable | | | | |
| | Total Band Width: | 32Mbps | | | | |
| | Used Band Width: | 20.25Mbps | | | | |

CONTROL OF PTZ CAMERAS

11. CONTROL OF PTZ CAMERAS

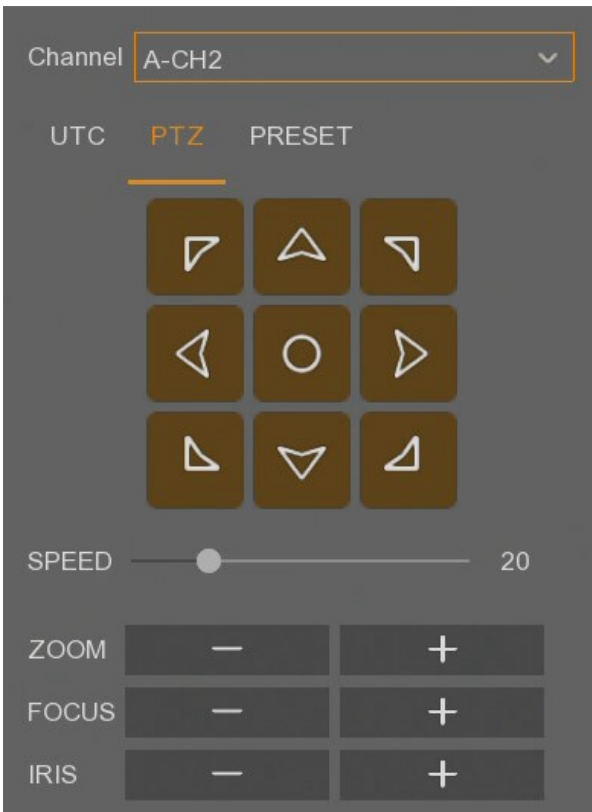
NHDR recorders allow to control PTZ cameras , lens in motorzoom cameras as well as AHD camera settings. To open the control window, press the left mouse button on the video window with a PTZ camera, the channel menu will be displayed.



The PTZ camera icon  shows on the PTZ panel on the left, the full screen view of the selected camera on the right .

The PTZ panel in the upper part displays the number of the supported channel, below are three tabs: **UTC**, **PTZ** and **PRESET**.

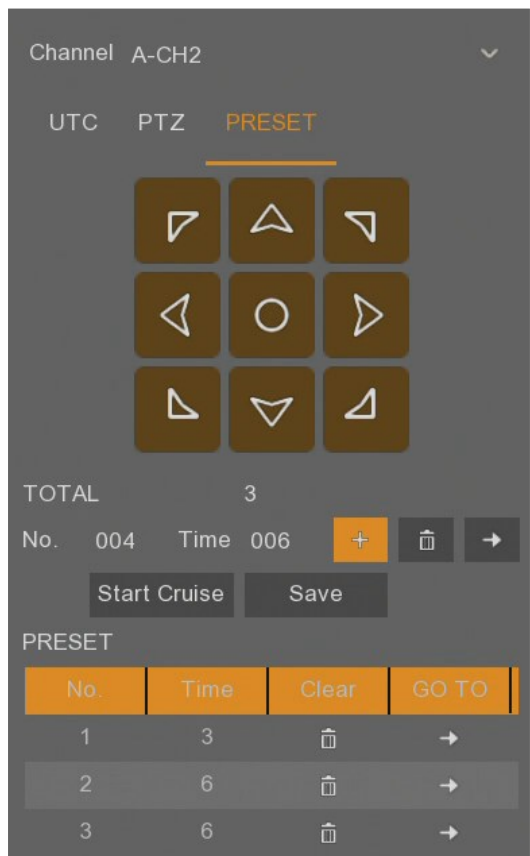
The **UTC** tab is available only for AHD cameras, it is used to configure the settings of cameras. The **Protocol** field is to select the **COAX1** or **COAX2** control protocol (use the **COAX1** protocol for Novus cameras). The control buttons are located below. The button in the middle launches the camera menu. The **Up** and **Down** arrow buttons allow to navigate the menu, **Left** and **Right** arrow buttons change settings, the middle button confirms the changes made, allows to enter the selected submenu.



The PTZ tab contains navigation buttons to controll PTZ cameras. The button in the middle starts the scan - 360 degrees camera rotation. The speed of camera movement is set in the **SPEED** field. In the **ZOOM**, **FOCUS** and **IRIS** fields, using the + and - buttons the zoom, focus and iris of the camera can be changed, respectively.

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CONTROL OF PTZ CAMERAS



The **PRESET** tab allows to define presets in the camera. It contains navigation buttons for controlling PTZ cameras, like the PTZ tab. Below are the fields for setting presets and camera rotation path:

No. - preset number selection.

Time - defines the time the camera stops in a selected position during the cruise.

icon - adds the preset.

icon - removes the preset.

icon - calls the preset.

Start Cruise - runs an observation route consisting of pre-defined presets.

Stop Cruise - stops the route of observation.

Save - saves created preset.

A list of defined presets is displayed at the bottom. It also allows to quickly call a selected preset or delete it.

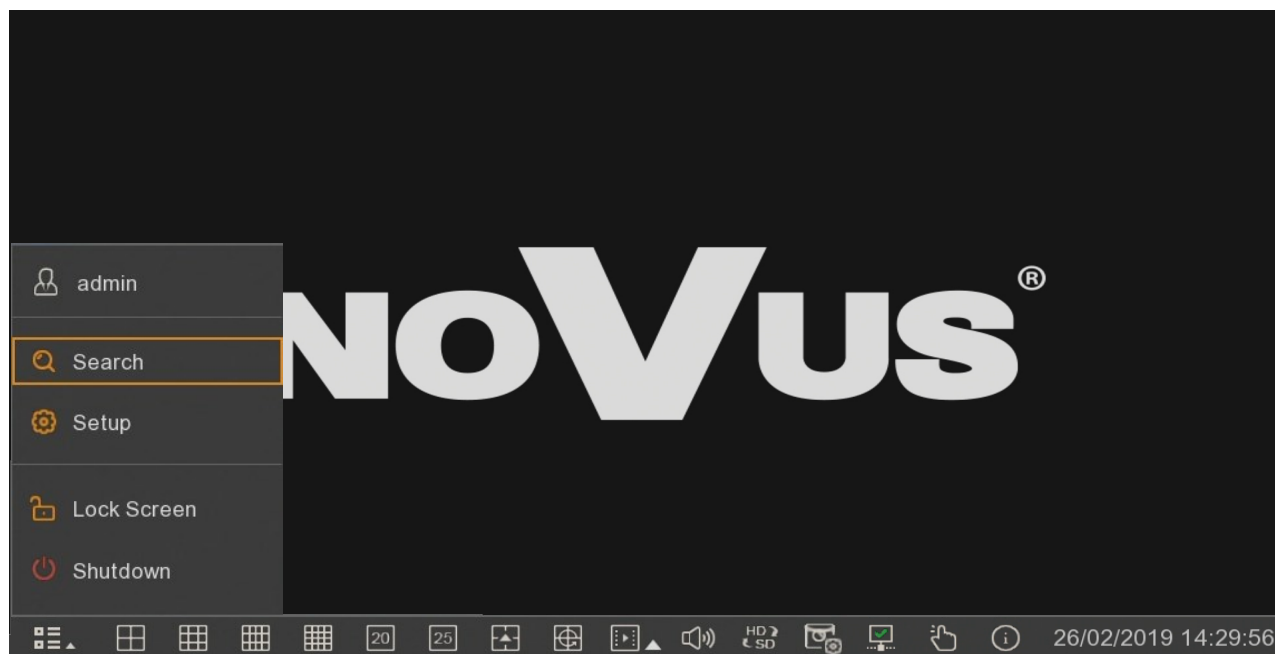
List of presets - allows to quickly call a preset. To call up the preset, press the button in the GO TO column.

Note! Presets created using the PTZ panel are saved both in the camera and in the recorder. This is required to create PTZ Linkage action as well as an Cruise. Presets set up in a different way (e.g. from the NV-KBD50 keyboard) cannot be used to create reactions and cruises.


PLAYBACK OF RECORDINGS

12. PLAYBACK OF RECORDINGS

To start the recordings search, select **Search** from the menu bar.



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Playback can also be started by pressing the  button on the menu bar. By clicking on the triangular indicator, the user can choose the time range for quick playback of recordings in the range 5s - 5min back from the present. This method enables playback of all channels simultaneously.

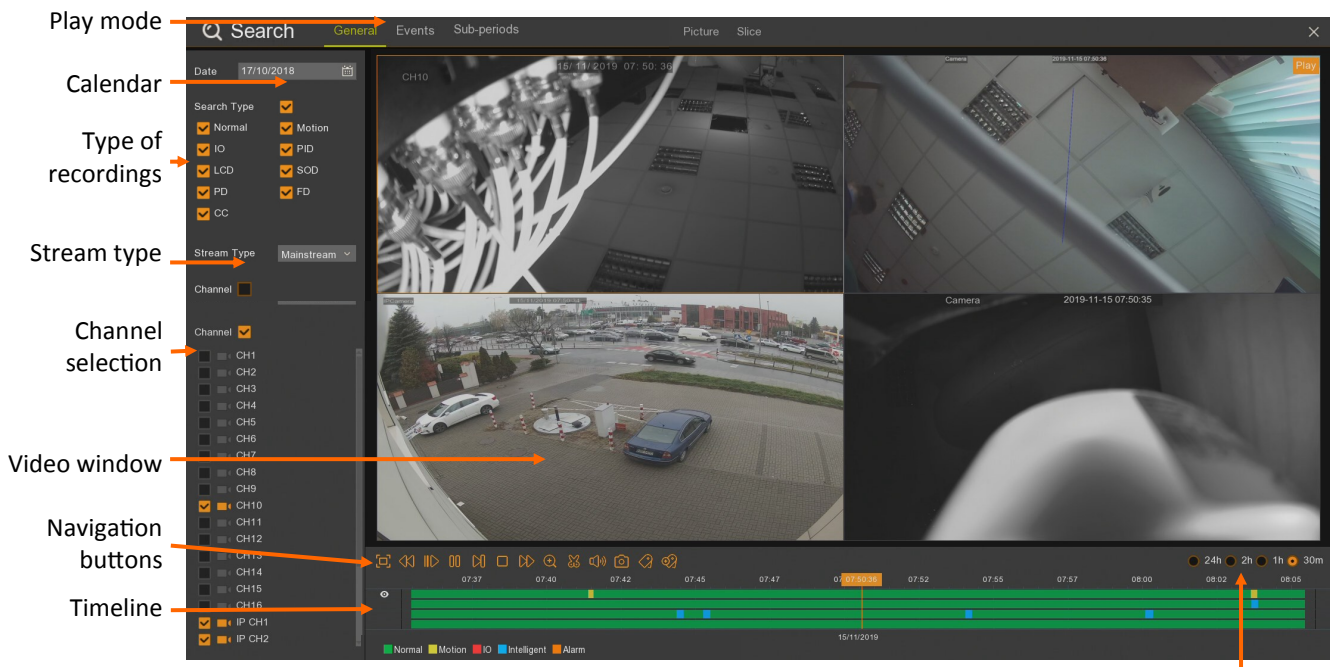
Pressing the play button  on the IR remote controller also activates the playback mode.

The recorder allows to view records in several ways described in the following sections. Available play modes are: **General**, **Events**, **Sub periods**, **Smart**, **Tag**, **External File**, **Picture** and **Slice**.

12.1. Playback - "General" tab

The **General** playback mode displays the window as on the next page. It allows to video playback from multiple cameras at the same time. To search for recordings, select the appropriate date, record type, stream type and interesting channels. Indicate the playing time on the timeline and use the navigation buttons to browse the recordings.

PLAYBACK OF RECORDINGS



The time range of recordings

Date - displays the calendar. Allows to select the day to search for recordings. The days with recordings are underlined in red. After selecting the day, the channel list will be limited to those that have recordings.

Search type - selects all types of recordings.

Normal - (green color on the timeline) continues recordings.

Motion - (yellow color on the timeline) recordings triggered by motion detection.

IO - (red color on the timeline) recordings triggered by activation of the alarm input.

PIR - (violet color on the timeline) recordings triggered by PIR detection.

PID - (blue color on the timeline) recordings triggered by the event of intelligent analysis - perimeter intrusion detection.

LCD - (blue color on the timeline) recordings triggered by the event of intelligent analysis - line crossing detection.

SOD - (blue color on the timeline) recordings triggered by the event of intelligent analysis - disappearing or leaving the object.

PD - (blue color on the timeline) recordings triggered by the event of intelligent analysis - people detection.

FD - (blue color on the timeline) recordings triggered by the event of intelligent analysis - face detection.

CC - (blue color on the timeline) recordings triggered by the event of intelligent analysis - counting the crossing of line.

Sound - (blue color on the timeline) recordings triggered by the event of intelligent analysis - sound detection.

Occlusion - (blue color on the timeline) recordings triggered by the event of intelligent analysis - occlusion detection.


Manual - (green color on the timeline) recordings triggered manually.

PLAYBACK OF RECORDINGS

Stream type - allows to select the **Mainstream** or **Substream** for playback. The number of channels played simultaneously depends on the recorder model. To play the maximum available number of channels, select the substream playback.

Note! Selecting the Mainstream, depending on the available hardware resources, some channels may not be played. There will show the message "Resource not enough" in the channel window that can not be played.

Channel selection - selection of channels for playback. Channels that do not have recordings are grayed.

Video window - depending on the number of selected channels, the video window automatically adjusts the division. By pressing the left mouse button on the window, this window is selected, the channel is highlighted in the list, and the  icon appears in the line corresponding to the channel.

Navigation buttons:



- Displays the video window in full-screen mode.



- Reverse playback at an accelerated pace (x2, x4, x8, x16).



- Play forward in slow motion (x1/2, x1/4, x1/8, x1/16).



- Starting playback.



- Pause, pressing again displays the next frame.



- Playing frame by frame.



- Stop playback.



- Play forward at an accelerated pace (x2, x4, x8, x16).



- Digital zoom.



- Creating a video clip.



- Audio on / off. Adjusting the volume level.



- Take a screenshot. The saved image has a displayed frame resolution.



- Adds a default tag to the recording.



- Adds a user-defined tag.



