SONY®

PROFESSIONAL MEDIA STATION

XDS-PD1000
XDS-PD2000

XDCAM ™ **SxS** **Professional Disc XL-QD≡** **MPEG HD422**

MPEG HD **MPEG IMX** **DVCAM** ™

OPERATION MANUAL English

1st Edition

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.

THIS APPARATUS MUST BE EARTHED.

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.

WARNING: THIS WARNING IS APPLICABLE FOR USA ONLY.
If used in USA, use the UL LISTED power cord specified below.
DO NOT USE ANY OTHER POWER CORD.

Plug Cap	Parallel blade with ground pin (NEMA 5-15P Configuration)
Cord	Type SJT, three 16 or 18 AWG wires
Length	Minimum 1.5 m (4 ft. 11 in.), Less than 2.5 m (8 ft. 3 in.)
Rating	Minimum 10 A, 125 V

Using this unit at a voltage other than 120 V may require the use of a different line cord or attachment plug, or both. To reduce the risk of fire or electric shock, refer servicing to qualified service personnel.

WARNING: THIS WARNING IS APPLICABLE FOR OTHER COUNTRIES.
1. Use the approved Power Cord (3-core mains lead)/ Appliance Connector/Plug with earthing-contacts that conforms to the safety regulations of each country if applicable.
2. Use the Power Cord (3-core mains lead)/Appliance Connector/Plug conforming to the proper ratings (Voltage, Ampere).

If you have questions on the use of the above Power Cord/ Appliance Connector/Plug, please consult a qualified service personnel.

Attention-when the product is installed in Rack:

1. Prevention against overloading of branch circuit
When this product is installed in a rack and is supplied power from an outlet on the rack, please make sure that the rack does not overload the supply circuit.

2. Providing protective earth
When this product is installed in a rack and is supplied power from an outlet on the rack, please confirm that the outlet is provided with a suitable protective earth connection.

3. Internal air ambient temperature of the rack
When this product is installed in a rack, please make sure that the internal air ambient temperature of the rack is within the specified limit of this product.

4. Prevention against achieving hazardous condition due to uneven mechanical loading
When this product is installed in a rack, please make sure that the rack does not achieve hazardous condition due to uneven mechanical loading.

5. Install the equipment while taking the operating temperature of the equipment into consideration
For the operating temperature of the equipment, refer to the specifications of the Operation Manual.

6. When performing the installation, keep the following space away from walls in order to obtain proper exhaust and radiation of heat.

Right, Left: 4 cm (1.6 inches) or more
Rear: 10 cm (4 inches) or more

When installing the installation space must be secured in consideration of the ventilation and service operation.
• Do not block the fan exhaust areas (rear panel and rear part of the right side panel) and vents (front panel, front lower part, and front right and left ends) with objects.
• Leave a space around the unit for ventilation.
• Leave more than 10 cm of space in the rear of the unit to secure the operation area.
When the unit is installed on the desk or the like, leave at least 4 cm of space in the left and right sides. Leaving 40 cm or more of space above the unit is recommended for service operation.

CLASS 1 LASER PRODUCT
LASER KLASSE 1 PRODUKT
LUOKAN 1 LASERLAITE
KLASS 1 LASERAPPARAT
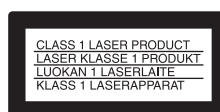
This Professional Media Station is classified as a CLASS 1 LASER PRODUCT.

Tämä ammattimainen media-asema on luokiteltu 1. LUOKAN LASERTUOTTEEKSI.

Denna mediastation för professionella klassificeras som en LASERPRODUKT AV KLASS 1.

Laser Diode Properties
Wavelength: 400 to 410 nm
Emission duration: Continuous
Laser output power: 280 mW (max. of pulse peak), 150 mW (max. of CW)
Standard: IEC60825-1 (2007)

Egenskaber for laserdiode
Bølgelængde: 400 till 410 nm
Strålingsvarighed: Kontinuerlig
Afgivet lasereffekt: 280 mW (max. för pulstopp), 150 mW (max. för kontinuerlig våg)
Standard: IEC60825-1 (2007)

Egenskaber for laserdiode
Bølgelengde: 400 till 410 nm
Strålingsvarighed: Uavbrutt
Utgangseffekt for laser: 280 mW (maks stråletoppunkt), 150 mW (maks ved kontinuerlig stråling)
Standard: IEC60825-1 (2007)

Laserdiod Egenskaper
Våglängd: 400 - 410 nm
Strålningens varaktighet: Continuous
Lasereffekt: 280 mW (sykehuipun maks.), 150 mW (jatkuvan aallon maks.)
Standard: IEC60825-1 (2007)

CAUTION	CLASS 3R LASER RADIATION WHEN OPEN. AVOID DIRECT EYE EXPOSURE.
ATTENTION	RADIATIONS LASER DE CLASSE 3R EN CAS D'OUVERTURE. EVITER TOUTE EXPOSITION DIRECTE DES YEUX.
VORSICHT	KLASSE 3R LASERSTRAHLUNG WENN GEÖFFNET. UNMITTELBAREN AUGENKONTAKT VERMEIDEN.
ADVARSEL	LASERSTRÅLING AF KLASSE 3R VED ÅBNING. UNDGÅ AT SE DIREKTE PÅ STRÅLEN.
ADVARSEL	LASERSTRÅLING I KLASSE 3R NÅR DEKSEL ÅPNES. UNNGÅ DIREKTE EKSPONERING AV ØYNENE.
VARNING	KLASS 3R LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD. UNDVIK ATT DIREKT EXPONERA ÖGONEN FÖR STRÅLNINGEN.
VARO!	AVATTUNA LUOKAN 3R LASERSÄTEILYÄ. VÄLTÄ KATSEEN SUORAA ALTISTAMISTA.
注意	打开时有3R类激光辐射 避免眼睛受到直接照射

4-285-806-02

This label is located on the top panel of the drive unit.

Denna etikett finns på ovansidan av driftenheten.

Denne mærkat sidder på drevenhedens øverste panel.

Tämä kyltti sijaitsee ajurilaitteen yläpinnalla.

Dette merket er plassert på oversiden av driverenheten.

CAUTION
The use of optical instruments with this product will increase eye hazard.

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

VAROITUS!
LAITTEEN KÄYTTÄMINEN MUULLA KUIN TÄSSÄ KÄYTTÖOHJEESSA MAINITULLA TAVALLA SAATTAA ALTISTAA KÄYTTÄJÄN TURVALLISUUSLUOKAN 1 YLITTÄVÄLLE NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE.

VARNING
OM APPARATEN ANVÄNDS PÅ ANNAT SÄTT ÄN I DENNA BRUKSANVISNING SPECIFICERATS, KAN ANVÄNDAREN UTSÄTTAS FÖR OSYNLIG LASERSTRÅLNING, SOM ÖVERSKRIDER GRÄNSEN FÖR LASERKLASS 1.

For the customers in the USA
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.

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

For customers in Canada
This Class A digital apparatus complies with Canadian ICES-003.

For the customers in Europe
This product with the CE marking complies with the EMC Directive issued by the Commission of the European Community.
Compliance with this directive implies conformity to the following European standards:
• 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 kundene i Norge
Dette utstyret kan kobles til et IT-strømfordelingssystem.

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

Features

The XDS-PD1000/PD2000 is a full-HD (1920 × 1080 and 1280 × 720) hybrid media deck that can use an internal storage, Professional Discs, and SxS memory cards as recording media.
The XDS-PD1000 is equipped with hard disk drives ("HDDs" below) as internal storage.
The XDS-PD2000 is equipped with solid state drives ("SDDs" below) as internal storage.

Compared to conventional studio decks, the XDS-PD1000 features better support for multitasked operation, networking, and other IT functions. It is highly compatible with nonlinear editing systems and network production systems, enabling efficient file-based operation.
You can connect this unit via the standard HD-SDI I/O connectors to devices provided with HD-SDI interfaces, including conventional nonlinear editors, monitors, and other video equipment. This allows you to use this unit as a video editing or playout player, and as a recorder for nonlinear editing.

Features of this unit

The principal features of this unit are as follows.

MPEG HD422 [1] codec

High-quality video and audio recording and playback
The MPEG HD422 codec provides video compression compliant with the MPEG-2 422P@HL standard. It enables HD 4:2:2 (50 Mbps) digital component file recording in the 1080i (1080 effective scanning lines, interlaced) or 720P (720 effective scanning lines, progressive) format.
Uncompressed PCM recording of 24-bit 48 kHz audio enables 8-channel audio recording at high sound quality.

1) MPEG HD422 is a trademark of Sony Corporation.

PD1000

HDDs for internal storage

Long recording times
This unit is equipped with HDDs for internal storage. These HDDs provide 1 terabyte (TB) of data storage, allowing you to record up to about 30 hours in the HD422 50 Mbps recording format.

High reliability
This unit is equipped with three HDDs (Data: 2 HDDs; Fault tolerance: 1 HDD), configured for high reliability as a RAID-4 [1] array.
It can also be equipped with a redundant power supply. [2]

1) RAID-4: Redundant Arrays of Inexpensive Disks Level 4
2) When the optional XDBK-101 is installed. (It is necessary to set the maintenance menu item M22: OPTION SETTING >DVB-ASI to "ON".)

PD2000

SDDs for internal storage

Long recording times
This unit is equipped with SDDs as internal storage. These SSDs provide 512 GB of data storage, allowing you to record up to about 16 hours in the HD422 50 Mbps recording format.

High reliability
This unit is equipped with two SSDs, which can be configured for high reliability as a RAID-4 [1] array. [2]
It can also be equipped with a redundant power supply. [3]

1) RAID-4: Redundant Arrays of Inexpensive Disks 4
2) When the optional XDBK-102 is installed. (It is necessary to set the maintenance menu item D11: RAID to "on".)
3) When the optional XDBK-101 is installed. (It is necessary to set the maintenance menu item M22: OPTION SETTING >DVB-ASI to "ON".)

High performance
Equipped with high-speed SSDs as internal storage and a high-performance CPU, this unit has the following advantages over the XDS-1000/XDS-PD1000.
• Quicker response during playback
• Higher speed in multitasked operation

- Direct control for editing from a nonlinear editor using CIFS PROTOCAL

Multitasking operation

Chase play
You can perform chase play of material being recorded.

Support for multiple network connection sessions, and the chase transfer facility
It is possible to individually control multiple sessions using FTP/CIFS protocol (XDS-PD1000: up to eight sessions; XDS-1000: up to four sessions).
You can use FTP/CIFS protocol to transfer the material being recorded (the chase transfer function).
The XDS-PD2000 allows for direct access to material on the SSD using CIFS protocol. It also allows for a "chase editing" function, enabling the material being recorded to be laid on the timeline.

Multifunction operations
You can perform the following operations in parallel on individual clips.
- Record signals input to the HD/SD-SDI INPUT connector to internal storage
- Copy to internal storage from Professional Discs/SxS memory cards
- Copy from internal storage to Professional Discs
- Play clips that have been recorded to the internal storage/ Professional Discs
- Upload and download via FTP/CIFS connections

The XDS-PD2000 makes it possible to perform a copy/ network transfer operation at higher speeds than the XDS-1000/XDS-PD1000.

Recording and playback functions

Support for multiple SD/HD codecs
In addition to the MPEG HD422 codec, this unit supports the MPEG HD codec.[1] It can record HD 4:2:0 digital component files at both 1080i (35/25/18 Mbps [2]) and 720P (35/25 Mbps [2]), allowing HD operation across a wide range of recording times and application objectives. It can also record SD files (at IMX30/40/50 Mbps [3] or by DVCAM codec).

1) MPEG HD is a registered trademark of Sony Corporation.
2) SDI recording only supported for 35 Mbps, and playback only supported for 25 Mbps and 18 Mbps.
3) SDI recording only supported for 50 Mbps.

Support for multiple frame frequencies
This unit can record and play at multiple frame frequencies: 1080/59.94i, 50i, 29.97P, 25P, and 23.98P or 720/59.94P and 50P (for MPEG HD422).

Support for mixed format recording mode
You can record clips to the internal storage at different system frequencies and in different formats (HD422/HD420).
As long as the frame frequency group is the same, clips in different recording formats can be recorded or written to the same Professional Disc. [1]

1) The recording format is regarded as different whenever the system frequency, video resolution, video codec/bit rate, or number of audio channels or number of bits does not match.

The system frequencies supported by this unit are divided into frame frequency groups, as shown in the following table.

Frame frequency group	System frequency
59.94 Hz	59.94P
	59.94i
	29.97P
50 Hz	50P
	50i
	25P
23.98 Hz	23.98P

Note

Continuous playback may not be possible at the transition point between two clips with different recording formats.

Simultaneous recording to the internal storage and a Professional Disc
This unit allows for simultaneous recording to the internal storage and a Professional Disc.
(Simultaneous recording can be performed by simultaneously executing recording to the internal storage and copying from the internal storage to the Professional Disc.)

SD upconvert function
The unit is provided with an upconvert function.
You can input SD signals to the HD/SD-SDI INPUT connector and record them as HD signals.

HD downconvert function
The unit is provided with a downconvert function. HD clip playback signals can be downconverted to SD signals and then output as SD-SDI or composite signals. This allows you to use this unit for editing and program output in an SD environment.

1080/720 cross-conversion
This unit supports cross-conversion output. It can output 720 while playing media recorded as 1080, and output 1080 while playing media recorded as 720.

Recording of proxy AV data

Proxy AV data is a low-resolution (1.5 Mbps video, 64 kbps per audio channel), MPEG-4 based version of a full resolution data stream. Whenever this unit records video signals input to the HD/SD-SDI INPUT connector, it simultaneously generates and records low-resolution proxy AV data. [1]

1) Proxy AV data is not generated when you copy MP4 clips to internal storage from SxS memory cards or copy to internal storage via an FTP/CIFS connection.

High-speed searches with the shuttle/jog dial

The shuttle/jog dial can be used to find scenes inside clips on the internal storage/Professional Discs, in the same way as the shuttle and jog dials on conventional VTRs.
In variable-speed mode, you can search in field units at from –2 to +2 times normal speed. Shuttle mode supports high-speed searches up to a maximum of ±20 times normal speed.

Convenient playback and searching

Like previous products in the XDCAM series, this unit supports convenient search functions, including thumbnail searches.

Networking

File transfer functions

This unit is equipped with a Gigabit Ethernet connector, allowing you to perform high-speed file transfers of the video, audio, and metadata on internal storage using FTP and other standard protocols.

Network control

You can control this unit via a network by using the network remote connection. The unit supports traditional remote control via remote control connectors such as the RS422 and GPIO connectors. In addition, the high-speed network interface to external devices enables control by various other applications, for acquisition of file lists and display of thumbnails.

Usability enhancements and rich selection of interfaces

Color LCD display

The unit is equipped with a 16:9, 4.3-inch color LCD which allows you to check the contents of the media and use the menu system without connecting an external monitor.

Tiltable front panel

The front panel is tiltable for easy rack-mount and desktop operation. You can adjust the panel to the angle that makes the buttons easiest to use.

Supports a variety of interfaces

This unit supports the following interfaces.

- HD-SDI video, 8-channel audio input and output [1]
- HD-SDI video, 8-channel audio monitor output [1]
- SD-SDI video, 8-channel audio input and output
- SD-SDI video, 8-channel audio monitor output [1]
- SD composite output
- SD composite monitor output
- DVB-ASI TS input and output [2]
- AES/EBU digital audio 4-channel input and output
- Analog audio 2-channel input and output
- Analog audio 2-channel monitor output
- HDMI output
- Monitor output (VGA)
- Timecode input and output
- System timecode input
- Remote control
  - RS-422A (D-sub 9-pin) (2)
    (In addition to the Sony 9-pin VTR protocol, this unit supports the Video Disk Control Protocol (VDCP).)
  - Video remote (D-sub 9-pin) (1)
  - GPIO (D-sub 15-pin) (1)
    (4 inputs and 4 outputs)

1) The HD/SD-SDI INPUT connector doubles as an HD-SDI input connector and an SD-SDI input connector.
2) With an optional PDBK-202 installed.

System Configurations

The figure below shows devices and media that can be used with this unit.
You can use this unit and these devices to configure the following systems.

- Satellite news gathering (SNG) system *(see page 12)*
- Ingesting/editing system *(see page 12)*
- Live production system *(see page 13)*
- Broadcast delivery system *(see page 13)*
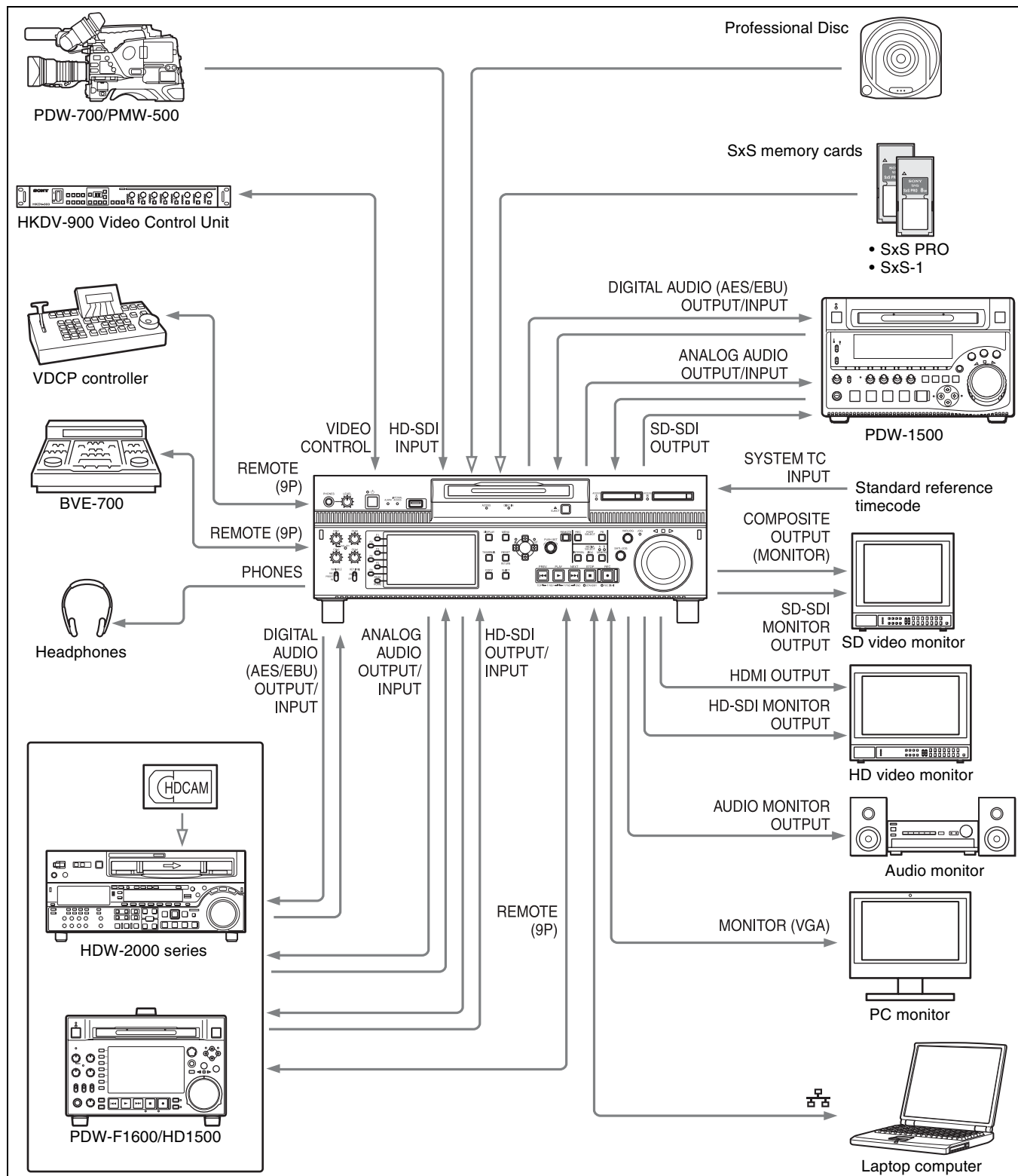
Satellite news gathering (SNG) system

The following figure shows an example of SNG system in which this unit is used as both server and backup recorder.
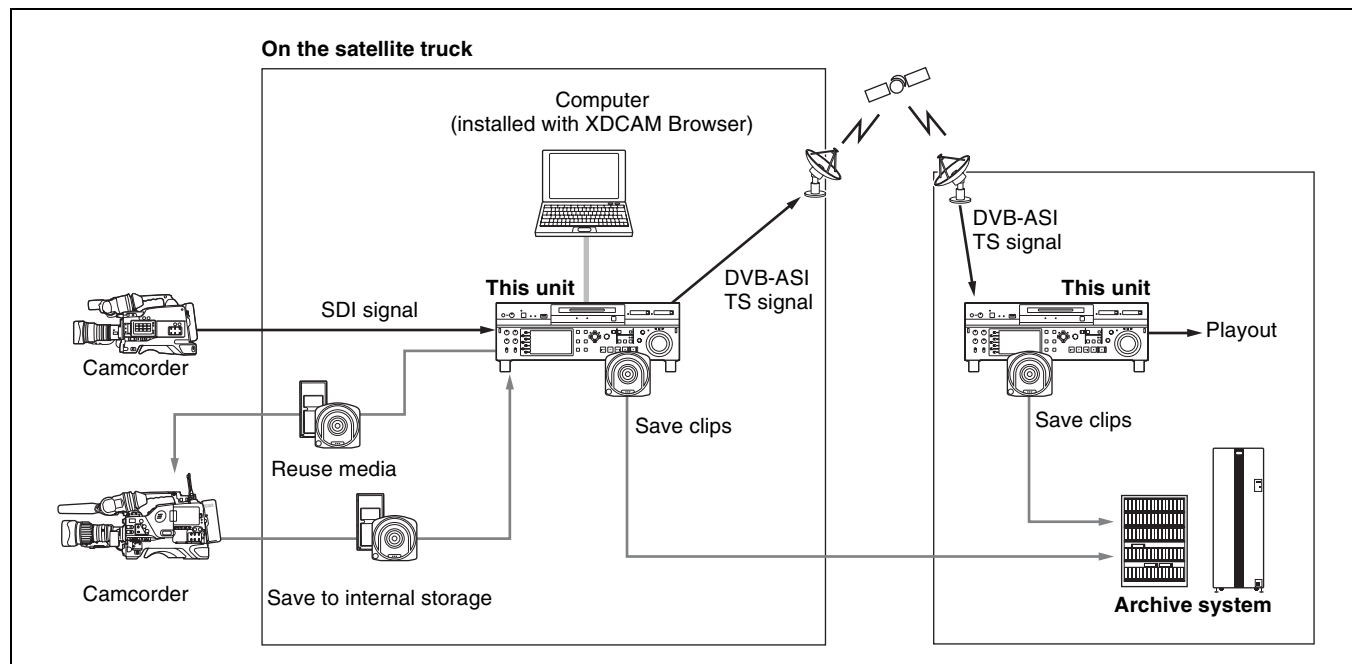
Ingesting/editing system

