User's manual

NV-DVR3009
NV-DV3016

NOVUS®

INFORMATION

EMC (89/336/EEC) and LVD (73/23/EEC) Directives

CE Marking

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

- Electromagnetic compatibility EMC 89/336/EEC with further amendments

- Low-voltage LVD 73/23/EEC with further amendments. This directive applies to electrical equipment designed for use with a voltage rating of between 50VAC and 1000VAC as well as 75VDC and 1500VDC.

WEEE 2002/96/EC Directive

Information for users who want to get rid of electrical and electronic appliances

This product is marked according to the European Directive on Waste Electrical and Electronic Equipment (2002/96/EC) 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.

2002/95/EC RoHS Directive

Out of concern 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, have been designed and manufactured in compliance with the above mentioned regulation. Simultaneously, we claim that our products have been tested and do not contain hazardous substances whose exceeding limits 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 any defects or damages resulting from improper, or inconsistent with user's manual, installation of the device in the system.

CRUCIAL INFORMATION

ATTENTION!

THE KNOWLEDGE OF THIS USER'S MANUAL IS AN INDESPENSIBLE CONDITION OF A PROPER MULTIPLEXER OPERATING. YOU ARE KINDLY REQUESTED TO FAMILIARIZE YOURSELF WITH THIS MANUAL BEFORE STARTING THE DEVICE.
THE MANUAL SHOULD BE KEPT FOR FUTURE USE.

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WARNING !
IN ORDER TO PROTECT YOURSELF AGAINST THE RISK OF FIRE OR ELECTRIC SHOCK YOU NEED TO AVOID PLACING THE DEVICE IN HUMID AND DUSTY PLACES.

CAUTION!
THE COVER MUSTN'T BE TAKEN OFF. ANY SELF-REPAIRS MUSTN'T BE EXECUTED.
ALL REPAIRS CAN BE EXECUTED ONLY BY QUALIFIED STAFF OF THE AUTHORISED NOVUS SERVICE.

CAUTION!
THE MULTIPLEXER IS SENSITVE TO STATIC CHARGES, THAT IS WHY IT HAS TO BE USED ACCORDING TO DEVICE OPERATION RULES BASED ON CMOS/MOSFET SYSTEMS.

INFORMATION

All the data included in this manual are up to date at the moment of printing this manual. Novus Security Sp. z o.o. reserves the right to amend this manual. The producer reserves the right to modify multiplexer's parameters and change its design without notice.

SAFETY REQUIREMENTS

1. The installation of NV-DVR3009 or NV-DVR3016 should be carried out by a qualified service person or a professional safety system installer.

2. Multiplexers mustn't be placed in places where ventilating holes are partially or fully covered.

3. User's interference inside the device is not allowed and is unnecessary as it does not have any systems which require adjusting or which are suitable for self-repair. You mustn't dismantle the multiplexer or remove any single fastening screws. If any repairs are necessary contact the service. The device must be take care of and protected against any mechanical damage.

4. The multiplexer has to be protected against humidity and dust. In case the multiplexer had a contact with water react immediately: switch off the power supply and contact the authorised Novus service. If the device gets dirty it might get damaged or electrocute someone.

5. The device can only be cleaned with a damp cloth after the power supply has been switched off. Avoid strong detergents (liquids and sprays). Mild detergents can be used if the multiplexer becomes very dirty.

6. Power supply unit cords and signal cords should be laid in a way that eliminates the risk of mechanical damage; special attention should be paid to the plug. Be careful not to overload sockets and extension cords so that there is no fire.

7. To avoid multiplexer's damage vision and control signals should be equipped with systems protecting against disturbances, over voltage and atmospheric discharge that are in compliance with Polish regulations. It is also advised to use ground loop isolators.

8. The device mustn't be used in conditions which do not fulfil operating requirements as far as power supply, relative humidity or air temperature are concerned.

9. You cannot allow any metal objects get inside the multiplexer. It might cause serious damage. If a metal object gets inside the device contact the authorised Novus service immediately.

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1. FOREWORD INFORMATION

1.1 Main Characteristics

- ✍ MPEG4 compression with configuration of image quality parameters.
- ✍ Recording speed of up to 100 frames per second.
- ✍ Straightaway access to any part of the recorded material thanks to advanced search functions.
- ✍ Easy-to-use SHUTTLE / JOG system for browsing the material.
- ✍ Multi-language system menu displayed on the screen.
- ✍ Multi-level system of user rights and passwords.
- ✍ Possibility of remote control, including PTZ cameras, Ethernet (TCP/IP protocol) network view
- ✍ Pre- and Post-Alarm functions.
- ✍ Defined recording speed separately for each camera and different recording mode.
- ✍ Schedule programming with the possibility of combining different recording modes.
- ✍ USB mouse control
- ✍ RS-485 port for remote PTZ camera control.
- ✍ RS-422 port for remote control from the level of NV-KBD60 system keyboard.
- ✍ Real time display of images from all the inputs.
- ✍ Possibility of copying files onto USB carrier, swappable disk, DVD
- ✍ Possibility of recording 4 audio channels in real time.

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FOREWORD INFORMATION

1.2. NV-DVR3009 / NV-DVR3016 technical data

	NV-DVR3009	NV-DVR3016
Work mode	quadroplex (simultaneous recording, live monitoring, playback and networking)	
Video Inputs	9 loop-through inputs (BNC), 1Vp-p/75 Ω	16 loop-through inputs (BNC), 1Vp-p/75 Ω
Video Outputs	1 x BNC - main monitor 1 x S-video - main monitor 1 x VGA - main monitor 1 x BNC - spot monitor	
Audio Inputs/Outputs	4 RCA mono inputs, próbkowanie 8kHz / 1 RCA output	
Alarm Inputs	9 TTL inputs	16 TTL inputs
Alarm Outputs	4 fully configurable relay TTL outputs	
Recording Resolution	720 x 288, 360 x 288 (PAL), defined separately for each channel	
Compression	MPEG-4 (5 levels)	
Recording Speed	from 1 frame/s to 50 frames/s (or 100 frames/s for 360 x 288 resolution), defined separately for each channel	
Recording Mode	continuous, according to schedule, started by an alarm or/and motion detection	
Display Speed	real-time, 25 frames per second per channel (up to 225 frames per second for the 9 split)	real-time, 25 frames per second per channel (up to 400 frames per second for the 16 split)
Motion Detection	30x24 grid with adjustable sensitivity and object speed (independent for each camera)	
Schedule	separate setting for each day of the week, separate setting for each camera, separate setting for specific days (holidays etc.), possibility of combining different recording modes, resolution 1h	
Archive Search	by date/time or events; recordings and recording copies search	
Event Register	up to 25 000 events (loss of video signal, power loss, full disk, motion detection)	
Display Format	1, 4, 6, 8, 9, PiP, sequence, freely defined by user, digital zoom of a selected image x2, x3, x4	1, 4, 6, 8, 9, 13, 16, PiP, sequence, freely defined by user, digital zoom of a selected image x2, x3, x4
Signal Loss Detection	yes	
Disks	possibility of installing up to 4 disks (up to 500GB each, one in the swappable bay)	
Recording Copying	onto CD/DVD, onto Flash memory, onto HDD via USB port, via computer network	

FOREWORD INFORMATION

	NV-DVR3009	NV-DVR3016
External	1 x Ethernet - RJ-45 connector, 10Mbit/sec, 1 x USB to connect external memory carriers 1 x IEEE1394 to connect external memory carriers 1 x RS-485 - to connect speed dome cameras 2 x RS-422 to control the multiplexer from the level of system keyboard	
PTZ Control	directly from the multiplexer and via the network	
Camera Control Protocols	Novus-C, Novus-C1, Novus-C2, Pelco-D, LG, Lilin, Samsung and others	
Operation	front panel, IR remote control, USB mouse, computer network	
Menu	displayed on the screen	
Password Authorization	8-digit passwords, 16 independent user accounts	
Auto System Recovery	Hardware Watchdog Function	
Power supply	110~230 VAC	
Power Consumption	63VA (without disks), about. 78VA with 1 disk	
Dimensions	432x88x427	
Weight	8,9 kg	
Operating Temperature	5°C~ +40°C;	
Relative Humidity	30%~80~(non-condesning)	
Rack Mount	Yes	

STARTING THE DEVICE

2. STARTING THE DEVICE

2.1 Unpacking the Device

Please act carefully when unpacking.
Make sure if the following things are included.

NV-DVR3009
or NV-DVR3016

IR Remote Control

Power Cord

IDE Data Cable

Rack mounting bracket

Swappable Bay Keys

4 Rubber Feet

CD with User's Manual and
Network Software

Alarm Input Screw Terminal(s)
(1 or 2 pieces depending
on the model)

Alarm Input and Camera
Control Screw Terminals
(2 pieces)

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If any of the elements has been damaged during transport, pack ale the elements back into the original packaging and contact your supplier.

ATTENTION!

If the device has been taken from a room with lower temperature you have to wait until it warms up to the temperature in the room where it will work. You mustn't switch the device on after it has been taken from a colder room. Condensation of steam, present in the air, might cause short circuit and, consequently, damage the device.

2.2   Electrical connection and other back panel elements

NV-DVR3016
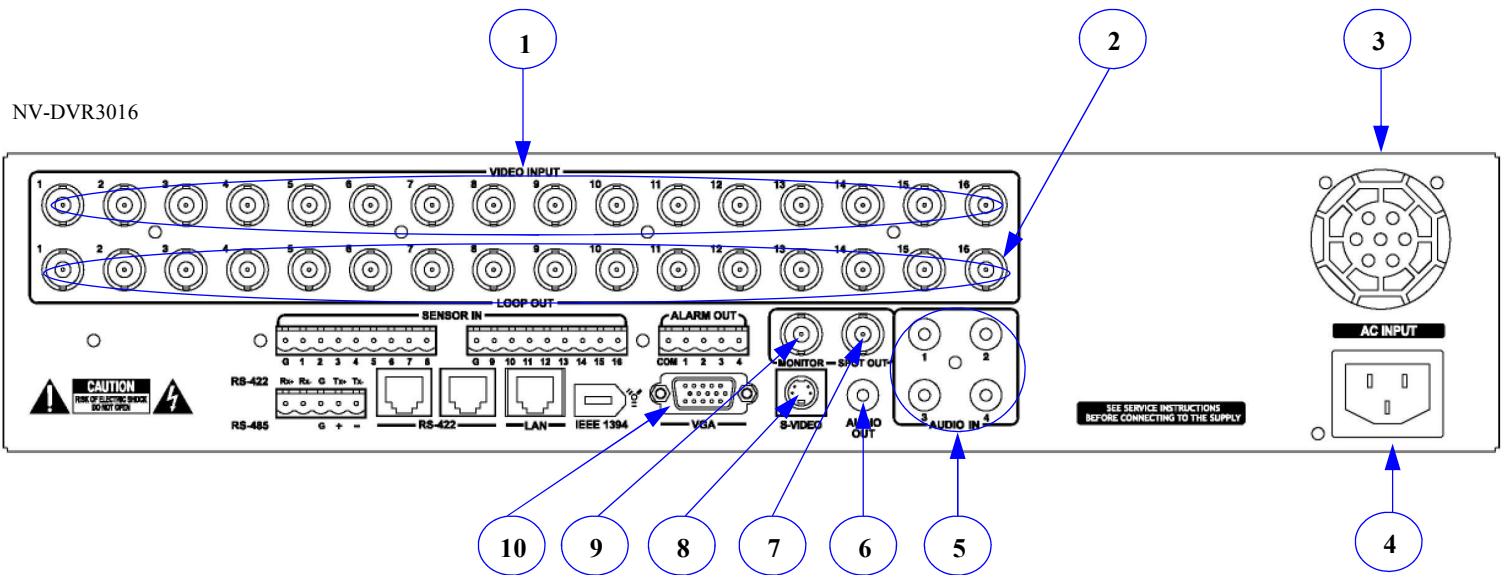
1. **VIDEO INPUT**   video inputs for camera video signal, 16 or 9 depending on the model.

2. **LOOP THROUGH** loop through video output, 16 or 9 depending on the model.

3.   fan cooling power supply unit, it shouldn't be covered!

4. **AC INPUT**   network cord socket;

5. **AUDIO IN**   audio inputs for 4 audio channels, use dynamic microphones;

6. **AUDIO OUT**   audio output to connect a loudspeaker;

7. **SPOT OUT**   output to connect spot monitor, Color Video Baseband Signal (CVBS); only full screen display;

8. **S-VIDEO**   output to connect main monitor via S-Video connector;

9. **MONITOR**   main monitor connector, Color Video Baseband Signal (CVBS);   it is possible to choose one of many display

10. **VGA**   main monitor connector via VGA,

ATTENTION: Not all LCD monitors work with the multiplexer using VGA output. Before you connect the monitor make sure it operates in the 720x576 50Hz format or contact your Novus distributor.

STARTING THE DEVICE

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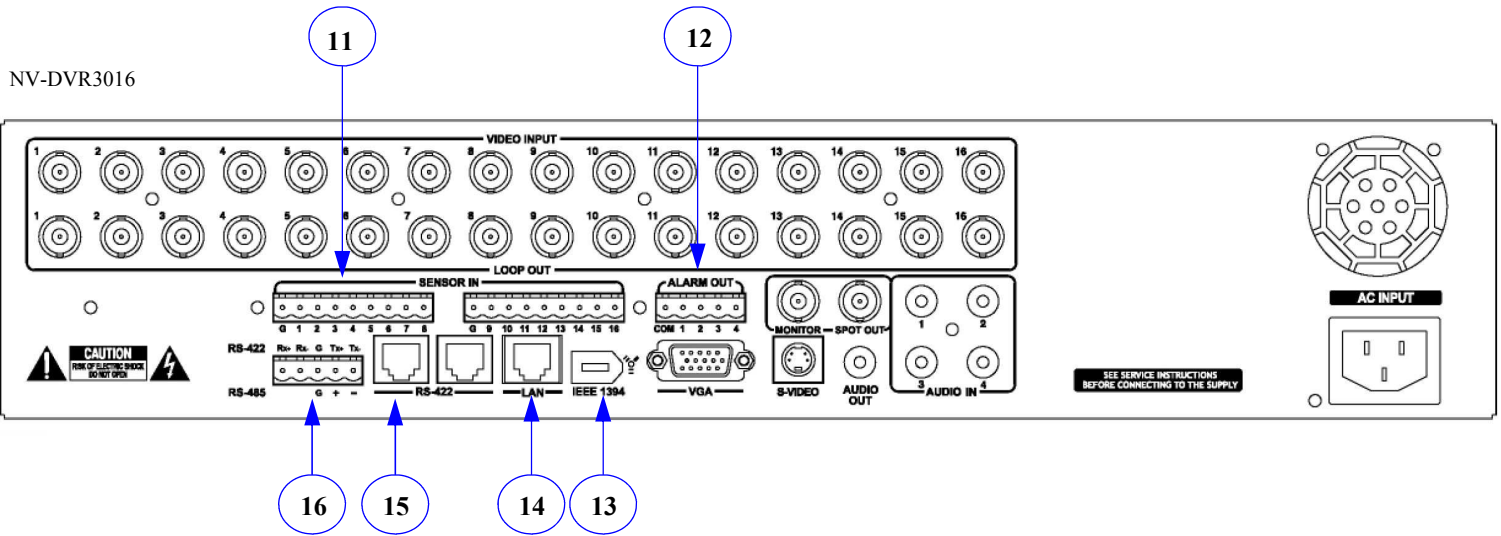
11.	**SENSOR IN**	alarm inputs, which can be set from the menu level as normally open (N.O.) or normally closed (N.C.), 16 or 9 depending on the model
12.	**ALARM OUT**	4 alarm outputs;
13.	**IEEE1394**	FireWire port input to connect additional HDDs;
14.	**LAN**	RJ-45 connector to connect the multiplexer to the computer network;
15.	**RS-422**	RJ-11 connector of RS-422 interface to connect to system keyboard;
16.	**RS-422 / RS-485**	screw terminal of RS-485 or RS-422 interface to connect PTZ cameras;

2.3 Connecting of Peripheral Equipment

System connecting should be done by a qualified staff. Before connecting system elements you need to familiarise yourself with the diagram presented below, which is a pictorial diagram. Depending on requirements, specific system will consist of a different number peripheral devices. Monitors, cameras and other devices have to be bought separately, depending on your needs. The description concerning connecting external devices can be found in the following chapters of this manual.
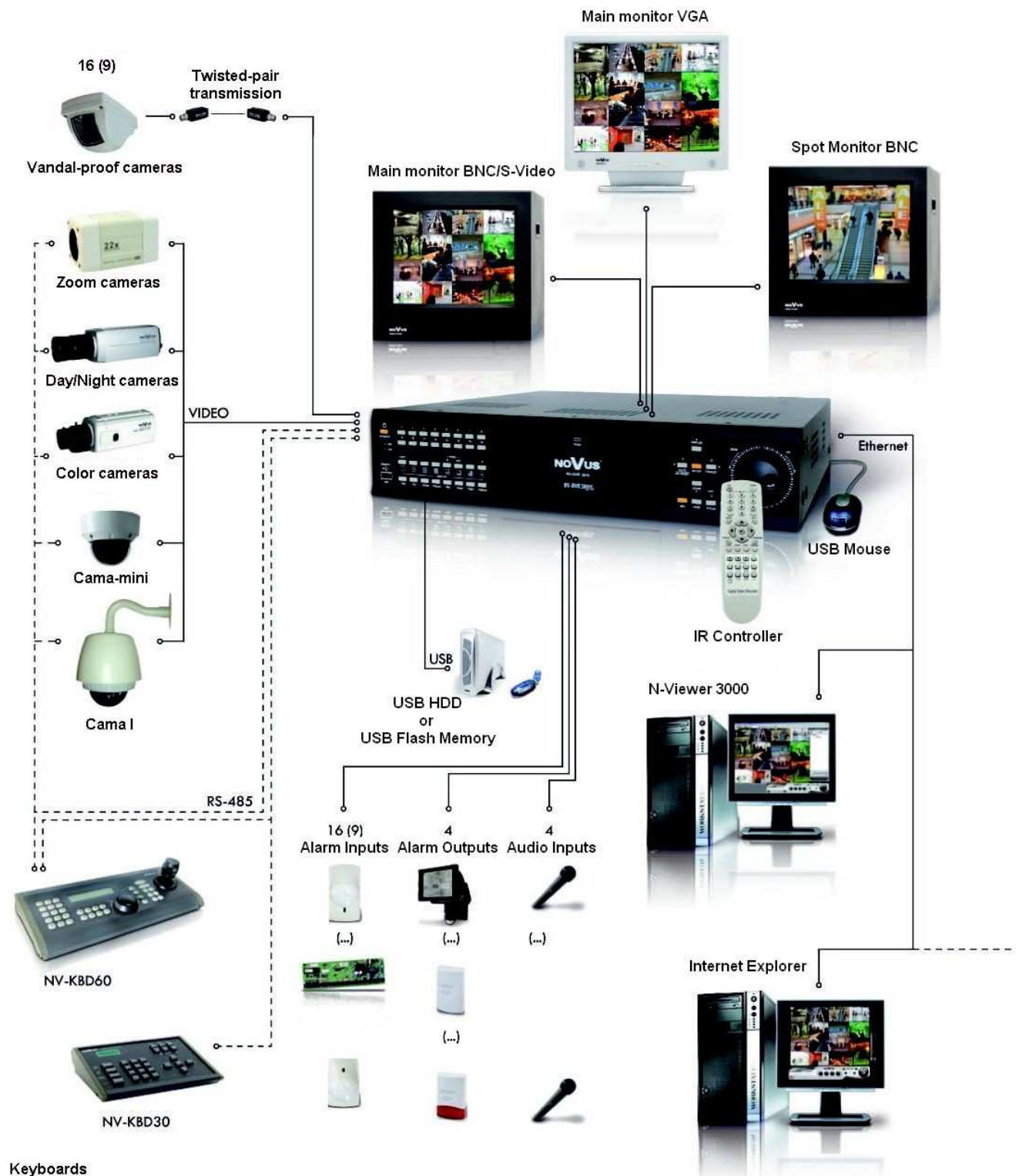
STARTING THE DEVICE

2.4 Front Panel Description

NV-DVR3016

1. **OPERATE ⏻** Switch on/off button. To switch the multiplexer on or off press the button and hold it for about 3 seconds.

2. Channel selection buttons (9 or 16 depending on the model). If you press a button image from a camera, that is connected to this button, is displayed on the screen. The image is displayed in the full screen mode. When you press the buttons in the split screen mode, other combinations of image layout are displayed. These buttons are also used to input user password

3. Swappable bay cover. To open press *PUSH.* If you want to take out or put in HDD make sure the device is switched off. To open and close the swappable bay use the attached keys.

4. **SHUTTLE RING** The Shuttle Ring is used to speed up playback. Playback speed varies and may be increased or decreased by turning the ring.

   JOG DIAL Jog Dial is used to slow down playback. In the configuration mode it is used for going in between menu positions and selecting characters.

5. **DISPLAY** Buttons grouped in the *DISPLAY* section let you choose display mode. Pictograms below the buttons are used to select required split screen. A button ⃞U⃞ allows you to switch on user display mode (LED diode above the button lights up). Particular user screens within a given mode are selected by means of alphanumeric buttons from 1 to 8 (or 6 for NV-DVR3009).

6. **USB** Connector used for connecting external data carrier or mouse.

STARTING THE DEVICE

NV-DVR3016

7.		Signalling diodes. A diode marked as *HDD* informs about disk (disks) operation. *LAN* diode informs about network connection.
8.	**AR RESET / AUTO**	This button allows you to cancel alarm (if menu settings allow you to do this) Pressing this button during live monitoring activates camera sequence on the main monitor. Flickering diode above the button informs us about such a state. In the menu configuration mode the buttons acts as a left cursor.
9.	**SETUP**	Press to enter setup menu. Menu, whose description can be found in chapter No 3 , is displayed on the screen.
10.	**TRIPLEX**	In the playback mode this button, allows you to switch live monitoring mode on one screen. If you access the playback menu in the split screen mode pressing triplex button allows you to display 8 or 15 cameras in live monitoring and 1 (in the lower right corner) playback mode. The camera in the playback mode is marked with a red frame. It is possible to select any channel in the red-frame window. If you access the playback menu in the full screen mode pressing triplex button allows you to display images in the "picture in picture" mode, that is images from a camera are displayed in the live mode, and in its background, in a window with a red frame, images from a camera in the playback mode. In the configuration mode. The Triplex button is used as the "up" cursor.