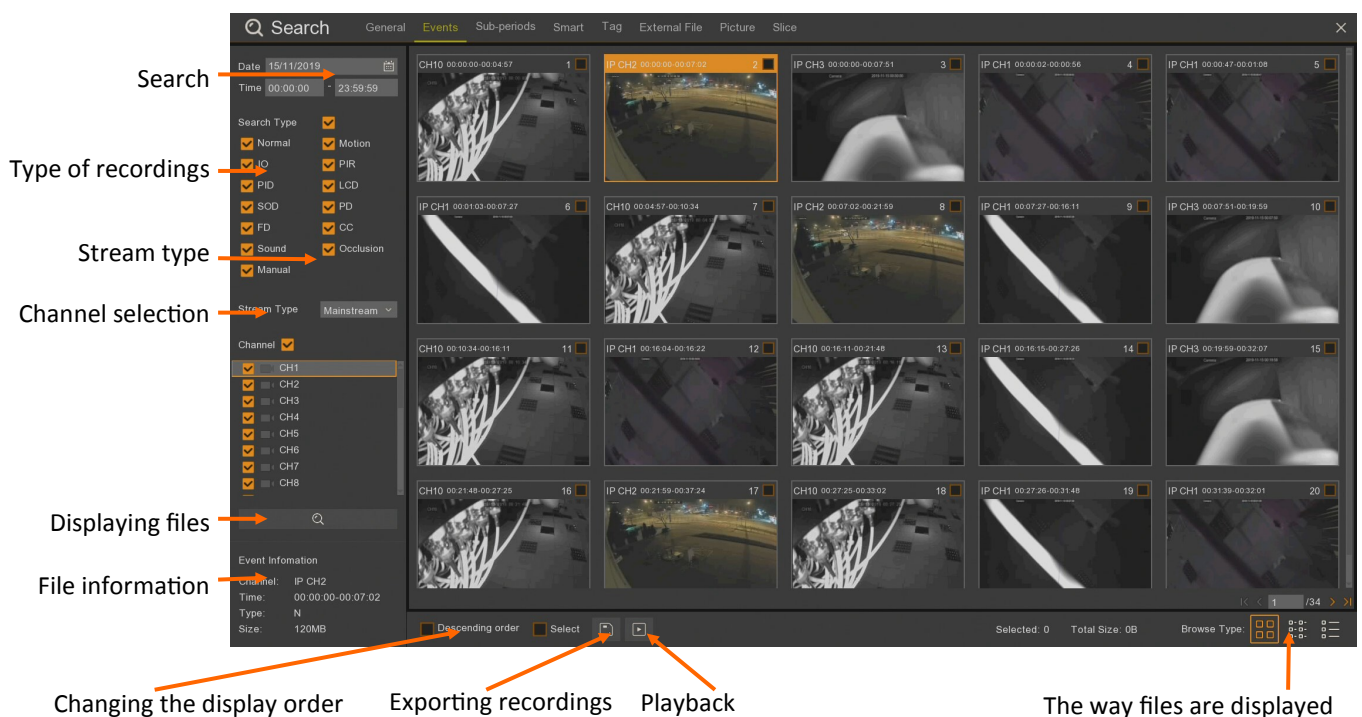
- determines the **range of the timeline**. The timeline covers a range of **24 hours**, **2 hours**, **1 hour** or **30 minutes**. Switching the range during playback displays the appropriate range of recordings. The currently played moment becomes the beginning of a new range.

PLAYBACK OF RECORDINGS

Timeline - displays the period depending on the **Time Range** setting. Each channel is shown in the next row. The colors on the axis correspond to the type of recordings. The legend is presented below the timeline. An **Alarm** means that several alarm events occur simultaneously (e.g. motion detection and line crossing detection). The orange marker indicates the currently playing moment.

12.2. Playback - "Events" tab

The **Events** playback mode displays a list of events saved on the recorder's disk. In the case of alarm events, usually one file corresponds to one event. However, keep in mind that during continuous recording the recorder archives the recordings in segments. The maximum segment size is 254MB. It means that the recordings can be divided into segments.



Search - allows to select files to display

Date - displays the calendar. Allows to select the day to search for recordings. The days which have the records are underlined in red. After selecting the day, the channel list will be limited to those that have recordings.

Time - reduces the search area by entering the time range.

Type of recordings - selects the type of recordings to display

Search type - selects all types of recordings.

Normal - continues recordings.

Motion - recordings caused by motion detection.

IO - recordings triggered by the activation of the alarm input.

PIR - recordings caused by PIR detection.

PID - recordings triggered by the event of intelligent analysis - perimeter intrusion detection.

LCD - recordings triggered by an intelligent analysis event - line crossing detection.

PLAYBACK OF RECORDINGS

SOD - recordings triggered by an intelligent analysis event - disappearing or leaving the object.

PD - recordings triggered by the event of intelligent analysis - people detection.

FD - recordings triggered by an intelligent analysis event - face detection.

CC - recordings triggered by the event of intelligent analysis - counting of line crossings.

Sound - recordings triggered by the event of intelligent analysis - sound detection.

Occlusion - recordings triggered by the event of intelligent analysis - occlusion detection.

Manual - recordings triggered manually.

Stream type - allows to select the **Mainstream** or **Substream** to search.

Channel selection - selection of channels to search. Channels that do not have recordings are grayed.

Displaying files - displays a list of files of recordings searched for based on the entered criteria.

File information - contains information about the channel number, recording start time, type of recording triggering event (N - schedule, M - motion detection, I - alarm input, P - PIR, S - intelligent analysis, C - Manual) and file size.

Descending order - changes the order of displayed files.

Select - selects all found files.

Exporting recordings - exports selected records.

Playback - playback of selected files.

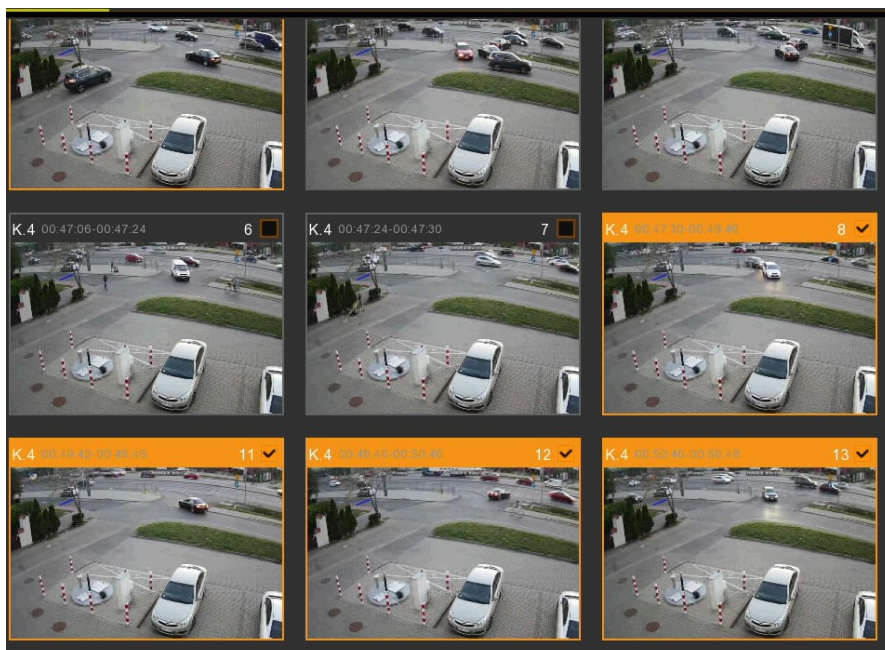
The way files are displayed - changes the display of found files. They can be presented as thumbnails, a list of files or a detailed list.

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 Switching pages with found files.

 **Selected: 6** **Total Size: 245MB** Information about selected files.

 Displays a list of events as thumbnails. Pictures easily allow to choose the desired file.



PLAYBACK OF RECORDINGS



Displays a list of events as a list of files. The list contains only the channel number and start time of the file.

| | | | | | | | | | | | | | | |
|-----|-----|----------|-----|-----|----------|-----|-----|----------|-----|-----|----------|-----|-----|----------|
| 1 | K.4 | 00:00:00 | 2 | K.4 | 00:00:28 | 3 | K.4 | 00:00:36 | 4 | K.4 | 00:00:42 | 5 | K.4 | 00:01:00 |
| 9 | K.4 | 00:01:54 | 10 | K.4 | 00:01:58 | 11 | K.4 | 00:02:20 | 12 | K.4 | 00:02:24 | 13 | K.4 | 00:02:57 |
| 17 | K.4 | 00:04:39 | 18 | K.4 | 00:05:15 | 19 | K.4 | 00:05:43 | 20 | K.4 | 00:06:17 | 21 | K.4 | 00:06:38 |
| 25 | K.4 | 00:07:28 | 26 | K.4 | 00:08:14 | 27 | K.4 | 00:08:42 | 28 | K.4 | 00:08:46 | 29 | K.4 | 00:09:26 |
| 33 | K.4 | 00:10:32 | 34 | K.4 | 00:10:38 | 35 | K.4 | 00:10:42 | 36 | K.4 | 00:11:06 | 37 | K.4 | 00:11:12 |
| 41 | K.4 | 00:12:26 | 42 | K.4 | 00:13:00 | 43 | K.4 | 00:13:36 | 44 | K.4 | 00:14:10 | 45 | K.4 | 00:14:18 |
| 49 | K.4 | 00:14:52 | 50 | K.4 | 00:14:58 | 51 | K.4 | 00:15:32 | 52 | K.4 | 00:16:07 | 53 | K.4 | 00:16:58 |
| 57 | K.4 | 00:19:10 | 58 | K.4 | 00:19:16 | 59 | K.4 | 00:19:30 | 60 | K.4 | 00:19:54 | 61 | K.4 | 00:20:04 |
| 65 | K.4 | 00:21:48 | 66 | K.4 | 00:21:52 | 67 | K.4 | 00:22:42 | 68 | K.4 | 00:23:14 | 69 | K.4 | 00:23:56 |
| 73 | K.4 | 00:24:56 | 74 | K.4 | 00:25:41 | 75 | K.4 | 00:26:53 | 76 | K.4 | 00:27:53 | 77 | K.4 | 00:28:24 |
| 81 | K.4 | 00:30:16 | 82 | K.4 | 00:30:52 | 83 | K.4 | 00:30:56 | 84 | K.4 | 00:31:46 | 85 | K.4 | 00:31:54 |
| 89 | K.4 | 00:33:24 | 90 | K.4 | 00:34:14 | 91 | K.4 | 00:34:22 | 92 | K.4 | 00:35:02 | 93 | K.4 | 00:35:30 |
| 97 | K.4 | 00:36:33 | 98 | K.4 | 00:36:49 | 99 | K.4 | 00:36:55 | 100 | K.4 | 00:37:23 | 101 | K.4 | 00:37:29 |
| 105 | K.4 | 00:39:18 | 106 | K.4 | 00:39:42 | 107 | K.4 | 00:39:58 | 108 | K.4 | 00:40:34 | 109 | K.4 | 00:41:16 |
| 113 | K.4 | 00:42:44 | 114 | K.4 | 00:42:50 | 115 | K.4 | 00:43:14 | 116 | K.4 | 00:43:20 | 117 | K.4 | 00:43:26 |
| 121 | K.4 | 00:44:50 | 122 | K.4 | 00:44:58 | 123 | K.4 | 00:45:08 | 124 | K.4 | 00:46:28 | 125 | K.4 | 00:46:58 |
| 129 | K.4 | 00:48:40 | 130 | K.4 | 00:49:00 | 131 | K.4 | 00:49:42 | 132 | K.4 | 00:49:46 | 133 | K.4 | 00:50:40 |
| 137 | K.4 | 00:51:32 | 138 | K.4 | 00:51:36 | 139 | K.4 | 00:52:10 | 140 | K.4 | 00:52:20 | 141 | K.4 | 00:53:06 |
| 145 | K.4 | 00:54:52 | 146 | K.4 | 00:55:00 | 147 | K.4 | 00:55:06 | 148 | K.4 | 00:55:20 | 149 | K.4 | 00:55:26 |
| 153 | K.4 | 00:57:03 | 154 | K.4 | 00:57:59 | 155 | K.4 | 00:58:07 | 156 | K.4 | 00:58:13 | 157 | K.4 | 00:58:19 |
| 161 | K.4 | 00:59:22 | 162 | K.4 | 00:59:26 | 163 | K.4 | 00:59:50 | 164 | K.4 | 00:59:58 | 165 | K.4 | 01:00:06 |
| 169 | K.4 | 01:01:32 | 170 | K.4 | 01:01:44 | 171 | K.4 | 01:02:30 | 172 | K.4 | 01:03:08 | 173 | K.4 | 01:03:18 |

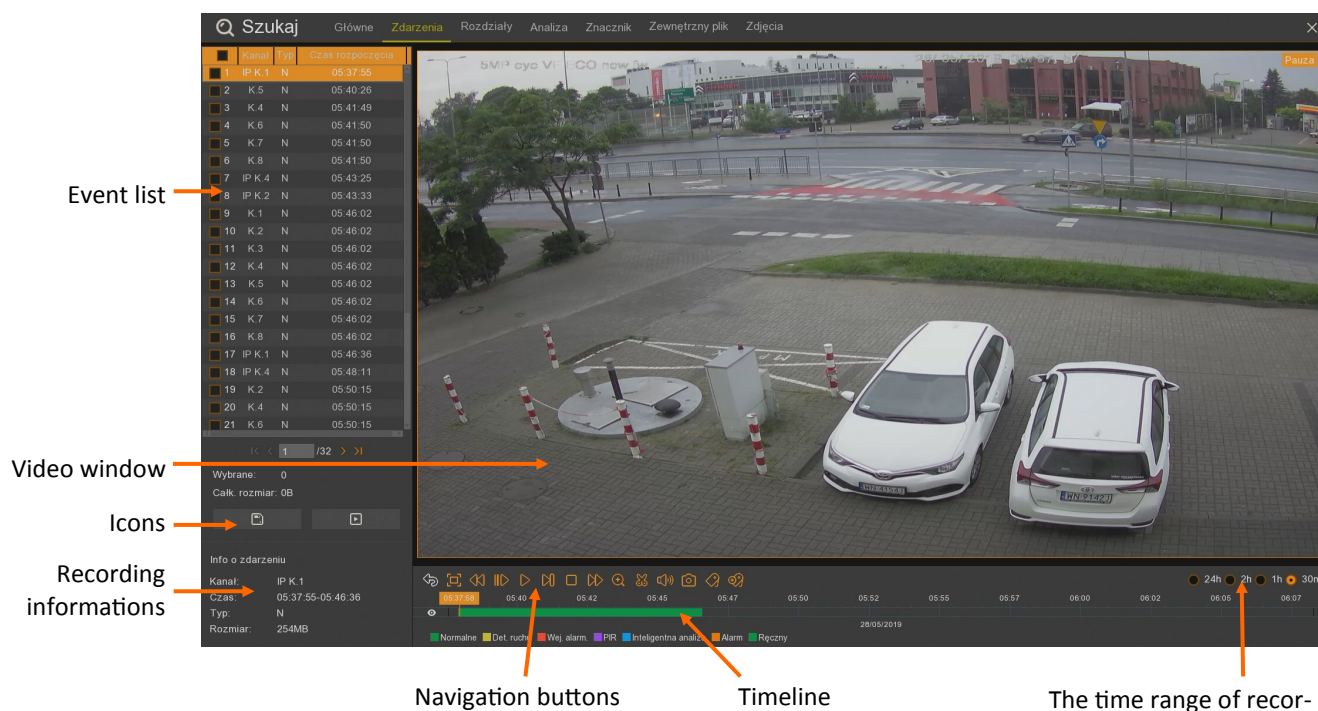


Displays a list of events as a detailed list of files. The list includes the channel number, event type, date, start time, end time, file size and allows to enable the lock, ie to protect the file against overwriting.

