SONY

4-104-723-**11**(1)

Solid-State Memory Recorder

Operating Instructions

Before operating the unit, please read this manual thoroughly and retain it for future reference.

PMW-EX30

XDCAM EX SxS CINEALTA i

WARNING

To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.

To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.

CAUTION

The apparatus shall not be exposed to dripping or splashing. No objects filled with liquids, such as vases, shall be placed on the apparatus.

Do not install the appliance in a confined space, such as book case or built-in cabinet.

WARNING

The supplied AC adaptor has no power switch.
When installing the unit, incorporate a readily accessible disconnect device in the fixed wiring, or connect the power plug to an easily accessible socket-outlet near the unit. If a fault should occur during operation of the unit, operate the disconnect device to switch the power supply off, or disconnect the power plug.

Excessive sound pressure from earphones and headphones can cause hearing loss.
In order to use this product safely, avoid prolonged listening at excessive sound pressure levels.

IMPORTANT

The nameplate is located on the bottom.

For the customers in the U.S.A.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

All interface cables used to connect peripherals must be shielded in order to comply with the limits for a digital device pursuant to Subpart B of Part 15 of FCC Rules.

For the customers in Europe

This product with the CE marking complies with both the EMC Directive and the Low Voltage Directive issued by the Commission of the European Community.
Compliance with these directives implies conformity to the following European standards:

- EN60065: Product Safety (AC Adaptor)
- EN55103-1: Electromagnetic Interference(Emission)
- EN55103-2: Electromagnetic Susceptibility(Immunity)

This product is intended for use in the following Electromagnetic Environments:

E1 (residential), E2 (commercial and light industrial), E3 (urban outdoors), E4 (controlled EMC environment, ex. TV studio)

The manufacturer of this product is Sony Corporation, 1-7-1 Konan, Minato-ku, Tokyo, Japan.
The Authorized Representative for EMC and product safety is Sony Deutschland GmbH, Hedelfinger Strasse 61, 70327 Stuttgart, Germany.
For any service or guarantee matters please refer to the addresses given in separate service or guarantee documents.

For the State of California, USA only

Perchlorate Material - special handling may apply, See www.dtsc.ca.gov/hazardouswaste/perchlorate

Perchlorate Material : Lithium battery contains perchlorate.

For the customers in Taiwan only

廢電池請回收

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Overview

Chapter 1

Features

The PMW-EX30 is a highly compact, high-performance XDCAM EX [1] series memory recorder that uses SxS[1] memory cards as recording media. Like PMW-EX series camcorders, the PMW-EX30 can record and play back 1920 ×1080 HD video and high-quality uncompressed audio.

A New Generation of HD Recording System

New nonlinear recording media

Using SxS memory cards, the PMW-EX30 offers nonlinear capabilities such as instant random access and file-based operation.

HD recording using the "MPEG-2 Long GOP" codec

The PMW-EX30 records 1920 × 1080 HD images using "MPEG-2 Long GOP" codec compression. This mature "MPEG-2 Long GOP" codec, which is also adopted in the XDCAM [1] HD and HDV [2] 1080i series of products, enables you to record stunning-quality HD video and audio.

Selectable bit rates

The PMW-EX30 offers a choice of bit rates: either 35 Mbps (HQ mode) or 25 Mbps (SP mode), depending on the desired picture quality and recording time.

Long recording time

By utilizing an efficient compression format, the PMW-EX30 records high-quality HD images for long recording time of approx. 50 minutes in HQ mode (35 Mbps VBR) or approx. 70 minutes in SP mode (25 Mbps CBR) on a single 16-GB SxS memory card. Equipped with two SxS memory card slots, the PMW-EX30 makes transition seamless without any frame loss, when recording is done across two cards.

Multiple-format recording

The PMW-EX30 offers a wide array of recording formats for multiple content creation applications.

- **Progressive scanning:** 720/50P or 720/59.94P
- **Interlace scanning:** 1080/50i or 1080/59.94i

SxS memory cards can simultaneously hold multiple files of any of these recording formats, allowing for flexible use of the memory cards.

High-quality uncompressed audio recording

To provide matching audio for HD video, the PMW-EX30 can record high-quality, two-channel 16-bit, 48-kHz linear PCM uncompressed audio.

IT friendly

The file-based recording in MP4 format allows material to be handled with great flexibility in an IT-based environment, thus making it easily available for copying, transferring, sharing, and archiving.

Immediate start of recording

In recording on flash memory cards, the PMW-EX30 makes each new recording on an empty area of the card. This is extremely

convenient, as the user need not worry about accidentally recording over good takes or search through the existing recording for the correct position to start the next recording.

Instant-access thumbnail display with "Expand" function

Each time a recording is started and stopped on the PMW-EX30, the video and audio signals are recorded as one clip.
On the thumbnail screen, thumbnails are automatically generated for each clip as a visual reference, allowing the user to cue up to a desired scene simply by guiding the cursor to a thumbnail. For further convenience, the "Expand" function allows one selected clip on the thumbnail screen to be divided into 12 equal time intervals, each with its own thumbnail identifier. This is useful if you wish to quickly search for a particular scene within a lengthy clip.

A variety of functions and designs for high operability

High-performance down-conversion function

When a clip recorded in HD format is played back on the PMW-EX30, the reproduced HD signal can be down-converted and output. This capability allows the unit to be used with an SD system (comprising, for example, an SD nonlinear editor, an SD video monitor, and an SD video recorder). The output display mode (aspect ratio) can be selected from among squeeze, letterbox, and edge crop (side cut).

Variety of Interfaces

- **HD SDI:** For input/output of HD digital video, and embedded audio signals and timecode.
- **SD SDI:** For output of SD component digital video, and embedded audio signals and timecode.
- **i.LINK [1]:** For input/output of HDV streams and output of DVCAM streams.
- **HDMI:** For output of HD and SD digital video and audio signals.
- **COMPONENT:** For output of HD and SD analog component video signals.
- **S-VIDEO:** For output of SD analog Y/C signals.
- **COMPOSITE:** For output of SD analog composite video signals.
- **AUDIO:** For input/output of analog audio signals.
- **USB:** Allows a computer with the Clip Browsing Software installed from the supplied CD-ROM to be used for file access to the SxS memory card (read/write) inserted in the unit.

Repeat playback

You can perform automatic repeat playback for any clip. Unlike tape, memory cards can return to the first frame as soon as the last frame is played, and therefore this function is ideal for presentations with a need for looping content.

Front panel design allowing for VCR-like operation

The front panel design basically follows that of common VCRs: control buttons such as PLAY/PAUSE, STOP, and REC, input selection switches, audio recording level control knobs, and cursor buttons to handle thumbnail images and menus are all located on the front panel. When you operate this unit, you will feel like you are operating a familiar VCR.

16:9 color LCD monitor (LCD display)

The PMW-EX30 is equipped with a 3.5-inch color LCD of 16:9 aspect ratio, allowing you to easily monitor the video currently being recorded or played back. The LCD monitor can also display setup menu contents, audio level meters, and

various status information superimposed on the video.

Vertically installable, compact size body

The half-rack size body width allows the PMW-EX30 unit to be neatly housed in a rack by, for example, placing it on top of an HDV deck or placing the two side by side. You can also use the supplied supporting feet to place the unit in a vertical position near a computer monitor or the like.

1) Sony, XDCAM, XDCAM EX, SxS, i.LINK, and Remote Commander are trademarks of Sony Corporation.
2) HDV is a trademark of Sony Corporation and Victor Company of Japan, Limited.

All other trademarks are the property of their respective owners.

XDCAM EX web sites

For information on XDCAM EX, visit the following web sites:

United States

http://www.sony.com/xdcamex

Canada

http://www.sony.ca/xdcamex

Europe, Middle East, Africa, and Russia

http://www.sonybiz.net/xdcamex

Latin America

http://www.sonypro-latin.com/xdcamex

Australia

www.sony.com.au/xdcamex

Asia (except Korea, China, and Japan)

http://pro.sony.com.hk

Korea

http://bp.sony.co.kr/xdcamex

China

http://pro.sony.com.cn/minisite/XDCAMEX

Japan

http://www.sony.co.jp/XDCAMEX

Using the CD-ROM

The supplied CD-ROM includes the following files:

PMW-EX30 Operating Instructions

The Operating Instructions for the PMW-EX30 (Japanese, English, French, German, Italian, Spanish and Chinese) are provided in PDF format.

SxS Device Driver Software

Driver for using SxS memory cards with a computer having an ExpressCard slot.
Information on installation of the software is included in the ReadMe (Japanese, English, French, German, Italian, Spanish, and Chinese) in PDF format.

XDCAM EX Clip Browsing Software

Application program for operating clips recorded with XDCAM EX-series models on a computer.
Information on installation and operations of the software is included in the User's Guide (Japanese, English, French, German, Italian, Spanish, and Chinese) in PDF format.

Reading the CD-ROM manuals

Preparations

The following program must be installed on your computer in order to read the operation manuals contained on the CD-ROM.
Adobe Reader Version 6.0 or higher [1)]

Memo

If Adobe Reader is not installed, you can download it from the following URL:
http://www.adobe.com/

1) Adobe and Adobe Reader are trademarks of Adobe Systems Incorporated in the United States and/or other countries.

To read the documents

Do the following:

1 Insert the CD-ROM in your CD-ROM drive.

A cover page appears automatically in your browser.
If it does not appear automatically in the browser, double-click on the index.htm file on the CD-ROM.

2 Select and click on the manual that you wish to read.

This opens the PDF file.

Memo

The files may not be displayed properly, depending on the version of Adobe Reader. In such a case, install the latest version you can download from the URL mentioned in "Preparations" above.

Note

If you have lost or damaged the CD-ROM, you can purchase a new one to replace it. Contact your Sony service representative.

System requirements for using the applications

The following operating conditions are recommended for using the software recorded on the CD-ROM:

SxS Device Driver Software

Applicable hardware

Computer conforming to ExpressCard/34 or ExpressCard/54

OS

Microsoft Windows XP SP2 or later, Microsoft Windows Vista, or Mac OS X v10.4.9 or later

For support information on the driver, refer to the following URL:
http://www.sony.net/SxS-Support/

XDCAM EX Clip Browsing Software

OS

Microsoft Windows XP SP2 or later (32-bit version), Microsoft Windows Vista (32-bit version), or Mac OS X v10.4.10

CPU

Windows: Intel Pentium III 1GHz equivalent or higher (Intel PentiumD 3GHz equivalent or higher is recommended)

Macintosh: Intel Core 2 Duo 2GHz or higher is recommended

Memory

Windows: 512 MB or more (1 GB or more is recommended)

Macintosh: 1 GB or more is recommended

- Microsoft, Windows, and Windows Vista are registered trademarks and/or trademarks of Microsoft Corporation in the United States and/or other countries.
- Intel Core and Pentium are trademarks of Intel Corporation in the United States and/or other countries.
- Macintosh and Mac OS are trademarks of Apple Inc. registered in the U.S States and other countries.

Software installation

Do the following to install the software on the CD-ROM on your computer:

1 Insert the CD-ROM in your CD-ROM drive.

A cover page appears automatically in your browser.
If it does not appear automatically in the browser, double-click on the index.htm file on the CD-ROM.

2 Select and click on the software that you wish to install.

The installer for the software starts up. Follow the displayed instructions:

For details, refer to the User's Guide or ReadMe of the software.

Uninstalling an application program

Windows computer

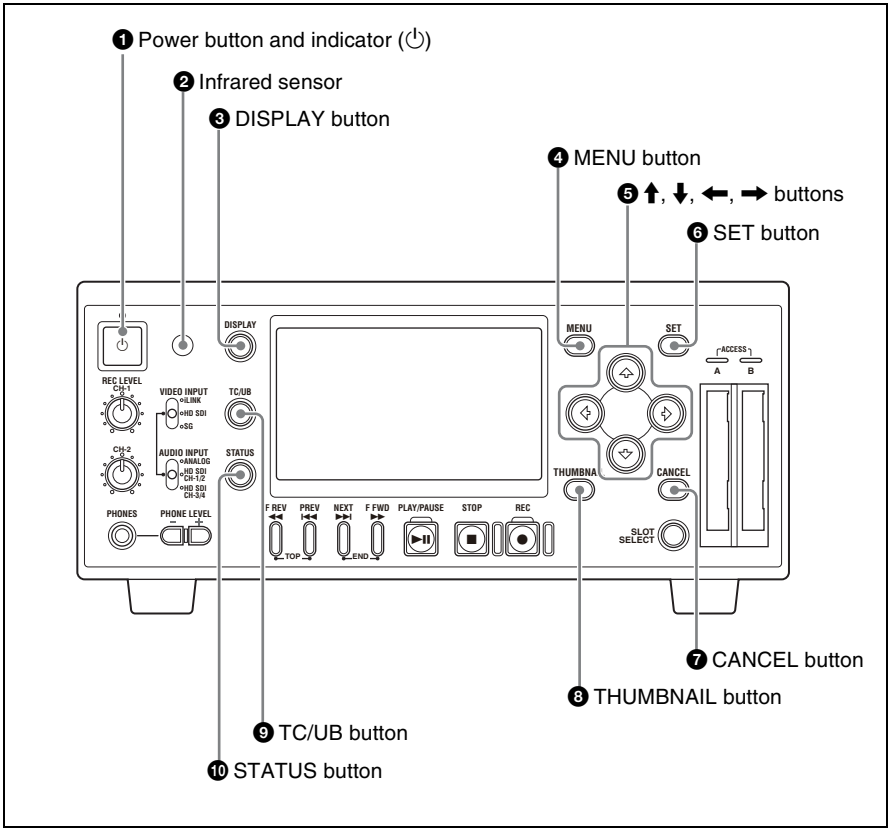
Choose "Start", "Control Panel" then "Add or Remove Programs" and specify the program to be deleted.

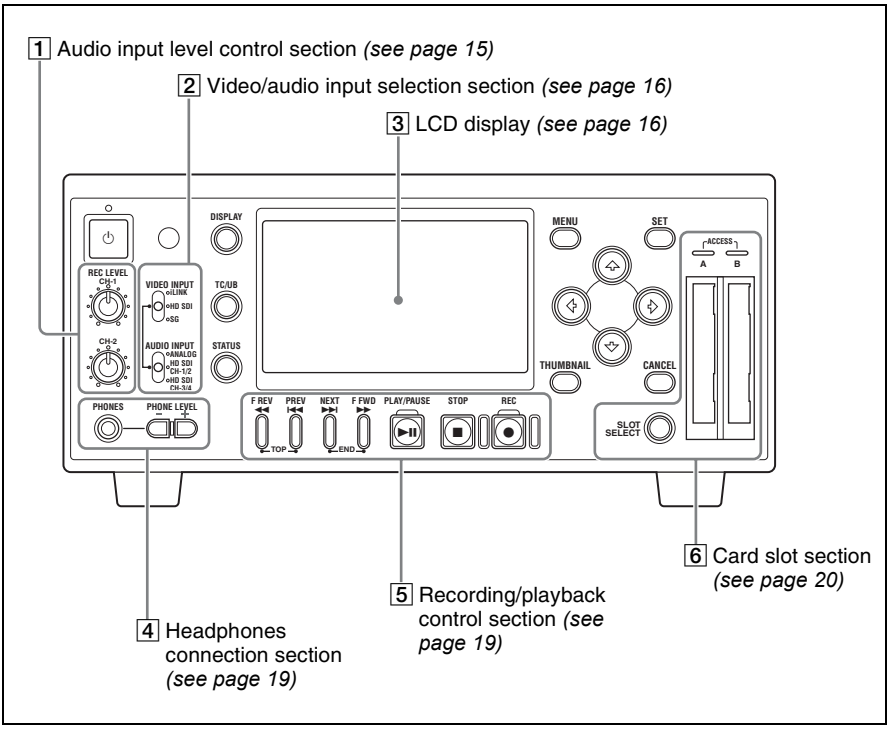
Macintosh computer

Drop the folder of the software (default: /Application/XDCAM EX Clip Browser) into Trash.

Names and Functions of Parts

Front panel





❶ Power button and indicator (⏻)

When this unit is connected to an AC power source via the supplied MPA-AC1 AC Adaptor *(see page 27)*, the indicator lights in red. (The unit is in the standby state.) Pressing the power button with the indicator lit in red starts the unit. The indicator lights in green.

Pressing the power button again after the start-up completes brings the unit into the standby state (with the indicator lit in red). To exit the standby state, remove the AC power source.

❷ Infrared sensor

This receives signals from the supplied IR remote commander.

❸ DISPLAY button

While recording, E-E, or playback picture is displayed, pressing this button provides the LCD display and the external monitor screen with superimposed text information including timecode, menu settings, and alarm messages. Pressing the button again to cancel the superimposition.

❹ MENU button

Press this button to display the menu on the LCD display and the external monitor screen. Press it again to exit the menu display.

On how to use the menu, see Chapter 8 "Menu Configuration and Detailed Settings" (page 79).

❺ ←, →, ↑, ↓ buttons

Use these buttons to move around the menu items, to select clips in a thumbnail screen, and also to set the initial timecode value and user bit data.
They can also be used for normal playback operations

❻ SET button

Press this button to confirm menu and thumbnail settings, and to execute operations.
Pressing this button with a still picture displayed in pause mode calls the Clip Operation menu.

❼ CANCEL button

Press this button to cancel menu and thumbnail settings, and to abort operations.

❽ THUMBNAIL button

Press this button to display a thumbnail screen on the LCD display and the external monitor screen. Pressing the button again displays only the clips marked OK on the thumbnail screen. Each press of the button switches between the thumbnail screen for all clips and that for OK clips.

On how to use the thumbnail screen, see "Thumbnail screen" (page 49).

❾ TC (timecode) /UB (user bit) button

Each press of this button switches the time data type indicator *(see page 17)* on the LCD display and the external monitor screen.

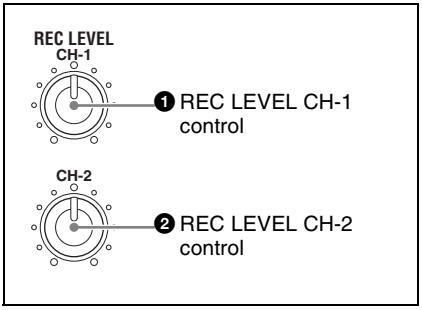
❿ STATUS button

Press this button to show the status display on the LCD display and the external monitor screen. Press it again to exit the status display.

For details on the status screens, see Chapter 7 "Status Display" (page 76).

1 Audio input level control section

Press this button to show the status screens. Press it again to exit the status display.



❶ REC LEVEL CH-1 (recording audio level of channel 1) control

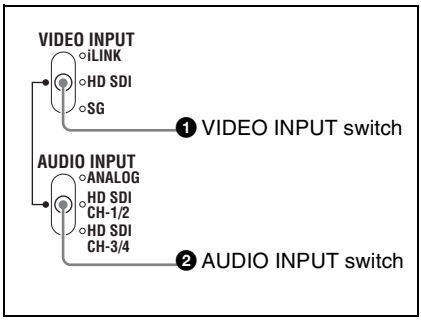
❷ REC LEVEL CH-2 (recording audio level of channel 2) control

When "Rec Level" in "Audio Input" of the AUDIO SET menu is set to "Manual" *(see page 83)*, use these controls to adjust the recording level of the two-channel audio signal input to the HD SDI INPUT connector or the AUDIO INPUT CH-1 and CH-2 connectors.
Watching the audio level meters *(see page 18)* displayed on the LCD display and the external monitor screen, adjust the level so that the meter does not indicate higher values than 0 dB when the audio signal is at its maximum. When the level exceeds 0 dB, the "OVER" indicator lights.

Note

When recording HDV-format signals input to the i.HDV/DV connector, it is not possible to adjust the audio recording levels with these controls.

2 Video/audio input selection section



❶ VIDEO INPUT switch

Use this switch to select the video signal to record.

i.LINK: To record HDV-format signals input to the i.HDV/DV connector

HD SDI: To record HDSDI signals input to the HD SDI connector

SG: Internal test signal (100% full color bar)

❷ AUDIO INPUT switch

When the VIDEO INPUT switch is set to HD SDI or SG, use this switch to select the audio signal to record.