The following figure shows an example of system in which this unit is used as both editing feeder and backup recorder.
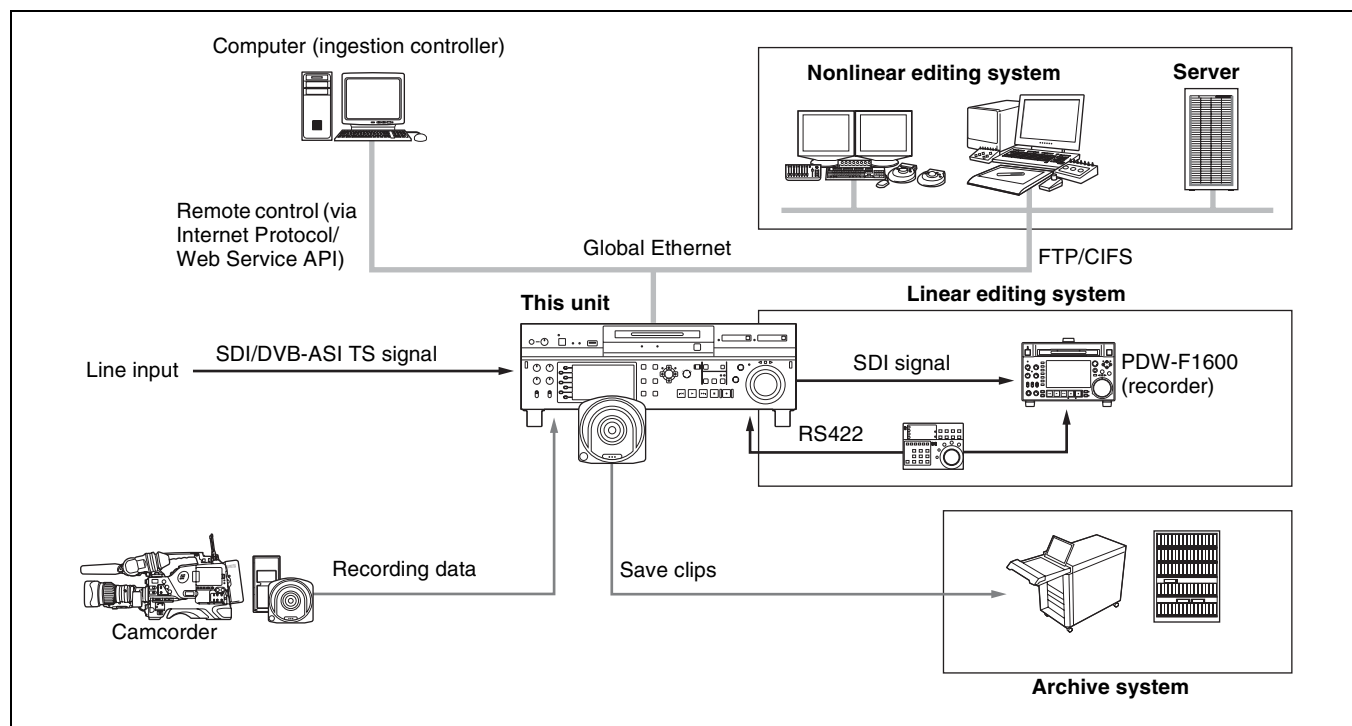
Live production system

The following figure shows an example of sports relay or live recording system in which this unit is used as both editing feeder and backup recorder.
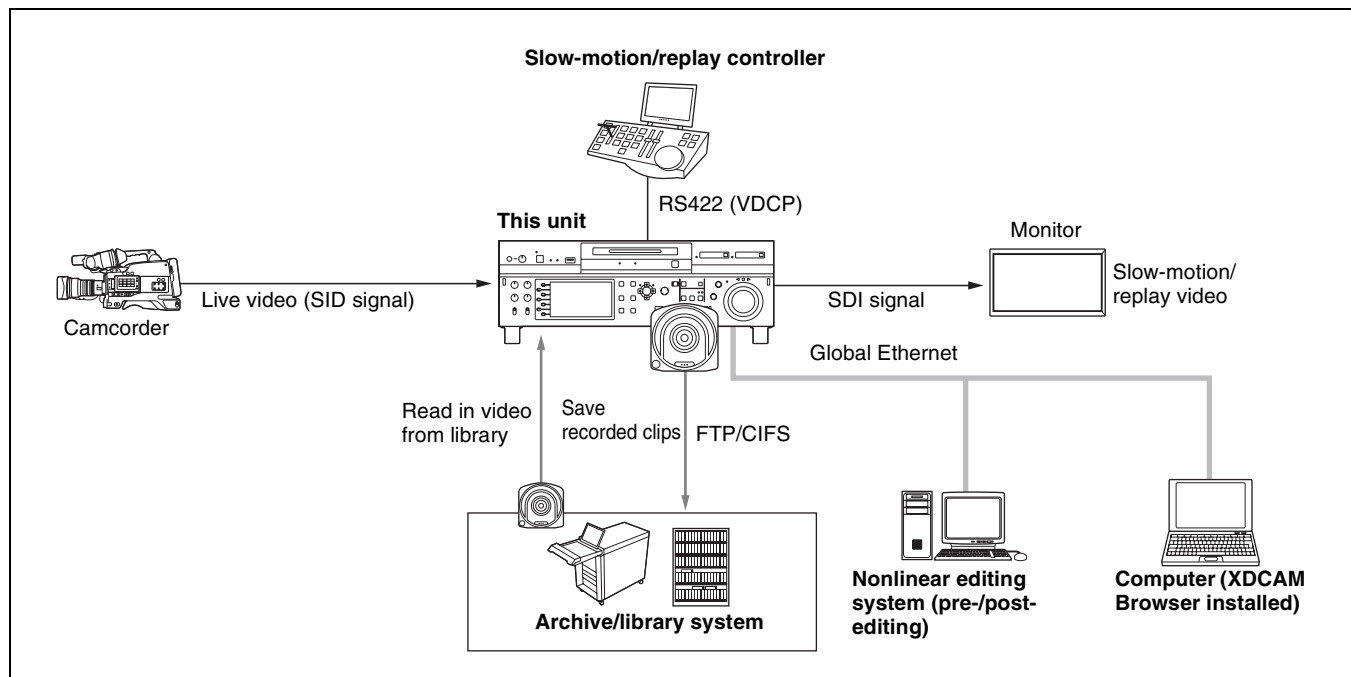
Delivery system

The following figure shows an example of program delivery system in which this unit is used as both server and backup player.
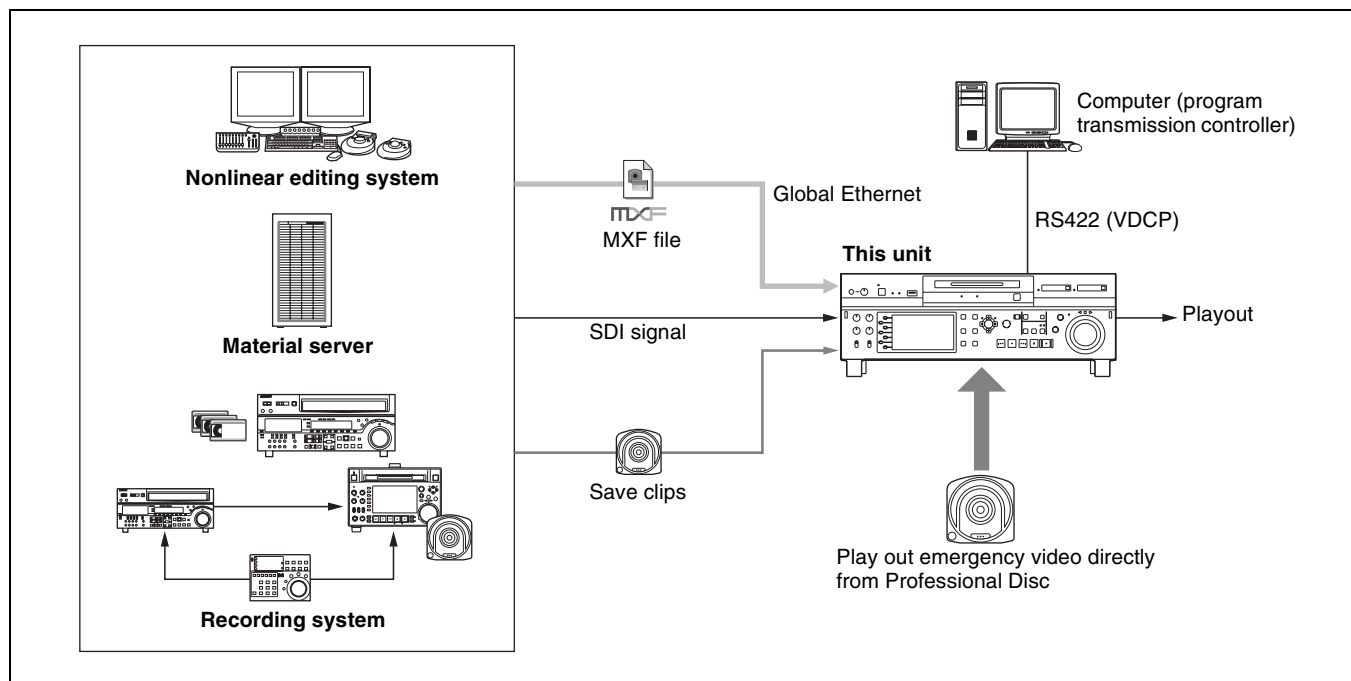
Names and Functions of Parts

Chapter **2**

Front Panel

The names and symbols of buttons and knobs on the front panel are color coded according to function.

White: Function when the button or knob is operated independently.

Orange: Function when the button is operated with the SHIFT button held down.

Blue: Function related to thumbnail operations.

❶ PHONES jack
❷ LEVEL adjustment knob
❸ On/standby (⏻) button and indicator
❹ ALARM indicator
❺ INTERNAL ACCESS indicator
❻ MAINTENANCE connector
❼ REMOTE button
1 Port and media selection section *(see page 15)*
2 Disc control section *(see page 16)*
3 Memory card slots *(see page 16)*
5 Display/menu control section *(see page 17)*
7 Shuttle/jog/variable-speed playback control section *(see page 19)*
❽ KEY INHI switch
6 Recording and playback control section *(see page 18)*
4 Audio level adjustment section *(see page 16)*

❶ PHONES jack

This is a standard stereo jack. Connect stereo headphones to monitor the audio during recording and playback. (Non-audio signals are muted.) The monitored channel is selected with MONITR L and MONITR R on the HOME page of the function menu *(see page 41)*.

❷ LEVEL (volume) adjustment knob

Adjust the volume of headphones with this knob. You can also cause this knob to simultaneously adjust the output volume from the AUDIO MONITOR OUTPUT R, L connectors on the rear panel. To do this, set setup menu item 114 AUDIO MONITOR OUTPUT LEVEL to "variable".

③ On/standby (⏻) button and indicator

When the main power switch on the rear panel is in the on position, this switches the unit between the operating state (the indicator is lit green) and the standby state (the indicator is lit red).

To put the unit into the operating state, press this button and hold it down for a short time (0.25 seconds or longer) while the indicator is lit red. The indicator changes to lit green, and the unit enters the operating state.

To put the unit into the standby state, press this button and hold it down for a longer time (1 second or longer) while the indicator is lit green. The indicator changes to flashing green and then lit red, and the unit enters the standby state. When using this unit, normally leave the main power switch on the rear panel in the on position, and use this button to switch the unit between the operating state and standby state.

Note

To switch the state of this unit from standby state (the main switch on the rear panel is on) to operative state, wait at least three seconds after the unit has entered standby state and then press the on/standby button on the front panel.

④ ALARM indicator

This flashes to alert you to an error in the unit, and goes out when the cause of the error is removed.

Flashing red: An error that requires service has occurred, in most cases a hardware error.

Flashing orange: A warning level error has occurred.

A message appears on the display when this indicator starts flashing. For details, see "Troubleshooting" (page 101).

⑤ INTERNAL (internal storage) ACCESS indicator

This lights when the internal storage is accessed.

Note

Do not turn off the main power switch on the rear panel or disconnect the power cord while the INTERNAL ACCESS indicator is lit. Doing so may corrupt the data on the storage.

⑥ MAINTENANCE connector

This is the USB connector for maintenance.

⑦ REMOTE button

Press this button, turning it on, to perform remote control of this unit from a device connected to the REMOTE (9P) 1 and 2 connectors.

This allows you to control the recording and playback ports individually.

⑧ KEY INHI (inhibit) switch

This turns key operation inhibit mode on or off.

① Port and media selection section

This unit has a recording port and a playback port. You can control these ports independently by selecting one of them with the REC PORT or PB PORT button.

① REC PORT button　② PB PORT button
③ INTERNAL button
④ DISC button
⑤ MEMORY button
⑥ Slot selection lamps
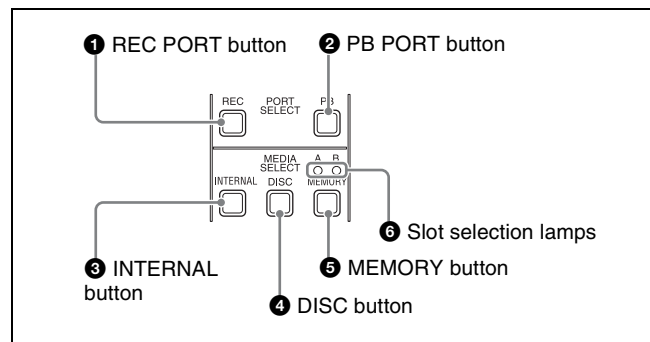
① REC PORT (recording port) button

Before performing recording operations on the front panel of this unit, press this button to select the recording port. E-E signals (the video of the input signals) are output to the display and to the video monitor output connectors.

Note

When a clip list screen is displayed, pressing this button does not output E-E signals to the display. To operate this button, first press the THUMBNAIL button to switch to the basic operation screen or the video monitor screen. Even when a clip list screen is displayed, pressing this button switches the output signals of the video monitor output connectors to E-E signals.

② PB PORT (playback port) button

Before performing playback operations on the front panel of this unit, press this button to select the playback port. Playback video is output to the display and to the video output connectors/video monitor connectors.

Note

When a clip list screen is displayed, pressing this button does not output playback signals to the display or video output connectors. To operate this button, first press the THUMBNAIL button to switch to the basic operation screen or the video monitor screen.

Even when a clip list screen is displayed, pressing this button switches the output signals of the video monitor output connectors to playback video signals.

③ INTERNAL (internal storage) button

This button selects internal storage as the operation target media.

④ DISC button

This button selects a Professional Disc as the operation target media.

❺ MEMORY button
This button selects an SxS memory card as the operation target media.

❻ Slot selection lamps
These light to indicate the selected memory card slot.

❷ Disc control section

❹ EJECT button
❸ Disc slot
❷ DISC IN indicator
❶ DISC ACCESS indicator
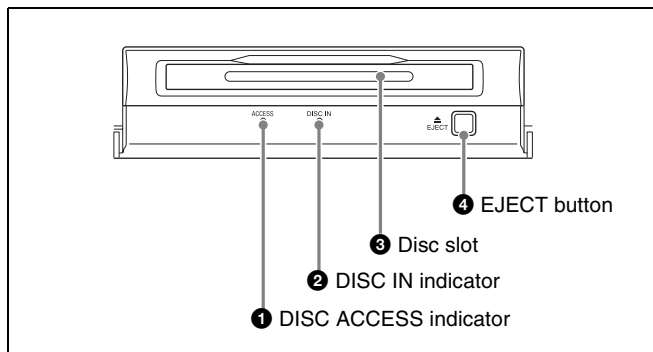
❶ DISC ACCESS indicator
This lights when the Professional Disc is accessed.

Note

While the ACCESS indicator is lit, do not turn off the main power switch on the rear panel or disconnect the power cord.
This could lead to a loss of data from the disc.

❷ DISC IN indicator
This lights when a Professional Disc is inserted.

❸ Disc slot
Insert a Professional Disc in this slot *(see page 44)*.

❹ EJECT button
To remove the Professional Disc, press this button *(see page 44)*.

❸ Memory card slots

❶ Memory card slots
❷ Eject buttons
❸ MEMORY ACCESS A/B lamps
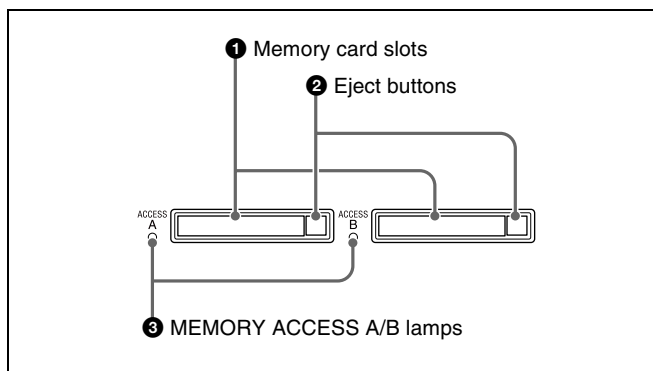
❶ Memory card slots
These two slots (A and B) can receive SxS memory cards *(see page 46)*.

❷ Eject buttons
To remove the SxS memory card from the slot, press the eject button to release the lock, then press the button once more. This makes the media come out of the slot partially *(see page 47)*.

❸ MEMORY ACCESS A/B lamps
Indicate the state of slots A and B *(see page 47)*.

❹ Audio level adjustment section

❶ CH-1/ALL CH, CH-2 to CH-4 adjustment knobs
❷ VARIABLE switch
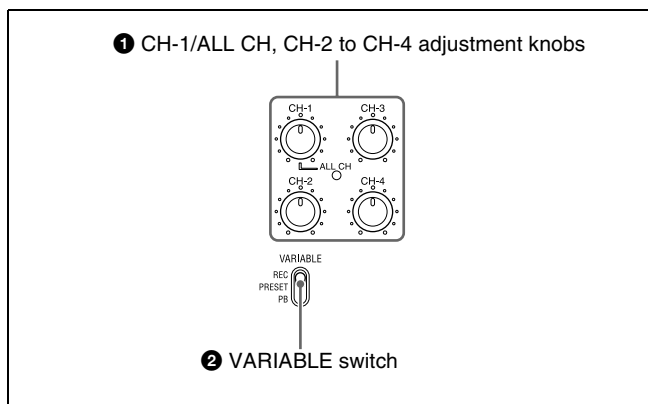
❶ CH-1/ALL CH, CH-2 to CH-4 (audio level) adjustment knobs
Depending on the setting of the VARIABLE switch, these adjust the input audio or playback audio levels of channels 1 to 4.

You can adjust levels of channels 5 to 8 using the function menu. For details, see "P3 AUDIO page" (page 43).

By the setting of setup menu item 131 AUDIO VOLUME, you can enable the CH-1/ALL CH adjustment knob to simultaneously adjust all eight channels. When this simultaneous adjustment is enabled, the ALL CH indicator lights.

❷ VARIABLE (audio level adjustment selector) switch
This selects whether input audio levels or playback audio levels are adjusted by the CH-1/ALL CH and CH-2 to CH-4 adjustment knobs for channels 1 to 4, or by the function menu setting for channels 5 to 8.
REC: Adjust the input audio levels. The playback audio levels are fixed at their preset values.
PRESET: The audio levels are fixed at their preset values.
PB: Adjust the playback audio levels. The input audio levels are fixed at their preset values.

Note

It is not possible to adjust the audio levels of the recording and playback ports simultaneously.

To set the audio level of each port separately, adjust one or the other by using external audio equipment connected to a REMOTE (9P) connector (1 or 2).