| | Channel | Type | Date | Start Time | End Time | Size | Playback | Lock |
|----|---------|------|------------|------------|----------|-------|----------|------|
| 1 | CH10 | N | 15/11/2019 | 00:00:00 | 00:04:57 | 224MB | ▶ | 🔒 |
| 2 | IP CH2 | N | 15/11/2019 | 00:00:00 | 00:07:02 | 120MB | ▶ | 🔒 |
| 3 | IP CH3 | N | 15/11/2019 | 00:00:00 | 00:07:51 | 164MB | ▶ | 🔒 |
| 4 | IP CH1 | N | 15/11/2019 | 00:00:02 | 00:00:56 | 14MB | ▶ | 🔒 |
| 5 | IP CH1 | SN | 15/11/2019 | 00:00:47 | 00:01:08 | 7MB | ▶ | 🔒 |
| 6 | IP CH1 | N | 15/11/2019 | 00:01:03 | 00:07:27 | 80MB | ▶ | 🔒 |
| 7 | CH10 | N | 15/11/2019 | 00:04:57 | 00:10:34 | 253MB | ▶ | 🔒 |
| 8 | IP CH2 | N | 15/11/2019 | 00:07:02 | 00:21:59 | 254MB | ▶ | 🔒 |
| 9 | IP CH1 | N | 15/11/2019 | 00:07:27 | 00:16:11 | 112MB | ▶ | 🔒 |
| 10 | IP CH3 | N | 15/11/2019 | 00:07:51 | 00:19:59 | 254MB | ▶ | 🔒 |
| 11 | CH10 | N | 15/11/2019 | 00:10:34 | 00:16:11 | 254MB | ▶ | 🔒 |
| 12 | IP CH1 | SN | 15/11/2019 | 00:16:04 | 00:16:22 | 6MB | ▶ | 🔒 |
| 13 | CH10 | N | 15/11/2019 | 00:16:11 | 00:21:48 | 254MB | ▶ | 🔒 |
| 14 | IP CH1 | N | 15/11/2019 | 00:16:15 | 00:27:26 | 136MB | ▶ | 🔒 |
| 15 | IP CH3 | N | 15/11/2019 | 00:19:59 | 00:32:07 | 254MB | ▶ | 🔒 |
| 16 | CH10 | N | 15/11/2019 | 00:21:48 | 00:27:25 | 254MB | ▶ | 🔒 |
| 17 | IP CH2 | N | 15/11/2019 | 00:21:59 | 00:37:24 | 254MB | ▶ | 🔒 |
| 18 | CH10 | N | 15/11/2019 | 00:27:25 | 00:33:02 | 254MB | ▶ | 🔒 |
| 19 | IP CH1 | N | 15/11/2019 | 00:27:26 | 00:31:48 | 57MB | ▶ | 🔒 |
| 20 | IP CH1 | SN | 15/11/2019 | 00:31:39 | 00:32:01 | 7MB | ▶ | 🔒 |
| 21 | IP CH1 | N | 15/11/2019 | 00:31:55 | 00:47:10 | 189MB | ▶ | 🔒 |
| 22 | IP CH3 | N | 15/11/2019 | 00:32:07 | 00:44:13 | 254MB | ▶ | 🔒 |
| 23 | CH10 | N | 15/11/2019 | 00:33:02 | 00:38:39 | 253MB | ▶ | 🔒 |
| 24 | IP CH2 | N | 15/11/2019 | 00:37:24 | 00:52:43 | 254MB | ▶ | 🔒 |
| 25 | CH10 | N | 15/11/2019 | 00:38:39 | 00:44:16 | 254MB | ▶ | 🔒 |

Double-clicking a video file opens the playback window (shown on the next page), which allows to view the event. The right mouse button returns to the previous view.

PLAYBACK OF RECORDINGS



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Event list - displays a list of searched events.

Video window - window displaying the selected recording.



- Export selected recordings.



- Play selected recordings.

Recording information - contains information about the channel number, recording start time, type of recording triggering event (N - schedule, M - motion detection, I - alarm input, P - PIR, S - intelligent analysis, C - Manual) and file size.

Navigation buttons:



- Return to previous view - event filtering.



- Displays the video window in full-screen mode.



- Reverse playback at an accelerated pace (x2, x4, x8, x16).



- Play forward in slow motion (x1/2, x1/4, x1/8, x1/16).



- Starting playback.












- Pause, pressing again displays the next frame.



- Playing frame by frame.

PLAYBACK OF RECORDINGS

-  - Stop playback.
-  - Play forward at an accelerated pace (x2, x4, x8, x16).
-  - Digital zoom.
-  - Creating a video clip.
-  - Audio on / off. Adjusting the volume level.
-  - Take a screenshot. The saved image has a displayed frame resolution.
-  - Adds a default tag to the recording.
-  - Adds a user-defined tag.

 - determines the **range of the timeline**. The timeline covers a range of **24 hours**, **2 hours**, **1 hour** or **30 minutes**. Switching the range during playback displays the appropriate range of recordings. The currently played moment becomes the beginning of a new range.

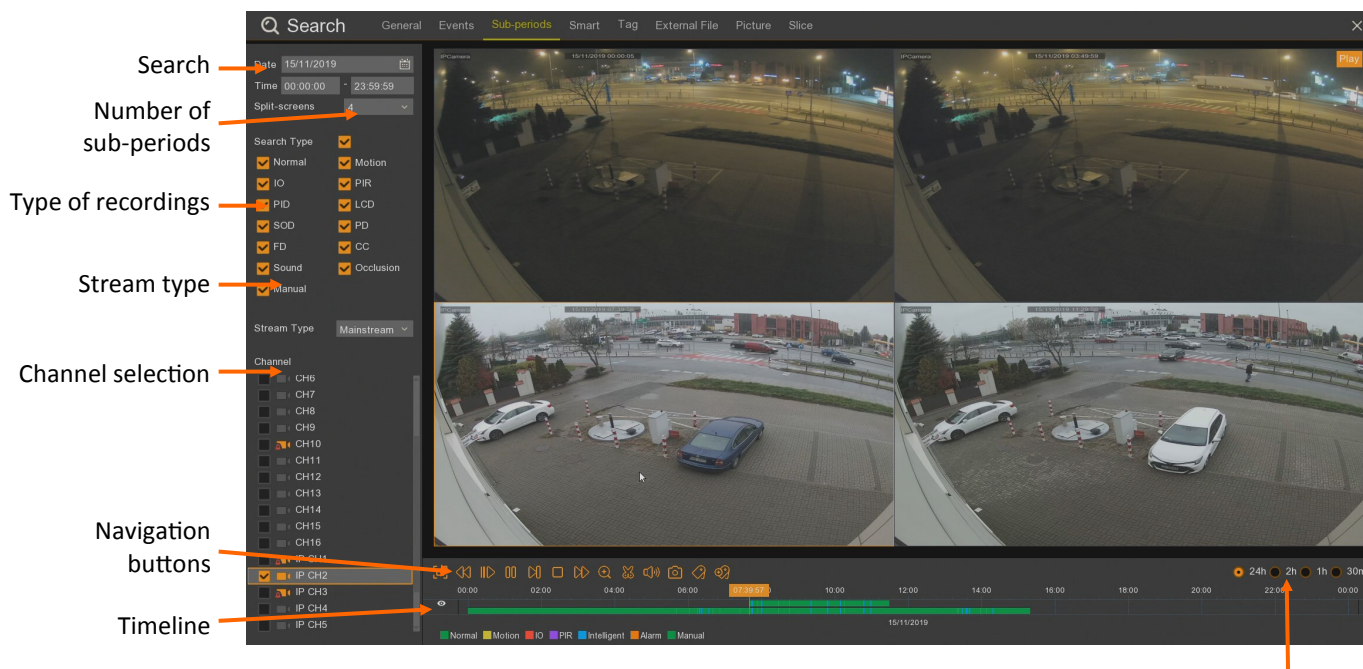
Timeline - displays the period depending on the **Time Range** setting. Each channel is shown in the next row. The colors on the axis correspond to the type of recordings. The legend is presented below the timeline. An **Alarm** means that several alarm events occur simultaneously (e.g. motion detection and line crossing detection). The orange marker indicates the currently playing moment.

PLAYBACK OF RECORDINGS

12.3. Playback - „Sub-periods” tab

The **Sub-periods** playback mode allows to play recordings from one camera, but from several periods of time simultaneously. For playback, select the date, time interval, number of periods, type of records, stream type and selected channel. The recorder automatically divides the recordings into chapters so that each window has the same playing time.

The timeline shows the entire recording from the selected time period and from the active window.



The time range of recordings

Search - allows to select time range to display

Date - displays the calendar. Allows to select the day to search for recordings. The days which have the records are underlined in red. After selecting the day, the channel list will be limited to those that have recordings.

Time - reduces the search area by entering the time range.

Number of sub-periods - selection of the number of chapters for simultaneous preview. The possible number of chapters depends on the model. After changing the number of chapters, press the **Play** button to view the recordings on the video window.

Type of recordings - selects the type of recordings to display

Search type - selects all types of recordings.

Normal - continues recordings.

Motion - recordings caused by motion detection.

IO - recordings triggered by the activation of the alarm input.

PIR - recordings caused by PIR detection.

PID - recordings triggered by the event of intelligent analysis - perimeter intrusion detection.

LCD - recordings triggered by an intelligent analysis event - line crossing detection.

PLAYBACK OF RECORDINGS

SOD - recordings triggered by an intelligent analysis event - disappearing or leaving the object.

PD - recordings triggered by the event of intelligent analysis - people detection.

FD - recordings triggered by an intelligent analysis event - face detection.

CC - recordings triggered by the event of intelligent analysis - counting of line crossings.

Sound - recordings triggered by the event of intelligent analysis - sound detection.

Occlusion - recordings triggered by the event of intelligent analysis - occlusion detection.

Manual - recordings triggered manually.

Stream type - allows to select the **Mainstream** or **Substream** to search.

Channel selection - selection of channels to search. Channels that do not have recordings are grayed.

Video window - depending on the number of selected periods, the video window automatically adjusts the division. Clicking with the left mouse button on the window selects the window, displays the time range for the selected window on the timeline.

Navigation buttons:

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- Displays the video window in full-screen mode.



- Reverse playback at an accelerated pace (x2, x4, x8, x16).



- Play forward in slow motion (x1/2, x1/4, x1/8, x1/16).



- Starting playback.



- Pause, pressing again displays the next frame.



- Playing frame by frame.



- Stop playback.



- Play forward at an accelerated pace (x2, x4, x8, x16).



- Digital zoom.



- Creating a video clip.



- Audio on / off. Adjusting the volume level.



- Take a screenshot. The saved image has a displayed frame resolution.



- Adds a default tag to the recording.



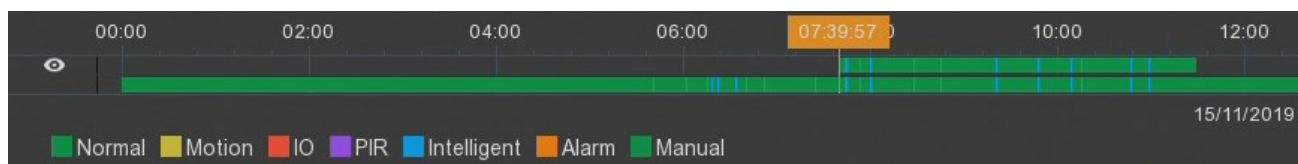
- Adds a user-defined tag.



- determines the **range of the timeline**. The timeline covers a range of **24 hours**, **2 hours**, **1 hour** or **30 minutes**. Switching the range during playback displays the appropriate range of recordings. The currently played moment becomes the beginning of a new range.

PLAYBACK OF RECORDINGS

Timeline - displays the period depending on **the time range of the recordings**. In the sub-periods playback mode, the timeline consists of two rows. The top line displays the time interval for the selected (highlighted) chapter in the video window. Clicking on another video window switches the timeline for this window. The bottom line contains all recordings for the selected channel. The colors on the timeline correspond to the type of recordings. The legend is shown below the timeline. An **Alarm** means that several alarm events occur at once (eg. motion detection and line crossing). The orange marker indicates the currently playing moment.



12.4. Playback - „Smart” tab

The **Smart** playback mode allows search of recordings in a single camera depending on the movement in the selected image zone. To search, select the date, time range, type of recordings searched, channel number. The recorder automatically finds the relevant parts in the recording with motion in selected image zone.

Search

Type of recordings

Channel selection

Navigation buttons

Timeline

The time range of recordings

Search - allows to select time range to display

Date - displays the calendar. Allows you to select the day to search for recordings. The days which have the records are underlined in red. After selecting the day, the channel list will be limited to those that have recordings.

Time - reduces the search area by entering the time range.

PLAYBACK OF RECORDINGS

Type of recordings - selects the type of recordings to display

Search type - selects all types of recordings.

Normal - continues recordings.

Motion - recordings caused by motion detection.

IO - recordings triggered by the activation of the alarm input.

PIR - recordings caused by PIR detection.

PID - recordings triggered by the event of intelligent analysis - perimeter intrusion detection.

LCD - recordings triggered by an intelligent analysis event - line crossing detection.

SOD - recordings triggered by an intelligent analysis event - disappearing or leaving the object.

PD - recordings triggered by the event of intelligent analysis - people detection.

FD - recordings triggered by an intelligent analysis event - face detection.

CC - recordings triggered by the event of intelligent analysis - counting of line crossings.

Sound - recordings triggered by the event of intelligent analysis - sound detection.

Occlusion - recordings triggered by the event of intelligent analysis - occlusion detection.

Manual - recordings triggered manually.

Channel selection - selection of channels to search. Channels that do not have recordings are grayed.

Video window - displays the image from selected camera.

Navigation buttons:



- Displays the video window in full-screen mode.



- Reverse playback at an accelerated pace (x2, x4, x8, x16).



- Play forward in slow motion (x1/2, x1/4, x1/8, x1/16)



- Starting playback.



- Pause, pressing again displays the next frame.



- Playing frame by frame.



- Stop playback.



- Play forward at an accelerated pace (x2, x4, x8, x16).



- Digital zoom.



- Audio on / off. Adjusting the volume level.



- Take a screenshot. The saved image has a displayed frame resolution.

PLAYBACK OF RECORDINGS



- **Smart Search** button- opens a window to define image zone for analysis.



- Adds a default tag to the recording.

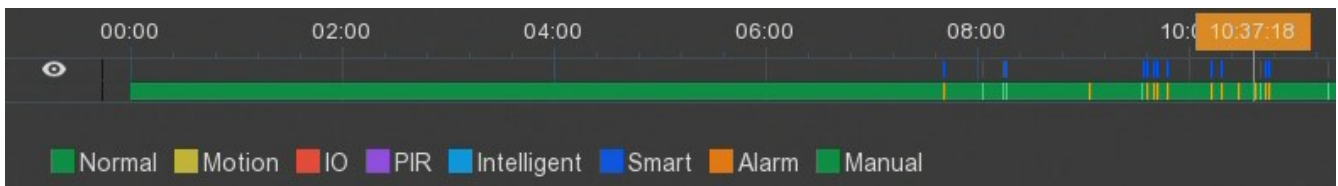


- Adds a user-defined tag.



- determines the **range of the timeline**. The timeline covers a range of **24 hours**, **2 hours**, **1 hour** or **30 minutes**. Switching the range during playback displays the appropriate range of recordings. The currently played moment becomes the beginning of a new range.

Timeline - consists of two rows. The top line displays searched motion detection periods. The bottom line contains recordings for the selected channel. The colors on the timeline correspond to the type of recordings. The legend is shown below the timeline. An **Alarm** means that several alarm events occur at once (e.g. motion detection and line crossing). The orange marker indicates the currently playing moment.



