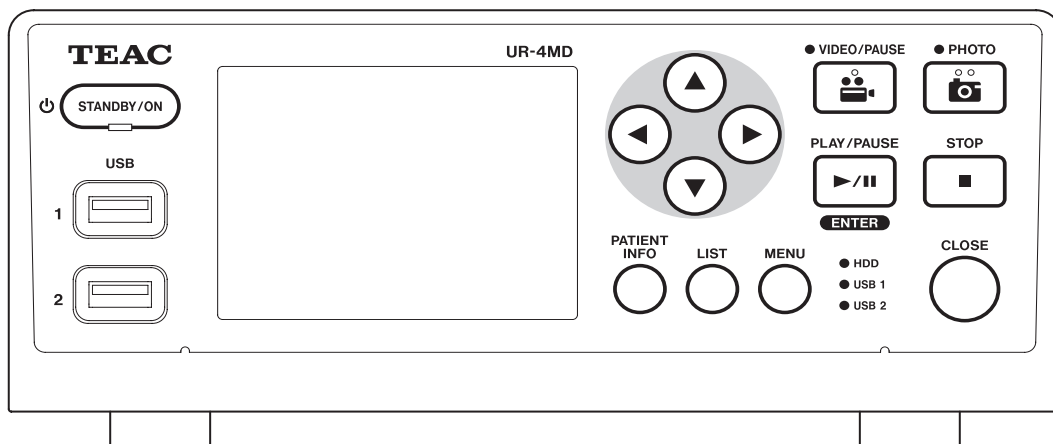# TEAC

UR-4MD

DIGITAL VIDEO RECORDER

Instructions for use

ENGLISH

Meaning of symbols

The following symbols may be used on the UR-4MD unit and packaging as well as in the Instructions For Use. Be sure that you completely understand the meaning of the symbol when you read the related information.

Symbol	Meaning
REF	Catalog number
SN	Serial number
℞ **ONLY**	Caution: Federal Law (USA) restricts this device to sale by or on the order of a physician
(crossed box)	Contents of the package
(damaged package symbol)	Do not use if package is damaged
(book with i)	Consult instructions for use
⚠	CAUTION, Attention: Consult accompanying documents
(factory with date)	Date of manufacture
(factory)	Legal manufacturer
EC REP	EU authorized representative

TEAC CORPORATION
1-47 Ochiai, Tama-shi
Tokyo 206-8530, Japan

EC REP **TEAC Europe GmbH**
Bahnstrasse 12
65205 Wiesbaden-Erbenheim, Germany

Contents

Thank you for choosing TEAC.

Read this manual carefully to get the best performance from this unit. After reading this manual, keep it in a safe place for future reference.

IMPORTANT SAFETY INSTRUCTIONS

CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

1) Read these instructions.

2) Keep these instructions.

3) Heed all warnings.

4) Follow all instructions.

5) Explosion hazard: Do not use the apparatus in the presence of flammable anesthetics or explosive gases.

6) Do not use this apparatus near liquids.
   - Do not expose this apparatus to drips or splashes.
   - Do not place any objects filled with liquids on the apparatus.
   - Clean only with a slightly dampened cloth.

7) Do not install near any heat sources such as radiators, heat registers, or other apparatus that produce heat.
   - Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
   - Do not install this apparatus in a confined space such as a book case or similar unit.

8) This apparatus conforms to Protection Class I. It is equipped with a three-pole mains power connector and a power cord that has a 3-prong grounding plug. The cord of such a product must be plugged into an AC outlet that has a protective grounding connection.
   - Do not defeat the safety purpose of the grounding-type plug. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
   - The apparatus should be located close enough to the AC outlet so that you can easily grasp the power cord plug at any time. The power plug is used as the disconnect device, the disconnect device shall remain readily operable.
   - Protect the power cord from being pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
   - Lay the power cord in such a way that nobody can step on it, drive over it or stumble over it.
   - Do not use the apparatus with a damaged power cord.

- Unplug this apparatus during lightning storms or when unused for long periods of time.

9) The UR-4MD has a replaceable lithium battery. There is danger of explosion if a battery is replaced with an incorrect type of battery. When changing the battery is necessary, contact the retailer where you purchased the unit or a contact on the back cover of this manual and request replacement.

10) Only use attachments/accessories specified by the manufacturer.

11) Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.

12) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped. Do not use the apparatus until it has been repaired.

13) Do not modify the apparatus in any way. Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

14) Caution when using earphones or headphones with the apparatus: Excessive sound pressure (volume) from earphones or headphones can cause hearing loss.

Intended use

This product is a video recorder for use in medical facilities. It is intended to be used for backup recording of examinations and operations in combination with surgical microscopes, endoscope cameras, medical displays and similar devices.
- This product is not intended to be used for diagnoses.
- Use this product only in accordance with these instructions for use.

Disposal method:

Follow local regulations for proper disposal.

Environmental information:

The UR-4MD draws nominal non-operating power from the AC outlet when switched off on the front panel while its main power switch is still in the on position (|).

Federal Communications Commission (FCC) statement

Declaration of Conformity

Model Number: UR-4MD
Trade Name: TEAC
Responsible party: TEAC AMERICA, INC.
Address: 1834 Gage Road, Montebello, California,90640, U.S.A.
Telephone number: 1-323-726-0303

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Important notice

Changes or modifications to the equipment not expressly approved by TEAC CORPORATION for compliance could void the user's authority to operate this equipment.

NOTE:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

1) Reorient or relocate the receiving antenna.
2) Increase the separation between the equipment and receiver.
3) Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
4) Consult the dealer or an experienced radio/TV technician for help.

For Canada

Industry Canada Compliance Statement:
This Class B digital apparatus complies with Canadian ICES-003.
Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

For Europe

Disposal of electrical and electronic equipment

1) All electrical and electronic equipment should be disposed of separately from the municipal waste stream via collection facilities designated by the government or local authorities.

2) By disposing of electrical and electronic equipment correctly, you will help save valuable resources and prevent any potential negative effects on human health and the environment.

3) Improper disposal of waste electrical and electronic equipment can have serious effects on the environment and human health because of the presence of hazardous substances in the equipment.

4) The Waste Electrical and Electronic Equipment (WEEE) symbol, which shows a wheeled bin that has been crossed out, indicates that electrical and electronic equipment must be collected and disposed of separately from household waste.

5) Return and collection systems are available to end users. For more detailed information about the disposal of old electrical and electronic equipment, please contact your city office, waste disposal service or the shop where you purchased the equipment.

Disposal of batteries and/or accumulators

1) Waste batteries and/or accumulators should be disposed of separately from the municipal waste stream via collection facilities designated by the government or local authorities.

2) By disposing of waste batteries and/or accumulators correctly, you will help save valuable resources and prevent any potential negative effects on human health and the environment.

3) Improper disposal of waste batteries and/or accumulators can have serious effects on the environment and human health because of the presence of hazardous substances in them.

4) The WEEE symbol, which shows a wheeled bin that has been crossed out, indicates that batteries and/or accumulators must be collected and disposed of separately from household waste.
Pb, Hg, Cd
If a battery or accumulator contains more than the specified values of lead (Pb), mercury (Hg), and/or cadmium (Cd) as defined in the Battery Directive (2006/66/EC), then the chemical symbols for those elements will be indicated beneath the WEEE symbol.

5) Return and collection systems are available to end users. For more detailed information about the disposal of waste batteries and/or accumulators, please contact your city office, waste disposal service or the shop where you purchased them.

DECLARATION OF CONFORMITY

We, TEAC EUROPE GmbH., Bahnstrasse 12, 65205 Wiesbaden-Erbenheim, Germany declare in own responsibility, the TEAC product described in this manual is in compliance with the European Directive for medical devices 93/42/EEC.

ϵ

Introduction

Copyright and disclaimers

Information is given about products in this manual only for the purpose of example and does not indicate any guarantees against infringements of third-party intellectual property rights and other rights related to them. TEAC Corporation will bear no responsibility for infringements on third-party intellectual property rights or their occurrence because of the use of these products.

This product is licensed under the AVC patent portfolio license for the personal use of a consumer or other uses in which it does not receive remuneration to (I) encode video in compliance with the AVC standard ("AVC video") and/or (II) decode AVC video that was encoded by a consumer engaged in a personal activity and/or was obtained from a video provider licensed to provide AVC video. No license is granted or shall be implied for any other use. Additional information may be obtained from MPEG LA, L.L.C.
See http://www.mpegla.com

Other company names and product names in this document are the trademarks or registered trademarks of their respective owners.

Information about open source copyrights and licensing is contained in the section "Software license information" at the end of this document.

Features

These Instructions for use are applicable for the TEAC UR-4MD with firmware version 1.17 or higher.

- Automatic sensing of resolution and input connection makes connecting other equipment easy
- Record buttons for video and photo allow quick starting for easy operation
- Recording and playback of videos and photos for extended periods is possible
- Photos can be taken while recording video
- External contact switches can be used to control recording
- Simultaneous recording to internal HDD, USB and LAN provides high-confidence data saving
- Supports high-definition formats up to WUXGA
- Built-in liquid-crystal display (LCD) allows input images to be checked and status to be displayed
- Contents can be transferred over a network
- S.M.A.R.T. status of internal hard disk allows checking for malfunction
- Short-term retention of power prevents data loss when power is interrupted
- Light and compact design

Before use

What's in the box

Check to be sure the box includes all the supplied accessories shown below. Please contact the retailer where you purchased the unit or a contact on the back cover of this manual if any of these items are missing or have been damaged during transportation.

Power cord × 1
Instructions for use (this document) × 1

Indication on the unit

Front panel

Indication	Function
⏻ STANDBY/ON	Use this button to turn the unit on/off.

Rear panel

Indication	Function
∿IN	Use this connector to supply power to the unit. Connect the included power cord here.
⏚	This is a potential equalization connector. Connect a potential equalization cable with a connector that is compliant with DIN 42801 here.
⛁	Use this connector to connect to a network.
⊷ ⊶ ⊷	Use this connector to input video signals.
⊶ ⊷ ⊶	Use this connector to output video signals.

Setting up the unit

Before using the UR-4MD, read and follow all safety instructions given in section "IMPORTANT SAFETY INSTRUCTIONS" on page 4.
Set up the unit in a location that meets the following requirements in order to ensure safe and proper operation.

- Environmental conditions:
  - Temperature: 5–40 °C
  - Humidity: 5–80 %RH (no condensation)
  - Maximum wet bulb temperature: 29 °C
  - Electromagnetic environment: See "Limits for electromagnetic compatibility (EMC)" on page 47.
- Place the unit with its rubber feet down and install on a level surface. Avoid vibrations.

- Avoid use in the following types of places because doing so could result in malfunction or other trouble:
  - Near equipment that generates high-frequency waves.
  - Where strong magnetic force or static electricity is present.
- Depending on the television broadcast frequency, uneven colors might appear on televisions that are used near this unit when its power is on. This is not a malfunction of either this device or the television. If this should happen, use the unit further from the affected device.
- Before packing the unit for relocation or transportation, for example, disconnect all cables and other devices. Not doing so could damage the connectors.

Internal hard disk drive

This unit has a built-in hard disk drive (HDD). This HDD is easily affected by impact forces, vibrations and changes 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 unit off while its hard disk is being accessed.

IMPORTANT NOTICE

Long-term storage of recorded contents on the built-in HDD cannot be guaranteed. Moreover, as space becomes necessary, the oldest recordings will be erased automatically. We recommend that you use a LAN or USB drive to transfer important video and photo data for storage on a computer or DVD, for example.

IMPORTANT NOTICE

Hard disk drives eventually fail. Depending on use conditions, problems might start occurring in a few years. If recording or playback becomes impossible, contact the retailer where you purchased the unit or a contact on the back cover of this manual and request repair.

Built-in battery

This unit has a battery to run the internal clock. If this battery dies, the correct time cannot be retained, and this will affect the time information of recorded images. We recommend changing the battery every five years before it dies. When changing the battery is necessary, contact the retailer where you purchased the unit or a contact on the back cover of this manual and request replacement.

Note about usable media

You can connect USB flash drives and USB hard drives to this unit. Format the media with this unit before recording.

Note about the built-in fan

The fan built into this unit has a limited lifespan. If it breaks, contact the retailer where you purchased the unit or a contact on the back cover of this manual and request repair.

