



High Definition
Medical Video Recorder
Portable Medical Video Recorder

User Manual

For MD1, MD1u and PMD1u

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IMPORTANT SAFETY INSTRUCTIONS

Caution



- 1) To prevent electric shock, it is strictly prohibited to open the cabinet.
- 2) To reduce the risk of fire or shock hazard, do not expose this equipment to rain or moisture.
- 3) This equipment is not allowed to be modified.
- 4) This equipment is only suitable in regions with an altitude below 8,000 feet.
- 5) When discarding this equipment or accessories, laws and stipulations concerning environment pollution in the countries/regions must be obeyed.
- 6) Like all similar equipment, this equipment generates, uses, and can radiate radio frequency energy; and if not installed and used in accordance with the operator manual, it may cause harmful interference to radio communications.
 - Operation of this equipment in a residential area is likely to cause interference, in which case you will be required to correct the interference at your own expense.

Safety Instructions

- 1) Read the manual thoroughly
- 2) Keep the instructions.
- 3) Heed all warnings in these instructions.
- 4) Follow all of these instructions.
- 5) Do not misuse this apparatus.
- 6) Clean only with a dry cloth.
- 7) Do not block any of the ventilation openings. Install in accordance with the manufacturer's instructions.
- 8) Do not install near any heat source such as radiators, heat registers, stoves or other apparatus that produces heat.
- 9) Do not tamper with the polarized or grounding-type plug. A polarized plug has two types of blades with one being wider than the other.
 - A grounding-type plug has two blades and a third grounding prong. The wide blade or third prong is provided for your safety.
 - When the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- 10) Protect the power cord from being walked on or pinched especially near plugs, outlets, and the point where the cord exits from the apparatus.
- 11) Only use attachments/accessories specified by the manufacturer.
- 12) Use only with a cart, stand, tripod, bracket or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use

IMPORTANT SAFETY INSTRUCTIONS

caution when moving the cart/apparatus combination to prevent the cart from tipping over and to avoid injury.

- Unplug this apparatus during lightning storms or when unused for long periods of time.
- Rocker switch on the rear panel is a single port switch. In switch OFF position, neutral wire is still connected to the unit. To make sure of the complete unit disconnection from the mains, please use disconnection method.

13) Do not place vessels containing water or other liquids (such as vases, etc.) on top of the apparatus. Do not splash water on top of the apparatus.

14) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as when a power supply cord or plug has been damaged, liquid has been spilled on the apparatus, objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, or does not operate normally, or has been dropped.

Introduction

General

MdiDVR records medical images & video clips from virtually any medical video device (endoscope, arthroscope, surgical microscope, ultrasound, etc.). You can record in high-definition (1080p HD) or standard-definition (720x576 SD). The videos recorded can be saved to a convenient USB flash drive, USB mobile disk or to the MediDVR's internal hard drive.

Features

- Easily record crisp 1080p video and images
- mp4, mov video format all supported
- Universal interface, works with almost all video interfaces
- Universal storage, works with all major USB Flash Drive, SD Card, USB HDD and SATA HDD
- Support Full HD video up to 1080p@60fps
- Foot pedal supported with single or dual options
- Network supported for live video streaming
- Small size, low cost and high quality
- All inputs can be looped to DVI preview output
- Replay or pause videos easily
- Detect signal format automatically

≡ Unique and additional feature for Portable MediDVR

- 5hr standalone video recording
- Dual HDMI and SDI input
- Very compact size for portable application
- Easy and user friendly menu
- Very low cost for medical

Quick Starting

- 1) Insert USB flash drive to USB port on front

panel.

- 2) Please refer the connection diagram for typical connection of MediDVR.
- 3) Set correct video input option & input resolution in first.
- 4) Power on MediDVR.

Turn on power switch on back panel & press **Power** button on front panel. LCD will display current live video.

Desktop MediDVR Only

- 5) You can operate video device as commonly, and the only difference is that you can record video & image during video device working.
 - Press **Photo** button on panel to capture photo.
 - Press **Video** button on panel to start video recording.
 - Press **Video** button again to stop video recording.
- 6) Reject USB flash disk from MediDVR, insert into USB port on PC, then you can copy or move the recording video/photo to PC and replay & archive.

When MediDVR is under normal status, LCD screen will display current video input source.

- Please refer to **Starting Up Operation** to consult details.

IMPORTANT

Please set MediDVR clock to correct date/time, ensure your recording video & photo files with correct date & time.

- Press **Menu** button, enter **Setting** menu, select **Date/Time** item to set.

- To ensure MediDVR with correct date & time, please keep the power switch on rear panel to ON position.
- You can use **Power** button on front panel to on or off MediDVR normally, it will keep the date & time correctly.

Desktop MediDVR Only

Before you start and use MediDVR, please connect the video input source to MediDVR in first, and the video input option & input video resolution must set correctly.

Introduction

Please refer the manual of your video source device to get the correct information of video output signal that your video device supply.

WARNING

If the incorrect video input option & input resolution selected, device will be unable to detect the video input signal, so the screen will display incorrectly, such as noise, blue screen, or with vertical stripe.

※ *If the screen of the device displays incorrectly, please refer to **Appendix** and set it correctly depending on your video input device.*

You can plug & unplug video source device to MediDVR at any time. Plug when the power of the device is off is suggested.

Video Input

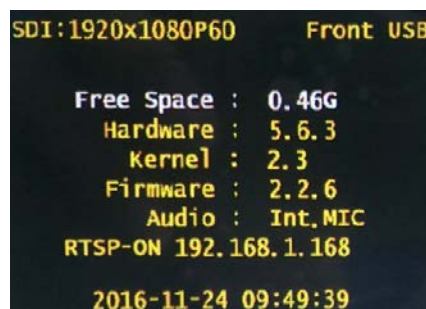
The built-in LCD screen or external monitor of MediDVR will display noise or blue-screen if no video source input is connected, in which MediDVR can't decide video input signal correctly.

※ *Portable MediDVR doesn't support external monitor.*

Confirm MediDVR Current Status

Under normal status, press the **Status** button to display MediDVR current status.

LCD will display follow information when you press **Status** button:



The image shows a black LCD screen with yellow text. At the top, it displays 'SDI:1920x1080P60' and 'Front USB'. Below this, it lists system information: 'Free Space : 0.46G', 'Hardware : 5.6.3', 'Kernel : 2.3', 'Firmware : 2.2.6', 'Audio : Int.MIC', 'RTSP-ON 192.168.1.168', and at the bottom, the date and time '2016-11-24 09:49:39'.

Item	Value
SDI	1920x1080P60
Front	USB
Free Space	0.46G
Hardware	5.6.3
Kernel	2.3
Firmware	2.2.6
Audio	Int.MIC
RTSP-ON	192.168.1.168
Date/Time	2016-11-24 09:49:39

Current video source, video resolution, storage, free disk space, hardware version OS kernel version, Firmware version, Audio source and IP address and system time can be found here. The information is very useful in usage and maintenance.

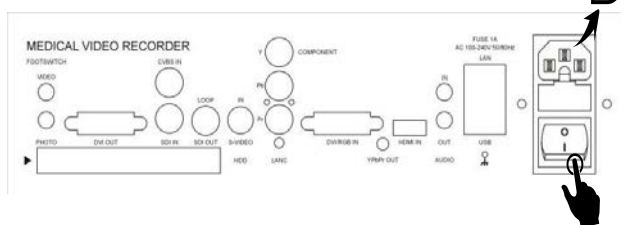
Starting Up Operation

Before Starting Up

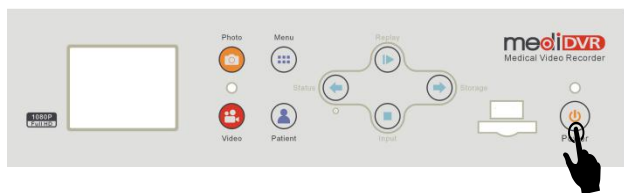
Check out the input signal source is connected.
Remember to plug your storage media into the equipment.

Start with Power

- 1) Make the electric cord plugged and then turn on the power switch on the left side of the back panel.



- 2) Press the **Power** button.



≡ For Portable MediDVR

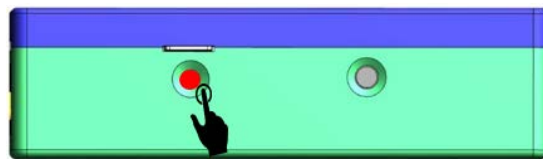
- 1) Make the Power Adapter plugged.



NOTICE

- ※ Portable MediDVR has an internal rechargeable battery, so please keep it turning off and charging until fully charged **at first use**. **This is required only for the first use**

- 2) Press the **Power** button.

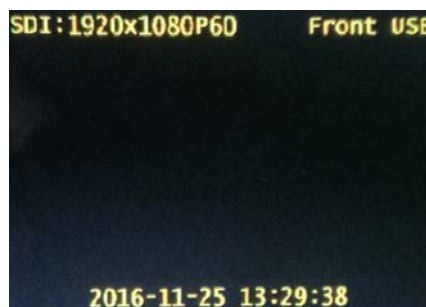


- 3) Then the equipment will turn into the starting up process.
 - After a grey screen for several seconds, the logo will be shown on the screen.



Successfully Started

If correct input source is connected and selected, the screen will display the image clearly.



- Press **Input** to choose the connected input source.
- The equipment will detect the first storage media automatically.

Desktop MediDVR Only

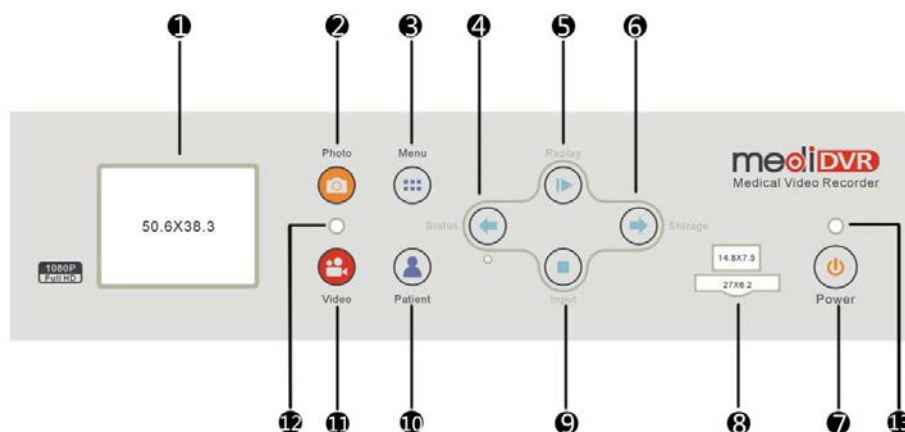
NOTICE

- ※ If you've connected 2 or more storage media, Please press **Storage** to select the proper media in first.

Panel & Connection

Panel for Desktop MediDVR

Front Panel Instruction



1 LCD Screen

Display live video, menu setting, or review recorded videos.

- Please use external monitor for diagnosis or evaluation purposes.

2 Photo Button



Press to capture the current image on the screen.

NOTICE

- ※ The equipment will beep once when an image has been taken successfully.

3 Menu Button



Press to enter the menus and make unit settings.

4 Left Button



Press to move the cursor up/left

5 Confirm Button



Press to modify parameters.
Press again to confirm the change.

6 Right Button



Press to move the cursor down/right.

7 Power Button



Press to start/shut down the equipment.

- The unit will only turn on if the main power switch on the back of the unit is set to ON(I).
- Press and hold for at least 1 second to shut the unit down.