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After pressing the **Smart Search** icon, a window appears with the camera image and a marked grid for motion detection analysis. The area of the analysis can be set with the mouse.



- Select the entire image.




- Deselect the area.



- Searching for motion in the selected part of the image.



- Returns to the previous view without any changes.

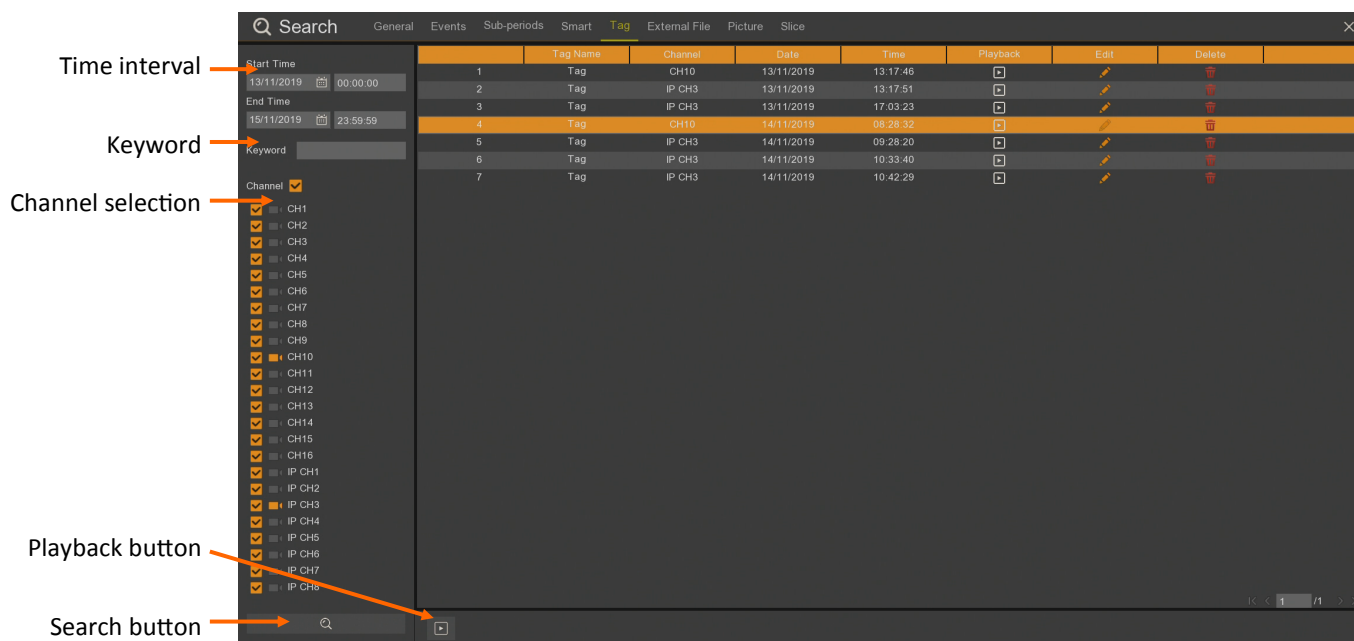
After pressing  icon, the screen returns to the previous view. The first row of the timeline shows only detection periods from the marked part of the image.

PLAYBACK OF RECORDINGS

12.5. Playback - „Tag” tab

The **Tag** playback mode allows to search for recordings based on previously created tags. Tags can be added for a particular camera while viewing live image or while viewing recordings in other tabs.


After entering the **Tag** tab, a window appears listing all markers for the current day. Options on the left side of the screen allow to filter markers:



Start Time and **End Time** - allows to define the time range for tag search.

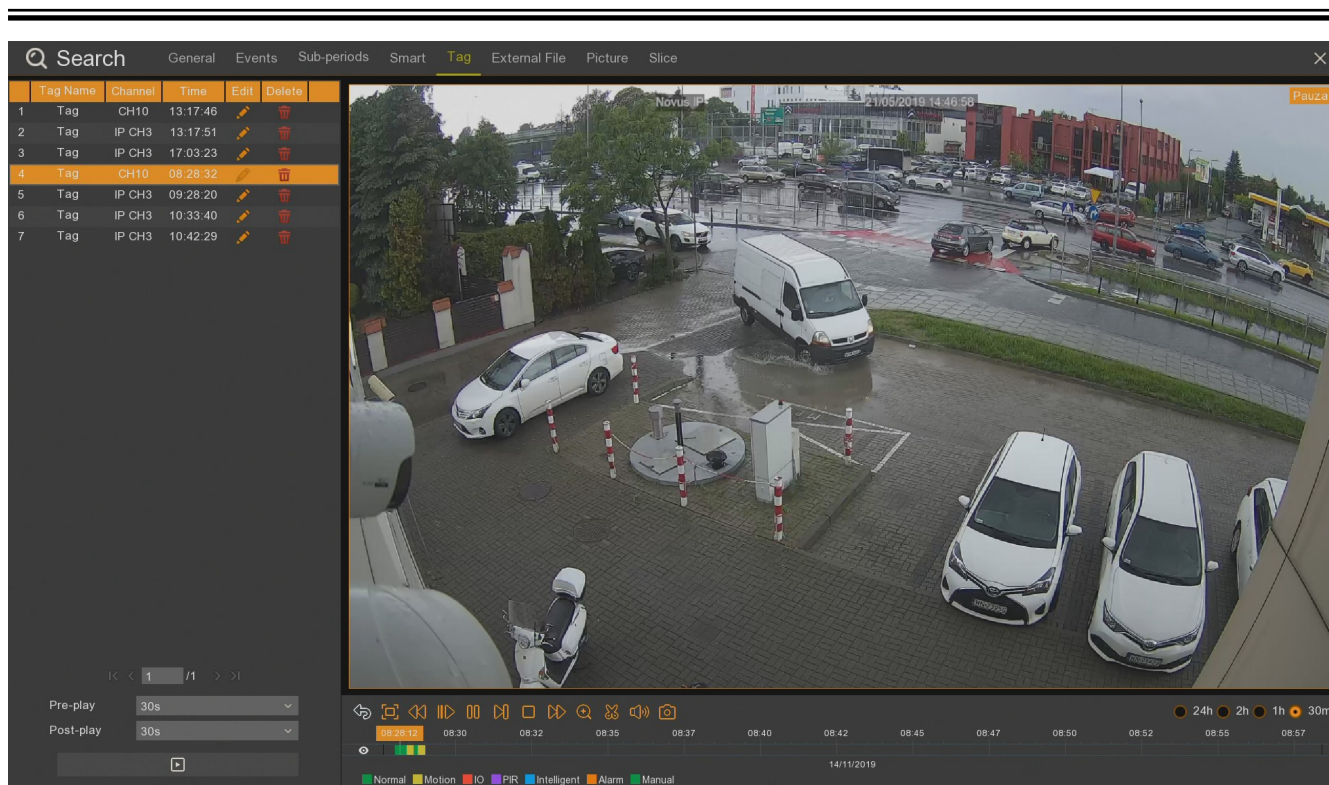
Keyword - space for the search string (keyword) in the tag name. The search is case sensitive. Leaving the field empty will skip this filter.

Channel selection - selection of channels to search.

After pressing the search icon , the tag list is updated according to the set filters. Individual table columns show tag name, channel number, date and time. The next columns contain icons that allow to play the recording, rename the tag or delete it. In the bottom right corner there is a panel that allows to switch between pages with found tags.

Playback of the recording can be started by clicking of the play icon in the list at each tag, the play icon at the bottom of the screen (then plays the marked tag) or by double-clicking on the tag. The playback window appears as on the next page.

PLAYBACK OF RECORDINGS



In the left part there is a list of filtered tags as in the previous window. Below are the **Pre-play** and **Post-play** fields showing how much time the recording should be displayed before and after the place with the tag (5s, 10s, 30s, 1Min, 2Min, 5Min, 10Min). The default values are set to 30 seconds. The



icon starts playing the recording with the tag marked on the list.

Navigation buttons:



- Returns to the previous view - tags filter.



- Displays the video window in full-screen mode.



- Reverse playback at an accelerated pace (x2, x4, x8, x16).



- Play forward in slow motion (x1/2, x1/4, x1/8, x1/16).



- Starting playback.



- Pause, pressing again displays the next frame.



- Playing frame by frame.



- Stop playback.



- Play forward at an accelerated pace (x2, x4, x8, x16).

PLAYBACK OF RECORDINGS



- Digital zoom.



- Creating a video clip.



- Audio on / off. Adjusting the volume level.



- Take a screenshot. The saved image has a displayed frame resolution.



- determines the **range of the timeline**. The timeline covers a range of **24 hours**, **2 hours**, **1 hour** or **30 minutes**. Switching the range during playback displays the appropriate range of recordings. The currently played moment becomes the beginning of a new range.

Timeline - displays the period depending on the **Pre-play** and **Post-play** settings. The colors on the timeline correspond to the type of recordings. The legend is presented below the timeline. An **Alarm** means that several alarm events occur simultaneously (e.g. motion detection and line crossing detection). The orange marker indicates the currently playing moment.

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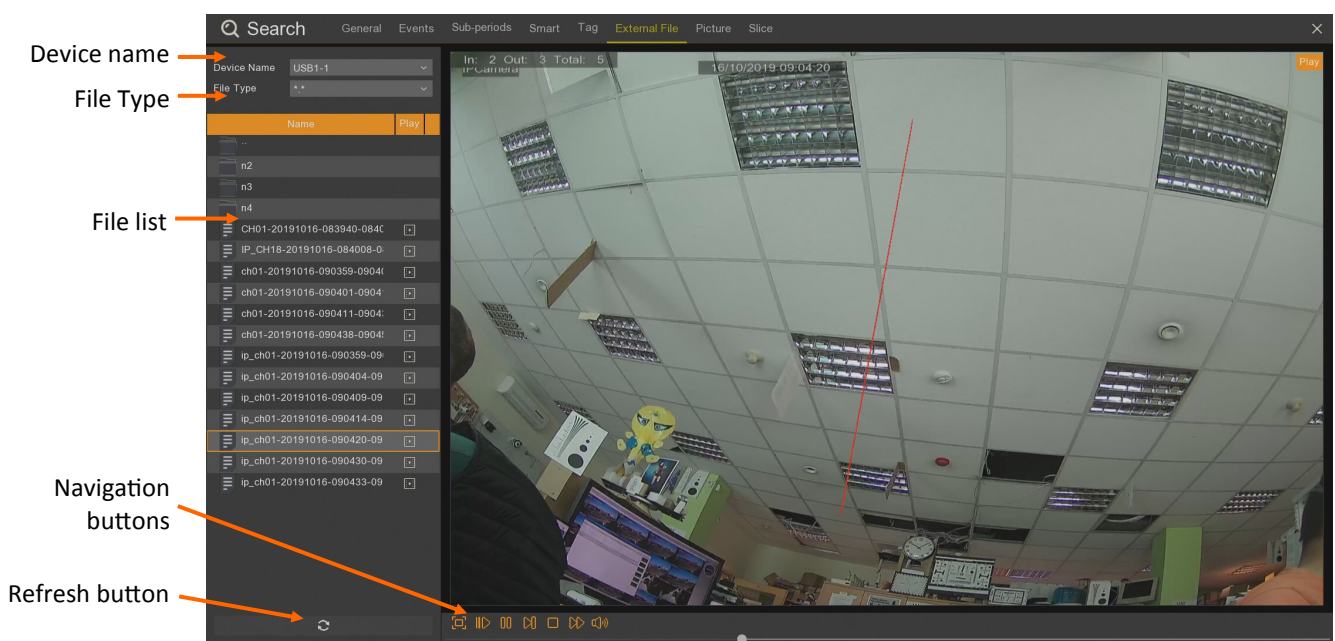
To return to tag filtering, use the right mouse button or the icon.

12.6. Playback - „External File” tab

The **External File** tab allows to play recordings from files saved on the USB memory connected to the recorder.

After entering the tab, the recorder searches for the connected external memory, displays the read files

and catalogs on the left. If the memory is connected after entering this tab, read it using the icon.



PLAYBACK OF RECORDINGS

Device name - detected media connected to the USB connector.

File Type - filters the types of files to display. *.* means displaying all types of files, *.h264; * H264, *.rf; *.RF, *.avi; *.AVI, *.mp4; * MP4 displays files with the appropriate extension.

File list - a list of directories and files on the recognized medium. If the **File Type** is other than *.* , only files with a specific extension will be displayed.

Navigation buttons:



- Displays the video window in full-screen mode.



- Play forward in slow motion (x1/2, x1/4, x1/8, x1/16).



- Starting playback.



- Pause, pressing again displays the next frame.



- Playing frame by frame.



- Stop playback.



- Play forward at an accelerated pace (x2, x4, x8, x16).



- Audio on / off. Adjusting the volume level.

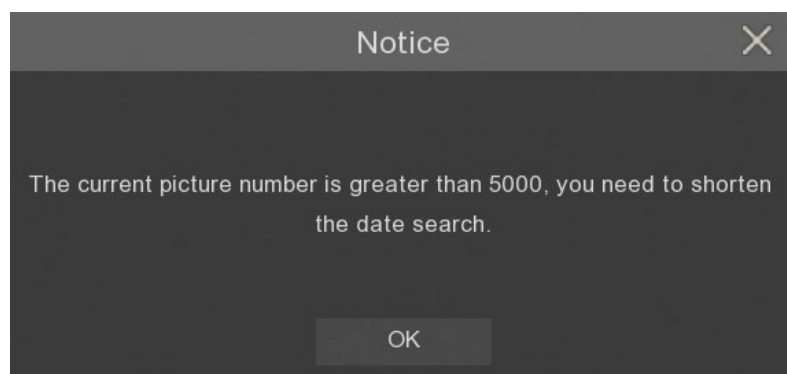
Below the navigation buttons is a timeline of the file.

Refresh button - reads the file list again from the USB stick.

