

User's manual (short form)



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NV-DVR5108/DVD
NV-DVR5116/DVD

NOVUS[®]

COMMENTS AND WARNINGS

EMC (2004/108/EC) and LVD (2006/95/EC) Directives



CE Marking

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

- Electromagnetic compatibility EMC 2004/108/EC.
- Low voltage LVD 2006/95/EC with further amendment. The Directive applies to electrical equipment designed for use with a voltage rating of between 50VAC and 1000VAC as well as 75VDC and 1500VDC.

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WEEE Directive 2002/96/EC



Information on Disposal for Users of Waste Electrical and Electronic Equipment

This appliance is marked according to the European Directive on Waste Electrical and Electronic Equipment (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.



RoHS Directive 2002/95/EC

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

Information

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

SAFETY REQUIREMENTS

ATTENTION!

PRIOR TO UNDERTAKING ANY ACTION THAT IS NOT PROVISIONED FOR THE GIVEN PRODUCT IN ITS USER'S MANUAL AND OTHER DOCUMENTS DELIVERED WITH THE PRODUCT, OR THAT ARISES FROM THE NORMAL APPLICATION OF THE PRODUCT, ITS MANUFACTURER MUST BE CONTACTED OR THE RESPONSIBILITY OF THE MANUFACTURER FOR THE RESULTS OF SUCH AN ACTION SHALL BE EXCLUDED.

1. The installation of NV-DVR5108/DVD, NV-DVR5116/DVD should be made by a qualified service person or a professional safety system installer.
2. Recorders 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 recorder 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 recorder has to be protected against humidity and dust. In case the recorder 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 recorder 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 recorder'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 recorder. It might cause serious damage. If a metal object gets inside the device contact the authorised Novus service immediately.
10. The manufacturer does not bear responsibility for damage or loss of data stored on HDDs or other media occurred during the usage of the product.

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FOREWORD INFORMATION

1. FOREWORD INFORMATION

NV-DVR5108 (8-channel) and NV-DVR5116 (16-channel) recorders were designed especially for CCTV systems. A very efficient MPEG4 compression is used in this device that guarantees high quality, detailed images. The device allows high quality recording for a long period of time. It also allows to flexibly adjust recording parameters depending on system requirements. A built-in CD/DVD-RW recorder is a standard feature.

1.1. Main characteristics

- 8 or 16 (depending on the model) arterial BNC inputs,
- Compatible with color (NTSC, PAL) and black-and-white (CCIR, EIA-170) Video Sources,
- Auto detection for NTSC and PAL ,
- Multiple monitor connectors: 1 BNC Video Out, 1 SVHS, 1 Spot, 1 VGA
- Multiple search modes (Date/Time, Calendar, Event)
- System menu displayed on the screen (OSD menu),
- Recording speed up to 200 images per second,
- Hard drive overwriting function,
- 2 USB 2.0 ports,
- Independent recording, playback, live monitoring feature and network connections,
- User friendly graphic interface,
- 2-Channel Audio Recording ,
- Speaker output,
- Built-in text input for ATM and POS,
- Alarm Connections Include: Input, Output and Reset Input
- Remote access to Live Monitoring Feature, recordings, menu settings, system diagnostics and camera control via TCP/IP network or modem connection,
- Web Server embedded,
- Time check with a server or a given recorder,
- Built-in CD/DVD-RW drive,
- Self-diagnostics with an automatic notification,
- Infrared remote control,
- Multi-level system of user powers and password protections,
- MPEG4 compression with image quality parameter configuration,
- RS-485 port for remote control from the level of NV-KBD60 system keyboard ,
- Possibility of copying files onto USB drive and CD.