ANALOG: To record analog audio signals input to the AUDIO INPUT CH-1 and CH-2 connectors

HD SDI CH-1/2: To record channels 1 and 2 of digital audio signals embedded in the HDSDI signals input to the HD SDI INPUT connector

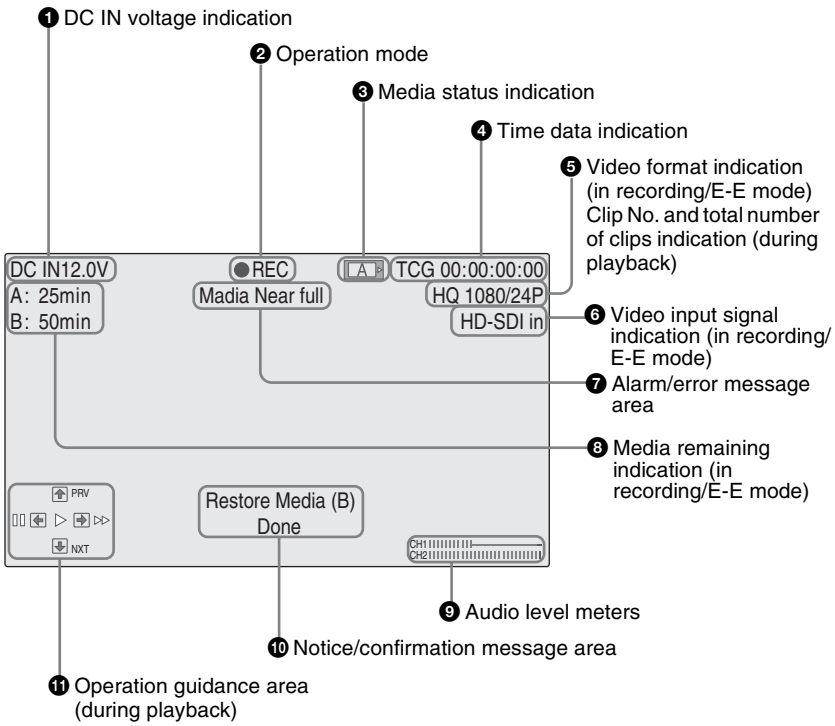
HD SDI CH-3/4: To record channels 3 and 4 of digital audio signals embedded in the HDSDI signals input to the HD SDI INPUT connector

3 LCD display

Displays recording, E-E, and playback pictures, the menu *(see page 79)*, status screens *(see page 76)*, and a thumbnail screen *(see page 49)*.

Pressing the DISPLAY button to enable superimposition provides text information shown in the following figure on recording, E-E, and playback pictures. Alarm/error messages and notice/confirmation messages (shown in ❼ and ❿) are displayed, if required, regardless of the DISPLAY button status.
Those information can be superimposed on the output signals *(see page 42)* from the HDMI, COMPONENT, COMPOSITE, S-VIDEO, and HD/SD SDI OUTPUT connectors so that you can check them on the external monitor screen.

In Chapter 2 and following of this manual, both the LCD display of this unit and an external monitor screen are referred to collectively as the “monitor screen”.



❶ DC IN voltage indication
Indicates the voltage of the power source input the DC IN connector.

❷ Operation mode
Indicates the current operating modes.

❸ Media status indication
Indicates which card slot is active when SxS memory cards are installed in both slots A and B.

A	Memory card in slot A is active.
B	Memory card in slot B is active.

❹ Time data indication
Indicates the time data type indicator and timecode or user bit.
Each press of the TC/UB button switches the time data type indicator as follows.

- In recording or E-E mode

TCG: Timecode generated by the timecode generator
UBG: User bits generated by the timecode generator

- During playback

TCR: Timecode read by the timecode reader
UBR: User bits read by the timecode reader

Note

This unit allows setting of timecode and user bit data when an HDSDI signal or the internal test signal is recorded. When an HDV signal input to the i HDV/DV connector is recorded, the timecode and user bit data embedded in the input signal are recorded as they are. (The corresponding time data type indicators are TCR and UBR, respectively.)

❺ Video format indication (in recording/E-E mode)/Clip No. and total number of clips indication (during playback)

In recording or E-E mode, indicates the current video format.
The video format consists of bit rate (HQ or SP), number of effective lines, frame rate, and scan system (i or P).
During playback, indicates the number of the clip played back currently and the total number of clips.

❻ Video input signal indication (in recording/E-E mode)

Indicates the input signal selected with the VIDEO INPUT switch.

❼ Alarm/error message area

An alarm message is displayed in such a case that the remaining space on the memory card is insufficient. An error message is also displayed in this area. (Those messages are displayed regardless of the state of the DISPLAY button.)

❽ Media remaining indication (in recording/E-E mode)

Indicates the time remaining for the SxS memory cards loaded in the card slots.
The available time for recording with the current video format (recording bit rate) is calculated according to the remaining space of each card and indicated in time units of minutes.

Note

A 🔒 icon appears if the memory card is write-protected.

❾ Audio level meters

Indicates audio peak levels. When the reference audio signals is output *(see page 44)*, –20 is marked on each meter and –10 dBu signals are output from the AUDIO OUTPUT CH-1and CH-2 connectos.

❿ Notice/confirmation message area

Progress messages, completion messages or messages prompting the next action and confirmation are displayed regardless of the DISPLAY button status.

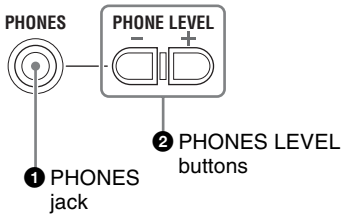
⓫ Operation guidance area (during playback)

Current functions of the ←, →, ↑, ↓ buttons are displayed. Functions assigned to the PUSH SET button of the IR remote commander are also displayed when the remote control function is active.

Guide marks	Functions
▶▶	4-times playback in forward direction
▶▶▶	15-times playback in forward direction
◀◀	4-times playback in reverse direction
◀◀◀	15-times playback in reverse direction
▶	Normal playback
❚❚	Pause
PRV	Jump to the top of the current clip

Guide marks	Functions
NXT	Jump to the top of the next clip

4 Headphones connection section



❶ PHONES (headphones) jack (stereo-mini)

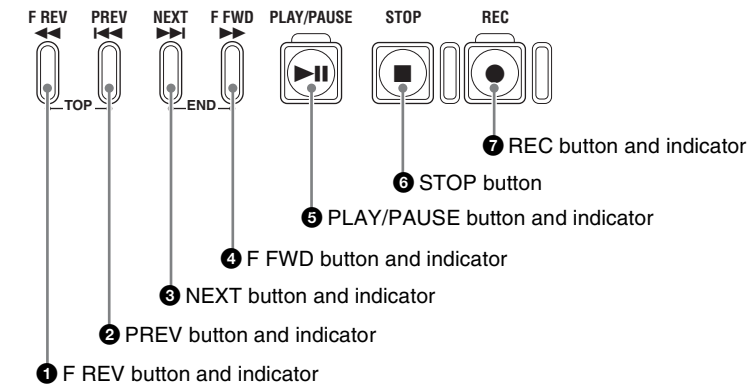
Connect stereo headphones to the jack for audio monitoring during recording and playback.

A channel to monitor can be selected by changing the setting of "Monitor CH" *(see page 84)* in the "Audio Set" setting of the AUDIO SET menu. During playback, also change the "Output CH" setting *(see page 84)* as required.

❷ PHONES LEVEL (headphones volume) buttons

Adjust the volume of the audio output from the PHONES jack. Press the + button to turn up the volume and press the – button to turn down the volume.
During adjustment, a volume meter appears on the LCD display and an external monitor screen. The meter display is displayed for about three seconds after the adjustment completes.

5 Recording/playback control section



❶ F REV (fast reverse) button and indicator

Use this button for high-speed playback (with audio muted) in the reverse direction.

Each time you press the button, the playback speed switches between 4 times and 15 times normal speed. To return to

normal playback, press the PLAY/PAUSE button.
Pressing the PREV button and F REV button simultaneously cues up the top of the first-recorded clip on the memory card (TOP button function).
During the F REV button is active, the indicator at the upper of the button is lit.

❷ PREV (previous clip jump) button and indicator

When you press the button in normal or high-speed playback, the top of the current clip is cued up then playback begins.
When you press the button in fast-reverse playback or in pause mode, the top of the current clip is cued up, then the still picture is displayed.
Repeated pressing of the button cues up the previous clips one by one.
Pressing the PREV button and F REV button simultaneously cues up the top of the first-recorded clip on the memory card (TOP button function).
During the PREV button is active, the indicator at the upper of the button is lit.

❸ NEXT (next clip jump) button and indicator

When you press the button in normal or high-speed playback, the top of the next clip is cued up then playback begins.
When you press the button in fast-reverse playback or in pause mode, the top of the next clip is cued up, then the still picture is displayed.
Repeated pressing of the button cues up the subsequent clips one by one.
Pressing the F FWD button and NEXT button simultaneously cues up the top of the last-recorded clip on the memory card (END button function).
During the NEXT button is active, the indicator at the upper of the button is lit.

❹ F FWD (fast forward) button and indicator

Use this button for high-speed playback (with audio muted) in the forward direction.
Each time you press the button, the playback speed switches between 4 times and 15 times normal speed. To return to normal playback, press the PLAY/PAUSE button.
Pressing the F FWD button and NEXT button simultaneously cues up the top of the last-recorded clip on the memory card (END button function).
During the F FWD button is active, the indicator at the upper of the button is lit.

❺ PLAY/PAUSE button and indicator

Each time you press the button toggles between normal playback and still picture playback (in pause mode).
The indicator at the upper of the button is lit during normal playback and blinks in pause mode.

❻ STOP button

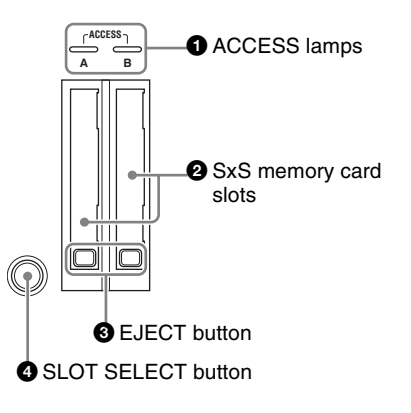
Press this button to stop the current playback or recording operation. This unit enters E-E mode.

❼ REC (record) button and indicator

Press this button to start recording to the SxS memory card(s).
The indicator at the upper of the button is lit during normal recording and blinks when the video format of the input signal does not match with the video format set on this unit or when abnormality in recording is detected.

6 Card slot section

For details on SxS memory cards, see "Handling SxS Memory Cards" (page 34).



❶ ACCESS lamps
When an SxS memory card is inserted into one of the slot, the ACCESS lamp at the slot lights in red then changes to green once the memory card is ready for use. Card slots A and B are accompanied by the respective ACCESS lamps to indicate their statuses.

❷ SxS memory card slots
Insert SxS memory cards into the slots.

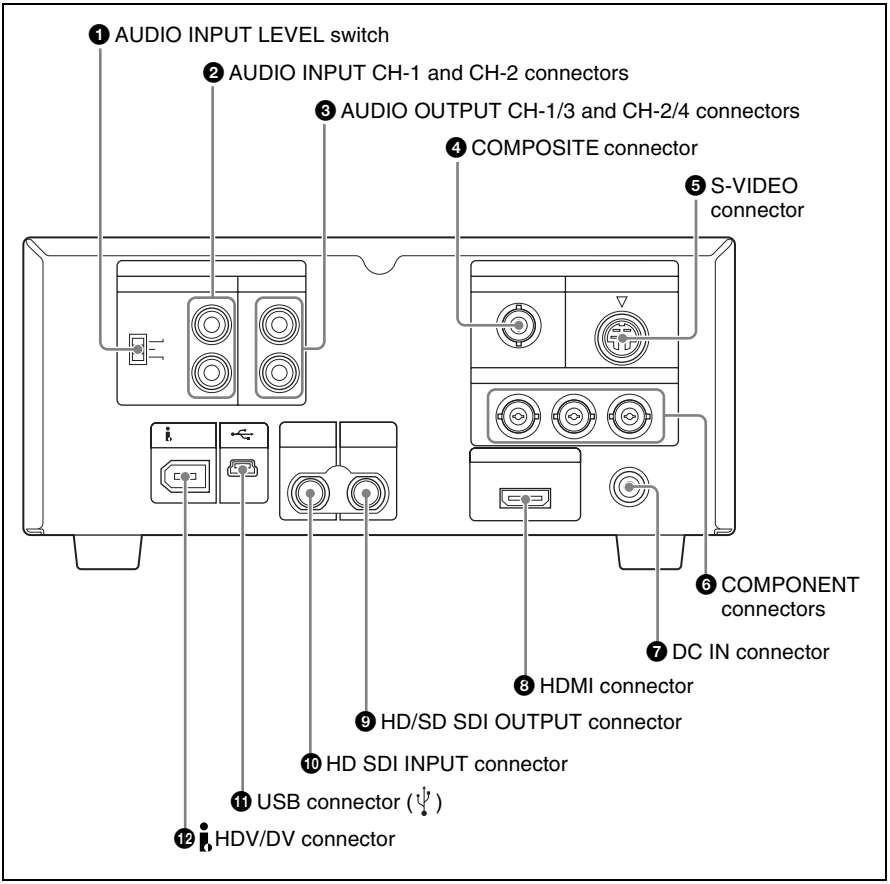
❸ EJECT buttons
Press one of the EJECT button to release the lock, then pull the button out. Press the button again to remove the SxS memory card.

❹ SLOT SELECT (SxS memory card select) button
When SxS memory cards are loaded in both card slots A and B, press this button to select the card you wish to use.

Note

The SLOT SELECT button is disabled while playback is in progress, that is, switching is not executed even if you press the button. On the other hand, the button is enabled while a thumbnail screen is displayed.

Rear panel



❶ AUDIO INPUT LEVEL switch

Depending on the connector of the device connected to the AUDIO INPUT CH-1 and CH-2 connectors, set the audio input level as follows.

For an XLR connector: +4 or –2

For a phono jack: –10

The following table shows the relation between the switch position and maximum audio level available.

Position	Audio level
–10	+10 dBu
–2	+18 dBu
+4	+24 dBu

❷ AUDIO INPUT CH-1 and CH-2 (channels 1 and 2) connectors (phono jacks)

Input analog audio signals to the CH-1 and CH-2 connectors. Set the input level with the AUDIO INPUT LEVEL switch to –10, –2, or +4 dBu.

❸ AUDIO OUTPUT CH-1/3 and CH-2/4 (channels 1 and 3, channels 2 and 4) connectors (phono jacks)

Output analog audio signals from the CH-1/3 and CH-2/4 connectors.
Output channels can be selected by changing the "Monitor CH" setting *(see page 84)* and the "Output CH" setting *(see page 84)* of the AUDIO SET menu.

Note

In recording or E-E mode, audio signals of channels 1 and 2 are output. (Channels 3 and 4 can be selected when 4-channel material is played back.)

❹ COMPOSITE connector (BNC type)

Outputs down-converted SD analog composite video signals.
Setting "CMPST/ S Out Display" *(see page 85)* of the VIDEO SET menu to "On" superimposes the same text information as that displayed on the LCD display on the output signals from this connector.

❺ S-VIDEO connector (mini-DIN 4-pin)

Outputs Y/C separated signals.
Setting "CMPST/ S Out Display" *(see page 85)* of the VIDEO SET menu to "On" superimposes the same text information as that displayed on the LCD display on the output signals from this connector.

❻ COMPONENT connectors (BNC type)

Output HD analog component signals or down-converted SD analog component signals from the Y, Pb/B–Y, and Pr/R–Y connectors. Select the video format of the output signals with "HDMI/CMPNT/SDI Out SEL" *(see page 84)* of the VIDEO SET menu.
Setting "HDMI/CMPNT/SDI Out DISP" *(see page 85)* of the VIDEO SET menu to "On" superimposes the same text information as that displayed on the LCD display on the output signals from this connector.

Note

The output format is fixed to 480i (576i) when the "i.LINK I/O Select" setting *(see page 86)* of the VIDEO SET menu is "DVCAM".

❼ DC IN (DC power source input) connector (3-pin , Type 4)

Plugs the DC power cord to connect the supplied MPA-AC1 AC Adaptor.

❽ HDMI connector (Type A 19-pin)

Select the video format of the output signals with "HDMI/CMPNT/SDI Out SEL" *(see page 84)* of the VIDEO SET menu.
Setting "HDMI/CMPNT/SDI Out DISP" *(see page 85)* of the VIDEO SET menu to "On" superimposes the same text information as that displayed on the LCD display on the output signals from this connector.

Note

The output format is fixed to 480i (576i) when the "i.LINK I/O Select" setting *(see page 86)* of the VIDEO SET menu is "DVCAM".

❾ HD/SD SDI OUTPUT connector (BNC type)

Outputs HDSDI signals or down-converted SDSDI signals. Audio signals and timecode are embedded in the SDI signals. Select the video format of the output signals with "HDMI/CMPNT/SDI Out SEL" *(see page 84)* of the VIDEO SET menu.
Setting "HDMI/CMPNT/SDI Out DISP" *(see page 85)* of the VIDEO SET menu to "On" superimposes the same text information as that displayed on the LCD display on the output signals from this connector.

Note

The output format is fixed to 480i (576i) when the "i.LINK I/O Select" setting *(see page 86)* of the VIDEO SET menu is "DVCAM".

❿ HD SDI INPUT connector (BNC type)

Input HDSDI signals.

Note

When the video format of the input signal does not match with the video format set on this unit, recorded and E-E pictures cannot be displayed. Match the video format of the input signal with this unit's video format.

⓫ USB connector (⚲) (mini-B/USB 2.0)

Connect a computer to access the data of the SxS memory card loaded on this unit.

⓬ i HDV/DV (HDV or DVCAM input/output) connector (6-pin, IEEE1394, S400)

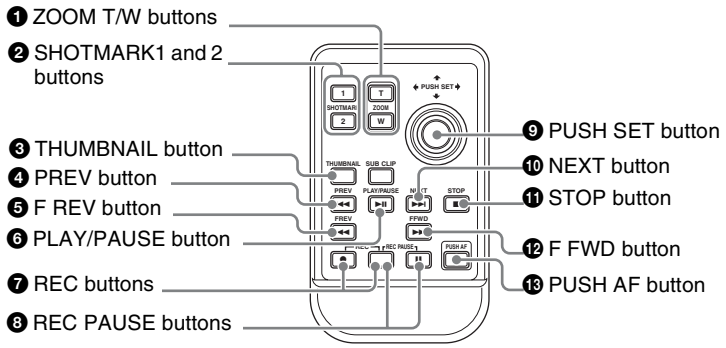
Allows input and output of the HDV-format digital video and audio and output of down-converted DVCAM signals. Select the output format with the "i.LINK I/O Select" setting *(see page 86)* of the VIDEO SET menu.
Setting "HDMI/CMPNT/SDI Out DISP" *(see page 85)* of the VIDEO SET menu to "On" superimposes the same text information as that displayed on the LCD display on the output signals from this connector.

Notes

- If the unit is connected to a device equipped with a 6-pin HDV/DV jack, when you intend to disconnect or reconnect the i.LINK cable, turn off the device and pull out the plug of its power cord from the AC outlet beforehand. If you connect or disconnect the i.LINK cable while the device is connected to the AC outlet, a high-voltage (8 to 40 V) current output from the HDV/DV jack of the device flows into this unit, which may cause a malfunction to the unit.
- When connecting a device that has a 6-pin HDV/DV jack to this unit, first plug the cable into the 6-pin HDV/DV jack of the device.

IR remote commander (supplied)

When you use the IR remote commander, see "Using the IR Remote Commander (Supplied)" (page 40).



❶ ZOOM T/W buttons
Do not function with this unit.

❷ SHOTMARK1 and 2 buttons
Press during recording or playback to record shot mark 1 or shot mark 2.

❸ THUMBNAIL button
Has the same function with the THUMBNAIL button *(see page 15)* on this unit.

❹ PREV (previous clip jump) button
Has the same function with the PREV button *(see page 20)* on this unit.

❺ F REV (fast reverse) button
Has the same function with the F REV button *(see page 19)* on this unit.

❻ PLAY/PAUSE button
Has the same function with the PLAY/PAUSE button *(see page 20)* on this unit.

❼ REC (recording) buttons
Press the ● button and unmarked button (safety button) simultaneously to start recording.

❽ REC PAUSE (recording pause) buttons
Press the ❚❚ button and unmarked button (safety button) simultaneously to stop recording.

❾ PUSH SET (four-way arrow key) button
Has the same function with the ⬆, ⬇, ⬅, ➡ buttons *(see page 15)* and SET button *(see page 15)* on this unit.

❿ NEXT (next clip jump) button
Has the same function with the NEXT button *(see page 20)* on this unit.

⓫ STOP button
Press this button to stop playback. The unit enters E-E mode.