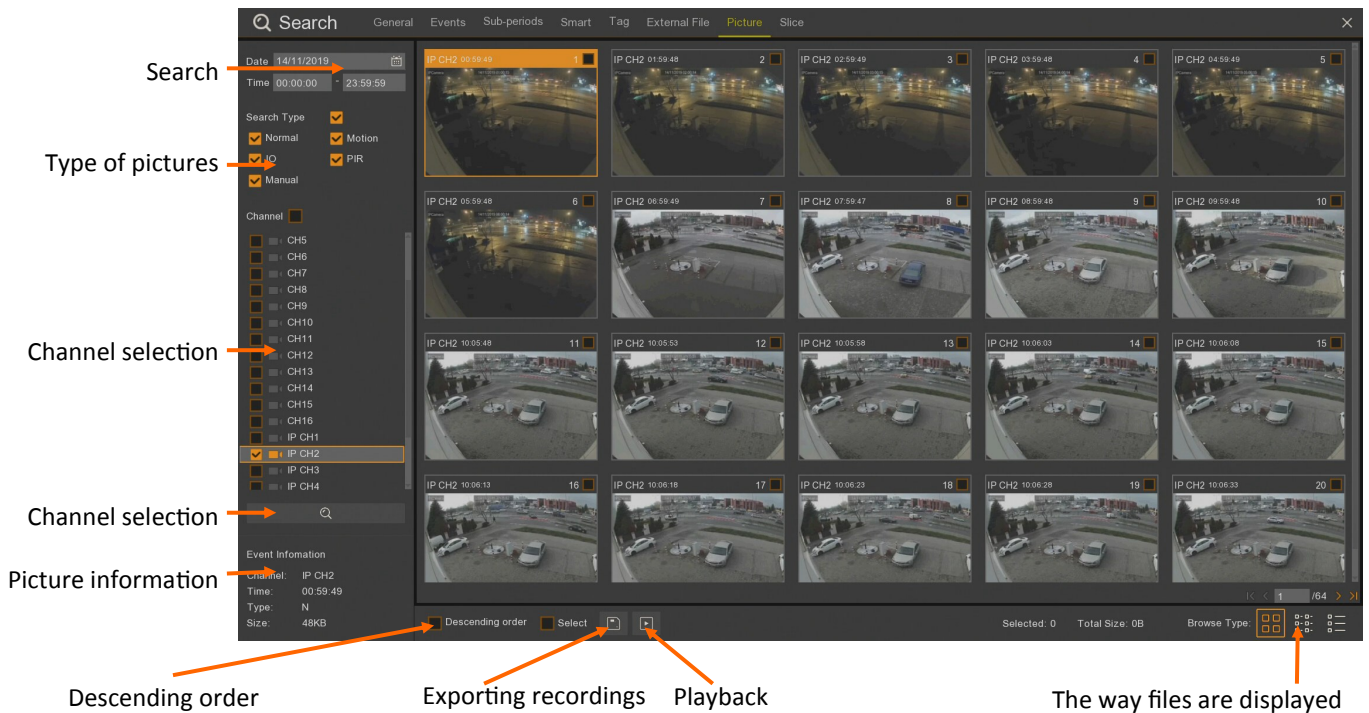
12.7. Playback - „Picture” tab

Photo playback mode displays a list of photos saved on the recorder's disk. When searching for photos, enter the date, time period, type of events triggering the recording of the photo and channel number.

If there are more than 5000 images in the search conditions, the following message will appear.



PLAYBACK OF RECORDINGS



Search - allows to select time range to search the pictures

Date - displays the calendar. Allows to select a picture search day.

Time - reduces the search area by entering the time range.

Type of pictures - selects the type of recordings to display

Search type - selects all types of recordings.

Normal - picture from the continuous schedule.

Motion - pictures saved due to motion detection.

IO - pictures saved due to activation of the alarm input.

PIR - pictures saved due to PIR detection.

Manual - pictures saved using the **Manual Capture** button in the channel menu.

Channel selection - selection of channels to search the pictures.

Search button - displays a list of found pictures based on the entered criteria.

Picture information - contains information about the channel number, time taken, type of recording called (N - schedule, M - motion detection, I - alarm input, P - PIR, S - intelligent analysis, C - Manual) and file size.

Descending order - changes the order of displayed files.

Select - selects all found files.

Exporting recordings - exports selected files.

Playback - playback of selected files.

The way files are displayed - changes the display of found files. They can be presented as thumbnails, a list of files or a detailed list.

PLAYBACK OF RECORDINGS



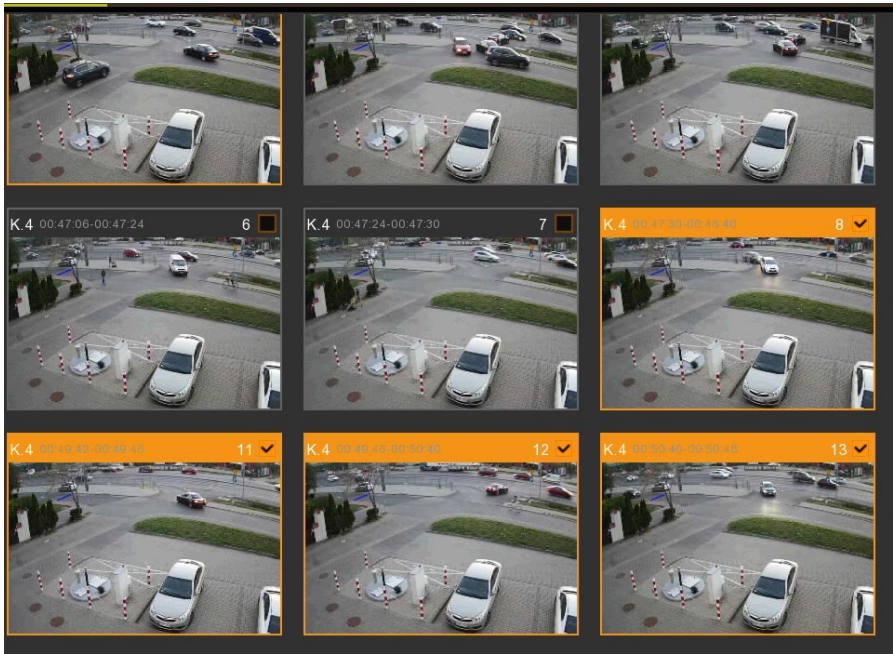
Switching pages with found files.

Selected: 6 Total Size: 245MB

Information about selected files.



Displays a list of pictures as thumbnails.



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Displays a list of pictures as a list of files. The list contains only the channel number and time the picture was taken.

| | | | | | | | | | | | | | | |
|-----|-----|----------|-----|-----|----------|-----|-----|----------|-----|-----|----------|-----|-----|----------|
| 1 | K.4 | 00:00:00 | 2 | K.4 | 00:00:28 | 3 | K.4 | 00:00:36 | 4 | K.4 | 00:00:42 | 5 | K.4 | 00:01:00 |
| 9 | K.4 | 00:01:54 | 10 | K.4 | 00:01:58 | 11 | K.4 | 00:02:20 | 12 | K.4 | 00:02:24 | 13 | K.4 | 00:02:57 |
| 17 | K.4 | 00:04:39 | 18 | K.4 | 00:05:15 | 19 | K.4 | 00:05:43 | 20 | K.4 | 00:06:17 | 21 | K.4 | 00:06:38 |
| 25 | K.4 | 00:07:28 | 26 | K.4 | 00:08:14 | 27 | K.4 | 00:08:42 | 28 | K.4 | 00:08:46 | 29 | K.4 | 00:09:26 |
| 33 | K.4 | 00:10:32 | 34 | K.4 | 00:10:38 | 35 | K.4 | 00:10:42 | 36 | K.4 | 00:11:06 | 37 | K.4 | 00:11:12 |
| 41 | K.4 | 00:12:26 | 42 | K.4 | 00:13:00 | 43 | K.4 | 00:13:36 | 44 | K.4 | 00:14:10 | 45 | K.4 | 00:14:18 |
| 49 | K.4 | 00:14:52 | 50 | K.4 | 00:14:58 | 51 | K.4 | 00:15:32 | 52 | K.4 | 00:16:07 | 53 | K.4 | 00:16:58 |
| 57 | K.4 | 00:19:10 | 58 | K.4 | 00:19:16 | 59 | K.4 | 00:19:30 | 60 | K.4 | 00:19:54 | 61 | K.4 | 00:20:04 |
| 65 | K.4 | 00:21:48 | 66 | K.4 | 00:21:52 | 67 | K.4 | 00:22:42 | 68 | K.4 | 00:23:14 | 69 | K.4 | 00:23:56 |
| 73 | K.4 | 00:24:56 | 74 | K.4 | 00:25:41 | 75 | K.4 | 00:26:53 | 76 | K.4 | 00:27:53 | 77 | K.4 | 00:28:24 |
| 81 | K.4 | 00:30:16 | 82 | K.4 | 00:30:52 | 83 | K.4 | 00:30:56 | 84 | K.4 | 00:31:46 | 85 | K.4 | 00:31:54 |
| 89 | K.4 | 00:33:24 | 90 | K.4 | 00:34:14 | 91 | K.4 | 00:34:22 | 92 | K.4 | 00:35:02 | 93 | K.4 | 00:35:30 |
| 97 | K.4 | 00:36:33 | 98 | K.4 | 00:36:49 | 99 | K.4 | 00:36:55 | 100 | K.4 | 00:37:23 | 101 | K.4 | 00:37:29 |
| 105 | K.4 | 00:39:18 | 106 | K.4 | 00:39:42 | 107 | K.4 | 00:39:58 | 108 | K.4 | 00:40:34 | 109 | K.4 | 00:41:16 |
| 113 | K.4 | 00:42:44 | 114 | K.4 | 00:42:50 | 115 | K.4 | 00:43:14 | 116 | K.4 | 00:43:20 | 117 | K.4 | 00:43:26 |
| 121 | K.4 | 00:44:50 | 122 | K.4 | 00:44:58 | 123 | K.4 | 00:45:08 | 124 | K.4 | 00:46:28 | 125 | K.4 | 00:46:58 |
| 129 | K.4 | 00:48:40 | 130 | K.4 | 00:49:00 | 131 | K.4 | 00:49:42 | 132 | K.4 | 00:49:46 | 133 | K.4 | 00:50:40 |
| 137 | K.4 | 00:51:32 | 138 | K.4 | 00:51:36 | 139 | K.4 | 00:52:10 | 140 | K.4 | 00:52:20 | 141 | K.4 | 00:53:06 |
| 145 | K.4 | 00:54:52 | 146 | K.4 | 00:55:00 | 147 | K.4 | 00:55:06 | 148 | K.4 | 00:55:20 | 149 | K.4 | 00:55:26 |
| 153 | K.4 | 00:57:03 | 154 | K.4 | 00:57:59 | 155 | K.4 | 00:58:07 | 156 | K.4 | 00:58:13 | 157 | K.4 | 00:58:19 |
| 161 | K.4 | 00:59:22 | 162 | K.4 | 00:59:26 | 163 | K.4 | 00:59:50 | 164 | K.4 | 00:59:58 | 165 | K.4 | 01:00:06 |
| 169 | K.4 | 01:01:32 | 170 | K.4 | 01:01:44 | 171 | K.4 | 01:02:30 | 172 | K.4 | 01:03:08 | 173 | K.4 | 01:03:18 |

PLAYBACK OF RECORDINGS



Displays a list of pictures as a detailed list of files. The list includes the channel number, event type, date and time the picture was taken, file size and the icon to display the picture.

| | Channel | Type | Date | Time | Size | Playback |
|----|---------|------|------------|----------|-------|----------|
| 1 | IP CH2 | N | 14/11/2019 | 00:59:49 | 48KB | |
| 2 | IP CH2 | N | 14/11/2019 | 01:59:48 | 54KB | |
| 3 | IP CH2 | N | 14/11/2019 | 02:59:49 | 53KB | |
| 4 | IP CH2 | N | 14/11/2019 | 03:59:48 | 50KB | |
| 5 | IP CH2 | N | 14/11/2019 | 04:59:49 | 56KB | |
| 6 | IP CH2 | N | 14/11/2019 | 05:59:48 | 56KB | |
| 7 | IP CH2 | N | 14/11/2019 | 06:59:49 | 87KB | |
| 8 | IP CH2 | N | 14/11/2019 | 07:59:47 | 119KB | |
| 9 | IP CH2 | N | 14/11/2019 | 08:59:48 | 137KB | |
| 10 | IP CH2 | N | 14/11/2019 | 09:59:48 | 134KB | |
| 11 | IP CH2 | N | 14/11/2019 | 10:05:48 | 142KB | |
| 12 | IP CH2 | N | 14/11/2019 | 10:05:53 | 142KB | |
| 13 | IP CH2 | N | 14/11/2019 | 10:05:58 | 142KB | |
| 14 | IP CH2 | N | 14/11/2019 | 10:06:03 | 138KB | |
| 15 | IP CH2 | N | 14/11/2019 | 10:06:08 | 137KB | |
| 16 | IP CH2 | N | 14/11/2019 | 10:06:13 | 133KB | |
| 17 | IP CH2 | N | 14/11/2019 | 10:06:18 | 128KB | |
| 18 | IP CH2 | N | 14/11/2019 | 10:06:23 | 126KB | |
| 19 | IP CH2 | N | 14/11/2019 | 10:06:28 | 137KB | |
| 20 | IP CH2 | N | 14/11/2019 | 10:06:33 | 138KB | |
| 21 | IP CH2 | N | 14/11/2019 | 10:06:41 | 138KB | |
| 22 | IP CH2 | N | 14/11/2019 | 10:06:46 | 136KB | |

Double-clicking the file opens the image in large format. The right mouse button returns to the previous view.

12.8. Playback - „Slice” tab

Stream Type:

View Mode:

Channel:

Time:

Thumbnails window:

Preview window:

PLAYBACK OF RECORDINGS

The **Slice** playback mode allows to search for recordings from a single camera by gradually narrowing the time interval. By defining in turn Channel, Year, Month, Day and Hour, the recorder displays thumbnails from a selected time interval. By clicking on the thumbnail you can start playback of the selected time period.


Stream Type - allows to select the **Mainstream** or **Substream** to search.


View Mode - allows to select the search mode **Channel** (define the channel before defining the time) or **Time** (define the time first, shows which cameras have recordings in the defined time interval).


Channel selection - channel selection table.

Time selection - time selections tables (**Year**, **Month**, **Day**, **Hour**).

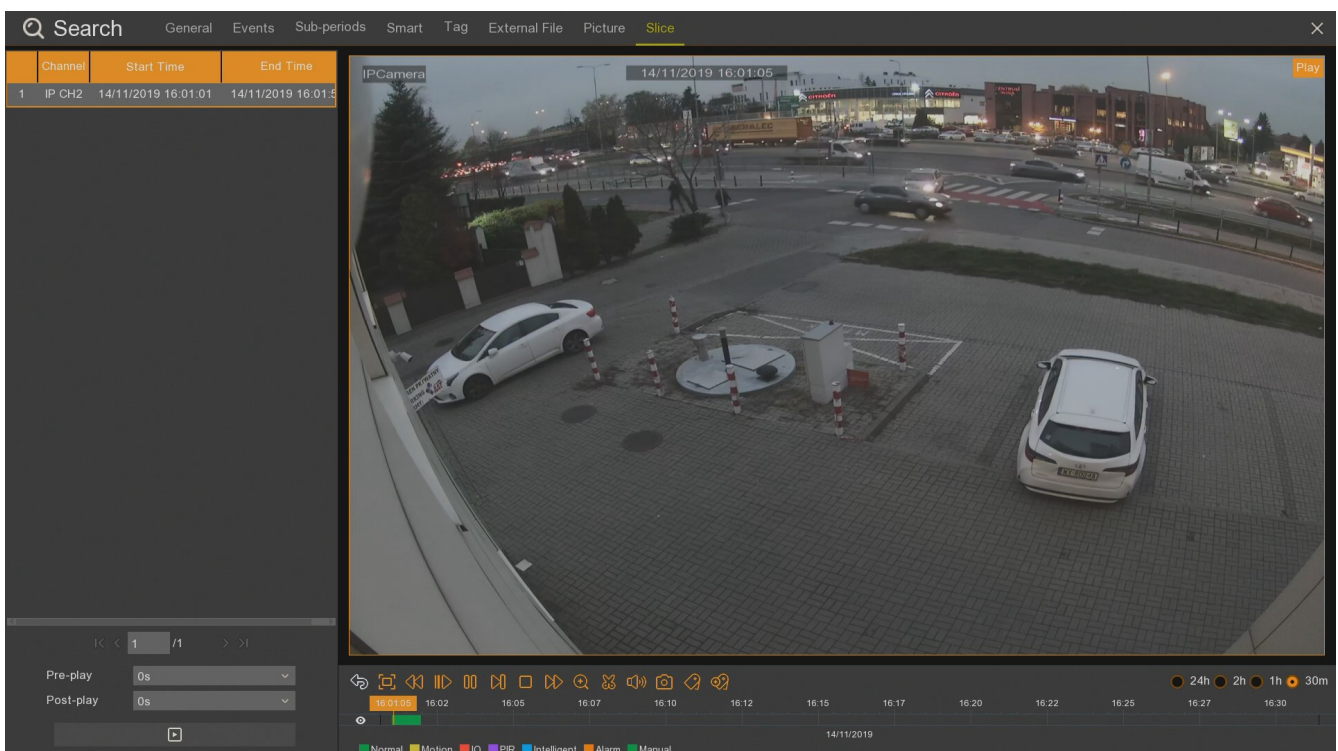
Thumbnails window - displays thumbnails depending on the selected time period. After clicking on the thumbnail, the recording will be played in the **Preview Window**. Double clicking on a thumbnail narrows the time range. If the thumbnail corresponds to a single minute, double-clicking plays in a

larger format. At the top of this window is the  icon that allows to extend the time range. Next to this icon is the number of the channel being viewed and the time interval of the displayed thumbnails.