8 SD Card/Front USB Ports

Plug a SD Card/USB drive to service as storage media.

Panel & Connection

9 Return Button



Press to go back to the previous interface and save all the changes.

10 Patient Button



Press to enter the patient information interface.

IMPORTANT

Please confirm patient information before each record session. If want to skip input patient with keyboard, it is can be skipped to create patient folder only.

11 Video Button



Press to start/stop a recording

Beep twice times while starting and three times while finishing.

※ *In case that start recording with empty storage media, default patient information will be shown and you need to correct it to the correct information.*

12 Status LED

Indicate status while recording/whether storage media exists

Solid green	Normal status(storage media is connected)
Solid red	Lack media(storage media isn't confirmed)
Blinking blue	Recording
Solid yellow	Disk is full
Solid blue	Video Pause

13 Power LED

Indicate power ON/OFF of the equipment

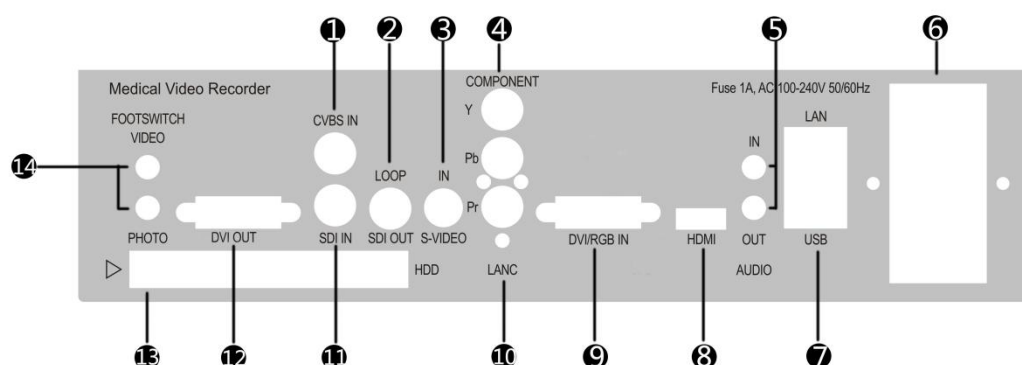
Solid red	Power On
Off	Power Off

Latest version since 2017 spring

Solid yellow	Power On
Solid green	Power connected
Off	Power disconnected

Panel & Connection

Connectors on Back Panel



1 CVBS Input Connector

Connect a CVBS signal as input source (BNC connector)

2 SDI Loop Output Connector

Loop output a SDI signal here. (BNC connector)

3 S-VIDEO Input Connector

Connect a CVBS signal as input source (4pinxMini-DIN)

4 COMPONENT Input Connector

Connect a COMPONENT signal as input source (BNC connector)

5 Audio Input/Output Connector

Input/Output audio sources here. (3.5mm Jack)

6 Power Cord Connector/Main Power Switch

Connect the included power cord here. (IEC)
Use the switch to turn on/off power supply.

7 Back USB A/B Ports & LAN Connector

You can plug in USB storage drives/a keyboard as the storage media/input information of patients.

8 HDMI Input Connector

Connect a HDMI signal as input source (TYPE A)

9 DVI/RGB Input Connector

Connect a DVI/RGB signal as input source (DVI-D connector)

※ A DVI/RGB adapter is needed, which is included in the MediDVR.

Panel & Connection

10 LANC Connector

Connect LANC to serve as the remote **Video** button
(2.5mm connector)

11 SDI Input Connector

Connect a SDI signal as input source
(BNC connector)

12 DVI Preview Output Connector

Output a DVI signal here.
(DVI-D connector)

13 Hard Disk Bay

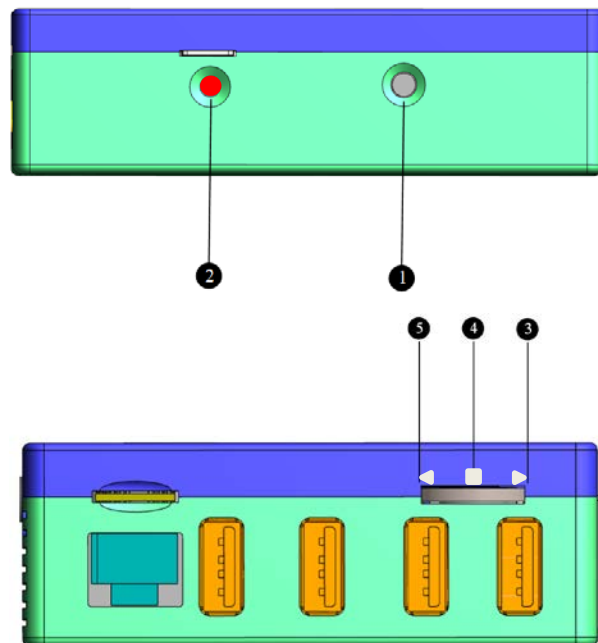
Connect a hard disk to service as the storage media.
Slide eject button right and pull to pop HDD out.
(Suitable for 2.5" 7mm/9.5mm HDD)

14 Footswitch Connector

Connect the footswitch connector to serve as the **Video** button and **Photo** button.
(3.5mm connector)

Panel for Portable MediDVR

Button Introduction



1 Video Rec/Return Previous Menu

Start Video Record or Stop Video Record.
Start will beep twice, and Stop will beep three times.

Menu:

Return to previous menu or exit menu.

Charge Status:

It is charge status when MPD power off. LED On is charging, Off indicates fully charged.

2 Power / Photo

Press to turn on recorder.

Press and hold more than 3 seconds to turn off.

Press and hold 14 seconds force to reboot recorder.

Short press while recording is photo.

Panel & Connection

3 Patient Info / Direction Button

Move **direction** button up to pop up Patient info editor. USB keyboard required to input and edit.

Menu:

Direction up to move menu cursor.

4 Menu/Enter

Press middle to pop up menu.

It is **Enter** and **Confirmation** button once menu pops.

5 Storage/Status

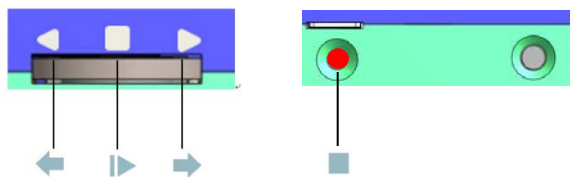
Move **direction** button down to quickly change storage media. You can plug several USB storages and keep press button down to switch.

Menu: Direction down to move menu cursor.

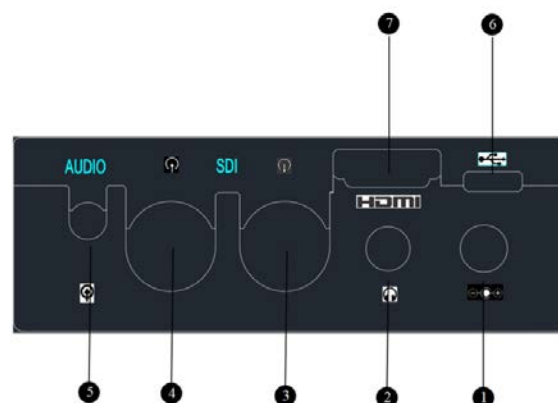
Long press to pop up mediDVR status.

IMPORTANT

- ※ For a more simple description, using mark corresponded to key operation and the mark has showed in following photo.



Interface Introduction



1 Power Input

2 Audio Loop out

3 SDI Loop out

4 SDI Input

5 Audi Input

6 MicroUSB

Only for power backup purpose.

7 HDMI Input

For DVR, a DVI to HDMI cable or adapter required.

※ PMD don't support video preview output, internal MIC. Some features and functions of desktop MediDVR don't apply for PMD.

※ PMD has internal battery for standalone recording. Fully charge it before use. PMD will shut down automatically when battery gauge less than 10%.

Connecting HD MediDVR Video Recorder

Start Connecting

To connect MediDVR, please see the diagram. MediDVR can connect external monitor & video source (for example, an endoscope, surgical camera, ultrasound, etc.).

NOTICE

- 1) If you are connecting the MediDVR to imaging equipment that you are already using, please unplug the existing video cable that connects the monitor and the video source.
- 2) Connect a cable between the video output on the video source and the appropriate video input on the back panel of the MediDVR.
 - Connect another cable between the video output on the MediDVR and the video input on the monitor.
 - Depending on your video equipment, you may need to use adapters to make the connections.

- 3) Plug in the power cord.
- 4) You can also connect standard footswitches to the back panel. A footswitch connected to the "Photo" connector performs the same function as the **Photo** button on the front panel. The "Video" connector performs the same function as the **Video** button.

Desktop MediDVR Only

Insert USB Flash Drive

It is recommended that new users begin by recording onto a USB flash drive. Later, after you have become familiar with the unit, you may wish to record to USB mobile drive or the internal hard drive.

※ The left status light and LCD will be red/green depending on whether there is an available drive attached. Also beep once drive recognized.

Desktop MediDVR Only

IMPORTANT

Portable MediDVR doesn't support internal HDD, so the following description about internal hard drive can be skipped.

Capture Photo

Recording photo is simple. When you see an image on your monitor that you would like to record, simply press the **Photo** button on the front panel. The image will be saved directly to the USB flash drive (later, you can transfer the images from the flash drive to your computer). As an alternative to a flash drive, you can record to the internal hard drive.

Each time you press the **Photo** button, an image is recorded. Note that you can record images while recording video clips. One thing confirms that you have recorded an image:

- You'll hear the BEEP once when capturing a photo.

※ The image will be saved in the **"ID_PatientName"** folder.

Record Videos

Recording video clips is just as easy as recording images.

When you want to start recording video, simply press the **Video** button on the front panel. Press the button again to stop recording.


Connecting HD MediDVR Video Recorder

The video clip will be saved directly to the USB flash drive (or to the internal hard drive if you have configured it).

Two things confirm that you are recording a video clip:

- The "Record status LED" located between the **Photo** & **Video** buttons will blink during recording.
- You'll hear the Beep twice when starting and three times when you finish recording.

IMPORTANT

Remember you can press  to pause while recording and press again to resume. The LED will also pause to indicate the status.

You should ONLY unplug your storage

- **media after the BEEP, or the recording**

information may be damaged!!

- During recording, LCD screen will display current free space of storage media in using.
- MediDVR will split long video to multi video files automatically during recording.
- The message format is "**Free xx.xxG**".
- When you press **Video** button to start recording, if the storage media doesn't exist, LCD screen will display "**PLEASE INSERT DISK**". If the disk is full, LCD will display "**DISK IS FULL**". If the disk has wrong format, it will display "**PLEASE FORMAT DISK**".

- You can assign specific storage media to save photos & recording videos through shortcut key **Storage** when there are multiple storage media connected.





*****Desktop MediDVR Only

Using Shortcut Keys

Shortcut Keys

≡ For Portable MediDVR please go to [Basic Operation](#) directly

MediDVR offers four shortcut keys to help you to access some important functions quickly.

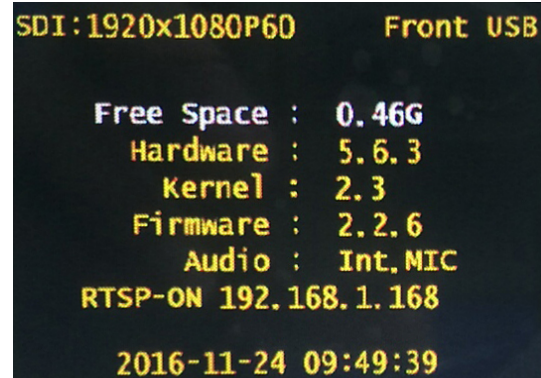
Shortcut Key	Function
Status 	Display current status information.
Storage 	Select storage media to save current photos and videos during recording.
Input 	Select video input signal to record
Replay 	Playback recorded videos directly.