FOREWORD INFORMATION

1.2. RECORDER'S TECHNICAL DATA

Model	NV-DVR5108/DVD	NV-DVR5116/DVD
Operation Mode	QUADRUPLEX	
Operating System	Linux	
Video Input	8 x BNC, loop-through	16 x BNC, loop-through
Video Output	Main Monitor (1 x BNC, 1 x VGA), Spot Monitor (1 x BNC)	
Alarm Input	8	16
Alarm Output	2 OC	
Audio Input	2 x RCA	
Audio Output	1 x RCA	
Recording Speed	Up to 100 fps (360 x 288), up to 50 fps (720 x 288)	
Compression	MPEG-4 - own algorithm	
Recording Resolution	720 x 288, 360 x 288	
Recording Mode	Time-lapse, Event (Alarm, Motion detection and/or "Text-in")	
Display Speed	200 fps (real-time)	400 fps (real-time)
Display Screen	Full screen, 4, 9, PiP, sequence, user defined, freeze image function, digital zoom of a chosen screen area: 2x	Full screen, 4, 9, 16, PiP, sequence, user defined, freeze image function, digital zoom of a chosen screen area: 2x
Motion Detection	192 detection windows (16x12 grid) with sensitivity & active areas cells number needed for alarm activation defined individually for each channel	
Video Loss Detection	Yes	
Schedule Recording	Individually adjustable for each day/specific days (holidays etc.) per camera, combination of individual recording modes possibility	
Recorded Data Search	By date/time or events (motion, disappeared object, "Text-in")	
Event History Log	Up to 10 000 alarm events	
Time Synchronization	Automatic time synchronization with NTP server	
System Diagnostic	Automatic control of HDD bad sectors number ("Health") & temperature status with local and network notification function	
Storage	Supports up to 3 internal HDDs (max. 500 GB each), 1 HDD 250 GB in-set included	
Backup	Onto CD/DVD, HDD or USB Flash Memory through USB port, through the network	
DVD-RW Drive	Built-in	
External Ports	1 x Ethernet - RJ-45 interface, 10/100 Mbit/s, 2 x USB 2.0 for external drives (HDD, PC mouse, Flash Memory), 1 x RS-485 for PTZ cameras or NV-KBD60 & NV-KBD30 keyboards, 1 x RS-232 for POS, ATM, AC etc.	
PTZ Functions	PTZ cameras control directly from the device and through the network (RASplus, IE)	
Protocol	Novus-C, Novus-C1, Pelco-D and others	
Control	Front panel, Network (RASplus, IE), NV-KBD60 & NV-KBD30 keyboards, USB PC mouse	
Set-up	Multi-lingual On Screen Display (OSD)	
Software	RASplus	
User Authorization	Creation of user groups and accounts with diverse grants, password protection	
Auto System Recovery	Hardware WATCHDOG function	
Power Supply	100~240 VAC	
Power Consumption	Approx. 90 W with 4 HDDs	
Operating Temperature	5°C ~ 40°C	
Relative Humidity	0% ~ 80% (non-condensing)	
Dimensions (mm)	430 (W) x 88 (H) x 400 (D)	
Weight	7.3 kg (without HDD)	
Rack Mount	Standard EIA 19", 2U	

STARTIN THE DEVICE

2. STARTING THE DEVICE

2.1. Getting the device ready to work

Unpack the device carefully.

After unpacking make sure that there are the following elements:



NV-DVR5108/DVD or NV-DVR5116/DVD re-



Rack mounting bracket and screws to install additional HDD's.



Power cord.



CD with a user's manual and network software.