Note

Do not use this button to stop recording. Use the REC PAUSE buttons to stop recording.

⓬ F FWD (fast forward) button
Has the same function with the F FWD button *(see page 20)* on this unit.

⓭ PUSH AF button

Does not function with this unit.

Preparations

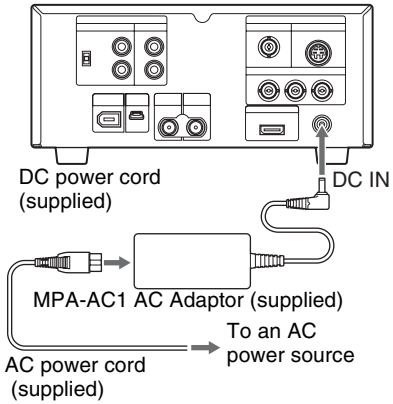
Chapter 2

Starting the Unit

When you use this unit for the first time after purchasing, the initial settings are required *(see page 27)*.

Connecting the unit to a power source

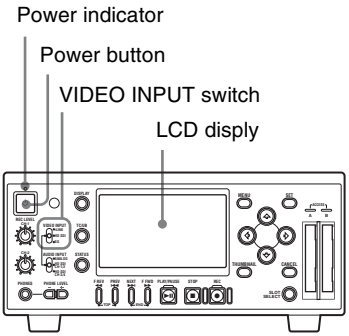
Use the supplied MPA-AC1 AC Adaptor to connect the unit an AC power source.



When this unit is supplied with power, the power indicator on the front panel lights in red. (The unit enters the standby state.)

Starting the unit

To start this unit, press the power button with the power indicator lit in red (when the unit is in the standby state).



Note

No signal is output from the COMPONENT, COMPOSITE, S-VIDEO, HDMI, HD/SD SDI OUTPUT, and i.HDV/DV connectors until the start-up completes.

When the start-up of the unit is completed, the power indicator lights in green.

When the initial setting display appears on the LCD display

The initial setting display appears on the LCD display in the following situations.

- When turning on the unit for the first time
- When turning on the unit after the clock setting is cleared because of exhaustion of the backup battery while no operation power was being supplied (no AC power connection)

For details on the initial settings, see "Setting the Clock" (page 28).

Note

While the initial setting display is shown, no other operation except turning the power off is permitted until you finish the setting for this display.

When the initial setting display is not shown or the initial settings are completed, the LCD display state varies as follows.

With no SxS memory card loaded: The video selected with the VIDEO INPUT switch is shown. If the selected video is not input, a blue or black screen appears.

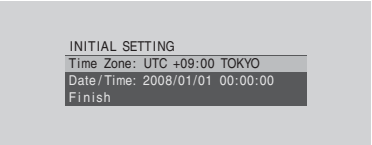
With an accessible SxS memory card loaded: Index frame images of the clips recorded on the memory card are shown as thumbnails (thumbnail screen).

To turn the power off

Press the power button again.
The power indicator on the front panel lights in red. (The unit enters the standby state.) To exit the standby state, disconnect the AC power source *(see page 27)*.

Setting the Clock

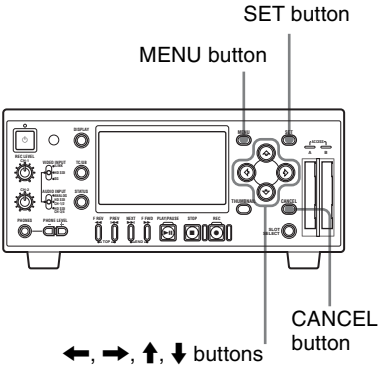
When the initial setting display appears on the LCD display, Set the date and time of the built-in clock, using this display.



Time Zone

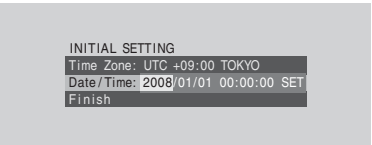
The value shows the time difference from UTC (Coordinated Universal Time). Change the setting if needed *(see page 27)*.

To set the time and date



1 Press the ↑ or ↓ button to set the cursor to "Date/Time" then press the SET button.

The cursor moves to the year-setting column.



2 Press the ↑ or ↓ button to set the year then press the ← or → button.

The cursor moves to the month-setting column.

3 Set the month, day, hour, minute, and second in sequence in the same manner.

4 Press the SET button at "SET".

The cursor moves back to "Date/ Time".

5 Press the ↑ or ↓ button to move the cursor to "Finish" then press the SET button.

The initial setting display disappears, and the clock setting is completed.

The time zone and date/time settings can be changed later using "Time Zone" *(see page 88)* and "Clock Set" *(see page 89)* of the OTHERS menu.

Adjusting the LCD Display

You can adjust the display conditions of the LCD display for the best view in various situations.
These adjustments of the LCD display have no effect on pictures being recorded.

To adjust the color density, contrast, and brightness

These adjustments can be made using the LCD SET menu.
Press the MENU button to display the menu icons. Display the select LCD SET menu with the LCD SET menu icon, and use the ←, →, ↑ or ↓ button to select "LCD" from the menu.

LCD SET menu icon

Set the color density, contrast and brightness of the LCD display with the corresponding LCD SET menu items: Color, Contrast, and Brightness.

For details on menu operations, see "Basic Menu Operations" (page 80).

To adjust the backlight

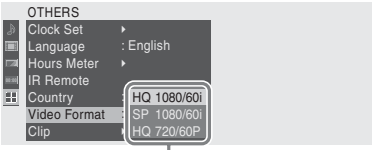
Use the LCD SET menu.
Select "LCD" from the LCD SET menu and change the "Back Light" setting.

Video Format and Input/Output Signals

The video format to be used on this unit can be set with "Video Format" of the OTHERS menu. When the unit is used for recording, it is required to input a signal conforming to the video format set on the unit.
In recording or E-E mode, the type and format of the output signal vary depending on the input video format and the "HDMI/CMPNT/SDI Out SEL" setting of the VIDEO SET menu. When this unit is used for playback, the format of the output signal varies depending on the "HDMI/CMPNT/SDI Out SEL" setting of the VIDEO SET menu and the video format in which the clip was recorded on the SxS memory card.

Setting the video format

The video format is determined by bit rate (HQ or SP), number of effective lines, frame rate, and scan system (i or P).
Set "Video Format" of the OTHERS menu to a desired video format.



Video format choices

Video format choices vary with the "Country" setting of the OTHERS menu.

When "Country" is set to "NTSC Area":
HQ 1080/60i, SP 1080/60i, HQ 720/60P

When "Country" is set to "PAL Area":
HQ 1080/50i, SP 1080/50i, HQ 720/50P

Note

It is not possible to change the video format after recording or playback is started.

Video format and output signals

"HDMI/CMPNT/SDI Out SEL" of the VIDEO SET menu allows you to select whether the digital output signals from the COMPONENT, HD/SD SDI OUTPUT, and HDMI connectors are to be HD signals corresponding to the video format or down-converted SD signals.
Relations between the video format of the input signal or the clip played back and the format of the video signals output from the COMPONENT, HD/SD SDI OUTPUT, and HDMI connectors are shown in the following tables.

Note

When an HDV-format signal is input to the i HDV/DV connector, note the following points.

- Set the video format to SP 1080/60i (when "Country" is set to "NTSC Area") or SP 1080/50i (when "Country" is set to "PAL Area") on this unit. (It is not possible to input an HDV-format signal when any other video format setting is selected.)
- When a signal containing strong jitters (such as a computer output) is input to the i HDV/DV connector, output video and audio from the HD/SD SDI OUTPUT and HDMI connectors may be noisy, or no signal may be output from those connectors.
- When "HDMI/CMPNT/SDI Out SEL" is set to "480P (576P)", no signal is output from the HD/SD SDI OUTPUT connector.

In recording/E-E mode

Input video format		Output video format			
		"HDMI/CMPNT/SDI Out SEL" setting a)			
		1080i/720P	1080i	480i (576i) b)	480P (576P) b) c)
NTSC	HQ 1080/60i SP 1080/60i	1080/59.94i		480/59.94i	480/59.94P
	HQ 720/60P	720/59.94P	1080/59.94i		
PAL	HQ 1080/50i SP 1080/50i	1080/50i		576/50i	576/50P
	HQ 720/50P	720/50P	1080/50i		

a) "HDMI/CMPNT/SDI Out SEL" is disabled and the setting value is fixed to 480i (576i) when the "i.LINK I/O Select" setting of the VIDEO SET menu is "DVCAM".

b) 480i when "Country" of the OTHERS menu is set to "NTSC Area", or 576i when "Country" of the OTHERS menu is set to "PAL Area".

c) This setting allows no signal to be output from the HD/SD SDI OUTPUT connector.

During playback

Formats indicated in parentheses are the formats of video output during simplified playback, that is, playback of PAL-format recorded clips with this unit set to a NTSC video format or playback of NTSC-format recorded clips with this unit set to a PAL video format. During simplified playback, HD signals are output only from the COMPONENT connectors.

Clip video format		Output video format			
		"HDMI/CMPNT/SDI Out SEL" setting [a]			
		1080i/720P	1080i	480i (576i) [b]	480P (576P) [b] [c]
NTSC	HQ 1080/60i SP 1080/60i SP 1080/24P	1080/59.94i (1080/49.95i)		480/59.94i (576/49.95i)	480/59.94P (576/50P)
	HQ 1080/30P	1080/29.97PsF (1080/49.95i)			
	HQ 1080/24P	1080/59.94i (1080/49.95i)			
	HQ 720/60P HQ 720/30P HQ 720/24P	720/59.94P (720/49.95i)	1080/59.94i (1080/49.95i)		
PAL	HQ 1080/50i SP 1080/50i	1080/50i (1080/60i)		576/50i (480/60i)	576/50P (480/60P)
	HQ 1080/25P	1080/25PsF (1080/60i)			
	HQ 720/50P	720/50P (720/60P)	1080/50i (1080/60i)		
	HQ 720/25P	720/25PsF (720/60P)			

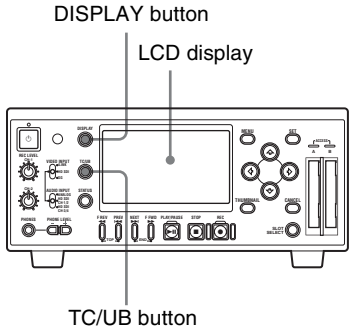
a) "HDMI/CMPNT/SDI Out SEL" is disabled and the setting value is fixed to 480i (576i) when the "i.LINK I/O Select" setting of the VIDEO SET menu is "DVCAM".
b) 480i when "Country" of the OTHERS menu is set to "NTSC Area", or 576i when "Country" of the OTHERS menu is set to "PAL Area".
c) This setting allows no signal to be output from the HD/SD SDI OUTPUT connector.

Time Data Handled by This Unit

Using time data allows you to easily check time information, ensure high precision editing, and synchronize multiple devices. This unit allows setting of timecode value and user bit data when an HDSDI signal or the internal test signal is recorded.
When an HDV signal input to the i HDV/DV connector is recorded, the timecode and user bit data embedded in the input signal is recorded as it is.
In recording or E-E mode and during playback, timecode or user bit data is displayed on the monitor screen according to the TC/UB button state.

Displaying the time data

Press the DISPLAY button to display the time data on the monitor screen.



To switch the time data displays between timecode and user bit data

Press the TC/UB button.

The time data type indicator *(see page 17)* is switched between TC and UB each time you press the TC/UB button.

In recording or E-E mode

TCG: Timecode generated by the timecode generator
UBG: User bit data generated by the timecode generator

During playback

TCR: Timecode read by the timecode reader
UBR: User bit data read by the timecode reader

Note

When an HDV signal input to the i HDV/DV connector is recorded, TCR or UBR is displayed the time data type indicator on the monitor screen because the timecode and user bit data embedded in the input signal are recorded as they are.

Handling SxS Memory Cards

This unit records audio and video on SxS memory cards (optional) inserted in the card slots.

About SxS Memory Cards

Usable SxS memory cards

The following Sony-made SxS memory cards (SxS PRO) are recommended for this unit:

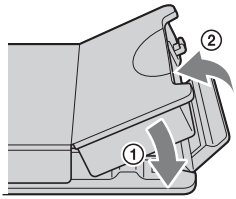
- SBP-8 (8 GB)
- SBP-16 (16 GB)

The above cards comply with the ExpressCard standard.

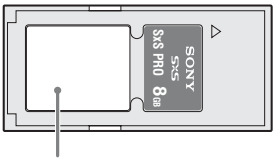
- SxS and SxS PRO are trademarks of Sony Corporation.
- The ExpressCard word mark and logo are owned by Personal Computer Memory Card International Association (PCMCIA) and are licensed to Sony Corporation. All other trademarks are the property of their respective owners.

Notes on using SxS memory cards

- Recorded data may be damaged or lost in the following situations:
  - If the media is removed from the slot or subjected to vibrations or shocks or if the equipment is powered off during read/write of data or formatting.
  - If you use in locations subject to static electricity or electrical noise.
- Do not use or store this media in the following locations:
  - Where recommended operating conditions are exceeded.
  - Inside a closed car in summer; or in strong sunshine / under direct sunlight / near a heater, etc.
  - Humid or corrosive location
- Verify the correct direction of insertion before use.
- When storing or carrying this media, put this media in the carrying case and lock it firmly.

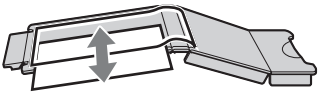


- We recommend that you make a backup copy of important data. Sony will not be liable for any damage or loss of data you recorded.
- Do not apply a label sheet in places other than the label space. When applying the label sheet to this media, do not allow it to protrude from its proper location.



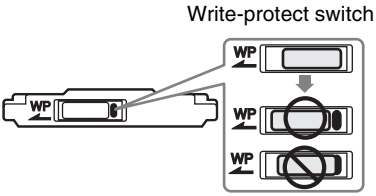
- SxS memory cards to be used with this unit must be formatted using the format function of this unit. If a card is formatted using other device, it is regarded as of a different format, requiring repeated format operation on this unit. (Formatting or deleting with the function of the unit does not completely delete data on this media. When transferring or disposing of this media, use a commercial data deleting software or destroy the actual body at you own responsibility.)

- If the available recording time on a card is short, clip operation may be restricted. In such a case, delete unnecessary files by using a computer or delete unnecessary clips by operation on this unit.
- Remove or reinsert the case card with the case opened properly.



For write protection

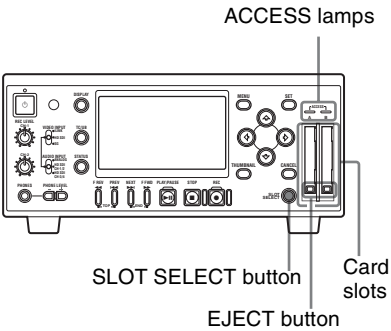
Setting the write-protect switch of the SxS memory card to "WP" disables you to record, edit or delete data.



Note

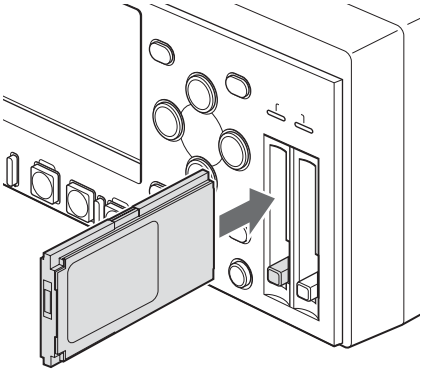
Do not operate the write-protect switch of an SxS memory card while it is set in the unit. Temporarily remove the card from the unit before changing the switch setting.

Inserting/removing an SxS memory card



To insert an SxS memory card

Insert the SxS memory card into the card slot.



With the label facing right

The ACCESS lamp lights in red then changes to green once the memory card is ready for use.

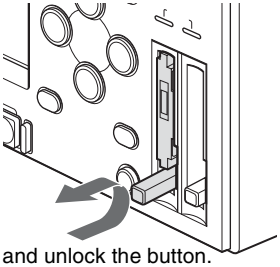
Status indications by the ACCESS lamps

Card slots A and B are accompanied by the respective ACCESS lamps to indicate their statuses.

Lamp	Slot statuses
Lights in red	Accessing the loaded SxS memory card (writing/reading data)
Lights in green	Standby (ready for recording or playback using the loaded SxS memory card)
Off	• No SxS memory card is loaded. • The loaded card is invalid. • An SxS memory card is loaded, but another slot is selected.

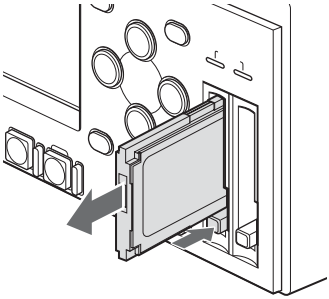
To remove an SxS memory card

1 Press the EJECT button to release the lock, then pull the button out.



Press and unlock the button.

2 Press the EJECT button again to remove the card.



Notes

- Data are not guaranteed if the power is turned off or a memory card is removed while the card is being accessed. All data on the card may be destroyed. Be sure that the ACCESS lamps are lit in green or off when you turn off the power or remove memory cards.
- When you turn on the unit with no valid memory card loaded, the unit enters E-E mode and displays the video selected with the VIDEO INPUT switch.

Switching between SxS memory cards

When SxS memory cards are loaded in both card slots A and B, press the SLOT SELECT button to select the card you wish to use.
If a card becomes full during recording, switching to the other card is automatically executed.

Note

The SLOT SELECT button is disabled while playback is in progress, that is, switching is not executed even if you press the button. On the other hand, the button is enabled while a thumbnail screen is displayed *(see page 49)*.

Formatting an SxS memory card

Formatting may be required before using an SxS memory card with this unit. For an SxS memory card that is not formatted or that was formatted with another system, a message to confirm if formatting is to be executed is displayed on the LCD display.

Note on formatting

Any SxS memory card formatted with a device other than this unit cannot be used with the unit.

To execute formatting

If the message for formatting is displayed, press the ↑ or ↓ button to select “Execute” then press the SET button.
Formatting begins, the in-progress message and status bar (%) are displayed, and the ACCESS lamp lights in red.

When formatting is completed, the completion message is displayed for three seconds.

Recording/playback during formatting

You can perform recording or playback using the SxS memory card in the other card slot while formatting is in progress.

If formatting fails

A write-protected SxS memory card or memory card that cannot be used with this unit will not be formatted.
As a warning message is displayed, replace the card with an appropriate SxS memory card, as per the instructions in the message.

To format by menu operation

When no formatting message is displayed on the LCD display, you can execute formatting using "Format Media" *(see page 91)* of the OTHERS menu in the same manner.

Notes

- All the data, including recorded pictures and setup files, are erased when a memory card is formatted.
- SxS memory cards to be used with this unit must be formatted using the format function of this unit. Any card formatted with other device must be formatted again with this unit.

Checking the remaining time available for recording

In recording or E-E mode, you can check the time remaining for the SxS memory cards loaded in the card slots on the LCD display.

The available time for recording with the current video format (recording bit rate) is calculated according to the remaining space of each card and displayed in time units of minutes.
The remaining can also be checked in a meter format on the remote/media status screen *(see page 78)*.

Note

A icon appears if the memory card is write-protected.

Replacing an SxS memory card

- If the available time on two cards in total becomes less than 5 minutes, a message "Media Near Full" is displayed, and a beep sound warns you. Replace the cards with those with sufficient space.
- If you continue recording until the total remaining time reaches zero, the message changes to "Media Full", and recording stops.

Note

Approximately 600 clips can be recorded on one SxS memory card at maximum.
If the number of recorded clips reaches the limit, the remaining time indication becomes "0", and the message "Media Full" is displayed.

Restoring an SxS memory card

If an error occurs with data in a memory card for some reason, the card must be restored.

If an SxS memory card that needs to be restored is loaded, a message that prompts you to execute a restore operation is displayed on the LCD display.

To restore a card

Press the ⬆ or ⬇ button to select "Execute" then press the SET button.
The restore operation begins, the in-progress message and status bar (%) are displayed, and the ACCESS lamp is lit in red.
When restoration is completed, the completion message is displayed for three seconds.

If restoration fails

- A write-protected SxS memory card or one on which an error occurred cannot be restored. For such a card, a warning message is displayed. Release the write protection or replace the card, as per the instructions in the message.
- An SxS memory card on which an error occurred may become usable again after reformatting.
- In some cases, only parts of clips cannot be restored. Playback of the restored clips becomes possible again.

Recording/playback during restoration

You can perform recording or playback using the SxS memory card in the other card slot while restoration is in progress.