E **Display/menu control section**

➎ MENU button

➍ THUMBNAIL button

➌ DISPLAY button

➊ Function buttons (F1 to F6)

➋ Display

➏ PAGE/HOME button

➐ COPY button

➑ RESET/RETURN button

➒ SHIFT button

➓ Arrow buttons and IN/OUT indicators

⓫ PUSH SET knob
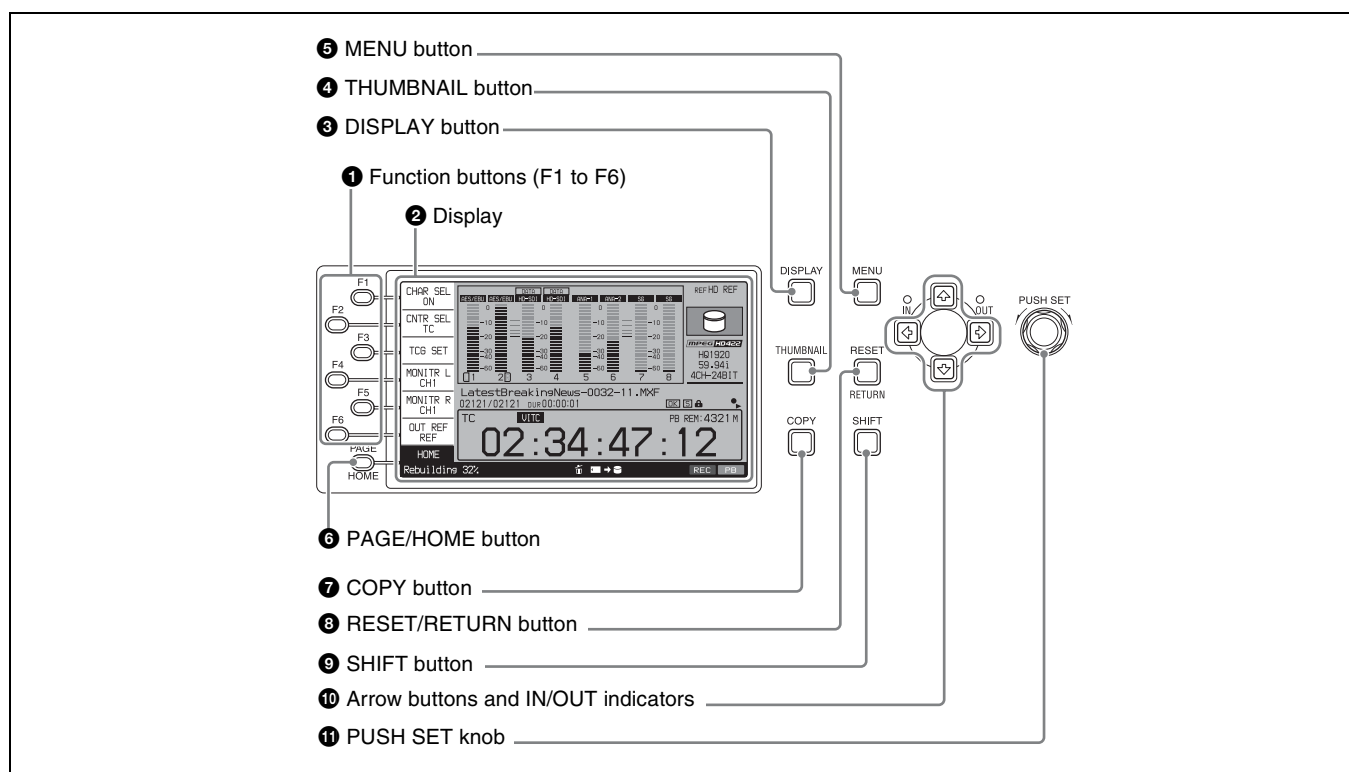
➊ **Function buttons (F1 to F6)**
These buttons are enabled when the function menu *(see page 41)* is visible. Each press of a button changes the setting of the corresponding item in the menu.
When the setup menu *(see page 77)* is displayed, these buttons function as menu control buttons.
For convenience, this manual refers to these buttons as buttons F1 to F6, in order from the top.

➋ **Display**
Displays video being recorded, E-E video, playback video, menus, audio level meters, and data such as timecode or clip information. It can be switched between a basic operation screen *(see page 20)*, a video monitor screen *(see page 23)*, and a clip list screen *(see page 59)*.

For details, see page 58.

➌ **DISPLAY button**
Each press of this button switches between the basic operation screen, the video monitor screen, and the clip list screen *(see page 58)*.
When the clip list screen is displayed, this button switches the display between thumbnails view and details view.

➍ **THUMBNAIL button**
When this button is pressed when the basic operation screen or video monitor screen is displayed, a list of clips saved on the currently selected media is displayed. (That is, the current screen is switched to a clip list screen.)
When pressed again, returns to the basic operation screen or the video monitor screen.

➎ **MENU button**
Starts the setup menu, and starts the Clip Menu from a clip list screen *(see page 61)*. The same information is also superimposed on the display on a video monitor connected to the unit. When pressed again, the setup menu or the Clip Menu disappears.

➏ **PAGE/HOME button**
When pressed alone, functions as the PAGE button. When pressed together with the SHIFT button, functions as the HOME button.
PAGE button: Displays the function menu, if it is not visible. (The most recently displayed page of the function menu appears.)
HOME button: When pressed with the function menu visible, returns to the HOME page of the function menu.

7 COPY button

Displays the Clip Copy screen. *(see page 55)*.

8 RESET/RETURN button

Functions as the RESET button or the RETURN button.

RESET button: Resets counters or the setting values of the timecode generator.

RETURN button: In clip list screens, returns to the previous procedure.

9 SHIFT button

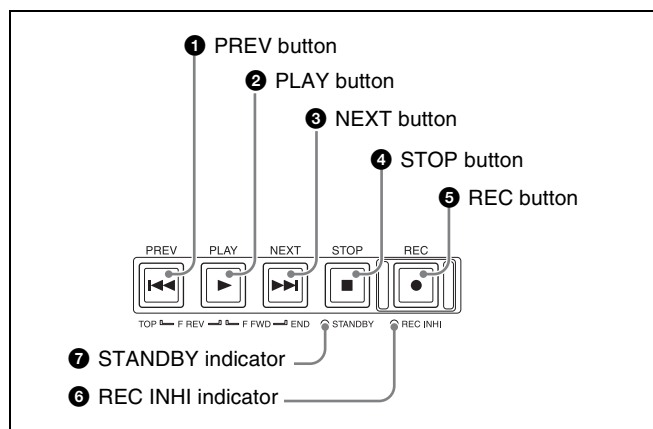Switches between functions for any button with two functions.

10 Arrow buttons and IN/OUT indicators

The arrow buttons are used for clip selection, menu setting operations, and so on.

When you use the arrow buttons to set an IN and OUT point in the clip, it becomes possible to copy only the part defined by the IN and OUT points *(see page 56)*. When an IN and OUT points are set in the clip, the IN and OUT indicators light.

11 PUSH SET knob

This is used for menu operations and thumbnail operations in a clip list screen. Turn the knob to select items, and press it to confirm the selection. This button is also used to set numerical and timecode values.

6 Recording and playback control section

① PREV button
② PLAY button
③ NEXT button
④ STOP button
⑤ REC button
⑦ STANDBY indicator
⑥ REC INHI indicator

① PREV (previous) button

Press this button, turning it on, to show the first frame of the current clip. While the first frame of a clip is shown, pressing this button jumps to the beginning of the previous clip. This button is also used together with other buttons for the following operations.

Reverse direction high-speed search: Hold down the PLAY button, and press this button. A high-speed (50 times normal) search in the reverse direction is carried out.

Displaying the first frame of the first clip: Hold down the SHIFT button, and press this button.

② PLAY button

To start playback, press this button, turning it on.

③ NEXT button

Press this button, turning it on, to jump to the next clip and show the first frame. During chase play, play jumps to the last frame that is playable at that time.

This button is also used together with other buttons for the following operations.

Forward direction high-speed search: Hold down the PLAY button, and press this button. A high-speed (50 times normal) search in the forward direction is carried out.

Displaying the last frame of the last clip: Hold down the SHIFT button, and press this button.

④ STOP button

To stop recording or playback, press this button, turning it on. The frame at the stop point appears.

⑤ REC (record) button

To start recording, hold down this button, and press the PLAY button. The recording takes place on an unrecorded part of the media.

To stop recording, press the STOP button.

⑥ REC INHI (recording inhibit) indicator

Lights when Professional Disc is selected as the operation target media and a disc in record-inhibited state is loaded *(see page 44)*.

Also lights when an SxS memory card is loaded and selected as the operation target media.

Note

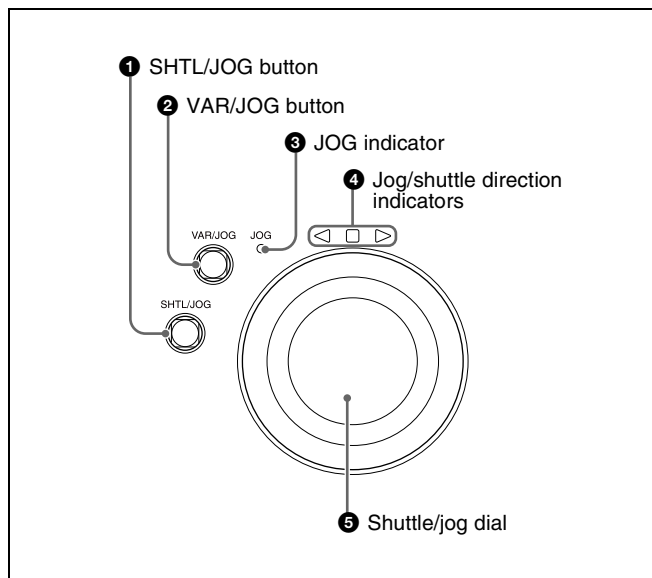Recording to SxS memory cards is not possible.

⑦ STANDBY indicator

Lights when the unit is put into disc stop mode. After a certain time passes in a disc stop mode, the unit automatically enters standby off mode and the indicator goes off.

You can specify the time until the unit enters standby off mode.

For details, see the description of setup menu item 501 STILL TIMER (see page 80).

7 Shuttle/jog/variable-speed playback control section

- ❶ SHTL/JOG button
- ❷ VAR/JOG button
- ❸ JOG indicator
- ❹ Jog/shuttle direction indicators
- ❺ Shuttle/jog dial

❶ SHTL/JOG button
Press this button, turning it on, to perform shuttle or jog playback with the shuttle/jog dial.

❷ VAR/JOG button
Press this button, turning it on, to perform variable-speed or jog playback with the shuttle/jog dial.

❸ JOG indicator
Lights in green when the shuttle/jog dial is in jog mode.

❹ Jog/shuttle direction indicators
These show the playback direction in jog, shuttle, or variable-speed mode.
◀ **(green):** Lights during playback in the reverse direction.
▶ **(green):** Lights during playback in the forward direction.
■ **(red):** Lights during still image display.

❺ Shuttle/jog dial
The dial switches between shuttle/variable-speed mode and jog mode each time that you press it all the way in.
Shuttle/variable-speed mode: The dial is in the raised position.
Jog mode: The dial is in the depressed position (the JOG indicator is lit).
Turn the dial to the right to play in the forward direction, and turn it to the left to play in the reverse direction.
- In jog mode, the playback speed varies from −1 to +1 times normal speed, according to the rotation speed of the dial. There are no detents.
- In shuttle mode, the playback speed varies in the range ±20 times normal speed, according to the angular position of the dial. There is a detent at the center position, for still image playback.

- In variable-speed mode, you can make fine adjustments to the playback speed over the range from −2 to +2 times normal speed, according to the angular position of the dial. There is a detent at the center position, for still image playback.

Regardless of the playback mode, you will normally press the SHTL/JOG or VAR/JOG button before turning the dial. But it is also possible to put the unit into shuttle, jog, or variable-speed mode simply by turning the dial (by setting setup menu item 101 SELECTION FOR SEARCH DIAL ENABLE to "dial").

Note

If you do set the above item to "dial", then you should return the shuttle/jog dial to the center position after conducting shuttle or variable-speed playback. If you do not return the dial to the center position, playback in shuttle or variable-speed mode can start because of vibrations during other operations.

Display screen

Basic operation screen

❶ Function menu
❷ Audio input display/audio level meters
❸ System information
❹ Media status display
❺ Recording or playback format
❻ Clip information
❼ Recording or chase play display
❽ Time data display area
❾ Status display area
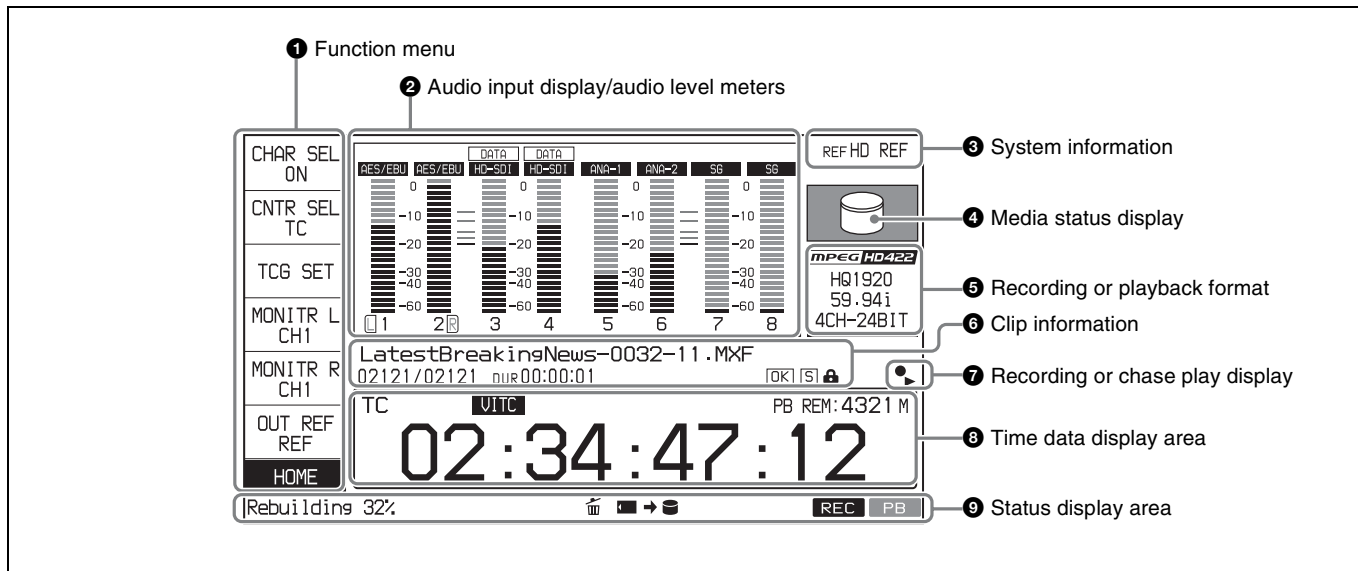
❶ Function menu

Use the PAGE/HOME button to display this menu, and to switch between the pages (HOME, P1 to P5) of the menu. Each page has one to six setting items. Press the corresponding function button to change a setting.

For details, see "Basic Operations of the Function Menu" (page 41).

❷ Audio input display/audio level meters

Displays information about audio.

Ⓐ Input signal display
Ⓑ Data indication
Ⓒ Monitor channel
Ⓓ Audio channel
Ⓔ Reference level
Ⓕ Level bars
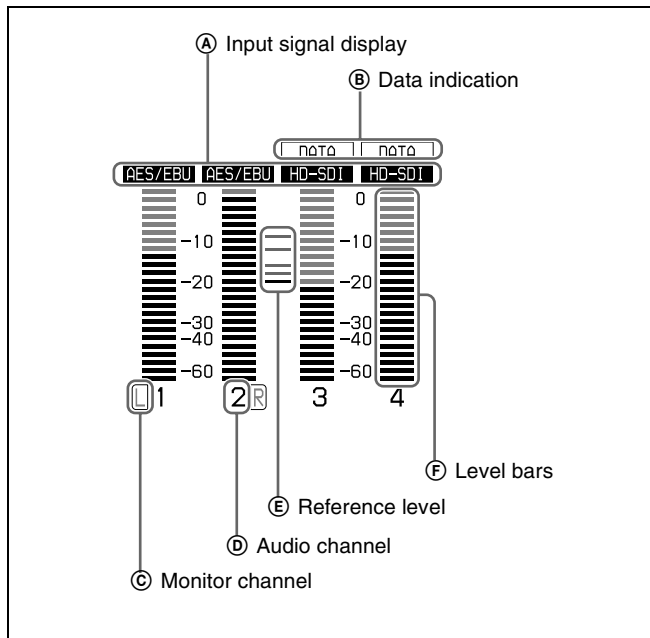
Ⓐ **Input signal display:** Displays the audio input signal.

Display	Input signal	
ANA-1	Analog audio signal	Channel 1, 3, 5, 7
ANA-2		Channel 2, 4, 6, 8
AES/EBU	AES/EBU format digital audio signal (flashes when there is no input signal)	
HD-SDI	HD-SDI audio signal (flashes when there is no input signal)	
SD-SDI	SD-SDI audio signal (flashes when there is no input signal)	
SG	Test signal from the internal signal generator	
DVB-ASI	DVB-ASI TS signal (flashes when there is no input signal) When the video input signal is set to "DVB-ASI", A1 INPUT to A8 INPUT are automatically set to "DVB-ASI".	

Ⓑ **Data indication:** Appears when the input signals are non-audio signals.
Ⓒ **Monitor channel:** Displays the audio monitoring channels set with MONITR L and MONITR R on the HOME page of the function menu *(see page 41).*
Ⓓ **Audio channel:** Displays the audio channels.
Also indicates preset or variable-speed mode by its color *(see page 16).*
White: Preset mode
Green: Variable-speed mode
Ⓔ **Reference level:** Displays the reference level for recording as set in the maintenance menu.
Ⓕ **Level bars:** Display the audio recording or playback levels of channels 1 to 8. The OVER indicators light when the audio level exceeds 0 dB.

❸ System information

Ⓐ Reference signal
Ⓑ Video input display
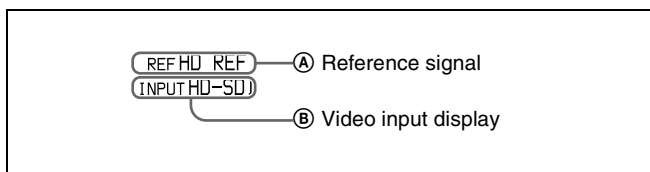
Ⓐ **Reference signal:** This displays the type of reference signal to which this unit is synchronizing.
When there is no display, the unit is synchronizing to the internal reference signal.
INPUT: Input video
HD REF: HD-format reference signal
SD REF: SD-format reference signal

Ⓑ **Video input display:** This displays the currently selected video input signal.
HD-SDI: HD-SDI video input

SD-SDI: SD-SDI video input
SG: Test video signal from the internal signal generator
DVB-ASI [1]: DVB-ASI TS signal

1) When the maintenance menu item M22: OPTION SETTING >DVB-ASI is set to "ON" with the optional PDBK-202 being installed *(see page 92)*.

The video signal input is selected with V INPUT on page P1 INPUT of the function menu *(see page 42)*.

Note

The display blinks when there is no video input signal, and when the video input signal does not match the system frequency of this unit.

❹ Media status display

Displays the icons in the following table to indicate the status of the selected recording media.

Icons		Professional Disc		Status
Internal storage	**Memory card (slot A selected)**	**PFD23A/ PFD50DLA**	**PFD128QLW**	
—	No Media	No Media		Not loaded
(mounting icon)	A	(mounting icon)		Being mounted
(disk icon)	A	(disc icon)	WRITE ONCE	Normal status
(warning icon)	A (warning)	(warning icon)		Warning level error has occurred (finalizing is impossible)
(error icon)	A (error)	(error icon)		Error has occurred (restoring is impossible)
—		Finalized		Finalized
—		(eject icon)		Being ejected

The PFD128QLW media status display changes with the remaining capacity of the recordable resource space (for writing the disc management data, etc.).

Icon	Status
Yellow bar WRITE-ONCE	The available recordable resource space is running out.
Red bar WRITE-ONCE	There is no available recordable resource space on the disc.

Note

The remaining capacity of recordable resource space is not the same as the remaining recording capacity. When there is no available recording resource space is left on the disc, file writing may be disabled even with sufficient available storage remaining.

❺ Recording or playback format

When the recording port is selected, displays the recording format. When the playback port is selected, displays the format of the clip being played.

- Codec — mPEG**HD422**
- Video format — HQ1920
- System frequency — 59.941
- Audio format — 4CH-24BIT
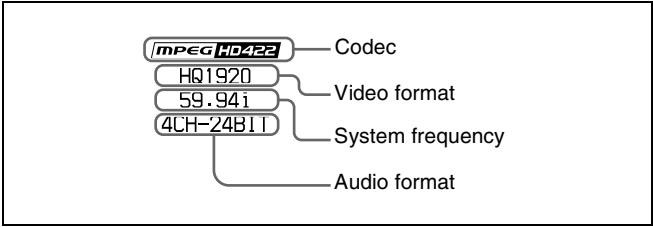
❻ Clip information

Displays clip information.

- Clip name — LatestBreakingNews-0032-11.MXF
- Clip number/total number of clips — 02121/02121
- Duration — ᴅᴜʀ00:00:01
- Property icons — OK S 🔒

During playback, the icons in the following table appear to indicate the properties that have been set in a clip.

Icon	Description
OK	An OK flag is set
NG	An NG flag is set
KP	A KEEP flag is set
S	A shot mark is set
🔒	The clip is locked (protected)

❼ Recording or chase play display

When the recording media is the internal storage, an icon appears to indicate the status of the unit (● : recording, ●▸ : chase play).

❽ Time data display area

Ⓐ Remaining media capacity for recording or playback
Ⓑ REC RUN/FREE RUN
Ⓒ Timecode generator mode
Ⓓ VITC
Ⓔ Time data type
Ⓕ Time data
Ⓖ DF/NDF indication (TCR)
Ⓖ DF/NDF indication (TCG)

VITC · VITC · INT-PRESET · REC-RUN · REC REM: 0020 M

02:34:47:12

Ⓐ **Remaining media capacity for recording or playback:** Displays the amount of remaining capacity for recording or playback on the media.
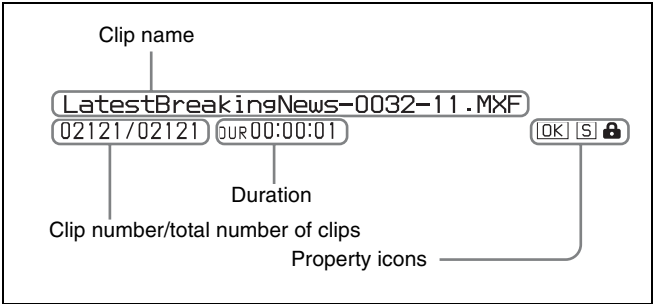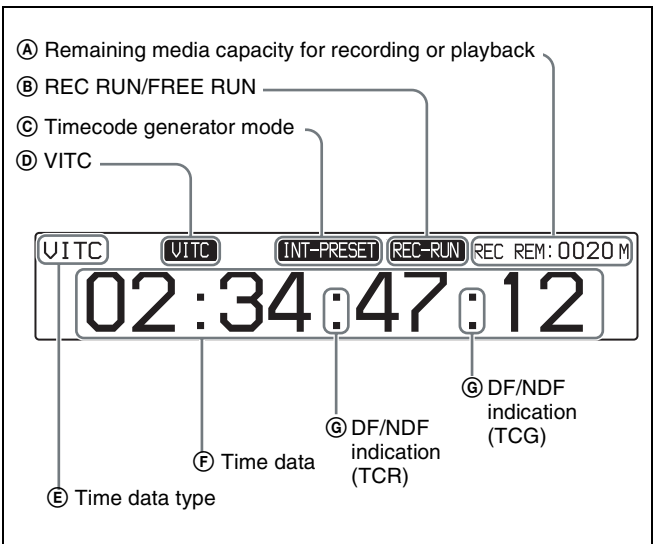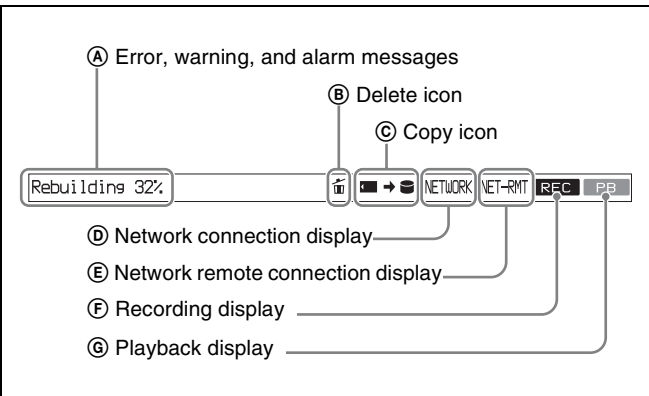
Ⓑ **REC RUN/FREE RUN:** Displays the timecode run mode. The run mode is set with RUN MODE on page P4 TC of the function menu *(see page 43)*.