Status

Use **Status** button to display MediDVR current information.

Status information include following items:

- Video input & resolution
- Current storage media
- Free space of current storage
- Hardware version
- Kernel version
- Firmware version
- Audio input
- RTSP status & IP address
- Current date & time

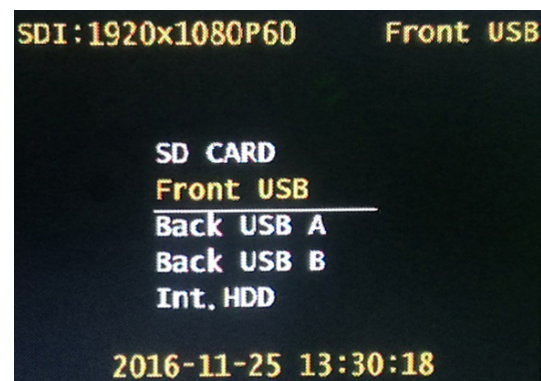


SDI:1920x1080P60 Front USB

Free Space : 0.46G
Hardware : 5.6.3
Kernel : 2.3
Firmware : 2.2.6
Audio : Int.MIC
RTSP-ON 192.168.1.168
2016-11-24 09:49:39



Storage

Use **Storage** button to select current storage media to save capture photos & recording videos.



SDI:1920x1080P60 Front USB

SD CARD
Front USB
Back USB A
Back USB B
Int. HDD
2016-11-25 13:30:18

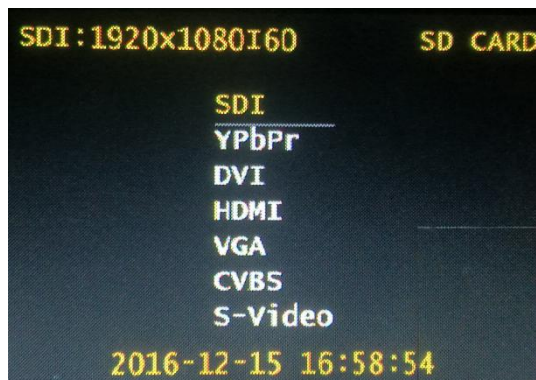
Use  button to switch storage media cycle between five optional storage media, and press  button to confirm selected media when the cursor has moved to it. Plugged media is highlighted.



※ The storage media that you select must valid & with enough free space to storage photos & videos.

Using Shortcut Keys

Input

Use **Input** button to select current video input signal.



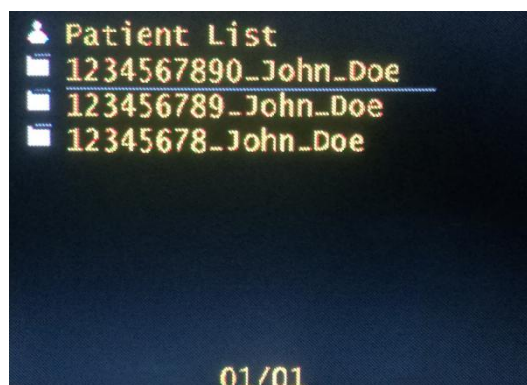
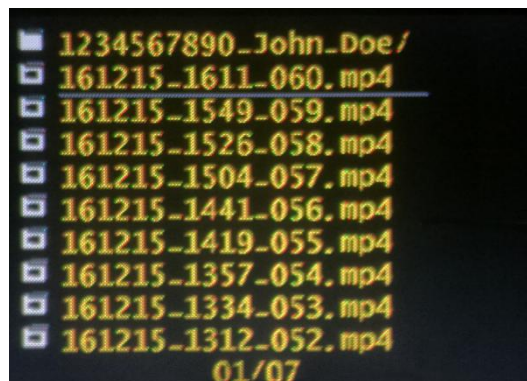
Use  button to switch video input signals cycle between seven optional video inputs, press  button to confirm selected video input when the cursor has moved to it.

NOTICE




- ※ The equipment will automatically set the suitable Resolution and FPS when video connected to current active video port each time. Manually changing the input source is also available
- ※ The video input port that you select must connect to active video source device before switching.
- ※ Some VGA input signal may cause restarting the device. Note that it will not influence the use of all the functions

Replay

Use **Replay** button to playback recorded videos.








After press **Replay** button, the recording videos list will be displayed on LCD or external monitor, use


 &  buttons to select recording video from the list, then press  button to play it.

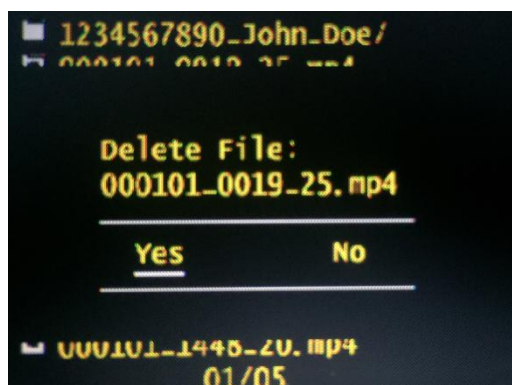
Using Shortcut Keys

Patient List




You can press  to go to the list of patient folders when cursor on the top.




Press  button to pause current playback or  to return to file list. Press  and  to skip forward or backward while replaying.

※ Press  to pause the video play. Press it again to restart.





Delete Video

If you want to delete recording video, stop current playback & enable MediDVR under to files list status, use  &  buttons to select video file that you want to delete from the file list, then hold  button for 3 seconds and it will display prompt **"YES"** or **"NO"** message to let you confirm it.

If you want to delete video, use  &  buttons to select **"YES"**, and then press  button to delete selected recording video.

If you don't want to delete video, use  & 

buttons to select **"NO"**, and then press  button, the system will quit recording videos list.

※ If you want to exit replay mode, press  button under file lists status, MediDVR will exit replay mode and return to normal status.

Copy Specific Patient Video to USB Flash Drive from Int. HDD

In the playback screen of Int. HDD, press **Video** button copy the video file on current cursor to USB Flash Drive. A status indicator will show the status of copy. The copy will take some time because video file usually is big, please be patient.



Copy Specific Patient Photo USB Flash Drive from Int. HDD




In the playback screen of Int. HDD, press **Photo** button copy the all photo files of current patient to USB Flash Drive. A status indicator will show the status of copy. The copy will take some time, please be patient.

Using Menus

Basic Operation

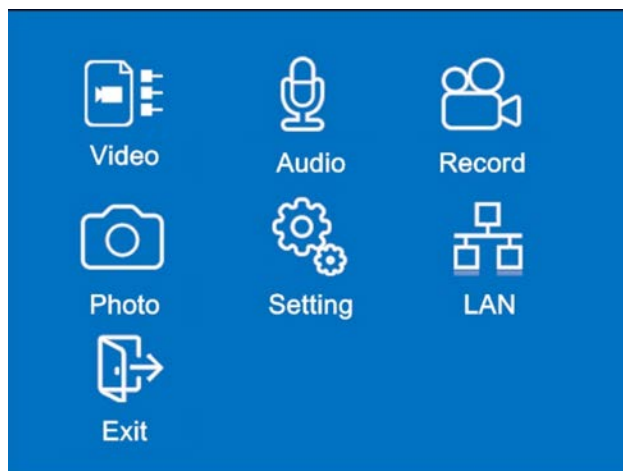
Settings and options for the MediDVR can be accessed via the setting menus.

Press the **Menu** button to display the Main Menu.




You can scroll through the submenu using  &  buttons on the front panel. Use  button to enter submenu & make a choice of menu item.

Main Menu


To set MediDVR, press the **Menu** button on the front panel to display Main Menu on LCD screen.







How to Set MediDVR





1) Use  &  buttons to navigate through the submenus. Use  button to enter submenu.



2) After entering submenu, use  &  buttons





to select the menu items that you want to set, and then press  button to confirm it.


3) After choosing an option in the submenu, use  &  buttons to switch parameters, and then press  button to confirm the suitable parameter.

4) Use  &  buttons to select the next option, and then press  button to enter.

5) Finish setting of all menu options under current submenu, use  &  buttons to select  icon on right bottom of screen, and then press  button to quit to **Main Menu**.

6) Use  &  buttons to select next submenu that you want to set, and select parameter of menu items same as above steps.


7) Finish setting of all submenus, use  &  buttons to select  icon on the right, and then press  button to exit **Main Menu** & return to normal status.

※ You can also press  to return to the Main Menu directly anytime.

Now you finished setting & can record video & photo at any time.

The submenus of the Main Menu are:

Using Menus

Submenu	Instruction
<u>Video</u>	Set the Video Input, Resolution, FPS, Video Signal detection, preview output and Chroma.
<u>Audio</u>	Set the Input, Quality and Gain
<u>Record</u>	Set video record Quality, Mute ON/OFF, Format, Storage, Size Limit & Time Limit for recording.
<u>Photo</u>	Set capture photo Format to JPG, BMP or DICOM.
<u>Setting</u>	<ul style="list-style-type: none"> - Set Date/Time - Select Language - Select OSD ON/OFF - Select Beep ON/OFF - Restore default Setup - Upgrade Firmware
<u>LAN</u>	<ul style="list-style-type: none"> - Set DHCP - Set IP address - Set NetMask value - Set Gateway value - MAC Address - Enable/Disable RTSP stream
<u>Exit</u>	Exits the menu This option is the same as pressing the  button on the front panel.

These submenus are described in the following sections.

NOTICE

- ※ Remember to check the concerned parameters before a recording.
- ※ Different file format is available.
- ※ If you find that the equipment isn't running smoothly, you can try to reduce the quality parameters.

Video Menu

Use **Video** menu to set follow items:

Menu Item	Instruction
<u>Video Input</u>	Select the input video source (DVI, SDI, etc.).
<u>Resolution</u>	Set correct resolution of current input video source.
<u>FPS</u>	Set frames per second of input video based on video system.
<u>Video Signal</u>	Select how to detect input video signal. * It's recommended to select Auto detection for general * Select Manual If the input video is non-standard or has special parameters.
<u>Preview</u>	Select preview loop DVI output format based on input video. ※ Auto is recommended ※ 1080p50/60, i50/60
<u>Chroma</u>	Select Normal/Reversal mode to adjust the chromatic aberration

*Resolution and FPS is not in Auto mode.

Valid parameters of Menu Items:

Item	Parameter
Video Input	SDI HDMI YPbPr S-Video CVBS DVI VGA
Resolution	SDI : 1080p / 1080i / 720p / 576i / 480i YPbPr : 1080p50/25 / 1080i50 / 720p50 /

Using Menus

	1080p60/30 / 1080i60 / 720p60 DVI : 1080p / 1080i / 720p HDMI : 1080p / 1080i / 720p VGA : 1920x1200 / 1920x1080 / 1600x1200 / 1680x1050 / 1280x1024 / 800x600 CVBS : 576i / 480i S-Video : 576i / 480i
FPS	30 25 60 50 24
Video Signal	Auto Manual
Preview	Auto 1080p50/60, 1080i50/60
Chroma	Normal Reversal

Detect Input Signal Automatically

Commonly, we recommend select **Auto** for input video signal, MediDVR will detect and set parameters of input video signal automatically based on the input signal, most input video signal can be detected when connected to MediDVR.