Using the PHU-60K (Optional)

You can use an optional PHU-60K Professional Hard Disk Unit with this unit. The PHU-60K incorporates a 60 GB 1.8-inch hard disk, on which up to 200 minutes of HD video can be recorded in HQ mode.

Note

High-speed playback *(see page 48)* may not be properly achieved with the PHU-60K.

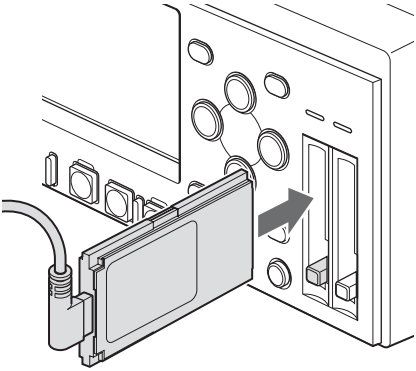
On how to use the PHU-60K, refer to the operating instructions supplied with the PHU-60K.

Connecting/removing the PHU connection cable

Recording/playback can be made using the PHU-60K in the same manner as with SxS memory cards by connecting the PHU connection cable to an SxS memory card slot.

To connect the PHU connection cable

Insert the PHU connection cable into the memory card slot as shown in the following figure.



Insert so that the cable extends upward.

When the PHU-60K is turned on, the POWER indicator of the PHU-60K lights in green.
Subsequently, the ACCESS lamp of this unit lights in red then changes to green once the unit is ready for use.

To disconnect the PHU connection cable

Operate in the same manner as when you remove an SxS memory card from the slot *(see page 36)*.

Formatting the PHU-60K

For a PHU-60K that is not formatted or that was formatted with another system, a message to confirm if formatting is to be executed is displayed on the monitor screen.

To execute formatting

If the message for formatting is displayed, press the ↑ or ↓ button to select "Execute" then press the SET button.
Formatting begins, an in-progress message and status bar (%) are displayed, and the ACCESS lamp lights in red.

When formatting is completed, a completion message is displayed for three seconds.

To format by menu operation

When no formatting message is displayed on the monitor screen, you can execute formatting using "Format Media" *(see page 91)* of the OTHERS menu in the same manner.

Notes

- Formatting for the PHU-60K on this unit is "Quick Format" with which only the managerial data are erased. To erase the recording data completely, connect the unit to a PC and perform "Full Format".
- The PHU-60K to be used with this unit must be formatted using the format function of the unit. Any PHU-60K formatted with another device must be formatted again with this unit.

Checking the remaining time available for recording

The remaining time is displayed in the same manner as that for the SxS memory card.

For details, see "Checking the remaining time available for recording" (page 37).

Restoring the PHU-60K

If an error occurs with data on the PHU-60K for some reason, the hard disk must be restored.
If a PHU-60K that needs to be restored is connected, a message is displayed on the monitor screen, asking you whether you want restoration or not.

To restore the hard disk

Press the ↑ or ↓ button to select "Execute" then press the SET button.
The restoration begins, an in-progress message and status bar (%) are displayed, and the ACCESS lamp is lit in red.
When restoration is completed, a completion message is displayed for three seconds.

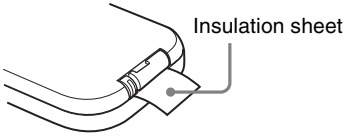
If restoration fails

- A PHU-60K on which an error occurred may become usable again after reformatting.
- In some cases, only parts of clips cannot be restored. Playback of the restored clips becomes possible again.

Using the IR Remote Commander (Supplied)

Before use

Before you use the supplied IR remote commander for the first time, pull out the insulation sheet from the battery holder.



A CR2025 lithium battery is set in the holder at the factory.

To control this unit from the IR remote commander

You can use the setup menu to enable and disable the remote control function. The factory default setting is enable.

To disable the function

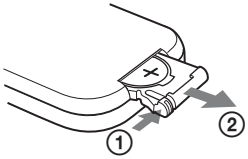
Press the MENU button to display the menu icons. Use the ↑, ↓, ← or → button to display the OTHERS menu ( ), and to set "IR Remote" to "Off".
The "IR Remote" setting is maintained after this unit is turned off.

For details on menu operations, see "Basic Menu Operations" (page 80).

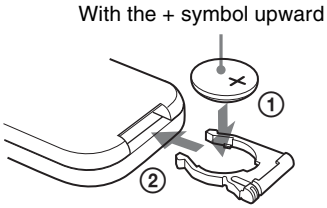
To replace the battery in the IR remote commander

When the lithium battery's power falls, the IR remote commander may not work even if you press the buttons. The average lithium battery's service life is about one year, but this depends on the pattern of use. If pressing the remote control buttons produces absolutely no effect on the unit, replace the battery then check the operation again.
Use a commercially available CR2025 lithium battery. Do not use any battery other than a CR2025.

1 Hold down the lock lever ①, pull out the battery holder ②, and remove the battery.



2 Place a new battery in the battery holder with the + symbol facing upward ①, then push the battery holder into the IR remote commander until it clicks ②.



WARNING

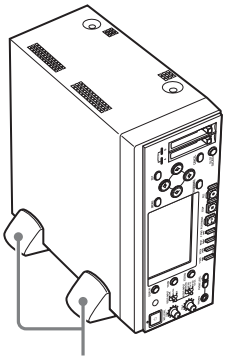
Battery may explode if mistreated.
Do not recharge, disassemble, or dispose of in fire.

CAUTION

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

Placing the Unit in a Vertical Position

You can place the unit in a vertical position by using the supplied pair of supporting feet.



Supporting feet (supplied)

Superimposed Text Information

Signals output from the HDMI, COMPONENT, COMPOSITE, S-VIDEO, and HD/SD SDI OUTPUT connectors can contain superimposed text information, including timecode, menu settings, and alarm messages. You can supply an external video monitor with any of these signals to view the same text information on the monitor screen as that displayed on the LCD display of this unit.

On how to input a signal output from each connector to the external monitor, see "Connecting External Video Monitors" (page 65)

Turning superimposed text on and off

To set whether to superimpose text information on the output signals from the HDMI, COMPONENT and HD/SD SDI OUTPUT connectors, use "HDMI/ CMPNT/SDI Out DISP" *(see page 85)* of the VIDEO SET menu. To set whether to superimpose text information on the output signals from the COMPOSITE and S-VIDEO connectors, use "CMPST/ S Out Display" *(see page 85)* of the VIDEO SET menu.
On: Superimpose text information.
Off: Do not superinpose text information.

When a DVCAM-format signal is output from the i HDV/DV connector during playback, "CMPST/ S Out Display" can be used to superimpose text information on the signal.

Recording and Playback Chapter 3

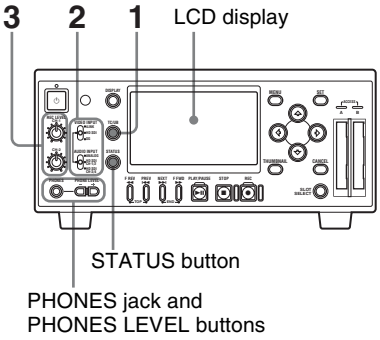
Recording

This unit allows recording HDSDI signals input to the HD SDI INPUT connector and HDV signals input to the i HDV/DV connector on SxS memory cards.

Note

Be sure to set the video format *(see page 30)* before starting recording.

Settings for recording



1 Press the TC/UB button to select whether to use timecode or user bits.

The time data type indicator *(see page 17)* is switched between the timecode and user bits each time you press the TC/UB button.

To set the timecode value or user bit data

For details on setting the timecode value or user bit data, see Chapter 5 "Setting and Recording Time Data" (page 62).

2 Use the VIDEO INPUT switch to select the video signal to record and use the AUDIO INPUT switch to select the audio signal.

Video signal to record	VIDEO INPUT switch position (input signal indication on the monitor screen)	Audio signal to record	AUDIO INPUT switch position
HDV signals input to the i HDV/DV connector	i.LINK (i.LINK in)	2-channel digital audio signals embedded in the input HDV signals	—
HDSDI signals input to the HD SDI INPUT connector	HD SDI (HDSDI in)	Analog audio signals input to the AUDIO INPUT CH-1 and CH-2 connectors	ANALOG
		Channels 1 and 2 of digital audio signals embedded in the input HDSDI signals	HD SDI CH-1/2
Internal test signal (100% full color bar)	SG (Internal SG)		
		Channels 3 and 4 of digital audio signals embedded in the input HDSDI signals	HD SDI CH-3/4
Internal test signal (100% full color bar)	SG (Internal SG)	1 kHz reference audio signal	Regardless of the AUDIO INPUT switch position, set "1kHz Tone" in the "Audio Input" setting of the AUDIO SET menu to "On" *(see page 83)*.

Note

It is not possible to change the input signal during recording. If the VIDEO INPUT switch position is changed, the setting is not enabled until the recording stops with the STOP button pressed.

3 When recording audio signals input to the AUDIO INPUT CH-1 and CH-2 connectors, set the AUDIO INPUT LEVEL switch as follows.

When audio signals output from an XLR connector: +4 or –2

When audio signals output from a phono jack: –10

The following table shows the relation between the switch position and maximum audio level available.

Position	Audio level
–10	+10 dBu
–2	+18 dBu
+4	+24 dBu

4 Check and adjust the audio input level with the audio level meter on the monitor screen.

Audio input level is set to the reference level preset at the factory. When the VIDEO INPUT switch is set to HD SDI or SG, manual control of the audio input level is allowed.

To adjust the audio input level manually
Set "Rec Level" *(see page 83)* in "Audio Input" of the AUDIO SET menu to "Manual" and use the REC LEVEL CH-1 and CH-2 controls to adjust the audio input level of each channel.
Watching the audio level meters *(see page 18)* displayed on the LCD display and the external monitor screen, adjust the level so that the meter does not indicate higher values than 0 dB when the audio signal is at its maximum. When the level exceeds 0 dB, the "OVER" indicator lights.

Note

During recording HDV signals input to the i.HDV/DV connector, manual control of the audio input level is not allowed.

To check the setting status

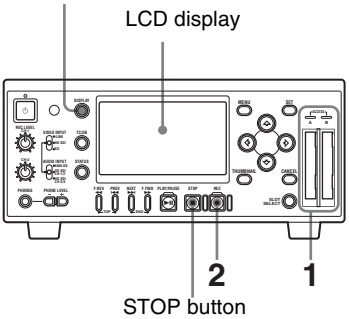
Press the STATUS button to show the status screens *(see page 76)*. You can check time data settings, video signal settings and the audio input level.

To monitor video and audio being recorded

Connect an external video monitor *(see page 65)* to the HDMI, COMPONENT, COMPOSITE, S-VIDEO, HD/SD SDI OUTPUT, or AUDIO OUTPUT CH-1/3 and CH-2/4 connectors to monitor video and audio being recorded.

Connect headphones to the PHONSE jack to monitor audio being recorded. Adjust the volume of the headphones by pressing the PHONES LEVEL buttons.

Recording operation



1 Load valid SxS memory card(s) *(see page 35)*.

If you load two cards, recording is continued by automatically switching to the second card when the first card becomes full.

For details on memory cards, see "Handling SxS Memory Cards" (page 34).

If a thumbnail screen *(see page 49)* appears on the monitor screen, press the STOP button to display the E-E picture.

2 Press the REC button to start recording.

The REC indicator lights when recording starts normally.
The indicator blinks if a malfunction occurs because the video format set on this unit does not match the input format, for example.

To check the status during recording
Press the DISPLAY button.

For details on each indication displayed, see "3 LCD display" (see page 16).

To stop recording

Press the STOP button.
Recording stops and this unit enters E-E mode.
When you stop recording, video, audio and subsidiary data from the start to end of the recording are recorded as a single clip on an SxS memory card.

For details on clips, see Chapter 4 "Clip Operations" (page 49).

Recording shot marks

When you record shot marks for important scenes as subsidiary data, you can access the marked points easily on a Shot Mark screen, which only displays scenes with shot marks only. This increases editing efficiency.

For the Shot Mark Screen, see "Displaying the SHOT MARK screen" (page 59).

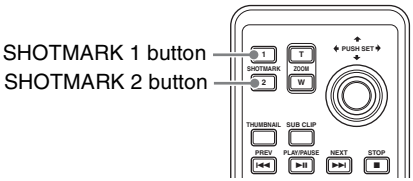
This unit allows you to record two types of shot marks: shot mark 1 and shot mark 2. Shot marks can be recorded as needed during recording or can be added after recording while checking the playback pictures *(see page 48)*.

To insert a shot mark during recording

Use the IR remote commander.

1 Set "IR Remote" *(see page 89)* of the OTHERS menu to "On" to activate the IR remote commander.

2 Start recording and press the SHOTMARK 1 or 2 button where you wish to insert a shotmark.



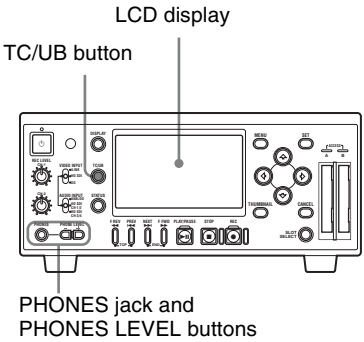
A shot mark of the type corresponding to the button you press is recorded.

Playback

The SxS memory card stores the recording contents as “clip”. This section explains operations for playing back the clips in sequence which they were recorded.

For details on clips, see Chapter 4 “Clip Operations” (page 49).

Settings for playback



To select the time data

Press the TC/UB button to select whether to use timecode or user bits. The time data type indicator *(see page 17)* is switched between the timecode (TCR) and user bits (UBR) each time you press the TC/UB button.

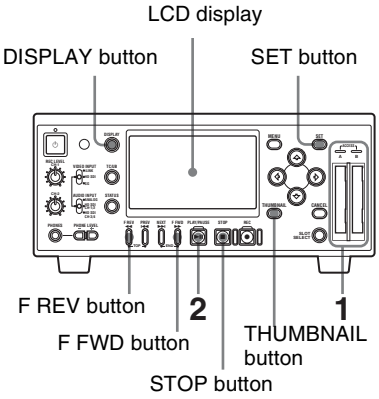
To monitor video and audio being played back

Connect an external video monitor *(see page 65)* to the HDMI, COMPONENT, COMPOSITE, S-VIDEO, HD/SD SDI OUTPUT, or AUDIO OUTPUT CH-1/3 and CH-2/4 connectors to monitor video and audio being played back.
Connect headphones to the PHONSE jack to monitor audio being played back. Adjust the volume of the headphones by pressing the PHONES LEVEL buttons.

Note

It is not possible to play back audio recorded in Interval Recording, Frame Recording, or Slow & Quick Motion Recording mode on other devices.

Playback operation



1 Load the SxS memory card(s) to play back *(see page 35)*.

For details on memory cards, see “Handling SxS Memory Cards” (page 34)

If you wish to display the thumbnail screen *(see page 49)*, press the THUMBNAIL button.

Switching the SxS memory cards
When two memory cards are loaded, press the SLOT SELECT button to switch memory cards.

Note

It is not possible to switch memory cards during playback.

2 Press the PLAY/PAUSE button to start playback.

The PLAY/PAUSE indicator lights.

To check the status during playback
Press the DISPLAY button.

For details on each indication displayed, see "3 LCD display" (page 16).

To enter playback pause mode

Press the PLAY/PAUSE button.
The PLAY/PAUSE indicator blinks in pause mode.
The playback is restarted by pressing the button again.

To switch to high-speed playback

This unit allows you to play clips at 4 times or 15 times normal speed in the forward or reverse direction. Audio is muffled in high-speed playback.

To play at a high speed in the forward direction: Press the F FWD button or ➡ button.
Each time you press the button, the playback speed switches between 4 times and 15 times normal speed.

To play at a high speed in the reverse direction: Press the F REV button or ⬅ button.
Each time you press the button, the playback speed switches between 4 times and 15 times normal speed.

To return to normal playback: Press the PLAY/PAUSE button.

To stop playback

When you press the STOP button, playback stops and this unit enters E-E mode.
When you press the THUMBNAIL button, playback stops and the thumbnail screen appears on the monitor screen.

For details on clips, see Chapter 4 "Clip Operations" (page 53).

To insert a shot mark during playback

Use the IR remote commander.

1 Set "IR Remote" *(see page 89)* of the OTHERS menu to "On" to activate the IR remote commander.

2 Start playback and press the SHOTMARK 1 or 2 button where you wish to insert a mark (during playback or in pause mode).

A shot mark of the type corresponding to the button you press is recorded.

Notes

- No shot mark can be added if the memory card is write-protected.
- No shot mark can be added to the first or last frame of a clip (at which the playback is in pause mode and the clip number is incremented).

To display the Clip Operation menu

Pressing the SET button with a still picture displayed in pause mode calls the Clip Operation menu. You can use the Clip Operation menu to check the detailed clip information or add shot marks.

For details on Clip Operation menus, see "Clip Operations" (page 53).

Clip Operations

Chapter 4

Playing Back Clips

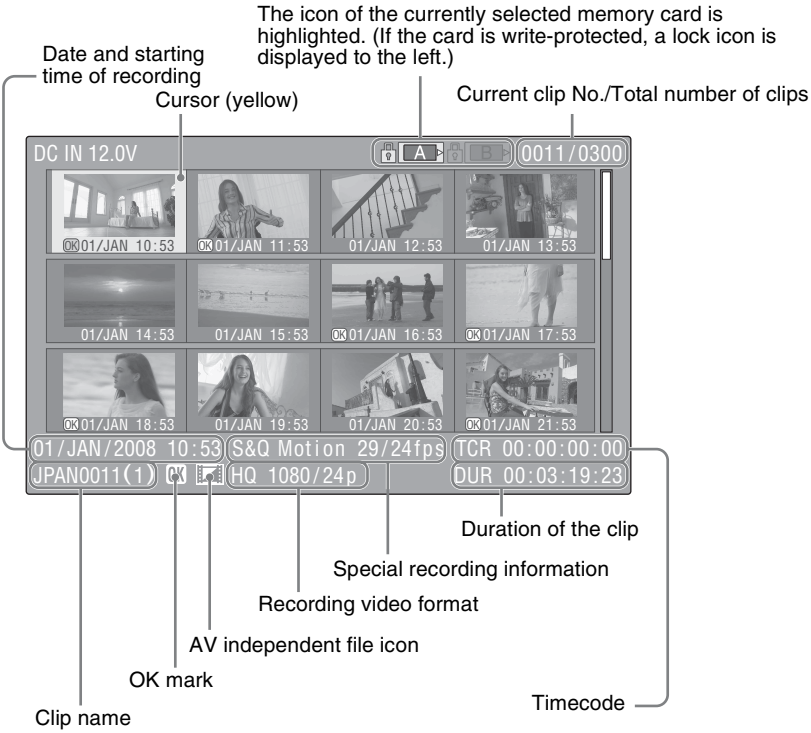
When this unit is started with an SxS memory card loaded, or when the THUMBNAIL button is pressed while this unit is in E-E or playback mode, a thumbnail screen appears on the monitor screen to show index frame images of the clips recorded on the memory card as thumbnails. (If no clips are recorded on the memory card, a no-clip message is displayed.)
You can start playback from the clip selected on the thumbnail screen.

Thumbnail screen

The recording date and starting time are displayed below the index frame image of each clip. (The OK mark symbol is displayed if the clip is marked.)

Clip index frame

The first frame is automatically specified as the index frame of a clip when recorded. You can change it to another one as required *(see page 61)*.



OK mark

Displayed only if the selected clip is marked OK.

AV independent file icon

Displayed if the selected clip is an AV independent file. This indicates that the clip is an AV independent file, such as those added to the memory card using a computer. Not all operations and indications may be available for such clips.

Timecode

The timecode of the index frame is displayed.

Special recording information

If the selected clip was recorded in a special recording mode, the mode is displayed.

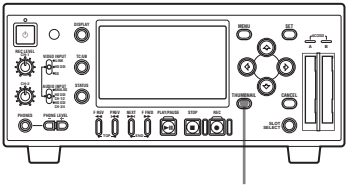
S&Q Motion (slow and quick motion):
For a clip recorded in this mode, recording frame rate/playback frame rate is displayed to the right of the mode name.