Pressing *TRIPLEX* button simultaneously with other buttons controls Spot monitor: numeric buttons + *TRIPLEX* selects channels,
COPY button + *TRIPLEX* switches Main monitor Signal on Spot monitor,
AUTO button + *TRIPLEX* switches sequence on Spot monitor.

11.	**FREEZE**	this button allows you to "freeze" any image from any camera both in the live and playback mode. In order to use this function press the button (a diode above the button lights up), next select a camera by means of a numeric buttons, images from which will be "frozen". It can be just one or a few cameras. Pressing numeric button again switches the "freeze" function off. We know whether a particular channel is "frozen" or not thanks to *FR* caption on the monitor within a particular channel. Pressing the freeze button again switches the function off. In the configuration menu. The Freeze button is used as the "right" cursor.
12.		IR wave receiver. Do not obscure.

STARTING THE DEVICE

NV-DVR3016

13. ZOOM   Digital enhancement button. After pressing it, a blue rectangle appears on the screen that specifies the area to be enhanced. Pressing *ENTER* enhances the area 2, 3, and 4 times, and next exit the zoom mode. In order to move the zoom window use cursors. The Zoom button is also used as the "down" cursor.

14. PLAY

ENTER   Playback menu button. When the multiplexer is in the playback mode it is signaled by a lit-up diode above the button. When in the playback mode the button allows you to play back forward. Press it again and playback will be paused. In the configuration mode this button is used as *ENTER* and enables users access settings and edition fields.

15. R PLAY

EXIT   In the playback mode the button allows you to play back recordings in the reverse mode. Pressing it again and the played back recording is paused. In the configuration mode the button is used as *EXIT*.

16. STOP   Stops played back recordings.

17. REC   This button is used to turn manual recording, whose settings are different than those set in the schedule, on. Whether the multiplexer works in this mode or not you are informed by the diode that is above the button. During schedule recording it is not possible to start manual recording.

18.   PTZ camera control button. All the details can be found in Chapter No 8.

2.5 Installation of HDDs

NV-DVR3009 and NV-DVR3016 allow you to install 4 HDDs or 3 HDDs and a CD/DVD recorder. If a recorder is not installed one of the HDDs can be installed in the swappable bay.

ATTENTION: The manufacturer advises the usage of Hitachi or Seagate HDDs.
                        Maximum disk capacity is 500GB each.

ATTENTION: You are not advised to use Samsung or Western Digital HDDs. Novus cannot be held responsible for any problems incurred during the usage of HDDs that are not recommended.

Before installation of HDDs you have to configure their work mode using jumpers. In case there is only one disk installed in the system, it has to be configured as MASTER. In case of two or more HDDs, one of them, connected via the same IDE data cable, has to be set in the MASTER mode, the other in the SLAVE mode. In case of four HDDs, configuration of disks of particular type and producer is described in the manual attached with the disk.

ATTENTION: If the disk has been used before it needs formatting. Otherwise you may experience loss of data.

2.5.1 Installation of HDD in the Swappable Bay

Before installation make sure that the network cable is not plugged in.
Place the configured HDD in the swappable bay and fix it to the bay walls with 4 screws. Put the bay inside the multiplexer and lock it with the key included in the set.

2.5.2 Installation of HDDs Inside the Multiplexer

ATTENTION!

Opening the multiplexer casing invalidates the warranty.
That is why the internal disk should be installed by your supplier's servicing team.

STARTING THE DEVICE

2.6 Switching On/Off

ATENTION: Before you switch the device on make sure that power supply fulfills the requirements of the device. Only then can you plug the multiplexer in.

ATTENTION: Do not cover multiplexer's air vents. It may damage the device and/or cause data loss.

In order to start the multiplexer press and hold the *OPERATE* button for about three seconds. System starting procedure begins. Flickering front panel diodes and a caption on the monitor inform you about this.

> ***NV-DVR3016 system is starting, please wait...***

System loading procedure lasts a few dozen seconds. Do not press any front panel buttons or do not use the remote control during system loading. The procedure is finished when camera images together with their description and system clock appear on the screen.

In order to switch the multiplexer off press and hold the *OPERATE* button for about 3 seconds. The following message appears no the screen.

> **System Message**
>
> **Shutting Down Now...**

After it disappears you can unplug the device.

ATTENTION: Switching the system off in some other way than the one described above is forbidden and may cause data loss or damage the device.

3. MULTIPLEXER'S MENU

NV-DVR3009 and NV-DVR3016 multiplexers have a multilevel menu displayed on the screen that is used for programming multiplexer's settings as well as controlling recording and playback function.
The menu for 9- and 16– channel devices differs in some aspects only, so there are 9 or 16 channels, alarm inputs etc.
In order to access the menu press *SETUP*.
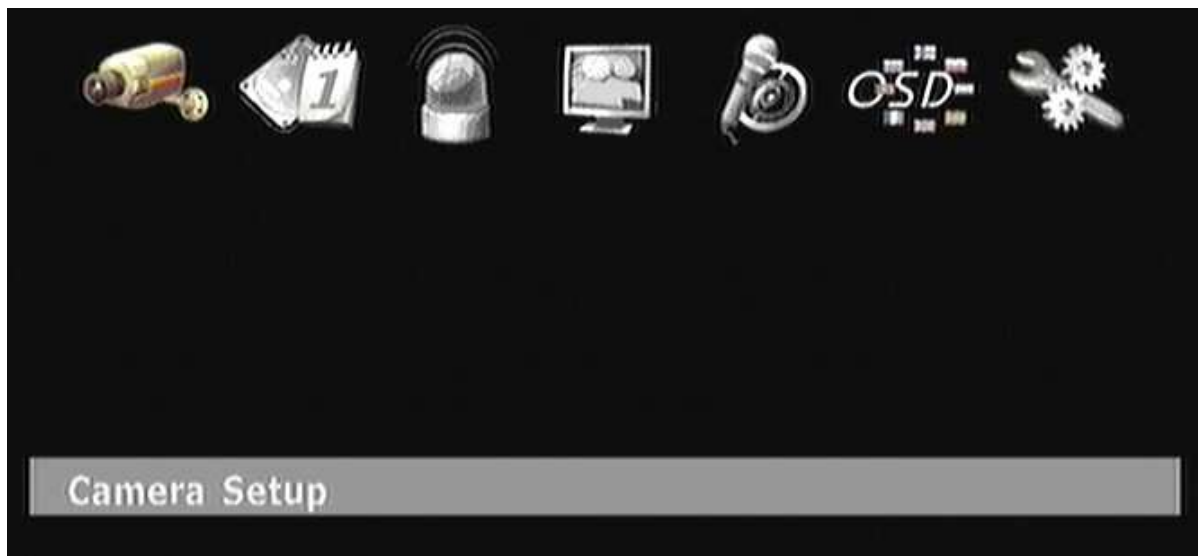
There are seven submenus, symbolized by the icons, in the main menu that is displayed on the screen. Their function is described in the following chapters of this manual.

To move through the menu you can use the *JOG* dial or the following buttons ▼ ▲ ▶ ◀ .
If you select any submenu the color of the icons changes color.

To accept your selection, to enter any of the submenus or to go to editable fields please press *ENTER*.

If you want to change anything use *JOG* dial or arrows.

If you exit the menu it means that you accept the changes that have been made. Rarely does the system require restarting the computer. You will be informed about this by a system message window.

If you exit the menu or submenu press *EXIT*.

Some changes need more time to be incorporated into the system. Then the following icon is displayed

MULTIPLEXER'S MENU

3.1 Camera Setup

There are four submenus concerning camera parameters, and, additionally, one system video choice menu in the *Camera Setup* menu.
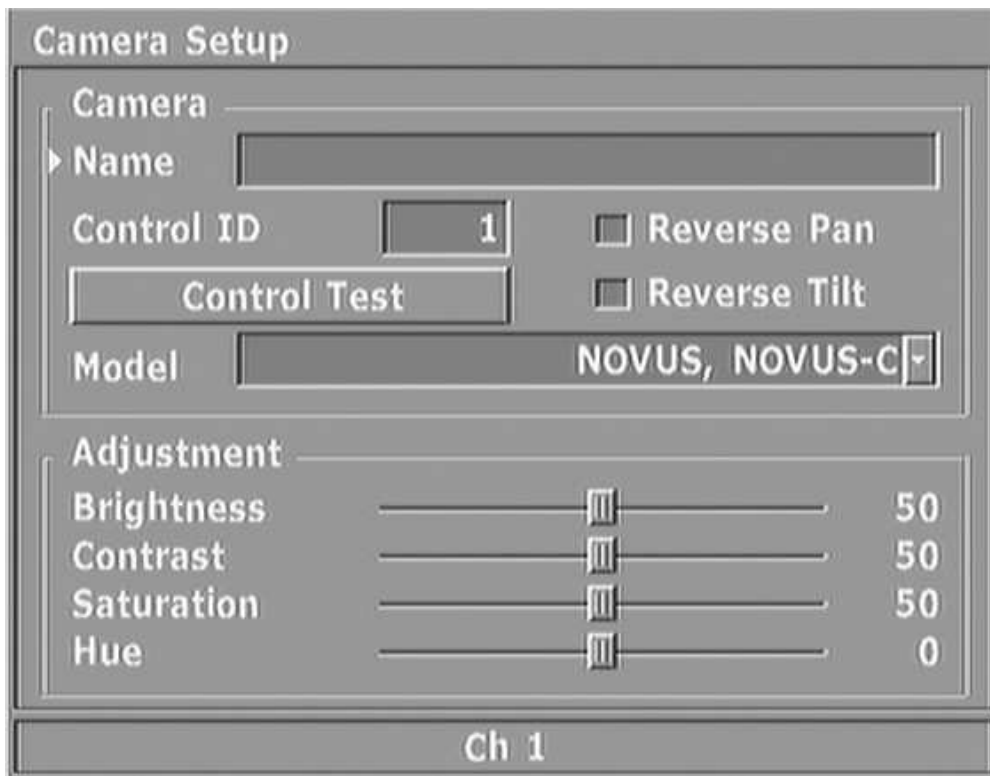
3.1.1 Camera Control

After selecting this submenu and pressing *ENTER* speed dome camera control icons appear on the screen.

Detailed information about speed dome camera control can be found in chapter No 8.

3.1.2 Camera Setup

After entering this submenu setting edition window appears on the screen. This window applies to cameras whose number is displayed on the bottom as *Ch1, Ch2....Ch9* (or up to *Ch16*). In order change the camera whose settings will be edited press one of the numeric buttons.

- In the *Name* field you can input the name assigned to a given channel. The name will be displayed in the left top corner of the image from a given channel. The name can be helpful as far as the finding camera position on the location is concerned. It can be such a name as: *Stairs, Door2, HOUSE*. Generally, it can be any name consisting of 16 characters that can be chosen from the below table.

```
Spacja ! " # $ % & ' ( ) " + , - . / 0 1 2 3 4 5 6 7 8 9 : ; < = > ?
@ A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
[ ? ] ^ _ ' a b c d e f g h l j k l m n o p q r s t u v w x y z { | } ~
```

In case user does not input their own channel name, channels will be named by default: *Ch1.....Ch9 (Ch16)*. Current channel name is displayed at the bottom next to channel number i.e. *Ch1 (Stairway 1)*

- In the *Control ID* field unique camera address is assigned. The address is used for camera identification when sending control commands via RS-485 interface. In case of non-PTZ cameras the value of this parameter does not matter.
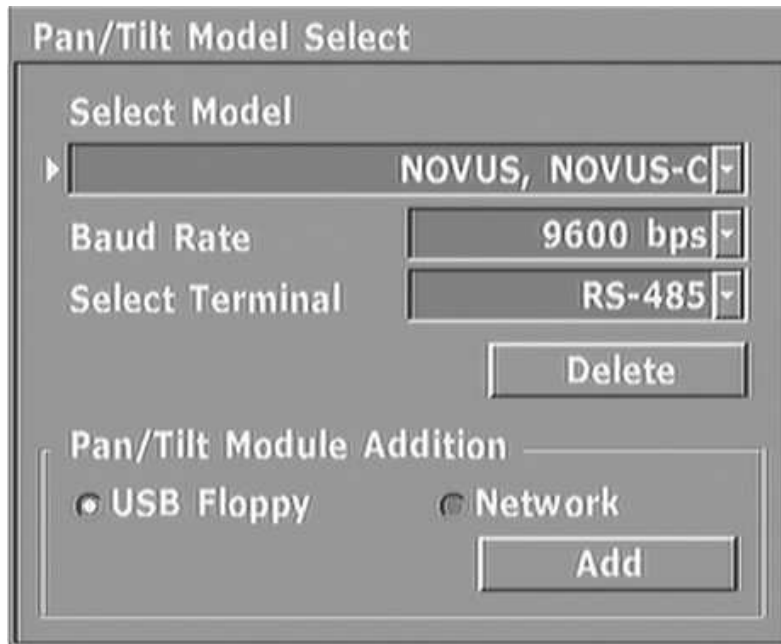
MULTIPLEXER'S MENU

- Ticking *Reverse Pan* makes the PTZ camera react contrary to standard settings when selecting *Turn around* command, that is change in camera turn from "right turn" to "left turn" and the other way round. In case of non-PTZ cameras the value of this parameter does not matter.

- Ticking *Reverse Tilt* makes the PTZ camera react contrary to standard settings when selecting *Tilt* command, that is change in camera tilt from "up" to "down" and the other way round. In case of non-PTZ cameras the value of this parameter does not matter.

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- After entering a drop-down menu, in the *Model* field you can choose one of available telemetry protocols. <u>All the cameras connected with the multiplexer have to use the same protocol.</u> In case of non-PTZ cameras the value of this parameter should be set to *I Have No Controllable Camera*.

- Sliders grouped in the *Image parameters* field are used for individual adjustment of image parameters displayed from particular cameras. After selecting a given parameter and pressing *ENTER* a slider showing current settings status appears at the bottom of the screen. Turning *JOG* dial you can adjust particulars parameters. The changes can be seen in the images displayed in the background without any delay.

3.1.3 Pan/Tilt Model

After entering this submenu setting edition window concerning telemetry protocols is displayed on the screen. In order to assure a proper multiplexer cooperation with PTZ cameras, the settings should be in accordance with the settings in the cameras. In case there are no PTZ cameras in the system, there is no need to make any changes in this submenu.

- In the drop-down *Select Model* menu you select PTZ camera control protocol.

- In the drop-down *Baud Rate* menu you select transmission speed.

- In the drop-down *Select Terminal* menu you select telemetry port, where PTZ commands are transmitted. There are two ports to choose from: *RS-422* and *RS-485.* Both ports are connected with the input screw terminal. In most cases the PTZ camera control should be done via RS-485 port.

- *Delete* is used for deleting a given protocol from the list. After accepting this operation the protocol is not longer available for this device.

- *Add* button is used for loading a new protocol vie USB port or network. If you want to familiarize yourself with the details of this operation and available protocols contact your supplier.

MULTIPLEXER'S MENU

3.1.4 Video Format

Video Format

▶ ⊙ NTSC   ⊙ PAL

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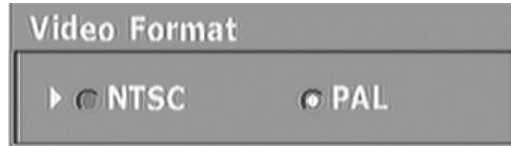
After entering this submenu video system selection window appears on the screen.

You can choose either *PAL* or *NTSC*.
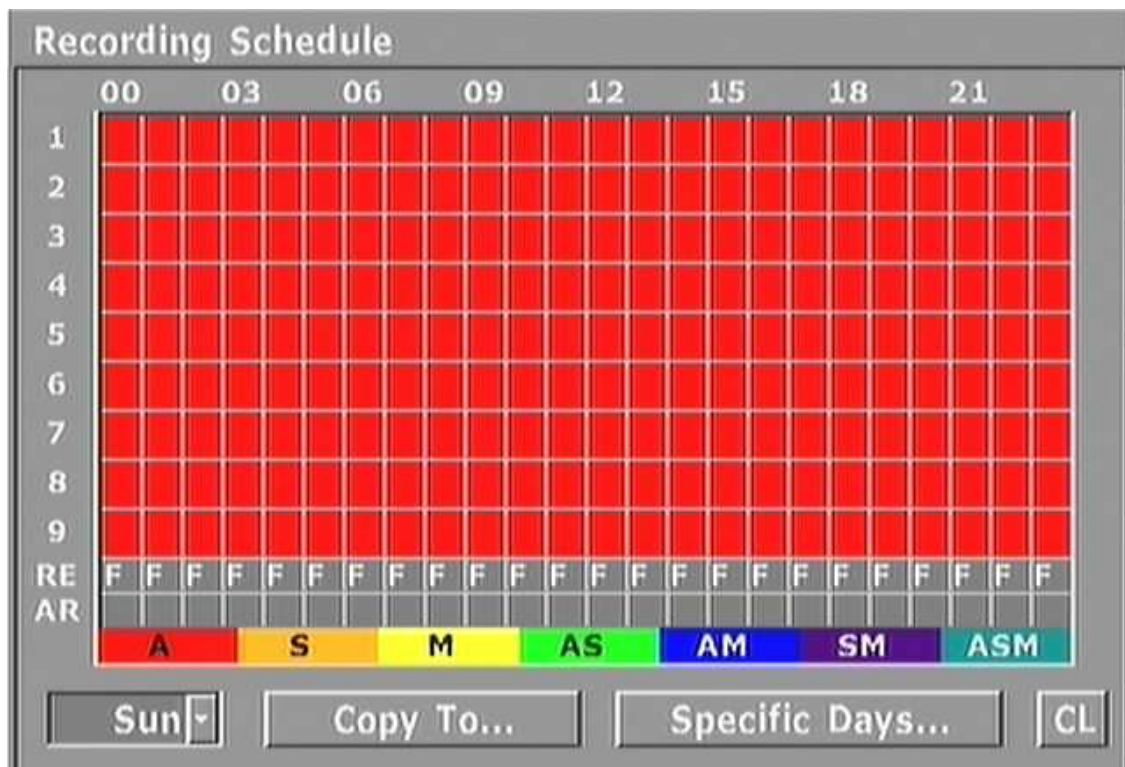
3.2 Recording Setup

there are four recording parameters submenus in the *Recording Setup* menu.

3.2.1 Schedule Recording

NV-DVR3009 and NV-DVR3016 multiplexer have an advanced recording schedule allowing users to differentiate recording parameters for particular weekdays for each camera. In order for the multiplexer to record according to schedule please select *Schedule Recording* in the *Recording Setup* field. You are informed about the fact that the multiplexer works in the schedule mode by a clock icon displayed in the right low corner of the screen.
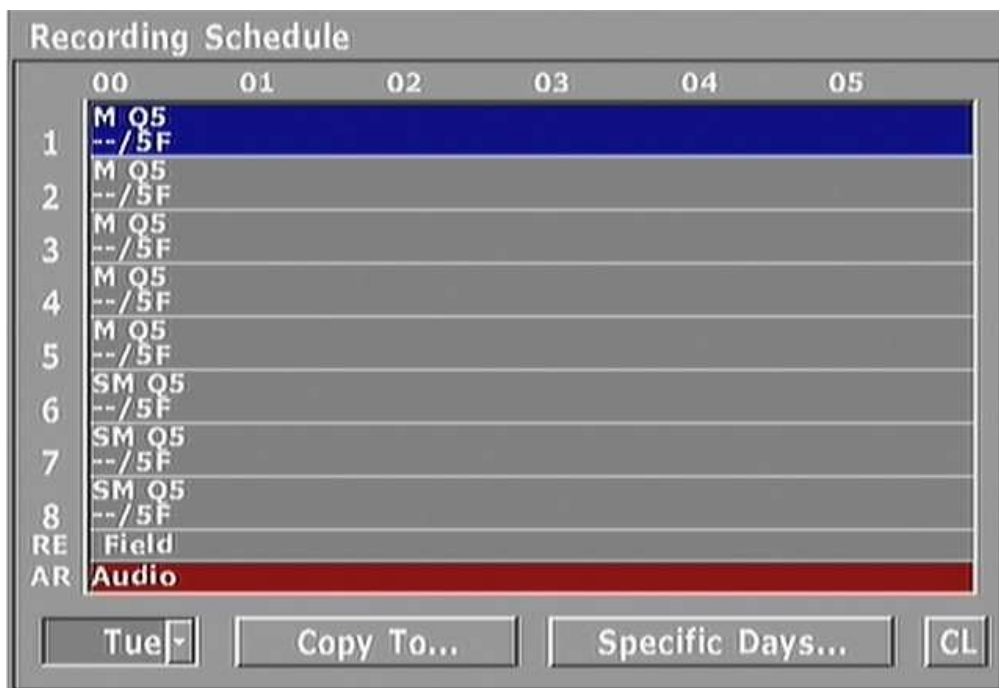After entering *Schedule Recording* submenu a window, similar to the on below, is displayed on the screen.

MULTIPLEXER'S MENU

There is possibility of viewing settings for particular cameras and hours. To do this press $\boxed{U}$ (user split screen).

Below you can find an exemplary schedule in such a version.

Recording parameters are displayed for each camera and each hour. You can move through the hours and channels by means of cursors.

Letter (or letters) represent the following recording modes:
C - continuous
A - alarm
D - motion detection
 Q1t do *Q5* represent the quality of the recording.
1F to *25F* represent recording speed (continuous before the slash, alarm or motion detection after the slash).
The last by one line marked as *RE* indicates the recording resolution.
The last, *A* line informs about the fact if the sound recording for a given camera is switched on.

Detailed information about schedule programming can be found in chapter No 4.

3.2.2 Manual Recording

The multiplexer can record according to schedule or the recording can be switched on and off manually. To record manually please select *Manual Recording* in the *Recording Setup* field.

Recording parameters for manual recording are independent form the schedule parameters. Manual recording parameters are defined in the *Manual Recording* field.


- There is a list of cameras together with recording settings for each of the cameras.

  Letters in the first column specify recording mode, *A*-alarm, *D*-motion detection, *C*-continuous, no letter - images from the camera are not recorded.

  Numbers in the second column specify the quality of the recording: from *Q1* - the lowest to *Q5* - the highest .

  Numbers in the third column specify recording speed in frames per second or frames per minute. The numbers before slash refer to normal recording, the numbers after the slash specifies alarm speed. The last line is used for setting image resolution parameters (*720* - means 720x288 resolution, *360* - 360x288) and audio recording field (*AUDIO*).