Preview window - plays the recorded image after clicking on the thumbnail. At the bottom is the playback progress bar. Clicking on the image stops / plays the recording. In the upper right corner of the preview there is an icon  that allows to quickly play the fragment in a larger format.


After clicking the  icon in the preview window or double-clicking the thumbnail corresponding to one minute, the larger format playback window opens.

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PLAYBACK OF RECORDINGS

In the left part there is information about the recording (channel and selected time period). Below are the **Pre-play** and **Post-play** fields showing how much time the recording should be displayed before and after the defined period of time (5s, 10s, 30s, 1Min, 2Min, 5Min, 10Min). The default values are

set to 0 seconds. The  icon starts playing the recording.

Navigation buttons:



- Returns to the previous view.



- Displays the video window in full-screen mode.



- Reverse playback at an accelerated pace (x2, x4, x8, x16).



- Play forward in slow motion (x1/2, x1/4, x1/8, x1/16).



- Starting playback.



- Pause, pressing again displays the next frame.



- Playing frame by frame.



- Stop playback.



- Play forward at an accelerated pace (x2, x4, x8, x16).



- Digital zoom.



- Creating a video clip.



- Audio on / off. Adjusting the volume level.



- Take a screenshot. The saved image has a displayed frame resolution.



- Adds a default tag to the recording.



- Adds a user-defined tag.



- determines the **range of the timeline**. The timeline covers a range of **24 hours**, **2 hours**, **1 hour** or **30 minutes**. Switching the range during playback displays the appropriate range of recordings. The currently played moment becomes the beginning of a new range.

Timeline - displays the period depending on the **Time Range** setting. The colors on the axis correspond to the type of recordings. The legend is presented below the timeline. An **Alarm** means that several alarm events occur simultaneously (e.g. motion detection and line crossing detection). The orange marker indicates the currently playing moment.

12.9. Overwriting protection of recordings

The recorders can protect important recordings from overwriting. To do this, start **Events** playing mode. Then switch the view to the detailed list of files. Next, find the file to be protected in the list and switch the "padlock" icon in the **Lock** column.

PLAYBACK OF RECORDINGS



- Means a file protected against overwriting.



- Means a file unprotected against overwriting.

13. ARCHIVING AND EXPORTING RECORDS

The recorders provide many ways of exporting video recordings, enables to create of a backup copy of a recording groups. All the recordings can be copied to external media: an external hard disk connected via USB port or portable Flash memory. Recording files can be saved in **RF**, **AVI** or **MP4** formats.

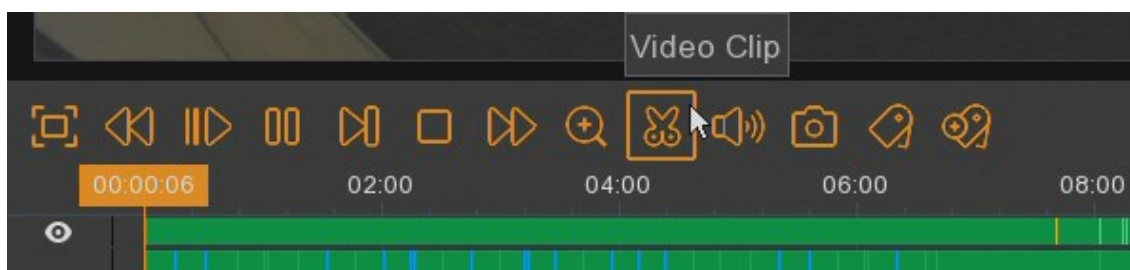
The **RF** file is the own format of the recorder and requires NHDR-5000Viewer or NHDR-AHDPlayer to be played. **AVI** and **MP4** files can be run in popular video players, e.g. VLC Media Player.

Note! During continuous recording, the recorder divides the recordings into segments. The maximum segment size is 254MB. It means that the exported recordings can also be divided into segments.

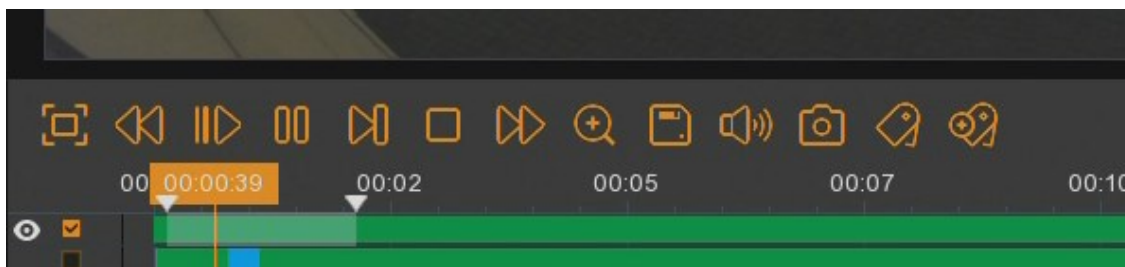
13.1. Creating a video clip

The first way of archiving recordings is creating a video clip. To create a video clip, press the **Video Clip** button ("scissors" icon).

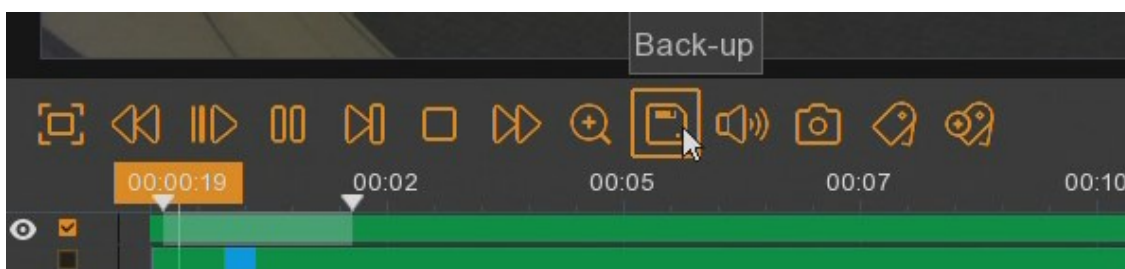
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Next, in the timeline, select (press and drag the mouse cursor) the desired period of time. The gray time markers will be displayed. On the left, you can select channels to create a clip



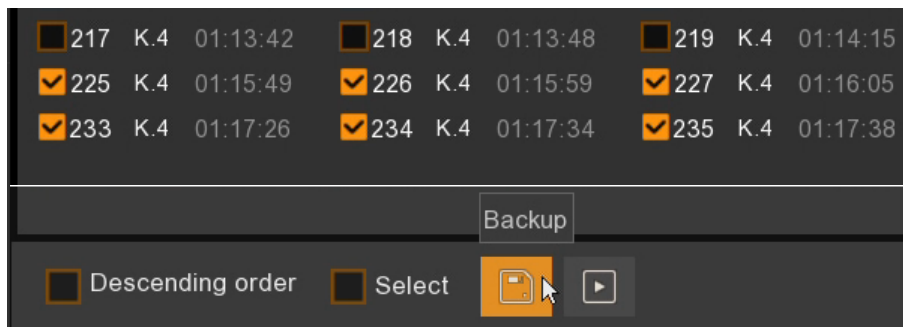
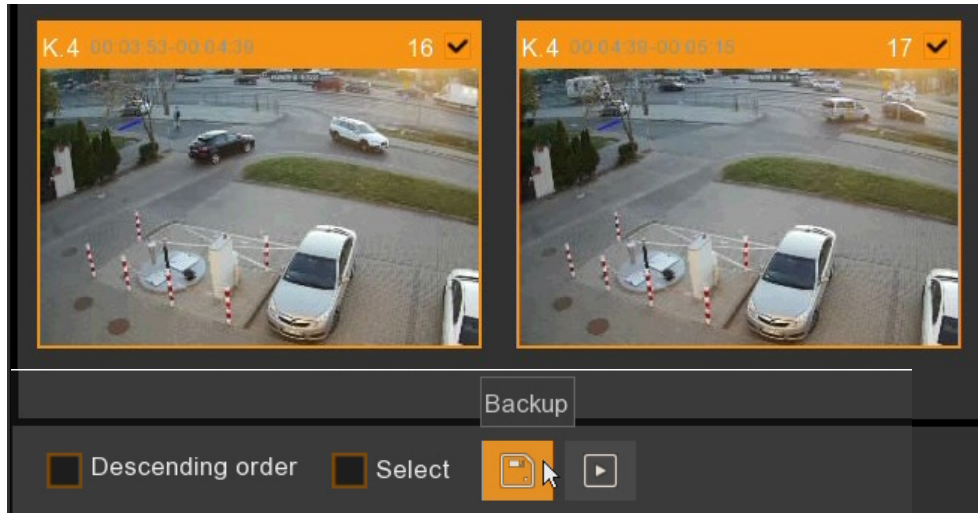
Then press the **Backup** button ("floppy disk" icon) to go to the record exports window (described in chapter 5.3).



ARCHIVING AND EXPORTING RECORDS

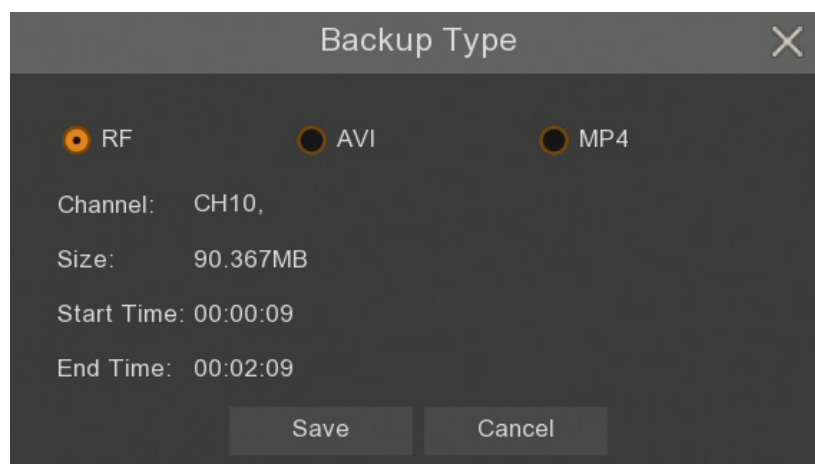
13.2. Export of recording files

The second way to archive recordings is to export files. It is available in the **Events** playback mode. To use it, select the files of interest and then press the **Backup** button ("floppy disk" icon) to go to the Export window (described in chapter 5.3).



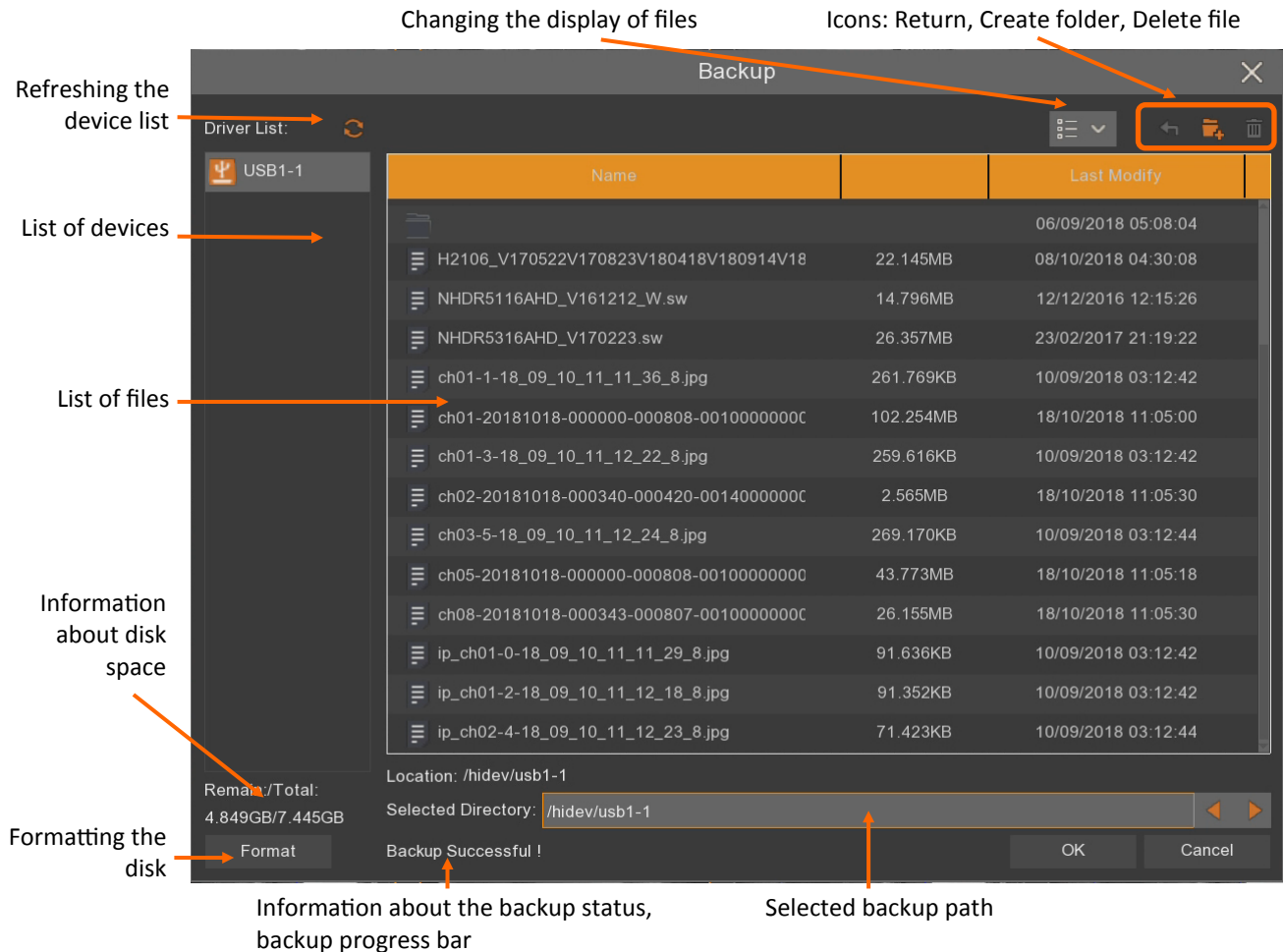
13.3. Backup type window

Regardless of the chosen method (creating a clip or exporting files), the user will be asked to choose the file format. Available formats are **RF**, **AVI** and **MP4**.