Interval Rec (interval recording)

Frame Rec (frame recording)

Displaying only the clips marked OK on the thumbnail screen

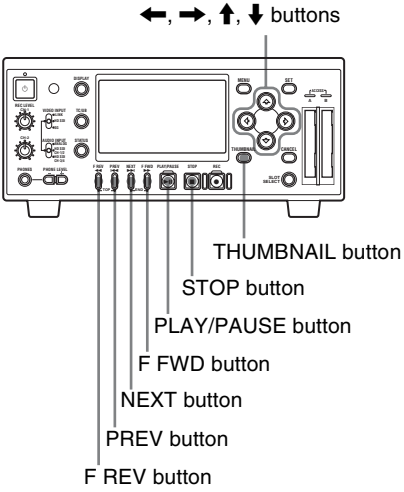
Press the THUMBNAIL button.



The thumbnail screen changes such that it shows only the clips marked OK among the clips on the current memory card. To return to the thumbnail screen with all the clips, press the THUMBNAIL button again.

For operations of the OK mark, see "Adding the OK mark to a clip" (page 55).

Playing back the selected and subsequent clips



Select the clip with which you wish to start playback and press the PLAY/PAUSE button.
Playback starts from the beginning of the selected clip. The clips after the selected clips are played back in sequence.

You can perform playback pause *(see page 48)*, high-speed playback *(see page 48)* and shot-mark recording *(see page 46)*.
When playback of the last clip ends, this unit enters pause (still picture) mode at the last frame of the last clip. When the STOP button is pressed, this unit stops playback and enters E-E mode.

To return to the thumbnail screen from the still or E-E picture

Press the THUMBNAIL button.

Notes

- The playback picture may be momentarily distorted or frozen between clips. The playback control buttons and THUMBNAIL button do not function during this condition.
- When you select a clip on the thumbnail button and start playback, the playback picture at the beginning of the clip may be distorted. To start playback without distortion, once pause playback after starting it, press the PREV button to return to the top of the clip, then restart playback.

To select the clip

Press the ←, →, ↑, ↓ buttons to move the cursor to the thumbnail image of the clip which you want to select.

To jump to the desired clip position

To return to the top of the current clip

Press the PREV button.

- When you press the button in normal or fast-forward playback, the top of the current clip is cued up, then playback begins.

- When you press the button in fast-reverse playback or in pause mode, the top of the current clip is cued up, then the still picture is displayed.
- Repeated press of the button cues up the previous clips one by one.

To jump to the top of the next clip

Press the NEXT button.

- When you press the button in normal or fast-forward playback, the top of the next clip is cued up then playback begins.
- When you press the button in fast-reverse playback or in pause mode, the top of the next clip is cued up, then the still picture is displayed.
- Repeated pressing of the button cues up the subsequent clips one by one.

To start playback from the top of the first clip

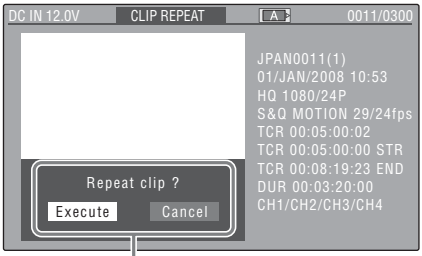
Press the PREV button and F REV button simultaneously. The top of the first-recorded clip on the memory card is cued up.

To start playback from the top of the last clip

Press the F FWD button and NEXT button simultaneously. The top of the last-recorded clip on the memory card is cued up.

Playing back a clip repeatedly

Select "CLIP REPEAT" from the Clip Operation menu on the thumbnail screen. This displays the CLIP REPEAT screen.



A message to confirm the repeat playback

Detailed information of the selected clip is displayed as in the CLIP INFO screen *(see page 54)*. At the bottom of the screen, a message to confirm the repeat playback of the selected clip appears.

To play back the selected clip repeatedly

Press the ← or → button to select "Execute", then press the SET button.

Note

During repeat playback, recording/playback operation buttons other than the STOP button are disabled.

To cancel the repeat playback

Press the STOP button to stop the repeat playback. This unit enters E-E mode. When you press the THUMBNAIL button, the repeat playback stops and the thumbnail screen appears on the monitor screen.

Clip Operations

You can use Clip Operation menus to operate the clips or confirm and change the subsidiary data for clips. Clip Operation menus can be displayed in the thumbnail screen *(see page 49)*, the EXPAND CLIP screen *(see page 58)*, still picture in pause mode, or the SHOT MARK screen *(see page 59)*.

Clip Operation menus

For the thumbnail screen *(page 54)*

- CANCEL
- DISP CLIP INFO
- OK MARK DEL
- COPY CLIP
- DELETE CLIP
- SHOT MARK
- SHOT MARK1
- SHOT MARK2
- EXPAND CLIP
- CLIP REPEAT

For the EXPAND CLIP screen *(page 58)*

- CANCEL
- EXPAND(COARSE)
- EXPAND(FINE)
- PAUSE
- SET INDEX PIC
- SHOT MARK1 ADD
- SHOT MARK2 ADD
- SHOT MARK1 DEL
- SHOT MARK2 DEL
- DIVIDE CLIP

For the still picture in pause mode *(page 54)*

- CANCEL
- DISP CLIP INFO
- OK MARK ADD
- SHOT MARK1 ADD
- SHOT MARK2 ADD
- EXPAND CLIP

For the SHOT MARK screen *(page 60)*

- CANCEL
- PAUSE
- SET INDEX PIC
- SHOT MARK1 DEL
- SHOT MARK2 DEL
- DIVIDE CLIP

Basic operations of the Clip Operation menus

To display a Clip Operation menu

Press the SET button.
The Clip Operation menu for the current display appears.

To select a Clip Operation menu item

Press the ↑ or ↓ button to select a menu item, then press the SET button.
Pressing the CANCEL button restores the previous state.
Selecting “CANCEL” from a Clip Operation menu turns the Clip Operation menu off.

Notes

- When the SxS memory card is write-protected, you cannot copy/delete/divide clips, change the index frames, and add/delete the OK and shot marks.
- There may be items that cannot be selected depending on the status when the menu is displayed.

Clip Operation menu on the thumbnail screen

Pressing the SET button with the thumbnail screen *(page 49)* displayed calls the Clip Operation menu for the clip at the cursor.

Item	Function
DISP CLIP INFO	To display the CLIP INFO screen for the clip *(see page 54)*
OK MARK ADD	To add the OK mark to the clip *(see page 55)*
OK MARK DELETE	To delete the OK mark from the clip *(see page 56)*
COPY CLIP	To copy the clip to another SxS memory card *(see page 56)*
DELETE CLIP	To delete the clip *(see page 56)*
SHOT MARK	To display thumbnails only of the frames with shot mark 1 and/or shot mark 2 recorded *(see page 59)*
SHOT MARK1	To display thumbnails only of the frames with shot mark 1 recorded *(see page 59)*
SHOT MARK2	To display thumbnails only of the frames with shot mark 2 recorded *(see page 59)*
EXPAND CLIP	To display the EXPAND CLIP screen *(see page 57)* for the clip
CLIP REPEAT	To perform repeat playback of a clip *(see page 52)*

Clip Operation menu in pause mode

Pressing the SET button with a still picture displayed in pause mode calls the Clip Operation menu for the clip in pause mode.

Item	Function
DISP CLIP INFO	To display the CLIP INFO screen for the clip *(see page 54)*
OK MARK ADD	To add the OK mark to the clip *(see page 55)*
SHOT MARK1 ADD	To add shot mark 1 *(see page 60)*
SHOT MARK2 ADD	To add shot mark 2 *(see page 60)*
EXPAND CLIP	To display the EXPAND CLIP screen *(see page 57)* for the clip

Displaying the detailed information of a clip

When you select “DISP CLIP INFO” from a Clip Operation menu, the CLIP INFO screen appears.

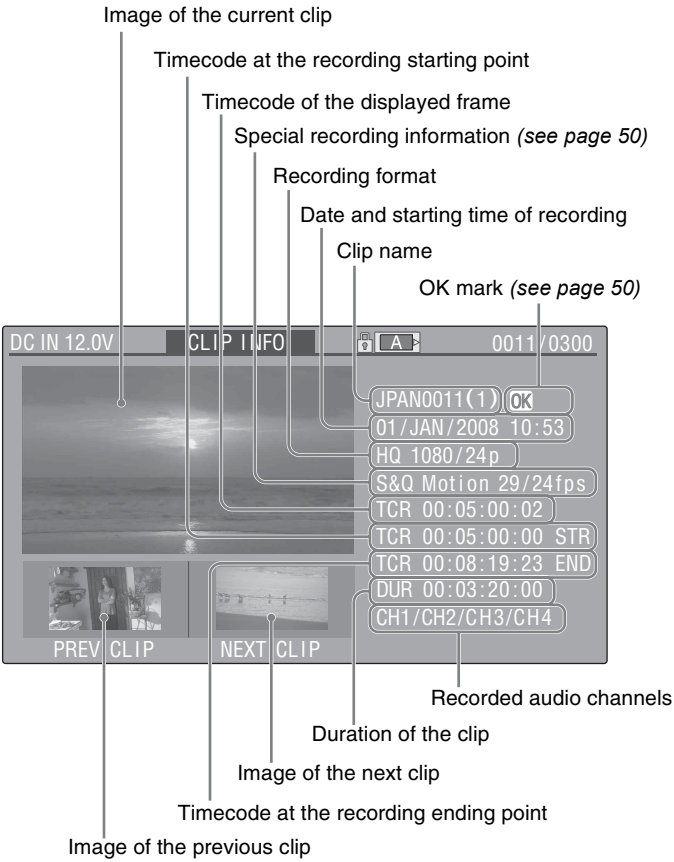


Image of the previous clip

Press the PREV or ⬅ button to switch to the CLIP INFO screen of the previous clip.

Image of the next clip

Press the NEXT or ➡ button to switch to the CLIP INFO screen of the next clip.

Adding the OK mark to a clip

By adding the OK mark to clips, you can obtain a thumbnail screen of only the marked clips when you press the THUMBNAIL button.
Clips with the OK mark cannot be deleted or divided. To delete or divide the clip, remove the OK mark.

To add the OK mark

1 Select “OK MARK ADD” from the Clip Operation menu.

The CLIP INFO screen for the clip appears and a confirmation message appears below the index frame.

2 Select “Execute”, and press the SET button.

The OK mark is applied to the selected clip.

To delete the OK mark

For a clip already marked with OK, the Clip Operation menu of the thumbnail screen displays “OK MARK DEL”.

1 Select “OK MARK DEL” from the Clip Operation menu.

The information screen for the selected clip appears, and a confirmation message is displayed below the index frame image.

2 To delete the OK mark, press the SET button.

The OK mark is deleted from the selected clip.

Copying a clip

You can copy a clip selected on the thumbnail screen to another SxS memory card.

1 On the thumbnail screen of the current memory card, select the clip you wish to copy then press SET button.

The Clip Operation menu of the thumbnail screen pops up.

2 Select “COPY CLIP” from the Clip Operation menu.

The information screen of the selected clip appears, and a confirmation message is displayed below the index frame image.

3 To copy, select “Execute” then press the SET button.

Copying begins.
The clip is copied with the same name to the destination SxS memory card.
An execution message and an in-progress bar are displayed during copying.
When copying ends, the thumbnail screen is restored.

Notes

- If there is another clip having the same name on the destination SxS memory card, the clip is copied under a name adding a single-digit number in parentheses to the end of the original clip name.
  The parenthetical number is the minimum value that does not exist in the destination memory card.

  Examples:
  ABCD0002(1) if ABCD0002 exists
  ABCD0002(2) if ABCD0002(1) exists
  ABCD0005(4) if ABCD0005(3) exists
- If parenthetical numbers (1) to (9) already exist as the result of repeated copying, copying to that card cannot be done any more.
- A warning message is displayed if there is not sufficient space on the destination SxS memory card. Replace the SxS memory card with one with sufficient space.

To cancel copying

Press the CANCEL button.
Copying is canceled and the thumbnail screen is restored.

Deleting a clip

You can delete a clip selected on the thumbnail screen from the SxS memory card.

1 Select the clip you wish to delete on the thumbnail screen then press the SET button.

The Clip Operation menu of the thumbnail screen pops up.

2 Select “DELETE CLIP” from the Clip Operation menu.

The information screen for the selected clip appears, and a confirmation message is displayed below the index frame image.

3 To delete, select “Execute” then press the SET button.

The clip is deleted.

The subsequent clips are shifted by one on the thumbnail screen.

Displaying the EXPAND CLIP screen

The EXPAND CLIP screen permits you to divide a clip into 12 blocks of equal duration and show a thumbnail image of the first frame of each block on the screen. This helps you to quickly cue up to a desired scene in a clip of long duration. You can display the EXPAND CLIP screen by selecting the clip on the thumbnail screen or on the still picture of the clip in pause mode.

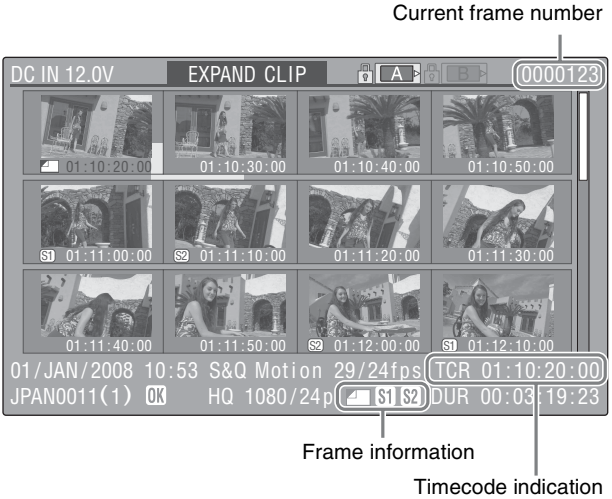
1 Pause the playback or select a clip on the thumbnail screen then press the SET button.

The corresponding Clip Operation menu pops up.

2 Select “EXPAND CLIP” from the Clip Operation menu.

The EXPAND CLIP screen appears for the clip in pause mode or that you selected on the thumbnail screen.
On the EXPAND CLIP screen displayed by using the Clip Operation menu in pause mode, the clip is displayed in more divisions.

EXPAND CLIP screen



Detailed information for the clip is displayed at the bottom of the screen. The items other than the following are the same as those on the normal thumbnail screen.

Frame information

The following icons show the marking for the frame at the cursor.

	Index frame
S1	Frame with shot mark 1 added
S2	Frame with shot mark 2 added

The same icons may also be displayed below the thumbnail image of each frame. If the frame has multiple markings, one of the icons is displayed, in the priority order of index frame, shot mark 1, and shot mark 2.

Timecode indication

The timecode of the frame at the cursor is displayed.

Clip Operation menu on the EXPAND CLIP screen

When you select a frame on the EXPAND CLIP screen and press the SET button, the Clip Operation menu pops up to allow for further operations such as increasing the number of divisions and saving the selected frame and following frames as a new clip.

Item	Function
EXPAND (COARSE)	To decrease the number of divisions of the clip
EXPAND (FINE)	To increase the number of divisions of the clip
PAUSE	To set to pause mode at the selected frame
SET INDEX PIC	To specify the selected frame for the index frame of the clip *(see page 61)*
SHOT MARK1 ADD	To add shot mark 1 to the selected frame *(see page 60)*

Item	Function
SHOT MARK2 ADD	To add shot mark 2 to the selected frame *(see page 60)*
SHOT MARK1 DEL	To delete shot mark 1 from the selected frame *(see page 60)*
SHOT MARK2 DEL	To delete shot mark 2 from the selected frame *(see page 60)*
DIVIDE CLIP	To divide the clip into two clips at the selected frame *(see page 61)*

Displaying the SHOT MARK screen

When one or more shot marks are recorded for a single clip, the SHOT MARK screen permits you to display only the marked frames as the thumbnail images on the screen.

1 Select a clip on the thumbnail screen.

2 Press the SET button.

The Clip Operation menu pops up.

3 Select “SHOT MARK”, “SHOT MARK1”, or “SHOT MARK2”.

SHOT MARK: To display thumbnails only of the frames marked with shot mark 1 and/or shot mark 2 recorded

SHOT MARK1: To display thumbnails only of the frames marked with shot mark 1

SHOT MARK2: To display thumbnails only of the frames marked with shot mark 2

SHOT MARK screen example (when “SHOT MARK” is selected)

Frame information *(see page 58)*

Timecode indication *(see page 58)*

The detailed information of the clip is displayed at the bottom of the screen.

The items other than the following are the same as those on the EXPAND CLIP screen.

Clip Operation menu on the SHOT MARK screen

When you select a frame on the SHOT MARK screen and press the SET button, the Clip Operation menu pops up to permit you further operations.

Item	Function
PAUSE	To set to pause mode at the selected frame
SET INDEX PIC	To specify the selected frame for the index frame of the clip *(see page 61)*
SHOT MARK1 DEL	To delete the shot mark 1 from the selected frame *(see page 60)*
SHOT MARK2 DEL	To delete the shot mark 2 from the selected frame *(see page 60)*
DIVIDE CLIP	To divide the clip into two clips at the selected frame *(see page 61)*

Adding/deleting shot marks

You can add shot marks to the clips after recording or delete the recorded shot marks.

To add a shot mark in pause mode

1 Pause the playback at the frame to which you wish to add a shot mark then press the SET button.

The Clip Operation menu pops up.

2 Select "SHOT MARK1 ADD" or "SHOT MARK2 ADD" from the Clip Operation menu.

A confirmation message is displayed below the image.

3 Press the SET button.

To cancel the operation
Select "Cancel" and press the SET button, or press the CANCEL button.

To add a shot mark on the EXPAND CLIP screen

1 Select the frame to which you wish to add a shot mark on the EXPAND CLIP screen then press the SET button.

The Clip Operation menu pops up.

2 Select "SHOT MARK1 ADD" or "SHOT MARK2 ADD" from the Clip Operation menu.

The information screen for the selected frame appears, and a confirmation message is displayed below the image.

3 Press the SET button.

To cancel the operation
Select "Cancel" and press the SET button, or press the CANCEL button.

To delete a shot mark

You can delete shot marks on the EXPAND CLIP screen *(see page 58)* or on the SHOT MARK screen *(see page 59)*.

1 Select a frame from which you wish to delete the shot mark on the EXPAND CLIP screen or the SHOT MARK screen then press the SET button.

The Clip Operation menu pops up.

2 Select the "SHOT MARK1 DEL" or "SHOT MARK2 DEL" from the Clip Operation menu.

The information screen for the selected frame appears and a confirmation message is displayed below the image.

3 Press the SET button.

To cancel the operation
Select “Cancel” and press the SET button, or press the CANCEL button.

Changing the index frame

You can change the index frame of a clip to another frame you selected on the EXPAND CLIP screen *(see page 58)* or the SHOT MARK screen *(see page 59)*.

1 Select a frame to be the index frame on the EXPAND CLIP screen or the SHOT MARK screen then press the SET button.

2 Select “SET INDEX PIC” from the Clip Operation menu.

The information screen of the selected frame appears and the confirmation message is displayed below the image.

3 Press the SET button.

To cancel the operation
Select “Cancel” and press the SET button, or press the CANCEL button.

Dividing a clip

You can divide a clip into two different clips at the frame you select on the EXPAND CLIP screen *(see page 58)* or the SHOT MARK screen *(see page 59)*.

1 Select the frame at which the clip is to be divided on the EXPAND CLIP screen or the SHOT MARK screen then press the SET button.

The Clip Operation menu pops up.

2 Select “DIVIDE CLIP” from the Clip Operation menu.

The information screen for the selected frame appears, and a confirmation message is displayed below the image.

3 Press the SET button.

To cancel the operation
Select “Cancel” and press the SET button, or press the CANCEL button.

The selected and subsequent frames are divided, creating two clips having different names.

The first 4 characters of the original clip name are carried on, continuing to the last number on the memory card by the second 4 numerics.

Example: If you divide a clip named ABCD0002 into two clips under the condition where a new clip will be named EFGH0100, clip ABCD0100 and clip ABCD0101 are created.

Note

If the remaining space on the memory card is insufficient for divided clips, a message informing you of it appears.

Setting and Recording Time Data

Chapter 5

Recording Timecode and User Bit Data

For timecode recording, there are three methods, as follows.

Preset mode: Set an initial value, and generate a timecode internally to this unit, which is recorded. You can select either of the following advance modes.

Free Run: Timecode advances continually.

Rec Run: Timecode advances only during recording.

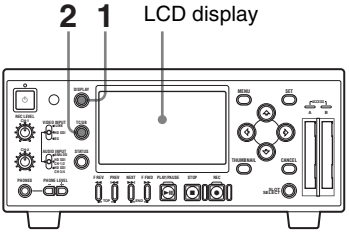
Regen (regeneration) mode: Generate a timecode internally to this unit, to run consecutively from the timecode already recorded on the tape, and record this.