User's manual and network software guide

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

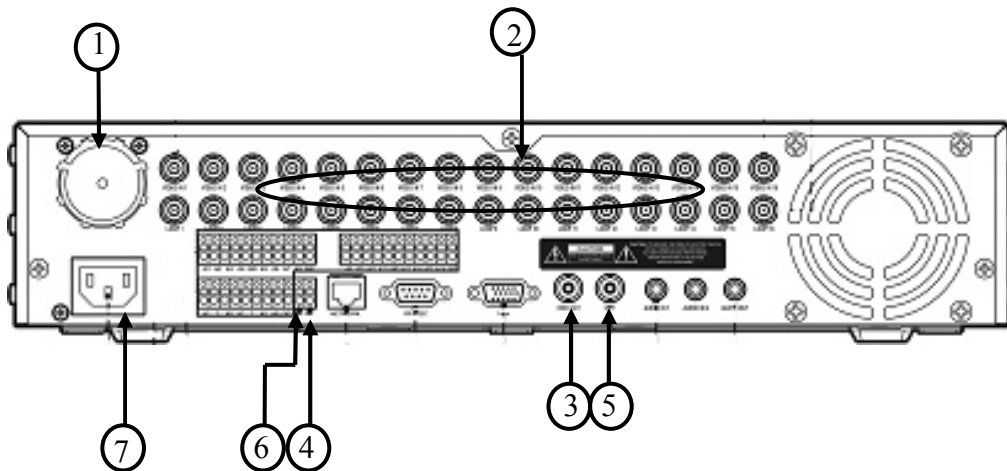
ATTENTION!

If the device has been taken from a room with lower temperature you have to wait untill 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.

CAUTION: Before starting the device you need to familiarise yourself with the description and the role of particular inputs which are on the back panel.

STARTING THE DEVICE

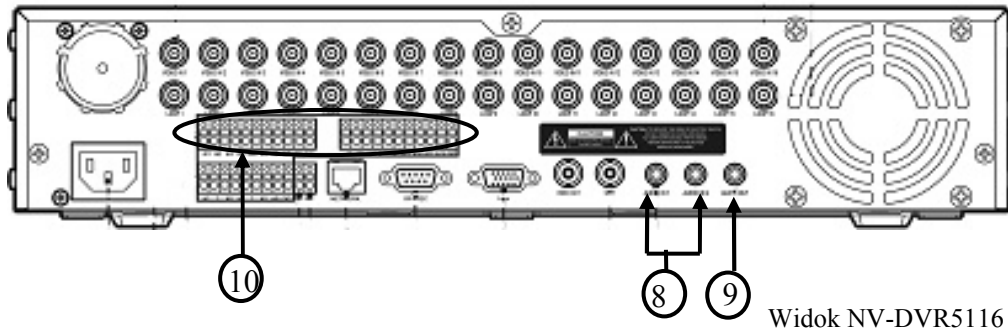
2.2. Electrical connection and other back panel elements



NV-DVR5116 View

1. Fan cooling power supply unit, it shouldn't be covered!
2. **VIDEO IN/LOOP:** video inputs to hook up camera video signal with loop video outputs (16 or 8 channels depending on the model).
3. **VIDEO OUT,** : main monitor connectors, Composite Video Signal (CVS) or S-Video mode, it is possible to choose one out of many display modes.
4. **RS-485:** RS-485 bus connector for remote control of speed dome cameras or NV-KBD60 keyboard system .You can connect one of the device in the same time.
5. **SPOT 1** CVS outputs for SPOT monitor, full screen display of any camera or sequence of cameras
6. **ARI (Alarm Reset Input):** external signal applied to ARI and GND connectors is able to cancel active relay outputs and the internal buzzer of the recorder. The minimum voltage of the applied signal should be 0,3V and last about 0,5sec, for deactivation.
7. socket to connect power cord 100 ~ 230 V AC, you need to make sure that the plug is plugged in correctly and provides a stable and safe connection. The power cord has a grounding PIN. If your power outlets does not have a grounding PIN receptacle, do not modify the plug.