Ⓒ **Timecode generator mode:** Displays the timecode source and generation method (preset or regenerate). These are set with TCG and PRST/RGN on page P4 TC of the function menu *(see page 43)*.

Ⓓ **VITC:** Lights in the following cases.
- When VITC is read in playback mode. (This has no relations to the display in the time data display area.)
- When VITC recording is possible.

Ⓔ **Time data type:** Displays the type of time data displayed in the time data display area. The type of time data is selected with CNTR SEL on the HOME page of the function menu *(see page 41)*.

Display	Type of time data
TC	Timecode
COUNTER	Elapsed recording/playback time
UB	User bits
VITC	VITC
VIUB	VIUB
TCG	Timecode generator value
UBG	User bits generator value

Ⓕ **Time data:** Normally displays timecode or VITC, according to the selection made with TCR on page P4 TC of the function menu.

Ⓖ **DF/NDF indication:** Displays the frame count mode for the internal timecode reader (TCR) and internal timecode generator (TCG). The frame count mode is set with DF/NDF on page P4 TC of the function menu *(see page 43)*.

Display	Frame count mode
.	DF (drop-frame mode)
:	NDF (non-drop-frame mode)

❾ Status display area

Ⓐ Error, warning, and alarm messages
Ⓑ Delete icon
Ⓒ Copy icon
Ⓓ Network connection display
Ⓔ Network remote connection display
Ⓕ Recording display
Ⓖ Playback display

Rebuilding 32% · 🗑 · ■▸■ · NETWORK · NET-RMT · REC · PB

Ⓐ **Error, warning, and alarm messages:** Messages about operations and the status of the unit appear here. The seriousness of the message is indicated by the color, as follows.
Red: Error message (flashing)
Orange: Warning message
White: Alarm message

Ⓑ **Delete icon:** Flashes while a clip deletion is being executed.

Ⓒ **Copy icon:** An icon representing the copy source and copy destination light while a copy operation is being executed between media.

Icon	Description
◀▬ ➡ 🛢	Copy from memory card to internal storage
⬤ ➡ 🛢	Copy from Professional Disc to internal storage
🛢 ➡ ⬤	Copy from internal storage to Professional Disc
◀▬ ➡ ⬤	Copy from memory card to Professional Disc

Ⓓ **Network connection display:** Lights while data is being exchanged with a network connected external device.

Ⓔ **Network remote connection display:** Lights during a network remote control connection to an external device.

Ⓕ **Recording display:** Lights when recording to the internal storage is being performed.

Ⓖ **Playback display:** Lights when a clip on the internal storage or disc is in the open state.

Video monitor screen

Ⓐ Superimposed information

```
TCR·00:45.39.18✱
    JOG      STILL
```

Rebuilding 32%   🗑 ◀▬ ➡ 🛢 NETWORK NET-RMT REC PB

Ⓑ Status display area
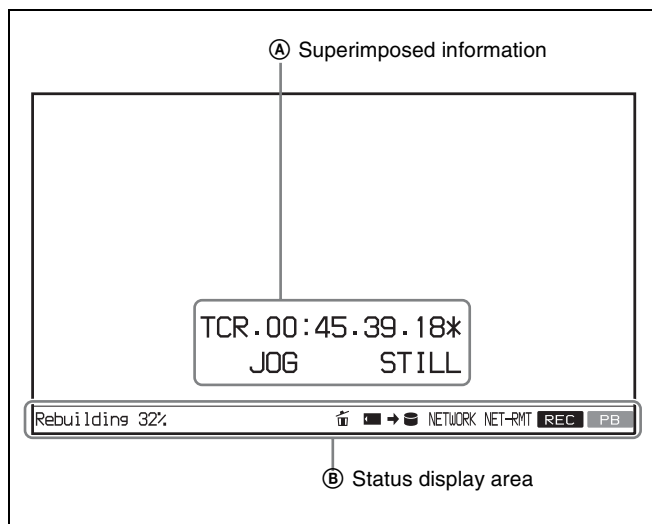
Ⓐ **Superimposed information:** Appears when CHAR SEL on the HOME page of the function menu is set to "ON".

Ⓑ **Status display area:** Displays messages and icons about the status of the unit *(see page 22)*.

Rear Panel

① PCIe expansion slot

② DVB-ASI OUTPUT connector

③ HDMI OUTPUT connector

④ REF. VIDEO INPUT connectors

[2] Timecode input/output section *(see page 26)*

[1] HD/SD-SDI signal input/output section *(see page 25)*

⑤ Redundant power supply unit installation section

[3] Power supply section *(see page 26)*

⑬ COMPOSITE OUTPUT 1, 2 (MONITOR) connectors

⑫ 品 (network) connector

⑪ MAINTENANCE connectors

[5] Analog audio signal input/output section *(see page 27)*

⑩ MONITOR connector

⑨ GPIO connector

⑧ VIDEO CONTROL connector

⑦ REMOTE (9P) 1, 2 connectors

⑥ SYSTEM TC INPUT connector

[4] Digital audio signal input/output section *(see page 27)*

① PCIe expansion slot
For future expansion, this is provided to enable the
connection of units having a PCI Express interface.

**② DVB-ASI OUTPUT (DVB-ASI output) connector
(BNC type)**
This connector can output DVB-ASI TS signals when the
optional PDBK-202 MPEG TS Board is installed. For this,
it is necessary to set the maintenance menu item M22:
OPTION SETTING >DVB-ASI to "ON" *(see page 92)*.

*For details, see "About DVB-ASI Input/Output (When the
Optional PDBK-202 Is Used)" (page 111) for more
information about DVB-ASI TS signals.*

③ HDMI OUTPUT connector
Outputs digital signals (video, audio, control signals).
Output signals are E-E signals or playback signals,
according to the setting of the REC PORT and PB PORT
buttons on the front panel.
Allows you to connect a device with an HDMI input
connector, such as an HD projector or a high-definition
TV.
Audio output signals are the signals of the channels
selected with MONITR L and MONITR R on the HOME
page of the function menu.

**④ REF. VIDEO INPUT (reference video signal input)
connectors (BNC type)**
The two connectors form a loop-through connection; when
a reference video signal is input to the left connector (IN),

the same signal is input from the right connector (⌇) to a connected device. When no connection is made to the right connector, the left connector is automatically terminated with an impedance of 75 ohms.

❺ Redundant power supply unit installation section
When using this unit in a system that requires high reliability, you can back up the unit's power supply by installing the optional XDBK-101 Optional Power Supply. This allows operation to continue even if one of the power supply units fails.
To enable continuous operation after failure, set maintenance menu item M22: OPTION SETTING >REDUNDANT PSU to "ON".

> **Note**
>
> The power supply and XDBK-101 do not support hot swapping. Always turn the main power switch off before exchanging the power supply or adding the XDBK-101.

❻ SYSTEM TC INPUT (system timecode input) connector
If you want to input the standard reference timecode signal of a broadcasting station as time data information, use this connector to input it.

❼ REMOTE (9P) (remote control 9-pin) 1, 2 connectors (D-sub 9-pin)
REMOTE (9P) 1 connector: Controls the recording port. Connect a controller that supports the VDCP protocol.
REMOTE (9P) 2 connector: Controls the playback port. Connect a VTR or a controller that supports the RS-422A Sony 9-pin VTR protocol *(see page 32)*.

❽ VIDEO CONTROL connector (D-sub-9-pin)
Connect an HKDV-900 video control unit.

See page 114 for correspondence between setting items of HKDV-900 and setup menu of this unit.

❾ GPIO (general-purpose I/O) connector
When you are using this unit in a larger system, such as a playout system, this connector allows you to connect an external device to control this unit's playback, and to return tally and alarm signals to the external device.

❿ MONITOR connector
Outputs the same video that appears on the display of this unit's front panel as analog RGB component video signals. This connector is intended for connection to the VGA input connector of a PC monitor.

⓫ MAINTENANCE connectors
These are the USB connectors for maintenance.

⓬ 🖧 (network) connector (RJ-45 type)
This is a 10BASE-T/100BASE-TX/1000BASE-T connector for network connection.

> **CAUTION**
>
> • For safety, do not connect the connector for peripheral device wiring that might have excessive voltage to this port. Follow the instructions for this port.
> • When you connect the network cable of the unit to peripheral device, use a shielded-type cable to prevent malfunction due to radiation noise.

⓭ COMPOSITE OUTPUT (analog composite video output) 1, 2 (MONITOR) connectors (BNC type)
Output analog composite video signals. Output signals of the 2 (MONITOR) connector are E-E signals or playback signals, according to the setting of the REC PORT and PB PORT buttons on the front panel. You can superimpose timecodes or error messages on the output of the 2 (MONITOR) connector when CHAR SEL on the HOME page of the function menu is set to "ON".

See "Basic Operations of the Function Menu" on page 41 for more information about the CHAR SEL setting.

① HD/SD-SDI signal input/output section

❶ HD/SD-SDI INPUT connector
❷ HD-SDI OUTPUT 1, 2 (SUPER) connectors
❸ SD-SDI OUTPUT 1, 2 (SUPER) connectors
❹ HD-SDI MONITOR OUTPUT connector
❺ SD-SDI MONITOR OUTPUT connector
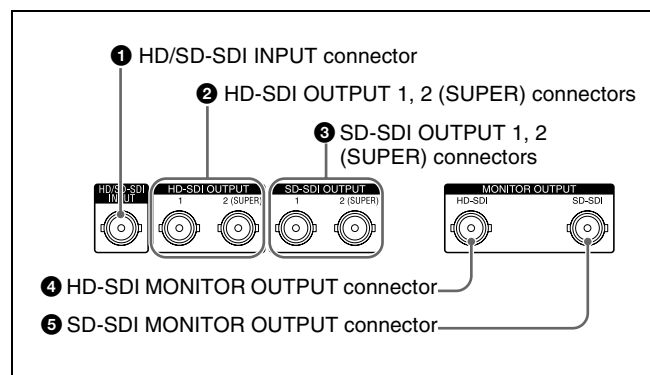
❶ HD/SD-SDI INPUT (HD-SDI/SD-SDI signal input) connector (BNC type)
This inputs an HD-SDI or SD-SDI format video/audio signal.
When the optional PDBK-202 MPEG TS Board is installed, you can input DVB-ASI TS signals to this connector. When inputting DVB-ASI TS signals, it is necessary to set the maintenance menu item M22: OPTION SETTING >DVB-ASI to "ON" *(see page 92)*, and set V INPUT to "DVB-ASI" on page P1 INPUT of the function menu *(see page 42)*.

For details, see "About DVB-ASI Input/Output (When the Optional PDBK-202 Is Used)" (page 111) for more information about DVB-ASI TS signals.

2 HD-SDI OUTPUT 1, 2 (SUPER) (HD-SDI signal output 1, 2 (superimpose)) connectors (BNC type)

These output HD-SDI format video/audio playback signals.

You can superimpose timecodes or error messages on the output of the 2 (SUPER) connector with the setting for CHAR SEL on the HOME page of the function menu and with the setting for setup menu item 028 HD CHARACTER. You can always disable to superimpose the data independent of the setting for CHAR SEL with the setting for setup menu item 028.

See "Basic Operations of the Function Menu" (page 41) for more information about the CHAR SEL settings.

See page 76 for more information about the setup menu item 028 HD CHARACTER.

To treat the input and output signals of these connectors as non-audio signals, set the maintenance menu item M37: AUDIO CONFIG >M372: NON-AUDIO INPUT (recording) *(see page 93)*.

3 SD-SDI OUTPUT 1, 2 (SUPER) (SD-SDI signal output 1, 2 (superimpose)) connectors (BNC type)

These output SD-SDI format video/audio playback signals.

When the unit is shipped from the factory, audio signal output is eight channels with no switching, and RP188 timecode output is set to on. You can change these settings with setup menu item 828 SDI AUDIO OUTPUT SELECT and setup menu item 920 SD-SDI H-ANC CONTROL *(see page 86)*.

You can superimpose timecodes or error messages on the output of the 2 (SUPER) connector with the setting for CHAR SEL on the HOME page of the function menu and with the setting for setup menu item 027 SD CHARACTER. You can always disable to superimpose the data independent of the setting for CHAR SEL with the setting for setup menu item 027.

See "Basic Operations of the Function Menu" (page 41) for more information about the CHAR SEL settings.

See page 76 for more information about the setup menu item 027 SD CHARACTER.

4 HD-SDI (HD-SDI signal) MONITOR OUTPUT connector (BNC type)

This outputs HD-SDI format video/audio signals. Output signals are E-E signals or playback signals, according to the setting of the REC PORT and PB PORT buttons on the front panel.

Allows you to connect an HD monitor with an HD-SDI input connector.

5 SD-SDI (SD-SDI signal) MONITOR OUTPUT connector (BNC type)

This outputs SD-SDI format video/audio signals. Output signals are E-E signals or playback signals, according to the setting of the REC PORT and PB PORT buttons on the front panel.

Allows you to connect an SD monitor with an SD-SDI input connector.

2 Timecode input/output section

1 TIME CODE IN connector
2 TIME CODE OUT connector
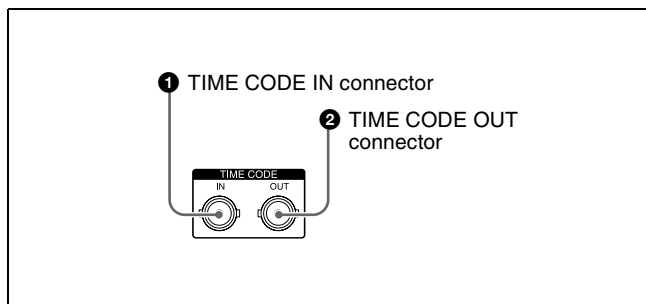
1 TIME CODE IN connector (BNC type)

This inputs an SMPTE timecode signal generated by an external device.

2 TIME CODE OUT connector (BNC type)

This outputs playback timecode signal.

3 Power supply section

1 Main power switch
2 AC power input connector
3 Ground terminal
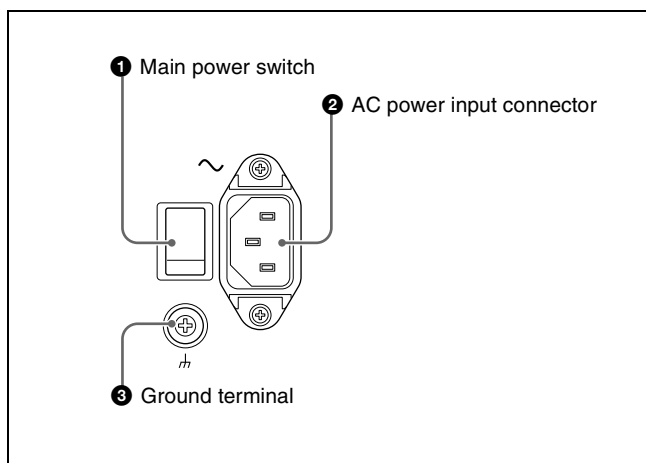
1 Main power switch

Press the upper side to power the unit on. Press the lower side to power the unit off.

When using the unit, normally leave the main power switch in the on position, and use the on/standby button on the front panel to switch the unit between the operating state and standby state.

Note

Before turning the main power off, always check to be sure that the on/standby indicator on the front panel is lit in red

(showing that this unit is in the standby state), and then press the main power switch to the off side.

❷ AC power input connector (∼)
Connect to an AC power supply with the power cord (not supplied).

❸ Ground terminal (⏚)
Connect this to ground as required.

④ Digital audio signal input/output section

❶ DIGITAL AUDIO (AES/EBU) IN 1/2, 3/4, 5/6, 7/8 connectors

❷ DIGITAL AUDIO (AES/EBU) OUT 1/2, 3/4, 5/6, 7/8 connectors
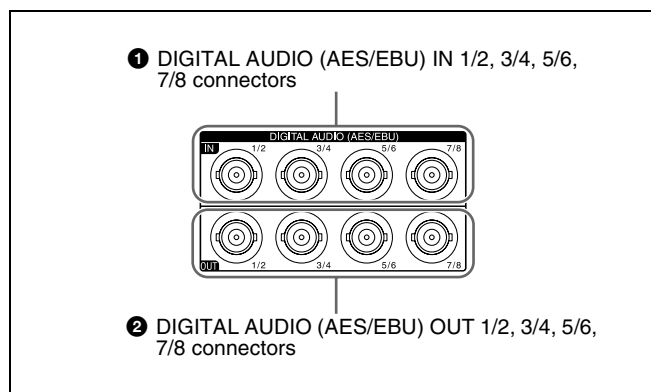
❶ DIGITAL AUDIO (AES/EBU) IN (digital audio input) 1/2, 3/4, 5/6, 7/8 connectors (BNC type)
These input AES/EBU format digital audio signals.

❷ DIGITAL AUDIO (AES/EBU) OUT (digital audio output) 1/2, 3/4, 5/6, 7/8 connectors (BNC type)
These output AES/EBU format digital audio signals.

To treat the input and output signals of these connectors as non-audio signals, set the maintenance menu item M37: AUDIO CONFIG >M372: NON-AUDIO INPUT (recording) *(see page 93)*.

⑤ Analog audio signal input/output section

❶ ANALOG AUDIO INPUT 1, 2 connectors

❷ ANALOG AUDIO OUTPUT 1, 2 connectors

❸ AUDIO MONITOR OUTPUT R, L connectors
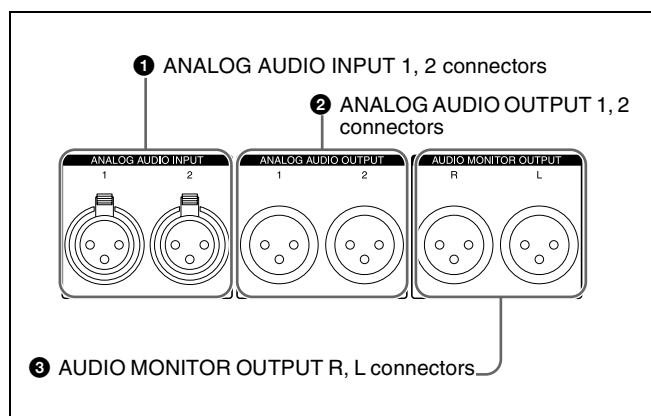
❶ ANALOG AUDIO INPUT 1, 2 connectors (XLR 3-pin, female)
These input analog audio signals.
With A1 INPUT to A4 INPUT on page P1 INPUT *(see page 42)* and A5 INPUT to A8 INPUT on page P2 INPUT of the function menu, you can assign the signal input to connector 1 to an odd numbered channel (1, 3, 5 or 7), and assign the signal input to connector 2 to an even numbered channel (2, 4, 6 or 8).
You can set the reference input level with the maintenance menu item M37: AUDIO CONFIG *(see page 93)*. (Factory default setting: +4 dB)

❷ ANALOG AUDIO OUTPUT 1, 2 connectors (XLR 3-pin, male)
These output analog audio signals.
When the unit is shipped from the factory, the connector 1 is set to audio channel 1, and the connector 2 is set to audio channel 2. You can change these settings with setup menu item 824 ANALOG LINE OUTPUT SELECT *(see page 86)*.
You can set the output level with the maintenance menu item M37: AUDIO CONFIG *(see page 93)*. (Factory default setting: +4 dB)
Non-audio signals are muted.

❸ AUDIO MONITOR OUTPUT R, L connectors (XLR 3-pin, male)
Output audio signals for monitoring.
The monitored channel is selected with MONITR L and MONITR R on the HOME page of the function menu.
Output signals are E-E signals or playback signals, according to the setting of the REC PORT and PB PORT buttons on the front panel.

*See "Basic Operations of the Function Menu" (page 41) for more information about the MONITR L and MONITR R settings.*

Preparations

Chapter **3**

Supplying Power

Connect the AC power input connector to an AC power source using the specified AC power cord. To supply power, set the main power switch on the rear panel to on, and then press the on/standby ($\bigcirc$) button on the front panel and hold it down for a short time (0.25 seconds or longer).

Note

To switch the state of this unit from standby state (the main switch on the rear panel is on) to operative state, wait at least three seconds after the unit has entered standby state and then press the on/standby button on the front panel.

Initial Setup

This unit is shipped with the area of use, system frequency, and current date and time still unset.
Therefore, you need to make initial setup settings before using the unit. (You cannot use the unit without setting it up.)
Once the unit has been set up, the settings are retained even when the unit is powered off.

To set the area of use and system frequency
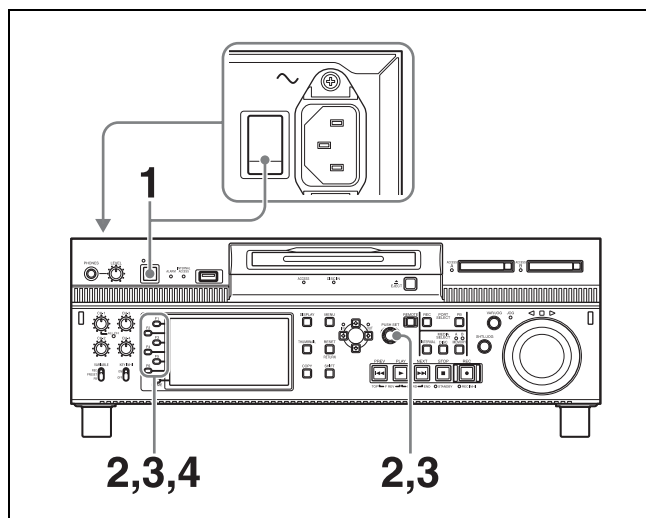
1 Power the unit on.