Front panel
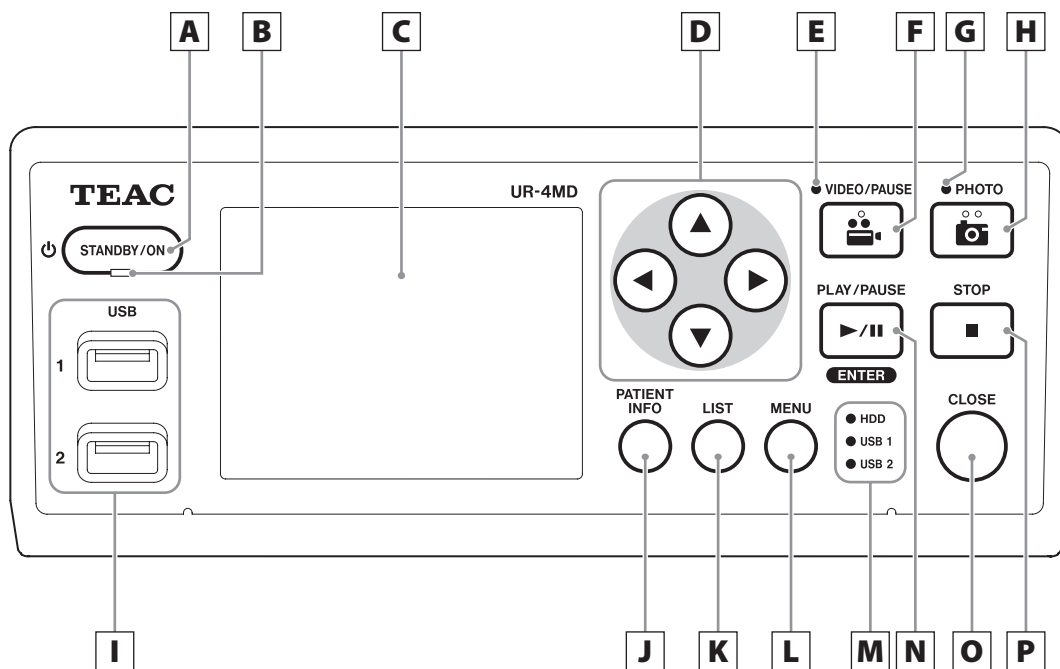
A STANDBY/ON button

Press to turn the unit on. The LCD display lights. When the power is on, press it to put the unit into energy-saving mode.

NOTE

- The unit will only turn on if the main power switch on the back of the unit is set to On (|).
- Press and hold for at least 1 second to shut the unit down.
- Press and hold for about 4 seconds to force the unit to shut down.

See "Turning the unit off" on page 14 for details.

B STANDBY LED

Solid green: On
Solid amber: Standby

C LCD display

This shows input images (previews), playback images, status information and setting menus.

D ▲ , ▼ , ◀ , ▶ buttons

Use these to change and select menu items and to view recorded photos and videos.

E VIDEO LED

Lit: Video being recorded
Blinking: Video recording paused

F VIDEO/PAUSE button

Press to start video recording.
Press this button during video recording to pause recording.
Press it again to resume recording.

NOTE

When video recording is paused, an index is created at that point.

G PHOTO LED

This lights when photos are being recorded.

H PHOTO button

Use to record photos.

I USB ports (USB 1/USB 2)

Connect USB flash drives and hard disk drives to these.

NOTE

Do not connect USB hubs.

J PATIENT INFO button

Press to show patient information when, for example, you want to input or check it.

Press and hold for 1 second to toggle between the following options of how information is shown on an external monitor:

OSD1 (Information is shown)

OSD2 (Information is not shown)

OSD3 (Only status icon is shown)

OSD4 (Status icon and time counter are shown)
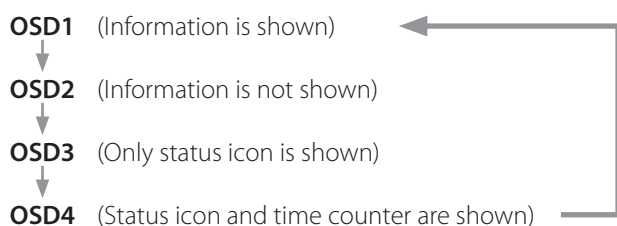
NOTE

If "Patient Info. Entry" is set to "Off", patient information will not be shown.

K LIST button

Press to show the list of already recorded folders.

L MENU button

Press to open the menu in order to make unit settings.

When the folder list is shown (see LIST button), press the MENU button to show a pop-up menu where you can copy, edit and delete folders.

M Status LEDs

These show the access status of the internal HDD and drives connected to USB 1 and USB 2.

Internal HDD

Solid green:	Normal
Unlit:	Error

USB 1/2

Solid green:	Device connection recognized In this state, the device can also be securely removed
Amber:	Writing or formatting (or device being connected) Important: Do not remove a USB storage device in this state – risk of data loss!
Unlit:	No device

N PLAY/PAUSE button
ENTER button

Press to play a recorded file.

Press during video playback to pause playback.

When making a menu setting, press to confirm the selected item.

O CLOSE button

Press to end recording, playback, menu operations or searching and close the current patient folder.

NOTE

Press this button to close any open files and folders. Wait until the USB status LED lights green before you disconnect a USB storage device. Not doing so could damage recorded data.

P STOP button

Press during video recording to stop recording. Press during video playback to stop playback.

Rear panel
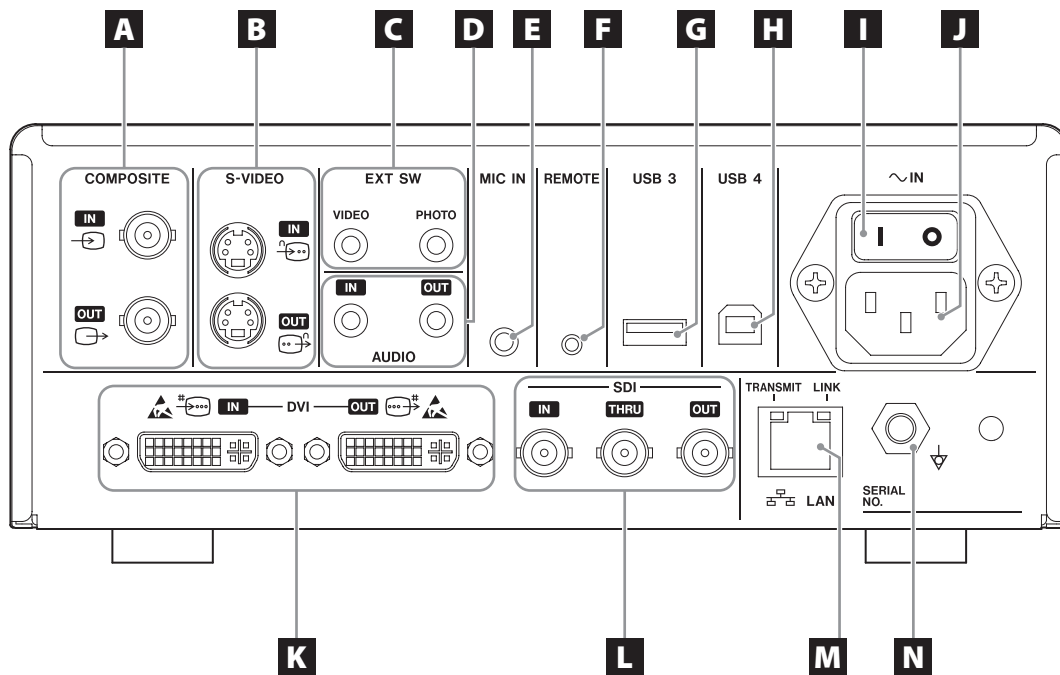
A COMPOSITE input/output connectors

IN (⊡)

Input a Composite Video (NTSC/PAL) signal here. (BNC connector)

OUT (⊡)

This outputs a Composite Video (NTSC/PAL) signal. (BNC connector)

B S-VIDEO input/output connectors

IN (⊡)

Input an S-Video (NTSC/PAL) signal here. (S connector)

OUT (⊡)

This outputs an S-VIDEO (NTSC/PAL) signal. (S connector)

C External switch input connectors (EXT SW)

Connect external VIDEO and PHOTO switches here. (3.5-mm stereo mini jacks)

D AUDIO input/output connectors

IN

Input an audio signal here. (3.5-mm stereo mini jack)

OUT

This outputs an audio signal. (3.5-mm stereo mini jack)

E MIC IN (input) connector

Connect a microphone here to input an audio signal. (3.5-mm mono mini jack)

NOTE

When using a stereo plug, make sure to input the mic sound through the left (L) channel.

F REMOTE connector

Connect a TEAC/TASCAM RC-10 wired remote controller or TEAC/TASCAM RC-3F foot switch (sold separately) to use for controlling this unit. (2.5-mm mini jack)

G USB port (USB 3)

You can connect a USB keyboard, a card reader or a barcode reader to input patient information here. (USB 2.0 Type A)

Use a card reader or a barcode reader that has keyboard interface specifications.

For details, please contact TEAC or a TEAC distributor.

NOTE

USB hubs cannot be connected here.

H USB port (USB 4)

Use to access data on this unit from an external device (when set to USB Mass Storage) or to control this unit with commands from an external device (when not set to USB Mass Storage).

To control this unit with commands, you must create a communication program. For details, please contact TEAC or one of the TEAC distributors. (USB 2.0 Type B).

NOTE

USB hubs cannot be connected here.

I Main power switch

Use to enable/disable power supply to the unit. This switch needs to be in the On position (|) in order for the front-panel STANDBY/ON button to operate.

J Power cord connector (~IN)

Connect the included power cord here.

Always connect the power cord to a grounded power outlet.

K DVI input/output connectors

IN ( )
Input a DVI (DVI-D) video signal here.
OUT ( )
This outputs a DVI (DVI-D) video signal.

L SDI connectors

IN
Input an SDI video signal here. (BNC connector)
THRU
This passes through input SDI video signals. (BNC connector)
OUT
This outputs an SDI video signal. (BNC connector)

M LAN connector

Use to connect the unit to a network. Follow the instructions provided by the network administrator regarding connections and settings. (10BASE-T/100BASE-TX/1000BASE-T (RJ-45))

LINK LED
This lights when a link pulse is detected.
TRANSMIT LED
This blinks during transmission.

N Potential equalization connector ( )

Use to connect a potential equalization cable with a connector that complies with DIN 42801.

When using this in combination with other medical equipment, connect the devices using dedicated cables.

IMPORTANT NOTICE

Connectors that display this mark are susceptible to internal damage from static electricity. Be careful not to touch the connector contact points with bare hands.

Preparations before turning the power on

Connecting the input cables

This unit has S-VIDEO and COMPOSITE VIDEO standard video input connectors and DVI and SDI high definition video input connectors.

Connect input cables to the connectors that you will use.

Connecting the output cables

This unit has S-VIDEO and COMPOSITE VIDEO standard video output connectors and DVI and SDI high definition video output connectors.

In connection example 1 below, input images cannot be seen on the monitor when this unit is off.

If connected as shown in example 2, input images can be seen on the monitor even when this unit is off.

Connection example 1

| Image device | → | This unit | → | Monitor |

Connection example 2

| Image device | → | This unit | → | Monitor |

Different signal input to this unit
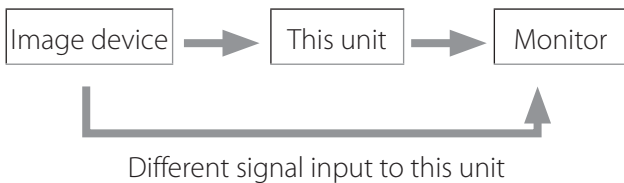
Connecting the audio input

This unit has an audio input connector. Connect the audio input connector as necessary.

For SDI audio, this can be used together with the SDI video input connector.

For details, see the "Audio IN" menu item (page 33).

Connecting the audio output

This unit has an audio output connector. Connect the audio output connector as necessary.

For SDI audio, this can be used together with the SDI video output connector.

Connecting external switches

This unit has connectors for external switches (EXT SW). Connect external switches as necessary (see page 16).

Connecting recording devices

Recording to a USB storage device
Connect the USB storage device to the USB 1 or USB 2 port on the front of the unit. When the USB storage device is on, the corresponding LED lights green.

To disconnect it, press the CLOSE button. Disconnect it after the corresponding USB LED stops blinking (becomes lit green again).

For details about settings, see "Determining where to save recorded data" on page 16 and "Record To" on page 34.

Recording to a network
Use a cable to connect to the communication network.

For details about settings, see "Network Options" on page 39.

Connecting the power cord

⚠ CAUTION
Only connect this unit to a mains voltage of AC 100–240 V ±10 % (50/60 Hz). Any other power supply could cause fire or electric shock.

Always use isolation transformers in order to prevent electric shocks.

The power cord has a three-pronged plug. In order to assure safe use, do not connect it to a two-pronged (ungrounded) outlet.