Ext Regen (external regeneration) mode: Generate a timecode internally to this unit, synchronized to an external input timecode, and record this. For the external timecode input, use the HDSDI signal embedded timecode input to the HD SDI INPUT connector.

Note

When recording the HDV signal input to the i HDV/DV connector, the timecode and user bit data cannot be preset because they are automatically copied.

To display the time data



1 Press the DISPLAY button to display time data on the monitor screen.

2 Press the TC/UB button to light the time data type indicator TCG or UBG in the time data indication.

TCG: To display the timecode value
UBG: To display the user bit data

Setting the timecode initial value and user bit data (Preset mode)

You can set the initial timecode value before recording the internal timecode generated by the internal TC (timecode) generator onto a tape. You can also preset the user bits to record useful information.

1 Set “Mode” and “Run” in the “Timecode” setting of the TC/UB SET menu as follows.

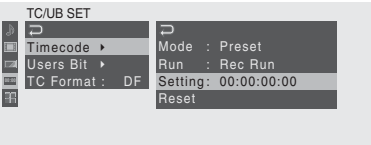
Menu item	Setting
Mode	Preset
Run	Free Run [1] or Rec Run [2]

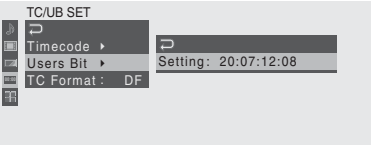
1) The internal timecode generator begins to advance at the instant of completion of the setting.
2) Starting and stopping of the internal timecode generator advance is linked to starting and stopping of video and audio recording.

2 Set “TC Format” of the TC/UB SET menu to “DF” (drop frame) or “NDF” (non-drop frame) when the system frequency is 60i or 60P.

3 Select “Setting” in the “Timecode” or “User Bit” setting of the TC/UB SET menu.

The current setting is shown on the monitor screen.





4 See steps **1** and **2** in “To enter a character string” *(page 82)* and enter the value.

Enter hexadecimal values (0 to 9, A to F) when setting user bit data.

To set a value of 00:00:00:00
Select “Reset” in the “Timecode” setting of the TC/UB SET menu and select “Execute”, then go to step **5**.

5 Press the SET button.

The new settings are saved in the memory of the unit.

Note

The new setting may be lost if you power off the unit during the saving operation. Wait until the saving operation is completed before powering the unit off.

Recording timecode to continue from previously recorded timecode (Regen mode)

When the recording format of this unit is set to be the same as on the SxS memory card, you can record timecode consecutively from the timecode already recorded.
To do this, set “Mode” in the “Timecode” setting of the TC/UB SET menu to “Regen”. When recording starts, the timecode on the memory card is read, and this unit internally generates and records continuing timecode.

Synchronizing the internal timecode generator to an external timecode —External synchronization (Ext regen mode)

You can synchronize the internal TC generator to an external timecode (embedded in the HDSDI signal input to the HD SDI INPUT connector). Use this method when synchronizing the timecode generators of multiple recorders, when recording the playback timecode of an external VCR, or when you want to record without interfering with the timecode relation of a source image.

1 Input an HDSDI signal to the HD SDI INPUT connector.

2 Set the VIDEO INPUT switch to HD SDI or SG.

3 Set “Mode” in the “Timecode” setting of the TC/UB SET menu to “Ext REGEN”.

Note

If timecode data is not embedded in the input signal to the HD SDI INPUT connector, the initial timecode value is that of the internal timecode.

Example Connections for Various Applications

Chapter 6

Connecting External Video Monitors

To connect a video monitor to this unit, you can use any of the video output connectors: COMPOSITE, S-VIDEO, COMPONENT, HDMI, and HD/SD SDI OUTPUT.
Signals output from each connector can contain superimposed text information, including timecode, menu settings, and alarm messages. You can supply an external video monitor with any of these signals to view the same text information on the external video monitor as that displayed on the LCD display of this unit.

For details, see "Superimposed Text Information" (page 42).

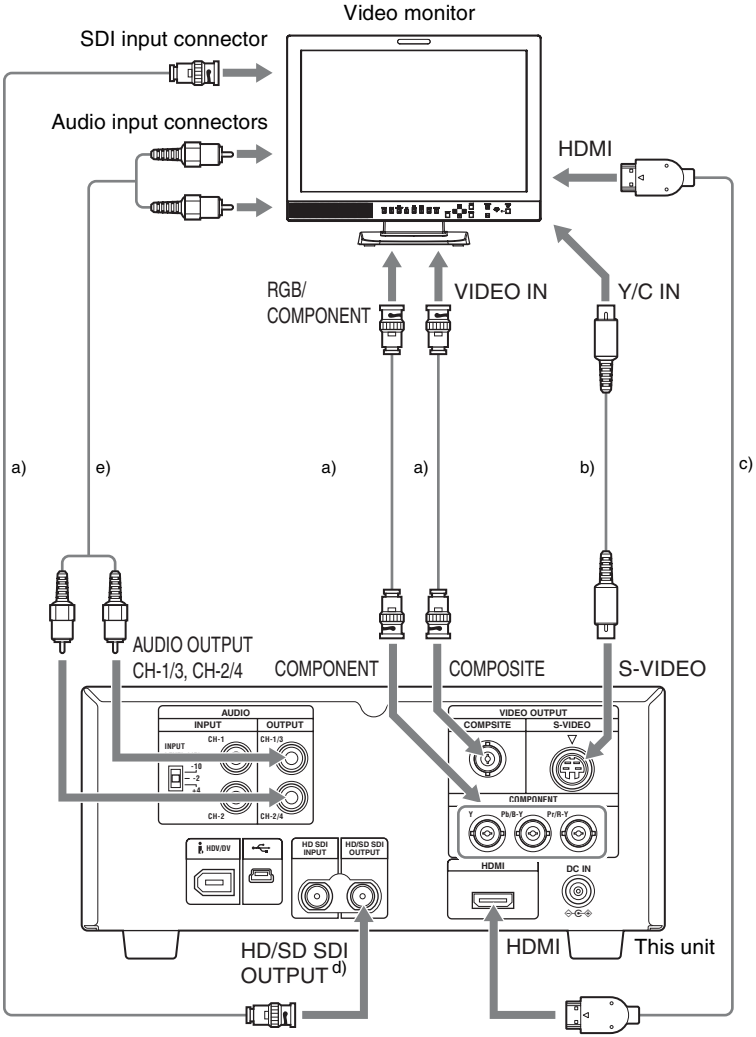
Note

This unit is equipped with no HDMI input connector. The HDMI connector can be used only for output to an external video monitor.

To select the output mode (aspect ratio) for SD signal

When using an SD signal down-converted for output from the COMPONENT, HDMI and HD/SD SDI OUTPUT connectors, you can select the output mode in "Down Converter" *(see page 85)* of the VIDEO SET menu.

Squeeze: To horizontally reduce a 16:9 picture to output a 4:3 picture
Letterbox: To mask the upper and lower areas of a 4:3 picture to display a 16:9 picture in the center of the screen
Edge Crop: To cut the both sides of a 16:9 picture to output a 4:3 picture

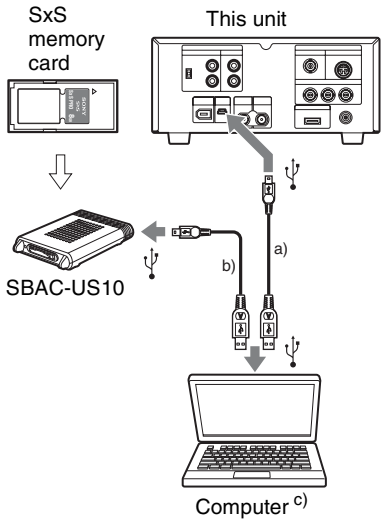


a) Cable with BNC connectors
b) S-video cable
c) HDMI cable
d) Select the output video format in "HDMI/CMPNT/SDI Out SEL" *(see page 84)* of the VIDEO SET menu.
e) Phono plug cable

Operating Clips with a Computer

The clips recorded on SxS memory cards with this unit can be controlled on a computer or edited using the optional nonlinear editing software.
This section shows an example for connecting this unit and the SBAC-US10 SxS Memory Card USB Reader/Writer (optional) to a computer using the supplied USB cable. When memory cards are inserted in this unit, they are recognized as two independent extended drives by the computer.

On how to use the SBAC-US10, refer to the operating instructions supplied with the SBAC-US10.



a) USB cable (supplied with this unit)
b) USB cable (supplied with the SBAC-US10)
c) With clip managing and editing software installed

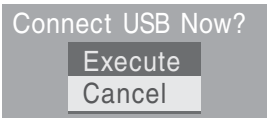
Notes

- When connecting the USB cable to the computer, be careful to check the form and direction of the USB connector.
- This unit and the SBAC-US10 do not work on the bus power from the computer. Supply the operating power independently.

To check the connection between this unit and the computer

1 Turn this unit on.

A message prompting you to confirm that you wish to enable the USB connection is displayed on the LCD display.

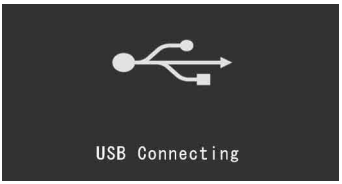


Note

This message will not be displayed while another confirmation message or in-progress message (e.g., for formatting or restoration of an SxS memory card) is shown on the screen. It appears when formatting or restoration is completed.
The message is also not displayed while the CLIP INFO screen is shown on the screen. It appears when an operation on the CLIP INFO screen is completed or you return to the thumbnail screen.

2 Select “Execute” and press the SET button.

The following screen appears.



3 With Windows, check that the memory card is displayed as a removable disk in My Computer.

With Macintosh, check that a "NO NAME" or "Untitled" folder was created on the desktop. (The folder name can be changed as needed.)

If the result of checking is Yes, then it indicates that the connections are correct.

Note

The following operations must be eliminated when the ACCESS lamp is lit in red.

- Turning the power off or disconnecting the power cord
- Removing the SxS memory card
- Disconnecting the USB cable

To remove an SxS memory card (recognized as extended drive)

For Windows

1 Click on the icon of "Safely Remove Hardware" on the task bar of the computer.

2 Select "Safely remove SxS Memory Card - Drive (X:)" from the displayed menu.

3 Check that the Safe To Remove Hardware message appears then remove the card.

For Macintosh

Drag the SxS memory card icon on the desktop to Trash.
If the SxS memory card icon is located on Finder, click on the eject icon on its side.

Note

Do not select "Card Power Off" from the SxS memory card icon displayed on the menu bar.

To use the XDCAM EX Clip Browsing Software

To copy clips to the local disk of a computer, the XDCAM EX Clip Browsing Software must be used.
Install the XDCAM EX Clip Browsing Software on the supplied CD-ROM to your computer.
Although the data regarding recorded materials are stored over multiple files and folders, you can easily handle the clips without considering such data and directory structure by using the XDCAM EX Clip Browsing Software.

Note

If you operate, e.g. copy the clips on the SxS memory card by using the Explorer (Windows) or Finder (Macintosh), the subsidiary data contained by the clips may not be maintained. To avoid such a problem, use the XDCAM EX Clip Browsing Software.

See "Using the CD-ROM" (page 11) for the operating requirements, and refer to the User's Guide contained in the CD-ROM.

For support information on the XDCAM EX Clip Browsing Software, visit the web sites shown in "XDCAM EX Clip Browsing Software" (page 12) or on the cover page of the supplied CD-ROM.

To use a nonlinear editing system

For a nonlinear editing system, optional editing software that corresponds to the recording formats used with this camcorder is required.

For the nonlinear editing performed via the i HDV/DV connector, see "Nonlinear editing" (page 74).

Store the clips to be edited on the HDD of your computer in advance, using the supplied XDCAM EX Clip Browsing Software.
Some editing software may not operate properly. Be sure to confirm before use that it conforms to the recording formats used with this camcorder.

To use Final Cut Pro of Apple Inc.

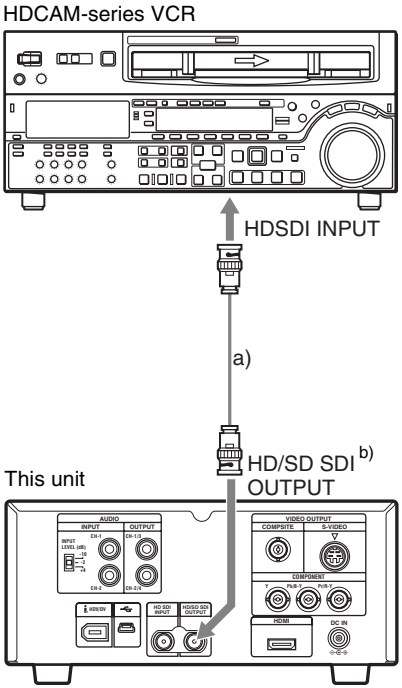
It is necessary to convert the clips to files that can be edited with the Final Cut Pro, using XDCAM Transfer.

For information on XDCAM Transfer, visit the web sites shown in "XDCAM EX web sites" (page 10) or on the cover page of the supplied CD-ROM.

Connecting an External Device with the HD SDI Connector

Dubbing clips

This section shows an example for connecting this unit and an HDCAM-series or XDCAM HD-series device such as the HDW-2000 to perform dubbing clips from an SxS memory card to a tape.



a) Cable with BNC connectors
b) Select "1080i/720P" in "HDMI/CMPNT/SDI Out SEL" *(see page 84)* of the VIDEO SET menu. Set "i.LINK I/O Select" *(see page 86)* to an option other than "DVCAM".

To perform dubbing

1. Set the format of video and audio input signals to HDSDI on the recorder.

   For details on the setting, refer to the operation manual supplied with the recorder.

2. Put the recorder into recording standby mode.
3. Insert the SxS memory card into this unit and cue up the clip you want to dub.
4. Start recording on the recorder.
5. Start playback of the clip on this unit.
6. When dubbing finishes, stop recording on the recorder and stop playback on this unit.

Configuring a live recording system

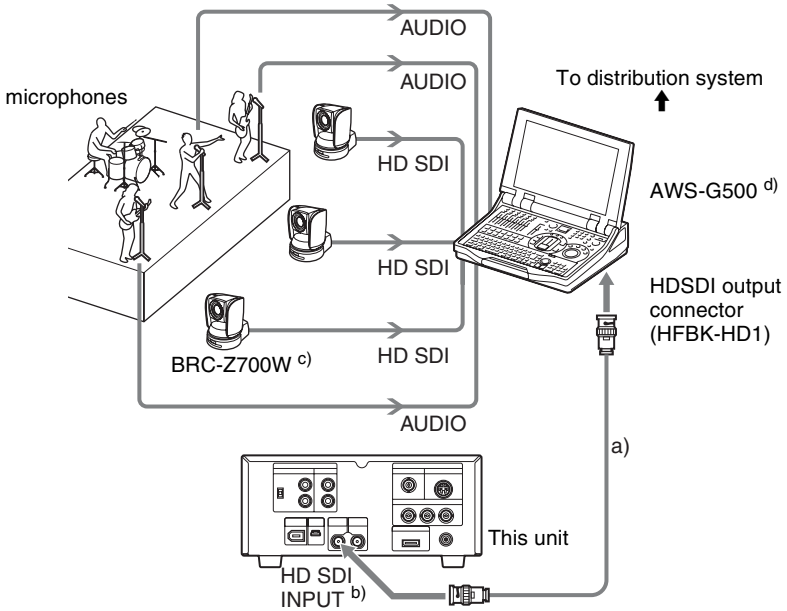
This section shows an example for connecting this unit and the BRC-Z700W HD 3CMOS Color Video Camera, microphones, AWS-G500 Live Contents Producer to configure a live recording system.

On how to connect and use the BRC-Z700W, microphones and AWS-G500, refer to the operating instructions supplied with each device.

To record live materials on this unit

Perform manual recording using the REC button.

For operation method, see "Recording" (page 43).



a) Cable with BNC connectors
b) Select the video format matching with the input signal format with "Video Format" *(see page 90)* of the OTHERS menu.
c) The HFBK-HD1 HD Interface Board (optional) is required.
d) The BKAW-590 HD Serial Digital Interface Module (optional) is required.

Connecting an External Device with the i.LINK Connector

When an HDV-compatible video format is selected, you can connect an external device to the i HDV/DV connector to perform dubbing of clips recorded on a SxS memory card using the external device or to record playback signals from the external device on the SxS memory card in this unit. You can also feed an HDV-format or a DVCAM-format signal to a nonlinear editing system connected via the i HDV/DV connector.

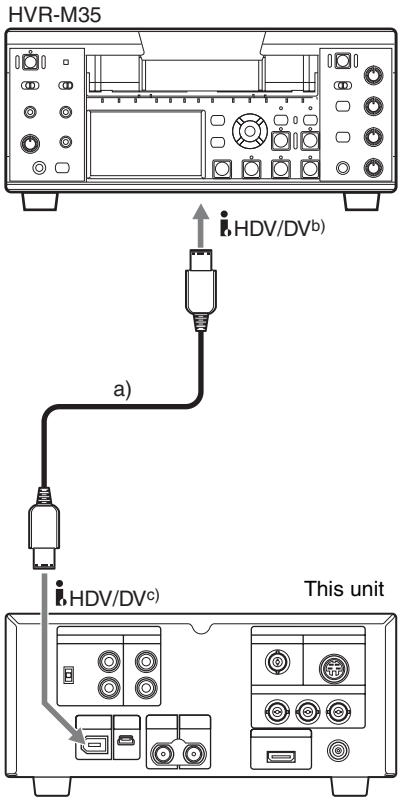
Notes

- Use the i.LINK(HDV) connector only for one-to-one i.LINK connection.
- Playback signals of clips recorded in a format other than SP 1080/60i (when "Country" is set to "NTSC Area") or SP 1080/50i (when "Country" is set to "PAL Area") and SP 1080/24P cannot be output as converted to HDV or DVCAM signals.
- Use "i.LINK I/O Select" *(see page 86)* of the VIDEO SET menu to switch the output format (between HDV and DVCAM). Be sure to turn off the power of the connected devices before switching the output format.
- It is not possible to control the i.LINK-connected device from this unit using AV/C commands.

Dubbing clips

This section shows an example for connecting this unit and the HVR-M35 HD Videocassette Recorder to perform dubbing clips from an SxS memory card to a tape.

On how to use the HVR-M35, refer to the Operating Instructions supplied with the HVR-M35.



a) i.LINK cable
b) Select the input format according to the video format set on this unit.
c) Set "i.LINK I/O Select" *(see page 86)* of the VIDEO SET menu to "DVCAM" or "HDV".

To perform dubbing

1 Set the video format to SP 1080/60i (when "Country" is set to "NTSC

Area”) or SP 1080/50i (when “Country” is set to “PAL Area”) on this unit.

2 Set “i.LINK I/O Select” *(see page 86)* of the VIDEO SET menu to “DVCAM” or “HDV”.

Note

Be sure to turn off the power of the connected devices before changing the “i.LINK I/O Select” setting.

3 Put the HVR-M35 into recording standby mode.

4 Insert the SxS memory card into this unit and cue up the clip you want to dub.

5 Start recording on the HVR-M35.

6 When dubbing finishes, stop recording on the HVR-M35 and stop playback on this unit.

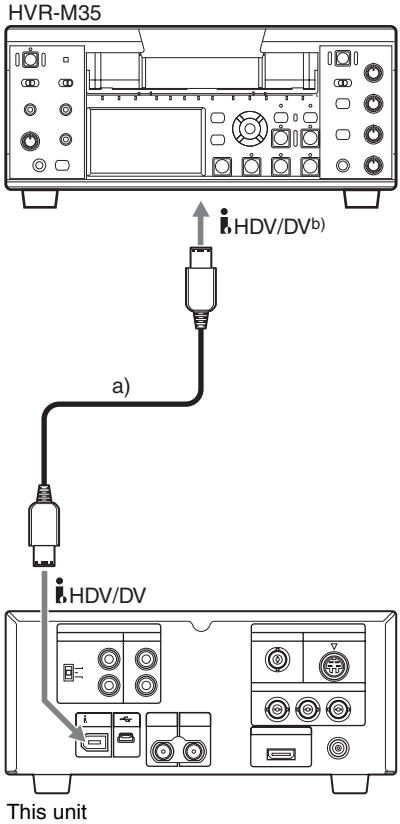
Recording an input signal from an external device

This section shows an example for connecting this unit and the HVR-M35 HDV Videocassette Recorder to record the playback picture from the HVR-M35 on an SxS memory card. When the video format is set to SP 1080/60i (when “Country” is set to “NTSC Area”) or SP 1080/50i (when “Country” is set to “PAL Area”) on this unit, HDV-format signals can be recorded. The timecodes superimposed on the i.LINK input are recorded regardless of the settings of the unit.