The INITIAL SETUP screen appears on the display.

```
RETURN              INITIAL SETUP

               UC/J MODEL SELECT

                      NONE



  SET
                   INC/DEC  : CTRL.KNOB
                CANCEL&PREV : F1(RET)
                  SET&NEXT  : F5(SET)
  INIT
```

2 Turn the PUSH SET knob to select the area of use.

Display UC (for regions outside Japan) or J (for Japan), and then press the SET function button (F5). The system frequency screen appears.

3 Turn the PUSH SET knob to select the system frequency.

```
RETURN              INITIAL SETUP

             SYSTEM FREQUENCY SELECT

                    1080/50i



  SET
                   INC/DEC  : CTRL.KNOB
                CANCEL&PREV : F1(RET)
                  SET&NEXT  : F5(SET)
  INIT
```

4 Display the system frequency that you want to use, and then press the SET function button (F5).

```
RETURN              INITIAL SETUP



                 Push F5(SET) Key!



  SET

                CANCEL&PREV : F1(RET)
                SAVE&REBOOT : F5(SET)
  INIT
```

The message "NOW SAVING..." appears, and the setting screen disappears. Then the unit powers itself off and on again.

To return to the original screen without saving settings
Press the RETURN function button (F1).

To set the date and time

Use the maintenance menu item M3D: DATE/TIME PRESET.

See page 96 for more information about maintenance menu operations.

Note

The time zone is reset to the factory default when you execute the maintenance menu item M49: RESET ALL SETUP. You will need to set it again. The date and time are not reset.

Front Panel Tilt Mechanism

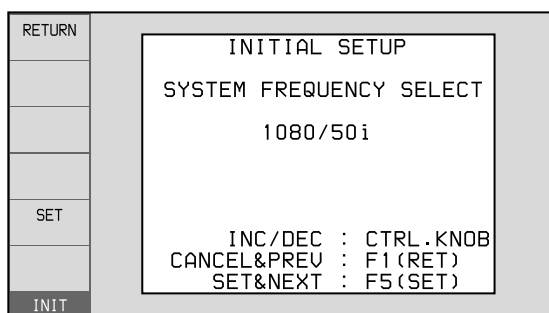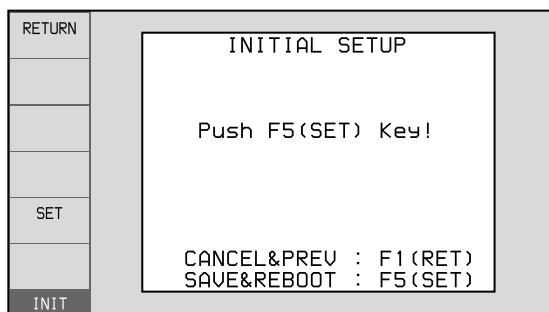The front panel of this unit has a tilt mechanism that allows you to pull the front panel out and adjust it to a convenient angle.

Note

Do not adjust the tilt during recording, playback, or copying. Shocks or vibrations can affect the internal storage, preventing normal recording, playback, or copying.
Before adjusting the tilt, be sure to put the unit into stop mode.

To pull the front panel out

Press and hold in the lock release buttons on both sides of the front panel, and pull in the direction of the arrow.
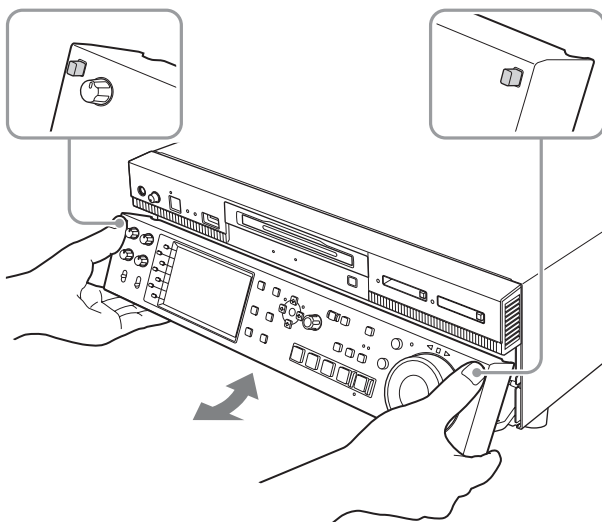
You can fix the angle of the front panel in position 1 (40 degrees), position 2 (65 degrees), or position 3 (90 degrees).

Return position
Position 3 (90 degrees)
Position 2 (65 degrees)
Position 1 (40 degrees)
Position 0
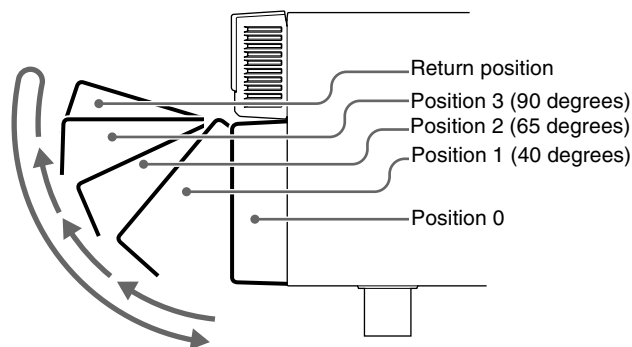
Note

The angle cannot be fixed if you pull the front panel past position 3 all the way out to the return position. To fix the front panel, return it to position 0 and then pull it out to the desired angle.

To return the front panel to its original position

Unlock the front panel by pulling it out to the return position. You can then return it to position 0.

To change the angle of the front panel

To change to a larger angle, pull the panel up to that angle. To change to a smaller angle, pull the front panel all the way up to the return position, releasing the lock. Then return it to position 0 and pull it out again to the desired angle.

Connections and Settings

Note

Production of some of the peripherals and related devices described in this chapter may have been discontinued. For advice about choosing devices, contact your Sony sales representative.

Connections for using XDCAM Browser or a nonlinear editor that is not a Sony product

When using XDCAM Browser, you can have a remote access to this unit from a network connected computer. You can also access to this unit from a nonlinear editor that is not a Sony product via FTP/CIFS, and use this unit as a material server.

For an overview and installation of the XDCAM Browser, access the Sony website closest to your area.

When using the 🔧 (network) connector

The following shows connection examples.

Note

The XDS-PD1000 IP address and other network-related settings are required for connections.

For details of the network-related settings, see "To change network settings" (page 96).

Connecting this unit directly to a laptop computer
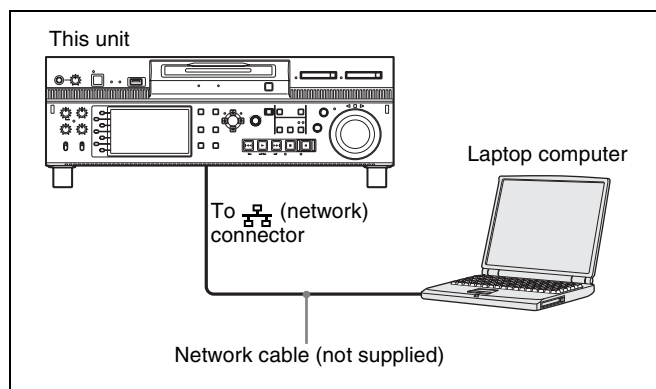
Connecting three of this unit to a laptop computer via a LAN
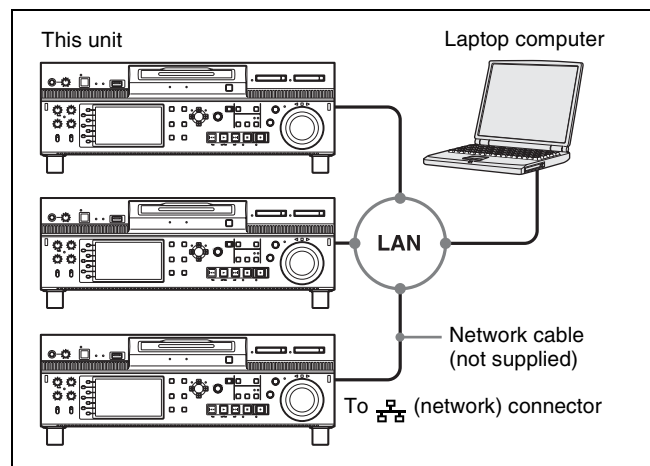
Connections for cut editing

The following figure shows a cut editing system comprising this unit as a player.

When making the connections, also refer to the manuals provided with the equipment to be connected.

When using an BVE-700/700A editing control unit

The following figure shows a cut editing system comprising this unit as a player, an HDW-M2000/M2000P unit as a recorder, and a BVE-700/700A as an editing control unit.

Settings on each unit

Device	Settings
HDW-M2000/M2000P (recorder)	• REMOTE 1 (9P) button: Lit • REF.VIDEO INPUT connector 75 Ω termination switch: OFF • Audio selection function switching button INPUT button: HDSDI • Function menu HOME >F1 (VID. IN): SDI • Function menu page 1 >F1 (TCG): INT • Function menu page 1 >F2 (PR/RGN): PRESET • Function menu page 1 >F3 (RUN): FREE
BVE-700/700A (editing control unit)	• SYNCHRONIZE menu: OFF • VTR constants *(see below)*
This unit (player)	• Setup menu item 208 PROTOCOL FOR REMOTE(9P): VTR • REMOTE button (for playback port): Lit

Setting of VTR constants

When connecting an editing control unit (BVE-700/700A/
2000) to use with this unit, set VTR constants as follows.

System frequency	VTR constant															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
59.94i/59.94P/29.97P	A0	B1 B2 [a]	00	96	07	07	03	80	0A	07	FE	00	80	5A	FF	5A
50i/50P/25P	A1	B1 B2 [a]	00	7D	07	07	03	80	0A	07	FE	00	80	4C	FF	4B
23.98P	A2	B1 B2 [a]	00	78	07	07	03	80	0A	07	FE	00	80	48	FF	48

a) XDS-PD1000: B1, XDS-PD2000: B2

Using the RM-280 Editing Controller

The following figure shows a cut editing system
comprising this unit as a player, an HDW-M2000/M2000P
unit as a recorder, and an RM-280 as an editing control
unit.

Settings on each unit

Device	Settings
HDW-M2000/M2000P (recorder)	• REMOTE 1 (9P) button: Lit • REF.VIDEO INPUT connector 75 Ω termination switch: OFF • Audio selection function switching button INPUT button: HDSDI • Function menu HOME >F1 (VID. IN): SDI • Function menu page 1 >F1 (TCG): INT • Function menu page 1 >F2 (PR/RGN): PRESET • Function menu page 1 >F3 (RUN): FREE
RM-280 (editing controller)	• EDITOR/REMOTE CONTROL selector switch: EDITOR • Setup menu 01 PREROLL: 5s • Setup menu 05 SYNC SEL: ON • Setup menu 06 SYNC VTR: RECORDER • Setup menu 09 EDIT DLY: AUTO • Setup menu 10 R ST DLY: AUTO • Setup menu 11 P ST DLY: AUTO • Setup menu 19 FNC MODE: NORMAL
This unit (player)	• Setup menu item 208 PROTOCOL FOR REMOTE(9P): VTR • REMOTE button (for playback port): Lit

Using the editing functions of the recorder (controlling through REMOTE (9P) connector)

The following figure shows a cut editing system comprising this unit as a player, and an HDW-M2000/M2000P unit as a recorder. In this example, video and audio signals are connected by HD-SDI, and control signals are transferred via a REMOTE (9P) connector.
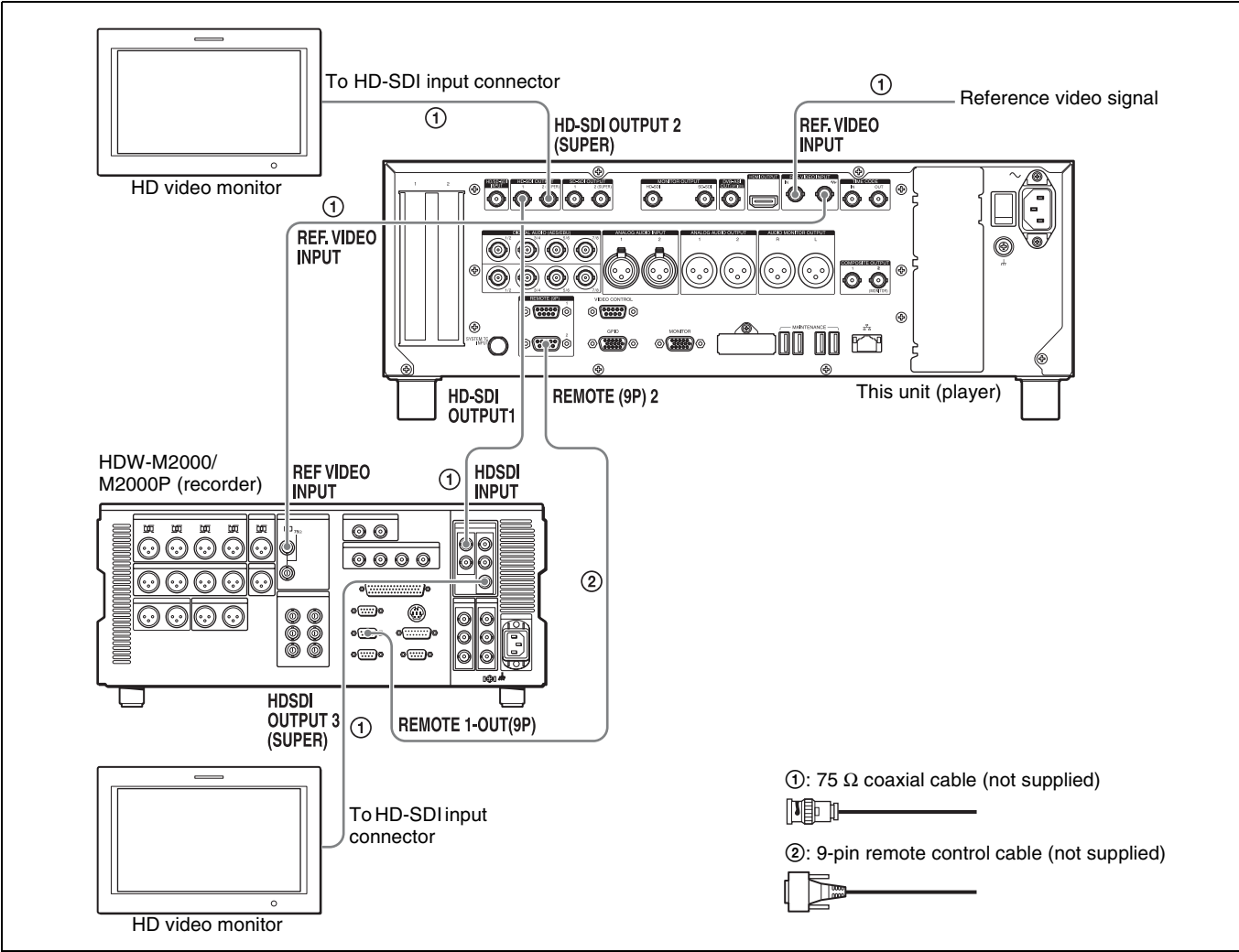
Settings on each unit

Device	Settings
HDW-M2000/M2000P (recorder)	REMOTE 1 (9P) button: Unlit
This unit (player)	• Setup menu item 208 PROTOCOL FOR REMOTE(9P): VTR • REMOTE button (for playback port): Lit

For details of HDW-M2000/M2000P settings, refer to the
HDW-M2000/M2000P Operation Manual.

Synchronization Reference Signals

The synchronization reference signal generator of this unit synchronizes to a reference signal input to the REF. VIDEO INPUT connector or to a video input signal. External synchronization is as follows, depending on the setting of OUT REF on the HOME page of the function menu, and on the type of the selected input signal. Video output signals are always synchronized to the internal synchronization reference signal.

Input to HD/SD-SDI INPUT connector [a]	Input to REF. VIDEO INPUT connector	Setting of OUT REF on the HOME page	
		REF	INPUT
Yes	Yes	Synchronize to the signal input to the REF. VIDEO INPUT connector	Synchronize to the signal input to the HD/SD-SDI INPUT connector
Yes	No	No external synchronization is made	Synchronize to the signal input to the HD/SD-SDI INPUT connector
No	Yes	Synchronize to the signal input to the REF. VIDEO INPUT connector	No external synchronization is made
No	No	No external synchronization is made	

a) Same as when INT SG on page P1 INPUT of the function menu is set to "ON".

Synchronization reference signals when you are recording, playing, or editing 720P signals

When you are recording, playing, or editing 720P signals, set OUT REF on the HOME page of the function menu to "REF", and synchronize the synchronization reference signal generator of this unit to a reference signal input to the REF. VIDEO INPUT connector. The following reference signals can be used.

720/59.94P system: 1080/59.94i tri-level sync signal, 525 black burst signal

720/50P system: 1080/50i tri-level sync signal, 625 black burst signal

When you directly interconnect video I/O connectors between two of this unit or between this unit and the XDS-1000 or PDW-F1600/HD1500/F800/700, you can record and dub 720P signals even if you set OUT REF on the HOME page of the function menu to "INPUT".
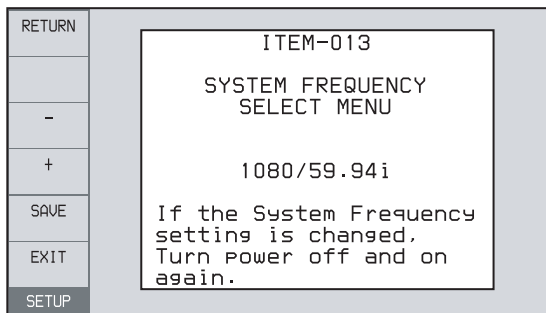
Setting System Frequency

This unit can record and play back video at the system frequencies of 1080/59.94i, 50i, 29.97P, 25P, and 23.98P or 720/59.94P and 50P.

To select the system frequency

1 Set setup menu item 013 SYSTEM FREQUENCY SELECT MENU to "on" and press the PUSH SET knob.

The system frequency selection screen appears.

```
RETURN
                  ITEM-013

  –            SYSTEM FREQUENCY
                 SELECT MENU
  +
                 1080/59.94i
SAVE
             If the System Frequency
EXIT         setting is changed,
             Turn power off and on
SETUP        again.
```

2 Turn the PUSH SET knob to select the system frequency to be used.

```
RETURN
                  ITEM-013

  –            SYSTEM FREQUENCY
                 SELECT MENU
  +
                   1080/50i
SAVE
             Push F5(SAVE) Key!!
EXIT

SETUP
```
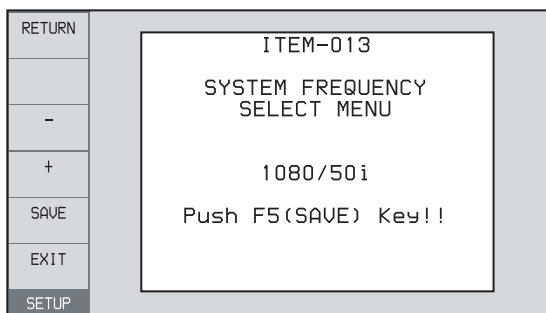
3 Press the SAVE function button (F5).

The message "Turn off/on POWER!!" appears.

4 After pressing the on/standby button and hold it down for one second or longer to the unit into the standby state, power it on again.

Setting Time Data

Setting timecode

There are the following four ways of recording timecode:

Internal Preset mode: This records the output of the internal timecode generator, set beforehand to an initial value. The following run modes can be selected.
- Free Run: Timecode advances continually.
- Rec Run: Timecode advances only during recording.

System TC (system timecode) mode: This records the output of the internal timecode generator, synchronized to a broadcast station reference timecode signal input to the SYSTEM TC INPUT connector.

External Regen (regenerate) mode: This records the output of the internal timecode generator, synchronized to an external timecode generator. As the external input, the timecode signal input to any of the following connectors can be selected.
- TIME CODE IN connector: LTC
- HD/SD-SDI INPUT connector: VITC and LTC

External Preset mode: This directly records the input of an external timecode generator. As the external input, the timecode signal input to the TIME CODE IN connector can be selected.

To record timecode after setting an initial value (Internal Preset)

Proceed as follows with the function menu. For setting the timecode, set TCG on page P4 TC of the function menu to "INT" and PRST/RGN to "PRESET".

Time data display area

Function menu
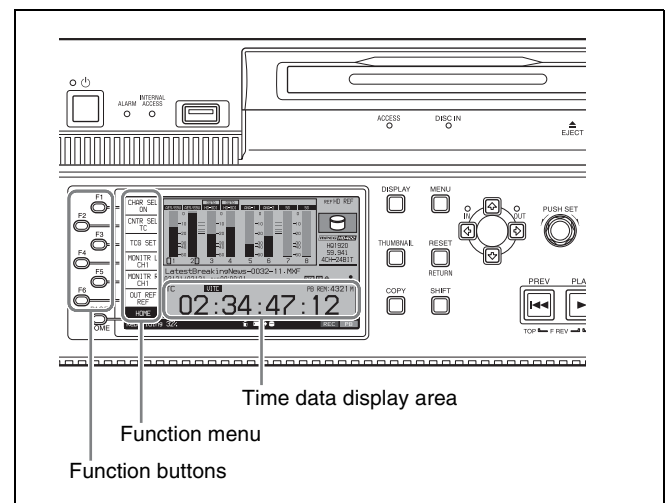
Function buttons

Setting an initial timecode value

1 Press the CNTR SEL function button on the HOME page of the function menu, and select TC.

2 Press the TCG SET function button (F3).

The first digit of the time data display starts flashing.

3 Press the ← or → function button (F1 or F2) to select a digit to be set.

The selected digit starts flashing.