STARTIN THE DEVICE

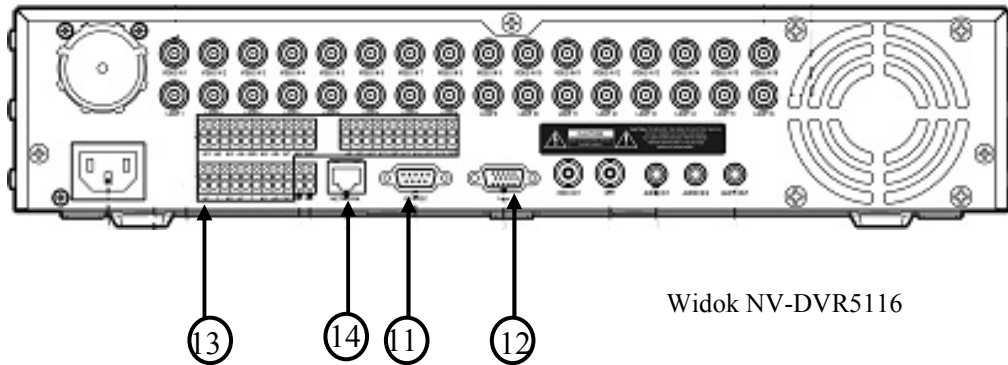


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NV-DVR5116 View

- 8. AUDIO IN 1/2:** 2 mono audio inputs (RCA connectors) for microphones.
Attention: sound recording can only take place when legal regulations of a given country allow it.
- 9. AUDIO OUT:** audio output for connection of the speaker and an amplifier.
- 10. ALARM INPUTS:** alarm inputs, which can be set from the menu as normally open (N.O.) or normally closed (N.C.), 16 or 8 according to a model. In order to detect the signal it has to last at least 0.5sec. All GND connectors are at common ground. The ground alarm device need to be connected to one of the GND connectors.

STARTING THE DEVICE



Widok NV-DVR5116

- 11. RS-232 PORT :** connection of external modem for remote preview, connection of external keyboard (optional) or devices generating information in the form of ASCII codes (cash registers, cash machines). You can connect one of the devices in the same time. If transmission standard of connected device is different than RS-232, you need to use additional device to change standard transmission from RS-485 to RS-232. You can use converter NVRS-001RSC.

Attention: Cord used for connecting to RS-232 port is not included with the set. Make sure that the cord you have is appropriate. (DB9S female connector).