MULTIPLEXER'S MENU

- In order to change settings for particular cameras or quality settings select required position and press *ENTER*.
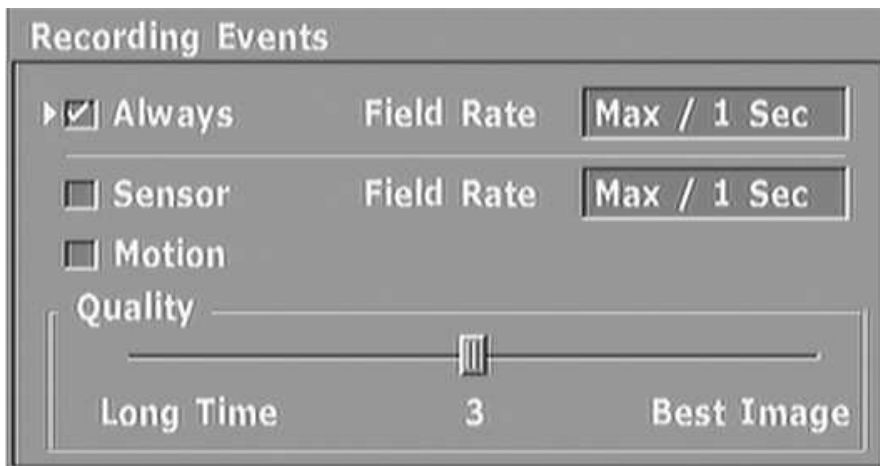

In the first section users choose whether continuous recording should be carried out (*Always*) and set its speed. In the second section users choose whether external alarm recording (*Sensor*) and motion detection (*Motion*) should be carried out and set their speed. In the third section users choose one out of five levels of recording quality.

3.2.3 Events

After entering *Events* submenu, an alarm options setting window and motion detection window for a camera whose number and name are displayed at the bottom appear on the screen.
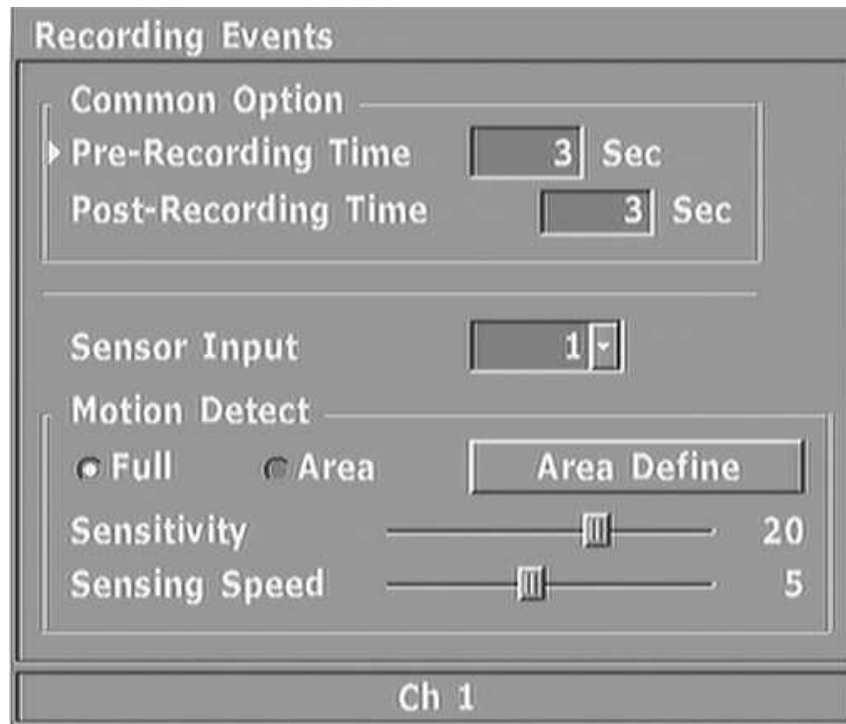
- In the *Common Option* pre– and post– recording time for all the channels is set.
  Pre-recording time is a function allowing for recording of material with alarm parameters (speed and quality) even before the alarm has taken place. Special image buffer is used to this purpose. Depending on the settings, the time of pre-alarm can range from 1 to 15 seconds.
  Post-recording time is a function allowing for recording of material with alarm parameters (speed and quality) up to 99 seconds after the alarm has taken place even if the alarm signal is no longer present.

- In the *Sensor Intput* field there is defined activating of which alarm input causes event recording of particular video channel. Default setting is the same input number that video number is. When more than one video channel has assign the same sensor input number all of them are recorded while sensor activation. For example in order to record 1st, 2nd and 3rd channels after activation 1st sensor input you should set number *1* in a *Sensor Intput* section for all mentioned channels.

- It is possible to define active area and sensitivity for each camera. After ticking *Area* you can access *Area Define*. 30x24 grid appears on the screen. By means of arrows you can select particular grid elements. Pressing *ENTER* activates the element and its color changes to green. Activity will only be analyzed in the active elements—the green ones. In order to deactivate a given grid element you need to select it and press *ENTER*. Selecting *Full* means that the activity is activated for the whole image.
  Users select the camera for which the settings are defined by means of numeric buttons.

MULTIPLEXER'S MENU

After selecting *Sensitivity* test activity grid is displayed on the screen.
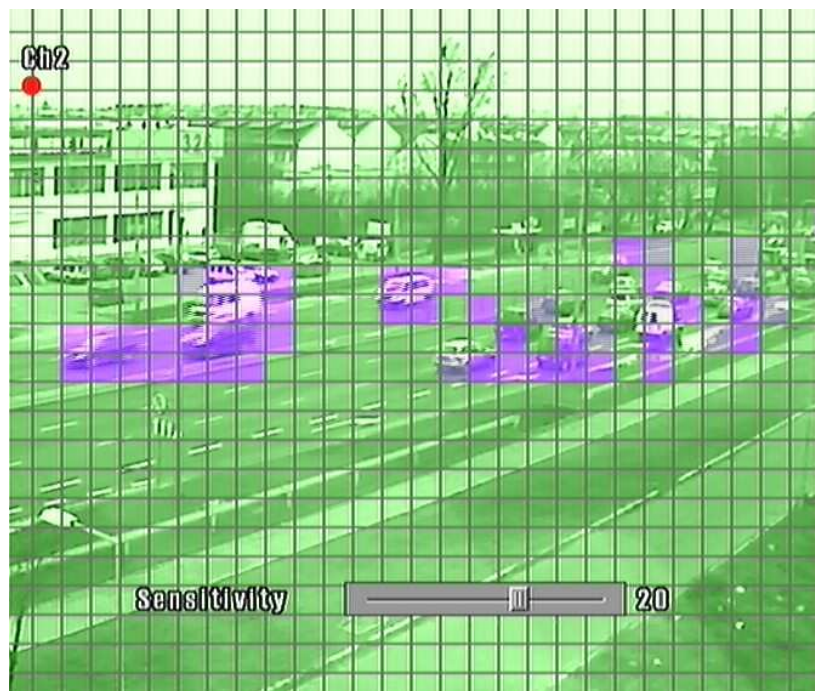
Active areas are highlighted in green. Areas where at the set rate of sensitivity motion has been detected turn their color to blue. At the bottom there is a slider which allows you to adjust sensitivity. By means of *JOG* dial (or up and down cursors) you can adjust the sensitivity level according to your own needs from 1 to 30. the higher the value the more sensitive the motion detection. Changes are implemented straightaway what helps to match sensitivity level for a specific camera.

After selecting *Sensing speed* test activity grid, similarly as with adjusting sensitivity, appears on the screen. It is possible to choose one out of ten object speed levels. The higher the level the faster the object has to move to be detected. This function prevents from false alarms caused by lighting change (cloudiness).

3.2.4 Time Estimation

After entering *Time Estimation* menu information about estimated recording time based on the current settings is displayed on the screen. Value is estimated for worst case of recording settings, meaning as well continuous recording and event recording are considered as continuous recording. In case of setting both recording modes: event and continuous the bigger frame rate number is taken to calculation. That's why real recording time should be longer than estimated.

3.3 Sensor/Alarm Setup

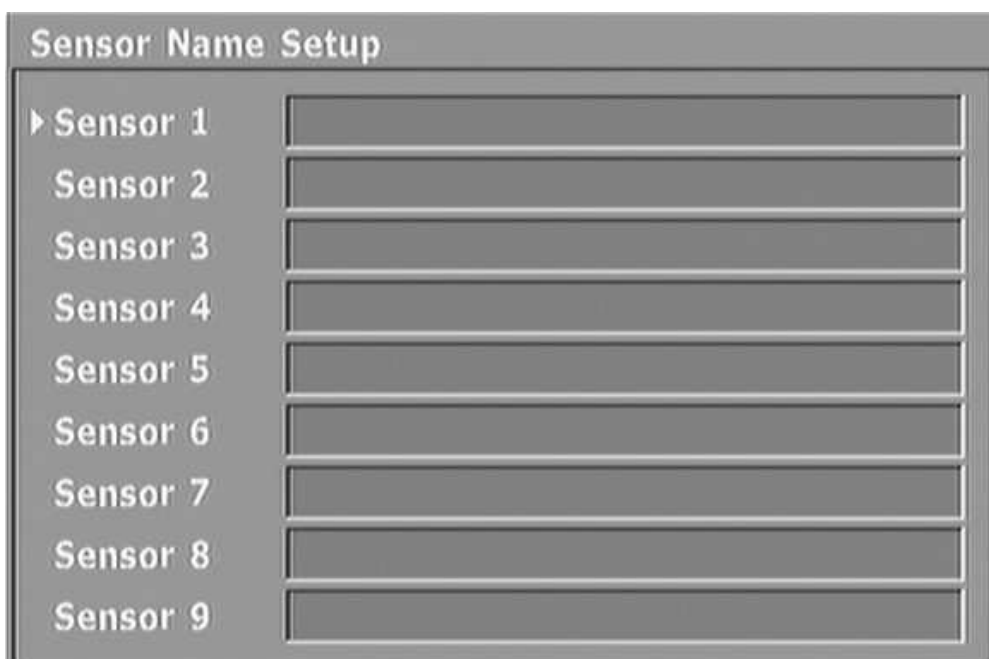Sensor/Alarm Setup

Sensor Name
Alarm Link
Alarm Buzzer

eng
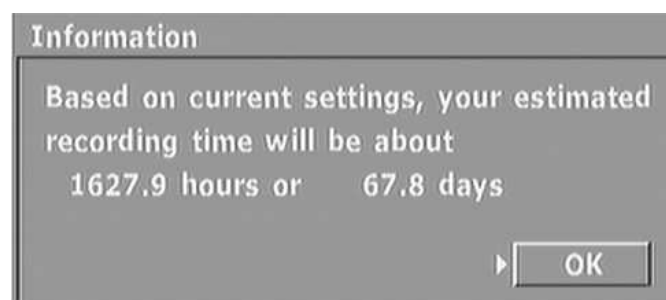
In the *Sensor/Alarm Setup* menu there are three submenus concerning alarm inputs and outputs, as well as general alarm functions.
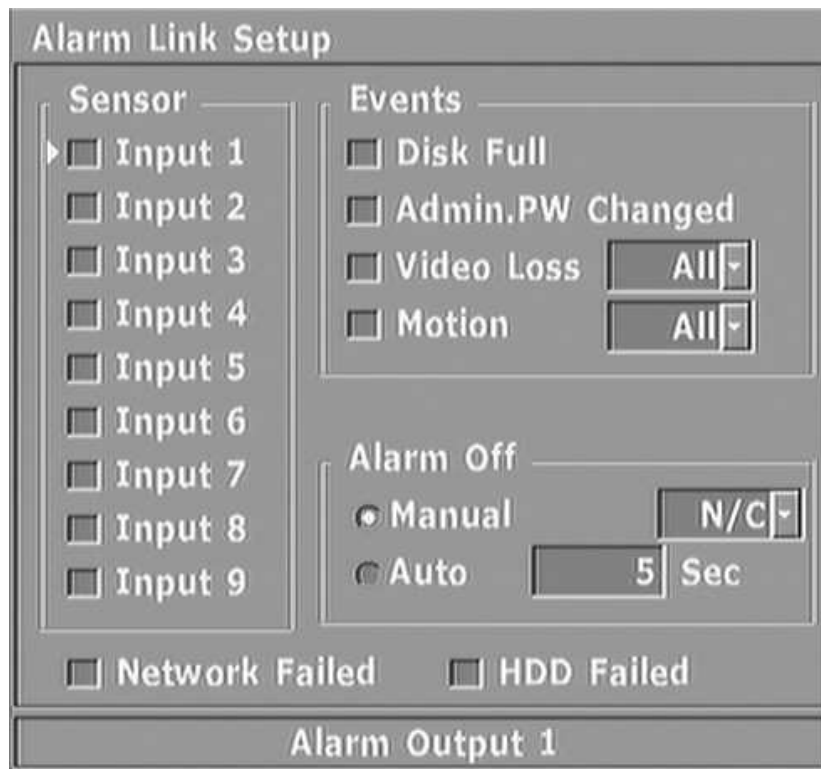
3.3.1 Sensor Name

After entering *Sensor Name* submenu a window with names assigned to subsequent alarm inputs is displayed on the screen. Assigning names to inputs allows for easier interpretation of entries in the event register, i.e. if Sensor 1 is called *Detector* such entry in the register will be easy for interpretation. Users have at their disposal the same characters as with the camera name. The name can consist of up to 15 characters.

Simultaneously, there are 9 or 8 out of 16 inputs displayed on the screen. As far as NV-DVR3016 is concerned, use *JOG* dial or cursors to go to the second page where the following 8 events are displayed

Sensor Name Setup

▶ Sensor 1
Sensor 2
Sensor 3
Sensor 4
Sensor 5
Sensor 6
Sensor 7
Sensor 8
Sensor 9

MULTIPLEXER'S MENU

3.3.2 Alarm Link

```
┌─ Alarm Link Setup ──────────────────────┐
│  ┌─ Sensor ──────┐ ┌─ Events ──────────┐ │
│  ▸☐ Input 1      │ │☐ Disk Full        │ │
│   ☐ Input 2      │ │☐ Admin.PW Changed │ │
│   ☐ Input 3      │ │☐ Video Loss  All▾ │ │
│   ☐ Input 4      │ │☐ Motion      All▾ │ │
│   ☐ Input 5      │ └───────────────────┘ │
│   ☐ Input 6      │                        │
│   ☐ Input 7      │ ┌─ Alarm Off ─────────┐│
│   ☐ Input 8      │ │◉ Manual      N/C▾  ││
│   ☐ Input 9      │ │○ Auto      5 Sec   ││
│  └───────────────┘ └────────────────────┘│
│  ☐ Network Failed     ☐ HDD Failed       │
│ ┌──────── Alarm Output 1 ────────────────┐│
│ └────────────────────────────────────────┘│
└──────────────────────────────────────────┘
```

In the *Alarm Link Setup* submenu reactions to different alarm events and types of alarm outputs are defined.

The settings are defined for each of the four outputs individually. The alarm output can be found at the bottom of the window.

You select the output by means of numeric buttons: 1, 2, 3, 4.

It is possible to define the following parameters for each output independently:

- In the *Sensor* position alarm inputs, stimulation of which causes change in the status of a given output, are ticked. Any number of inputs can be ticked, i.e. ticking *Input 1* and *Input 4* activates the outputs in the moment of alarm on inputs 1, or 4, or on two simultaneously. Stimulation of other inputs does not have any influence on them.

- In the *Events* position you tick which of the alarm events should activate a given output. The following events are available:

  ♦ *Disk full -* no more disk space available (it is not active if the multiplexer is recording in the overwriting mode. Disk full bar is not visible on the screen.)

  ♦ *Admin. PW Changed -* here you change admin password

  ♦ *Video Loss -* no video signal on one input, chosen from the list or on any of the inputs (if *All* has been selected)

  ♦ *Motion -* motion has been detected in the field of view of one camera, chosen from the list or in the field of view of any camera (if *All* has been selected)

Additionally, at the bottom, there two system events that may start the alarm or alarm output. These are:

- ♦ *Network Failed*
- ♦ *HDD Failed*

Additionally, the following window appears on the screen:

Network Failed
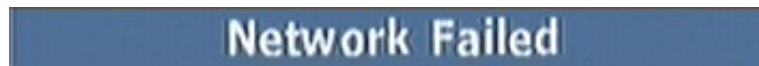
- In the *Alarm Off* position users define how the alarms detected by the device should be confirmed.

  Manual means that the alarm will last until a user cancels by pressing *AR RESET* button on the front panel

  Selecting *Auto* means that the alarm will lest for the whole, specified in seconds, period of time. After this period the multiplexer will automatically return to the normal mode.

  Additionally, in the *Alarm Off* position users define relay output type. From the drop-down list you can select *N/C* (normally closed output) or *N/O* (normally open output)

  Attention: Alarm inputs are connected with the camera inputs in this way that stimulation of input No1 causes alarm recording from camera No1.

  Attention: Alarm functions are active if in a given moment alarm recording is set to active in the recording setup menu.

3.3.3 Alarm Buzzer

In *Alarm Buzzer* submenu there is buzzer settings. When item *Buzzer Enable* is ticked there is audible alarm while event occurrence (motion, system event etc.). Position *Clear Time* defines the time of activating of audible alarm, no matter how long does event last.

Alarm Buzzer

▶☐ Buzzer Enable

Clear Time   5 Sec
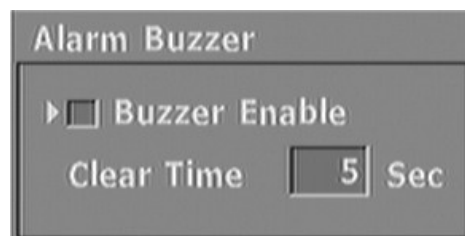
Notice: In order to activate alarm buzzer for event, there must be additionally done an assignment of this particular event to the one of the fourth alarm outputs.

MULTIPLEXER'S MENU

3.4 User Define Screen

After entering *User Define Screen* menu users can define any, suitable for them, camera layouts as far as the split screen mode is concerned. These split screens are independent from the split screens defined permanently and assigned to the split selection buttons.

It is possible to define 6 or 8 camera layouts on the screen, depending on the model.

To select the screen for edition (screen number at the bottom of the screen is highlighted in blue) use the arrows ◄ ►. To select the window for edition within a given screen (it is highlighted in blue) use the arrows ▼ ▲. Assigning a camera to a given window on the screen is done by pressing a numeric button corresponding to a given camera.

Attention: Within one user screen, particular cameras can be displayed only once.

The following example user screen layouts are available (for NV-DVR3009).
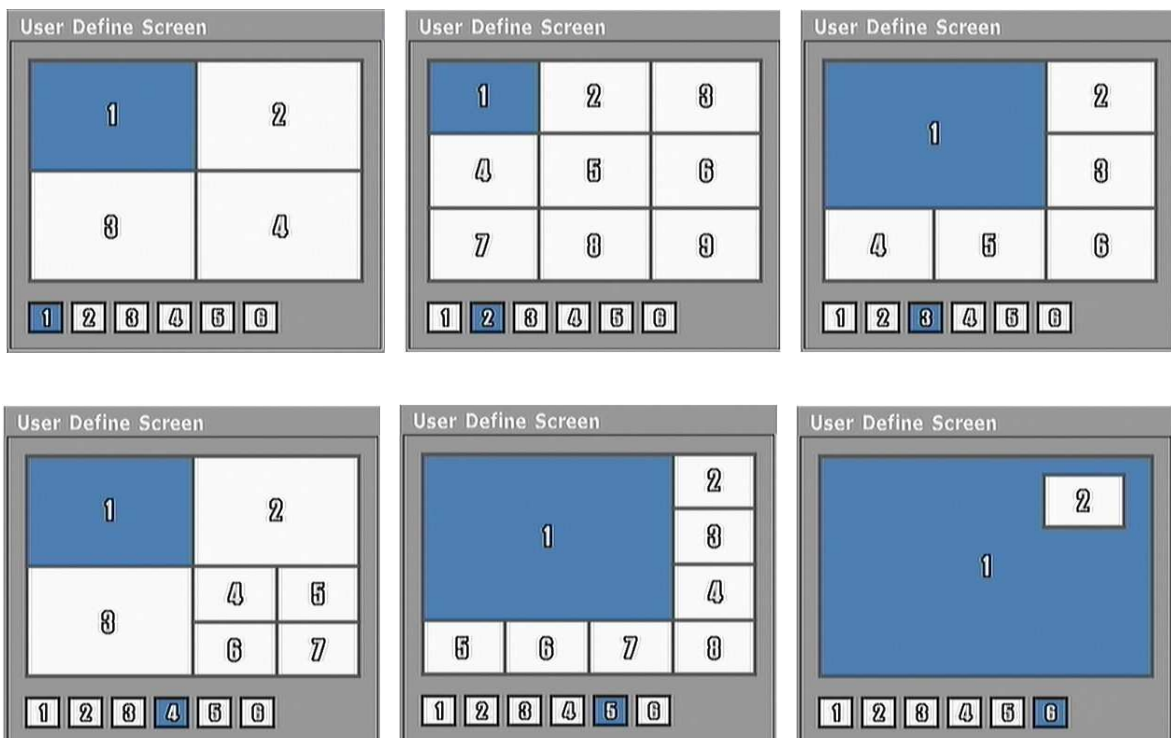
3.5 Audio Setup

NV-DVR3009 and NV-DVR3016 multiplexers allow users to record 4 audio channels at all image recording speeds. The signal is recorded at the speed of 8kB/s. Input signal should come from a dynamic microphone (i.e. microphone installed in a camera).

Recorded audio playback is possible only at normal image playback speed after selecting a proper video channel (the sound is not played back with slowed down playback and fast forward modes).

After entering *Audio Setup* the following parameters are defined:
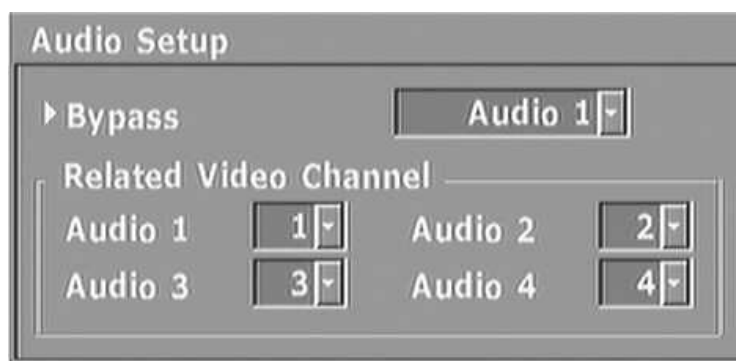
- *Bypass* - selection of audio channel that will be transferred to audio output during live audio recording.
- *Related Video Channel* - this parameter specifies channel number with which the sound will be connected. The connection is logical in character. It means that audio signal may come from some other camera microphone or from a completely separate microphone. Connection to a channel results only in the fact that sound will be heard during full screen playback of a given channel.