4 Use the PUSH SET knob or – or + function button (F3 or F4) to set the value for the selected digit.

To set the next-most significant digit (10s place)
Turn the PUSH SET knob while holding down the SHIFT button.

Repeat steps **3** and **4** to set all digits that should be set.

To set to 00:00:00:00
Press the RESET button.

5 Press the SET function button (F5).

If RUN MODE on page P4 TC is set to "FREE RUN", the timecode starts running.

To cancel a setting
Press the EXIT function button (F6). Any new settings to that point are canceled, and the setting operation is terminated.

Setting the timecode to the current time

1 Set RUN MODE on page P4 TC to "FREE RUN" and DF/NDF to "DF" (in 59.94i/59.94P/29.97P mode only).

2 Perform steps **1** to **4** of "Setting an initial timecode value" to set the timecode to a time slightly ahead of the current time.

3 Press the SET function button (F5) at the instant when the current time matches the displayed timecode.

To record timecode synchronized to the station's reference time

On page P4 TC of the function menu, set TCG to "SYS". This selects recording of timecode synchronized to a broadcast station reference timecode signal input to the SYSTEM TC INPUT connector.

## To record with the internal timecode generator synchronized to external timecode (External Regen)

Use this method to synchronize the timecode generators of a number of recorders, to record the playback timecode of external VTRs, or to record while maintaining synchronization between the source video and timecode. Use either of the following procedures according to the type of external timecode.

Synchronizing with timecode input to the TIME CODE IN connector

1 Connect the timecode output of an external device to the TIME CODE IN connector, and input a reference video signal to the REF. VIDEO INPUT connector.

2 Make the following settings on page P4 TC of the function menu.

- Set TCG to "EXT".
- Set PRST/RGN to "TC".

Synchronizing with embedded LTC input to the HD/SD-SDI INPUT connector

1 Input an HD-SDI signal containing embedded LTC to the HD/SD-SDI INPUT connector, and a reference video signal to the REF. VIDEO INPUT connector.

2 Make the following settings on page P4 TC of the function menu.

- Set TCG to "SDI".
- Set PRST/RGN to "TC".

Executing either of these procedures starts the internal timecode generator running in synchronization with the external timecode generator.
Once the internal timecode generator is synchronized with the external timecode generator, the internal timecode generator continues to run even if the external timecode generator connection is removed.
The timecode advance mode is set automatically to Free Run. The frame count mode (for system frequency 59.94i/59.94P/29.97P only) is set to the same mode as the external timecode signal (drop-frame or non-drop-frame).

To check the synchronization to the external signal

Press the REC PORT button to select the recording port. Check that the timecode value shown in the time data display coincides with the external timecode value.

To record external timecode directly (External Preset)

When you use this method, the internal timecode generator advances without being affected by the external timecode.

To directly record timecode input to the TIME CODE IN connector

Input the timecode output of an external device to the TIME CODE IN connector, and make the following settings on page P4 TC of the function menu.
- Set TCG to "EXT".
- Set PRST/RGN to "PRESET".

Setting user bits

You can record up to 8 hexadecimal digits of information (date, time, event number, etc.).
Select UB by pressing the CNTR SEL function button (F2) in step **1** of *"Setting an initial timecode value" (page 38)* and carry out steps **2** to **5**. Settings are made in hexadecimal (0 to 9, A to F).

Superimposed Text Information

The video signal output from the following connectors on this unit contains superimposed text information, including timecode and alarm messages.
- HD-SDI OUTPUT 2 (SUPER) connector
- SD-SDI OUTPUT 2 (SUPER) connector
- HD-SDI MONITOR connector
- SD-SDI MONITOR connector
- COMPOSITE OUTPUT 2 (MONITOR) connector

Adjusting the text display

You can adjust the position and type of the superimposed text using setup menu items 002, 003, and 005.

For details, see "Items in the basic menu" (page 75).

Information displayed

❶ Type of time data
❷ Timecode reader drop-frame mark (for 59.94i/59.94P/29.97P mode only)
❸ Timecode generator drop-frame mark (for 59.94i/59.94P/29.97P mode only)
Time data
❹ VITC field mark
❻ Operation mode
❺ Port

| T | C | R | | 0 | 0 | : | 0 | 4 | . | 4 | 7 | . | 0 | 7 | * |
| P | 1 | | | P | L | A | Y | | | | L | O | C | K | |
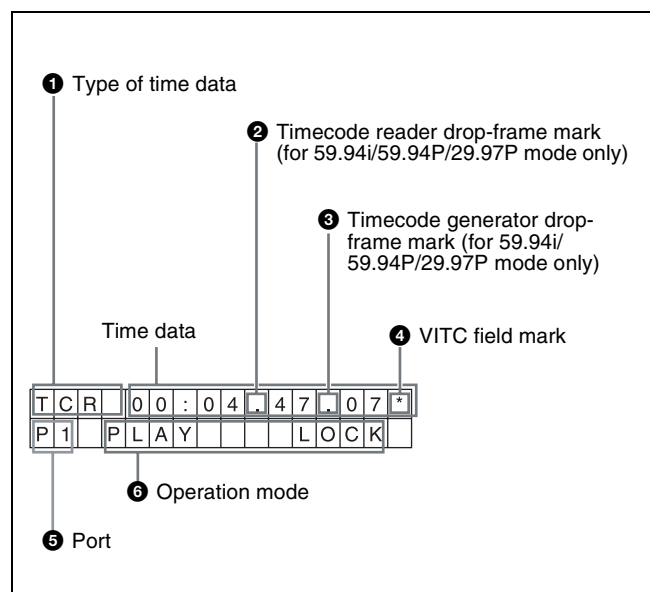
Note

The display shown above corresponds to the factory default settings of the unit. You can change the type of information to be displayed in the lower line of the display by changing the setting of setup menu item 005 DISPLAY INFORMATION SELECT.

For details, see "Items in the basic menu" (page 75).

❶ Type of time data

Display	Meaning
CNT	Counter data
TCR	TC reader timecode
UBR	TC reader user bits data
TCR.	VITC reader timecode
UBR.	VITC reader user bits data
TCG	TC generator timecode
UBG	TC generator user bits data

Note

If the time data or user bits data cannot be read correctly, they will be displayed with an asterisk. For example, "T*R", "U*R", "T*R." or "U*R.".

❷ Timecode reader drop-frame mark (for 59.94i/59.94P/29.97P mode only)
"**.**": Indicates drop-frame mode.
"**:**": Indicates non-drop-frame mode.

❸ Timecode generator drop-frame mark (for 59.94i/59.94P/29.97P mode only)
"**.**": Indicates drop-frame mode (factory default setting).
"**:**": Indicates non-drop-frame mode.

❹ VITC field mark
"** ” (blank):** Fields 1 and 3 (for 59.94i/59.94P/29.97P/23.98P mode) or fields 1, 3, 5 and 7 (for 50i/50P/25P mode)
"*****": Fields 2 and 4 (for 59.94i/59.94P/29.97P/23.98P mode) or fields 2, 4, 6 and 8 (for 50i/50P/25P mode)
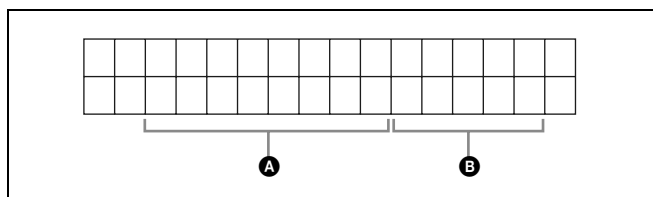
❺ Port
P1: Indicates when the playback port is selected.
R1: Indicates when the recording port is selected.

❻ Operation mode
The field is divided into two blocks as shown below.
• Block A displays the operation mode.
• Block B displays the servo lock status or playback speed.

Display		Operation mode
Block A	Block B	
STOP		Stop mode
NEXT xxx		Cuing up to the first frame of the next clip.

| Display		Operation mode
Block A	Block B	
PREV xxx		Cuing up to the first frame of the current clip.
F.FWD		Fast forward search
F.REV		Fast reverse search
PLAY		Playback mode (servo unlocked)
PLAY	LOCK	Playback mode (servo locked)
REC		Record mode (servo unlocked)
REC	LOCK	Record mode (servo locked)
JOG	STILL	A still picture in jog mode
JOG	FWD	Jog mode in forward direction
JOG	REV	Jog mode in reverse direction
SHUTTLE	STILL	A still picture in shuttle mode
SHUTTLE	(Speed)	Shuttle mode
VAR	STILL	A still picture in variable-speed mode
VAR	(Speed)	Variable-speed mode
TOP 0001/xxxx		Cuing up to the first frame of the first clip.
END xxxx/xxxx		Cuing up to the last frame of the last clip.
PREROLL		Cuing up during thumbnail search
CLOSE		A clip is not selected.
MEDIA OUT		No media is loaded.
LOADING		Disc is being loaded.
UNLOADING		Disc is being unloaded.
STANDBY OFF		Standby off mode

Basic Operations of the Function Menu

The function menu provides access to frequently used settings, such as input video signal selection and timecode settings.
Menu settings are stored in nonvolatile memory and are preserved even after the unit is powered off.

Function menu operations

The function menu appears on the display of this unit. The following figure shows the buttons (F1 to F6) used in function menu operations.

Function buttons (F1 to F6)
Function menu
DISPLAY button
PAGE/HOME button
PUSH SET knob
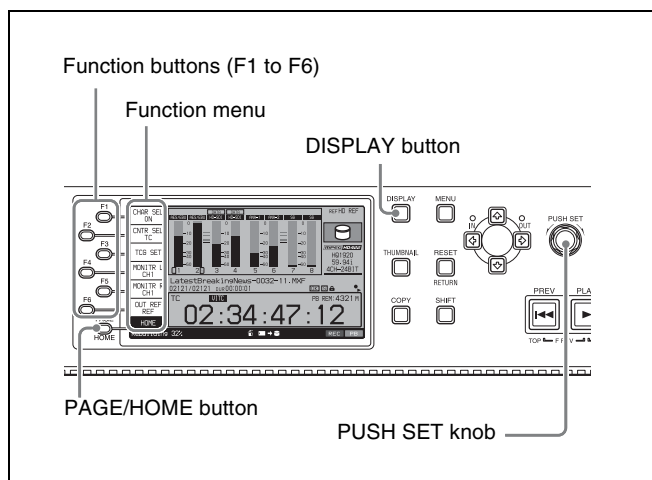
To display the function menu
The function menu is made up of the HOME page and pages P1 to P5.
If the function menu is not already visible, press the PAGE/HOME button to display it. (The most recently accessed function menu page appears.)

To display a different page
Each press of the PAGE/HOME button displays the next function menu page in the order: HOME →P1 → P2 → P3 → P4 → P5 → HOME…

- Turning the PUSH SET knob while holding down the PAGE/HOME button changes the page forward or backward.
- Pressing F1 to F5 buttons while holding down the PAGE/HOME button switches the page directly to pages P1 to P5.

To clear the function menu from the screen
Press the DISPLAY button to switch to the video monitor screen.

To change the setting of a function menu item

Use the function buttons.

To select the value of the setting item
Press the function button to the left of each setting item to change the value of the item. Keep pressing the button until the value you want appears.

To set the value of the setting item
- Press the function button to the left of each setting item so that the setting value flashes to enable adjustment of the value and then turn the PUSH SET knob to increase or decrease the value.
- Turning the PUSH SET knob while holding down the SHIFT button increases the increment of adjustment.
- Pressing the function button to the left of each setting item while the setting value is flashing causes the value to stop flashing and completes the adjustment.

Function menu settings

The following tables list the setting items on each page and describe their setting values. Underlined values are the factory defaults.

HOME page

Item	Setting
F1: CHAR SEL	Turns the display of character information on the video monitor screen and on an external monitor on and off. **ON:** Character information on **OFF:** Character information off
F2: CNTR SEL	Selects the type of time data to display in the time data display area. **TC:** Timecode **COUNTER:** Elapsed recording or playback time **UB:** User bits
F3: TCG SET/UBG SET	• When CNTR SEL is set to "TC" or "COUNTER", the indication "TCG SET" appears, and pressing the button displays a screen where you can set the initial value of timecode generated by the internal timecode generator [a] *(see page 38)*. • When CNTR SEL is set to "UB", the indication "UBG SET" appears, and pressing the button displays a screen where you can set the user bits of timecode [a] *(see page 39)*.
F4: MONITR L	Selects the channel to monitor as the left monitor channel. **CH1, CH2, CH3, CH4, CH5, CH6, CH7, CH8** **CH1/2, CH3/4, CH5/6, CH7/8 (MIX)**

Item	Setting
F5: MONITR R	Selects the channel to monitor as the right monitor channel. **CH1, <u>CH2</u>, CH3, CH4, CH5, CH6, CH7, CH8** **CH1/2, CH3/4, CH5/6, CH7/8 (MIX)**
F6: OUT REF	Selects the reference signal for the output signals of this unit. <u>**REF:**</u> Use the signal input to the REF. VIDEO INPUT connector as the output reference signal. **INPUT:** Use the input video signal as the output reference signal.

a) This is displayed only when TCG on page P4 TC of the function menu is set to "INT", and PRST/RGN is set to "PRESET".

P1 INPUT page

Item	Setting
F1: INT SG	Set whether to select test signal from internal signal generator. <u>**OFF:**</u> Do not select. **ON:** Select.
F2: V INPUT	Selects the video input signal. <u>**HDSDI:**</u> HD-SDI signal **SDSDI:** SD-SDI signal **DVB-ASI:** DVB-ASI TS signal [a] **Notes** • Test signal is input when INT SG on this page is set to "ON" and setup menu item 710 is set to anything other than "off". • When the system frequency is 23.98P, the setting is fixed "HDSDI". • When "DVB-ASI" is selected, the setting for audio input signal is fixed to "DVB-ASI".
F3: A1 INPUT	Selects the audio input signal to assign to audio channel 1. <u>**SDI:**</u> Audio signal embedded into SDI signal **ANALOG1:** Input signal to the ANALOG AUDIO INPUT 1 connector **AES/EBU1:** Signal input to the DIGITAL AUDIO (AES/EBU) IN 1/2 connectors **DVB-ASI:** DVB-ASI TS signal [a] **Note** Test signals are input to all audio channels 1 to 8 when INT SG on this page is set to "ON" and setup menu item 808 is set to anything other than "off".
F4: A2 INPUT	Selects the audio input signal to assign to audio channel 2. <u>**SDI:**</u> Audio signal embedded into SDI signal **ANALOG2:** Input signal to the ANALOG AUDIO INPUT 2 connector **AES/EBU2:** Signal input to the DIGITAL AUDIO (AES/EBU) IN 1/2 connectors **DVB-ASI:** DVB-ASI TS signal [a]

Item	Setting
F5: A3 INPUT	Selects the audio input signal to assign to audio channel 3. <u>**SDI:**</u> Audio signal embedded into SDI signal **ANALOG1:** Input signal to the ANALOG AUDIO INPUT 1 connector **AES/EBU3:** Signal input to the DIGITAL AUDIO (AES/EBU) IN 3/4 connectors **DVB-ASI:** DVB-ASI TS signal [a]
F6: A4 INPUT	Selects the audio input signal to assign to audio channel 4. <u>**SDI:**</u> Audio signal embedded into SDI signal **ANALOG2:** Input signal to the ANALOG AUDIO INPUT 2 connector **AES/EBU4:** Signal input to the DIGITAL AUDIO (AES/EBU) IN 3/4 connectors **DVB-ASI:** DVB-ASI TS signal [a]

a) When the maintenance menu item M22: OPTION SETTING >DVB-ASI is set to "ON" with the optional PDBK-202 being installed *(see page 92)*.

P2 INPUT page

Item	Setting
F1: A5 INPUT	Selects the audio input signal to assign to audio channel 5. <u>**SDI:**</u> Audio signal embedded into SDI signal **ANALOG1:** Input signal to the ANALOG AUDIO INPUT 1 connector **AES/EBU5:** Signal input to the DIGITAL AUDIO (AES/EBU) IN 5/6 connectors **DVB-ASI:** DVB-ASI TS signal [a]
F2: A6 INPUT	Selects the audio input signal to assign to audio channel 6. <u>**SDI:**</u> Audio signal embedded into SDI signal **ANALOG2:** Input signal to the ANALOG AUDIO INPUT 2 connector **AES/EBU6:** Signal input to the DIGITAL AUDIO (AES/EBU) IN 5/6 connectors **DVB-ASI:** DVB-ASI TS signal [a]
F3: A7 INPUT	Selects the audio input signal to assign to audio channel 7. <u>**SDI:**</u> Audio signal embedded into SDI signal **ANALOG1:** Input signal to the ANALOG AUDIO INPUT 1 connector **AES/EBU7:** Signal input to the DIGITAL AUDIO (AES/EBU) IN 7/8 connectors **DVB-ASI:** DVB-ASI TS signal [a]
F4: A8 INPUT	Selects the audio input signal to assign to audio channel 8. <u>**SDI:**</u> Audio signal embedded into SDI signal **ANALOG2:** Input signal to the ANALOG AUDIO INPUT 2 connector **AES/EBU8:** Signal input to the DIGITAL AUDIO (AES/EBU) IN 7/8 connectors **DVB-ASI:** DVB-ASI TS signal [a]
F5: –	(Unassigned function button)
F6: –	(Unassigned function button)

a) When the maintenance menu item M22: Option Setting >DVB-ASI is set to "ON" with the optional PDBK-202 being installed *(see page 92)*.

P3 AUDIO page

Item	Setting
F1: A5 VOL	Sets the volume of audio channel 5. [a] The volume can be adjusted within the range from **–200 to 0 to +200 (–∞ to +12 dB)** by turning the PUSH SET knob. The volume changes in steps of ±10 if you hold the SHIFT button down while you turn the knob.
F2: A6 VOL	Sets the volume of audio channel 6. [a] The volume can be adjusted within the range from **–200 to 0 to +200 (–∞ to +12 dB)** by turning the PUSH SET knob. The volume changes in steps of ±10 if you hold the SHIFT button down while you turn the knob.
F3: A7 VOL	Sets the volume of audio channel 7. [a] The volume can be adjusted within the range from **–200 to 0 to +200 (–∞ to +12 dB)** by turning the PUSH SET knob. The volume changes in steps of ±10 if you hold the SHIFT button down while you turn the knob.
F4: A8 VOL	Sets the volume of audio channel 8. [a] The volume can be adjusted within the range from **–200 to 0 to +200 (–∞ to +12 dB)** by turning the PUSH SET knob. The volume changes in steps of ±10 if you hold the SHIFT button down while you turn the knob.
F5: –	(Unassigned function button)
F6: –	(Unassigned function button)

a) To enable this setting, the following settings are also required, in the same way as for volume operations for channels 1 to 4.
- Set the VARIABLE switch of the front panel to "REC" or "PB".
- Set setup menu item 131 AUDIO VOLUME to "each".

P4 TC page

Item	Setting
F1: TCG	Selects the timecode signal to which the internal timecode generator synchronizes. **INT:** Follow the initial value set from the front panel or remotely from the device connected to a REMOTE (9P) connector. **EXT:** Synchronize to external timecode signal input to the TIME CODE IN connector. **SYS:** Synchronize to standard reference timecode signal of a broadcasting station input to the SYSTEM TC INPUT connector. **SDI:** Synchronize to timecode embedded into HD-SDI or SD-SDI signal input to the HD/SD-SDI INPUT connector. **Note** If you select "EXT" or "SDI" when a DVB-ASI TS signal is input, the internal timecode generator synchronizes to timecode data contained in the TS signal.

Item	Setting
F2: PRST/RGN	Selects the following for the internal timecode generator. **PRESET:** Presets an initial value for the timecode generated by the internal timecode generator, as specified from the front panel or remotely from the device connected to a REMOTE (9P) connector. **TC:** Generate timecode synchronized to timecode read by the internal timecode reader. **VITC:** Generate timecode synchronized to VITC read by the internal timecode reader.
F3: RUN MODE	Selects the timecode run mode. **FREE RUN:** Timecode advances as long as the unit is powered on, regardless of the unit's operating state. **REC RUN:** Timecode advances only during recording. When you select this item, also set F1: TCG on this page to "INT" and set F2: PRST/RGN to "PRESET".
F4: DF/NDF	Selects the frame count mode for the internal timecode generator and the counter in 59.94i/59.94P/29.97P mode. **DF:** Drop-frame mode **NDF:** Non-drop-frame mode
F5: PDPSET	When the system frequency is set to 1080/59.94i, 1080/29.97P, or 720/59.94P, presets the timecode of the A frame of the pulldown sequence. **24F TC:** Reference timecode for A frame **30F TC:** Timecode after pulldown conversion from 24-frame timecode
F6: TCR	Selects the type of timecode to display in the time data display area. **TC:** Display TC. **VITC:** Display VITC.

P5 OTHER page

Item	Setting
F1: INDEX	Sets the index picture (thumbnail) of a clip being played back. *(see page 65)*

Handling Discs

Discs used for recording and playback

This unit can record and play back the following Professional Disc [1] formats.
- PFD23A (capacity 23.3 GB)
- PFD50DLA (capacity 50.0 GB)
- PFD128QLW (capacity 128 GB)

1) Professional Disc is a trademark of Sony Corporation.

Notes

- It is not possible to use the following discs for recording or playback:
  - Blu-ray Disc
  - Professional Disc for Data
- PFD128QLW is a quad-layer Write-Once Professional Disc (hereafter referred to as "quad-layer WO disc"). Pay due attention to the following points.
  - Even if you delete any files written to the disc, no available storage space will be increased.
  - Reformatting the disc will not increase the available storage space.
  - Repetitive file writing will consume the recordable resource space (for writing the disc management data, etc.) on the disc. If no available recordable resource space is left on the disc, file writing may be disabled even with sufficient available storage space remaining.
  - No file can be written after the disc is finalized.
- PFD128QLW discs can be used only by XDCAM devices with the XL-QD mark *(see the following illustration)*. They cannot be used by XDCAM devices without this mark.