- ※ In the case, the device will detect right FPS/resolution again if **FPS** or **Resolution** setting changed.
- ※ The video signal will be recognized when video signal connected MediDVR each time in Auto mode.
- ※ The recognized video format is displayed on the left-upper corner.

For some video signal, it maybe contains some special or nonstandard parameter, Auto detect function maybe can't offer the best setting, please

manually switch the proper setting.

Switch Video Input

Sometimes, maybe you need to switch video input device during diagnosis, treat and operation.

When switching current video input source, MediDVR will configure system setting again, the system will prompt status message on screen, please don't do any operation before setting successfully.

If your video input resolution is larger than 1920x1080, the preview output will be restricted to 1920x1080.

NOTICE

- ※ You can press **Input** on the front panel to switch signals quickly and easily

**Video Input
Switching...**

Select Display Device for Replay

MediDVR supports replay recorded video on built-in LCD or external monitor through most kinds of sources. Normally, the external monitor will be detected quickly and has the priority to show the live image.

Using Menus

Audio Menu

Use **Audio** menu to set audio input & gain of MediDVR.

Menu Item	Instruction
<u>Input</u>	Select current audio input, if select external microphone or line in input, please connect external microphone to MediDVR in first.
<u>Quality</u>	Select the proper quality for the audio
<u>Gain</u>	Set gain level for the current audio input source.

Valid parameters of Menu Items:

Item	Parameter
Input	Int. MIC Line In Ext. MIC
Quality	Best Fine Good
Gain	High Normal Low

IMPORTANT

If external MIC or line in selected, please connect external MIC input device to MediDVR at first.

Record Menu

Use **Record** menu to configure how MediDVR records videos.

Menu Item	Instruction
<u>Quality</u>	Select the quality of video that you record. * The higher the video quality, the larger the file size of video clips.
<u>Audio</u>	Mute or enable audio during recording video.
<u>Format</u>	Select file format of recording video.
<u>Storage</u>	Select storage media for recording video & capturing photos.
<u>Size Limit</u>	Set the maximum file size of video clips. If you select any of the size limits other than Unlimited, then the video file will automatically be split.
<u>Time Limit</u>	Set the maximum length of video clips. If you select any of the time limits other than Unlimited, then the video file will automatically be split.

Valid parameters of Menu Items:

Item	Parameter
Quality	Best Fine Good
Audio	ON Mute
Format	MP4 MOV
Storage	SDCard HardDisk Front_USB Back_USBA Back_USBB

Using Menus

Size Limit	0.5G
	1G
	1.5G
	Unlimited
Time Limit	15 Minute
	30 Minute
	45 Minute
	60 Minute
	Unlimited

Select Storage Media

MediDVR supports internal removable hard disk, SD/SDHC flash card, USB flash drive/USB mobile disk on front or back USB ports, you can select proper storage media for record/capture.

Commonly, we recommend to select an internal removable hard disk for the best performance & enough capability for long time recording.

※ You can select storage media by **Storage** shortcut button directly under normal status.

Size/Time Limit

Different kinds of size/time limit to video files are supported. In case that you set both parameters, normally there will be only one effective parameter depending on the quality of the input signal.

For example, you set 1G/15 minutes file limit with a HD signal, the real file will be divided by 1G with lasting time less than 15 minutes. The first reached parameter always works and the other parameter will never work.

So it is suggested to carefully test the real effect of these two parameters when you want to set them both.

Photo Menu

Use **Photo** menu to select file format of capture photos.

Menu Item	Instruction
Format	Select the image format you want to save your photos in. * JPG is the format most commonly used on computers.

Valid parameters of Menu Items:

Item	Parameter
Format	JPG
	DICOM
	BMP

NOTICE

- ※ *JPG is the format most commonly used on computers.*
- ※ *DICOM is a picture format for professional medical analyze software.*
- ※ *BMP could only be taken when no video is recording.*

Using Menus





Setting Menu

Use **Setting** menu to set Date/Time of MediDVR, select current language, restore setting to defaults, and performing a firmware upgrade.

Menu Item	Instruction
<u>Date/Time</u>	Set the internal clock. * It is important to set the clock so that your recorded files will have the proper date and time associated with them. * To maintain the current clock setting, leave the Master Power Switch on the back panel at all times; to turn the unit on and off, use the front panel Power button.
<u>Language</u>	Select your language preference for the menus.
<u>Beep</u>	Select ON/OFF to the Beep tone
<u>OSD</u>	Select show/hide OSD on the external preview monitor.
<u>Restore Setup</u>	Select this option to restore all options to their factory default settings.
<u>Upgrade</u>	This option is used to upgrade the firmware of mediDVR. It allows you to add new features and options to your MediDVR. * To use the upgrade option, you must insert USB Flash Drive that includes new version firmware on root of disk into USB port on front panel.





Valid parameters of Menu Items:

Item	Parameter
Date/Time	Set to current Date/Time.
Language	English 中文
Beep	Enable Disable
OSD	Enable Disable
Restore Setup	Restore all settings to default.
Upgrade	Upgrade device to new firmware.

To set current clock of MediDVR, after enter **Date/Time** item, use  button to select area that you want to set, using  &  buttons to change value, then pressing  button to confirm it & switch to next field.

Set Language Preference




Set Correct Date/Time




Choose 中文/English as the system language. Use  to enter the item, using  &  to choose the language, then pressing  to confirm it.

Using Menus

Reset to Defaults

When you select **Restore Setup** item, system will prompt "**YES**" or "**NO**" on screen.

If you want to reset settings, use  &  buttons to select "**YES**", and then press  button to restore settings.

If you want not to reset settings, use  &  buttons to select "**NO**", and then press  button, system will quit to submenu & keep current settings of device.

You need to choose the storage medium again after restarting.



Upgrade


New firmware will be released when improving performance or adding new features, you can upgrade MediDVR by yourselves if you need.

- ※ *MediDVR only support USB Flash Drive on front USB port for upgrade.*
- ※ *USB Flash Drive has to be FAT32 format.*

Before upgrade MediDVR, please copy new firmware image file to the root of USB Flash Drive, plug USB Flash Drive include new firmware to USB port on front panel and make sure MediDVR recognized the USB Flash Drive, and then select **Upgrade** option in setting menu.

When you select **Upgrade** item, system will prompt "**YES**" or "**NO**" options on screen.

- If you want to upgrade device, use  & 




buttons to select "**YES**", and then press  button to confirm it, then exit **Setting** menu to **Main Menu**, then restart the device, the device will upgrade automatically when it detect new firmware image files on the root of USB Flash Drive.

During upgrading, system will prompt current status of upgrading on screen.

- ※ *Check the version of firmware after reboot to make sure that the upgrade is successful.*

WARNING

During upgrading, please don't press any buttons, and don't operate power switch on front & back panel!!

- If you don't want to upgrade device, use  &  buttons to select "**NO**", and then press  button, system will quit to submenu.

Using Menus

LAN Menu

Use **LAN** menu to configure advanced options such as network setup, RTSP stream.


Menu Item	Instruction
DHCP	Set DHCP
Local IP	Set local IP address to your network segment
NetMask	Set net mask value for your LAN
Gateway	Fill valid IP address of current gateway
MAC Addr	The MAC address of MediDVR
RTSP	Enable or disable RTSP stream

Valid parameters of Menu Items:


Item	Parameter
DHCP	Enable Disable When enabled, go to status screen to find IP address
Local IP	Set local IP address of MediDVR ※ The local IP address must be the same IP segment of LAN to connect to. ※ Default Local IP is 192.168.1.168
NetMask	Set Net-Mask address of MediDVR to your network segment ※ Default Net-Mask is 255.255.255.0
MAC Addr	00:00:4B:F3:46:02 ※ Can't be modified
RTSP	Enable Disable

DHCP





If DHCP is disable, fixed IP address has to be set
To set name of device, select **Device** item, and label will locate the last character, use your keyboard to


edit the string quickly and confirm it by pressing  or **Enter**

※ The device name support maximum 11 characters.

After finished setting device name, press  button to confirm & return to LAN menu.

Local IP

To set local IP address of device, after enter **Local IP** item, use  button to select IP segment that you want to set, use  &  buttons to change value, then press  button to switch to next segment.

After finished, press  button to confirm & return to **LAN** menu.

NetMask

Select **NetMask** item to modify correct Net-mask value based on your local network setting.

Using Menus

RTSP

Under **RTSP** item, if you select "**Enable**", MediDVR will support RTSP stream video output, or you can set to "**Disable**" to close it.

Use **Exit** menu to exit current setting & return to normal status after you finish your setting.

MediDVR allows you to input patient information at

Exit Menu

the start of each session.

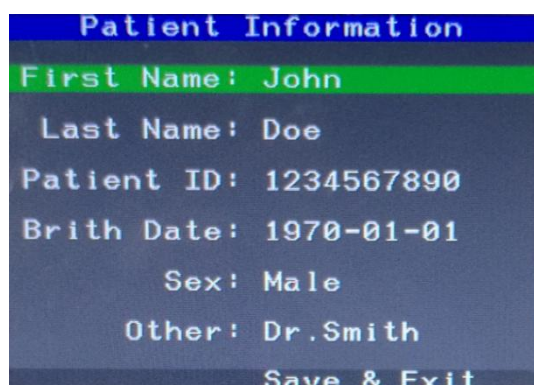
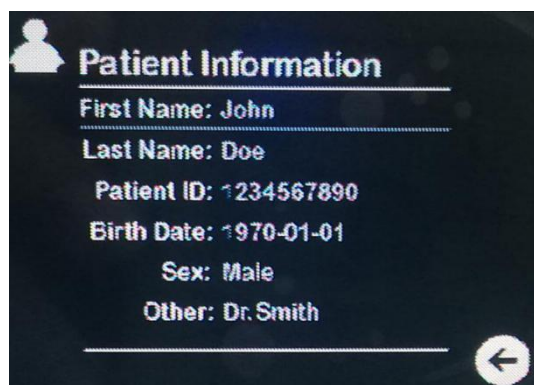
Input Patient Information

Input Patient Information


The folder that captures photos & records videos will include patient information; the patient information will be saved in a .txt file in the same folder as the photos & videos.

Please use keyboard to enter patient information, MediDVR support most standard USB keyboards on USB port on back panel.

Press **Patient** button on front panel to enter patient function.



Patient Information Shortcut

Detail patient information can be skipped without connecting the keyboard. Just press **Patient** button again, a patient folder will be created with a number incremental automatically. Then press  to SAVE.

Input Methods


After you enter patient information input interface, use USB keyboard that plug to USB port on back panel to input information.

When you press **Patient** button to enter patient function, a cursor on built-in LCD/Green Background strip on external monitor will locate the **"First Name"** field, you can press **Enter** and input words by typing while a short cursor will indicate the modifying position.

Then press **Enter** key on keyboard again to confirm the changes and use **Up** and **Down** to move to the next line.

Use **Backspace** to move the cursor when editing **"Birth Date"**.

IMPORTANT

After all patient information was finished entering, SAVE all the information by pressing Enter on the **"Save & Exit"** field on the external monitor/  icon on right bottom of the built-in LCD.


If you want to return to the patient list, you need to adjust the cursor to **"First name"** and press **Up** once, then you can choose and enter different patient by using **Up**, **Down** and **Enter** ONLY on the built-in LCD.

※ **Left** equals **Up**, **Right** equals **Down**, **Esc** can return WITHOUT saving.

※ **Up/Down/Enter/Left/Right/Esc** is the key on the keyboard.












※ Every time you change the ID or Name of a current patient and save it, a new patient card is created.