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3.6 Menu Setup
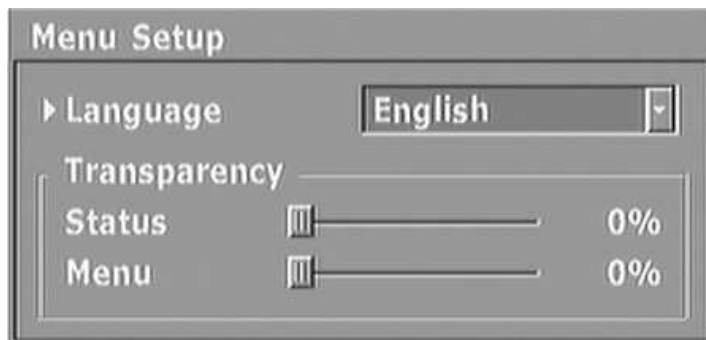
The following parameters are defined in the *Menu Setup*:

- In the *Language* position it is possible to select one of the languages available on the list
- *Transparency* parameter allows users to define screen menu windows outlook (*Status*) and channel description, recording modes etc. (*Menu*). Depending on the settings, windows and messages cover camera images or the images transpire through windows and messages. You can change the level of transparency. The changes are visible straightaway.
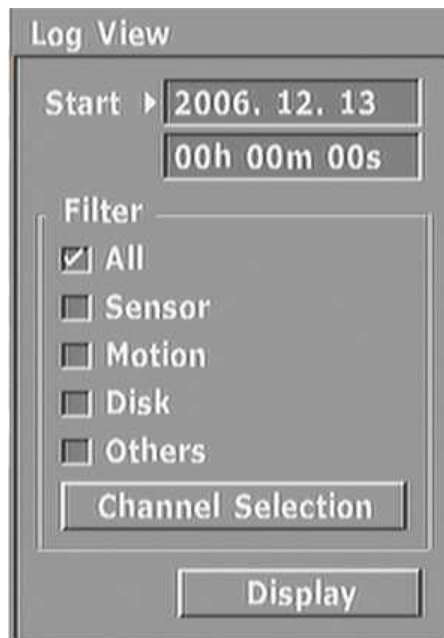
 3.7 System

System Setup

Log View
HDD Management
HDD Backup
Auto Select
Video Output
Administration
Configuration Setup
Keypad Setup
About System

There are a few submenus in the *System* menu.

3.7.1 Log View

After entering *Log View* submenu it is possible to take a look at the register containing information about system history. This information is useful when it comes to problem diagnosing. It also contains information about significant events that have influence on system operation.

Log View

Start ▸ 2006. 12. 13
00h 00m 00s

Filter
☑ All
☐ Sensor
☐ Motion
☐ Disk
☐ Others
Channel Selection

Display

It is possible to select original date and time specifying since when the material should be displayed. In the *Filter* field you select the events that you are interested in at this particular moment.
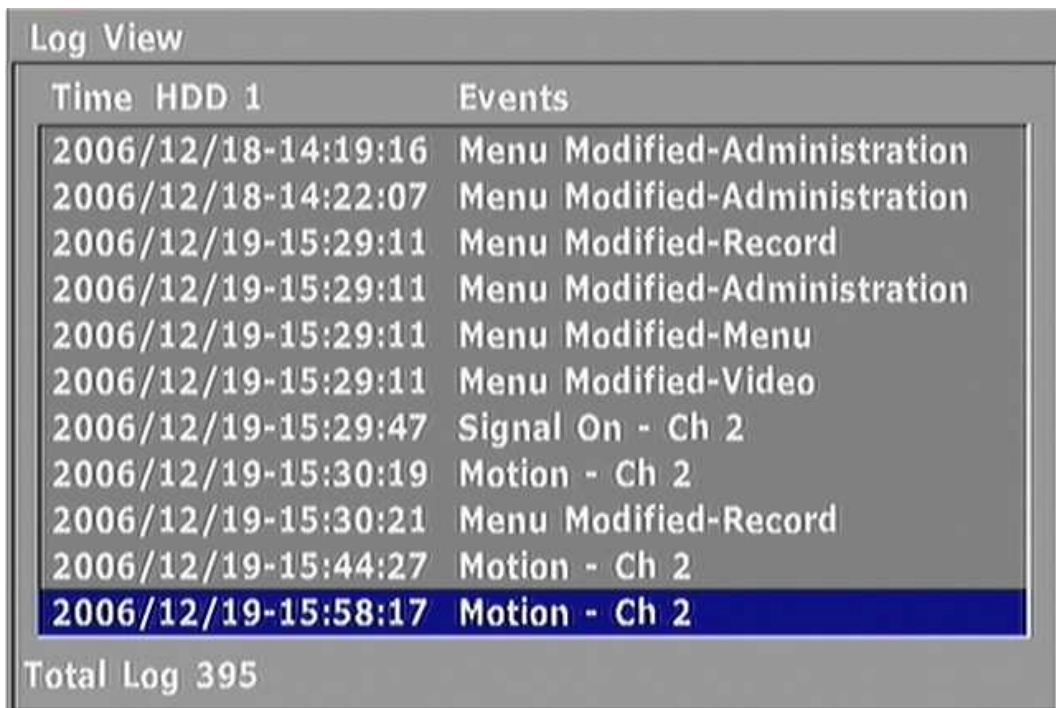
MULTIPLEXER'S MENU

All allows users to display all the registered events.

Sensor allows users to filter entries as far as events concerning stimulation of alarm inputs or motion detection are concerned.

Disk allows users to filter entries as far as events concerning HDDs are concerned.

Others allows users to filter entries as far as events other than events connected with alarms, motion detection or HDDs are concerned.

Channel Selection tab allows users to narrow search to the events connected with given video channels.

eng

```
Log View

Time HDD 1              Events
2006/12/18-14:19:16    Menu Modified-Administration
2006/12/18-14:22:07    Menu Modified-Administration
2006/12/19-15:29:11    Menu Modified-Record
2006/12/19-15:29:11    Menu Modified-Administration
2006/12/19-15:29:11    Menu Modified-Menu
2006/12/19-15:29:11    Menu Modified-Video
2006/12/19-15:29:47    Signal On - Ch 2
2006/12/19-15:30:19    Motion - Ch 2
2006/12/19-15:30:21    Menu Modified-Record
2006/12/19-15:44:27    Motion - Ch 2
2006/12/19-15:58:17    Motion - Ch 2
Total Log 395
```

The window above shows an exemplary view of the Log View.

*CL* prefix means that the changes have been remotely made from the *N-Viewer 3000* software.

3.7.2 HDD Management

Attention: Entry to the HDD Management submenu during recording will stop the recording. You will be informed about it by the following message.

After entering *HDD Management* submenu the list of all HDDs installed in the device as well as connected to it via FireWire or USB ports.
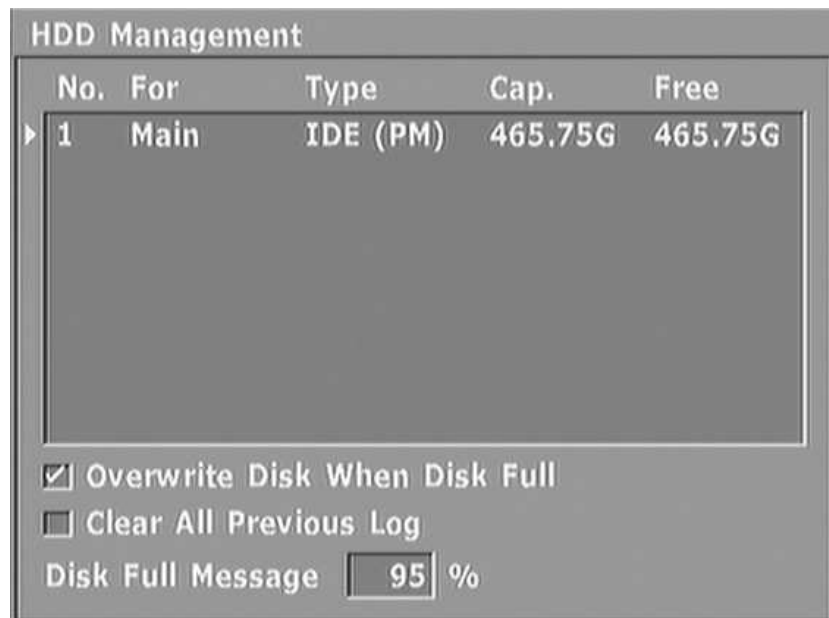
Attention: Switch the multiplexer off before connecting any HDD.

The window with information about HDD contains the following data:

- In the *For* column there is information whether a given disk is a normal HDD used for current recording or it is a disk used for creating and storing recording copies.

  Attention: At least one disk in the system has to work in the current recording mode.

- In the *Type* column there is information about disk interface type. *IDE* means that the disk is built-in, *1394* means that it is an external disk on the FireWire connector.

- In the *Cap.* column there is information about disk's capacity. It is given in GB.

- In the *Free* column there is information about disk's free space.

MULTIPLEXER'S MENU

Additionally, the following settings are available in his submenu:

- Ticking *Overwrite Disk When Disk Full* allows users to automatically record in the overwriting mode, that is when the whole space on all disk has been used up older recording are overwritten. If this option is not selected the multiplexer displays information before the disks are full, and stops recording when the disks are full. Additionally, if a proper option is set in the alarm setup menu it is possible to activate alarm output.

- The percentage value set in the *Disk Full Message* window specifies the percentage of used up disk space exceeding of which the information presented on the previous page is displayed, i.e. if the value of *90%* has been input in this field it means that after 90% of the available disk space has been used up a message appears on the screen.

The message will be displayed till the recording is over or till the recording mode is changed to overwriting. After the disks' space has been used up the following message appears:

The value of this parameter does not matter when the multiplexer works in the overwriting mode.

Information about the percentage of disk's used space is displayed in the lower right corner of the screen.
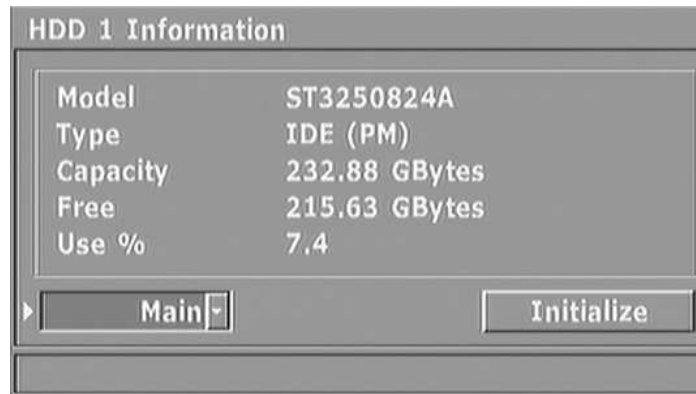

- Ticking *Clear All Previous Log* deletes the entries in the Log View after you exit HDD Management submenu. Users are asked again if they really want to delete the entries for the Log View.

You are advised to delete the Log View content after disk formatting or when the disk's operation mode has been changed.
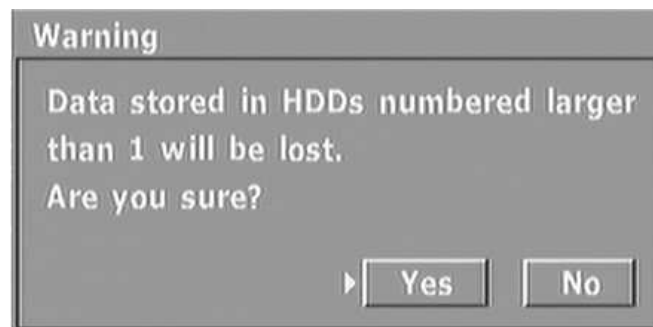
It is possible to obtain more accurate data on particular disks and to change their operation mode. After selecting disk information window and pressing *ENTER* it is possible to select a required HDD. After pressing *ENTER* detailed disk's settings windows appears.

```
HDD 1 Information

    Model        ST3250824A
    Type         IDE (PM)
    Capacity     232.88 GBytes
    Free         215.63 GBytes
    Use %        7.4

  ▶ [   Main ▾ ]              [ Initialize ]
```

There is disk mode selection field in the lower left corner. Change in the disk mode causes the loss of data saved on it. Only one disk can work in *Copy* mode. The *Format* button starts formatting of given disk and disks whose numbers are higher then the on of the given disk. After selecting this option users are asked to confirm the fact of deleting all the data from the disks with higher numbers.

```
Warning

  Data stored in HDDs numbered larger
  than 1 will be lost.
  Are you sure?

              ▶ [ Yes ]   [ No ]
```

Attention: After formatting all the data will be lost irrevocably. Use this option sensibly.
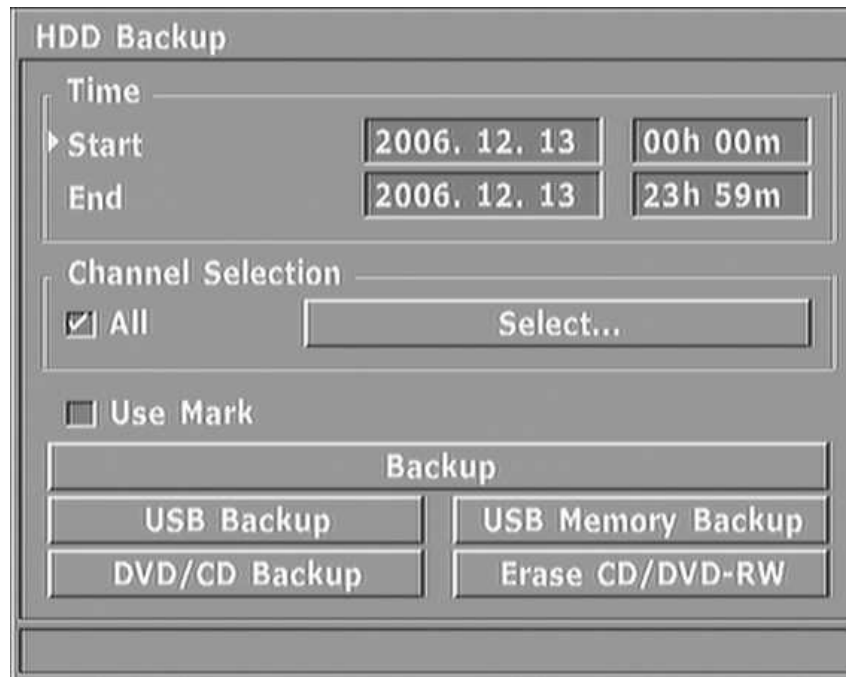
Attention: Formatting of a disk causes formatting of disks whose numbers are higher, i.e. if there are 3 disks and No1 is being formatted then disk No2 and 3 will be formatted too. Formatting of disks with recording does not mean that the archive disks will be automatically formatted.

In case there are external disks connected to the device there is an additional *Indicate* button in the detailed information window. It is used for starting the function that allows to ascertain which disk the description applies to. It is important if there is more than one external disk in the system and there is i.e. a need of replacing it.

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3.7.3 HDD Backup

Form the level of *HDD Backup* submenu users can copy recordings onto swappable HDD, USB disk or a CD/DVD (depending on the multiplexer model).
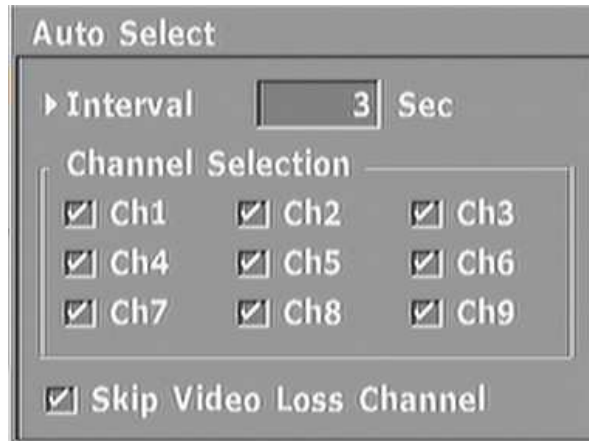
```
HDD Backup

 Time
▶ Start          2006. 12. 13    00h 00m
  End            2006. 12. 13    23h 59m

 Channel Selection
 ☑ All                    Select...

 ☐ Use Mark
                        Backup
       USB Backup          USB Memory Backup
       DVD/CD Backup       Erase CD/DVD-RW
```

- In the *Time* field time frames are set.

- In the *Channel Selection* field users select channels from which recorded images are to be copied within the specified time frames. If you select *All* images from all the cameras will be copied (if the images have been recorded within the given time frame). After ticking off *All* and selecting *Use Mark* it is possible to select required channels.

- Selecting *Backup* starts the copying process of the selected recordings onto the disk that operates in the *Backup* mode.

- Selecting *USB Backup* starts the copying process of the selected recordings onto the disk connected to the USB.

- Selecting *DVD/CD Backup* starts the copying process of the selected recordings onto a CD or DVD. This option is only active in devices that have a built-in DVD/CD burner or if an external burner is connected to the device via USB or FireWire port.

- Selecting *USB Memory Backup* starts the copying process of the selected recordings onto a portable memory stick (Flash) via USB port.

- *Erase CD/DVD-RW* - deleting data from CD/DVD-RW.

Detailed information concerning recording copying can be found in chapter No 6.

3.7.4 Auto Select

In the *Auto Select* submenu camera sequence display parameters shown on the main monitors are set. (after pressing *Auto Select*).
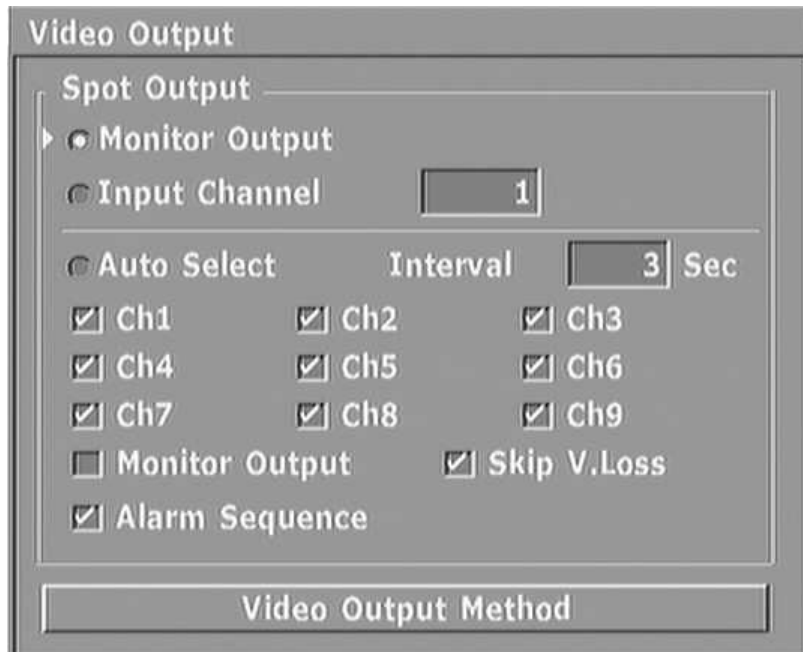
eng

```
┌─────────────────────────────────────┐
│ Auto Select                         │
│  ┌─────────────────────────────────┐│
│  │ ▸Interval        3  Sec         ││
│  │ ┌ Channel Selection ──────────┐ ││
│  │ │ ☑ Ch1    ☑ Ch2    ☑ Ch3     │ ││
│  │ │ ☑ Ch4    ☑ Ch5    ☑ Ch6     │ ││
│  │ │ ☑ Ch7    ☑ Ch8    ☑ Ch9     │ ││
│  │ └─────────────────────────────┘ ││
│  │ ☑ Skip Video Loss Channel       ││
│  └─────────────────────────────────┘│
└─────────────────────────────────────┘
```

- In the *Interval* field display time (from 1 to 300 seconds) from particular cameras is defined.

- In the *Channel Selection* field users select channels from which images will be displayed in a sequence.

- *Skip Video Loss Channel* allows users to exclude these channels from the sequence where there is no video signal.

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3.7.5 Video Output

In the *Video Output* submenu users define what will be displayed on a spot monitor.

```
Video Output
 ┌ Spot Output ─────────────────────────┐
 │ ▸ ◉ Monitor Output                    │
 │   ○ Input Channel        [    1  ]    │
 │   ──────────────────────────────────  │
 │   ○ Auto Select    Interval  [ 3 ] Sec│
 │   ☑ Ch1        ☑ Ch2        ☑ Ch3     │
 │   ☑ Ch4        ☑ Ch5        ☑ Ch6     │
 │   ☑ Ch7        ☑ Ch8        ☑ Ch9     │
 │   ☐ Monitor Output      ☑ Skip V.Loss │
 │   ☑ Alarm Sequence                    │
 └──────────────────────────────────────┘
 ┌──────────────────────────────────────┐
 │         Video Output Method          │
 └──────────────────────────────────────┘
```

- After selecting *Monitor Output,* the same images that are displayed on the main monitor are displayed on the spot monitor.

- After selecting *Input Channel,* spot monitor displays images from a camera connected to an input chosen in the window.

- After selecting *Auto Select,* sequence from the channels ticked below is displayed on the spot monitor.

  Ticking *Monitor Output* means that the image from the main monitor is added to the sequence.

  Ticking *Skip V. Loss* allows users to exclude these channels from the sequence where there is no video signal.

  Ticking *Alarm Sequence* allows users to stop sequence display after alarm has been detected on one of the alarm inputs and switch to the display from the camera connected with the alarm input. If more than one alarms occurs at the same time, the images from the cameras connected to the triggered inputs are switched sequentially. After the alarm is over the device goes back to normal sequence display.

  Attention: Alarm functions are active if at a given moment in the recordings setting menu alarm recording is active.

- *Video output method* - Selecting *Scale To15/16* changes image height-to-width proportions

- *VGA Output Enable* - ticking this item, main monitor VGA output is activated, the output operates in the RGB mode that is commonly used in computer monitors.