XL-QD mark

Notes on handling

Handling
The Professional Disc is housed in a cartridge, and is designed to allow handling free of risk from dust or fingerprints. However, if the cartridge is subjected to a severe shock, for example by dropping it, this can result in damage or scratching of the disc. If the disc is scratched, it may be impossible to record video/audio, or to play back the content recorded on the disc. The discs should be handled and stored carefully.

- Do not touch the surface of the disc itself within the cartridge.
- Deliberately opening the shutter may cause damage.
- Do not disassemble the cartridge.
- The supplied adhesive labels are recommended for indexing discs. Apply the label in the correct position.

Storage
- Do not store discs where they may be subjected to direct sunlight, or in other places where the temperature or humidity is high.
- Do not leave cartridges where dust may get inside.
- Store cartridges in their cases.

Care of the discs
- Remove dust and dirt on the outside of a cartridge using a soft dry cloth.
- If condensation forms, allow ample time to dry before use.

Write-protecting discs

To protect the content recorded on the disc from accidental erasure, move the Write Inhibit tab on the lower surface of the disc in the direction of the arrow, as shown in the following figure.

Lower surface of the disc   Write Inhibit tab

Slide in the direction of the arrow

Write Inhibit tab settings

Recording enabled   Recording disabled
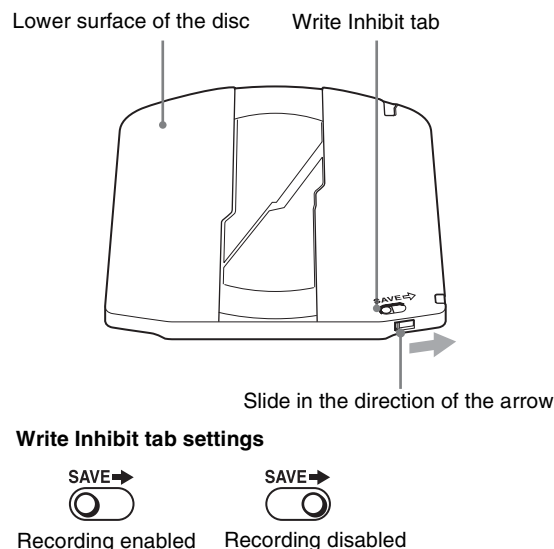
You can also write protect individual clips. For details, see "Locking (write-protecting) clips" (page 64).

Loading and unloading a disc

When the on/standby button and indicator are lit green, you can load and unload a disc as shown in the following figure.

On/standby button and indicator

To unload
Press the EJECT button.

To load
Insert a disc face up.
The disc is drawn in.
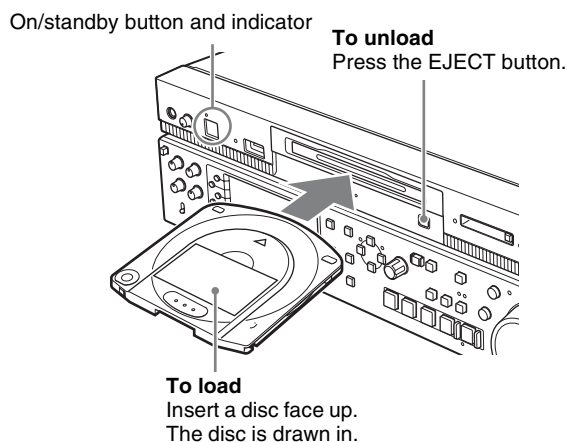
When the EJECT button is pressed during recording, recording stops and the disc is ejected.

Formatting a disc

Unused discs are formatted automatically when they are loaded into this unit.
To format a recorded disc, use the Clip Menu *(see page 62)*.

Handling SxS Memory Cards

About SxS memory cards

SxS memory cards that can be used with this unit

Use the following Sony SxS memory cards (SxS PRO or SxS-1) with this unit.

SxS PRO
• SBP-8 (8 GB)
• SBP-16 (16 GB)
• SBP-32 (32 GB)

SxS-1
• SBS-32G1 (32 GB)
• SBS-64G1 (64 GB)
• SBS-32G1A (32 GB)
• SBS-64G1A (64 GB)

Proper operation cannot be guaranteed when memory cards other than SxS PRO and SxS-1 are used.

The memory cards listed above comply with the ExpressCard standard.
• SxS, SxS PRO and SxS-1 are trademarks of Sony Corporation.
• The ExpressCard label and logo are property of the Personal Computer Memory Card International Association (PCMCIA) and are licensed to Sony Corporation. Other trademarks and trade names are the property of their respective owners.

Use of the following optional accessories allows you to use "Memory Sticks" and SDHC cards on this unit.
• MEAD-MS01 Memory Stick Adapter (for "Memory Stick PRO-HG Duo" HXA series)
• MEAD-SD01 SD Card Adapter (for SDHC cards)

Note

When you use a "Memory Stick" adapter or SD card adapter, check to be sure that this unit is in operative state before inserting the combined media and adapter.

SxS memory card operations supported by this unit

• Thumbnail display
• Copying from memory cards to internal storage

Note

Recording to SxS memory cards (including copying), playback, clip deletion, formatting, and other operations are not supported.

### Notes on the use of SxS memory cards

- Recorded data may be lost or corrupted in the following cases.
  - When this unit is subjected to shock or vibrations during reading or writing of an SxS memory card, and when this unit is powered off or an SxS memory card is removed during reading or writing
  - When this unit is used in an environment subject to static electricity or electric noise
- Do not use or store SxS memory cards in locations that are:
  - outside the specified environmental ranges
  - very hot, such in as vehicles parked in the sun during summer, or exposed to direct sunlight, or near heaters
  - subject to high humidity and corrosion
- When inserting a memory card, insert with the label side facing the correct direction.
- Carry and store SxS memory cards in their cases, and lock the cases securely.
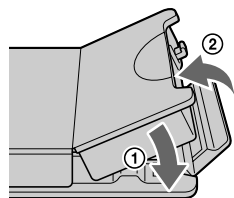
- Guard against accidents and inadvertent data loss by backing up the data stored on SxS memory cards. Sony cannot be responsible for any consequences of damage to or loss of data stored on SxS memory cards.
- Do not attach anything other than the supplied labels in the designated label space. When attaching a label, make sure it does not protrude beyond the label space.

Label space
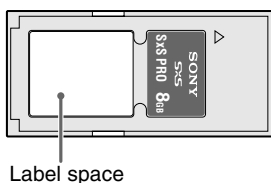
- Clip operations may not be possible when the remaining capacity of the media is low. In this case, use a computer to delete unneeded files and try again.
- Open the memory card case completely before storing a card in the case or removing a card from the case.
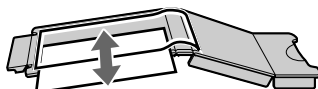
To prevent accidental erasure

You can prevent accidental recording, editing, and deletion of data on an SxS memory card by setting the write protect switch to the WP side.

Write protect switch
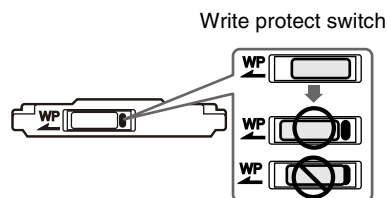
Note

Do not touch the write protect switch while an SxS memory card is loaded in a memory card slot. Eject the card before setting the write protect switch.

Inserting/removing an SxS memory card

Memory card slots

MEMORY ACCESS A/B lamps

MEMORY button

Eject buttons
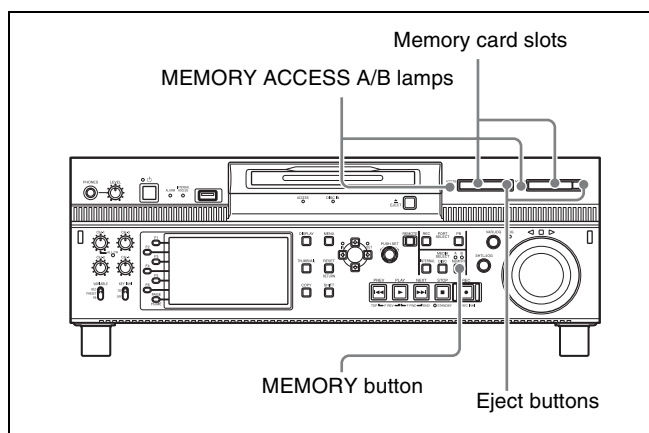
To insert an SxS memory card

Insert the SxS memory card into the card slot.

Insert with the label side facing upward
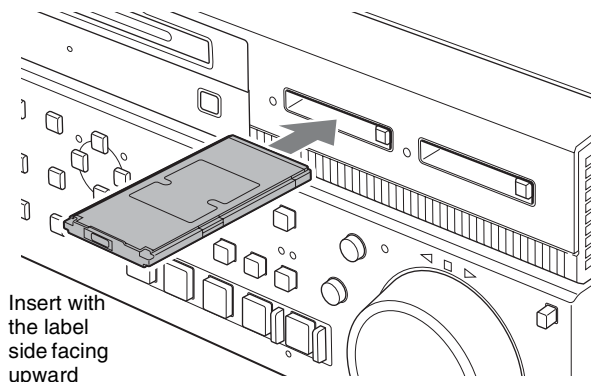
The lamp lights in red then changes to green once the memory card is ready for use.

Status indications by the MEMORY ACCESS A/B lamps

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

Lamp	Slot statuses
Lights in orange	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.

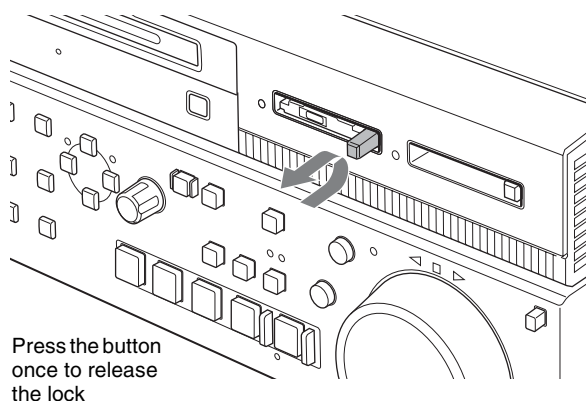Press the button once to release the lock

2 Press the eject button again to remove the card.
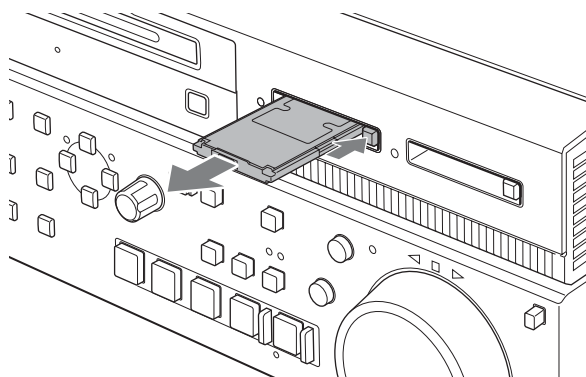
Note

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 MEMORY ACCESS A/B lamps are lit in green or off when you turn off the power or remove memory cards.

Switching between SxS memory cards

When SxS memory cards are loaded in both memory card slots A and B, press the MEMORY button to select the card you wish to use.

Note

The MEMORY button is disabled while copying is in progress, that is, switching is not executed even if you press the button.

Recording, Playback and Copying

Chapter **4**

Recording

This section describes video and audio recording on the unit.

See page 41 "Basic Operations of the Function Menu" for more information.

See page 74 "Menus" for more information about setup menu operations.

Preparations for recording

Make the following settings and adjustments before starting to record.

Video input signal selection: Select with V INPUT on page P1 INPUT of the function menu.

Audio input signal selection: Select with A1 INPUT to A4 INPUT on page P1 INPUT and A5 INPUT to A8 INPUT on page P2 INPUT of the function menu.

Timecode and user bits settings: *See "Setting timecode" (page 37).*

Selection of time data to display: Select with CNTR SEL on HOME page of the function menu.

Selection of audio channels to monitor: Select with MONITR R and MONITR L on the HOME page of the function menu.

Volume adjustment of the monitor audio: Adjust with the LEVEL adjustment knob.

Carrying out recording

You can record to the internal storage, or record to the internal storage and a Professional Disc simultaneously. One recording segment (from the start to the end of recording) is called a "clip".
When recording to the internal storage, the maximum recording time for one clip is six hours.

For the available recording time of each media, see "Recording and playback time" under "Specifications" (see page 108).
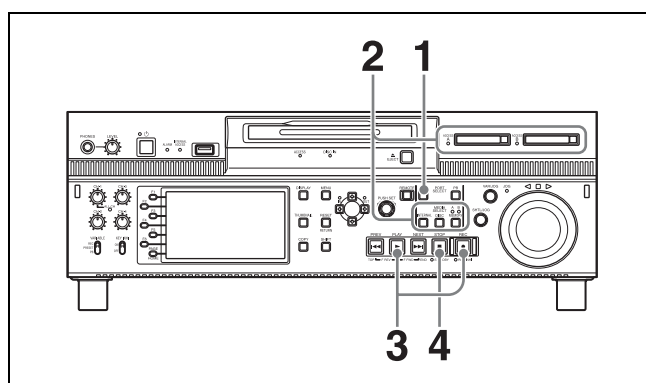
If the clip list screen is displayed, press the THUMBNAIL button to switch to the basic operation screen or the video monitor screen.

1 Press the REC PORT button.

2 Select the media.

   For recording to the internal storage: Press the INTERNAL button.
   For simultaneous recording to both media: Press the DISC button and the INTERNAL button simultaneously.

3 Hold down the REC button, and press the PLAY button.

   Recording starts.
   In the case of simultaneous recording, the
   ● ➡ 🗄 icon appears in the status display area.
   (Simultaneous recording can be performed by simultaneously executing recording to the internal storage and copying from the internal storage to the Professional Disc.)

4 To stop recording, press the STOP button.

   This unit enters a stop mode.

In the case of simultaneous recording, this unit enters a stop mode after copy from the internal storage to the Professional Disc.

To stop only the recording to the Professional Disc during simultaneous recording
Press the COPY button and then press the RESET button to abort the copy operation.

For the behavior of media in simultaneous recording, see "Behavior of media in simultaneous recording" (see page 49)).

Notes

- The shortest clip that can be recorded is 2 seconds long. Even if the time from the operation to start recording to the operation to stop recording is less than two seconds, the recording continues for two seconds.
- The maximum recordable number of clips depends on the media, as follows.

Media	Maximum recordable number
HDD	3000
SSD	3000
PFD23A	300
PFD50DLA	300
PFD128QLW	1200

When the maximum recordable number is reached, no further recording is possible. (The message "MAX # Clips" appears in the status display area.)
- This unit can record video input signals that are not synchronized to a reference signal. However, in that case, video breakup and audio noise may occur in E-E playback.
- During recording, do not turn off the main power switch on the rear panel or disconnect the power cord. This could cause the clip being recorded to be lost.
  Note that no recorded clip contents are lost when the on/standby button on the front panel is set to standby during recording, because the unit does not enter standby mode until after the end of recording processing.

Behavior of media in simultaneous recording
- If the Professional Disc is in an unrecorable state, pressing the REC button and PLAY button simultaneously in step **3** displays a message, and recording to the internal storage only starts.
- If during recording the remaining space of the Professional Disc becomes insufficient, then the recording to the disc stops. (The clip is established and the disc is ejected.) The recording to the internal storage continues.
- If during recording you press the EJECT button to remove the Professional Disc, the recording to the disc stops. (The clip is established and the disc is ejected.) The recording to the internal storage continues.

- When recording to the internal storage becomes impossible, the recording to the Professional Disc also stops.

To adjust the audio recording levels

When carrying out audio recording at a reference level
Set the VARIABLE switch to "PRESET".
The audio signals will be recorded at a preset reference level.
You can change the reference level and the input levels with maintenance menu item M37: AUDIO CONFIG.

See page 96 for more information about how to make maintenance menu settings.

Manually adjusting the audio recording levels
Set the VARIABLE switch to "REC" and use the CH-1/ALL CH and CH-2 to CH-4 knobs to adjust CH-1 to CH-4, and use A5 VOL to A8 VOL on page P3 AUDIO of the function menu to adjust CH-5 to CH-8 so that the audio level indications on the audio level meters do not exceed 0 dB for a maximum volume.

Mixed recording of clips in different formats on the same disc

The recording format is regarded as different whenever the system frequency, video resolution, video codec/bit rate, or number of audio channels or number of bits does not match.

Mixed recording of clips in different formats on the internal storage
You can record clips to the internal storage at different system frequencies and in different formats (HD422/HD420).

Mixed recording of clips in different formats on the Professional Disc
As long as the frame frequency group is the same, clips in different recording formats can be recorded or written to the same disc, for example HD422 and HD420SP clips, by putting this unit into mixed format recording mode.

Frame frequency groups
The system frequencies supported by this unit are divided into frame frequency groups, as shown in the following table.

Frame frequency	System frequency
59.94 Hz	59.94P
	59.94i
	29.97P

Frame frequency	System frequency
50 Hz	50P
	50i
	25P
23.98 Hz	23.98P

Notes

- When the unit is in a mode that calls for playback across clips that were recorded in different recording formats, video and audio playback may stop at the point where the format changes from one format into another, and then start again.
- If a transition point between two clips with different recording formats exists in the preroll segment, that segment cannot be edited.

Playback

This section describes playback of video and audio on the unit.

Before starting playback, make the following settings and adjustments.

Selection of time data to display: Select with CNTR SEL on HOME page of the function menu.

Selection of audio channels to monitor: Select with MONITR L and MONITR R on the HOME page of the function menu.

Volume adjustment of the monitor audio: Adjust with the LEVEL adjustment knob.

Playback target (when playing back clips/EDLs on the internal storage)

Only the currently selected clip/EDL on the internal storage is played back.

The available playback types include normal playback, high-speed playback in the forward or reverse directions, and jog, shuttle, and variable-speed playback. Playback stops when it reaches the start or end of the clip/EDL. The next and preceding clips are not played, even if they exist on the media.

To move to another clip, press the PREV, NEXT, SHIFT + PREV, or SHIFT + NEXT button, or perform a thumbnail search.

About the playback start position

Immediately after this unit starts

All clips are closed. To play a clip or an EDL, select it in a clip list screen.

After disc insertion

The unit stops at the position of the disc when it was most recently ejected.

Press the PLAY button to resume playback at the most recent position.

The playback position is saved to the disc when the disc is ejected, which allows playback to start at that position whenever it is loaded into any XDCAM player.

Notes

- This function is not available when the Write Inhibit tab of the disc is set to the recording disabled position. When the Write Inhibit tab is in the recording enabled position and the format of recorded sections on the disc is not the same as the recording format setting of this unit, the REC INHI indicator lights, but in this case the playback position is saved to the disc.
- When playback is stopped on an EDL, the playback position is not saved.

• In the case of quad-layer WO discs, the playback position is not saved.

After recording

The unit stops at the position where recording ended.
To play back a clip, press the PREV button to move to the start frame of any clip or press the PREV button with the PLAY button held down to move to any position.

After playback stops

When you press the STOP button, playback stops at that position and the position is saved.
When you press the PLAY button, playback starts from the stopped position.

1080/720 cross convert function

You can output 720 while playing clips recorded as 1080, and output 1080 while playing clips recorded as 720.
When the system frequency of clips (59.94i/59.94P/29.97P, or 50i/50P/25P) matches the system frequency of the unit, but the number of system line settings (1080 or 720) do not match, then clip playback is cross converted automatically.

SD up convert function

You can output HD while playing discs recorded as SD.

HD down convert function

You can always output SD while playing clips recorded as HD.

Pulldown playback

When this unit's system frequency is set to 1080/59.94i, 1080/29.97P, or 720/59.94P, clips recorded as 1080/23.98P are converted by 2-3 pulldown before playback (pulldown playback).

Timecode in pulldown playback

During pulldown playback, timecode is also converted to 30-frame timecode to match the output video signals.
The upper row of the time data display area displays the original 24-frame timecode, and the lower row displays the 30-frame timecode.

```
TC        UITC
          00:59:59:23
PDT  00:59:59:29
```

You can superimpose the 30-frame timecode after pulldown on an external monitor. To do so, set setup menu item 005 DISPLAY INFORMATION SELECT to "time data only".

```
TCR  00:59:59:23
PDT  00:59:59:29
```

Selecting a clip or an EDL

DISPLAY button
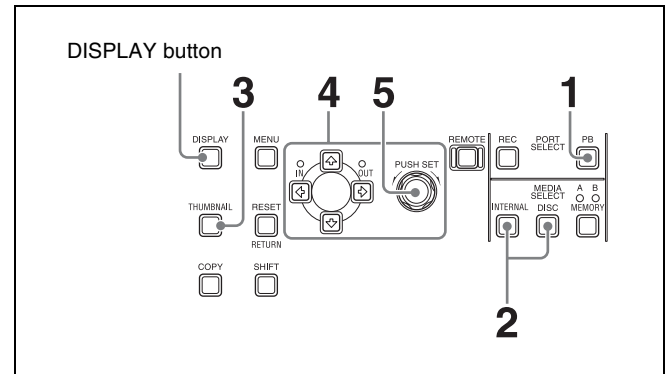
1 Press the PB PORT button in the basic operation screen or video monitor screen.

2 Select the media.

To select clips/EDLs on the internal storage: Press the INTERNAL button.
To select clips/EDLs on the Professional Disc: Press the DISC button.

3 Press the THUMBNAIL button.

The clip list screen (details view) of the the media selected in step **2** appears.

To switch the clip list screen to the thumbnails view Press the DISPLAY button.

4 Do one of the following to select the clip/EDL that you want to play.

• Turn the PUSH SET knob.
• Press the arrow buttons.

5 Press the PUSH SET knob.

The selection of the target clip/EDL is confirmed.

Playback operation

This section describes the following types of playback:
Normal playback: Playback at normal speed
**Playback in jog mode:** Variable-speed playback, with the speed determined by the speed of turning the jog dial
Playback in shuttle mode: Variable-speed playback, with the speed determined by the angular position of the shuttle dial
Playback in variable-speed mode: Variable-speed playback, with the speed finely determined by the angular position of the shuttle dial

Normal playback

PREV button
STOP button
NEXT button
PLAY button
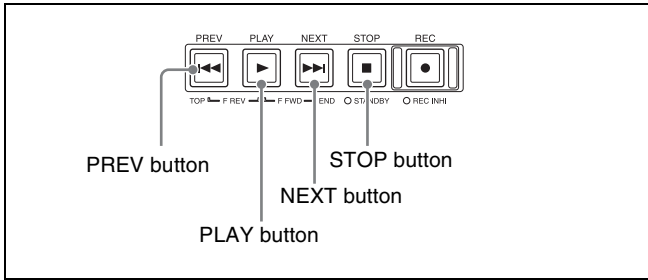
To start playback

Select a clip or an EDL *(see page 51)*, and then press the PLAY button.