For USA:

Grounding

Outlet   Grounding plug

For Europe:

Grounding

Outlet   Grounding plug
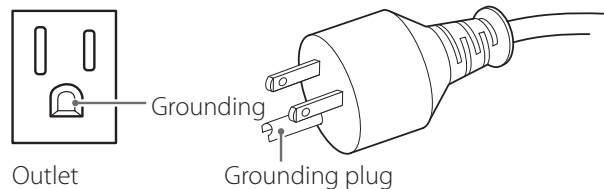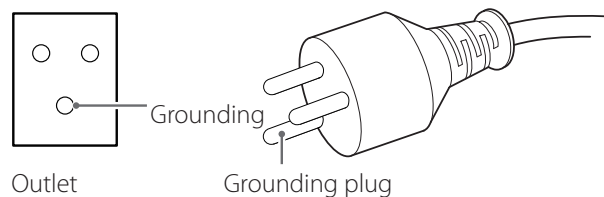
When operating the UR-4MD in the UK:
Use a power cord conforming to BS1363 with a 3A fuse.

Turning the unit on

1 Set the main power switch on the back of the unit to the on (|) position.
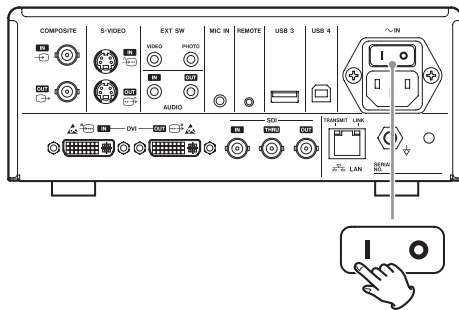
2 Press the STANDBY/ON button on the front of the unit.

The LCD display on the front of the unit lights, and "Starting…" appears.
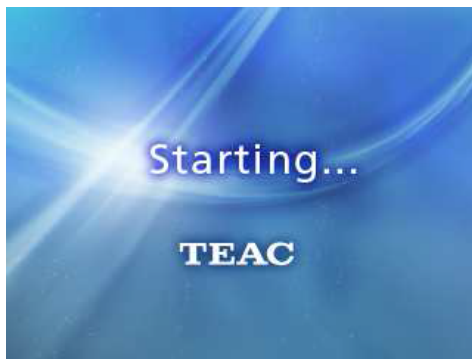
After the unit starts, the input video is shown. If there is no input, a black background will be shown.

When the front panel LCD shows text about various status items, the unit is ready for the next user operation.

● If video is being input, that video will appear in the background.

Turning the unit off

IMPORTANT NOTICE

Before turning the unit off (standby or energy-saving mode):
- Stop recording
- End access to all media (make sure the USB status LED for connected memory devices lights green)

Shutdown procedures will be conducted if the power is suddenly interrupted, but data preservation cannot be guaranteed. In particular, turning the power off while any media is being accessed could damage data, making it unusable.

- **To put the unit into energy-saving mode: Press the STANDBY/ON button briefly.**
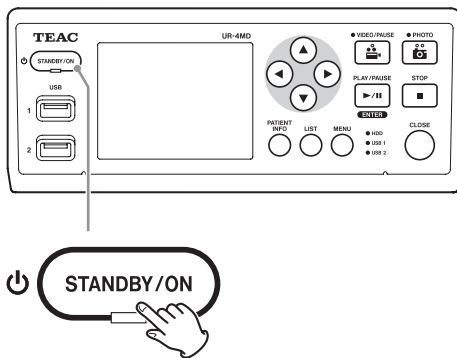
- **To put the unit into standby: Press the STANDBY/ON button for about one second.**

Energy-saving mode (Power save)

In this mode, the unit stays ready while conserving energy. This is useful if you want to be able to use the unit sometime soon without waiting.
- In energy-saving mode, the fan will continue to turn.

Standby (Shutdown)

This turns the unit off. Restarting the unit will take about 30 seconds.

When the unit will not be used for a long time

If this unit will not be used for a long time, follow the procedures below to switch the unit off.

1. **Press and hold the STANDBY/ON button on the front panel to put the unit into standby.**
2. **Set the main power switch on the rear panel to the Off position (○).**
- The STANDBY LED stays lit for a few minutes after the main power has been turned off because of the short-term power retention function for use during power outages. When this reserve power is depleted, the STANDBY LED will extinguish.

Basic menu operation

1 **Press the MENU button to open the main menu.**
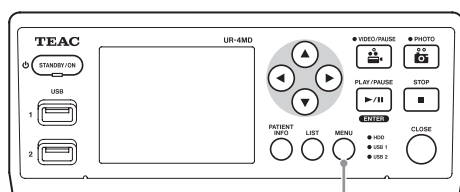
MENU

2 **Use the ▲, ▼, ◄ and ► buttons to change the selection.**

3 **Press the ENTER button to open the selected menu.**

● To return to the previous screen, press the MENU button.

4 **To close the Main Menu, press the CLOSE button, or press the ENTER button when "Exit" is selected.**

Formatting recording media

IMPORTANT NOTICE

Be aware that doing this will erase all the data on the selected medium.
If the internal HDD is selected, the data on the hard disk in this unit will be erased.

1 **Press the MENU button to open the Main Menu.**

2 **Select "Advanced" ➜ "Format Recording Device".**
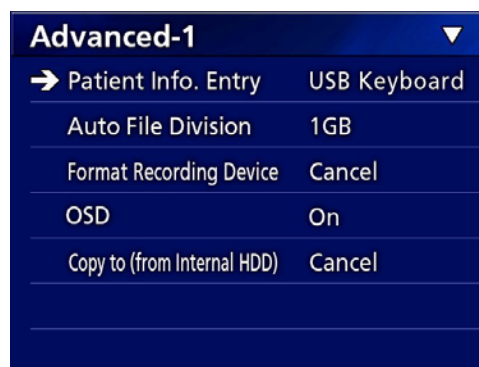
3 **Select the medium you wish to format and press the ENTER button.**

USB1
Format the medium connected to USB port 1.

USB2
Format the medium connected to USB port 2.

HDD
Format the internal hard disk.
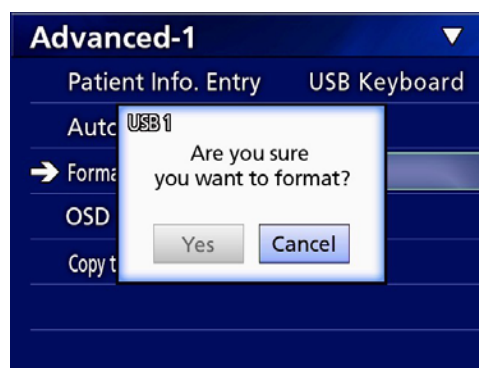
4 **Select "Yes" to start formatting.**

Recording

Determining where to save recorded data

Before starting recording, set where recording data will be saved.

- The unit always records to the internal HDD.
- Depending on the setting, the unit is able to record simultaneously to the internal HDD, to USB 1, USB 2 and to the network.

To record to a USB storage device

1 Press the MENU button.

2 Select "Setup" ➡ "Record To".

3 Select one of the following settings.

USB1 + USB2
Record the same data to both USB 1 and USB 2.

USB1
Record to only USB 1.

USB2
Record to only USB 2.

- Recording will be made from the image at the time a device is connected to the corresponding USB port. Recorded images from before the connection was made will not be transferred to the connected device.
- Do not connect or disconnect USB storage devices while recording. Doing so could result in the loss of not only the data being recorded, but also data that has already been recorded. Furthermore, doing this could cause other malfunction.

To record to a network

1 Press the MENU button.

2 Select "Network" ➡ "Mode Select" and set the desired network mode.

CIFS client
This unit will be a CIFS client, and recordings will be saved to the network share configured in the CIFS client settings.

FTP client
This unit will be an FTP client, and recordings will be saved to the FTP server.

Making external switch settings (video)

You can connect external switches to the EXT SW connectors on the rear panel and use them to control this unit.

1 Press the MENU button.

2 Select "Video" ➡ "Ext. Switch Trigger".

3 Set the desired operation.

For details, see "Ext Switch Trigger" in "Video Options" on page 35.

NOTE

There are no external switch settings for still images.

Recording video

- **Press the VIDEO/PAUSE button on the front panel to start recording video.**
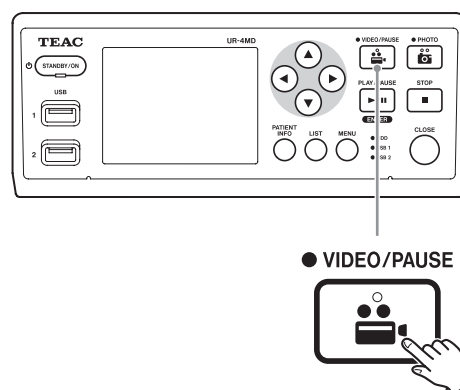
● VIDEO/PAUSE

- **Press the VIDEO/PAUSE button again to pause recording.**

- **Press the STOP button to stop video recording.**

- If recording is started before patient information is input, the video will have no patient information. If patient information is necessary, refer to "Inputting patient information" on page 18, and input patient information before you start recording video.
- To disable on-screen information while recording video, press and hold the PATIENT INFO button. Or set "OSD" accordingly (see "OSD" on page 36).

During video recording, the following will occur.

● If video is being input, that video will appear in the background.

● During video recording, the VIDEO LED above the VIDEO/PAUSE button will light amber.

● A status icon will appear at the top right of the display.

● While capturing video recording, you can press the PHOTO button to take a photo.

Status icon

Number of recordings (999 maximum) Recording time

Icons that appear during recording

Icon	Explanation
	Stopped
	Video being recorded
	Paused during video recording
	Photo taken while video recording stopped
	Photo taken while recording video
	Photo taken while video recording paused

NOTE

When recording for a long time, the file will automatically be divided. The division size depends on the setting (see page 36).

Even if a file has been divided, the recording can be played back on this unit without interruption.

Taking photos

● **Press the PHOTO button on the front of the unit to take a photo.**

The PHOTO LED above the PHOTO button lights amber briefly.
A camera icon briefly appears at the top right of the display.
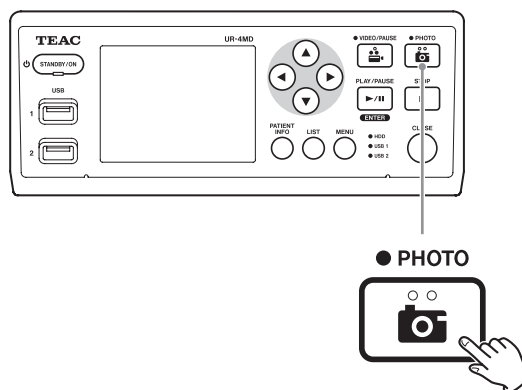
● PHOTO

● If a photo is taken before patient information is input, the photo will have no patient information. If patient information is necessary, refer to "Inputting patient information" on page 18, and input patient information before you take a photo.

Icon that appears when taking a photo

Icon	Explanation
	Photo being taken

17

Inputting patient information

A USB keyboard, card reader or barcode reader is necessary to input patient information.

● Refer to "Patient Info. Entry" on page 35 and set up the input device being used.

Inputting patient information with a keyboard

You can use a USB keyboard connected to the USB 3 port on the back of the unit to input patient information.

Use the USB keyboard to input the ID, name, sex and birth date of the patient.

1 Press the PATIENT INFO button.
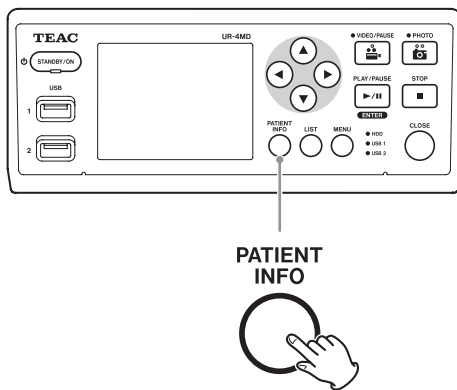
PATIENT
INFO

2 Use the keyboard to input the information.

Hospital, Procedure, Modality and Operation Room are immediately retained internally. Erase item information that is not needed.

3 Press the ENTER button to confirm.

Buttons and corresponding USB keyboard keys

Operation	Button	USB keyboard
New patient	PATIENT INFO	F10
Move to field above ▲		↑ (up-arrow)
Move to field below ▼		↓ (down-arrow)
Move cursor left ◄		← (left-arrow)
Move cursor right ►		→ (right-arrow)
Confirm and enable recording	ENTER	ENTER F1
Close the screen	CLOSE PATIENT INFO	ESC
Delete character at cursor	—	DEL
Delete character to left of cursor	—	Backspace
Character input	—	Character code

NOTE

● If you do not press the front panel ENTER button or keyboard ENTER key, the input value will not be confirmed.
● Only English letters and numerals can be input.
● Use a keyboard according to the "Language" setting.
● Only IBM/Windows compatible USB keyboards are supported. Mac keyboards, for example, cannot be used with this unit.