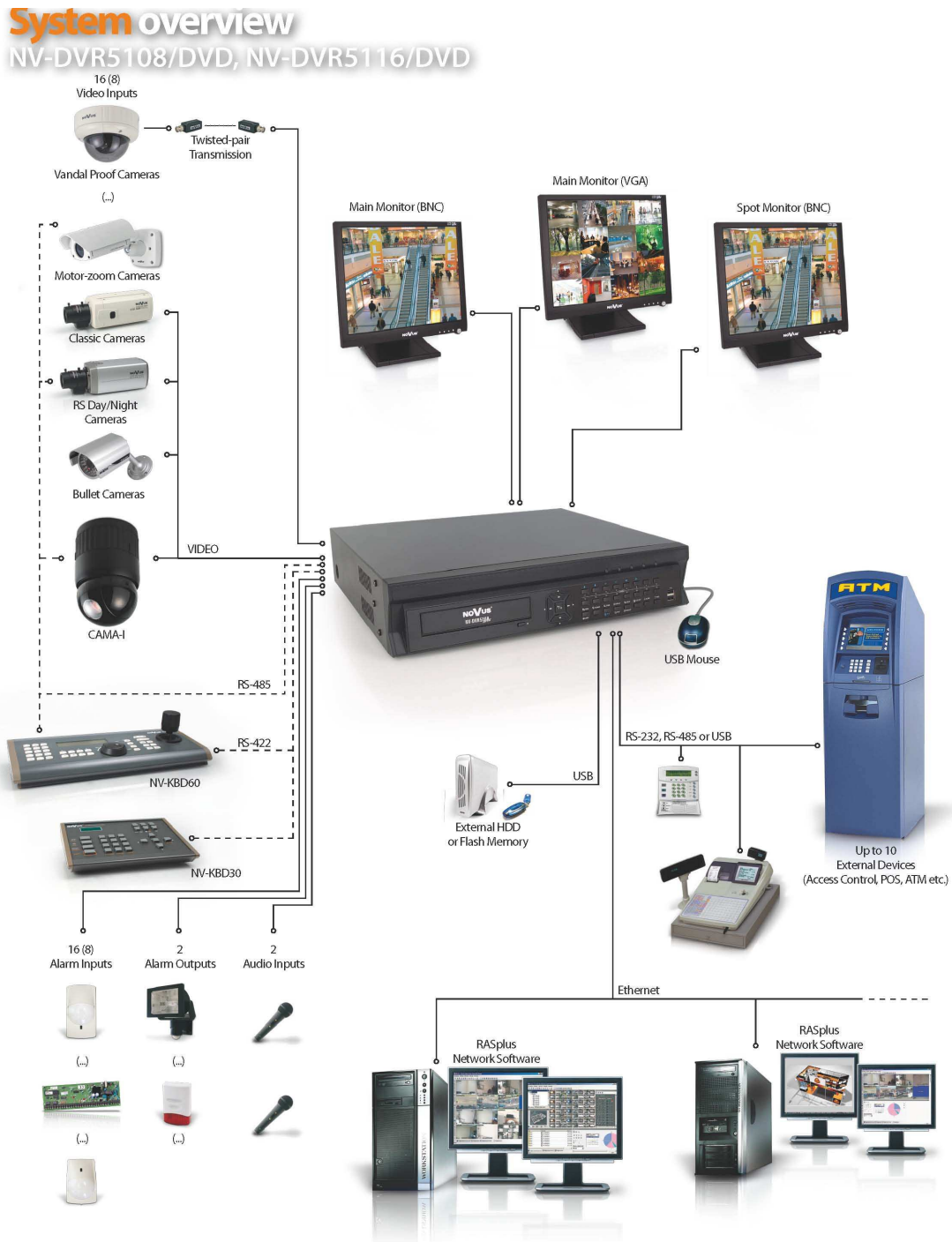
- 12. VGA** output to connect the main monitor in the VGA mode (computer mode). You need to use signal cord provided with the monitor.
- 13. ALARM OUTPUTS** recorder can activate external devices such as buzzers, halogen lamps, sirens etc. by means of 2, relay Transmitter's load capacity is 0,5A@125VAC and 1 A@ 30 VDC
- 14. NETWORK** RJ-45 connector to connect the device to a local network in the 10/100Mbps standard.

STARTIN THE DEVICE

2.3. Connecting of peripheral equipment

System connecting should be done by a qualified staff.

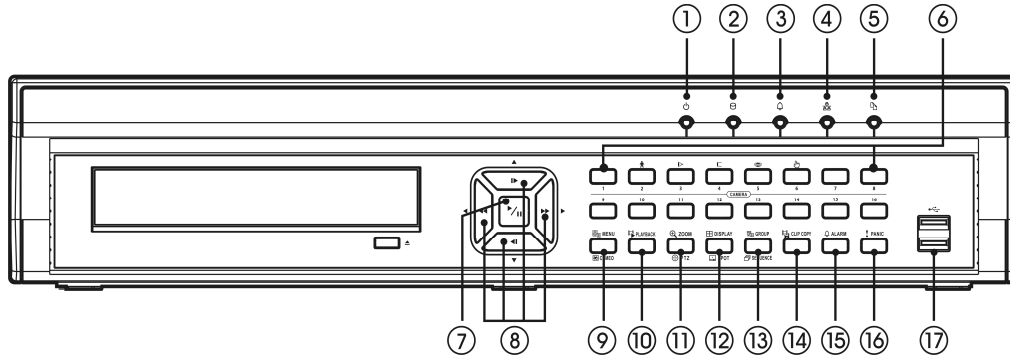
Before connecting system elements you need to familiarise yourself with the diagram presented below, which is a pictorial diagram. Depending on requirements, specific system will consist of a different number peripheral devices. Monitors, cameras and other devices have to be bought separately, depending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



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STARTING THE DEVICE

2.4. Front panel description






Widok NV-DVR5516

Some buttons of the front panel are used for different functions. Below, you have the description of all buttons and their functions.