Input Patient Information

※ You can straightly press  to SAVE and quit when you've modified the information.

※ The patient information for every session is saved in a text file in the same folder of capture photos & recording videos, the filename of patient information file is **patient_info.txt**.

Buttons and keyboard keys:

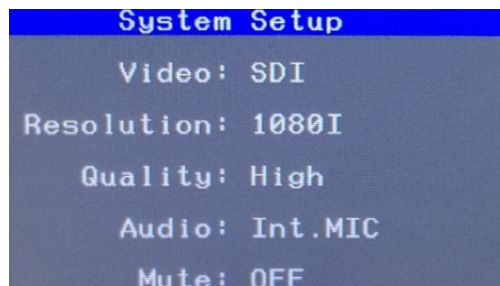
Operation	Button	Keyboard
Patient		
Move up		 
Move down		 
Confirm/modify		
Back		

※ The function can also be used in setting menus.

Information on External Monitor

≡ **Portable MediDVR don't support external monitor ,please skip it.**

When you press Patient while you've connected an external monitor, a System Setup board will appear at the bottom and show detail information about recording.



Video: The input signal right now.

Resolution: The resolution of the signal (normally automatically adjust)

Quality: The quality of the audio while recording.

Audio: The source of input audio (Internal microphone in default)

Mute: Whether the video is muted or not.

Record & Format

Record Storage Media

You can record your videos and photos to one of the following locations:

- USB drive plugged into the USB port on unit - You can use the USB flash drive or a USB mobile hard drive.
- SDHC/SDXC flash card
- Internal hard drive located within the unit.

If your MediDVR include internal removable hard disk, you can record videos & photos to internal hard disk, please unplug any USB drive to MediDVR in first.

Desktop MediDVR Only

By default, videos and photos will be recorded to the USB flash drive or USB mobile hard disk that is plugged into the MediDVR.

Recordings are saved to only one location

WARNING

Recordings cannot be saved to the internal hard drive and a USB drive at the same time.

You can press **Storage** key to choose existed drives and disks which are highlighted with **yellow** color.

Desktop MediDVR Only

External USB Hard Drive

Instead of plugging in a USB flash drive or SD flash card, you can plug in a USB hard drive. You can plug the drive into the front or back panel. Note that you can only use one USB drive at a time. Using a USB hard drive is very similar to using a USB flash drive except that it has greater storage capacity. External USB hard drives are available from a wide variety of computer accessory suppliers.

Before purchasing an external USB hard drive, please note the following:

- The hard drive must use the "FAT32" format, NOT the "NTFS" format.
- Delete any software that came pre-loaded on the drive (it may be incompatible with the MediDVR). To protect your videos and photos, it is important to back them up by transferring them from the external hard drive to your computer or network.
- The hard drive storage capacity must lower than 2TB.

※ If you plug a hard drive which is not the "FAT32" format, the equipment may ask you whether you want to format it to "FAT32". Wait seconds if you choose "YES". Press **Input** when the process bar is static.

※ You can easily get a suitable drive with this function but note that it will **clean up** all the existed files and is only suitable for drives that have storage lower than 32GB.

Internal Hard Drive

≡ **Portable MediDVR doesn't support internal HDD, please go to [Disk Format](#) directly.**

To record to the internal hard drive, you must confirm that the internal hard disk has connected to MediDVR.

Before purchasing an internal USB hard drive, please note the following:

IMPORTANT

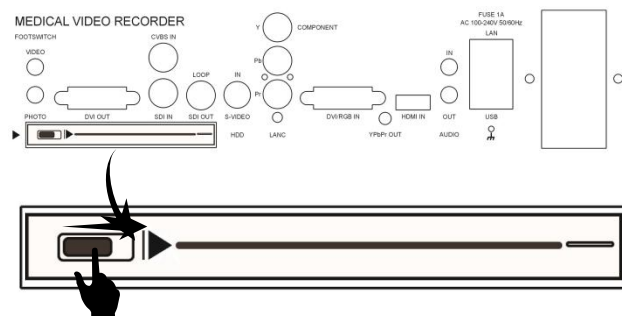
- The hard drive must use the "FAT32" format, NOT the "NTFS" format.
- The internal HDD can ONLY be plugged/unplugged when the power is OFF.

Record & Format

Delete any software that is preloaded on the drive (it may be incompatible with the MediDVR).

To protect your videos and photos, it is important to back them up by transferring them from the external hard drive to your computer or network. The internal hard drive is not intended for use as a permanent video archive. The internal hard drive should be used only as temporary storage. You should transfer the videos to your permanent video archives via a network connection as soon as possible. This will ensure that the videos are backed up and protected against loss of patient data.

To get access to the hard disk interface, operate as the instruction below.



Slid the black button slightly to right and the board will pop out automatically. Then you can plug/unplug the hard disk.

Transfer files from internal HDD to your PC in two ways easily:

- Use a HDD ->USB adapter and connect the USB interface.
- Use Samba to directly exchange files through LAN.

NOTICE

- ※ The LED light on the right will turn blue when a hard disk is recognized.
- ※ The support Thickness of hard disk is 7mm/9.5mm.

Mechanical hard disks are easily affected by impact forces, vibrations and changed in the environment, including the temperature, and this could affect video that is being recorded.

Please observe the following precautions.

- Do not subject the unit to vibrations or impacts.
- Place and use the unit on a level surface.
- Do not turn the equipment off while its hard disk is being accessed.
- Keep away from high magnetic field/temperature.
- Be careful to the static electricity on the hands before touching the HDD

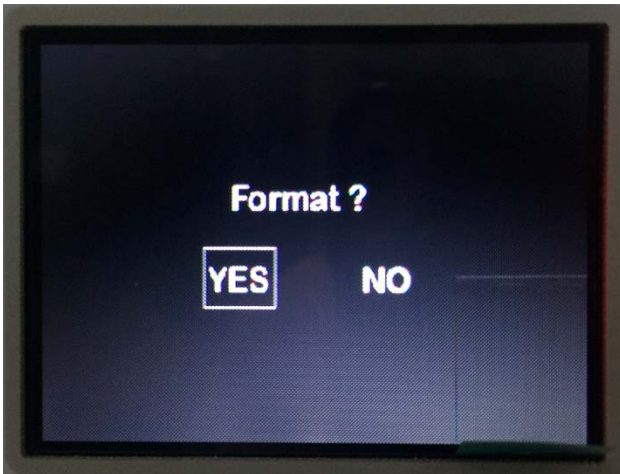
1.Long-terms of storing and recording on the specific HDD will generate bad tracks and therefore this storage media may cause negative influence to use of the equipment inversely.It's suggested to check and high-level format your HDD at regular intervals to keep the quality and safety of recording and storing functions.

2.There are lots of different USB Flash Drives and SD cards on market. Their performance is remarkably diverse. Some have very good read speed but low write speed. MediDVR is professional video recorder. In order to guarantee the performance and quality, only the USB Flash Drives and SD cards with **fast write speed** are recommend. Inferior storage media will influence the function of the device negatively.

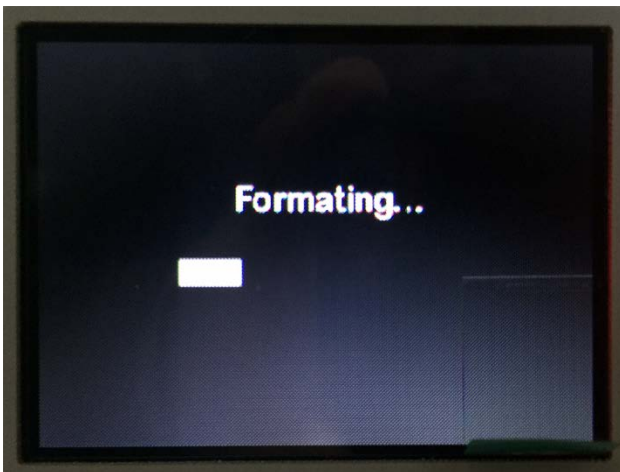
Record & Format

Disk Format

Only FAT32 disk partition is supported. Therefore, when insert any drives that is not FAT32, MediDVR will prompt format disk as below.



Select YES to proceed format, a status bar will show the percentage of formatting.



Format Disk Large Than 32GB

Windows can only format disk to FAT32 if the disk is not larger than 32GB. Third party format tools has to be used to format to FAT32. [Guiformat](#) is recommended.

Record Video to Remote Server

Connect MediDVR to a network via a standard Ethernet cable, users can record videos "across the network" into a shared directory on a network drive. This section describes how to set up the necessary network connections.

Getting Started

To configure network, follow these basic steps:

Step1: Use an Ethernet cable to connect MediDVR to your network (LAN connection is on the back panel).

Step2: Through Menu->Network to check the network setting and ensure that network connection is successful.

Step3: Plug a USB keyboard into one of the USB connectors (the keyboard is used to enter configuration information. Keyboard is not necessary if configure network according to the default settings).

Step4: Get IP address of NFS server (this article uses 192.168.1.54 as an example).

IMPORTANT

- Default share directory: MediDVR
- Default account: MediDVR
- Default password: MediDVR123.

Supported Server Editions

- Windows 7 Home/ Professional.
- Windows 7 Home/ Professional, etc.
- NAS server such as Synology, etc.

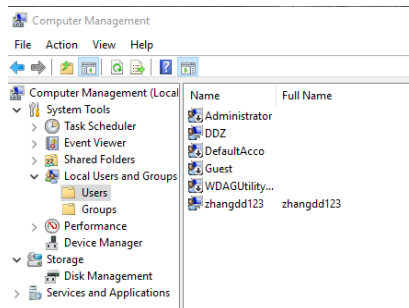
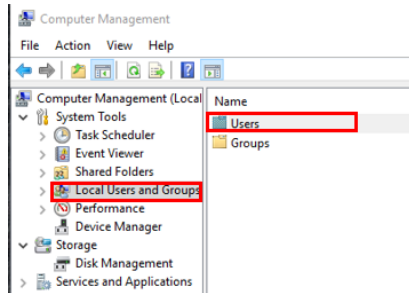
Record to Network Server

Begin Configuration

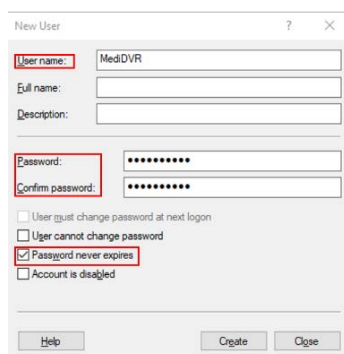
1. Configure NFS server

①Create a User Account

Right click **This PC (Computer)**—**Computer Management**—**Local Users and Groups**—**Users**—right click **Uses**—**New User**.



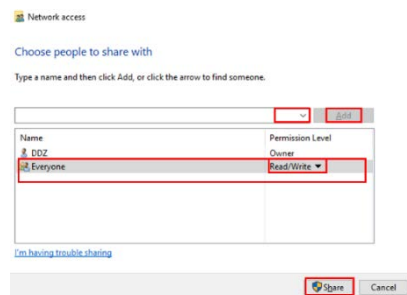
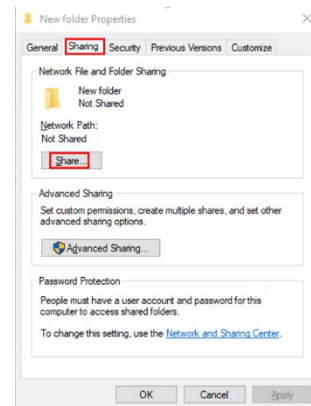
Type in a **User Name** (ex: MediDVR) for the user account and a **password** (ex: MediDVR123), fill out any other details if you like, but do not forget check the option that **password never expires**. Click on **Create** when finished



②Create a Share Directory

Step1: Create a new folder (ex: take MediDVR as folder name) on a drive you want (ex: drive D).