   Attention: After VGA output is activated the quality of images on BNC and S-Video outputs may become a bit worse. LCD monitors may have problems with a proper operation in this mode.
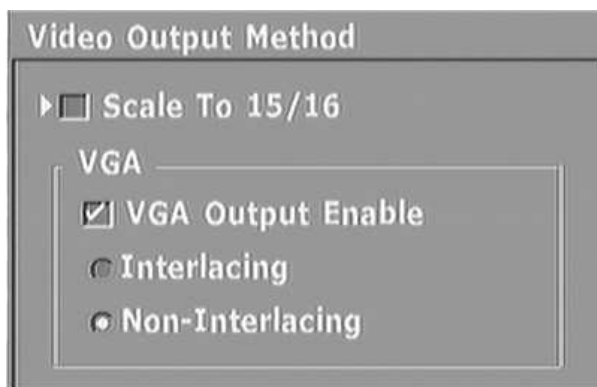
- *Interlacing* - ticking this item improves image when there are moving objects appears

- *Non-Interlacing* - ticking this item improves image when no-moving pictures are most common

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3.7.6 Administration

There are nine options in the *Administration* submenu.

- *Lock Front Button* option allows users to lock the front panel buttons (apart from *OPERATE* and *SETUP*). It may prevent accidental switching on or off of some functions. A message **Locked!** appears when you when you press a locked button.

- *Lock Remote Control* allows users to switch off the control of the device by means of a remote control.

3.7.6.1 Network Setup

Network connection parameters are set in this submenu.

- *Static IP, Subnet Mask, Gateway*, *DNS Server Addresses* and *Web Server Port Number*, on which connection with the device is established.

Ale the changes in the menu have to be confirmed by pressing *Apply*.

Notice: Before connecting to the network please contact network administrator to obtain required permissions and parameters.

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3.7.6.2 Date/Time Setup

Date, system time and the format of these two things is set in this submenu.

y - means year

m - means month

d – means day

There is current date and time at the bottom of the window.

3.7.6.2.1 Time Server Setup

This menu allows to synchronize system clock with either public or private time server utilizing NTP (Network Time Protocol)

- Ticking *Use Time Server* activates clock synchronizing with set below time server

- User can use *Public Time Server* or *Private Time Server* (recommended) defined in next field

- *Time zone* - defines the time zone appropriate for specific country where DVR is placed

- *Synchronize every   minute interval* - time period between synchronizing attempts

- *Test NTP* - tests of correctness above settings

3.7.6.2.2 Daylight Saving

This menu allows to define day light saving feature parameters.

- Ticking *Use Daylight Saving* causes automatic system clock adjusting 2 times a year when standard time is changed. Depending on country regulation user is able to set the period of daylight saving.

Notice: Changing "to the back" the system clock causes appearing second segment of recording with the same date/time index. Recordings are not being overwritten. While playback user is able to select 1st or 2nd segment from that particular time.

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3.7.6.3 Password

In this submenu user accounts are modified and added (their passwords and privileges).

Selecting *Use Password* means that user identification is required during operation the device. Selecting this item for the firs time master 8 digit password is generated once. Remember this password or save in a secret place. This password allows to enter to the menu even if user password is forgotten.

Attention: Do not tick User Password unless you input your own (new) admin password.

 Factory default password is : *1234*

- In the *Administrator* field you can change admin password. Admin is a user with full privileges. The input password has to be confirmed. The password is input by means of numeric buttons. It has to contain at least four digits.

- Below the *Administrator* field there is a list of user accounts with their privileges.

 In the example on page 47 you can see that there are two registered users:

 Op_1 has access to multiplexer's menu,

 and *Op_2* has access to multiplexer's menu, has the privilege of PTZ camera control

 Additional privileges that can be granted: *REC*– starting and stopping recording

  PB– recording playback

In order to change a given user's privileges and their password you have to select it on the list and press *Property*. User password is input by means of numeric buttons. It has to contain at least four digits.

- In order to delete a given user account you have to select them from the list and press *Delete.* After confirmation the user account will be deleted.

- In order to add a new user and grant them privileges press *Add* and input required information. User password is input by means of numeric buttons. It has to contain at least four digits.

If the system requires the password for the action you want to perform, it displays login window. If there is more than one user account in the system choose the proper one from the drop-down list and put in the password.

eng

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MULTIPLEXER'S MENU

3.7.6.4 Web Password

Network user accounts are added and modified in the submenu. It is possible to create 5 user accounts with different privileges. These accounts are independent of the local accounts described on the previous pages. By means of these accounts and passwords users can only log in to the multiplexer over the computer network.
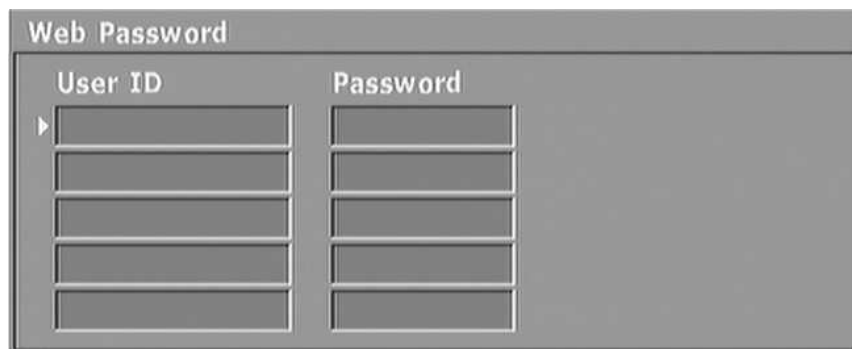
While connecting to the device over the Internet a window, like the one below, appears on the screen. In order to log in put in a correct user name and password.
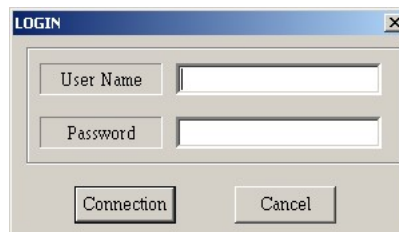
Depending on the computer system and web browser the window may look a bit different. Additionally, firewall login window may appear.

It is possible to assign PTZ camera privileges and privileges connected with viewing particular camera images to each user.

Attention: These settings only apply to connections established vie web browser. Giving and withdrawing access to cameras and PTZ control as far as establishing connection by means of N-Viewer 3000 software is concerned is done after logging in as the admin. Details can be found in N-Viewer 3000 user's manual.

Ticking *PTZ* next to a particular user allows them to control PTZ cameras.

In the *Channel* tab you can define the cameras which will be available for a given user when connecting via web browser.
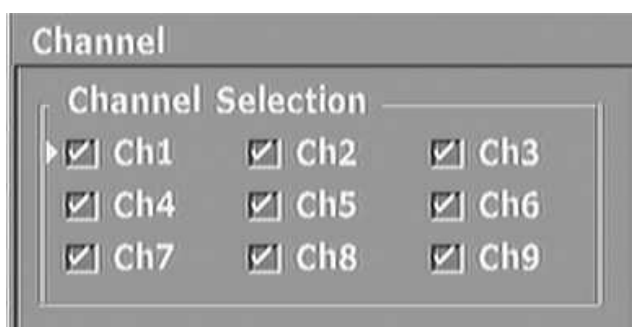
When trying to select a channel to which a user does not have access, the video loss (*V-Loss)* message is displayed on the screen and the screen goes black.

MULTIPLEXER'S MENU

3.7.6.5 Update Program

Due to the fact the producer of the multiplexer constantly tries to modernize the device it will be possible to update the software and more advanced versions will be available for all the users.
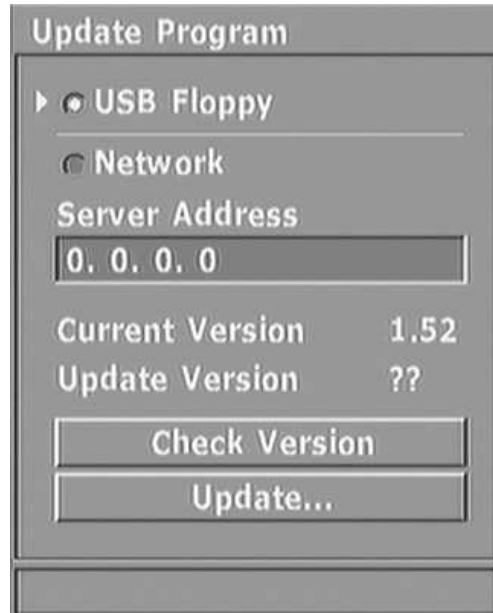
Please contact your Novus distributor for any news about the updates.

3.7.6.6 Covert Channel

After entering *Covert Channel* submenu it is possible to select which cameras will be covert. Covert Channel function allows to hide the images from the eye of the operator whereas the recording is continued. Covert channel function is independent from local monitoring and web monitoring. Local monitoring images are substituted with black background. More or less the same happens as far as web monitoring is concerned. Additionally, *Vloss* message is displayed in a window. Cameras, covert from the level of this menu, are not available for all the users.
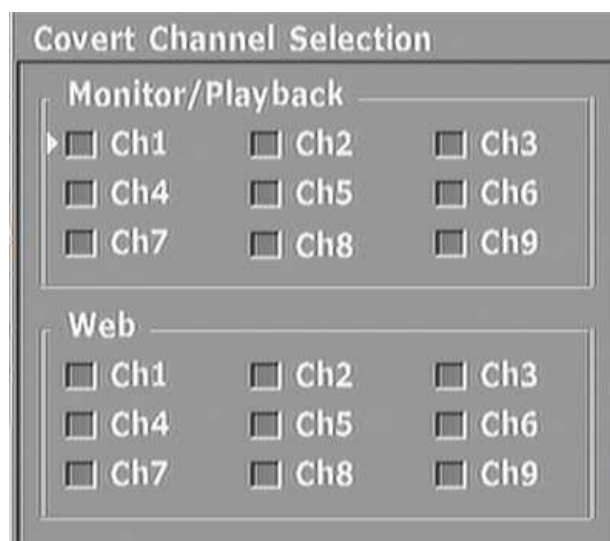
3.7.6.7 Mail Notification

The device is capable of sending email messages with the information about the system status. You are advised to use this option in a wise way so that wrong configuration of sending parameters may cause that a lot of emails will be sent and it may block the email server. To send messages you may use only server which does not require authorization of the user who tries to connect from a given site.

In the *Mail Notification* submenu there are options concerning web option that allows to send emails by means of SMTP server that is given in the *Address* field. In the *Port Number* field please set the port number through which sending emails is done.

eng

```
Mail Notification Setup

▶ ☐ Enable                    Conditions...

  SMTP Server
  Address      smtp.mail.eu

  Port Number                        25


  Name              Address
  ✓                 user@mail.eu




                        Add        Delete
```

- There can be many items on the list of the address but it is possible to send emails to the addresses that are ticked(✓). To change settings concerning a given addressee, select it and press *ENTER*. Ticking *Use* means that mail notification will be active for the given addressee. In the *Name* field input any name identifying the addressee. In the *Address* field input addressee's address.
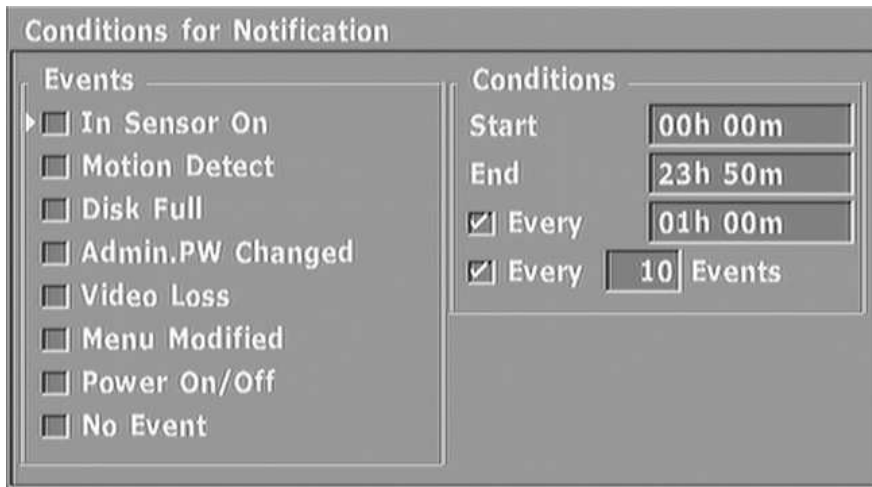
```
Mail Address

▶ ☑ Use
  Name         1
  Address      user@mail.eu
```

- In order to add a new addressee to the list click *Add*.

- In order to delete an addressee from the list click *Delete*.

MULTIPLEXER'S MENU

- In the *Conditions* tab there is a list of settings defining the content of the sent emails.

- In the *Events* field users define which type of system events should trigger sending emails to a given address. Selecting *No Event* means that emails will be sent even if none of the listed events takes place.

- In the *Events* tab users define the time of sending the mail notification.

- In the *Every* field input the time period (in minutes and hours) when the emails will be sent. Ticking this option is necessary if you want to obtain the info in case there are no events in the system.

- Ticking *Every.... Events* means that emails will be sent only after a certain number of events (set in this window) has taken place. In case there are many events it is advisable to select this option as it limits the number of sent emails. The info about events is stored, and after i.e. 20 events have taken place, sent as one message.

Below you can find a print-screen of a Outlook Express after it has received an email from the multiplexer.

Exemplary content of the email.

menu modified – the menu has been modified

signal loss - no signal on K input.

in sensor on - alarm signal on input ....

power on - recovery after power loss happened

no events - no events in the system

3.7.7 Configuration Setup

The device allows users to save menu settings so that it is possible to restore or to use them as default settings in another device of the same type. The settings are copied in the form of a catalogue onto a memory carrier connected to the USB port. The size of a catalogue with the settings is approximately 50kB. It can be stored on the computer and used at any moment.

```
Configuration Setup

Item Selection
▶ ☑ All
  ☐ Camera Setup          Backup To USB
  ☐ Recording Setup       Restore From USB
  ☐ Sensor/Alarm Setup    Factory Default
  ☐ Audio Setup
  ☐ System Setup
  ☐ User Define Screen
  ☐ Web Password
```
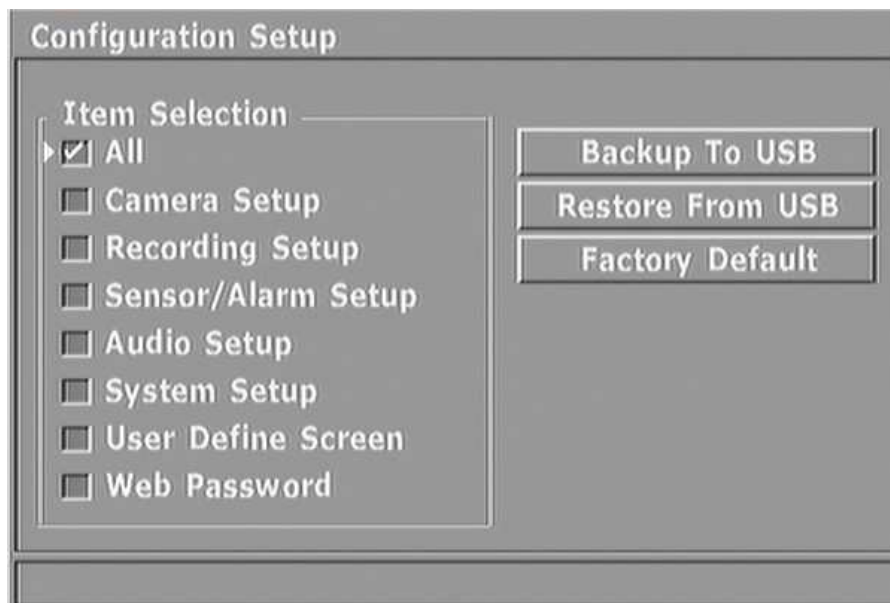
- In the *Item Selection* field users choose the type of settings we want to copy. Selecting *All* means that all the settings from the list will be copied.

- After selecting *Backup to USB* the settings will be copied onto a memory carrier connected to USB port. The information about the operation processing is displayed at the bottom of the window. In case there are some problems with the carrier appropriate information windows are displayed.

- After selecting *Restore from USB* the system will download the settings from the carrier that is currently connected to the USB port. The information about the operation processing is displayed at the bottom of the window. In case there are some problems with the carrier appropriate information windows are displayed.

- *Factory Default* option allows users to restore default multiplexer's settings.

.

MULTIPLEXER'S MENU

3.7.8 Keypad Setup

Parameters connected with the cooperation of the multiplexer and system keyboard are set in this menu.

NV-DVR3009 and NV-DVR3016 multiplexers can be remotely controlled only from the level of the NV-KBD60 or NV-KBD30 system keyboards. Due to the use of RS-422 interface, remote control room can be placed even up to 1200 meters from the multiplexer.
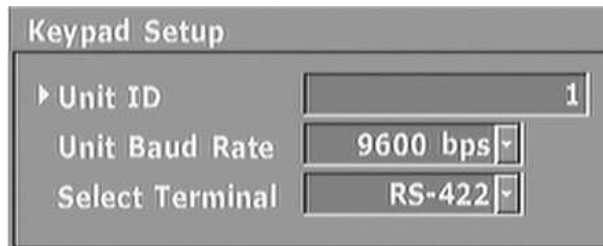

- *Unit ID -* unique multiplexer's address within a given system allowing proper cooperation with a keyboard.

- *Unit Baud Rate* option allows users to adjust the transmission speed in the range from 1200BPS to 38400BPS

- *Select Terminal* option allows users to select one out of two ports over which the transmission will be carried out. If NV-KBD60 or NV-KBD30 keyboards are used *RS-422* port should be selected.

Notice: It is possible to select the RS-485 port in case it is not used for camera control.

All the details concerning keyboard and its operation can be found in the keyboard's manual and in the chapter No 11.

3.7.9 About System

In the *About System* submenu you can find information concerning the software. This information is needed when contacting with service or your distributor.
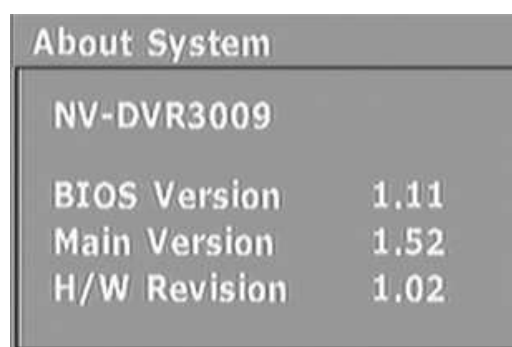
4. SCHEDULE PROGRAMMING

As it was mentioned in Chapter 3.2 the multiplexer allows users to create very complex recording schedules allowing to adjust recording parameters according to site characteristics and allowing to save disk's space. The schedule is presented in the form of a graph. Each of the rectangles represents one hour and one channel. The channels are described on the left and hours on top. Additionally, in the line below channel No9 there is a line of quality and audio recording. Recording mode is marked with the following colors:

A	S	M	AS	AM	SM	ASM
continuous	alarm	motion detection	continuous + alarm	continuous + motion detection	alarm + motion detection	continuous + alarm + motion detection

Black color means that there is no recording at all.

Schedule programming is described on the example. It has been assumed that the schedule has not been programmed for the NV-DVR3009 multiplexer or has its default settings. In such a case the schedule for all days will look in the following way:
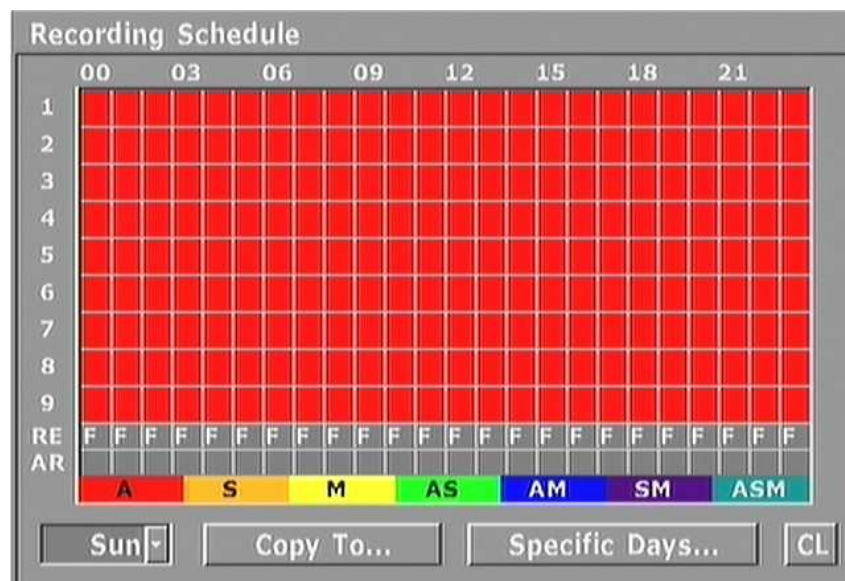
Site characteristics entails the following recording parameters:

From Monday to Friday images from channels 1-5 will be recorded continuously from 10 a.m. to 6 p.m. At other times images from the particular channels will be recorded only after motion has been detected. Images from channels 6-9 will be recorded for 24 hours after motion has been detected or if they have received a signal from the PIR detectors connected to alarm inputs. Baud rate fro all the channels and days has to be set to maximum.

Quality -level No 5, resolution - high, audio recording on.

On Saturday and Sunday images from all the channels are recorded in the 24-hour mode after motion has been detected or if the signal from the PIR detectors connected to alarm inputs has been detected. Recording at maximum baud rate, resolution and quality.