NOTE: a mouse with USB interface can be used for recorder's control and setting. All the details can be found in the following chapters of the manual.

- | | |
|---------------------------|---|
| 1. POWER LED | Lits when power is on |
| 2. HDD LED | Flickering of HDD LED (light-emitting diode) means that a process of recording or searching / playback is in progress. |
| 3. ALARM LED | Lits when one of alarm inputs or buzzer was activated. |
| 4. NETWORK LED | Flickering of NETWORK LED means that the device is connected to Ethernet or external modem. |
| 5. CLIP COPY LED | Lits when copying is in progress. |
| 6. CHANNEL BUTTONS | Press one of the channel buttons to display required camera in full screen mode. Channel buttons are used for setting and putting in password. Holding any of the channel buttons for 3 seconds allows you to enter image setting menu (brightness, contrast, saturation, hue). |

In PTZ mode press 1 button to zoom in , button 2 to zoom out 
 Buttons 3 and 4 sharpness setting , button 5 means go to PRESET, button 6 saves PRESET.

STARTIN THE DEVICE

7. PLAY / PAUSE

Press the PLAY/PAUSE button to play back images at regular speed. Pressing the button in the Playback mode pauses the video. The screen displays when the DVR is playing back video.

8.

Navigation buttons are used for navigation in menu and for changing parameters value in DVR's menu (buttons ▲ and ▼). In PTZ mode navigation buton are used for PTZ camera control. In PIP mode buttons ▲ and ▼ are used for changing location of displayed picture. Buttons ◀ and ▶ are used to change dimensions of the PIP window.

In Display mode pressing buton of the fast playback ▶▶◀◀

changes playback speed forward or backward. Playback Speer is marked by following graphics ◀◀ ◀◀◀ ◀◀◀◀ ▶▶ ▶▶▶

▶▶▶▶

In PAUSE mode press ◀◀ or ▶▶ to playback picture by picture.

9. MENU/CAMEO

Press MENU button to enter the menu of DVR.

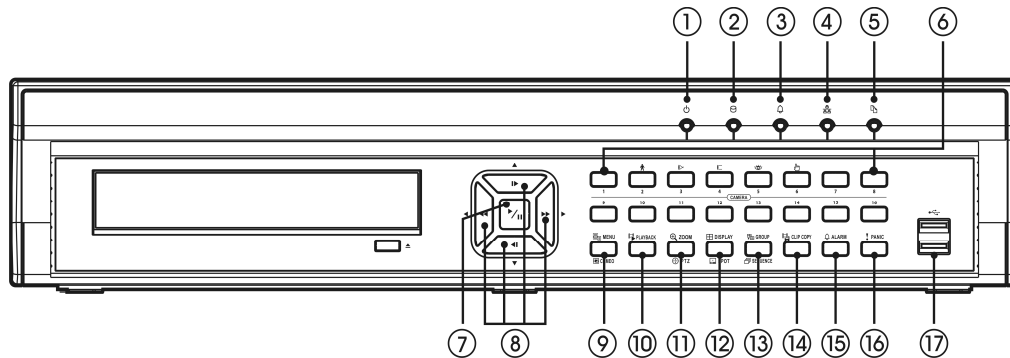
Press MENU button in grid display and hold it for 2 seconds to start sequence display in grid mode. Function allows to change order of displayed cameras in grid mode on the main monitor or start sequence display of the cameras on SPOT monitor in full screen.

10. PLAYBACK

Press PLAYBACK button to enter or exit Playback mode.

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STARTING THE DEVICE



11. ZOOM/PTZ

Press the ZOOM button to zoom the current image on the screen. A PIP with a rectangle temporarily displays showing what area of the screen has been enlarged. You can use the arrow buttons to move the rectangle to another area.