Step2: **Locate the shared folder**—right click **Properties**—**Sharing**—**Share**—**Sharing**—**Panel**—choose **Everyone**—**Add**—**Read/Write**—**Share**.



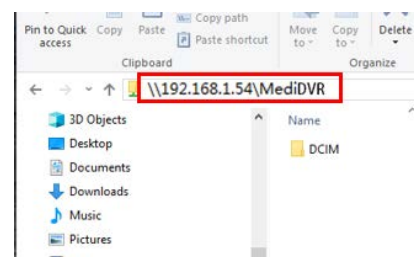
③Test Share Directory

Step1: Choose another computer that in the same network segment.

Step2: Use shortcut key **WIN+R** to display Run window.

Step3: Input: **\\IP\MediDVR**. If users can open the folder successfully, then go on. If not, please ask network administrator for help or see [FAQ](#).

※ The IP is IP address of NFS server. For this article, the input is **\\192.168.1.54\MediDVR**.

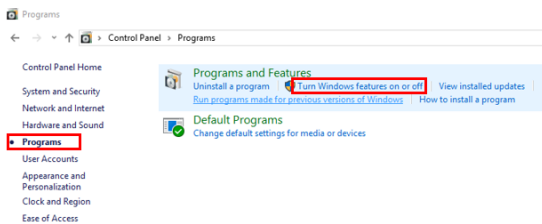


Record to Network Server

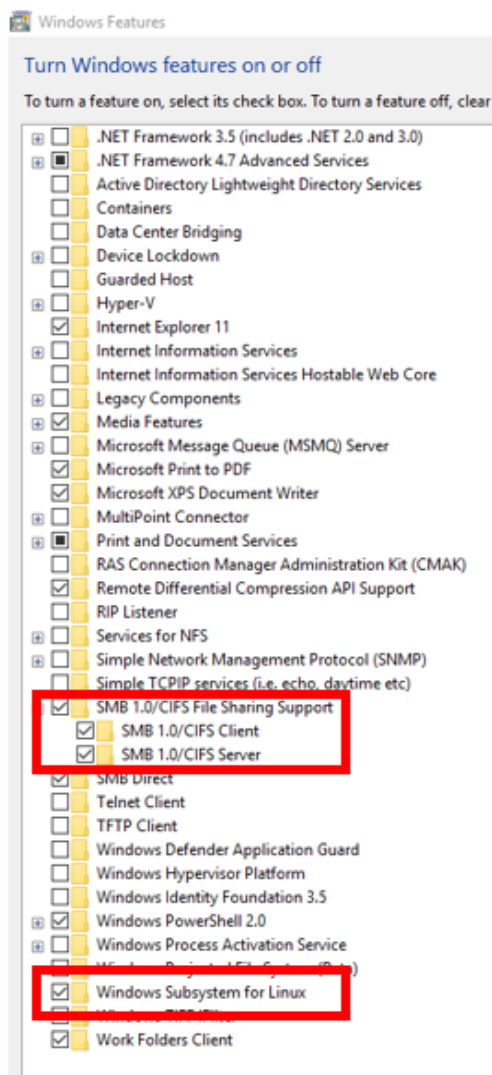
④Install Windows Service

- ※ This section should be pay attention for win10 user, but for win7 user, it can be skipped.

Control Panel-Program-Turn Windows features on or off



Check the option as shown below:



⑤Configure NAS

NAS don't need any special setting, as long as NFS account of MediDVR has Read/Write permission to shared folder.

2. Configure MediDVR

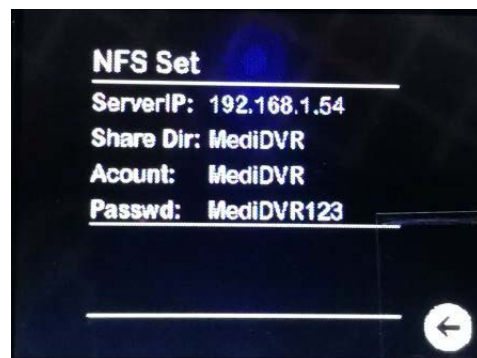
Press the **Menu** button to display the Main Menu, then enter Record submenu and choose NFS as storage. NFS Set interface will display when button is pressed. Setting parameters are shown as follows:

ServerIP: IP address of NFS server.

Share Dir: share folder of NFS server.

Account: user account of NFS server.

Passwd: user password of NFS server.



NOTICE

- ※ See [input method](#) for the detail about how to use keyboard.
- ※ If user account of NFS server uses default account and password, don't need a USB keyboard and users can use button of front panel to set ServerIP. Use ➡ to increase number, ⬅ to decrease number and ▶ to move to next number.
- ※ Complete set, press ⏏ to exit NFS set interface, system confirm the change. If you have connected to NFS server and want to change the account and password, you should exit to main menu after complete setting, then reboot device.

Record to Network Server

Test

Connect to video source and choose NFS as storage, "NFS" will be shown on the top-right of LCD window and LED on the front panel will become green. If shared directory is empty, users need to input patient information. If recoding video on the share directory can play normally, you have successfully completed network connections setting.











FAQ

- MediDVR cannot connect to NFS server.
 - Confirm Server IP, Account and Passwd are correct.
 - Confirm shared directory of NFS server is identical to share Dir of MediDVR.
 - Confirm NFS is connected through whether there is the words "NFS" being shown on the top-right of main menu.
 - Ping IP of NFS server using another computer that in the same network segment. If there is no data packet dropout, then check out whether you have set the option that enable folder sharing.
 - If NFS server is in windows10, check out whether you have installed Windows SMB and Linux installed.
 - Confirm directory has Read/Write permission.
 - Folder name on MediDVR must not contain space or backslash characters.
 - Check network firewall and confirm that 111, 2049, 4046 TCP/UDP port is open.
- If recording video is not smooth, indicate that the network is not ideal, you can lower network broadband requirements or video recording quality.

Replay Videos and photos

View Video

You can replay recording video in past on MediDVR directly, during normal status, press  button, the recording videos list will be displayed on LCD or external monitor, use  &  buttons to select recording video from list, then press  button to play it. Press  button to stop current playback and quit to files list. Press  &  to skip backward or forward while reviewing a video.

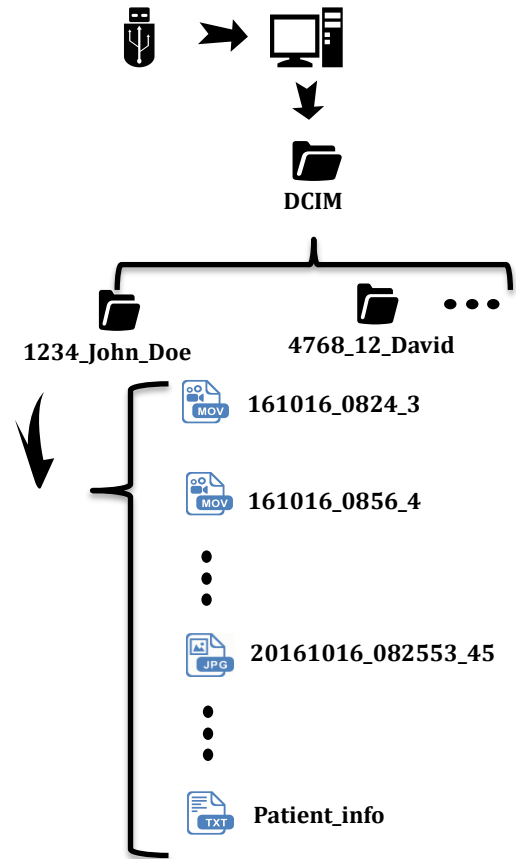
Under files list status, press  button exit replay mode & quit to normal status.

Existent recording videos are sorted based on recording time.

Transfer Files to PC

- 1) Insert the USB drive containing recorded sources into a USB connector on your computer.
- 2) The computer will manage the USB drive just like any other drive on your computer. Navigate to the drive and open it so you can see the folders it contains, enter the "DCIM\ID_PatientName" folder to access certain recordings and images.

You can click on the photos and videos to review them while they are on the drive, or you can move them to your computer's hard drive and review and store them there (recommended). Refer to Windows or Mac OS documentation for information on how to access drives on your computer and manage files.



File Structure

- 1) Every patient will have a unique folder named by "ID_First name_Last name".
- 2) Video files and photos will be ordered by time sequence and they are named by "YearMonthDay_HourMinute_Order" to video files.
- 3) The photos will be named by "YearMonthDay_HourMinuteSecond_Order". A ".txt" file named "Patient_info" will record all the detail information of the patient.

WARNING

Please do not change the structure of the file or the equipment may fail to recognize the patient.

Replay Videos and photos

View Photos on Computer

To view photos in Windows or Mac OS, simply double-click on them and a viewer will open. You can also view and edit your photos using specialized medical image management programs available from many third-party vendors.

Replay Video Clips on Computer

As long as you have connect the drive with your PC, you can find the videos by enter “**DCIM\ID_PatientName**” folder and playback them with mainstream players, such as VLC Player, Media Player, etc.

※ *An input signal with 50/60 FPS will be automatically recoded to 25/30 FPS.*

The MediDVR records high definition video in the H.264 format, also known as MPEG-4 AVC. This widely used format is ideally suited to medical applications because it delivers the highest quality picture in a compact file size.

Built-in Color LCD Screen

The small built-in LCD on the front panel is intended as a navigational aid only, not for diagnosis. Use your large external monitor for diagnosis. The small screen is intended to set up suitable parameters of videos, photos, patient information, etc.

Preview Video via LAN

Live View Video through LAN

MediDVR include built-in Ethernet interface, you can preview video using VLC Media Player on PC via LAN connection.

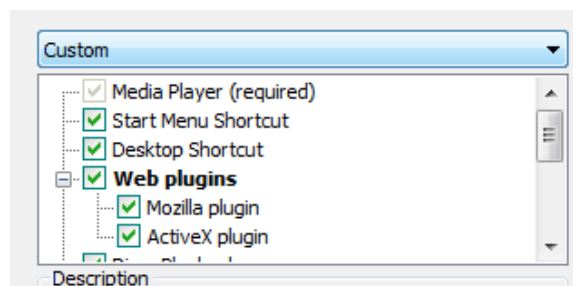
1. Connect MediDVR to your LAN & set local IP address of MediDVR to same network segment with your LAN, then configure VLC Media Player software.
2. Open VLC Media Player; click **Media**-> **Open Network Stream...**
3. On popup interface, click **Network** tab, then input:
`rtsp://192.168.1.168:8557/PSIA/Streaming/channels/2?videoCodecType=H.264`
※ *192.168.1.168 is the default IP address of the device; maybe you need modify it to same IP segment as your LAN.*
4. Click **Play** button on the bottom of interface.
You can download VLC Player at <http://www.videolan.org/vlc/index.html>

View Video through Browser

WARNING

Only some older version before 2.3.3 supports this feature. It phases out with time and is replaced with desktop software, APP or other technology for better performance, stability, compatibility and latency.

1. To use this function, you must download VLC Player installation program and two web plugins should be selected during the Setup.