Additionally, on 24-25th December, the multiplexer is to operate in the Saturday-Sunday mode even if these dates fall on another weekday.
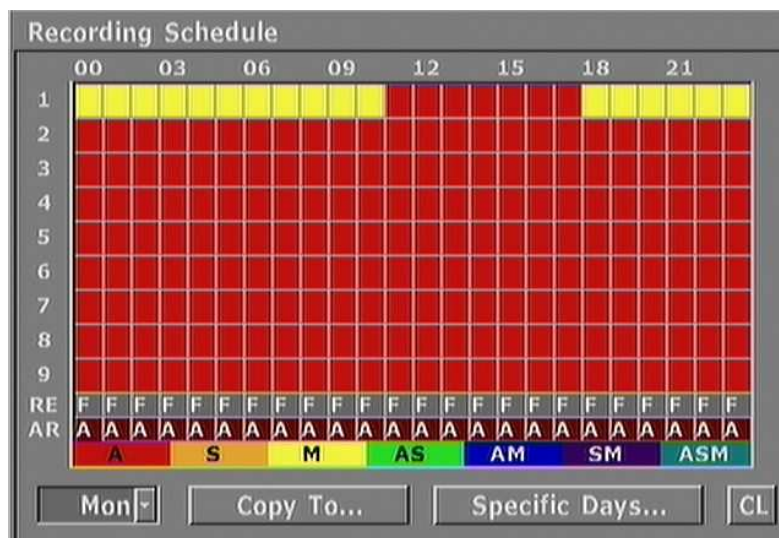
SCHEDULE PROGRAMMING

In order to program Schedule go to *Recording Schedule*. In the day selection window *Mon* should be seen. Next press *ENTER* to access edition menu (upper left graph rectangle, corresponding to one hour will change its color to white). Press *ENTER* in order to access recording parameters setting edition. Select Motion recording at maximum baud rate, quality and resolution. Leave the edition menu pressing *EXIT*.
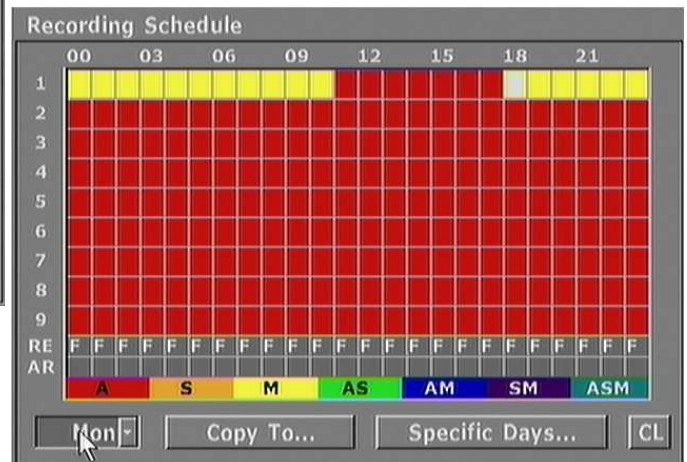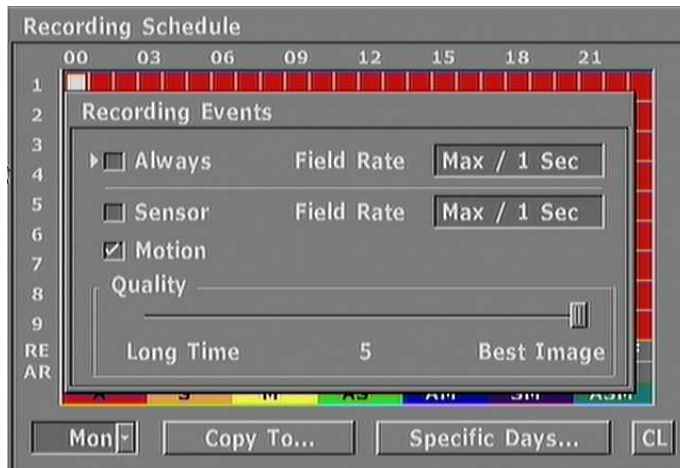
Identical parameters shall be set for other hours, till 10 a.m. and from 6 p.m. till 0.00 a.m. to move about the graph use the arrows.

From 10 a.m. till 6 p.m. continuous recording should be switched on.

Next, audio recording should be set for each hour. To do that go to line marked as *AR* and select *A* for each hour.
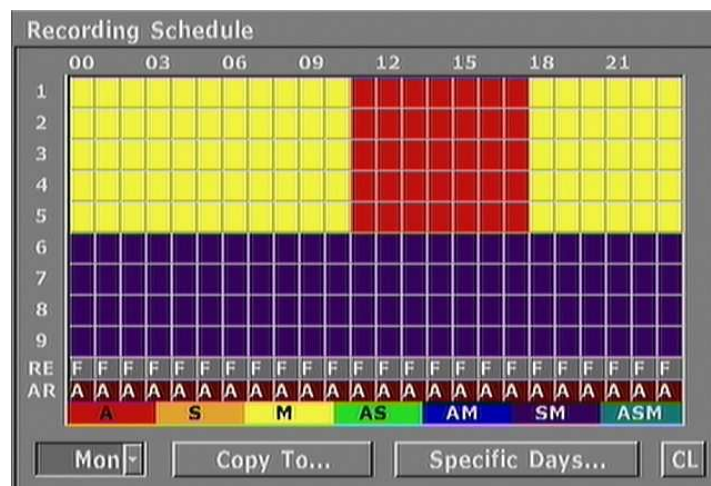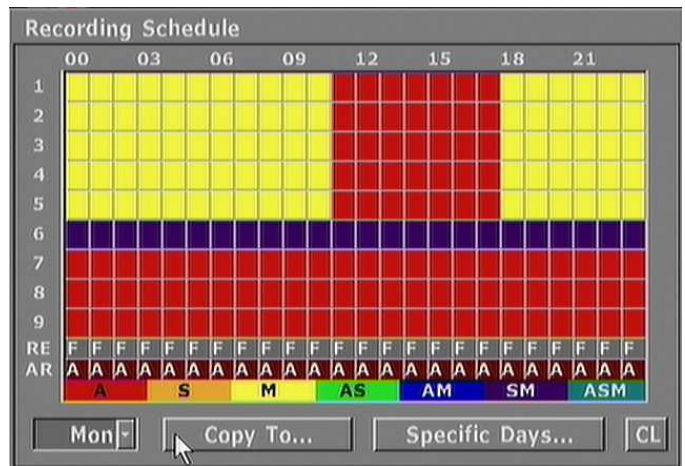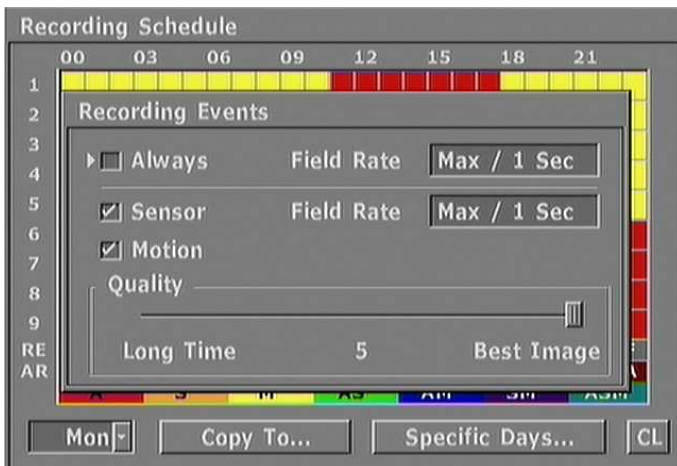
SCHEDULE PROGRAMMING

Settings for channel No 1 should be copied for channels 2-5. To do that choose *Copy to.* In the *Copy to* window select *Source Channel 1* and press channel numbers *2, 3, 4, 5,* where the settings will be copied. After pressing *Copy* the graph should look in the following way.
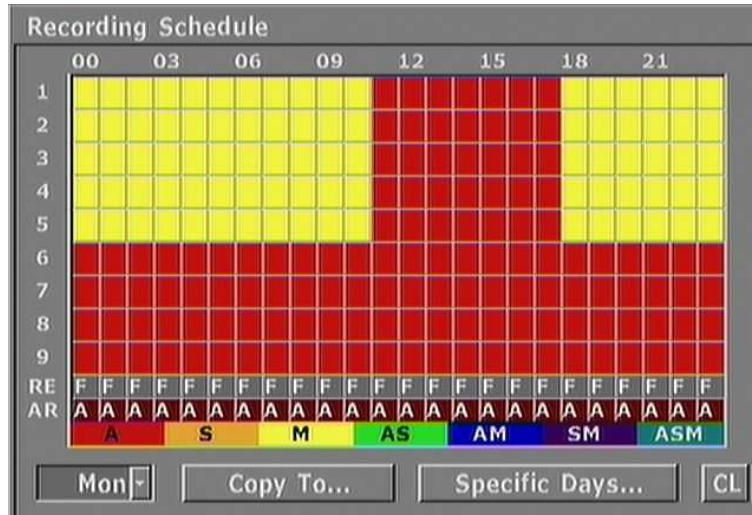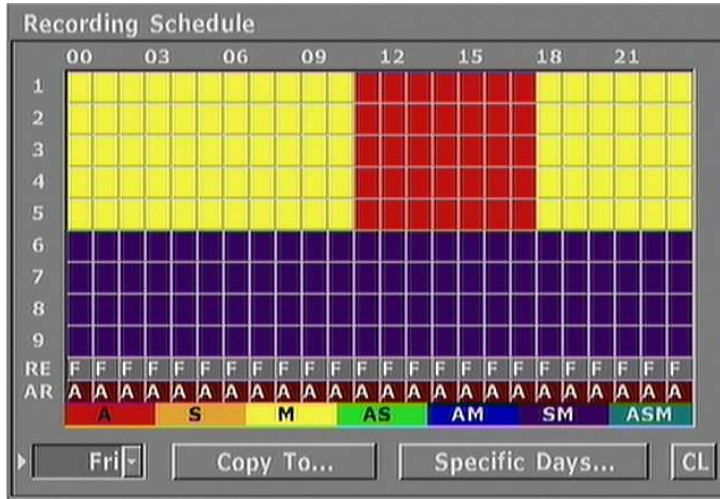

For channel No 6 you should set *Alarm* and Motion *Detection* for each hour *.*

Next copy this setting and load it for channels 7,8,9 selecting *Copy from channel No 6*
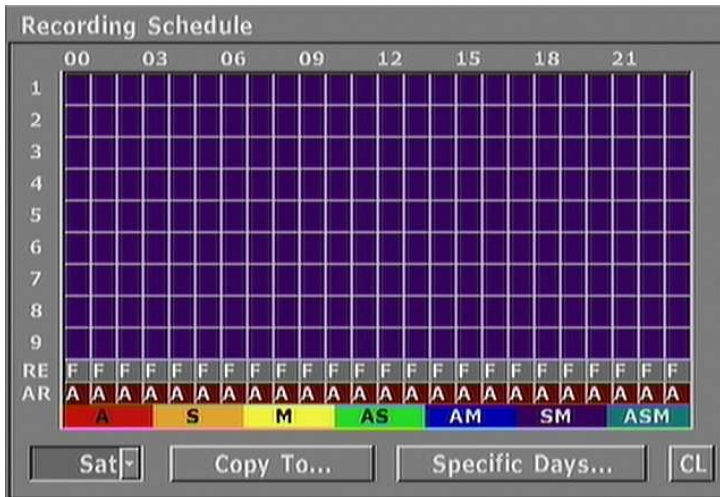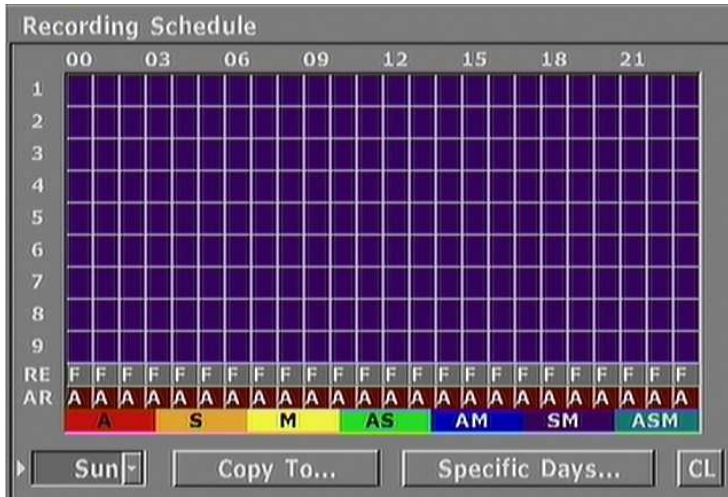
SCHEDULE PROGRAMMING

Next copy the settings created for Monday and load them for Tuesday, Wednesday, Thursday and Friday by pressing *Copy to*, and selecting required days.

Settings for Saturday and Sunday shall also be input. To do that copy the from, i.e. Friday, copy settings to other channels from channel No 6.

Finally change the settings for channel no 16 and copying settings from Saturday and Sunday.

SCHEDULE PROGRAMMING

The last stage of programming the schedule is its programming for 24th and 25th December.

To do that go to *Specific days...* and select *Add*. Tick *Enable* in the window that appears and set recording time frames for these two days.

Next, input recording parameters for each channel.

Next set recording quality and programming is finished.

In order to add next, specific mode press *Add* one more time and repeat the whole operation. You can add up to 12 schedules on a particular day

Notice: Specific Day Schedule has higher priority than normal schedule.
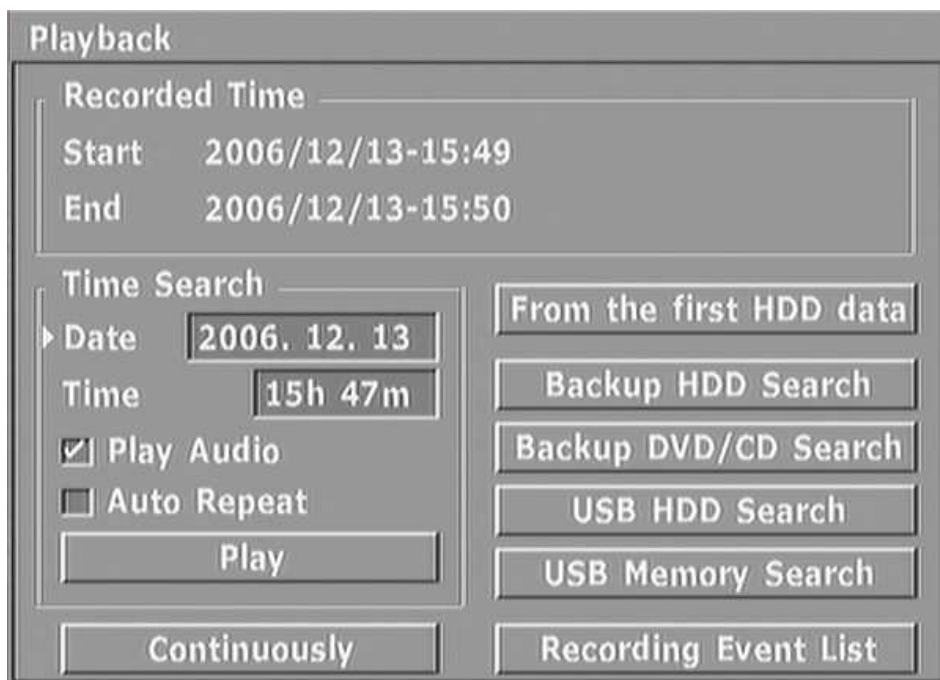
PLAYBACK

5. PLAYBACK

Recordings playback during recording is not a problem for NV-DVR3009 and NV-DVR3016 multiplexers.

In order to enter playback menu press *PLAY*.

In the *Recorded Time* field there is information about the time period from which recordings can be found on HDD - time and date of the first and last recording. It does not mean that recording was non-stop during this period. It may happen that the recordings from the previous time period are not available because recording was not active at some moments.

5.1 Playback from the multiplexer's HDDs.

Selecting *Continuously...* takes you to the recording that was played back as the last one.

Selecting *From the first HDD data* means that playback starts from the beginning of the HDD.

In the *Time Search* field you can select precise date and time from which playback should start. Selecting *Play* means that the playback starts from the set place. In case there are no recordings from the given time the multiplexer starts playback from the closest ones.

Ticking *Play Audio* means that the sound will be played back during recording playback. The sound will only be played back in the full screen mode together with the playback of images from the camera connected with audio channel.

Ticking *Auto Repeat* means that after all the recordings have been played back the playback starts again.

PLAYBACK

During playback different display modes (splits, *TRIPLEX*) described in chapter 2.4 are available.

Some display mode buttons have different function in the playback mode then the one described below them.

Depending on the resolution recorded images will be displayed in the 360x288 or 720x288 format (full screen). In case of recording in low resolution it is possible to "spread" the image over the full screen by means of digital zoom.

Direction of playback is selected by *PLAY* and *R.PLAY* buttons.

Arrow symbols, displayed in the lower right corner, inform about the mode and direction of playback.

Date and time, from which the recording comes, are displayed on the bottom of the screen or in the particular camera windows. Pressing the [U] button causes change in the mode of clock display.

2006/08/22-11:07:46

The bar in the lower left corner shows the place on the disk of the currently played back recording.

Pressing *PLAY* or *R.PLAY* buttons again pauses the recording playback.

The following symbols appears on the screen.

In the pause mode it is possible to achieve frame by frame display by means of the *JOG* dial. In order to start the playback press either *PLAY* or *R.PLAY*.

It is possible to speed up the playback by means the *SHUTTLE* ring. When turning right the forward playback speed is increased, when turning left the reverse playback speed is increased. The angle of turning allows user to choose one of the 6 levels of speeding the playback up.

These levels are pictured as arrows.

It is possible to slow the playback down using the *JOG* dial.

You can choose from the 5 levels of slowing the playback down.

Turn the dial right to slow the playback down as far as the forward playback is concerned.

Turn the dial left to slow the playback down as far as the reverse playback is concerned.

Pressing *STOP* stops the playback and the user goes back to the playback menu. Pressing *STOP* (or *EXIT*) again means that you leave the playback menu.

NOTICE: When changing the direction, speed or the kind of split screen you can notice green background or that the clock will stop for a split second. It results from the decompression of the MPEG4 stream and is normal during playback.

NOTICE: When recordings from overlapped time (e.g. after daylight saving feature operation) are selected following message appears. User is able to decide which segment should be played.

Confirmation
Which segment you want to play?
▸ 1 st   2 st
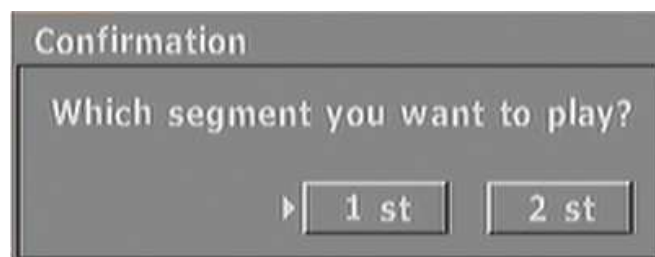
PLAYBACK

5.2 Backup Playback.

The multiplexer allows users to playback the copy of recordings created on the disk (operating in the copy mode), flash memory or on a CD/DVD.

5.2.1 Backup HDD Search

If the disk is in the swappable bay or connected to the IEEE1394 port, select *Backup HDD Search* to display its contents.

Particular lines correspond to the copy files. There are two files on the above example. .

If there isn't a copy-disk installed in the system or there aren't any recordings on it the system will display the following information.
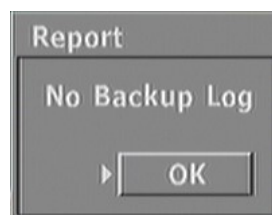
After selecting required file with the *JOG* dial press *ENTER* to start the playback.

During playback from a backup HDD the same functions and modes, as with the playback of recordings from normal disks, are available and are described in chapter 5.1.1

5.2.2 USB HDD Search

If the disk, on which the copy is found, has been connected via USB port, select *USB HDD Search* to display its contents.

Playback is exactly the same as with the playback from the swappable bay disk and is described in chapter 5.1.1.

5.2.3 USB Memory Search

If the portable memory, containing the copy, has been connected via USB port select *USB Memory Search* to display its contents.

Playback is exactly the same as with the playback from the swappable bay disk and is described in chapter 5.1.1.
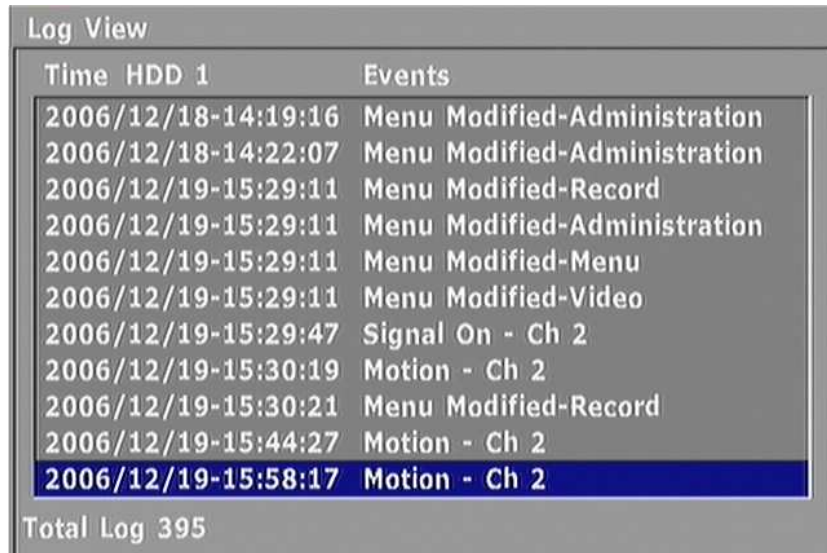
5.2.4 Backup DVD/CD Search

If the DVD/CD-RW Drive contains a CD or DVD with the copy select *Backup DVD/CD Search* display its contents.

Playback is exactly the same as with the playback from the swappable bay disk and is described in chapter 5.1.1.

PLAYBACK

5.3 Recording Event List

In case the multiplexers has been operating in the alarm recording mode it is possible to view alarm recordings. To do that select *Recording Event List* . Alarm recordings list is displayed on the screen.

```
Log View
 Time  HDD 1              Events
 2006/12/18-14:19:16  Menu Modified-Administration
 2006/12/18-14:22:07  Menu Modified-Administration
 2006/12/19-15:29:11  Menu Modified-Record
 2006/12/19-15:29:11  Menu Modified-Administration
 2006/12/19-15:29:11  Menu Modified-Menu
 2006/12/19-15:29:11  Menu Modified-Video
 2006/12/19-15:29:47  Signal On - Ch 2
 2006/12/19-15:30:19  Motion - Ch 2
 2006/12/19-15:30:21  Menu Modified-Record
 2006/12/19-15:44:27  Motion - Ch 2
 2006/12/19-15:58:17  Motion - Ch 2
Total Log 395
```

Particular lines correspond to recordings connected with given events. On the list above there are 688 events. To see the invisible ones use the *JOG* dial.

If there are no alarm recordings the following information is displayed.

```
Report
No Matched Log
       ▸ OK
```

After selecting the required file by means of the *JOG* dial press *ENTER* to start playback.