Press the PTZ button to enter the PTZ (Pan/Tilt/Zoom) mode which allows you to control properly configured cameras.

12. DISPLAY

Toggles between different display formats. The available formats are: full, 4x4, 3x3, 2x2 and PIP. Press and hold DISPLAY button for 2 seconds to display selected camera on SPOT monitor.

13. SEQUENCE

In Live mode press SEQUENCE button to start display of the cameras one by one in full screen mode. Press and hold SEQUENCE button for 2 seconds to start sequence display.

14. CLIP COPY

CLIP COPY button allows you do copy selected recordings to DVD or Flash.

15. ALARM

Press ALARM button to cancel internal buzzer and active relay outputs. Pressing ALARM button in the "live" mode enters event register. This function can be protected by password.

16. PANIC

Press PANIC button to start recoding of all camera channels, and displays ! on the main screen.

17. USB

USB port for Mouse and Flash memory connection.

STARTIN THE DEVICE

TURNING ON THE POWER

Connecting the power cord to the DVR turns on the unit. The unit takes approximately 60 seconds to initialize.

2.5 HDD installation

DVR's NV-DVR5108/DVD i NV-DVR5116/DVD supports up to 4 hard disks (or 3 with DVD burner) with capacity up to 500GB

NOTE: It is recommended to use Hitachi and Seagate disks.

NOTE: It is not recommended to use Samsung and Western Digital disks.

Before starting HDD installation procedure set MASTER or SLAVE mode by jumpers on each HDD. If there is only one HDD in system make sure that it has been set as MASTER.

You should connect MASTER and SLAVE discs to one data tape. MASTER HDD should be connected to second socket.

NOTE: You need to format dinks to ricord or archive if they were used in different device.

All data saved on HDD before formating will be lost .

RECORDER'S MENU

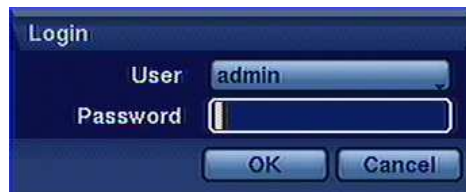
3. RECORDER'S MENU

NV-DVR5108 and NV-DVR51016 recorders have multilevel menus displayed on the screen. The menu is multilingual. Depending on the implemented firmware version, it is displayed in English, German, Spanish, French and Italian, or English, Polish, Russian, Hungarian and Czech. The only difference between 8- and 16-channel versions is in the amount of channels. There are 8 or 16 vision channels, alarm inputs etc.

Before using your DVR for the first time, you need to establish the initial settings. This includes items such as time and date, display language, camera, audio, remote control, record mode, network and password. Your DVR can be set up using various screens and dialog boxes. Throughout the screens you will see . Highlighting the and pressing button gives you the opportunity to reset that screen to its default settings.

Press the MENU button to enter the setup screens. The Login screen appears:

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Select a User and enter the password by pressing the appropriate combination of channel number buttons and then button.

There is no default password when logging in for the first time as the admin user! It means leave the space empty and press the button .

Arrows are used for moving around the menu.

To confirm your choice, to enter sub-menus and edit field use .

All the changes are made using arrows.

To leave setting mode or to leave sub-menus and edit field use **MENU**

While setting up the DVR, there will be many opportunities to enter names and titles. When making these entries, a Virtual Keyboard appears. Use the arrow keys to highlight the character you want in the name or title and press button. That character appears in the title bar and the cursor moves to the next position. Pressing toggles between the upper and lower case keyboards, backspaces, and deletes entered characters. You can use up to 31 characters including spaces in your title.