Canceling the input of patient information

On the patient information input screen, press the CLOSE or PATIENT INFO button.

Inputting patient information with a card/barcode

You can connect a card reader or a barcode reader to the USB port 3 on the rear panel of the unit to input patient information.

1 Press the PATIENT INFO button.

PATIENT
INFO
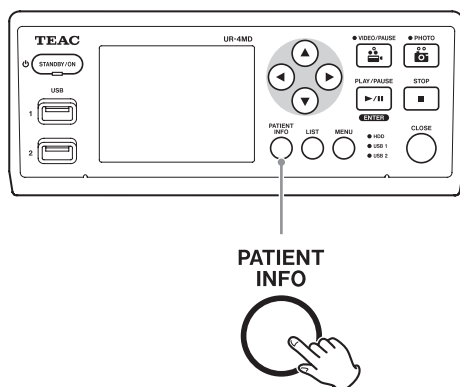
2 Read the card/barcode.

3 Press the ENTER button to confirm and enable video recording.

NOTE

- If you do not press the front panel ENTER button, the input value will not be confirmed.
- Only English letters and numerals can be input.
- Characters other than English letters and numerals cannot be shown properly.

Selecting how information is shown on an external monitor

Press and hold the PATIENT INFO button for 1 second to toggle between the following options of how information is shown on an external monitor:

OSD1 (Information is shown)

OSD2 (Information is not shown)

OSD3 (Only status icon is shown)

OSD4 (Status icon and time counter are shown)
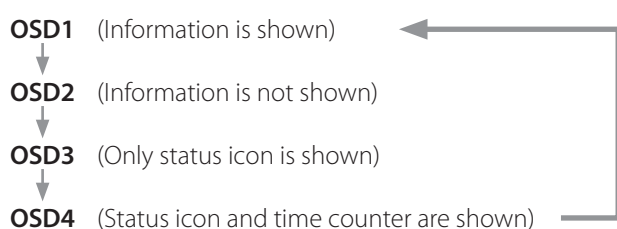
Exiting recording mode

Press the CLOSE button to clear the patient information and exit recording mode.
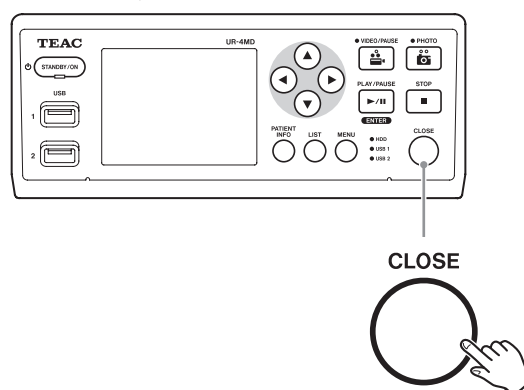
CLOSE

Videos and photos from before pressing the CLOSE button will be stored in the same folder. The maximum number of images, including both still and video images, in one folder is 999. If this number is reached and you want to record further, press the CLOSE button to end recording once. When recording is next started, a new folder will be created.

Precautions when removing USB storage devices

After pressing the CLOSE button to stop recording video or photos, do not immediately disconnect the USB storage device because the unit continues writing to the device for some time.

Disconnecting a USB storage device when writing could cause some of the recorded images and management files to be damaged, resulting in the loss of image data. Follow these procedures when disconnecting USB storage devices:

1 Press the CLOSE button to stop recording and wait until all the status LEDs light green.

Depending on the recording time, several minutes might pass before they all light green.

2 After confirming that all LEDs are lit green, press the LIST button and confirm that the recorded images are at the very top of the list.

3 **Confirm that the playback device shown at the bottom left corner of the display is a USB storage device (USB1 or USB2).**

4 **Confirm that you can play back recorded images.**

5 **Press the CLOSE button to stop playback.**

6 **After the playback icon disappears from the display, disconnect the USB storage device.**

Playing the newest video/photo

Press the front panel PLAY/PAUSE button to play back the most recently recorded data.

PLAY/PAUSE
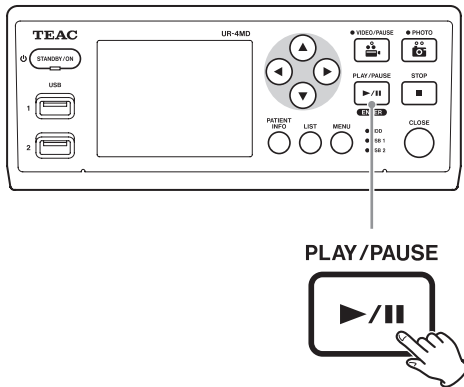
Icons that appear during playback

Icon	Explanation
▷	Ordinary video playback
▯▯	Playback paused
▷▷2	1, 2, 3, 4 or 5 appears depending on the video playback speed
📷▷	Photo being shown

Status icon

Recording start date and time

Playback time/image recording time

Playback image number/total number of images in folder

IMPORTANT NOTICE

The newest video/photo can only be played immediately after starting up or immediately after recording.
Opening the list or starting playback will change the playback folder.

Playback operations

Playing and pausing

Press the PLAY/PAUSE button.

PLAY/PAUSE
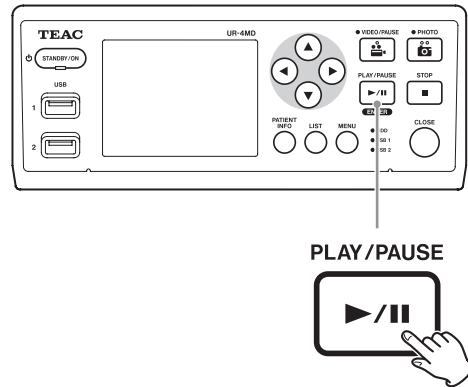
- During ordinary video playback, this pauses playback.
- At all other times, this starts ordinary playback (normal 1× speed).
- When viewing a photo, this does nothing.

Stopping

During playback, press the CLOSE or STOP button to stop playback.

CLOSE
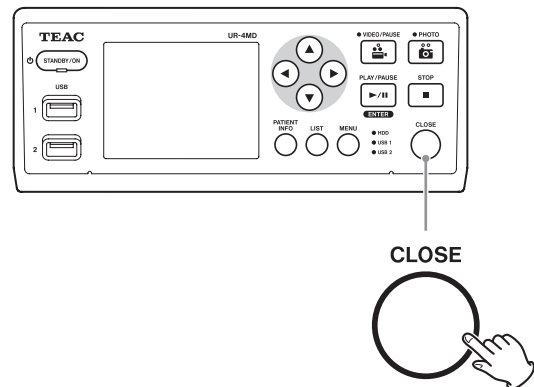
Changing playback speed

During video playback, press the ▶ button to increase the playback speed one level at a time.

Press the ◀ button to decrease the playback speed one level.
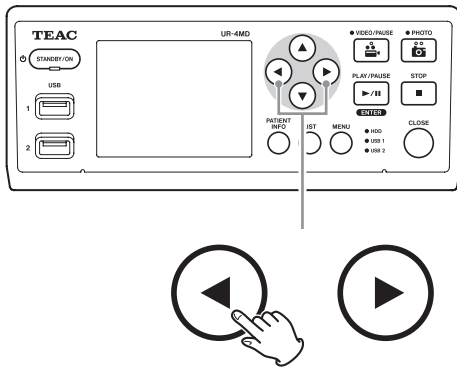
NOTE

● This unit does not have a "rewind" function.
● When playing back at high speed, the video could become irregular. If this happens, restart normal playback and try again.

Jumping to an index

When viewing video, press and hold the ▶ button to jump to the next index and play the video from there.

If there are no more indexes until the end of the video, this will jump to the end of the video and pause playback instead.

Press and hold the ◀ button to jump to the previous index and play the video from there.

If there are no more indexes until the beginning of the video, this will jump to the beginning of the video and play the video from there.

Press at least 2 seconds
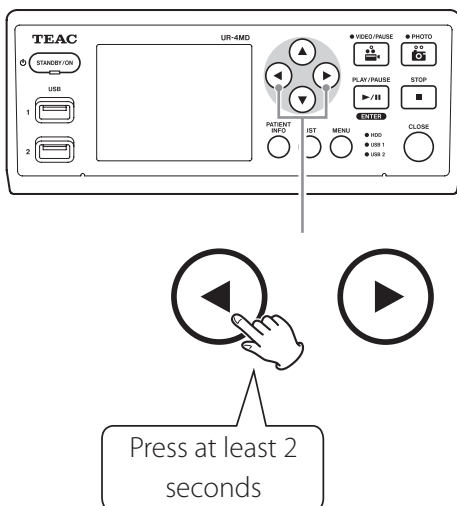
Moving to the next recorded file

When viewing photos or when video playback ends, press the ▲ button to move to the next file.
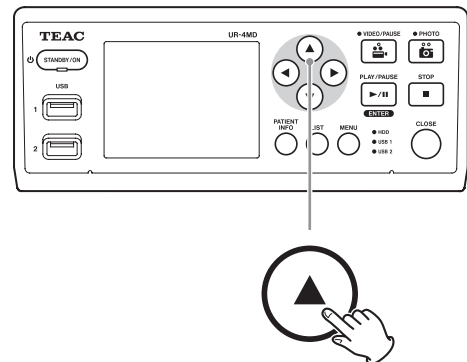
Press the ▼ button to move to the previous file.
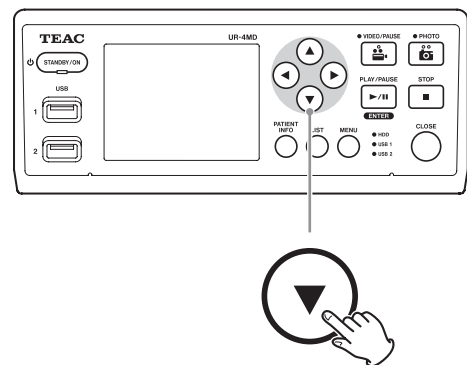
Moving to the next folder

During playback or when playback is paused, press the ▲ button for at least two seconds to move to the next folder.
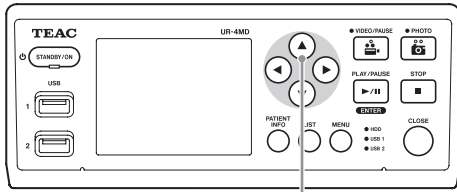
Press at least 2 seconds

Press the ▼ button for two or more seconds to move to the previous folder.
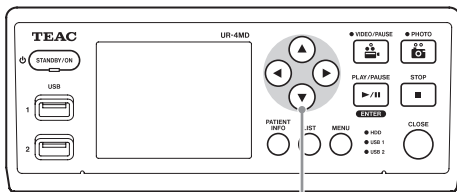
Press at least 2 seconds

Audio during playback

Audio is played only during ordinary playback.

NOTE

Audio is not played during high-speed playback.

Showing and playing back files in a list from the most recent folder

Press the LIST button or the USB keyboard F3 key to show the recording data in the most recently dated folder.