During Event List Playback the same functions and modes are available as with HDD playback.

Notice: As it described in chapter 3.7.1, it is possible to display full Event Log which also contains recording Event List. Apart from the alarm recordings you can also find other things such as password change, power loss. After selecting position and pressing *ENTER* playback from the given time period starts.

6. RECORDINGS BACKUP

NV-DVR3009 and NV-DVR3016 multiplexers allow users to create backup of recorded material. It is possible to copy single images and full sequences creating in this way backup copy of a given part of recordings.

6.1 Single Images Copying via USB port

To copy single images use can use popular portable Flash memory carriers that have USB interface.

After putting portable memory carrier into USB port that can be found on the front panel, please select full screen playback mode, find the place your are interested in and press *PLAY* to pause playback. In the pause mode you can choose the required image turning the *JOG* dial.

eng

Next press *COPY*.

The following windows appears

After accepting multiplexer start recording conversion to the JPEG file.

After successful copying (it takes e few dozen seconds) the following message appears

In case there are some problems with the carrier the following message appears
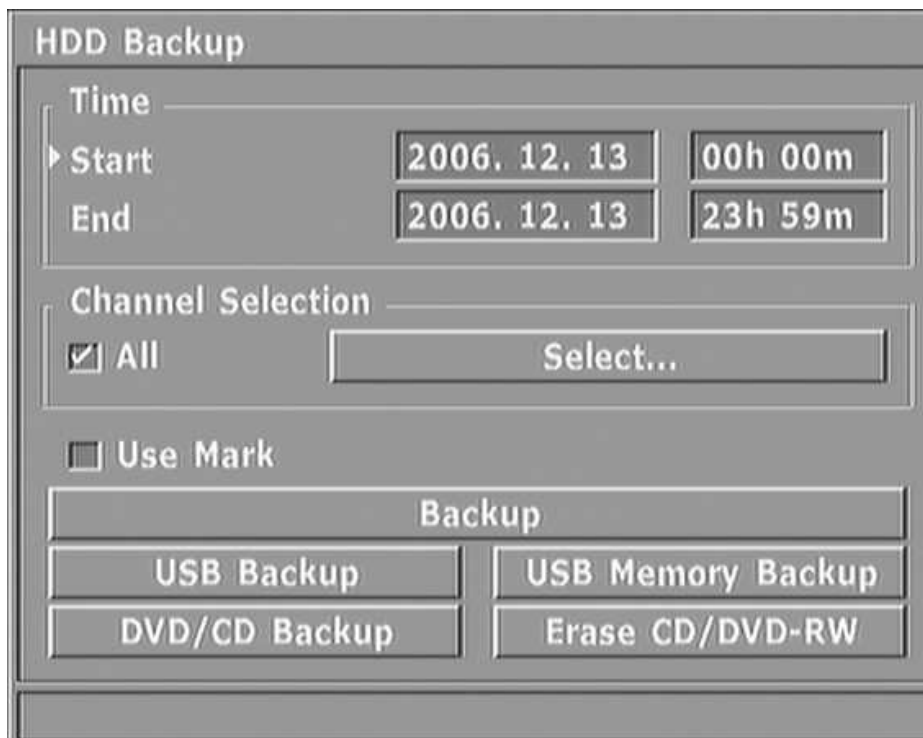
BACKUP

6.2 Recordings Backup onto Swappable Disk.

NV-DVR3009 and NV-DVR3016 allow users to backup recordings onto a swappable disk. In order for the user to be able to backup recordings onto a swappable disk it has to be set to *Copy* mode (see chapter 3.7.2). The material is copied into its own *.603* format. Files with such an extension can be played back on the multiplexer or a computer by means of *N-Viewer 3000* software.

Notices:

1. Recording is still active during copying.

2. Live Monitoring via computer network is possible but the refresh rate goes down.

3. Web monitoring is not possible during copying.

In order to backup recordings go to *System Setup/ HDD Backup*.

In the *Time* field recordings time period for backup is set.

In the *Channel Selection* field users choose if recordings from all channels (*All*) or from particular channels (*Select...*) are to be recorded.

After selecting the range of copying press *Backup.*

On the bottom of the window messages concerning the progress of copying

or problems with copying will appear.

BACKUP

Apart from the usual method of introducing time period in the *Start* and *End* fields users can select recordings chosen for copying in another way. It is done during playback.

In order to select the range of material to be copied start playback and press *INDEX IN* on the front panel at the moment the part of the material you are interested in starts to be played back. The following sign appears in the lower left corner of the screen.

The end of the part of recording to be copied is marked by pressing *INDEX OUT* on the front panel. The following sign appears on the screen.

The part of recording, marked in such a way, can be copied onto a swappable disk or other memory carrier as it will be described in the following chapters.

In order for the recordings to be copied from the indexed range and not from the period set in the *Start* and *End* fields tick *Use Mark* in the HDD Backup submenu.

BACKUP

6.3 Recordings Backup onto External Disk via USB Port

It is possible to backup recordings onto an external HDD connected via USB port. Backup files can be played back on the multiplexer or a computer by means of *N-Viewer 3000* software.

Notices:

1. Recording is still active during copying.

2. Live Monitoring via computer network is possible but the refresh rate goes down.

3. Web monitoring is not possible during copying.

In order to backup recordings onto an external HDD connected via USB port go to *System Setup/ HDD Backup.* The same menu as described in chapter 6.2 appears on the screen. Select the range of the material you want to backup (or use indexed range) and press *USB Backup.*

6.4 Recordings Backup onto Portable Flash Memory Connected via USB Port

It is possible to backup recordings onto an external flash memory via USB port. Backup files can be played back on the multiplexer or a computer by means of *N-Viewer 3000* software.

Notices:

1. Recording is still active during copying.

2. Live Monitoring via computer network is possible but the refresh rate goes down.

3. Web monitoring is not possible during copying.

In order to backup recordings onto an external flash memory connected via USB port go to *System Setup/ HDD Backup.* The same menu as described in chapter 6.2 appears on the screen. Select the range of the material you want to backup (or use indexed range) and press *USB Memory Backup.*

6.5 Recordings Backup onto External Disk via FireWire Port

It is possible to backup recordings onto an external HDD connected via FireWire port. If you wan to copy recordings in this way make sure that this disk is set as copy-disk in the multiplexer's menu. Backup files can be played back on the multiplexer or a computer by means of *N-Viewer 3000* software.

Notices:

1. Recording is still active during copying.

2. Live Monitoring via computer network is possible but the refresh rate goes down.

3. Web monitoring is not possible during copying.

4. Using internal backup HDD and external backup HDD via FireWire is impossible.

In order to backup recordings onto an external HDD connected via FireWire port go to *System Setup/ HDD Backup*. The same menu as described in chapter 6.2 appears on the screen. Select the range of the material you want to copy (or use indexed range) and press *Backup.*

BACKUP

6.6 Recordings Backup onto CD/DVD

The multiplexers allow users to backup recordings onto a CD or DVD. You can use both CD-R/DVD-R and CD-RWDVD-RW. It is possible to create many sessions on one CD/DVD. The material is copied into its own *.603 format. Files with such an extension can be played back on the multiplexer, on a computer by means of *N-Viewer 3000* software or on any computer by means of CD/DVD player attached to each a CD/DVD.

Notices:

1. Recording is not active during copying. You will be informed about it before you make a decision to start copying.

2. Live Monitoring via computer network is possible but the refresh rate goes down.

3. Web monitoring is not possible during copying.

4. During the whole process of copying the front panel flap should be opened.

In order to backup recordings onto a CD/DVD put a CD/DVD in and go to *System Setup/ HDD Backup.*

In the *Start* and *End* fields you set the time frames of the copied recordings.

In the *Channel Selection* field you choose whether recordings from all the channels (*All*) or from particular channels (*Select...*) are to be copied .

After selecting the range of the material to be copied press *CD/DVD Backup.*

The system calculates the size of the data and displays the info about available disk's space. If the size of the copied data is larger than the available disk's space the recording will be carried out until the whole disk's space is used up. The rest of the data will not be copied.
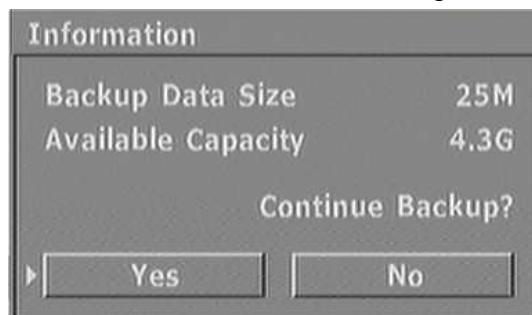
Pressing *Yes* starts the process of copying. Progress bar and some messages will be displayed on the screen.

Wait till the copying is over and CD/DVD Rom opens.

In case a CD-RW/DVD-RW is used for copying its contents can be deleted by means of *Erase CD-RW/ DVD-RW* option. As well quick and full erasing is available.

7. CONNECTING ADDITIONAL HDDs

You can connect additional HDDs to the multiplexer that can be used as disks for creating copies or enlarging the space used for recording.

The whole range HDDs is available on the market but the manufacturer advises the usage of the disks that are identical with the ones inside the device. Other HDDs can be used only at your own responsibility.

7.1 Installing HDD in the Swappable Bay.

This subchapter is applicable only to the models equipped with swappable bay.

Attention: Switch the multiplexer off always before taking out or putting in the swappable bay.

In order to install the disk in the swappable bay open take out the bay using the attached key. Next, open the upper lid by pulling the latch marked *OPEN*.

HDD shall be configured as slave. It should be connected to the IDE data cable and to power supply (please bear in mind to properly fit the plugs to the sockets). Put the disk into the bay and screw the disk to the bay. Close the lid. Put the bay into the multiplexer and lock it with the key. Turn the multiplexer on. After the system starts information about installed HDDs appears. The swappable disk is marked as (*RM*). It is possible to set the mode in which the disk operates (*Copy* or *Recording*).

7.2 Connecting HDD to the USB port

Attention: Switching the multiplexer off always before connecting or disconnecting USB devices is recommended.

The disk connected to the USB port is a disk used for creating copies.

7.3 Connecting HDD to the IEEE1394 (FireWire) Port.

Attention: After connecting or disconnecting the disk to IEEE1394 port always switch the multiplexer off.

You can add 4 HDDs that are connected in the daisy-chain way through the FireWire port. The disks cannot operate in any of the RAID modes.

If there are both HDDs and CD/DVD-RW Drive connected through the FireWire port in the system the CD/DVD-RW Drive has to be connected first and then connect the HDDs in the daisy-chain way.

The disks connected through this port can be set as disk used for creating copies as well as usual disk enlarging recording space. On the HDDs list, these disks in the *Type* column have *1394*. *Indicate* option allows users to check numbering assigned to the disks. See chapter 3.7.2

PTZ CAMERAS

8. PTZ CAMERAS

NV-DVR3009 and NV-DVR3016 multiplexers allow users to control up to 9 or 16 cameras connected in the daisy-chain way through the RS-485 bus. These can be PTZ cameras, standard cameras with optical or digital zoom. The camera control can be done by means of front panel buttons, remote control, Internet Explorer browser or *N-Viewer 3000* software. In order to be able to control the cameras, each camera has to have unique, within the system, address.

The multiplexers have a number of built-in protocols. These are: Novus-C, Novus-C1, Novus-C2, Pelco-D, LG, Lilin, Samsung.

Attention: All the cameras in the system should have identical protocol and identical baud rate (see camera user's manuals).

The description of camera connection applies to the connection of Novus CAMA I. to connect cameras of other manufacturers please contact technical department and read the camera user's manual.
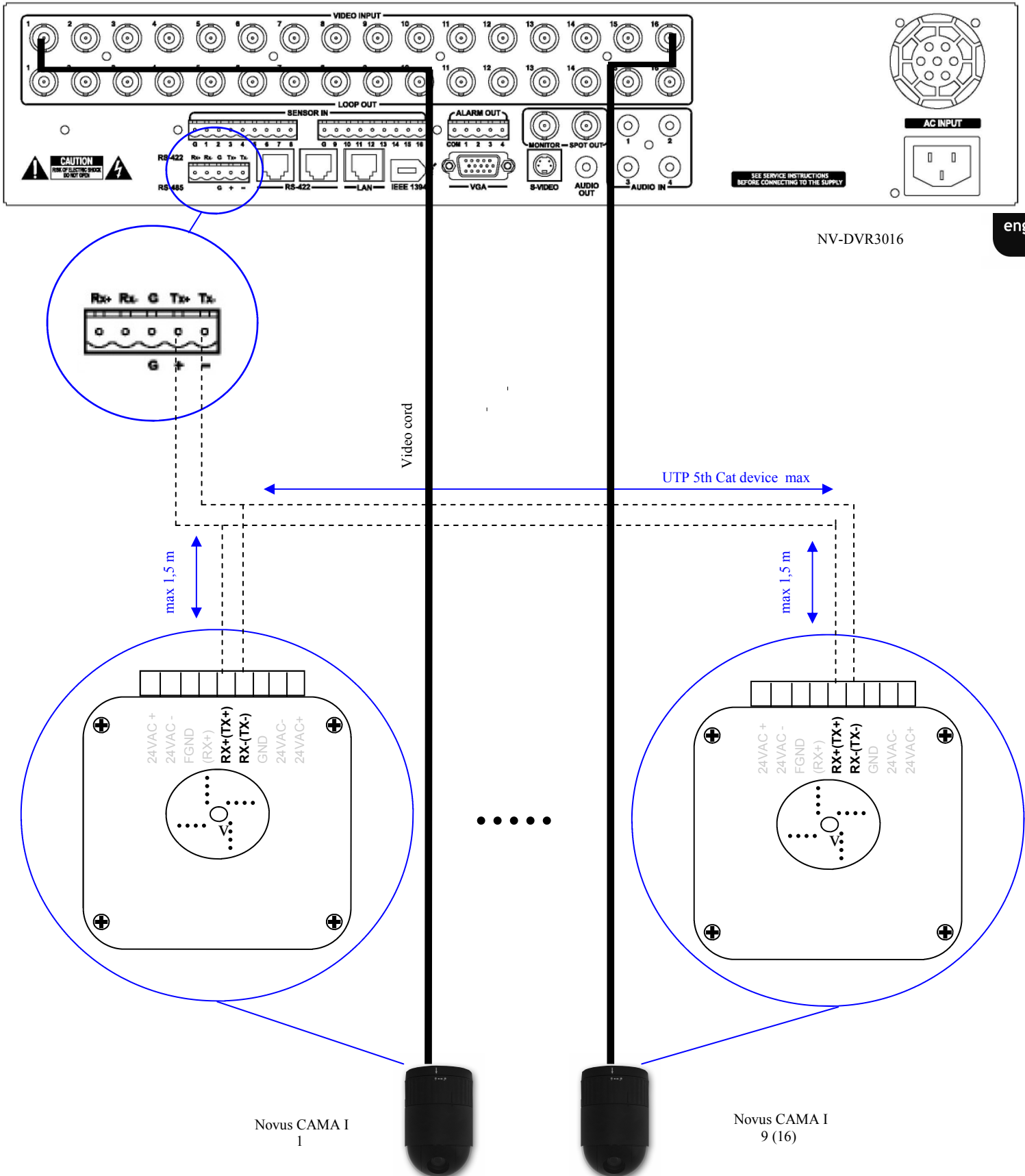
8.1 Novus Camera Connecting

PTZ cameras are connected in the daisy-chain way using twisted pair 5th CAT. The cameras are connected to the *RS-485* telemetry port. The maximum length of the bus cannot exceed 1200m.

To conveniently connect cords the connector can be taken out of the socket. The cameras should be connected in the following way:
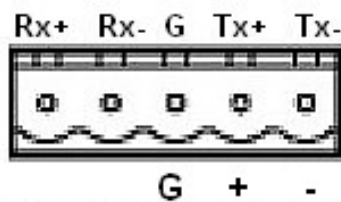
+	-	should be connected to Rx + (Tx+) in the camera
−	-	should be connected to Rx - (Tx-) in the camera

PTZ CAMERAS

NV-DVR3016

eng

Video cord

UTP 5th Cat device max

max 1,5 m

max 1,5 m

Novus CAMA I
1

Novus CAMA I
9 (16)

PTZ CAMERAS

8.2 Menu Configuration

In order for the user to be able to control the cameras the protocol and transmission parameters according the ones selected in the camera.

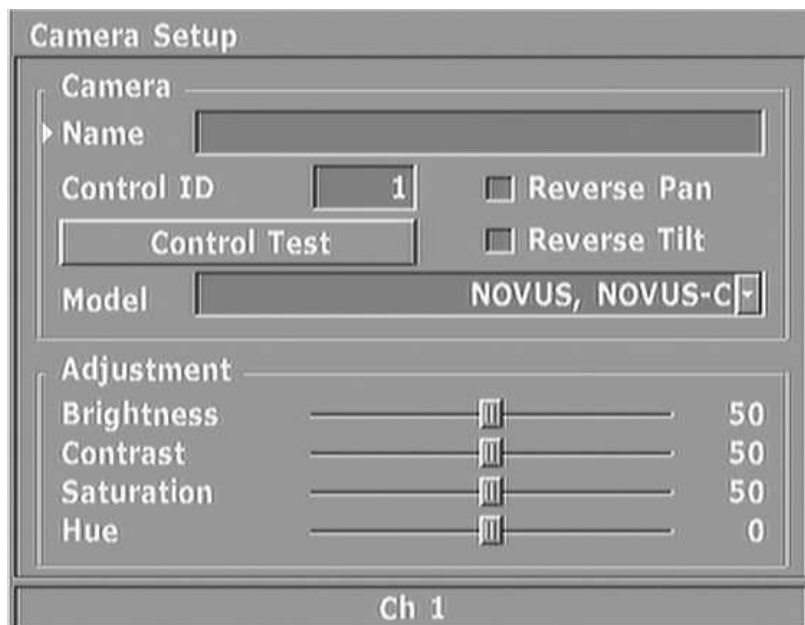To do this go to *Camera Setup / Pan/Tilt Model*

In the *Select Model* field choose the *Novus-C* protocol.

In the *Baud Rate* field select exactly the same baud rate as the one selected in the cameras (9600 bps in the example).

In the *Select Terminal* field you choose the port to which camera control cords are connected, that is *RS-485*
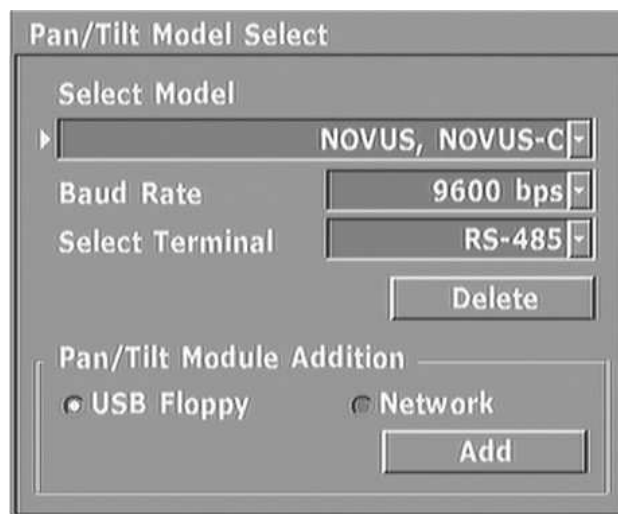
Next go to *Camera Setup* submenu

and input the right settings concerning the camera whose number is being displayed on the bottom of the window.

In the *Model* field select *Novus-C* protocol.

In the *Control ID* field select the camera address that is to be controlled after accessing a given multiplexer's channel. The address corresponds to the channel number for which the settings have been configured by default. Nevertheless, you can select any address from 1 to 255.

In order to check if the connection and the settings are fine you can press *Control Test.* Next turn the *SHUTTLE* ring right or left. If the settings and connection are OK the camera should start turning. Press *EXIT* to go back to the main menu.

Ticking *Reverse Pan* and *Reverse Tilt* means that the camera will turn in another direction then the one chosen by Shuttle ring. In some situations such a change may make camera control more intuitive.

Name and *Adjustments* parameters are described in chapter 3.1.2.

8.3 PTZ Camera Control

As mentioned before cameras can be controlled in 3 ways: front panel buttons, IR remote control, through the computer network.

8.3.1 Control by Means of Front Panel Buttons

In order for the user to be able to control PTZ camera go to Camera Control.

To do this press any of the PTZ buttons.

In the PTZ mode it is possible to select the cameras to be controlled. To do this select a required camera by means of numeric button.

PTZ CAMERAS

Below you have ways of taking advantage of different camera functions:

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PAN:

Press *PAN* and it becomes highlighted in blue. Turning the *SHUTTLE* ring makes the camera move, different ring angle changes the speed of PAN;

TILT:

Press *TILT* and it becomes highlighted in blue. Turning the *SHUTTLE* ring makes the camera move, different ring angle changes the speed of TILT;

ZOOM:

Press *ZOOM* and it becomes highlighted in blue. Turning the *SHUTTLE* ring zooms in or zooms out object;

FOCUS:

Press *FOCUS* and it becomes highlighted in blue. Turning the *SHUTTLE* ring adjusts the focus;

IRIS:

Press *IRIS* and it becomes highlighted in blue. Turning the *SHUTTLE* ring adjusts the iris;

TOUR:

Press *TOUR* and it becomes highlighted in blue. Pressing one of numeric buttons from 1 to 8 starts the Tour with a given number.

In order to end the Tour you have to use the PAN or TILT function.

PRESET SET:

Press *P.SET* and it becomes highlighted in blue. Pressing one of numeric buttons from 1 to 8 saves the preset under this number;

PRESET MOVE:

Press *P.MOVE* and it becomes highlighted in blue. Pressing one of numeric buttons from 1 to 8 makes the camera go to a given Preset;

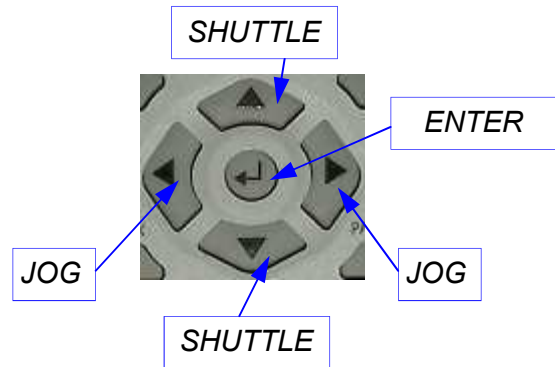### 8.3.2 Control by Means of IR Remote Control

Description of IR Remote Control buttons:

PTZ - activating control menu

- selecting camera to be controlled

SHUTTLE

ENTER

JOG   JOG

SHUTTLE

eng

Detailed description of the IR remote control functions can be found in chapter 10.