RECORDER'S OPERATION

4. RECORDER'S OPERATION

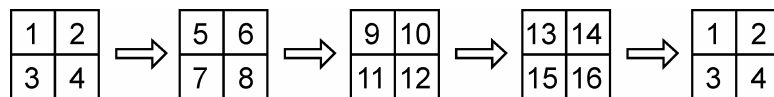
4.1. Live monitoring

As soon as the DVR completes its initialization process, it will show live video on the attached monitor and will play live audio through attached speakers. The default mode is to display all cameras at once (16 or 8 depending on the DVR model). Press one of camera buttons to display this camera in full screen. Pressing DISPLAY button cycles DVR through the different display formats .

Press SEQUENCE button to start displaying cameras sequentially. Pressing this button in one of the multi-view formats will cause the DVR to go through predefined screen layouts (Full Sequence) or bottom right screen appears displaying live cameras sequentially (Cameo Sequence).


Press Left or Right arrow buttons to go to the previous or the next page.

If images from 4 cameras are displayed simultaneously on the monitor, press Left or the Right button to change displayed cameras according to the following scheme



If all 4 cameras that should be shown on the screen at one time are disconnected, their signal is lost, or they have been covered and user does not have rights to watch their images, such screen will be excluded from the sequence.

The choice between full-screen sequence or multiple-camera sequence is done in the menu of the DVR.

Press Freeze button to freeze the currently displayed image until the button is pressed again. When the Freeze function is engaged, an icon  appears in the lower left corner of the screen.

To display camera images in sequence on the spot monitor, you should press the SPOT button and then select spot monitor number and sequence display function from the menu.

RECORDER'S OPERATION

4.2. Playing recorded video

If user who has Search authority logs into the system, he can view recorded image. Once video has been recorded, you can view it by pressing PLAYBACK button. When playing video for the first time, DVR will display the most recent image. When playing video subsequent times, DVR will start playing video from the last recalled image.

NOTE: Only administrator and users with *Covert Camera View* authority can view video from covert cameras. Covert cameras in the playback mode are determined by the current camera setting.

PLAY/PAUSE—Press PLAY/PAUSE button to freeze the video on the screen (pause)

RW (REWIND) - Press button to play video backward at high speed. Press the button again to toggle playback speed between ◀, ◀◀ and ◀◀◀. The screen displays ◀, ◀◀ and ◀◀◀ respectively.

FF (FAST FORWARD) - Press button to play video forward at high speed. Press the button again to toggle playback speed between ▶, ▶▶ and ▶▶▶. The screen displays ▶, ▶▶ and ▶▶▶ respectively.

FORWARD - Pressing button goes to the next image.

BACKWARD - Pressing button goes to the previous image.

PLAYBACK - Press PLAYBACK button in the Playback mode to return DVR to the Live Monitoring mode. Press SEARCH/STOP button in Live Monitoring mode to return DVR to the Search mode.

CAMERA BUTTONS- Press camera button to display that camera full screen.

DISPLAY - Press DISPLAY button to cycle the display through different screen layouts. The display modes are: full, 4x4, PIP, 3x3 and 2x2 (not all formats are available for the 8-channel DVR).

ZOOM - Press ZOOM button  to zoom the current play back image on the screen.



Clicking on the left side exits the toolbar

RECORDER'S OPERATION

4.13. Searching video

Pressing MENU button or clicking the right mouse button in Search mode displays the Search Menu.



- Go to the first- displays the first recorded image
- Go to the last - displays the last recorded image
- Go to the data/time... - searches for time and date (see below for more details);
- Calendar Search... — Searches using a calendar (see below for more details);
- Event Log Search... — Selects video from the event log (see below for more details)
- Text-In Search... — Searches text input strings (see below for more details)
- Motion Search... — Searches motion events (see below for more details)
- Clip-Copy... — Clips a video segment and saves it (see below for more details)
- Zoom... — Zooms the current play back image
- Slow Play — Allows you to choose playback speed x1/2, x1/3, x1/4, x1/6, x1/8
- Exit Search — Exits the Search Menu

NOTE: The searching speed might decrease when all camera channels are in the pre-alarm recording mode.

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