LIST

DATE: 2013/Oct/24

ID : E34251297-14
NAME: Tanaka Masayoshi

ID : E34251297-14
NAME: Tanaka Masayoshi

ID : E34251297-14
NAME: Tanaka Masayoshi

USB 2   002/003
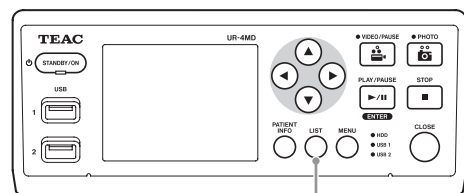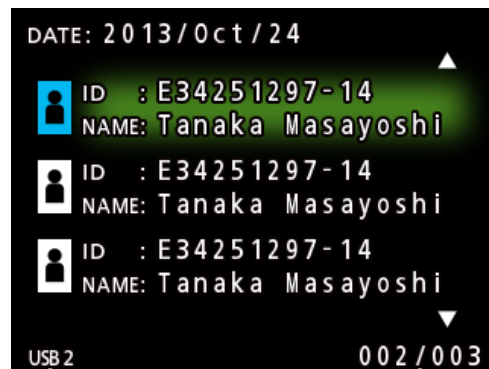
Detected device

Current folder number/total number of folders

Searching for files by condition and playing them back

NOTE

If "Patient Info. Entry" is set to "Off", the search function cannot be used.
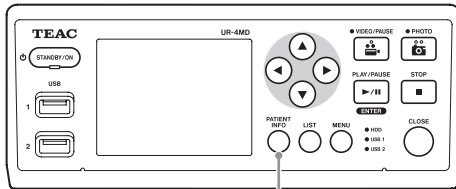
PATIENT INFO

Searching by ID

1 Press the PATIENT INFO button.

2 Move the cursor to the ID field.

3 Use a USB keyboard to input the ID.

4 Press the LIST button or the USB keyboard F3 key to start searching.

Searching by name

1 Press the PATIENT INFO button.

2 Move the cursor to the NAME field.

3 Use a USB keyboard to input the name.

4 Press the LIST button or the USB keyboard F3 key to start searching.
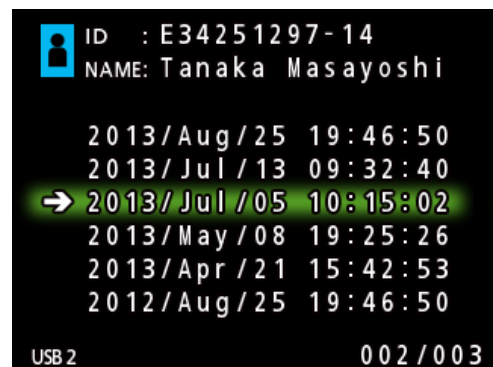
Searching by date

1 **Press the PATIENT INFO button.**

2 **Move the cursor to the DATE field.**

3 **Use a USB keyboard to input the date.**

4 **Press the LIST button or the USB keyboard F3 key to start searching.**

```
DATE: 2013/Oct/24
                                    ▲
  ID   : E34251297-14
  NAME: Tanaka Masayoshi

  ID   : E34251297-14
  NAME: Tanaka Masayoshi

  ID   : E34251297-14
  NAME: Tanaka Masayoshi
                                    ▼
USB 2                        002/003
```

Buttons and corresponding USB keyboard keys

Operation	Button	USB keyboard
New patient	PATIENT INFO	F10
Move to field above	▲	↑ (up-arrow)
Move to field below	▼	↓ (down-arrow)
Move cursor left	◄	← (left-arrow)
Move cursor right	►	→ (right-arrow)
Confirm and record	ENTER	ENTER F1
Close the screen	CLOSE PATIENT INFO	ESC
Delete character at cursor	—	DEL
Delete character to left of cursor	—	Backspace
Character input	—	Character code
Start search	LIST	F3

Changing the device used for searching (playback)

On the search result screen, press the ◄ or ► button, or the USB keyboard ← or → key to change devices in the following order.

iHDD ◄—► USB1 ◄—► USB2 ◄—

Managing recorded files

Saving already recorded photos/videos on an external device

You can use this unit to copy data recorded on it to an external device. Use the "Copy to (from iHDD)" function on the "Advanced-1" screen (page 36).

Copying to USB 1 or USB 2

1 **Press the MENU button.**

2 **Select "Advanced".**

3 **Select "Copy to (from iHDD)".**

4 **Select "USB1" or "USB2".**

5 **Select the order to copy folders.**
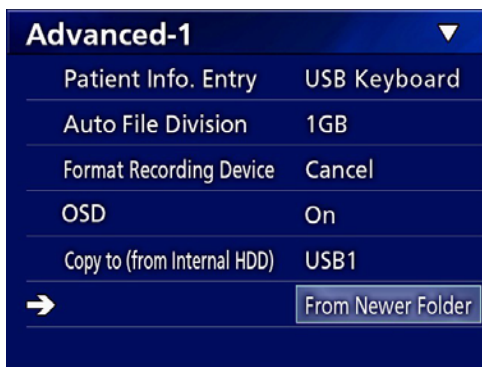
> **NOTE**
> ● All videos and images stored on the UR-4MD will be copied to the selected device. To copy specified folders only, use the list screen ("Copying a specified folder" on page 27).
> ● Selecting individual files for copying is not possible.
> ● Confirm that the copy destination has enough open space.
>   If the internal HDD contains a large amount of data, copying could require several hours.
>   We recommend that you copy when you do not need to use the unit for extended periods.

Copying to an FTP server

1 **Press the MENU button.**

2 **Select "Advanced".**

3 **Select "Copy to (from iHDD)".**

4 **Select "Network (FTP)".**

5 **Select the order to copy folders.**
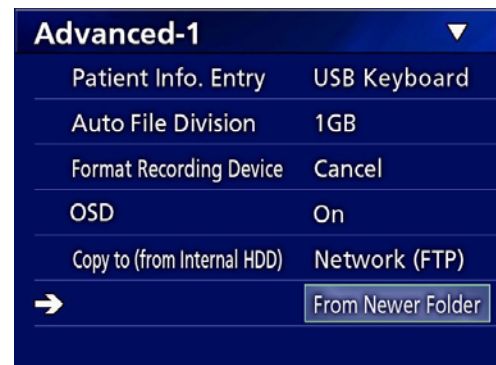
> **NOTE**
> For details about FTP server settings, see "FTP Client" in "Mode Select" on page 39.

Copying to a CIFS server

1 **Press the MENU button.**

2 **Select "Advanced".**

3 **Select "Copy to (from iHDD)".**

4 **Select "Network (CIFS)".**

5 **Select the order to copy folders.**
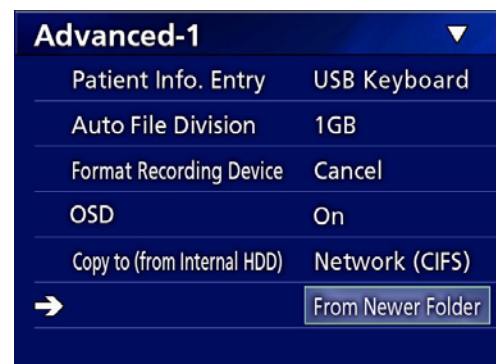
> **NOTE**
> For details about CIFS server settings, see "CIFS Client" in "Mode Select" on page 39.

Copying a specified folder

1 Press the LIST button to open the list.
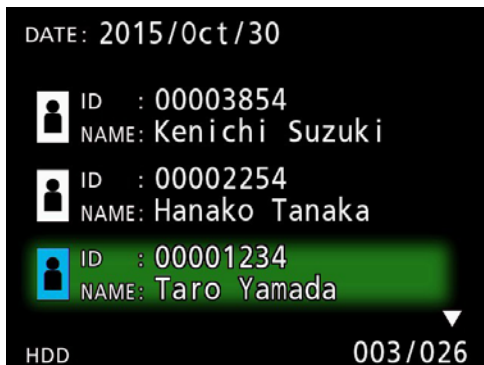
- If the internal HDD list is not shown, use the ← and → buttons to set the searched (playback) device to "HDD".

2 Use the ↑ and ↓ buttons to select the folder you want to copy, and press the MENU button.

A pop-up menu appears.

3 Use the ↑ and ↓ buttons to select "Copy", and press the ENTER button.

This opens the "Destination" pop-up menu.

4 Use the ↑ and ↓ buttons to select the copy destination, and press the ENTER button.

Devices to which copying is currently possible are shown as copy destinations.
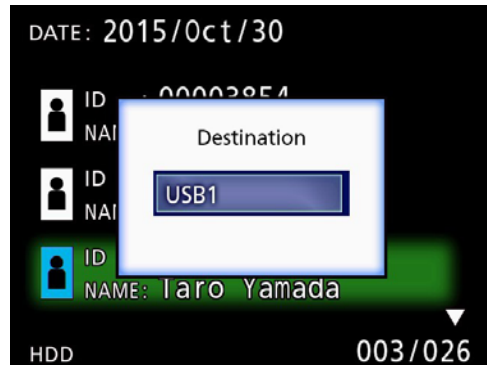
5 When a confirmation dialog appears, press the ← button to select "Yes", and then press the ENTER button.
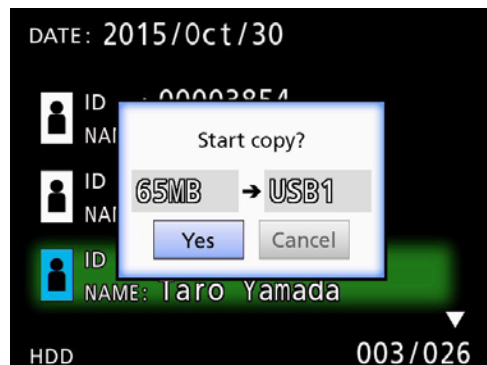
- Copying cannot be started if the copy destination does not have enough open space.
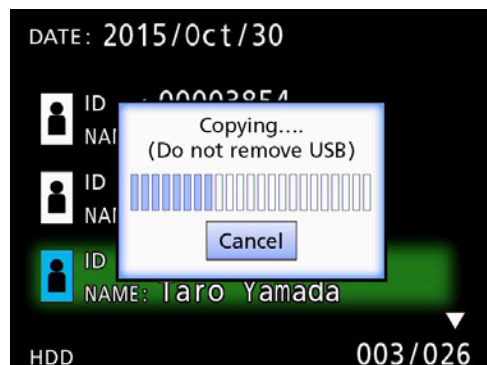
- You can cancel copying while in progress by pressing the ENTER button.

6 **When the "Copy completed!" message appears, press the ENTER button to return to the list.**

Editing information for existing folders

1 **Press the LIST button to open the list.**
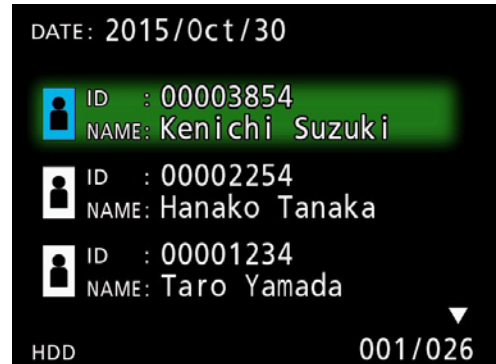
2 **Use the ⬆ and ⬇ buttons to select the folder with information you want to edit, and press the MENU button.**

A pop-up menu appears.

3 **Use the ⬆ and ⬇ buttons to select "Edit", and press the ENTER button.**
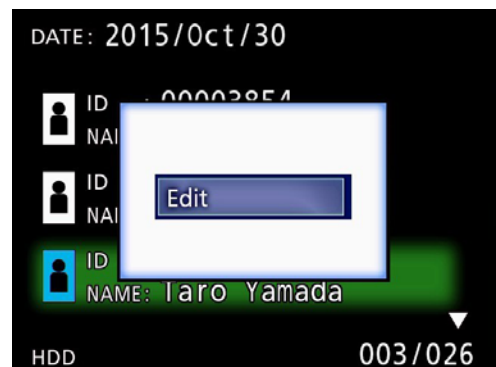
The PATIENT INFORMATION screen for the folder opens.
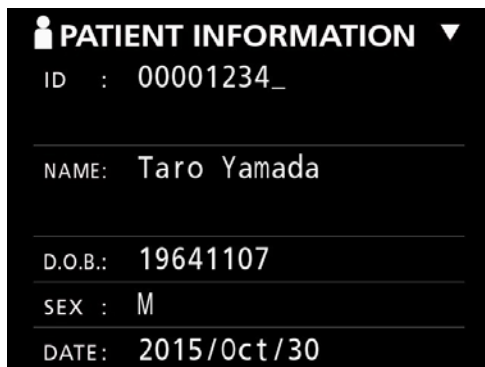
4 Change the folder information, and press the ENTER button.

A confirmation dialog appears.
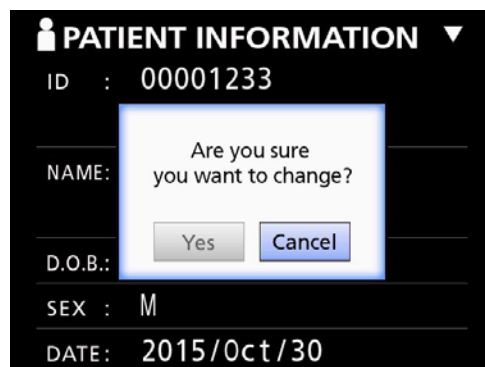
5 Select "Yes" and press the ENTER button to save the edited information.

IMPORTANT NOTICE

When being used as USB Mass Storage or on a network, editing folder information might not be possible. In this case, set the network mode to "Off" (see "Network Options" on page 39).

Deleting data for existing folders

1 Press the LIST button to open the list.

2 Use the ⬆ and ⬇ buttons to select the folder to delete, and press the MENU button.

A pop-up menu appears.