In order to control the multiplexer from the level of IR remote control, set multiplexer's ID and select this number from the level of the IR remote control. Description of this procedure can be found in chapter No 10.

To control a PTZ camera press *PTZ* button or go to *Camera Setup / Camera Control*. Next by mean of numeric buttons select a camera the is to be controlled.

Moving trough the menu by means of buttons corresponding to *JOG* dial, select appropriate function. The function will be highlighted in blue.

Calling a function is done in the same way as with front button camera control. Use the IR remote control buttons that correspond to the appropriate front panel buttons.

Notice: To select numbers less than 10 number must be preceded by 0.

E.g first preset recall buttons sequence is: *0; 1; ENTER*.

CONNECTING DEVICES TO ALARM INPUTS AND OUTPUTS

9. CONNECTING DEVICES TO ALARM INPUTS AND OUTPUTS

NV-DVR3009 and NV-DVR3016 have 9 or 16 alarm inputs allowing to connect external devices. Connectors to connect cords have easy-to-use screw terminals. Grounding (G) is the first pin to the left in the first connector. Alarm inputs are next. The same is as far as the second connector is concerned.
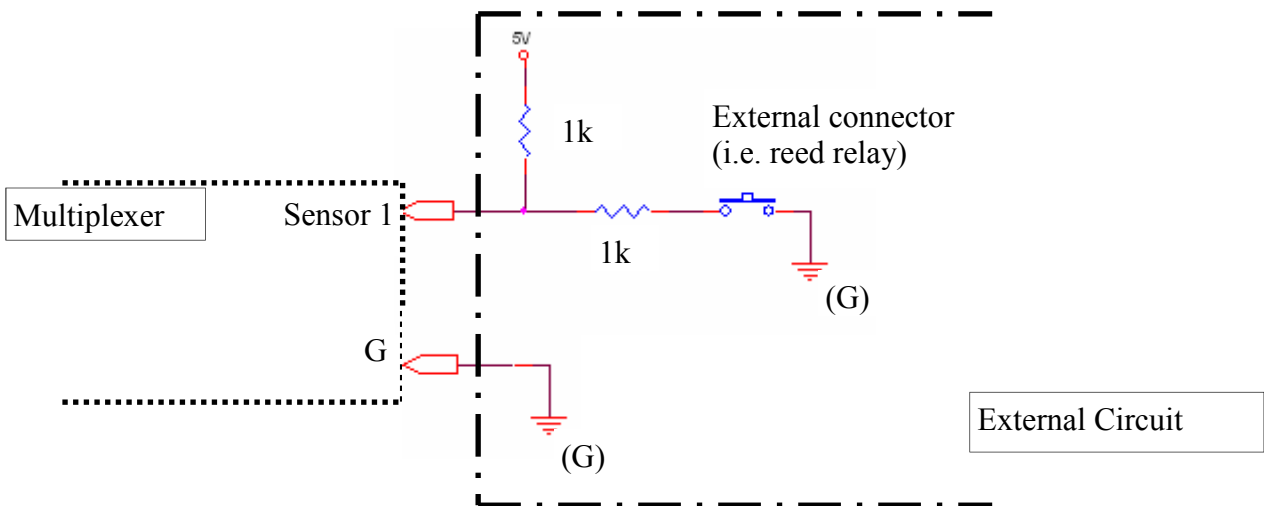
NV-DVR3009   NV-DVR3016

Inputs operate in the TTL standard that is why you have to provide appropriate voltage creating electric circuit <u>for each input</u> as it is presented on the scheme.

Attention: Both alarm inputs and outputs are not protected against atmospheric discharges. Users should protect inputs from the discharges as they can permanently damage them.

CONNECTING DEVICES TO ALARM INPUTS AND OUTPUTS

NV-DVR3009 and NV-DVR3016 have 4 alarm outputs that can trigger external devices. Connectors to connect cords have easy-to-use screw terminal that can be taken out. Grounding (G) is the first pin to the left. Alarm inputs are next.

Electric load capacity of each output cannot exceed 100mA. You can connect light emitting diode (LED) to outputs creating circuit as on the scheme. If it necessary to connect devices that require a lot of power supply you need to use additional circuits with i.e. relay.
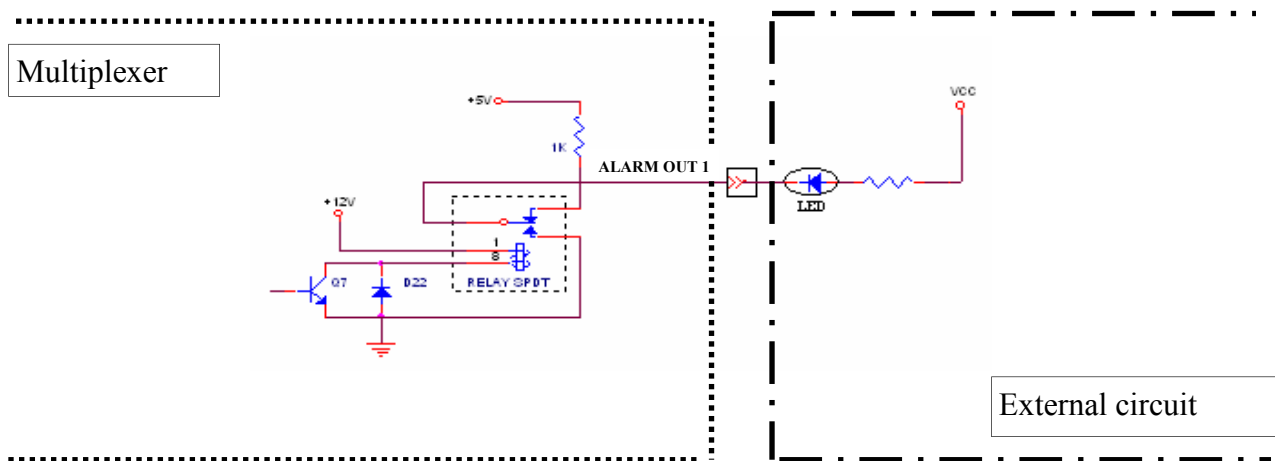
Attention: Both alarm inputs and outputs are not protected against atmospheric discharges. Users should protect inputs from the discharges as they can permanently damage them.

MULTIPLEXER'S OPERATION FROM THE LEVEL OF IR REMOTE

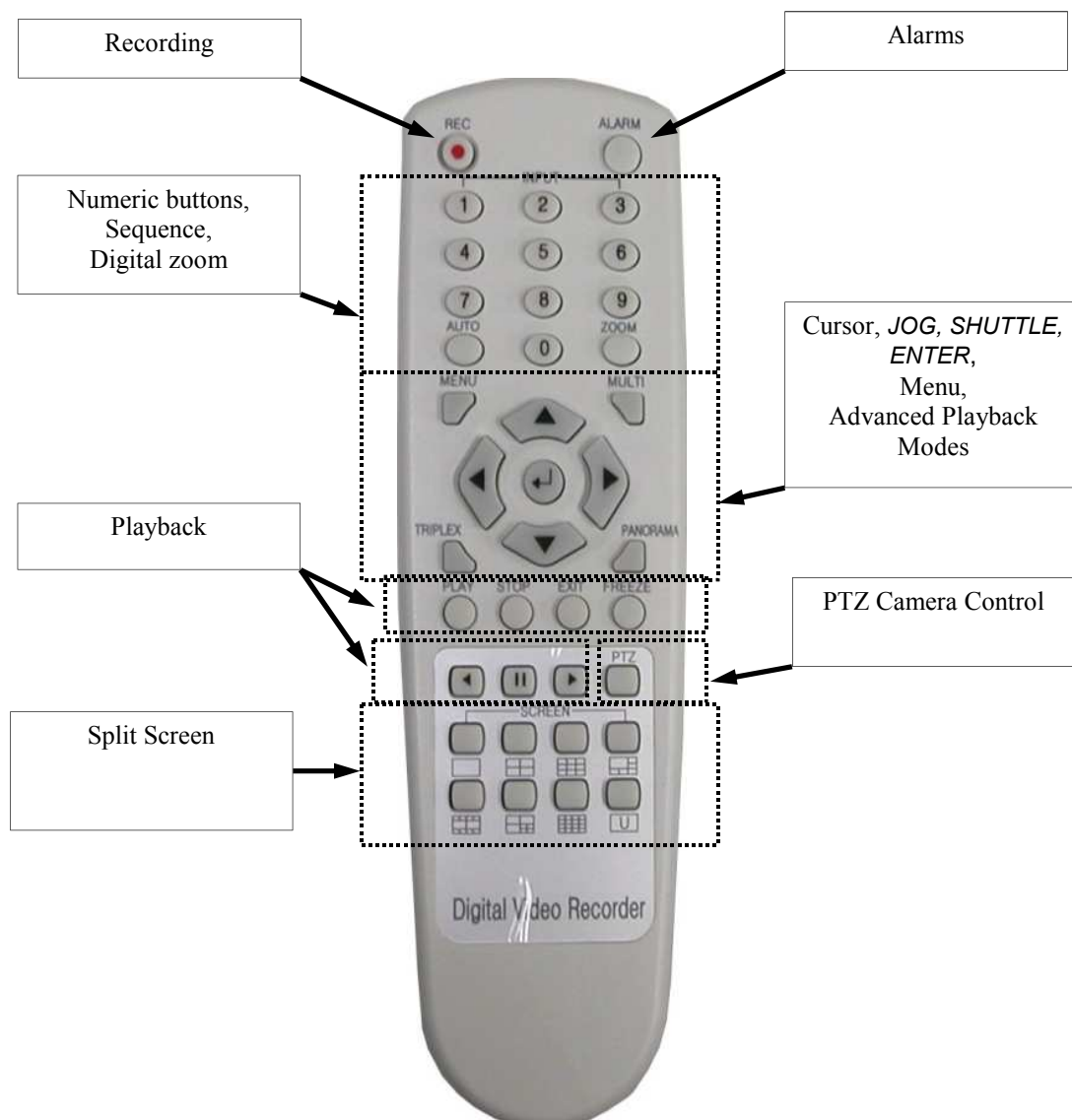### 10. MULTIPLEXER'S OPERATION FROM THE LEVEL OF IR REMOTE CONTROL

The range of the remote control depends on the batteries condition and oscillates from few to several meters.

You can control up to 9 multiplexer with one remote control under the condition that each multiplexer has a unique ID. To assign an ID to the multiplexer press *STOP* on multiplexer's front panel and holding it press a numeric button (i.e. 1). Both buttons should be pressed for about 3 seconds and after that this multiplexer's ID is 1. The message stating that the ID has been assigned appears on the screen., i.e.:

Remote ID = 1

If you need to change the ID number do exactly the same changing numeric button.

The buttons on a remote control are logically grouped depending on their functions.

MULTIPLEXER'S OPERATION FROM THE LEVEL OF IR REMOTE

Before starting controlling multiplexer by means of IR remote control make sure it is not blocked in the multiplexer's menu (see chapter 3.7.6)
To select a multiplexer that will controlled point the remote control at the IR receiver that can be found on the multiplexer's front panel, press the numeric button corresponding to a given multiplexer's ID and old it for about 3 seconds.

Remote control button functions correspond to the multiplexer's front panel button functions.
Below you have difference between multiplexer's front panel button functions and the button functions of IR remote control.

If you want to go to the playback menu press *PLAY*

Playback directions, pause mode

Horizontal arrows act as *JOG* dial

Vertical arrows act as *SHUTTLE* ring

If you wan to go to the PTZ menu press

Please remember one thing as far as the NV-DVR3016 is concerned. If you want to select a channel from 1 to 9, the required number has to be preceded by the digit 0, i.e. to select channel No5 press 0 and next 5.

Password digits during logging in should be input in the same way.

MULTIPLEXER'S OPERATION FROM THE LEVEL OF SYSTEM

11. MULTIPLEXER'S OPERATION FROM THE LEVEL OF SYSTEM KEYBOARDS

NV-DVR3009 and NV-DVR3016 can be remotely controlled from the level of NV-KBD60 or NV-KBD30 keyboards. It is possible to control many multiplexers from the level of one keyboard (up to 10). The total bus length cannot exceed 1200m. The devices are connected in daisy-chain way.

The NV-KBD30 keyboard has buttons by means of which all the multiplexer's functions can be accessed. To access some functions you need to simultaneously press two buttons. The keyboard has LED display informing about the ID of currently controlled multiplexer and displaying values input on by means of the keyboard.

NV-KBD60 keyboard is an advanced device that allows users to control both multiplexers and cameras. The control is independent from the front panel control that is described in chapter 8. The keyboard lets users appreciate all the PTZ camera functions.

The keyboard is equipped with buttons and knobs that correspond to the ones in multiplexer. It also has a LCD display, displaying basic information about functions, transmission parameter etc.

Detailed information concerning the keyboards can be found in the keyboards ' user's manuals.

MULTIPLEXER'S OPERATION BY MEANS OF COMPUTER MOUSE

12. MULTIPLEXER'S OPERATION BY MEANS OF COMPUTER MOUSE

NV-DVR3009 and NV-DVR3016 multiplexers can be operated from the level of computer mouse with USB interface.

Notice: PTZ control is not available from the level of the computer mouse.

Notice: It is not possible to simultaneously control the multiplexer from the level of the computer mouse and copy recordings onto a memory carrier with USB interface.

- Live Monitoring Mode

Channel selecting - double click left mouse button on the camera images to select given camera and start its display in full screen mode or to go back to the previously viewed images in split screen. Scrolling the wheel causes changing the channels;

Split screen modes - click right mouse button and the following menu is displayed on the screen,

clicking on third icon changes split modes, using scroll wheel changes splits within particular screen division;

User screens - after clicking on 4th icon User Screens are activated, scroll wheel allows to select screens, to disable User Screen feature click on the icon again,

Sequence - after clicking on 6th icon Auto Sequence is activated, to disable feature click on icon the again,

Freeze - after clicking 7th icon Freeze mode is activated, later on clicking on any image causes 'freezing' the picture, to 'unfreeze' click image again, to deactivate Freeze mode click the icon again

Zoom - after clicking on 5th icon Digital zoom mode is activated, arrow icons allows to move zoom area, clicking on 5th icon successively changes zoom factor

Right mouse button click closes the menu.

- Playback Mode

Clicking on 2nd icon activates Playback Menu. Left button clicking selecting items. Scroll wheel allows to change values.

After starting playback other icon-menu appears. Menu consists of 14th icons. To scroll between them use small arrows on the left and right sight of the menu.
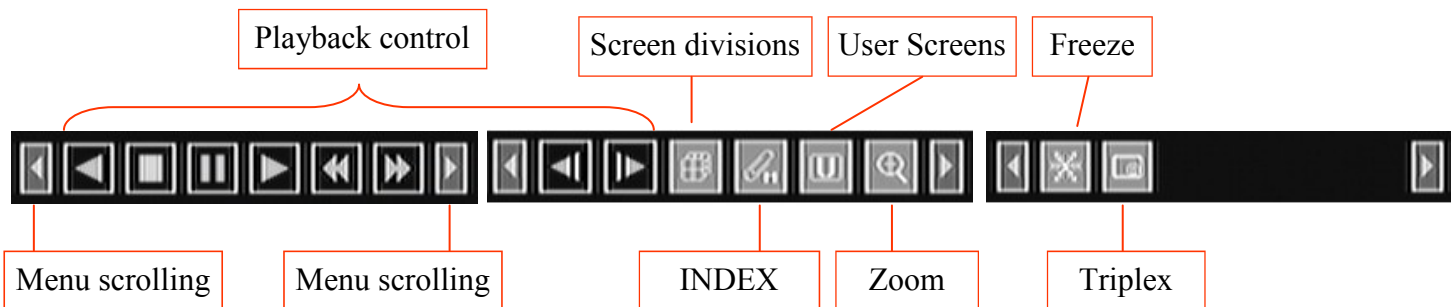
Right mouse button click closes the menu.

MULTIPLEXER'S OPERATION BY MEANS OF COMPUTER MOUSE

- Setup Mode

Click right mouse button and main mouse-control menu is displayed on the screen,

click first icon to display main DVR menu.

Left button clicking selecting items. Double left clicking enters sub-menus. Scroll wheel allows to change values.

While Recording Schedule configuration it is possible to select more than one 'square' in one time. This helps to configure Schedule more effectively. In order to do this click left button on Schedule field and while key pressed move the cursor to select desired channel and hours range. Selected area is highlighted with white.
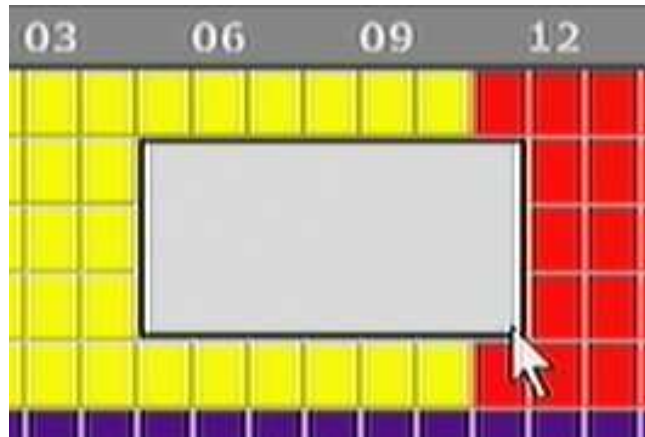
Later on double left click on white area opens recording settings. Settings are applied for all selected channels and hours.

Motion detection area setup.

Similar to described above schedule configuration user is able to select active areas on motion detection grid. Using "click & select" method user can easily select desired areas. To deactivate selected areas it should be selected again.
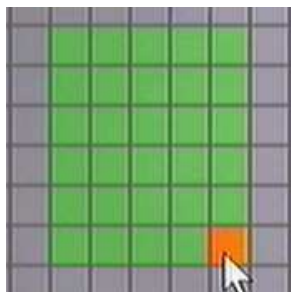
13. COMPUTER NETWOTK CONNECTIONS

NV-DVR3009 and NV-DVR3016 multiplexers can work in the computer network over the TCP/IP protocol.

Attention: Novus is not a distributor of servers, routers or other network devices which have influence on proper network operation. The user of administrator is responsible for the proper configuration of these devices.

There are two way of establishing connection with the multiplexer:

- by means of an applet automatically downloaded from the multiplexer (described in the manual)

- by means of *N-Viewer 3000* software (described in the N-Viewer manual)

In case of connection outside the local network it may be necessary to open or reroute the ports. Multiplexers use 6 ports for connection. Port numbers depend on the port numbers set in the multiplexer's network settings and is bigger by 2020, 2021, 2022, 2023, 2024
i.e. if *Web Server Port* is set to 80, the multiplexer requires additionally the following ports for connection:
* Live monitoring: port 2100
* Audio: port 2101
* Video, Playback: port 2102
* Control: port 2103
* Configuration: port 2104

i.e. if *Web Server Port* is set to 200, the multiplexer requires additionally the following ports for connection: 2220, 2221, 2222, 2223, 2224

CPU	Intel® Pentium® 1GHz (or faster)
RAM memory	128MB
Web browser	Internet Explorer 5.0 (or newer), with Java script on
Additional requirements	VGA, AGP x 4, 16MB
OS	Microsoft® Windows® 98 / ME / 2000 / XP™

13.1 PC Requirements

Attention: In case of problems with applet loading check if in the *Internet Options* in the *General* tab, in the *Temporary Internet Files / Settings* position the option of automatic update of stored websites is enabled.

Additionally, it may be necessary to change browser security settings so that starting ActiveX formants, that are not digitally signed, is possible. The best thing to do is to add the site (multiplexer's address) to the so called "trusted pages".

COMPUTER NETWOTK CONNECTIONS

13.2 Live Monitoring

in order to establish connection with the multiplexer put in the browser's address tab multiplexer's IP address (preceded by the http:// phrase) i.e. http://192.168.0.12.
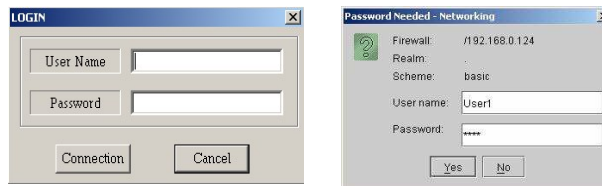
If in the multiplexer's menu some other transmission port than 80 has been selected it needs to be written at the end preceded by colon, i.e. http://192.168.0.12 :85

After a while graphic interface presented below appears on the screen.

After the first connection accept the installation of ActiveX format.

Web browser settings should be set in such a way to allow the installation of ActiveX formants.

If network password is active in the multiplexer please put user name and password in the login window. Additionally, Windows XP may ask you some questions concerning FireWall system.

Windows XP

Enabling / disabling camera names and window frames

Selecting cameras to be controlled and displayed

Display mode selection

PTZ camera control right/left/ up/down

Volume change of transmitted audio signal

PTZ camera control (zoom and focus)

Go to recordings playback

COMPUTER NETWOTK CONNECTIONS

13.3 Recordings Playback

In order to establish connection with the multiplexer in the playback mode you need to press *PLAY* button in the monitoring mode.

After a while graphic interface presented below appears on the screen.

It is possible to start playback from any date/hour. It is possible to playback in any direction, at any speed and in any split screen.

Calendar, selection of year, month, day, hour, minute and second

Enabling / disabling camera names and window frames

Selecting cameras to be controlled and displayed

Display mode selection

Playback speed change

Playback function control

Go to Live mode

APPENDIX - MAXIMUM AVAILABLE RECORDING SPEED CHART

Maximum recording speeds for particular channels depend on the quantity of recorded channels and resolution. It is possible to increase channel recording speed at the expense of other channels.

Resolution *(360x288)*

Number of recording cameras	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Maximum available speeds	25F/s	25F/s	25F/s	25F/s	12F/s	12F/s	12F/s	12F/s	8F/s	8F/s	8F/s	8F/s	6F/s	6F/s	6F/s	6F/s

Resolution *(720x288)*

Number of recording cameras	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Maximum available speeds	25F/s	25F/s	12F/s	12F/s	8F/s	8F/s	6F/s	6F/s	5F/s	5F/s	4F/s	4F/s	3F/s	3F/s	3F/s	3F/s

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