On how to use the HVR-M35, refer to the Operating Instructions supplied with the HVR-M35.

Notes

- DVCAM signals cannot be recorded on this unit.
- Be sure to turn off the power of the connected devices before switching the output format (between HDV and DVCAM).



a) i.LINK cable
b) Set “i.LINK I/O Select” *(see page 86)* of the VIDEO SET menu to “HDV”.

To record a signal input from an external device

1 Set the video format to SP 1080/60i (when “Country” is set to “NTSC Area”) or SP 1080/50i (when

"Country" is set to "PAL Area") on this unit.

2 Set "i.LINK I/O Select" *(see page 86)* of the VIDEO SET menu to "HDV".

Note

Be sure to turn off the power of the connected devices before changing the "i.LINK I/O Select" setting.

3 Set the VIDEO INPUT switch to i.LINK.

4 Start playback on the HVR-M35.

5 Start recording on this unit at the desired position.

6 When dubbing finishes, stop recording on this unit and stop playback on the HVR-M35.

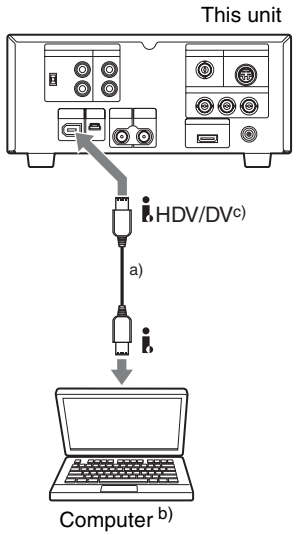
Notes

- An error message is displayed when any of the following cases occurs. If it does happen, stop the recording.
  - The video format of input signal does not match that specified on this unit.
  - A copy-protected stream is being fed in.
- If the input to this unit stops during recording, "● REC" flashes on the monitor screen, indicating that no i.LINK signal is being recorded on the SxS memory card.
  When an input signal is resumed, recording is restarted, incrementing the clip number on the memory card.

Nonlinear editing

This section shows an example for connecting a computer with nonlinear editing software installed via the i HDV/DV connector, to edit clips recorded on an SxS memory card.

For operations of the nonlinear editing software, refer to the operation manual of the software.



a) i.LINK cable
b) With nonlinear editing software installed.
c) Set "i.LINK I/O Select" *(see page 86)* of the VIDEO SET menu to "HDV" or "DVCAM".

Notes

- DVCAM signals cannot be recorded on this unit.
- Be sure to turn off the power of the connected devices before switching the output format (between HDV and DVCAM).
- The i HDV/DV connector of this unit is a 6-pin connector. Check the number of pins of the i.LINK connector on your computer and use an appropriate i.LINK cable.
- When making a search through pictures recorded on the memory card loaded into this unit from the computer, it may take some time until the search display is reflected on the computer.

- If the current playback clip is short or the playback starting point is near the end of the clip, the i.LINK signal may be interrupted between the clip and the next clip. When you try to capture such a signal using the nonlinear editing system, a malfunction may occur, depending on the nonlinear editing software in use.
- If you specify a search speed other than 4 or 15 times normal with the nonlinear editing system, no i.LINK signal is output. In such a case, the picture on the LCD monitor may stay frozen.
- High-speed playback picture may not be displayed on the computer screen, depending on the nonlinear editing software in use.

Status Display

Chapter 7

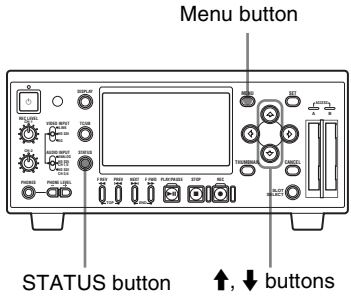
Showing the Status Display

This unit provides a status display switchable through three types of screens, allowing you to check the various settings and statuses of the unit.
You can view the status display on the monitor screen.

For connections of an external video monitor, see "Connecting External Video Monitors" (page 65).

Available status screens

- Audio status screen *(see page 77)*
- Video status screen *(see page 77)*
- Remote/media status screen *(see page 78)*



To show one of the status display

Press the STATUS button.

To switch the status screens

Pressing the ↑ or ↓ button switches the screens in sequence.

To clear the status display

Press the STATUS button again.
The status display is cleared if you press the MENU button to show the menu and start or stop (with the STOP button) playback.

Notes

- When playback starts after the status display is shown in playback pause mode, the status display is not cleared automatically.
- When you show the status display during recording, it is not cleared automatically after you stops recording by pressing the STOP button.

Audio Status Screen

The audio status screen displays information on audio signals.

CH-1/CH-2/CH-3/CH-4: Audio level meters

The playback audio levels of channels 1 and 2 or channels 3 and 4 are displayed according to the "Output CH" setting of the AUDIO SET menu.
If audio input is fed while this unit is in recording or E-E mode with the VIDEO INPUT switch set to HD SDI or SG, the input audio levels are displayed. In this case, the channel indications at the left of the meters are CH-1 and CH-2 regardless of the "Output CH" setting of the AUDIO SET menu.
If the VIDEO INPUT switch is set to i.LINK, the "Output CH" setting of the AUDIO SET menu is displayed. Set "Output CH" to "CH-1,CH-2" when i.LINK input is selected.
In other conditions, the meters do not function.

Output CH: Output channel setting

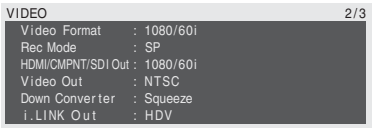
The "Output CH" setting of the AUDIO SET menu is displayed.

Headphones: Headphone output

The output audio channel(s) for the headphones is/are displayed. The "Monitor CH" setting of the AUDIO SET menu is valid as-is.

Video Status Screen

The video status screen displays information on recording and playback of video signals.



Video Format: Video format setting

Displays the number of effective lines, frame rate, and scan format set in "Video Format" of the OTHERS menu.

Rec Mode: Recording bit rate

Displays the bit rate (HQ or SP) set in "Video Format" of the OTHERS menu.

HDMI/CMPNT/SDI Out: HDMI, component and SDI output status

Display the number of effective lines, frame rate, and scan format of the signal being fed from the HDMI, COMPONENT and HD/SD SDI OUTPUT connectors according to the "HDMI/CMPNT/SDI Out SEL" setting of the VIDEO SET menu.

Video Out: Analog video format

Displays the format (NTSC or PAL) of the analog composite signal being fed from the COMPOSITE and S-VIDEO connectors.

Down Converter: Down-converter setting of the SD output

Displays the "Down Converter" setting (Squeeze, Letterbox, Edge Crop) of the VIDEO SET menu.

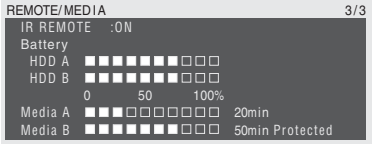
i.LINK Out: i HDV/DV output status

Displays the output status of the i HDV/DV connector (HDV, DVCAM, or off)

depending on the “i.LINK I/O Select” setting of the VIDEO SET menu.

Remote/Media Status Screen

The remote/media status screen displays the status of the IR remote commander, remaining space of the media and available recording time.



IR REMOTE: IR remote commander status

Displays the status (ON: enabled, OFF: disabled) of the IR remote commander.

HDD A/HDD B: Battery remaining of PHU-60K units

Display the remaining power levels of the batteries of the PHU-60K units connected via the respective card slots when PHU-60K Professional Hard Disk Units are connected.

Media A/Media B: Remaining space of the media and available recording time

The remaining space of the SxS memory cards in the respective card slots are indicated on the meters.
At the right of the remaining space meter, the available time for recording if done at the current bit rate is displayed, in minutes. The time indication will be “- - min” if no SxS memory card or an invalid card is in the slot.
If the card is write-protected, “Protected” is shown to the right of the available recording time indication.

Menu Configuration and Detailed Settings

Chapter 8

Overview of the Setup Menus

This unit allows you to make various settings for recording and playback with setup menus on the monitor screen.

For connections of an external video monitor, see "Connecting External Video Monitors" (page 65).

Setup menu configuration

The following menu icons are displayed when you press the MENU button, allowing you to select the corresponding menus.

AUDIO SET menu
For setting the audio-related items *(see page 83)*.

VIDEO SET menu
For setting the items related to video outputs *(see page 84)*.

LCD SET menu
For setting the items related to the displays on the LCD display *(see page 86)*.

TC/UB SET menu
For setting the items related to timecodes and user bits *(see page 87)*.

OTHERS menu
For setting the other items *(see page 88)*.

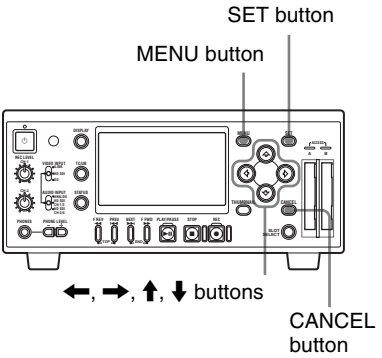
Setup menu layers

MENU

- AUDIO SET
  - Audio Input
  - Audio Output
- VIDEO SET
  - HDMI/CMPNT/SDI Out SEL
  - HDMI/CMPNT/SDI Out DISP
  - CMPST/ S Out Display
  - Setup
  - Down Converter
  - i.LINK I/O Select
- LCD SET
  - LCD
- TC/UB SET
  - Timecode
  - Users Bit
  - TC Format
- OTHERS
  - All Reset
  - Setup Data
  - Time Zone
  - Clock Set
  - Language
  - Hours Meter
  - IR Remote
  - Country
  - Video Format
  - Clip
  - Format Media

Basic Menu Operations

This section describes the basic operations for setting the setup menu items.



To display the setup menu

Press the MENU button.
The menu icons appear on the monitor screen.
The cursor is displayed on the icon of the menu used last, and the corresponding menu item selection area is displayed to the right.

Example: When the cursor is located at 00:00 (TC/UB SET menu icon)

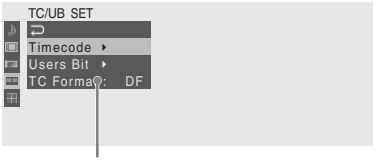
To set the setup menus

1 Press the ↑ or ↓ button to move the cursor to the icon of the menu you wish to set.

The selectable menu items are displayed in the menu item selection area to the right of the icon.

2 Press the SET button.

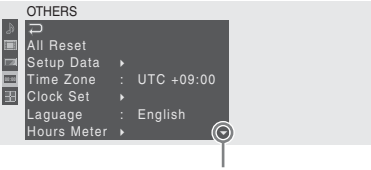
The cursor moves to the menu item selection area.
You can also move the cursor to the menu item selection area by pressing the → button.



- A ▶ symbol is displayed to the right of any item that has subitems.
- The current setting value is displayed to the right of an item that has no subitems.
- To return to the previous layer, select "↩" or press the CANCEL button.

The menu item selection area can show seven lines at maximum. When all the selectable items cannot be displayed at one time, you can scroll the display up or down by moving the cursor.
A triangle appears at the upper or lower right corner of the menu item selection area to indicate that scrolling is enabled.

Example: OTHERS menu



Displayed when there are more menu items beneath. (▲ shown at the top indicates that there are more menu items above.)

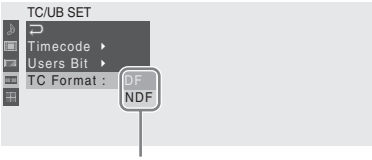
3 Press the ↑ or ↓ button to move the cursor to the menu item you wish to set, then press the SET button to confirm the selection.

The setting area appears to the right of the menu item selection area, and the cursor moves to the top of its subitems.

Setting area
- The subitems and their current values are displayed.
- To return to the previous layer, select ⮌ or press the CANCEL button.

When you select an item without subitems, that is, an item which is only to be turned on and off or to be switched between settings, the choices are displayed to the right with the cursor positioned on the currently selected setting. In this case, proceed to step **5**.

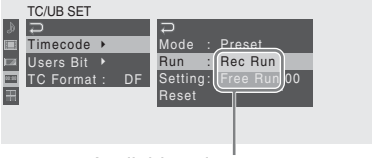
Example



Choices
To return to the previous layer, press the CANCEL button.

4 For the item that has subitems, press the ↑ or ↓ button to move the cursor to the subitem you wish to set, then press the SET button to confirm the selection.

The available values of the selected subitems are displayed, and the cursor moves to the current value.



Available value area
To return to the previous layer, press the CANCEL button.

- The available value area can show seven lines at maximum. When all the selectable values cannot be displayed at one time, you can scroll the display up or down by moving the cursor. A triangle appears at the upper or lower right corner of the available value area to indicate that scrolling is enabled (see the figure in step **3**).
- For items having a wide range of available values (example: –99 to +99), the available value area is not displayed. The current setting is highlighted instead, indicating that the setting is ready for change.

5 Select the desired value by pressing the ⬆ or ⬇ button, then press the SET button to confirm the setting. To cancel the setting, press the CANCEL button.

When the SET button is pressed, the setting is changed and the new setting is displayed.
When you select "Execute" for an execution item, the corresponding function is executed. To return to the previous layer, press the CANCEL button.

For an item that requires your confirmation

When you select an item that you must confirm before execution in step **3**, the menu display temporarily disappears, and a confirmation message is displayed. Following the instructions of message, specify whether to execute or cancel.

To enter a character string

When you select an item for which a character string, such as a time value or file name, is to be specified, the input area for the character string is highlighted, and "SET" appears at the right end.

1 Select a character using the ⬆ or ⬇ button, then press the SET button to confirm the selection.

The cursor moves to the next position. To return to the previous position, press the CANCEL button.

2 Perform setting in the same manner up to the last position.

The cursor moves to "SET".

3 Press the SET button.

The setting is completed.

To terminate the menu operation

Press the MENU button.
This returns to the normal screen.

Setup Menu List

The functions and available settings of menus are listed below.

The default settings set at the factory are shown in bold face (example: **Preset**).

AUDIO SET menu

Menu items	Subitems and setting values	Description
Audio Input Setting for audio inputs	1KHz Tone On / **Off**	Turn the 1-kHz reference tone signal on/off when the VIDEO INPUT switch is set to SG in recording or E-E mode.
	Rec Level **Preset** / Manual	Select whether to set the audio recording levels to the preset values or to control them with the REC LEVEL CH-1 and CH-2 knobs on the front panel. **Note** This item is disabled (displayed in grey) when the VIDEO INPUT switch is set to i.LINK or SG.

Menu items	Subitems and setting values	Description
Audio Output Setting for audio outputs	Monitor CH **CH-1 / CH-2** (CH-3 / CH-4) CH-1+CH-2 (CH-3+CH-4) CH-1 (CH-3) CH-2 (CH-4)	Select the audio channel(s) to be output to the headphones or the speaker. CH-1/CH-2 (CH-3/CH-4): Stereo CH-1+CH-2 (CH-3+CH-4): Mix CH-1 (CH-3): CH-1 (CH-3) only CH-2 (CH-4): CH-2 (CH-4) only The "Output CH" setting determines which pair of channels (CH-1 and CH-2 or CH-3 and CH-4) is used.
	Output CH **CH-1,CH-2** CH-3,CH-4	Select audio channels to be output through the AUIDO OUTPUT CH-1/3 and CH-2/4 connectors, the headphones, or the HDMI connector from either channels 1 and 2 or channels 3 and 4. **Notes** • This item is disabled (displayed in grey) when this unit is in recording or E-E mode with the VIDEO INPUT switch set to HD SDI or SG. • Set this item to "CH-1,CH-2" when i.LINK input is selected.

VIDEO SET menu

Menu items	Subitems and setting values	Description
HDMI/CMPNT/SDI Out SEL Setting the HDMI/ component/SDI outputs The setting value in parentheses is displayed when PAL format is selected (when "Country" is set to "PAL Area").	**1080i/720P** 1080i 480i (576i) 480P (576P)	Select the signals to be output from the HDMI, COMPONENT and HD/SD SDI OUTPUT connectors. 1080i/720P: HD signal recorded or played back 1080i: 1080i signal (or 720P signal converted to 1080i signal) 480i (576i): Down-converted SD signal 480P (576P): Down-converted SD progressive signal **Note** This item is disabled (displayed in grey) and the setting value is fixed to 480i (576i) when the "i.LINK I/O Select" setting is "DVCAM".

Menu items	Subitems and setting values	Description
HDMI/CMPNT/SDI Out DISP Making a setting for superinposition of text information on the HDMI/ component/SDI outputs	On / **Off**	Set whether to superimpose the same text information (menus and status indications) on the output signals from the HDMI, COMPONENT and HD/SD SDI OUTPUT connectors as that displayed on the LCD display.
CMPST/ S Out Display Making a setting for superinposition of text information on the composite/S-video outputs	On / **Off**	Set whether to superimpose the same text information (menus and status indications) on the output signals from the COMPOSITE and S-VIDEO connectors as that displayed on the LCD display.
Setup Setting 7.5% setup for the composite signal	On / **Off**	Set whether to add 7.5% black setup to the output signal from the COMPOSITE connector when a format of NTSC is selected. **Note** This item is disabled (displayed in grey) when a format of PAL is selected.
Down Converter Selecting the operation mode of the down converter	**Squeeze** / Letterbox / Edge Crop	Set the output mode (aspect) for SD output from the COMPOSITE, S-VIDEO, COMPONENT, and HD/SD SDI OUTPUT connectors. Squeeze: To horizontally reduce a 16:9 picture to output a 4:3 picture Letterbox: To mask the upper and lower areas of a 4:3 picture to display a 16:9 picture in the center of the screen Edge Crop: To cut the both sides of a 16:9 picture to output a 4:3 picture **Note** This item is disabled (displayed in grey) during recording or playback.

Menu items	Subitems and setting values	Description
i.LINK I/O Select Setting for input/output of the i HDV/DV connector	**HDV** /DVCAM /Off	Disable the input/output of the i HDV/DV connector (Off) or select the format of the i HDV/DV connector input/output (HDV or DVCAM). **Notes** • The i HDV/DV connector input/output is disabled unless the "Video Format" setting of the OTHERS menu is "SP1080i". • It is impossible to use the DVCAM format signal for recording or E-E picture display. The DVCAM format signal can only be output during playback of the clip recorded in SP1080i mode.

LCD SET menu

Menu items	Subitems and setting values	Description
LCD Making settings for the LCD display	Color –99 to +99 **(±0)**	Set the color density of pictures on the LCD display.
	Contrast –99 to +99 **(±0)**	Set the contrast of pictures on the LCD display.
	Brightness –99 to +99 **(±0)**	Set the brightness of pictures on the LCD display.
	Backlight –99 to +99 **(±0)**	Set the backlight brightness of the LCD display.

TC/UB SET menu

Menu items	Subitems and setting values	Description
Timecode Setting the timecode	Mode **Preset** / Regen / Ext Regen	Set the timecode advance mode. Preset: To start the timecode from the specified value Regen (regeneration): To continue the timecode from that of the previous clip Ext Regen (external regeneration): To synchronize to the SDI embedded timecode input to the HD SDI INPUT connector
	Run **Rec Run** / Free Run	Set the timecode generator running mode when the timecode advance mode is set to “Preset”. Rec Run: The timecode advances only during recording mode. Free Run: The timecode keeps advancing regardless of the operating mode.
	Setting	Set the timecode to a desired value when the timecode advance mode is set to “Preset”. Select “SET” to finish the setting.
	Reset Execute / Cancel	Select “Execute” to reset the timecode to 00:00:00:00.
Users Bit Setting the user bits	Setting	Set the user bits to a desired value. **Note** This item is disabled when “Mode” in the “Timecode” setting is set to “Ext Regen”.
TC Format Setting the NTSC time code format	**DF** / NDF	Set the NTSC timecode format. DF: Drop frame NDF: Non drop frame **Note** This item is disabled when “Mode” in the “Timecode” setting is set to “Ext Regen”.

OTHERS menu

Menu items	Subitems and setting values	Description
All Reset Resetting to the factory status	Execute / Cancel	Select “Execute” to reset this unit to the factory status. (The “Date/Time” setting, “Time Zone” setting and timecode generated by the timecode generator are not reset.) **Note** This item is disabled (displayed in grey) during recording or playback.
Setup Data Storing/recalling all settings	Store Execute / Cancel	Select “Execute” to store all setting values on the SxS memory card. (The “Date/Time” setting, “Time Zone” setting and timecode generated by the timecode generator are not stored.) **Note** This item is disabled (displayed in grey) when a write-protected memory card is loaded or during recording or playback.
	Recall Execute / Cancel	Select “Execute” to retrieve the setting values from the SxS memory card. (The “Date/Time” setting and “Time Zone” setting are not retrieved.) **Note** This item is disabled (displayed in grey) when an unavailable memory card is loaded or during recording or playback.
Time Zone Setting the time difference	UTC –12:00 to UTC +14:00 **(UTC +9.00)**	Set the time-zone difference from UTC in steps of 30 minutes.