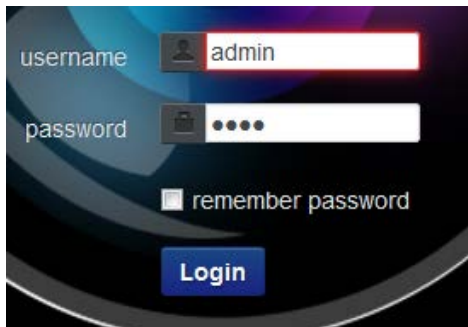
2. Besides, you need to install a light web plugin at :
www.zowietek.com/Download/WebPlug-In.zip
Decompress the .zip file and install the 32/64 plugin depending on your system.
※ *We strongly recommend to use Firefox, a free and powerful browser, to connect the equipment.*
3. After the Setup, open Firefox and input the IP address, such as 192.168.1.168.
4. Input Username & Password when the browser prompt.
 - The default username & password of

Preview Video via LAN

device as follow:

Username: **admin**

Password: **9999**



5. Click **Login** button to enter and view video.
- ※ *Please allow the plugin to run when a warning tip pop out from the browser.*

IE:

The steps are similar. Note that you need to allow installing an IPNC plugin which will pop out from IE when you visit the IP address.

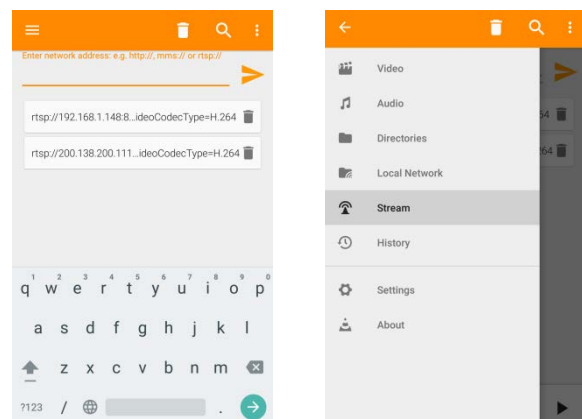
- ※ *The IE browser may respond slowly, please wait patiently for the installation of IPNC plugin.*
- ※ *Only browsers which are compatibility to the kernel of IE 9/10 can use this function.*
- ※ *Clear up all the Cookies and History if it didn't function well.*
- ※ *This function is fading out and we recommend you to use RTSP to watching live videos.*
- ※ *If DHCP Enabled, IP address of MediDVR can be found on status screen.*

View Live Video on Mobile Devices

Live video streaming is also available for mobile devices, like iPhone or iPad if hospital WiFi connected to the operation room. The popular VLC APP is available for Apple, Android and Microsoft mobile devices. Watch the live video just need one single step. Copy and paste the RTSP address, press play to enjoy.

You can also download VLC app to view videos on your smart phone, the operation steps are similar.

1. Download the VLC Player APP and open it.
2. Choose **"Stream"** in the side list.
3. Input the rtsp address: `rtsp://192.168.1.168:8557/PSIA/Streaming/channels/2?videoCodecType=H.264`



- ※ *There are two ways to gain rtsp address:*
 - 1) *192.168.1.168 is the default IP address of the device; maybe you need modify it to same IP segment as your LAN.*
 - 2) *Connect MegaDVR to LAN, finding and coping rtsp address through LAN interface.*
- ※ *If DHCP enabled, IP address can be found on status screen of MediDVR.*
- ※ *VLC Player by VideoLAN is a free and open source player which is recommended.*

Manage files via LAN

Manage Files through LAN

If the device has connected LAN in the local network system, you can map the device through a PC and transfer all the files through the local network easily and safely.

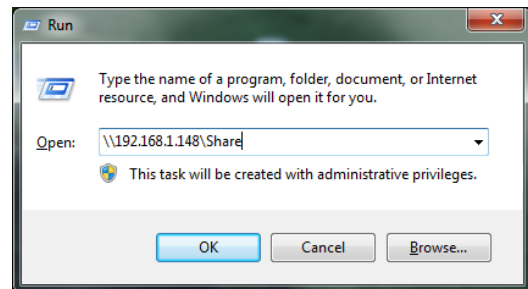
To activate this function, you need to do the following preparations.

- Make sure that the device has connected to LAN.
- Make sure that the PC has connected to the same local network system.
- The IP address of PC and MediDVR should be in same network segment. For example, both PC and MediDVR are in 192.168.1.x network segment below.
- Confirm that these devices are running in normal status.

The example PC is using a Win 7 system, other systems have similar operating steps

- 1) Click the Window button on the left bottom side of the screen
- 2) Click **Run**

- 3) Input \\192.168.1.168\Share and click **OK** (The example IP address is 192.168.1.148, the default IP address is 192.168.1.168)



- 4) Wait for a while and the file system of the MediDVR will be shown.
- 5) Enter the folder of mounted storage media and copy/move the video/image files quickly.



- ※ The file system may respond slowly depending on the bandwidth of the network, the performance of the PC, etc.

Other Features Description

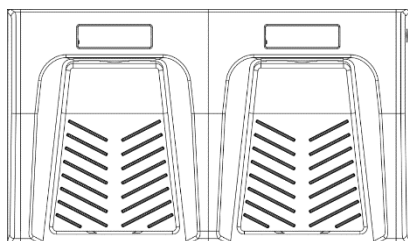
Other Features

Capture Photo while Recording Video

While a video clip is being recorded, you can also capture photos - simply press the **Photo** button as you normally would. These photos will be saved in the "ID_PatientName" folder.

USB Footswitch

Connect USB footswitch to USB port of MediDVR, and standard USB extension cable can be used to extend the control length. The two footswitch connectors serve the same function as the corresponding **Photo** and **Video** buttons.



NOTICE

※ Only newer version after 2.3.9 supports USB footswitch.

Footswitch Triggers

≡ **Portable MediDVR don't support the following functions, please skip them directly.**

Standard footswitch connectors are located on the left side of the back panel. The two footswitch connectors serve the same function as USB footswitch function.

USB Hand Switch

Connect USB hand switch to USB port of Medical Video Recorder. The four position hand switch serve the same function as the corresponding **Photo**, **Video** and **Patient** buttons.

Hand switch Button	Function
Button1	Record/Select down
Button2	Pause/Select in
Button3	Photo/Select up
Button4	Patient

NOTICE

※ Only newer version after 2.3.12 supports USB hand switch.

LANC

All-in-one LANC remote control makes one LANC remote control for all video cameras with a LANC connection and one button for all functions possible. It has three modes and works for all old models of Sony or Sony LANC compatible video camera, new DVD and Hard Disk video cameras with a 2.5mm LANC jack.

- See more at:
http://www.zowietek.com/products/LANC_Remote_Control.html

DVI Output

Both legacy analog input signals and other video signals can be looped out to DVI Output to connect to modern professional DVI/HDMI medical monitor while recording.

Other Features Description

Default preview setting is Auto, it will select proper output video format based on input video format and region automatically.

Connect the signal to an external monitor or another equipment to get 1080p HD videos.

※ *Use a DVI HDMI cable/DVI HDMI adapter to connect DVI output to a HDMI external monitor.*

WARNING

The loop-out signal will be interrupted while replaying a video.

Support Of Video Source & Resolutions

Appendix

Support of Input & Resolutions

Please refer follow table of support of various video source & different resolutions.

Before you start & use MediDVR, the video input source must be connected to MediDVR in first, and the video input option & input video resolution must set correctly.

In future, with new firmware, MediDVR will add more solutions support & improve preview on external monitor.

SDI

Solution	Recording	LCD on MediDVR	External Monitor
1080p	OK	OK	OK
1080i	OK	OK	OK
720p	OK	OK	OK
576i	OK	OK	OK
480i	OK	OK	OK

YPbPr Component

Solution	Recording	LCD on MediDVR	External Monitor
1024x768p	OK	OK	OK
800x600p	OK	OK	OK
640x480p	OK	OK	OK

HDMI

Solution	Recording	LCD on MediDVR	External Monitor
1920x1200p	OK	OK	OK
1600x1200p	OK	OK	OK
1680x1050p	OK	OK	OK
1600x900p	OK	OK	OK
1440x900p	OK	OK	OK
1280x1024p	OK	OK	OK
1024x768p	OK	OK	OK
800x600p	OK	OK	OK

DVI

Solution	Recording	LCD on MediDVR	External Monitor
1920x1200p	OK	OK	OK
1600x1200p	OK	OK	OK
1680x1050p	OK	OK	OK
1600x900p	OK	OK	OK
1440x900p	OK	OK	OK
1280x1024p	OK	OK	OK
1024X768P	OK	OK	OK
800X600P	OK	OK	OK

RGB

Solution	Recording	LCD on MediDVR	External Monitor
1920x1200	OK	OK	OK
1920x1080	OK	OK	OK
1600x1200	OK	OK	OK
1680x1050	OK	OK	OK
1280x1024	OK	OK	OK
800x600	OK	OK	OK

CVBS Component

Solution	Recording	LCD on MediDVR	External Monitor
576i	OK	OK	OK
480i	OK	OK	OK

S-Video

Solution	Recording	LCD on MediDVR	External Monitor
576i	OK	OK	OK
480i	OK	OK	OK

- ※ If the color of the built-in LCD is in deviation, please set "**Menu**"-> "**Video**"-> "**Chroma**" to "**Reversal**"
- ※ Not all supported signals are listed. Other untested signals may also be adopted to the equipment.

Problem/Solution Section

Troubleshooting

Before you start & use MediDVR, the video input option & input video resolution must set correctly.

Please refer the manual of your video source device to get the correct information of video output signal that your video device supply.

You're suggested to plug & unplug video source device to MediDVR while power off.

The built-in LCD screen or external monitor of MediDVR will display noise or blue-screen if no video source input is connected, in which MediDVR can't decide video input signal correctly.

In the following **Problem/Solution** section, please refer the solutions and adjust your devices correctly.

P: The equipment does not start up.

S: Confirm that the power plug is connected. (Make sure that it is properly connected to an outlet and has not become disconnected.) Switch the **Power** Button on.

P: The screen shows black or stripes.

S: If the incorrect video input option & input resolution selected, device will be unable to get video input signal or judge video input signal correctly, so screen will display incorrectly, such as noise, blue screen, or with vertical stripe. Please refer the follow table & set correctly depend on your video input device.

P: How to set the right resolution/FPS?

S: The equipment will automatically find the suitable Resolution and FPS depending on the input signal when starting up or the signal type is chose. We recommend you not to manually change the options of Resolution or FPS except for special situations.

P: Cannot upgrade.

S: Try to restore to default under the setting menu and then repeat the upgrade procedure again.

P: Video color is not correct.

S: If the video color of small LCD or the color of recorded video is not correct, try to change Chroma->Normal to Reversal under the video menu.

P: No Video on LCD and preview DVI output.

S: Check all physical connections. Make sure to use **Input** button to select correct video input.

P: The selected Storage media is not right.

S: MediDVR may not select the proper storage media because multiple storage can be connected at the same time. In this case, please use **Storage** button to select correct storage media and make sure the disk is formatted in FAT32.

P: Recorded video corrupted

S: Once video recording stopped, it will take some time to save video. Therefore, please unplug the disk when you hear three times beep and the status LED turns green.

P: Video don't display correctly

S: It always good idea to switch to the video or turn on the MediDVR after the video input signal connected stably. Set the video signal to **AUTO** under the video menu. MediDVR can detect and recognize the input video format automatically.

P: Use a SD Card while the video files malfunction/recording corruptions happened.

S: Low write speed may cause unexpected problem. SanDisk SD Cards that speed grade is equal and faster than Extreme series are recommend. Any other brand SD cards of which write speed matches above drives can also be considered. Usually the write speed should not be less than 40MB/s.