3 Use the ⬆ and ⬇ buttons to select "Delete", and press the ENTER button.
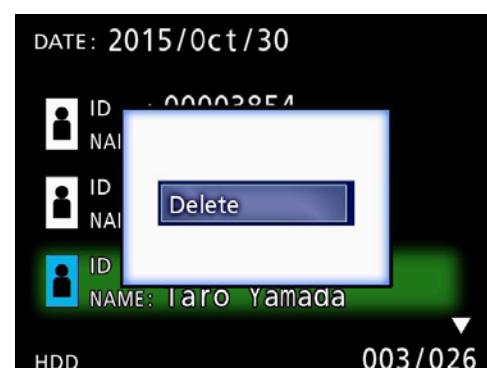
A confirmation dialog appears.
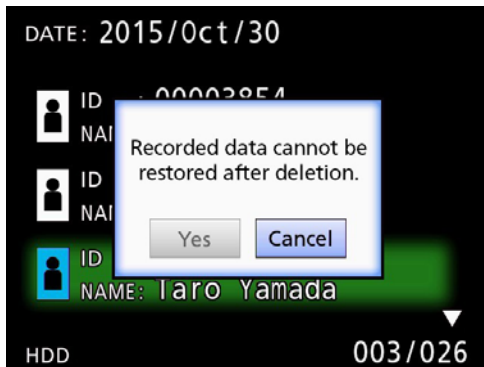
4 Select "Yes" and press the ENTER button.

A confirmation dialog appears again.
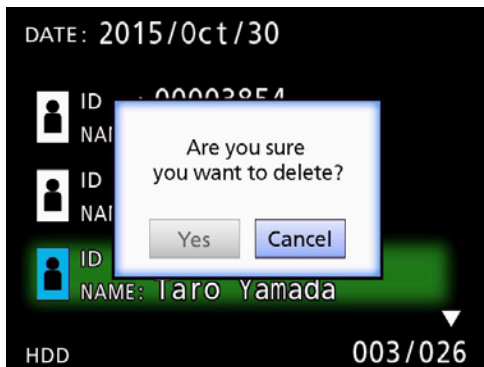
5 If you are sure that deletion is okay, select "Yes" and press the ENTER button.

The selected folder data will be deleted.

IMPORTANT NOTICE

● Deleted data cannot be restored. Be careful when using this function.

● When being used as USB Mass Storage or on a network, deleting folder information might not be possible. In this case, set the network mode to "Off" (see "Network Options" on page 39).

Folder structure used for recorded videos/photos

A folder is created for each patient with information input. The folders are named in the following format using the year, month, day, hour, minute, second and ID.

yymmddhhmmss_ID

NOTE

If the ID has a character that cannot be used in the file name, that character will be replaced with a hash symbol (#).

Folder information is updated when recording is completed (when the CLOSE button is pushed to end the recording session).

Folder structure

```
Root directory
PatientList.html                  (html file)
20161216154525_000012345          (patient management folder)
  ├─video_files                   (video storage folder)
  │   ├─000001-001.mov            (video file)
  │   ├─000002-001.mov            (video file)
  │   ├─000004-001.mov            (video file)
  │   ├─000005-001.mov            (divided video file, part 1)
  │   ├─000005-002.mov            (divided video file, part 2)
  │   └─000007-001.mov
  ├─photo_files                   (photo storage folder)
  │   ├─000003.jpg                (photo file (numbered in order taken))
  │   └─000006.jpg                (photo file)
  └─Files.html                    (List of videos/photos in folder)
20161216181554_0000112255         (patient management folder)
  ├─video_files                   (video storage folder)
```

Viewing recorded videos/photos on a computer (using HTML file on media)

Recorded videos/photos and information about folders can be viewed using an internet browser on a computer. Open the file "PatientList.html" for this purpose.

List of recorded folders

The unit creates an HTML list (PatientList.html) of the folders recorded on the internal HDD.

In addition, when copying data to an external USB storage device, an HTML list (PatientList.html) of the folders is created on that device.

UR-4MD						
Folder List (Patient)						
						Total 3 folder
No	**Date**	**ID**	**Name**	**D.O.B.**	**Sex**	**Num of image**
1	2014/May/29	00001206	Tanaka Masayoshi	1950-Jun-18	M	6
2	2014/May/28	00002457	Yamada Taro	1955-Mar-19	M	1
3	2014/May/25	00001822	Suzuki Hanako	1960-Dec-25	F	4

No:	Folder number on media They are shown in the order copied.
Date:	Recording date
ID:	Patient ID (link to list of videos/photos in folder)
Name:	Patient name (link to list of videos/photos in folder)
D.O.B.:	Patient date of birth (stored character string shown as is)
Sex:	Patient sex
Num of image:	Number of videos/photos in the folder (link to list of videos/photos in folder)

List of videos/photos in folder

Click a patient ID or Name in the Folder List to show the list as follows.

No	File	Size (Byte)	Length
1	000001-001.mov	14,420,173	00:00:09
2	000002-001.mov	15,204,545	00:00:08
3	000003.jpg	221,841	Photo
4	000004.jpg	91,937	Photo
5	000005.jpg	159,773	Photo
6	000006-001.mov	35,745,617	00:00:25

No:	Number of video/photo in folder, divided videos are shown with a hyphen (–)
File:	File name (link)
Size (Byte):	Actual file size
Length:	Recording time or "Photo", divided videos are shown with a hyphen (–)

General settings

Setup

Video IN	SDI
Audio IN	SDI
Video OUT	NTSC
Record To	USB1 + USB2
Playback From	USB1
⏱ 2014/Apr/16 12:35:40	
Language	English

Move the cursor to the item to be set, and press the ENTER button to enable the item to be changed.

Video IN

Automatic video input switching is supported

When video signal input is detected, the video input will automatically be switched. When multiple video signals are input, the unit will switch to the video input with the highest priority.

The input video signal is detected in the following order.

SDI → DVI → S-VIDEO → COMPOSITE

Set the video input with the highest priority.

For example, if "Video IN" is set to "DVI", the priority will be as follows.

DVI → SDI → S-VIDEO → COMPOSITE

- If the video input is COMPOSITE, it will not switch to S-VIDEO.
- If the video input is S-VIDEO, it will not switch to COMPOSITE.
- Moreover, video input will not switch during recording.

Manual video input switching

When not recording or playing back, press and hold the ▲ or ▼ button to search for a different input connector that has a video signal and switch to it. If no video signal input is found, nothing will change.

Audio IN

Set the audio input with the highest priority.

    SDI
    AUDIO
    MIC

Automatic audio input switching

When audio input is detected together with video input, it will automatically be switched.

The audio input signal is detected in the following order.

SDI → AUDIO → MIC

For example, if the setting is AUDIO, the priority will be as follows.

AUDIO → SDI → MIC

- Presence of a digital signal is detected for SDI, and connected plugs are detected for the AUDIO and MIC input jacks.
- Moreover, audio input will not switch during recording.
- SDI audio can only be selected when the video input is SDI.
- SDI audio will only function when using SDI video input. Moreover, if the video input is an SDI signal with embedded audio data, SDI audio will be set and cannot be changed (AUDIO and MIC cannot be used).

Video OUT

This sets the resolution of the output video signal when there is no input video signal.

NTSC:	Output from COMPOSITE and S-VIDEO OUT connectors
PAL:	Output from COMPOSITE and S-VIDEO OUT connectors
1024x768:	Output from DVI OUT connector
1920x1080:	Output from DVI and SDI OUT connectors

- During playback, the set video resolution will be output if it is different from the playback image even if there is an input video signal.

Record To

Use this to set the USB connector to which further recording devices are connected.
USB1 + USB2
USB1
USB2

- The unit always records to the internal HDD.
- When set to USB1 + USB2, the same video/photo is recorded to both. However, it is possible to use only one USB storage device with this setting.

Playback From

This sets the playback device.
USB1
USB2
Internal HDD

- If the set device is not available during playback, the unit will check the connections in the order above and search for a device.

Clock

This shows the current date and time.
The selected element (cursor location) appears highlighted.

◀, ▶:	Move the cursor to the previous/next element.
▲, ▼:	Increase or decrease the element's value.
ENTER:	Confirm the set date and time.
MENU:	Cancel the date and time change.

Note

This unit's built-in clock will not always stay accurate. We recommend checking and adjusting the time setting on a regular basis.

Language

Set the language used by the menus.

English	Italiano	Português
日本語	Español	Türkçe
Français	한국어	
Deutsch	中文	

Photo Options

Quality

Use to set the quality of photos taken.

HQ:	High quality
SQ:	Standard quality
EQ:	Economy quality (small file size)

Format

JPEG:	JPEG compression
JPEG (info on):	JPEG compression The following folder information is embedded at the top of photos: Date, ID, Name, Date of birth, Sex, Hospital, Physician
DICOM (.dcm):	DICOM file format (photo is JPEG format)

IMPORTANT NOTICE

Uncompressed DICOM photos are not supported. Only JPEG-compressed photos are supported.

Video Options

Quality

Use to set the quality of video recorded.

HQ:	High quality
SQ:	Standard quality
EQ:	Economy quality (small file size)

Auto Index

Use to set how indexes are added to videos during recording.

Off:	Indexes are not added.
1 min:	An index is added every minute.
5 min:	An index is added every 5 minutes.
10 min:	An index is added every 10 minutes.
20 Even Per File:	After a video is recorded, the recording is divided into 20 equal intervals, and indexes are added.

Ext Switch Trigger

Use to set the operation of an external switch connected to EXT SW.

Push to Switch:	Press to alternately start and pause/stop recording. Whether recording stops or pauses depends on the "Ext Switch Trigger (Mode)" setting.
Hold to Record:	Record while pressing.

Ext Switch Trigger (Mode)

Use to set whether recording pauses or stops when using an external switch.

Pause:	Record <–> Pause One large file is created.
Stop:	Record <–> Stop Multiple smaller files are created.

Advanced-1

Patient Info. Entry

Select the device to use for inputting patient information. (This setting is only applied to patient information input.)

Off:	Patient information will not be input.
USB Keyboard:	Enables use of a USB keyboard for patient information input.
Card/Barcode Reader:	Enables use of a USB card/barcode reader for patient information input. When this setting is used, the following character range setting screen will appear. Make settings for each range of information.

- Enhanced standard US layout keyboards are supported.
- Connect USB devices for patient information input to the USB 3 port on the back of the unit.

When using magnetic cards/barcodes, set the range of the characters to be read.

Range settings are from the position of the first character (Start) to the position of the last character (End). If only one character is used, the Start and End values are the same.

ID:	Set the character range used for the ID
Name:	Set the character range used for the name
D.O.B.:	Set the character range used for the date of birth
Sex:	Set the character range used for the sex
Show All Info:	On this screen, all the data input by the card/barcode reader is shown.
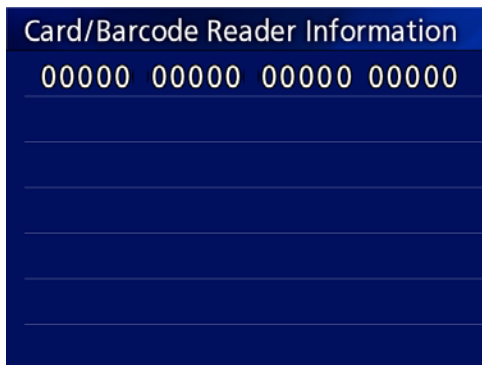
Auto File Division

Set the file size for automatic file division used when recording video.
4 GB
1 GB

- Division is necessary due to file system limitations. When using FTP transmission, smaller files are more efficient.
- Depending on the video quality setting and the resolution of the input video signal, the actual file division size could become smaller than this setting.

Format Recording Device

Use this to format (initialize) the recording device (media).
Cancel
USB1
USB2
iHDD

IMPORTANT NOTICE

Formatting a device will erase all recorded data on it. Be aware that this cannot be undone.

OSD

Set how information is shown on an external monitor (OSD: on-screen display of patient information, remaining capacity, time, etc.).

ON:	Information is shown
OFF:	Information is not shown
ICON:	Only status icon is shown
ICON + TIMER:	Status icon and time counter is shown

You can also press and hold the PATIENT INFO button to instantly toggle between the available options (see "PATIENT INFO button" on page 9).

Copy to (from iHDD)

Use to copy recorded videos/photos from the internal HDD to a different location (see page 26). Select the copy destination device:
Cancel
USB1
USB2
Network (FTP)
Network (CIFS)

After selecting the device, the following options are shown in the line below.
Selecting an option will start copying.

From Older Folder:	All data will be copied starting with the oldest folder.
From Newer Folder:	All data will be copied starting with the newest folder.

Advanced-2

Erase iHDD (Keep)

Set how data is erased from the internal HDD. Data will be erased according to this setting when the unit is started.

Off:	Do not erase. Recording will become impossible when the HDD becomes full.
Keep 200 GB:	Folders will be erased from oldest first so that about 200 GB of data remain.
Keep 100 GB:	Folders will be erased from oldest first so that about 100 GB of data remain.
Keep 50 GB:	Folders will be erased from oldest first so that about 50 GB of data remain.
Keep Last 24 Hours:	Folders that are more than 24 hours old (from recording start time) are erased.
Keep Last 7 Days:	Folders that are more than 7 days old (from recording start time) are erased.

IMPORTANT NOTICE

Turn the unit off once per day rather than always keeping it on.