ARCHIVING AND EXPORTING RECORDS

The **Save** button opens the **Backup** window. It allows to explore the directory tree located on the memory connected to the USB port. After connecting, **refresh the list of devices**. Then indicate the recording path. The user can also format the device, delete files and create folders. Pressing the **OK** button starts export.



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While exporting, a progress bar will be displayed. It displays the number of currently exported file, the total number of exported files and the percentage of export progress of the file.

When the export is completed, the message **Backup Successful!** Is displayed at the bottom of the export window. The archived files will appear on the file list.

Backup Successful !


The file name contains the channel number, date, start and end time of recordings.

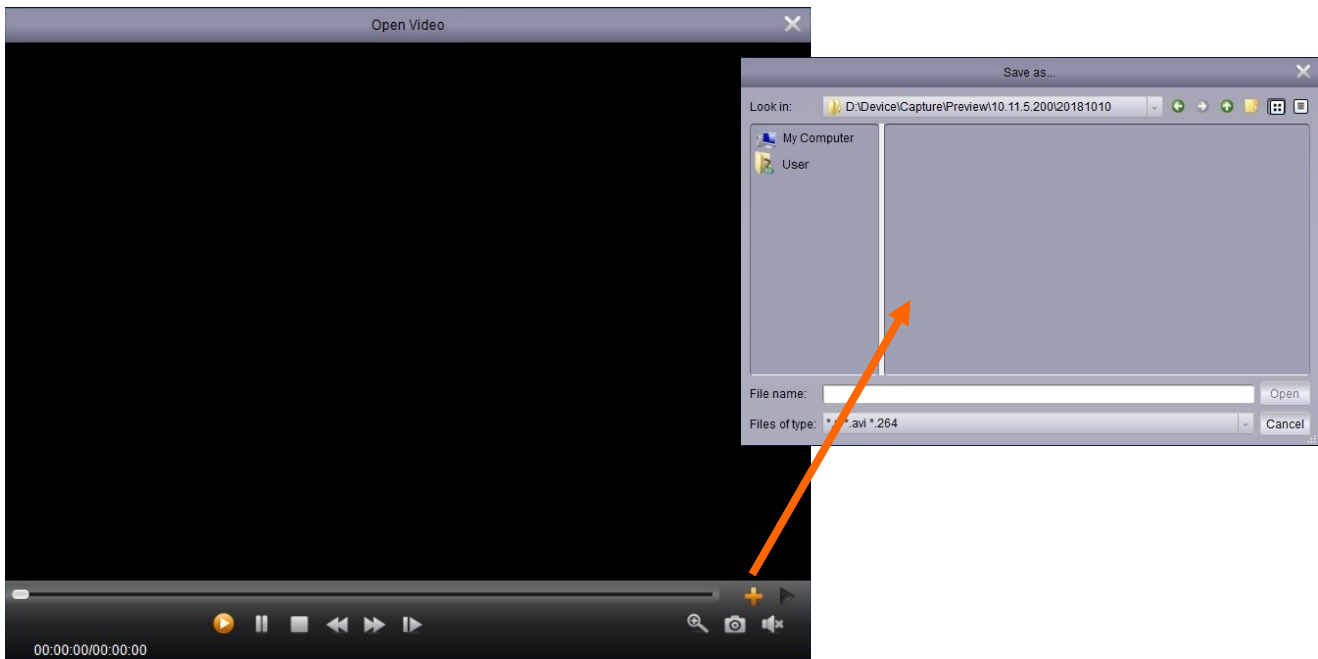
Cancel button closes the backup window.











ARCHIVING AND EXPORTING RECORDS

13.4. Playback of archived recordings

Depending on the type of recordings, various programs for playback are used. Recordings in **AVI** or **MP4** format can be played by popular video players, e.g. VLC media player. The **RF** file is the recorder's own format and requires the NHDR-5000 Viewer or NHDR-AHDPlayer to be played.

After starting the NHDR-5000 Viewer application, choose **File -> Open video file** from the top menu. It will be launched the player shown below. The icon  (Open record file) will display a window to indicate the file to be played.



-  - Play.
-  - Pause.
-  - Stop playback.
-  - Play forward in slow motion (x1/2, x1/4, x1/8, x1/16).
-  - Play forward at an accelerated pace (x2, x4, x8, x16).
-  - Przejście do następnej klatki.
-  - Go to the next frame.
-  - Digital zoom.
-  - Snapshot.
-  - Switch on / off audio.

RECORDER OPERATION BY WEB BROWSER

14. RECORDER OPERATION BY WEB BROWSER

The recorder enables operation via the Internet Explorer web browser.

14.1. Recommended PC configuration

The recommended PC configuration for smooth use of the WWW applet is shown below.

| | |
|------------------|----------------------------------|
| Operating system | Windows 7, Windows 8, Windows 10 |
| Web browser | Internet Explorer |
| CPU | Intel i5 or better |
| RAM | 4GB or more |

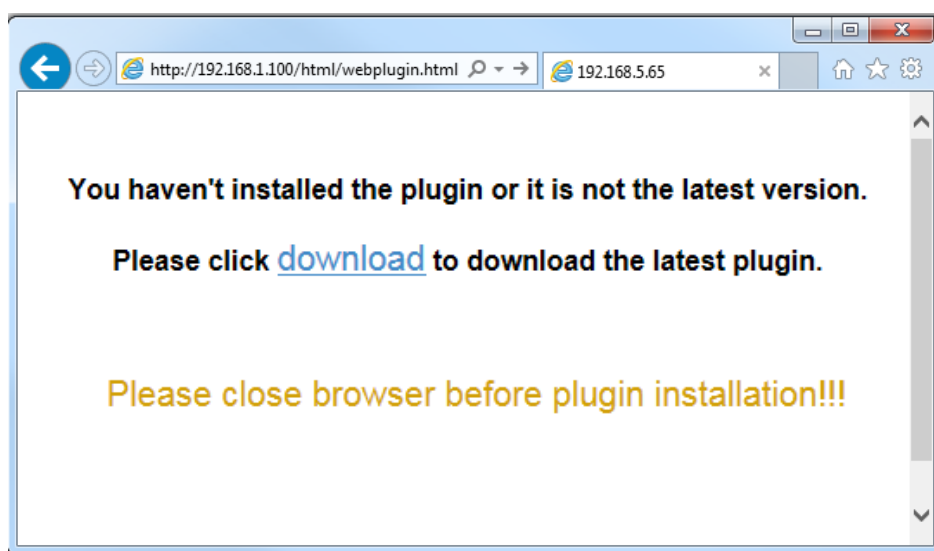
Note! The recorder has a DHCP service enabled by default - the IP address is assigned by the DHCP server. If there is no DHCP server in the network, the recorder has factory set address 192.168.1.100.

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14.2. Installing the WWW applet plugin

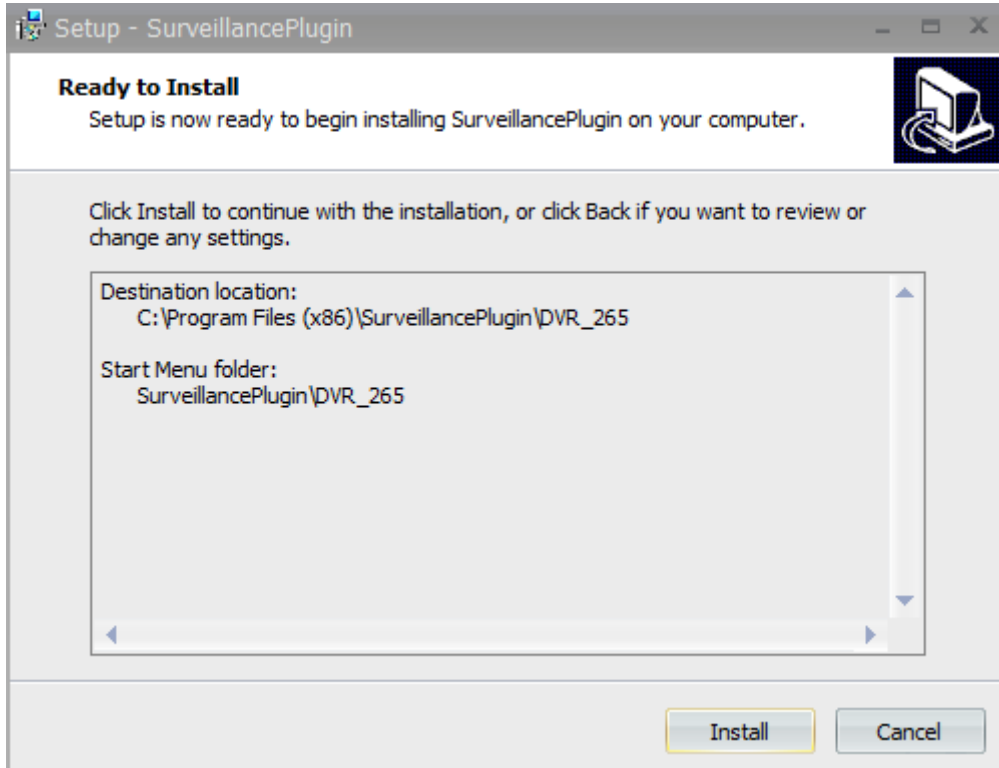
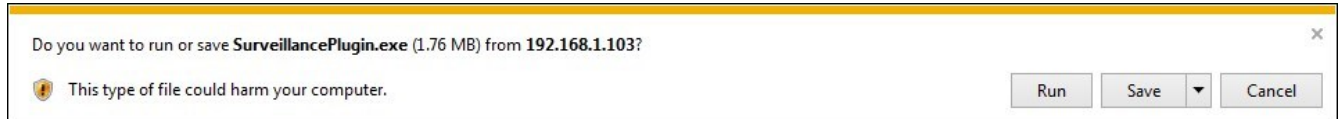
To use the web applet in Internet Explorer browser, the appropriate plug-in is needed. Run the web browser and enter the IP address of the device.

If the connection is correct, the window as below will be displayed.



Click the **download** link and save the "SurveillancePlugin.exe" application. It is necessary to close the internet browser while installing the plugin. The installation wizard will install the plugin.

RECORDER OPERATION BY WEB BROWSER



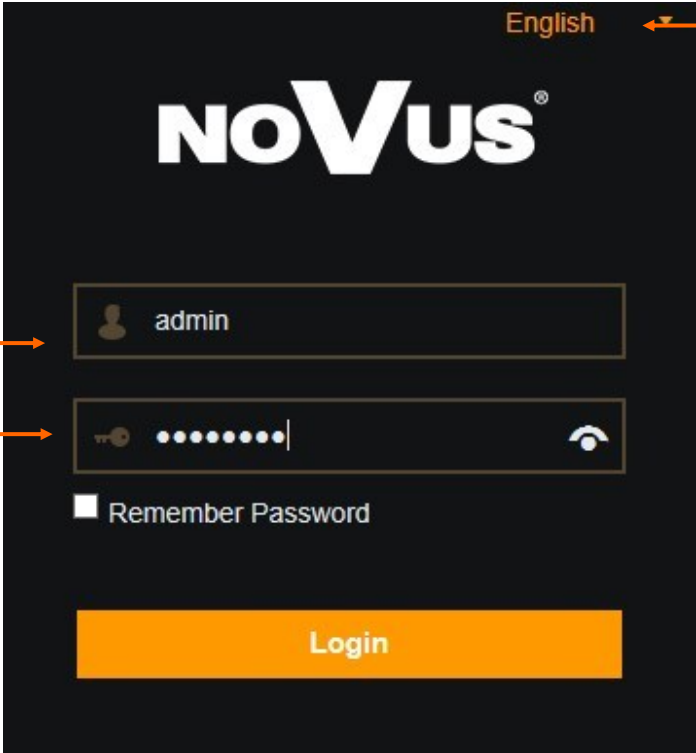
After completing the installation, please run the web browser and re-enter the IP address of the device. If the browser asks for permission to run the "RSVideo.ocx" plug-in, you should agree and refresh the web page.



RECORDER OPERATION BY WEB BROWSER

14.3. Login to the web applet

After correctly installing the plugin and entering the device address, a login window should be displayed. Enter the **User Name** and **Password** in the appropriate fields and press **Login** button to start the device applet. The applet is available in English, Polish Hungarian and Russian languages. Checking the **Remember password** box allow the browser to remember the password.



The screenshot shows the NoVus login interface. At the top right, the word "English" is displayed next to a dropdown arrow, with an annotation "Langauage selection" pointing to it. The NoVus logo is centered at the top. Below the logo, there are two input fields: the first is labeled "User Name" with an annotation pointing to it, and contains the text "admin"; the second is labeled "Password" with an annotation pointing to it, and contains masked characters. Below the password field is a checkbox labeled "Remember Password". At the bottom is a large orange button labeled "Login".