Problem/Solution Section

P: Use an USB Flash Drive while the video files malfunction/recording corruptions happened.

S: Low write speed may cause unexpected problem. SanDisk USB Flash drives that speed grade is equal and faster than CZ43, CZ48, CZ73, CZ80 and CZ88 are recommend. Any other brand USB flash drives of which write speed matches above drives can also be considered. Usually the write speed should not be less than 40MB/s.

P: The screen shows wrong information when the files of a full USB drive has been deleted before long and the USB then connect the device again.

S: In this case you can try to format the USB drive to "FAT32" or restart the device to solve this problem.

Specifications

Specification for Desktop MediDVR

Power :

Power Adapter : AC 110-240V 1A 50/60Hz
3 prong AC Jack
Medical grade power filter and supply

Video and Photo :

Video Encoder : H.264/HP, MPEG-4/SP
Resolution : 1920x1080@25/30/50/60fps
1280x720@50/60fps
480i/576i, 1080i@50/60
SMPTE 296M/274M/292M,425M/424M
DVI/HDMI/VGA/YPbPr all resolution
Bit Rate : Max. 12Mbps/s, 3 level adj.
Frame Rate : 24/25/30fps, 50/60fps
Codec : H.264/MPEG4, mp4/mov file format
Rate Control : CBR/VBR
Photo : JPEG, DICOM, BMP
Streaming : RTSP

Audio :

Sampling : 16KHz, 16bits
Codec : AAC Stereo
Channels : 2, with Automatic Gain Control
MIC : 2.2VDC Bias, 2.2Kohm, <0.7VRMS
-36dB. MIC gain adj

Interface :

HD/3G SDI Input : 1x BNC, 75ohm, 800mVpp
Component Input : 3x BNC, YPbPr,75ohm
VGA Input : 1 x 15 DE via DVI/VGA Adapter
DVI Input : 1 x DVI-D
CVBS Input : 1 x BNC, 75ohm, 1Vpp
S-Video Input : 1 x 4pin Mini-DIN
HDMI Input : 1 x TYPE A, Receptacle
Preview Output : 1 x DVI-D, Receptacle
SDI Loop Output : Loop out HD/3G SDI, 75ohm, 800mVpp
Back MIC In : 2CH, 2 x 3.5mm Jack, External
Audio In : 2CH, 2 x 3.5mm Jack, 20Kohm higher
Network : RJ45, 10/100 Ethernet

Network Stack : RTSP, HTTP

USB : 3 x USB 2.0, 1 x front, 2 x rear

LANC Control : 2.5mm LANC Jack

Foot Pedal : 2 x 3.5mm Jack, 1x Photo, 1 x Video

Recording/Power LED: Full-color LED

Alert : Buzz

LCD : 2.4" TFT for video preview

Button : Sealed Membrane, Fluid Resistant

Software :

Firmware : Upgradeable, Linux OS

Storage :

Internal : 2.5" SATA HDD Removable Rack
External : USB Flash Drive, USB HDD, SD
Disk Format : FAT32

Configuration :

Setting : LCD or Network
Keyboard : External

System requirements :

- USB 2.0/3.0 Interface
- USB 2.0/3.0 SDHC Card Reader
- USB 2.0/3.0 SATA Reader
- SDHC card interface
- Monitor resolution: 1920x1080
- Ethernet Port

Physical and Environment :

Size : 320 x 166 x 110mm(12.6" x 6.5" x 4.3")
Aluminum case
Weight : 2.94kg (6lb 7.7oz) (No HDD)
Operating: 0°C to 45°C(32°F to 113°F)
Storage : -20°C to 60°C(-4°F to 140°F)

Certification :

CE60601, IEC60601, FCC

Accessories :

Power Cord
DVI to VGA Adapter
MediDVR User Manual
*Single/Dual Foot Pedal

Specifications

- *LANC Remote Control
- *USB SART HDD Dock Station
- *Accessories is optional and sold separately

Specification for Portable MediDVR

Power :

Power Adapter: AC 110-240V 1A 50/60Hz
3 prong AC Jack
Medical grade power filter and supply

Video and Photo :

Video Encoder: H.264/HP, MPEG-4/SP
Resolution: 1920×1080@25/30/50/60fps,
1280×720@50/60fps
480i/576i 1080i@50/60
SMPTE 425M/295M/274M/296M
Quality: 3 level quality
Frame Rate: 24/25/30fps, 50/60fps
Codec: H.264/MPEG4, .mp4/.mov file format
Rate Control: CBR/VBR
Photo: Jpeg, DICOM, BMP
Streaming: RTSP

Audio :

Sampling : 16Khz 16bits
Codec: AAC Stereo
Channels: 2 with AGC 2.2VDC Bias,
2.2Kohm, <0.7VRMS
-36db. MIC gain adj.

Interface :

HD/3G SDI In. : 1 x BNC, 75ohm 800mVpp
Component in: 3 x BNC, YPbPr 75ohm
VGA In. : 1 x 15 DE, via DVI/VGA Adapter
CVBS In.: 1 x BNC, 75ohm 1Vpp
S-Video In. : 1 x 4pin, Mini-DIN
HDMI In.: 1 x Type A, Receptacle
Preview Output: 1 x DVI-D, Receptacle
SDI Loop Out. : loop out HD/3G SDI, 75ohm
800mVpp
Front MIC in. : Mono Omnidirectional

Back Mic In. : 2CH 2 x 3.5mm, jack External
Audio In : 2CH 2 x 3.5mm, jack 20Kohm higher
Network : RJ45 10/100 Ethernet
Network Stack : RTSP HTTP
USB : 3 x USB 2.0, 1 x front 2 x rear
LANC Control : 2.5mm LANC jack
Foot Pedal : 2 x 3.5mm, jack 1 x Photo 1 x Video
Visible : Full Color LED
Alert : Buzz
LCD 2.4 : TFT for video preview and setting
Button : Sealed membrane Fluid resistant

Storage :

Internal : 2.5" SATA HDD Removable
External : USB Flash Drive, USB HDD, SD
Format : FAT32

Physical :

Size : 320 x 165 x 110mm (12.6" x 6.5" x 4.3")
metal case
Weight : 2.98kg (6.57lb 105.12oz) without HDD
Operating : 0°C to 45°C(32°F to 113°F)
Storage : -20°C to 60°C(-4°F to 140°F)

Certificate :

CE, FCC, IEC60601-1, EN60601-1

Limits for Electromagnetic Compatibility (EMC)

Important EMC notices for use in medical environments MediDVR

The MediDVR needs special precautions regarding EMC and needs to be installed and put into service according to the EMC information provided in these instructions for use.

Portable and mobile RF communications equipment such as cellular phones can affect the MediDVR.

Guidance and manufacturer's declaration-electromagnetic emissions		
The MediDVR is intended for use in the electromagnetic environment specified below. The customer or the user of the MediDVR should assure that it is used in such an environment.		
Emission test	Compliance	Electromagnetic environment-guidance
RF emissions CISPR 11	Group 1	The MediDVR uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions CISPR 11	Class B	
Harmonic emissions IEC 61000-3-2	Class A	The MediDVR is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Voltage fluctuations/flicker emissions IEC 61000-3-3	Complies	


Warning

If the MediDVR is used adjacent to or stacked with other equipment, it should be observed to verify normal operation in the configuration in which it will be used.

Limits for Electromagnetic Compatibility (EMC)

Guidance and manufacturer's declaration – electromagnetic immunity			
The MediDVR is intended for use in the electromagnetic environment specified below. The customer or the user of the MediDVR should assure that it is used in such an environment.			
Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment-guidance
Electrostatic discharge(ESD) IEC 61000-4-2	± 6 kV contact ± 8 kV air	± 6 kV contact ± 8 kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient/burst IEC61000-4-4	± 2 kV for power supply lines ± 1 kV for input/output lines	± 2 kV for power supply lines ± 1 kV for input/output lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC61000-4-5	± 1 kV differential mode ± 2 kV common mode	± 1 kV differential mode ± 2 kV common mode	Mains power quality should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	$<5\% U_T$ ($>95\%$ dip in U_T) For 0.5 cycle $40\% U_T$ (60% dip in U_T) For 5 cycles $70\% U_T$ (30% dip in U_T) For 25 cycles $<5\% U_T$ ($>95\%$ dip in U_T) For 5 sec	$<5\% U_T$ ($>95\%$ dip in U_T) For 0.5 cycle $40\% U_T$ (60% dip in U_T) For 5 cycles $70\% U_T$ (30% dip in U_T) For 25 cycles $<5\% U_T$ ($>95\%$ dip in U_T) For 5 sec	Mains power quality should be that of a typical commercial or hospital environment. If the user of the MediDVR requires continued operation during power mains interruptions, It is recommended that the MediDVR be powered from an uninterruptible power supply or a battery.
Power frequency(50/60 Hz) Magnetic field IEC 61000-4-8	 3 A/m	 3 A/m	Power frequency magnetic fields should be at least characteristic of a typical location in a typical commercial or hospital environment.
NOTE: U_T is the AC mains voltage prior to application of the test level.			

Limits for Electromagnetic Compatibility (EMC)

Guidance and manufacturer's declaration – electromagnetic immunity			
The MediDVR is intended for use in the electromagnetic environment specified below. The customer or the user of the MediDVR should assure that it is use in such an environment.			
Immunity	IEC 60601 test level	Compliance level	Electromagnetic environment-guidance
<p>Conducted RF disturbances IEC 61000-4-6</p> <p>Radiated RF disturbances IEC 61000-4-3</p>	<p>3 Vrms 150kHz to 80 MHz</p> <p>3 V/m 80MHz to 2.5 GHz</p>	<p>3 Vrms</p> <p>3 V/m</p>	<p>Portable and mobile RF communications equipment should be used no closer to any part of the MediDVR, including cables, than the recommended separation distance calculated from the equation appliance to the frequency of the transmitter.</p> <p>Recommended separation distance $d = 1.2$ $d = 1.2 \text{ 80 MHz to 800 MHz}$ $d = 2.3 \text{ 800MHz to 2.5 GHz}$</p> <p>Where P is the maximum output power rating of the transmitter in watts(W) according to the transmitter manufacturer and d is the recommended separation distance in meters(m).</p> <p>Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey, should be less than the compliance level in each frequency range.</p> <p>Interference may occur in the vicinity of equipment marked with the following symbol:</p> 
<p>NOTE 1: At 80MHz and 800MHz, the higher frequency range applies.</p> <p>NOTE 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.</p>			
<p>*Field strengths from fixed transmitters, such as base stations for radio(cellular/cordless)telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the MediDVR.</p> <p>*Over the frequency range 150kHz to 80 MHz, field strengths should be less than 3 V/m.</p>			

Limits for Electromagnetic Compatibility (EMC)

Recommended separation distances between portable and mobile RF communications equipment and the MediDVR			
The MediDVR is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the MediDVR can help prevent electromagnetic by maintaining a minimum distance between portable and mobile RF communications equipment (Transmitters) and the MediDVR as recommended below, according to the maximum output power of the communications equipment.			
Rated maximum output power of transmitter W	Separation distance according to frequency of transmitter m		
	150kHz to 80 MHz d = 1.2	80MHz to 800MHz D = 1.2	800 MHz to 2.5 GHz d = 2.3
0.01	0.12	0.12	0.23
0.1	0.38	0.38	0.73
1	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23
For transmitters rated a maximum output power not listed above, the recommended separation distance d in meters (m) can be estimated using the equation applicable to the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.			
NOTE 1: At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.			
NOTE 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.			