Menu items	Subitems and setting values	Description
Clock Set Setting the built-in clock	Date/Time	Set the current time and date. **Note** This item is disabled (displayed in grey) during recording.
	12H / **24H**	Select the display mode of time. 12H: 12-hour mode 24H: 24-hour mode
	Date Mode **YYMMDD** / MMDDYY / DDMMYY	Select the display mode of the date. YYMMDD: In sequence of year, month, day MMDDYY: In sequence of month, day, year DDMMYY: In sequence of day, month, year
Language Selecting the language for messages	English / Chinese / **Japanese**	English: To display the messages in English Chinese: To display the messages in Chinese Japanese: To display the messages in Japaneses. **Note** This setting is effective only on messages for warning and caution. The menus and status indications do not change.
Hours Meter Displaying the hours meter	Hours (Sys)	The non-resettable accumulated time of use is displayed
	Hours (Reset)	The resettable accumulated time of use is displayed
	Reset Execute/Cancel	Select “Execute” to reset the Hours (Reset) value to 0.
IR Remote Activating/ deactivating the IR remote commander	**On** / Off	Set to “Off” to deactivate remote control operations from the supplied IR remote commander.
Country Setting the area for use	**NTSC Area** / PAL Area	Select the color system for the area where you will use the camcorder. **Notes** • This item is disabled (displayed in grey) during recording or playback. • The default setting is different among the sales areas. United States and Canada: NTSC Other areas: PAL

Menu items	Subitems and setting values	Description
Video Format Selecting the video format	Country: NTSC Area **HQ 1080/60i** SP 1080/60i HQ 720/60P Country: PAL Area **HQ 1080/50i** SP 1080/50i HQ 720/50P	Select the video format (bit rate, effective vertical lines, frame rate, and scan system in combination). Bit rate: HQ or SP Effective vertical lines: 1080 or 720 Frame rate: 50 or 60 Scan system: i (interlace) or P (progressive) **Note** The default setting is different among the sales areas. United States and Canada: HQ 1080/60i Other areas: HQ 1080/50i
Clip Setting for clip name or deletion	Title Prefix **nnn_** (nnn=least three digits of the serial number)	Set the first 4-alphanumeric part of the clip names. You can use upper- and lowercase alphabets, numerics 0 to 9, - (hyphen), and _ (underscore).
	Number Set Execute / Cancel	Select “Execute” to reset the second 4-numeric part of the clip name to 0001.
	Update Media (A) / Media (B)	Update the management file on the recording media. Media (A): Update the management file on the memory card in slot A. Media (B): Update the management file on the memory card in slot B. **Note** “Media (A)” or “Media (B)” (depending on the slot in use) is disabled (displayed in grey) when a write-protected memory card is loaded or during recording or playback.
	All Clips DEL Execute / Cancel	Select “Execute” to delete all clips on the active SxS memory card. **Notes** • Clips to which you applied OK mark cannot be deleted. • This item is disabled (displayed in grey) when a write-protected memory card is loaded, when the thumbnail screen is not displayed, or during recording or playback.

Menu items	Subitems and setting values	Description
Format Media Formatting SxS memory cards	Media(A) Execute / Cancel	Select “Execute” to format the SxS memory card in slot A.
	Media(B) Execute / Cancel	Select “Execute” to format the SxS memory card in slot B.

Appendix

Important Notes on Operation

On operation and storage locations

Avoid operation or storage in any of the following places.

- Location subject to extremes of temperature (operating temperature range 5°C to 40°C (41°F to 104°F))
- Location subject to direct sunlight for long periods, or close to heating appliances (Note that the interior of a car left in summer with the windows closed can exceed 50°C (122°F).)
- Damp or dusty places
- Locations where the unit may be exposed to rain
- Location subject to severe vibrations
- Location near equipment generating strong electromagnetic emissions
- Location near transmitting stations generating strong radio waves

Use the supplied stand

Use the supplied stand to place the unit on its side.

Avoid violent impacts

Dropping the unit, or otherwise imparting a violent shock to it, is likely to cause it to malfunction.

Do not obstruct ventilation openings

To prevent the unit from overheating, do not obstruct ventilation openings, by for example wrapping the unit in a cloth while it is in operation.

On cleaning

If the casing or panel is dirty, wipe it gently with a soft dry cloth. In the event of extreme dirt, use a cloth steeped in a neutral detergent to remove the dirt, then wipe with a dry cloth. Applying alcohol, thinners, insecticides, or other volatile solvents may result in deforming the casing or damaging the finish.

On repacking and shipping

- Remove the memory cards before transporting the unit.
- Save the original shipping carton and packing material; they will come in handy if you ever have to ship your unit. For maximum protection, repack your unit as it was originally packed at the factory, and take care not to impart violent shocks in transit.

After use

Press the power button to turn off the power.

If not to be used for an extended period of time

Disconnect the unit from the AC power source *(see page 27)*.

To prevent electromagnetic interference from portable communications devices

The use of portable telephones and other communications devices near this unit can result in malfunctions and interference with audio and video signals.
It is recommended that the portable communications devices near this unit be powered off.

About the LCD panels

The LCD panels are manufactured with extremely high-precision technology that yields effective pixel rates of 99.99% or higher. However, very rarely, one or more pixels may be permanently dark or permanently lit in white, red, blue, or green. This phenomenon is not a malfunction. Such pixels have no effect on the recorded data, and the unit may be used with confidence even if they are present.

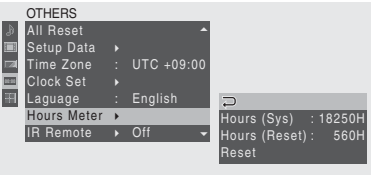
Periodic Maintenance

Digital hours meter

The digital hours meter keeps cumulative counts of the total operating time. These counts can be displayed on the monitor screen. Use them as guidelines for scheduling maintenance. Consult a Sony dealer about necessary periodic maintenance checks.

To display the digital hours meter

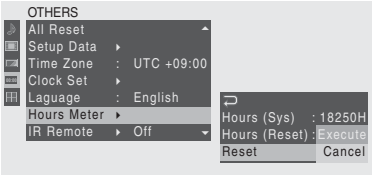
Select “Hours Meter” of the OTHERS menu.
The cumulative total hours during which the unit is powered on is displayed in one-hour increments.



Hours (Sys): The non-resettable accumulated time of use is displayed.
Hours (Reset): The resettable accumulated time of use is displayed.

To reset the value

Select “Reset”, select “Execute”, and press the SET button.


OTHERS
All Reset
Setup Data
Time Zone : UTC +09:00
Clock Set
Laguage : English
Hours Meter
IR Remote Off
Hours (Sys) : 18250H
Hours (Reset) : Execute
Reset
Cancel

Troubleshooting

If an alarm message appears on the monitor screen, or if the unit appears to be malfunctioning, please check the following before contacting a Sony dealer.

Recording/playback

Symptoms	Cause	Remedy
Recording does not start when you press the REC button.	The SxS memory card is write-protected.	Release the write protection *(see page 35)*, or replace the card with a non-protected SxS memory card.
	The SxS memory card is full.	Replace the card with one having sufficient space.
	The SxS memory card needs restoration.	Restore the memory card *(see page 37)*.
	The video format of the input signal does not match with the video format set on this unit.	Set this unit to the same video format as that of the input signal. *(see page 30)*.
The supplied IR remote commander does not work.	Remote control operation is disabled.	Enable remote control operation *(see page 40)*.
	The battery of the IR remote commander is exhausted.	Replace the battery with a new one *(see page 41)*.
Audio recording is not possible.	The REC LEVEL controls are set to the minimum level.	Adjust the audio recording levels with the REC LEVEL controls *(see page 45)*, and record again.
The recorded sound is distorted.	The audio level is too high.	Change the AUDIO INPUT LEVEL switch setting *(see page 44)*, and record again.
The recorded sound has a high noise level.	The audio level is too low.	Adjust the audio recording levels with the REC LEVEL controls *(see page 45)*, and record again.
The REC LEVEL controls do not work.	The audio recording levels are set to the preset values.	Set “Rec Level” in “Audio Input” of the AUDIO SET menu to “Manual” *(see page 83)*.

Time data

Symptoms	Cause	Remedy
Cannot freely set the initial time data value.	Regen mode or Ext regen mode is selected.	Set “Mode” in “Timecode” of the TC/UB SET menu to “Preset” *(see page 87)*.

External video monitor

Symptoms	Cause	Remedy
Data is not superimposed on the monitor screen.	The DISPLAY button is turned off.	Turn the DISPLAY button on.
	Superimposition is disabled.	Set “HDMI/CMPNT/SDI Out DISP” or “CMPST/ S Out Display” of the VIDEO SET menu to “On” *(see page 85)*.
The image on the monitor screen is too bright.	The 75 Ω termination switch for video input on the monitor is in the OFF position, or a 75 Ω terminator is not fitted to its video input connector.	Set the 75 Ω termination switch to ON or connect a terminator.
The image on the monitor screen is too dark.	In a video signal loop-through connection of multiple video monitors, 75 Ω termination switches for video input on monitors other than the loop-end monitor are in the ON position.	Set the 75 Ω termination switches to OFF on all monitors other than the loop-end monitor.

External devices

Symptoms	Cause	Remedy
The device connected via i.LINK interface does not react as expected; for example, no picture appears on its screen.	It sometimes takes time for the connected device to recognize the operation.	Wait for about 15 seconds. If the connected device still does not react, do the following: • Check the i.LINK cable, for example, by replugging it. • Turn the power off, and connect the cable again. • Change the i.LINK cable.
	The input format (HDV or DVCAM) set on the connected device does not match with the output format set on this unit.	Set the connected device to the same video format as that on this unit. *(see page 30)*.
	The video format is not set to SP1080/60i on this unit.	Set the video format on this unit to SP1080/60i *(see page 30)*.
	A clip recoded in the video format other than SP1080/60i and SP1080/24P is played back.	Play back a clip recoded in SP1080/60i- or SP1080/24P-format.

Alarm messages

When operating this unit, the unit may sometimes output alarm messages such as the one shown below to the monitor screen.

Alarm messages	Cause and measures
Media Near Full	Free space on the SxS memory card has become insufficient. Replace it with another at the earliest opportunity.
Media Full	No space is left on the SxS memory card. Recording, clip copying and clip division cannot be performed. Replace it with another.
Voltage Low	The DC IN voltage has become low (stage 1). Check the power supply.
Insufficient Voltage	The DC IN voltage is too low (stage 2). Recording cannot be performed. Connect other power source.

Alarm messages	Cause and measures
Backup Battery End Please Change.	The remaining power of the backup battery is insufficient. Replace the battery with a new one. For replacing the battery, contact a Sony dealer.
Unknown Media(A) [a)] Please Change.	A partitioned memory card or one that contains recorded clips exceeding the number permitted with this camcorder is loaded. This card cannot be used with this camcorder. Remove it and load a compatible card.
Media Error Media(A) [a)] Needs to be Restored	An error occurred with the memory card. The card requires restoration. Remove the card, load it again, and restore it.
Media Error Cannot Record to Media(A) [a)]	Recording cannot be done, as the memory card is defective. As playback may be possible, it is recommended to replace it with another card after copying the clips, as required.
Media Error Cannot Use Media(A) [a)]	Neither recording nor playback can be done, as the memory card is defective. It cannot be operated with this camcorder. Replace it with another card.
Video Format Mismatch	The external signal input via the i.LINK connection cannot be recorded, as the Video Format setting is different from the signal format of the external input signal. Change “Video Format” of the OTHERS menu to match it to that of the external signal.
Copy Protected Input Cannot Record	The external signal input via the i.LINK connection cannot be recorded, as the stream is copy-protected. Check the input signal.
Media Error Playback Halted	An error occurred in reading data from the memory card, and playback cannot be continued. If this frequently occurs, change the memory card after copying the clips, as required.
Media(A) [a)] Error	Recording cannot be done, as an error occurred with the memory card. If this frequently occurs, change the memory card.

a) (B) for the card in slot B

Error messages

This unit is provided with a self-diagnostic function that detects internal abnormalities. When it detects an abnormality, it outputs an error message to the monitor screen.

Error message	Cause and measures
E + Error code	An internal error may have occurred. Turn off the power and consult a Sony dealer. (If the power button is disabled, disconnect the AC power source.)

About i.LINK

This section explains the specifications and features of i.LINK.

What is i.LINK?

i.LINK is a digital serial interface designed to integrate devices equipped with i.LINK connectors. i.LINK allows your device to:

- Perform two-way transmission and reception of data such as digital audio and digital video signals.
- Control other i.LINK devices.
- Easily connect multiple devices with a single i.LINK cable.

Your i.LINK device is capable of connecting to a wide range of digital AV devices for data transfer and other operations.
Other advantages include the following feature. When connected to multiple i.LINK devices, your i.LINK device can perform data transfer and other operations not only
with the directly connected devices but also with any of the devices that are connected to those devices. Therefore, you do not need to be concerned with device connection order. However, depending on the features and specifications of the connected devices, you may need to use certain functions differently, and you may not be able to transfer data or perform certain operations.

i.LINK, a nickname for IEEE 1394 proposed by Sony, is a trademark supported by many companies worldwide.
IEEE 1394 is an international standard defined by IEEE, the Institute of Electrical and Electronics Engineers, Inc.

Note

The camcorder can be connected to one device with the i.LINK cable (DV cable). When you connect with a device that has two or more i.LINK connectors, refer to the operating instructions supplied with the connected device.

About data transfer speed of i.LINK

i.LINK defines a maximum data transfer speed of approximately 100, 200 and 400 Mbps[1)] that are described as S100, S200 and S400 respectively.
For i.LINK devices, a maximum data transfer speed that the device supports is identified on “Specifications” page of the operating instructions supplied with the device or near its i.LINK connector.

1) When connecting with the device that support different data transfer speed, the actual data transfer speed may be different from those described on the i.LINK connectors.

What is Mbps?

Mega bits per second. A measure of the rate at which data is transmitted per second. In case of 100 Mbps, 100 Mega bits of data can be transmitted per second.

i.LINK operation with this unit

For details on operation when other device with i.LINK (HDV/DVCAM) connector is connected, *see page 72*.
For details on connection with i.LINK cable and necessary software, refer to the operating instructions supplied with the connected device.

Note

It is possible to control recording or playback operation on this unit using AV/C commands from a device equipped with HDV or DVCAM interface. It is however

not possible to control such a device from this unit using AV/C commands.

About the required i.LINK cable

Use the Sony 6-pin-to-4-pin or 6-pin-to-6-pin i.LINK cable (for dubbing) to connect the i.LINK devices.

i.LINK and i are trademarks.

Specifications

General

Power requirements
12.0 V DC

Power consumption
12 W

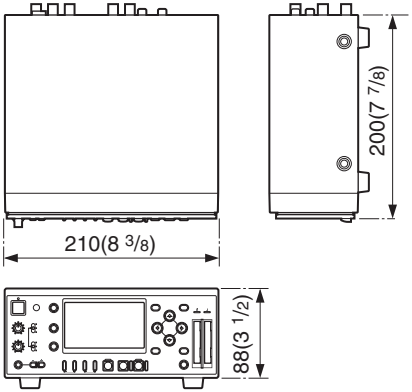
Peak inrush current
(1) Power ON, current probe method: 12 A (100 V), 34 A (240 V)
(2) Hot switching inrush current, measured in accordance with European standard EN55103-1: 5.5 A (230 V)

Operating temperature
5°C to 40°C (41°F to 104°F)

Storage temperature
–20°C to +60°C (–4°F to +140°F)

Mass
Unit only: 2.0 kg (4 lb 6 oz)
With AC adaptor and stand: 2.3 kg (5 lb 1 oz)

External dimensions (w/h/d, excluding projections)
210 × 88 × 200 mm (8 $^{3}/_{8}$ × 3 $^{1}/_{2}$ × 7 $^{7}/_{8}$ inches)



Unit: mm (inches)

Recording/playback format

Video HQ mode: MPEG-2 MP@HL, 35 Mbps/VBR
1920 × 1080/59.94i or 50i, 1280 × 720/59.94P or 50P
SP mode: MPEG-2 MP@H-14, 25 Mbps/CBR
1440 × 1080/59.94i or 50i

Audio LPCM (16-bit, 48 kHz, 2 channels)

Recording/playback time
Using SBP-8 (8 GB)
SP mode: Maximum 35 minutes
HQ mode: Maximum 25 minutes
Using SBP-16 (16 GB)
SP mode: Maximum 70 minutes
HQ mode: Maximum 50 minutes

Display

LCD display
Screen size: 8.8 cm diagonal (3.5-inch)
Aspect ratio: 16:9
Picture size: 640 (H) × 3 (RGB) × 480 (V) delta sequence
Screen size: 8.8 cm diagonal (3.5-inch)
Transmission: Hybrid (semi-transmissive) type

Inputs/outputs

Input connectors

AUDIO INPUT
Phono jacks (2), 2 channels (CH-1, CH-2)
–10/–2/+4 dBu, 47 kΩ or more, unbalanced
Maximum input level
+4: +24 dBu (approx. 12.5 Vrms)

HD SDI INPUT
BNC-type
Complied with SMPTE 292M

DC IN DC jack

Output connectors

COMPOSITE
BNC-type, 1.0 Vp-p, 75 Ω, unbalanced

S-VIDEO Mini-DIN 4-pin
Y: 1.0 Vp-p, 75 Ω, unbalanced, sync negative
C: 0.286 Vp-p (NTSC), 0.3 Vp-p (PAL), 75 Ω, unbalanced

COMPONENT
BNC-type (3)
Y: 1.0 Vp-p, 75 Ω
Pb/Pr: 0.7 Vp-p, 75 Ω

AUDIO OUT
Phono jacks (2), 2 channels (CH-1/3, CH-2/4), 1 kΩ or less
Output level (with 47 kΩ load, unbalanced)
For 60i/50i: –10 dBu (Fullbit –20 dB)

HD/SD SDI OUTPUT
BNC-type

HD: Complied with SMPTE 292M
SD: Complied with SMPTE 229M

HDMI Type A 19-pin
Video: 480i, 576i, 480p, 576p, 1080i, 720p
Audio: Linear PCM, 48 kHz/ 16-bit, 2 channels

PHONES Stereo mini-jack, 16 Ω

PC connectors

HDV/DV
i.LINK: 6-pin terminal, IEEE1394, S400

USB Mini-B/USB2.0 Hi-Speed

Accessories supplied

MPA-AC1 AC Adaptor (1)
AC power cord (1)
IR remote commander (1)
USB cable (1)
Supporting feet for vertical installation (2)
Operating Instructions
English version (1)
CD-ROM (XDCAM EX Clip Browsing Software, SxS Device Driver Software, Operating Instructions in PDF) (1)
SxS Device Driver Software End-User License Agreement (1)

Accessories not supplied

SxS memory card
SxS PRO SBP-8 (8 GB), SBP-16 (16 GB)
SBAC-US10 SxS Memory Card USB Reader/Writer
PHU-60K Professional Hard Disk Unit

Design and specifications are subject to change without notice.

Notes

- Always make a test recording, and verify that it was recorded successfully. SONY WILL NOT BE LIABLE FOR DAMAGES OF ANY KIND INCLUDING, BUT NOT LIMITED TO, COMPENSATION OR REIMBURSEMENT ON ACCOUNT OF FAILURE OF THIS UNIT OR ITS RECORDING MEDIA, EXTERNAL STORAGE SYSTEMS OR ANY OTHER MEDIA OR STORAGE SYSTEMS TO RECORD CONTENT OF ANY TYPE.
- Always verify that the unit is operating properly before use. SONY WILL NOT BE LIABLE FOR DAMAGES OF ANY KIND INCLUDING, BUT NOT LIMITED TO, COMPENSATION OR REIMBURSEMENT ON ACCOUNT OF THE LOSS OF PRESENT OR PROSPECTIVE PROFITS DUE TO FAILURE OF THIS UNIT, EITHER DURING THE WARRANTY PERIOD OR AFTER EXPIRATION OF THE WARRANTY, OR FOR ANY OTHER REASON WHATSOEVER.

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