If this unit is always kept on, the function that erases the HDD at startup will not work. As a result, the internal HDD will run out of space. Recording will stop when the HDD has no more open space.

Storage Device Info.

This shows various information about the selected storage device.

iHDD Information:	This shows information about the internal HDD.
Capacity:	This shows the total capacity.
Free Space:	This shows the amount of free space.
Used Space:	This shows the amount of space already used.
iHDD S.M.A.R.T.:	This shows S.M.A.R.T. information for the internal HDD.
USB 1 S.M.A.R.T.:	This shows S.M.A.R.T. information for the device connected to USB 1.
USB 2 S.M.A.R.T.:	This shows S.M.A.R.T. information for the device connected to USB 2.

S.M.A.R.T. information

This shows the "Current", "Worst" and "Threshold" values for each item.

- 01 Read Error Rate
- 02 Throughput Performance
- 05 Reallocated Sectors Count
- 07 Seek Error Rate
- 0A Spin Retry Count
- C4 Reallocation Event Count
- C5 Current Pending Sector Count
- C6 Uncorrectable Sector Count
- C8 Write Error Rate
- DF Load/Unload Retry Count

Beep

Use to turn the built-in beeping sound on/off.

On: Beep will sound.

Off: Beep will not sound.

- The beep will sound when, for example, buttons are used, recording starts and warnings occur.

Updating the firmware

Follow these procedures to update this unit's firmware. Follow the procedures exactly. Failure to do so could cause the unit to malfunction.

IMPORTANT NOTICE

- Before updating, back up recorded data as necessary. After updating, the unit might not be able to play earlier files. In addition, you should format the built-in hard drive after updating. (See "Format Recording Device" on page 36.)
- Do not interrupt the power or remove a USB storage device while updating. Doing so could cause the unit to malfunction.

1 **Format a USB flash drive with this unit.**

See "Formatting recording media" on page 15.

2 **Copy the firmware update file from the computer to the root folder on the USB flash drive.**

3 **Press the STANDBY/ON button for one second to shut the unit down.**

4 **Disconnect all cables from the LAN, USB 3, USB 4 and video (SDI, DVI, COMPOSITE, S-VIDEO) connectors on the back of the unit.**

5 **Press the STANDBY/ON button to turn the unit on.**

IMPORTANT NOTICE

After turning the unit on, do not use record or playback functions before conducting the update.

6 **Connect the USB flash drive prepared for the update to the unit's USB port 1.**

7 **Press the MENU button.**

8 **Select "Advanced".**

9 **Scroll down until the "Advanced-2" screen appears.**

10 **Select "Firmware Update" and press ENTER.**

Cancel: Do not update.

Execute: Update the firmware.

11 **Select "Execute" and press ENTER.**

A confirmation dialog appears.

In the example illustrated below, the unit will be updated from firmware version 1.00 to 1.02.
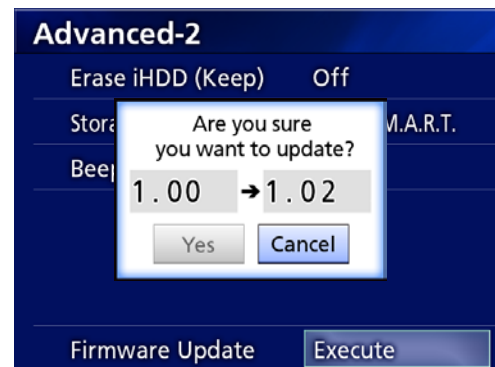
12 **Select "Yes" and press ENTER to start the update.**

The following screen will appear.
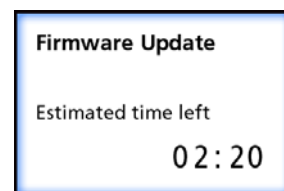
- Updating can take a few minutes.
- When updating completes, the unit will automatically restart. Wait until the unit restarts.

13 **Reconnect the cables as necessary.**

- Contact the retailer where you purchased the unit for information about firmware updates.

Network Options

Network Options

→ Mode Select   Off
    IP Address   Automatic (DHCP)
    Current IP Address
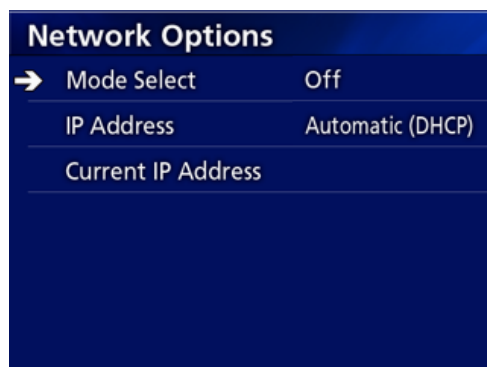
Mode Select

Use to set the network mode.

Off:	Disable network functions
FTP Client:	Files will automatically be transmitted to the set FTP server.*
CIFS Client:	Files will automatically be transmitted to the set CIFS server.*
CIFS Server:	This unit becomes a CIFS server and its files can be read from CIFS clients. As a server, the unit is read-only.* Reading is not possible during recording.
USB Mass Storage:	Use this unit as a USB mass storage device, allowing files to be read from a USB Host. As a server, the unit is read-only. Connect the USB host to the USB 4 port on the back of the unit. Reading is not possible during recording. The external command control function cannot be used at the same time. With this setting, the "USB Mass Storage" function will be used for operation. When not set to "USB Mass Storage", the external command control function will be used for operation. **Restarting the device is necessary when switching to "USB Mass Storage" or switching from "USB Mass Storage" to another setting.**

*These options have menu screens for making detailed settings.

Depending on the selected setting, one of the following screens for making detailed settings will appear.
Use a USB keyboard for input. (Connect it to the USB 3 port on the back of the unit.)

IMPORTANT NOTICE

● Operation on an unreliable network could cause loss of data.

● A DNS server, for example, is necessary for name resolution of the computer and unit IP addresses in the setting of each mode.

● If the mode is set to "FTP Client" or "CIFS Client", recorded video will automatically be transferred to the set server. Confirm the network setup, including the server and cables before recording. If an issue with the network occurs during recording (such as a disconnected cable), however, the video will be transferred after the network connection is restored. Only video recorded after one of these network modes is set will be automatically transferred. (When set to "Off", transfer recordings manually as necessary.)

FTP Client Mode
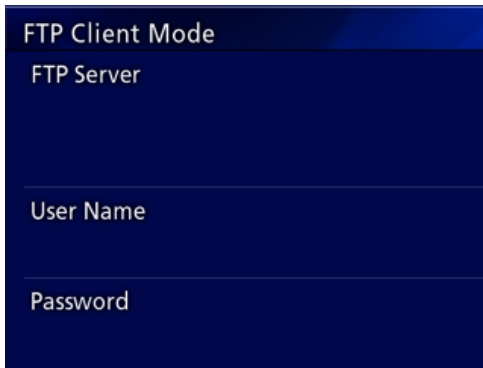
FTP Server:	Use a USB keyboard to input the server name.
User Name:	Use a USB keyboard to input the user name.
Password:	Use a USB keyboard to input the password.

Setting example:

FTP Server:	192.168.0.101
User Name:	dvr
Password:	abcde

IMPORTANT NOTICE

● When using multiple recorders, recording data could be lost if the recording destination is set to the same location on the same server. Do not use the same location setting.

● "User Name" and "Password" are required. Corresponding user settings must also be made on the server.

CIFS Server Mode
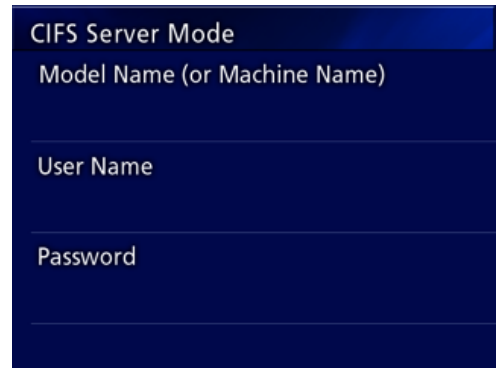
Model Name (or Machine Name):	Use a USB keyboard to input the model name.
User Name:	Use a USB keyboard to input the user name.
Password:	Use a USB keyboard to input the password.

User name and password set here can be used for read-only access to this device from the network.

Setting example:

Model Name (or Machine Name):	video_recoder
User Name:	dvr
Password:	abcde

CIFS Client Mode

Path:	Use a USB keyboard to input the network path.
User Name:	Use a USB keyboard to input the user name.
Password:	Use a USB keyboard to input the password.

Setting example:

Path (host name or IP/share):	192.168.0.101/dvr_mount
User Name:	dvr
Password:	abcde

● The user/password set here must exist on the computer where the share exists, and the user must have access privileges for this share.

IMPORTANT NOTICE

When using multiple recorders, recording data could be lost if the recording destination is set to the same location on the same server. Do not use the same location setting.

IP Address

Use this to set the unit's network address.

Automatic (DHCP):	Use a DHCP server to automatically acquire network settings. Select "Current IP Address" on the "Network Options" screen to show the acquired network address.
Manual:	Input the following network address information.
IP Address:	Use a USB keyboard to set the IP address.
Subnet Mask:	Use a USB keyboard to set the subnet mask.
Default Gateway:	Use a USB keyboard to set the default gateway.
DNS Server1:	Use a USB keyboard to set DNS server 1.
DNS Server2:	Use a USB keyboard to set DNS server 2.
WINS Server:	Use a USB keyboard to set the WINS server.

NOTE

If the IP address setting is changed, the new setting will be applied after the unit is restarted.

Current IP and MAC Address

This shows the currently set IP address.
The bottom line shows the MAC address of the UR-4MD.

Optional accessories

By connecting one of the following remote controls to the REMOTE connector on the back of the UR-4MD, you can use it to control the unit. The remote buttons/pedals and the unit functions that they control are as follows.

See the Owner's Manual of each remote control for other information about using it.

TEAC/TASCAM RC-10 remote control
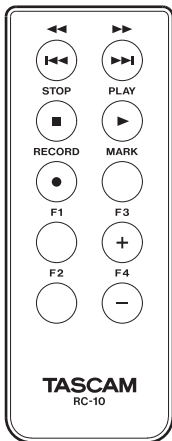
RC-10	UR-4MD function (button)
RECORD	Operation set under "Ext. Switch Trigger" (see "Making external switch settings (video)" on page 16)
STOP	(STOP)
PLAY	(PLAY/PAUSE)
MARK	(PHOTO)
F3	(↑)
F4	(↓)
>> (FF)	(→)
<< (REW)	(←)
F1	(LIST)
F2	(CLOSE)

● Use the wired remote control adapter with the RC-10 remote control to use it with the UR-4MD.

TEAC/TASCAM RC-3F remote control

2.5mm TRS plug (Tip: SIGNAL, Ring: GND, Sleeve: GND)

Pedal L   Pedal C   Pedal R
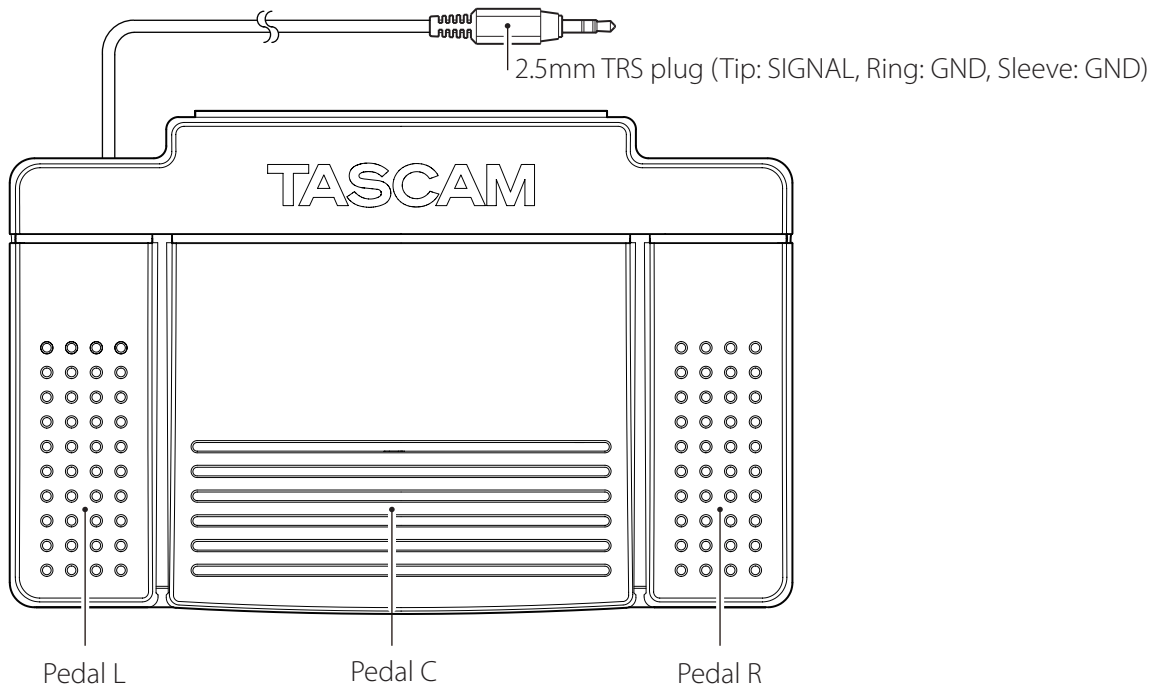
RC-3F	UR-4MD function (button)
Pedal C (center)	Operation set under "Ext. Switch Trigger" (see "Making external switch settings (video)" on page 16)
Pedal L (left)	(STOP)
Pedal R (right)	(PHOTO)

Recommended inspections

Check the following items before use each day. Doing so will help you find problems quickly and prevent trouble.