English ← Langauage selection

User Name → admin

Password →

☐ Remember Password

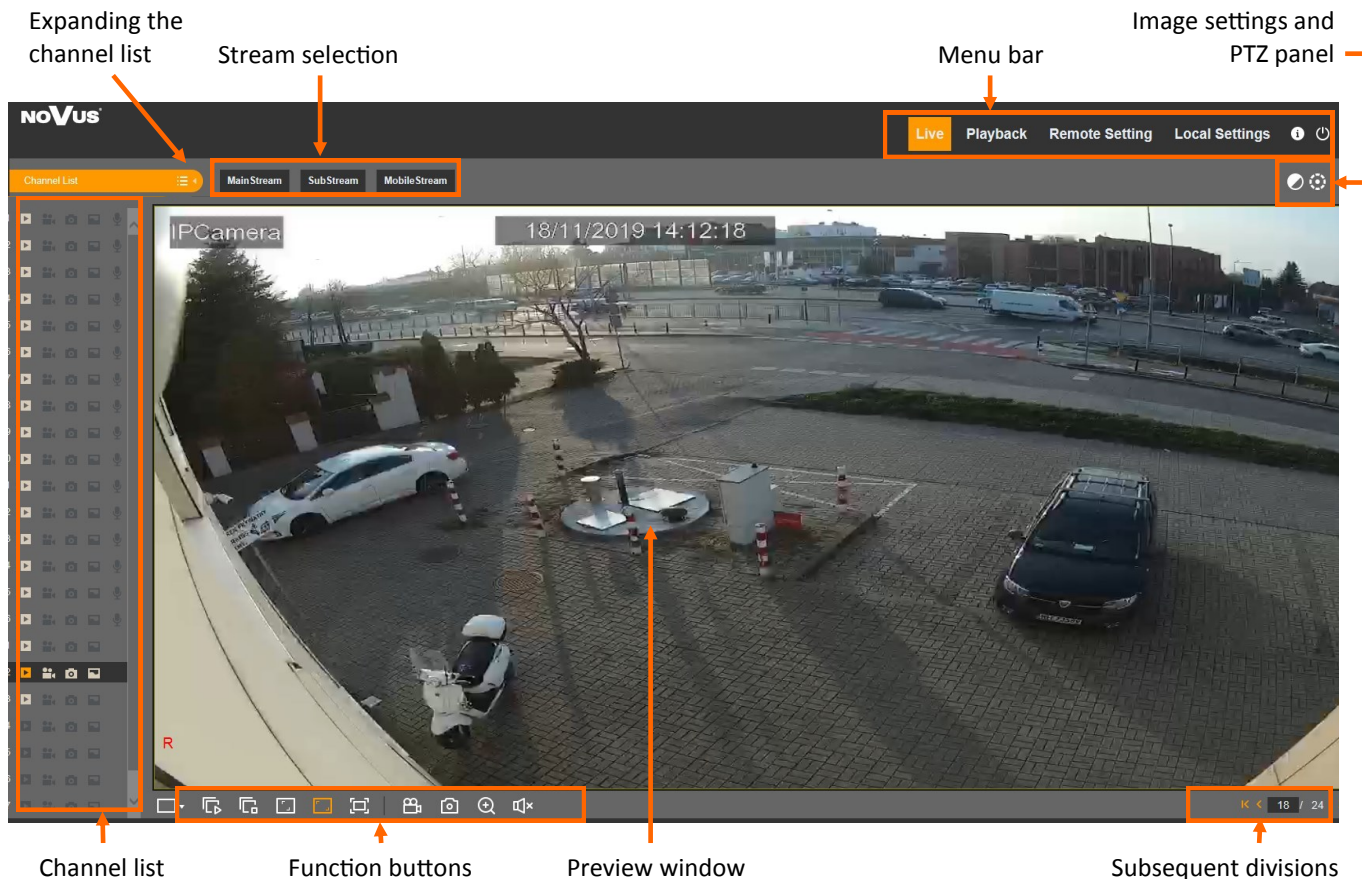
Login

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RECORDER OPERATION BY WEB BROWSER

14.4. Live Preview window

After logging in, the "Live" window will be displayed, as shown below.



- **Channel list:**



- Expands the channel list.

- Collapses the channel list.

- **Stream selection:** stream selection to be displayed in the preview window (**MainStream**, **SubStream** of **MobileStream**).

- **Menu bar:**

Live - live view window presented above.

Play - the playback window of recordings

Remote Setting - the settings window, corresponding to those from the main menu of the recorder.

Local Settings - paths for saving files archived using the applet.













- Displays information about the logged-in user and the version of the plugin

- Log out of the applet

RECORDER OPERATION BY WEB BROWSER

• Function buttons

-  - Switches the screen divisions.
-  - Turns on displaying of video channels in the preview window.
-  - Turns off displaying of video channels in the preview window.
-  - Displays the image in its original proportions.
-  - Fits the image to the video window.
-  - Turns on display in full-screen mode.
-  - Starts recording a clip from a selected video channel.
-  - Saves a snapshot of the image from a selected camera to a PC.
-  - Digital zoom.
-  - Turn on / adjust the volume of audio transmission.

• Image settings

Adjusting image parameters

Restores the default settings

Refresh settings

Color

Hue125

Bright130

Contrast132

Saturation100

Sharpness64

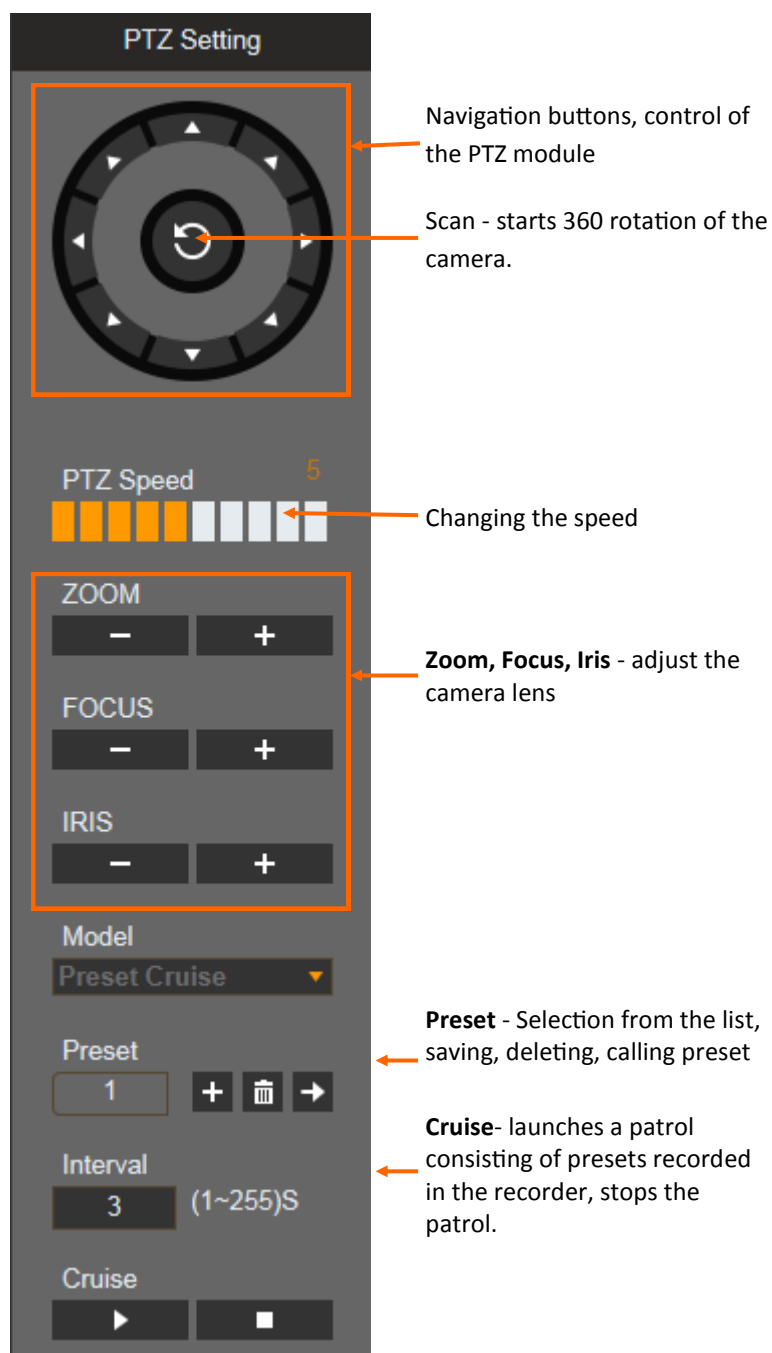
Default

Refresh

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RECORDER OPERATION BY WEB BROWSER

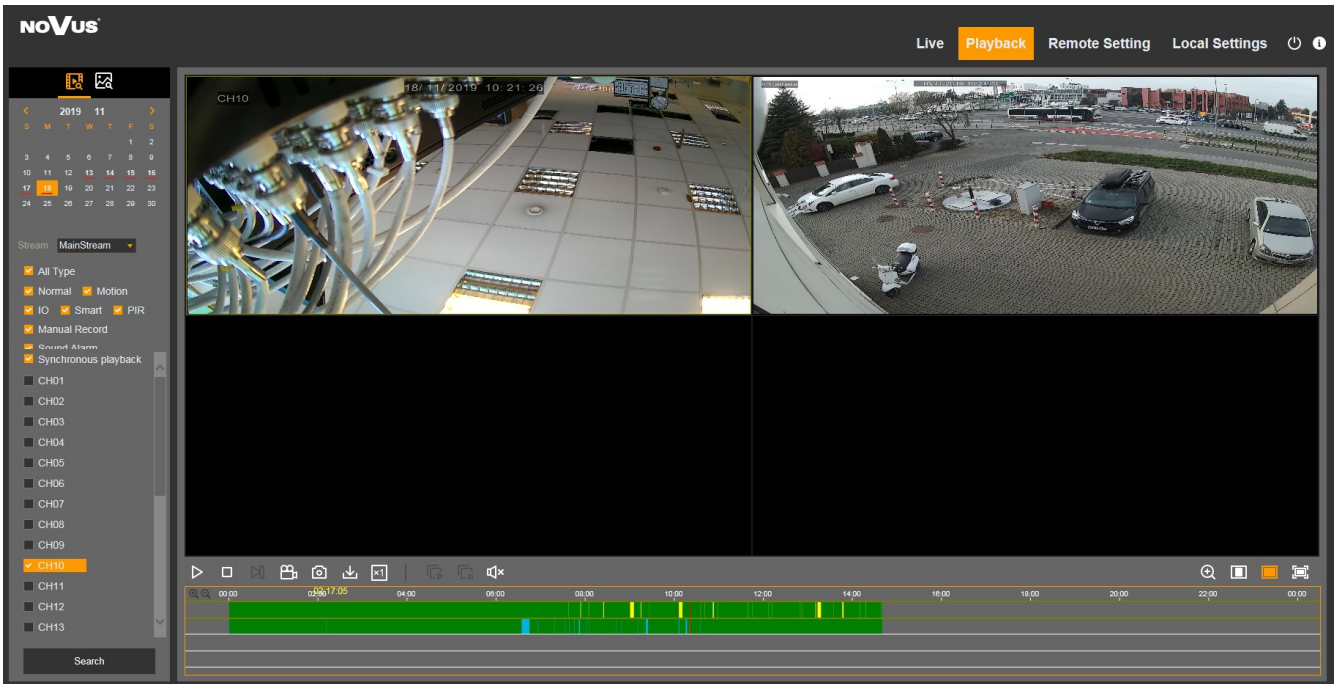
- **PTZ panel settings**



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14.5. Playback window

Pressing the **Playback** button switch to the recordings playback panel. The recorder enables remote playback of up to 16 streams.



The icons in the upper left corner allow to switch between viewing video recordings and saved pictures.

To start playback, select the desired day on the calendar (the days with records are underlined in red), and then select the type of stream to be played (**MainStream** or **SubStream**).

Then select the type of recordings to be played (**All Type**, **Normal**, **Motion**, **IO**, **Smart**, **PIR**, **Manual Record**, **Sound Alarm**, **Occlusion Detection**) and the channels to play and press the **Search** button. Available recordings will be shown on the timeline. Green color means recordings in normal mode, red - alarm recordings, yellow - motion detection, blue - intelligent analysis, purple - PIR detection.

Before playing, the user may select the **Synchronous playback** option, which enables synchronous playback of recordings for all selected channels. Otherwise, the playback time will be independent for each channel.















Pressing  button starts playback.

Moving the mouse cursor through the time line, the indicated time is displayed. Pressing left button starts playing from selected point. It is possible to narrow and extend the time range using the mouse wheel. It allows to search for recordings precisely.

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The navigation buttons bar is shown below.




-  - Playing recordings \ pause.
-  - Stop playback.
-  - Play frame by frame.
-  - Recording a clip.
-  - Screenshot.
-  - Downloading video files.
-  - Selection of the playback speed: x1/8 x1/4 x1/2 x1 x2 x4 x8.
-  - Starting playback on all windows.
-  - Stop playback on all windows.
-  - Turn on/off audio playback.
-  - Digital zoom.
-  - Displaying the image in the original proportions.
-  - Adjust video to the window.
-  - Display the image on full screen (to close press the ESC key).

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RECORDER OPERATION BY WEB BROWSER

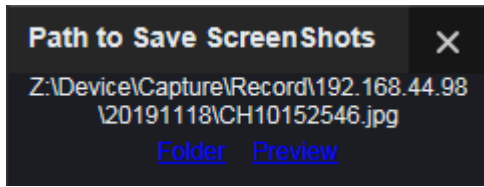
14.6. Recording a video clip

In "live" mode and during playback, pressing the  button starts recording a video clip. Pressing this button again completes the creation of the video clip. The write path and file format (**rf**, **AVI**, **MP4**) are set in the **Local Settings** tab. Information about the saved recording appears in the lower right corner.



14.7. Screenshot

In "live" mode and during playback, pressing the  dumps the image of the selected video channel. The write path and file format (**BMP**, **PNG**, **JPG**) are set in the **Local Settings** tab. Information about the saved recording appears in the lower right corner.



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14.8. Downloading video files

Pressing the button allows downloading of selected video files from recorder. After pressing it a window like below will appear enabling selection of files to download.

| | <input type="checkbox"/> | Start Time | End Time | Status | File Size |
|----|--------------------------|---------------------|---------------------|--------------------|-----------|
| 1 | <input type="checkbox"/> | 2019-11-14 00:00:00 | 2019-11-14 00:05:31 | Unable to Download | 249.29M |
| 2 | <input type="checkbox"/> | 2019-11-14 00:05:31 | 2019-11-14 00:11:08 | Unable to Download | 253.75M |
| 3 | <input type="checkbox"/> | 2019-11-14 00:11:08 | 2019-11-14 00:16:45 | Unable to Download | 253.64M |
| 4 | <input type="checkbox"/> | 2019-11-14 00:16:45 | 2019-11-14 00:22:22 | Unable to Download | 253.41M |
| 5 | <input type="checkbox"/> | 2019-11-14 00:22:22 | 2019-11-14 00:27:59 | Unable to Download | 253.59M |
| 6 | <input type="checkbox"/> | 2019-11-14 00:27:59 | 2019-11-14 00:33:36 | Unable to Download | 253.48M |
| 7 | <input type="checkbox"/> | 2019-11-14 00:33:36 | 2019-11-14 00:39:13 | Unable to Download | 253.50M |
| 8 | <input type="checkbox"/> | 2019-11-14 00:39:13 | 2019-11-14 00:44:50 | Unable to Download | 253.83M |
| 9 | <input type="checkbox"/> | 2019-11-14 00:44:50 | 2019-11-14 00:50:27 | Unable to Download | 253.86M |
| 10 | <input type="checkbox"/> | 2019-11-14 00:50:27 | 2019-11-14 00:56:04 | Unable to Download | 253.72M |

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Show from 1 to 10, total 412. Per page : 10

Start Download

Stop Download

Note! The recorder archives the recordings in segments. The maximum segment size is 254MB. The archived material can also be divided into segments.

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Mark the checkboxes corresponding to the period to be downloaded. Then press **Start download** button. The **Status** column will display information about the percentage of download progress, when the download has been completed, or whether the file has been downloaded. The write path and file format (**rf**, **avi**, **mp4**) is set in the **Local Settings** tab.

14.9. Remote Settings

The **Remote Settings** panel contains most of the recorder settings. It enables remote configuration of its parameters.

Note that not all recorder options are available through the web applet. For example, the option to format disks is available locally only. The menu layout corresponds to the main menu of the recorder. A detailed description of the functions is in the chapter describing the main menu of the recorder.

14.10. Local Settings

Local settings allow to select file save paths.

Record Path - specifies where video clips are saved.

Download Path - specifies where the video files are downloaded.

Snapshot Path - specifies where snapshots are saved.

File Type - defines the video file format (**rf** (recorders format), **AVI**, **MP4**).

Capture Type - defines the picture file format (**BMP**, **PNG**, **JPG**).

Local Settings

Record Path

Download Path

Snapshot Path

File type

Capture Type

Save



Note! The manufacturer reserves the right to printing errors and technical changes without prior notice.



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