Daily inspections

- Make sure the power cord and plugs are in good condition. Replace worn or damaged cords before using the UR-4MD.
- Confirm that the power cord is plugged in firmly at both ends.
- Confirm that the various connectors are properly connected.
- Make sure all connected equipment is in safe condition.

Safety-related check

A safety-related check must be performed at least every second year. If local national regulations require shorter intervals, then safety-related checks must be performed accordingly.

Cleaning the unit

⚠ CAUTION

For your safety, disconnect the power plug from the outlet before cleaning.

- Use a suitable cleaning agent for surface disinfection in order to clean the housing of the unit.
- The prescribed method for cleaning is wipe disinfection. Do not use a spray disinfectant.
- We recommend using soft tissues/wipes with a cleaning agent for wipe disinfection.

🔍 Take appropriate measures to verify the cleaning result.

Troubleshooting

In the following cases, please check the items listed before requesting repair.

The unit does not turn on.

➡ Confirm that the power plug is connected. (Make sure it is properly connected to an outlet and has not become disconnected.)

The unit turns on but there is no video output.

➡ Confirm that the connectors on the rear panel have not become disconnected and the cables you are using have not been damaged.
Verify that the input has been properly selected.

"Are you sure you want to format?" appears on the LCD when an external USB storage device is connected even though it has been used without any problems previously.
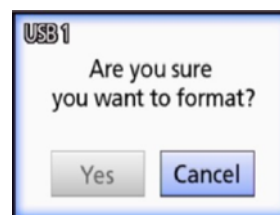
➡ Try reconnecting the USB storage device. The USB storage device might not be recognized properly depending on how the connector is inserted.
➡ This message might appear when an error has occurred in the file system of the USB storage device. An error in the file system can prevent recording. Stop using the USB storage device and use a disk checking tool on a computer to check and repair its file system. Cancelling without formatting is also possible, but the external USB storage device will not be recognized, an error message will appear and the device will not be used for recording.

IMPORTANT NOTICE

Selecting "Yes" and formatting will erase all the data on the USB storage device. Make sure you don't need the data or make a backup first.

Recording to an external USB storage device stopped unexpectedly or a recorded file does not appear or cannot be played back.

➜ Recording problems might occur when an error has occurred in the file system of the USB storage device. Use a disk checking tool on a computer to check and repair the file system of the USB storage device.

Each operating system has a different method for making disk repairs, so follow the procedures for the operating system of the connected computer. Search for "checking disks" to find instructions.

Even after pushing the recording button, the recording icon and recording time sometimes do not appear.

➜ This might occur the first time recording is started after using a computer, for example, to add or delete files on an external USB storage device that the UR-4MD has used for recording.

This is only a display problem. Recording will actually occur and normal appearance will be restored after recording to the external USB storage device for about 20–120 seconds. Leave it as is until the display recovers.

The internal HDD has no more open space, making recording impossible.

➜ Is "Erase iHDD (Keep)" set to "Off" on the "Advanced-2" setting page? Set this to anything other than "Off" and restart the unit. If already set to anything other than "Off", confirm that the unit is not being kept on (powered) continuously. Open space on the internal HDD can only be recovered when the unit is started up. Turn the unit off once per day rather than always keeping it on. If you expect to record for a long time when there is not enough open space on the internal HDD, restart the unit beforehand to recover open space.

The remaining recording time increased or decreased drastically.

➜ The remaining time shown depends on the resolution of the input video signal (or the currently selected signal when multiple signals are being input).

General

Recording media
    Internal . . . . 2.5-inch HDD
                                    (about 450 GB for data)
    External . . . . USB storage devices
                            (flash drives and hard disk drives)
    Format FAT32

Placement for operation . . . . level surface

Mains power . . . . AC 100–240 V ±10 %, 50/60 Hz
                                                        0.62–0.35 A

Operating environment

Temperature . . . . 5–40 °C

Humidity . . . . 5–80 %RH (no condensation)

Maximum wet bulb temperature . . . . 29 °C

Atmospheric pressure . . . . 750–1040 hPa

Storage environment

Temperature . . . . –20 °C to +60 °C

Humidity . . . . 5–80 %RH (no condensation)

Maximum wet bulb temperature . . . . 29 °C

Atmospheric pressure . . . . 600–1040 hPa

Transportation environment

Temperature . . . . –30 °C to +60 °C

Humidity . . . . 5–90 %RH (no condensation)

Maximum wet bulb temperature . . . . 29 °C

Atmospheric pressure . . . . 600–1040 hPa

External dimensions (W × D × H)

                    210.5 mm × 88.5 mm × 235 mm

    (including rubber feet, excluding protrusions on rear
                                                            panel)

Weight . . . . 2.6 kg

Standards

Safety standards . . . . IEC 60601-1
                                                        CSA 60601-1
                                                        EN 60601-1

EMC . . . . IEC 60601-1-2
                                                        CSA 60601-1-2
                                                        EN 60601-1-2
                                                        FCC class B

Certification . . . . CSA NRTL/C

Medical equipment specifications

Medical Device classification . . . . Class I

Electrical classification . . . . Protection Class I

Protection against harmful intrusion of water . . . . Ordinary

Degree of safety in the presence of a flammable anesthetic mixture with air or with oxygen or nitrous oxide:
    Not suitable for use in the presence of a flammable anesthetic mixture with air or with oxygen or nitrous oxide.

Operation mode . . . . . Continuously operating equipment

Video/audio input signals

Analog (NTSC/PAL)
    COMPOSITE . . . . 1.0 Vpp, 75 Ω termination
    S-VIDEO . . . . 1.0 Vpp, 75 Ω termination, brightness signal
    NTSC . . . . 0.286 Vpp, 75 Ω termination, color signal
    PAL . . . . 0.3 Vpp, 75 Ω termination, color signal

Digital (high resolution video)
    SDI 1080p, 1080i, 720p, 480i, 576i
    DVI-D . . . . 640 × 480 – 1920 × 1200
    ● 1920 × 1200 is reduced to 1728 × 1080 and recorded

Audio
    AUDIO . . . . 3.5-mm stereo mini jack
                            –8 dBs, 10 kΩ or higher, unbalanced
                    Exclusive with SDI video input connector
    MIC . . . . 3.5-mm mono mini jack
    NOTE: When using a stereo plug, make sure to input the mic sound through the left (L) channel.

Video/audio output signals

Analog (NTSC/PAL)
  COMPOSITE . . . . .1.0 Vpp, 75 Ω termination
  S-VIDEO . . . .1.0 Vpp, 75 Ω termination, brightness signal
  NTSC . . . . .0.286 Vpp, 75 Ω termination, color signal
  PAL . . . . 0.3 Vpp, 75 Ω termination, color signal

Digital (high resolution video)
  SDI 1080p, 1080i, 720p, 480i, 576i
  DVI-D. . . . . 640 × 480 − 1920 × 1200

Audio
  AUDIO. . . . . 3.5-mm stereo mini jack
                     −8 dBs, 1 kΩ, unbalanced
          Exclusive with SDI video output connector

Video/photo data processing

Compression method, videos. H.264

Compression method, photos . . . . .JPEG

File format. . . . . .mov

Audio data processing

Format . . . . .LPCM

Sampling frequency . . . . .48 kHz

Quantization bit depth . . . . .16 bit

Interfaces

LAN RJ45 (100Base-TX/1000Base-T)

USB-A . . . . for recording × 2 (USB 2.0)
             for character input × 1 (USB keyboard)

USB-B . . . . .for computer connection

REMOTE . . . . 2.5-mm mini jack

Contact switch . . . . 3.5-mm mini jacks

Limits for electromagnetic compatibility (EMC)

Important EMC notices for use in medical environments

- The UR-4MD 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 UR-4MD.

Guidance and manufacturer's declaration – electromagnetic emissions		
The UR-4MD is intended for use in the electromagnetic environment specified below. The customer or the user of the UR-4MD should assure that it is used in such an environment.		
Emission test	**Compliance**	**Electromagnetic environment – guidance**
RF emissions CISPR 11	Group 1	The UR-4MD 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	The UR-4MD 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.
Harmonic emissions IEC 61000-3-2	Class A	
Voltage fluctuations/ flicker emissions IEC 61000-3-3	Complies	

IMPORTANT NOTICE

If the UR-4MD 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.

List of cables used for EMC tests	
Type of cable	**Specifications**
AC mains cable	2 m, non-shielded
S-VIDEO IN port cable	1.5 m, shielded
COMPOSITE IN port cable	1.5 m, shielded
DVI-D IN port cable	1.5 m, shielded
SDI IN port cable	2 m, shielded
REMOTE port cable	3 m, shielded
COMPOSITE OUT port cable	1.5 m, shielded
S-VIDEO OUT port cable	1.5 m, shielded
DVI-D OUT port cable	1.5 m, shielded
SDI OUT port cable	2 m, shielded
LAN cable	2 m, shielded
USB cable	1.5 m, shielded
AUDIO IN port cable	1.5 m, shielded
AUDIO OUT port cable	1.5 m, shielded
MIC IN cable	1 m, shielded
EXT SW (VIDEO) port cable	2 m, shielded
EXT SW (PHOTO) port cable	2 m, shielded

Limits for electromagnetic compatibility (EMC)

Guidance and manufacturer's declaration – electromagnetic immunity			
The UR-4MD is intended for use in the electromagnetic environment specified below. The customer or the user of the UR-4MD 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 IEC 61000-4-4	±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 IEC 61000-4-5	±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 UR-4MD requires continued operation during power mains interruptions, it is recommended that the UR-4MD 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.			

Guidance and manufacturer's declaration – electromagnetic immunity			
The UR-4MD is intended for use in the electromagnetic environment specified below. The customer or the user of the UR-4MD should assure that it is used in such an environment.			
Immunity test	**IEC 60601 test level**	**Compliance level**	**Electromagnetic environment-guidance**
Conducted RF disturbances IEC 61000-4-6	3 Vrms 150 kHz to 80 MHz	3 Vrms	Portable and mobile RF communications equipment should be used no closer to any part of the UR-4MD, including cables, than the recommended separation distance calculated from the equation appliance to the frequency of the transmitter. **Recommended separation distance** $d = 1.2 \sqrt{P}$ $d = 1.2 \sqrt{P}$ 80 MHz to 800 MHz $d = 2.3 \sqrt{P}$ 800 MHz to 2.5 GHz
Radiated RF disturbances IEC 61000-4-3	3 V/m 80 MHz to 2.5 GHz	3 V/m	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). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey, [a] should be less than the compliance level in each frequency range. [b] Interference may occur in the vicinity of equipment marked with following symbol:
NOTE 1: At 80 MHz and 800 MHz, 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.			
[a] 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 the measured field strength in the location in which the UR-4MD is used exceeds the applicable RF compliance level above, the UR-4MD should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the UR-4MD. [b] Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.			

Limits for electromagnetic compatibility (EMC)

Recommended separation distances between portable and mobile RF communications equipment and the UR-4MD			
The UR-4MD is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the UR-4MD can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (Transmitters) and the UR-4MD 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		
	150 kHz to 80 MHz $d = 1.2 \sqrt{P}$	80 MHz to 800 MHz $d = 1.2 \sqrt{P}$	800 MHz to 2.5 GHz $d = 2.3 \sqrt{P}$
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 frequency of 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.			

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Package list

linux-3.0.35	gst-plugins-ugly-0.10.11
kernel-3.0.35-imx_4.0.0	gstreamer-core-0.10.35-1
u-boot-2009.08-imx_3.0.3	imx-lib-3.0.35-4.0.0
gst-plugins-base-0.10.35	imx-test-3.0.35-4.0.0
gst-plugins-good-0.10.30	smartmontools-6.3

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LPGL Version 2.1

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That's all there is to it!

TEAC