Note

No analog audio signals are output when non-audio signals are played back.

To jump to the next or previous clip, then start playback

Use the PREV button or NEXT button.

Note

The PREV and NEXT buttons cannot be used to move from the currently selected clip to an EDL or move from the currently selected EDL to a clip or to another EDL.
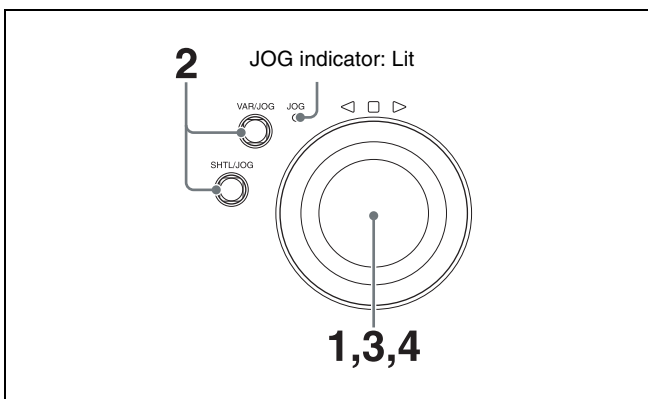
To stop playback

Press the STOP button.

Playback in jog mode

In jog mode, you can control the speed of playback by the speed of turning the shuttle/jog dial. The playback speed range is –1 to +1 times normal speed.

To carry out playback in jog mode, select a clip or an EDL *(see page 51)*, and then proceed as follows.

2 JOG indicator: Lit

1,3,4

1 Press the shuttle/jog dial to light the JOG indicator.

The shuttle/jog dial enters jog mode.

2 Press the SHTL/JOG button or VAR/JOG button, turning it on.

3 Turn the shuttle/jog dial in the desired direction, at the speed corresponding to the desired playback speed.

Playback in jog mode starts.

4 To stop playback in jog mode, stop turning the shuttle/jog dial.

When setup menu item 101 SELECTION FOR SEARCH DIAL ENABLE is set to "dial" (factory default setting), you can start jog playback by simply rotating the shuttle/jog dial, even when the SHTL/JOG and VAR/JOG buttons are not lit.

Playback in shuttle mode

In shuttle mode, you can control the speed of playback by the angular position of the shuttle/jog dial. The range of playback speed is ±20 times normal speed.
To carry out playback in shuttle mode, select a clip *(see page 51)* or an EDL, and then proceed as follows.
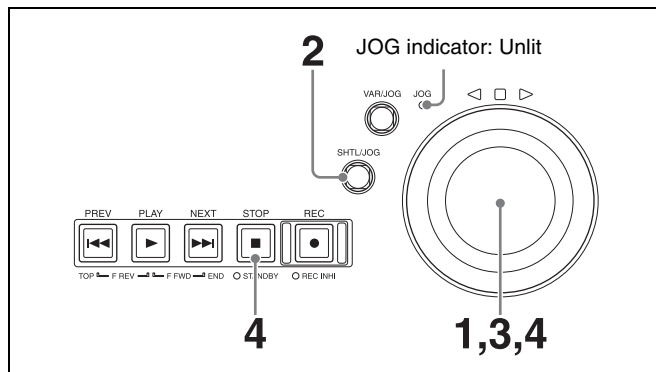
2 JOG indicator: Unlit

4 **1,3,4**

1 Press the shuttle/jog dial to turn off the JOG indicator.

The shuttle/jog dial enters shuttle mode.

2 Press the SHTL/JOG button, turning it on.

3 Turn the shuttle/jog dial to the desired angle corresponding to the desired playback speed.

Playback in shuttle mode starts.

4 To stop playback in shuttle mode, return the shuttle/jog dial to the center position, or press the STOP button.

When setup menu item 101 SELECTION FOR SEARCH DIAL ENABLE is set to "dial" (factory default setting), you can start shuttle playback by simply rotating the shuttle/jog dial, even when the SHTL/JOG button is not lit.

Video and audio become discontinuous if you conduct shuttle playback of a clip that does not have proxy AV data.

To alternate between normal-speed playback and shuttle mode playback

Set the shuttle/jog dial to the position corresponding to the desired shuttle playback speed, then switch between normal-speed playback and shuttle playback by pressing the PLAY and SHTL/JOG buttons alternately.

Playback in variable-speed mode

In variable-speed mode, you can control the speed of playback in the range of –2 to +2 times normal speed. To carry out playback in variable-speed mode, select a clip *(see page 51)* or an EDL, and then proceed as follows.

1 Press the shuttle/jog dial to turn off the JOG indicator.

The shuttle/jog dial enters shuttle mode.

2 Press the VAR/JOG button, turning it on.

3 Turn the shuttle/jog dial to the desired angle corresponding to the desired playback speed.
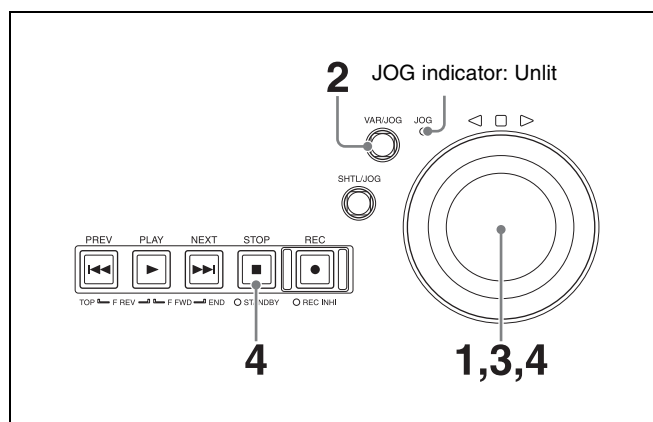
Playback in variable-speed mode starts.

4 To stop playback in variable-speed mode, return the shuttle/jog dial to the center position, or press the STOP button.

To alternate between normal-speed playback and variable-speed mode playback

Set the shuttle/jog dial to the position corresponding to the desired variable-speed playback speed, then switch between normal-speed playback and variable-speed mode playback by pressing the PLAY and VAR/JOG buttons alternately.

Playback operations using thumbnails

Playback operations that you can perform with thumbnails include searching for clips, displaying clip information, and locking and deleting clip. This allows you to check the actual video as you work.

See "Clip Operations" (page 63) for more information about thumbnail operations.

Chase play

While recording to internal storage, you can start playing the recorded part of the clip from the start, without waiting for the recording to finish (chase play).
To perform chase play, perform steps **1** to **3** of *"Selecting a clip or an EDL" (page 51)*, and then proceed as follows.

1 Do one of the following to select a clip that show the recording icon ●.

- Turn the PUSH SET knob.
- Press the arrow buttons.

2 Press the PLAY button.

To jump to the last frame that is playable at that time
Press the NEXT button.

Note

The minimum time difference between chase play and recording source material is about seven seconds. You can fast forward during chase play to come closer to the newest material as it is recorded, but you cannot come closer than seven seconds.

Copying

Overview

This unit enables a copy of clips, EDLs, and files between internal storage, Professional Disc, and SxS memory card.
- Copy from SxS memory card to internal storage
- Copy from Professional Disc to internal storage
- Copy from internal storage to Professional Discs
- Copy from SxS memory card to Professional Discs

When a clip is being recorded to the internal storage, that clip can also be copied to the Professional Disc at the same time (the chase copy function).

For details of the operation, see page 56.

By copying clips/EDLs on an SxS memory card or a Professional Disc to the internal storage, you can reuse the SxS memory card and the Professional Disc as recording media. This is a convenient practice for long hours shootings using XDCAM/XDCAM EX camcorders.

MP4/MXF/AVI clips on an SxS memory card/ Professional Disc are copied to the internal storage as follows.
MP4/AVI clips: Clips in MP4 format are converted to MXF clips [1] and copied to the MXF clip recording area managed by this unit. The copied clips can be handled as normal clips on the internal storage.
MXF clips: Clips in MXF format are copied with no format conversions to the MXF clip recording area managed by this unit. The copied clips can be handled as normal clips on the internal storage.

1) The quality of video and audio data is not degraded.

For information about operations, see next section "Copy operations".

Copy operations

Limitations

- When you copy a clip with a duration that exceeds six hours, the clip is divided into separate clips at each six-hour point.
- Essence marks are limited to one per second when you convert and copy from the MP4 format to the MXF format.
- Index picture settings may be displaced forward or backward when you execute a copy.

- When an MXF clip on SxS memory card, Professional Disc or internal storage is copied, the UMID data of the copy source clip is maintained intact. If the copy destination media contains a clip with same UMID data as the clip selected as copy source, it is not possible to copy the selected clip. Change UMID data on an external device, or make transfer of the copy source clip via the network.
  When an MP4/AVI clip on an SxS memory card or Professional Disc is copied, new UMID data is automatically generated and added to the copy source clip. Therefore, copying is possible even if on the copy destination there is a clip with same UMID data as the copy source clip.

  For the state of UMID data when a clip is transferred via the network, see "SITE UMMD" under "Extended commands" (page 72).

- Seamless playback and clip flag operations (addition, modification, and deletion) are not supported for MXF clips and for independent AV files (files without metadata, consisting of video and audio data only) that meet the following conditions.
  - Clips containing 1000 or more essence marks
  - Clips containing 10804 or more timecode breaks
  - Clips with metadata files *M01.XML more than 2 MB in size

Copying clips on an SxS memory card/ Professional Disc to the internal storage

You can make copies of clips on an SxS memory card/ Professional Disc by copying them to the internal storage. Use the following procedure.
This operation can be carried out even when a clip is being recorded to the internal storage or when a clip on the internal storage is being played back.

1 Insert an SxS memory card/Professional Disc containing recorded clips into a memory card slot/disc slot.

2 Press the THUMBNAIL button.

   The clip list screen appears.

3 Select the copy source media.

   To copy clips on the SxS memory card: Press the MEMORY button.
   To copy clips on the Professional Disc: Press the DISC button.

   Note

   You cannot select a disc that is being played as copy source media.

When two SxS memory cards are loaded
Press the MEMORY button to switch between the copy target cards (A/B).

4 Do one of the following to select the clip to copy.

- Turn the PUSH SET knob.
- Press the arrow buttons.

To select several continuous clips
Move the cursor to the start or end of the clips that you want to select, and then proceed as described above while holding down the SHIFT button.

When copying all clips on the media
Proceed to step **5** without carrying out clip selection operation.

To copy part of a clip
When you select a single clip and press the arrow buttons to set an IN and OUT point in the clip, it becomes possible to copy the section defined by the IN and OUT points.

On how to set an IN and OUT point, see "To copy the specified part of a clip" (page 56).

5 Press the COPY button.

The Clip Copy screen appears.
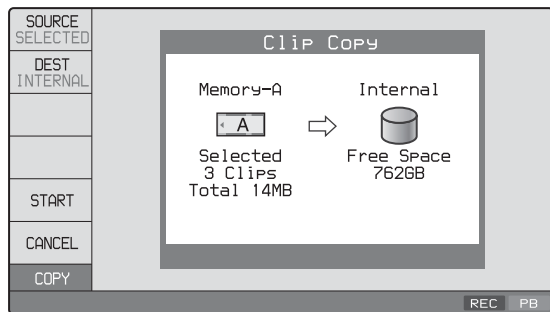
An example of Clip Copy screen display when copying from SxS memory card to internal storage

To change the copy source clip
Press the RETURN button to return to the clip list screen, and then select another clip.

To cancel the copy operation
Press the CANCEL function (F6) button.

6 Press the SOURCE function button (F1) and select "SELECTED", "ALL", or "PARTIAL".

**To copy the clips selected in step 4:** Select "SELECTED".
To copy all the clips on the SxS memory card: Select "ALL".

To copy part of the clip selected in step 4: Proceed to step **7** without pressing the SOURCE function button (F1).

7 If you selected the SxS memory card as the copy source in step **3**, press the function button (F2) and select the combination of media as copy source and internal storage as copy destination.

8 Press the START function (F5) button.

Copying of the clips starts.
The progress of the copying is shown in the Clip Copy screen, and the copy icon lights in the status display area.
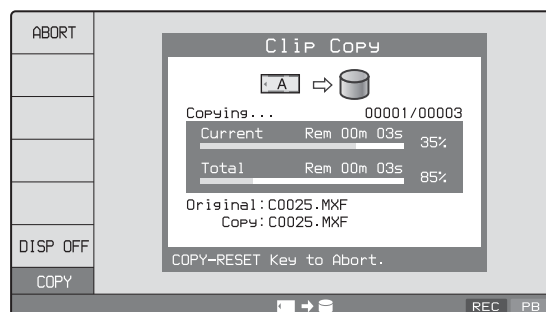
To turn off the display of copy processing progress
Press the DISP OFF function button (F6).

To perform an internal storage operation during copy execution
Press INTERNAL button to switch to the internal storage screen.
The progress of copy processing is not shown in the internal storage screen. To show the progress of copy processing, press the COPY button. To hide the display of copy processing progress, press the DISP OFF function button (F6).

To abort the copy operation
Press the ABORT function button (F1), or alternatively press the COPY button and then press the RESET button.
The data having already been transferred to the destination media remains on that media.

If the copy operation is completed successfully, the message "Copy was successful." appears.

9 Press the OK function (F5) button.

The Clip Copy screen disappears, and you return to the original screen.

To delete clips/files on the SxS memory card
You cannot delete clips/files from an SxS memory card currently loaded in this unit.

To perform deletion, insert the desired memory card into the ExpressCard slot of a computer or into an SxS memory card reader connected to a computer, and use XDCAM Browser or other appropriate application software.

To copy clips on an SxS memory card to a Professional Disc

Insert the copy source SxS memory card into the card slot, and insert the copy destination Professional Disc into the disc slot. Then carry out the procedure described in *"Copying clips on an SxS memory card/Professional Disc to the internal storage" (page 54)*.
Note that in step **7** of that procedure, it is necessary to select a combination of SxS memory card as copy source and Professional Disc as copy destination.

To copy clips on the internal storage to a Professional Disc

Insert a Professional Disc into the disc slot, and carry out the procedure described in *"Copying clips on an SxS memory card/Professional Disc to the internal storage" (page 54)*.
However, note that the following is different.
• In step **3**, press the INTERNAL button.
• Pass by steps **6** and **7**. (When the copy source media is the internal storage, you cannot select "ALL".)

To copy an EDL file

An EDL can be copied by an operation similar to a clip copy operation. However, it is necessary to make a copy of all clips referenced by the EDL in advance. Therefore, when the copy source media is an SxS memory card / Professional Disc, "ALL" is automatically selected in step **6** of the procedure for *"Copying clips on an SxS memory card/Professional Disc to the internal storage" (page 54)*.

To copy the specified part of a clip

When you set an IN and OUT point in the clip, it becomes possible to copy only the part defined by the IN and OUT points.

Note

You cannot make a partial copy of clips on an SxS memory card.

1 In the video monitor screen, cue the clip up to the frame where you want set an IN point.

2 Press the PUSH SET knob while holding down the left arrow button.

An IN/OUT setting window appears in the bottom right corner of the display.
The IN point timecode is displayed in the IN/OUT setting window, and the IN indicator lights.

3 Cue up to the frame where you want to set an OUT point.

4 Press the PUSH SET knob while holding down the right arrow button.

An IN/OUT setting window appears in the bottom right corner of the display.
The OUT point timecode and the duration (DUR) are displayed in the IN/OUT setting window, and the OUT indicator lights.

5 Carry out step **5** and following of the procedure for "Copying clips on an SxS memory card/Professional Disk to the internal storage".

To delete the IN/OUT points

1 Press the left arrow button (or right arrow button).

The IN/OUT setting window appears in the bottom right corner of the display.

2 Press the RESET button.

The IN (or OUT) indicator turns off.

Note

One of the following operations deletes the IN/OUT points automatically.
• Change the selection of media.
• Remove the media.
• Delete the clip in which IN/OUT points are set.
• Format the media.

Chase copy

When a clip is being recorded to the internal storage, that clip can also be copied to the Professional Disc at the same time.

1 Carry out the procedure described in *"Carrying out recording" (page 48)* to start recording to the internal storage.

2 Press the THUMBNAIL button to display a clip list screen.

3 Select the clip that is being recorded.

4 Press the COPY button.

The Clip Copy screen appears.

5 Press the START function button (F5).

The copy processing for the selected clip starts.
The copy icon lights in the status display area.

6 Press the DISC button.

The Clip Copy screen displays the progress of copy
processing.
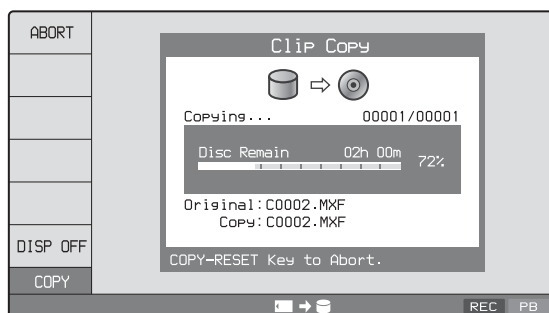
To turn off the display of copy processing progress
Press the DISP OFF function button (F6).

To abort the copy processing
Press the ABORT function button (F1), or
alternatively press the COPY button and then press the
RESET button.
The data having already been transferred to the
destination media remains on that media.

7 To stop the recording, press the STOP button.

When the copy processing is completed successfully,
the message "Copy was successful." appears.

Operations in Clip List Screens

Chapter **5**

Overview

Use clip list screens to search for scenes, play scenes found by searching, select clips to copy, and perform other operations related to clips.

You can switch between the details view and the thumbnails view of clip list screens.

Switching between display screens

To switch between the basic operation screen, video monitor screen, and clip list screens (thumbnails view and

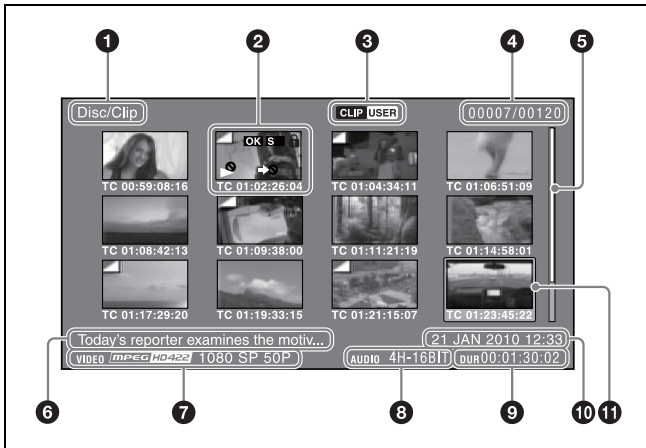details view), press the THUMBNAIL button (❶) or DISPLAY button (❷).
The screens change as shown in the following figure.
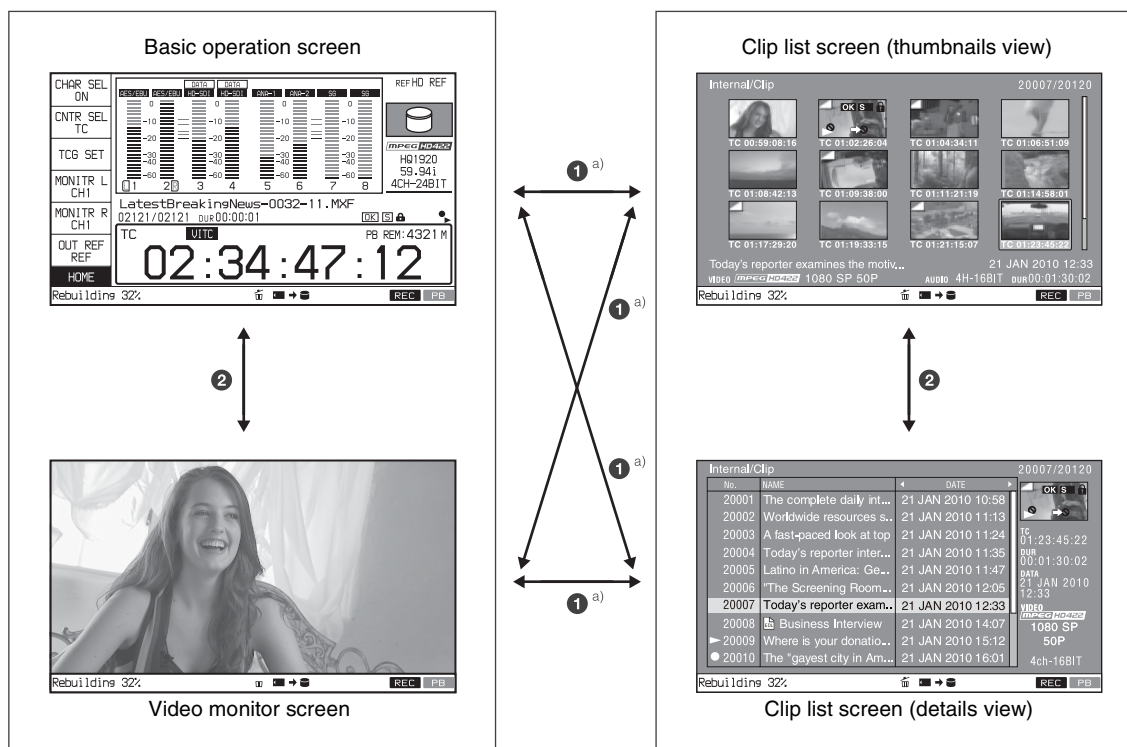
a) Switches back to the screen that was displayed before the last transition.

Information and controls in clip list screens

Thumbnails view

a Clip storage locations

Display the storage location of the currently displayed clips and edit decision lists (EDLs) in the format "recording media/folder". The storage location of clips and edit decision lists (EDLs) is displayed in the format "recording media/folder". On this unit, one of the following appears.

Internal/Clip: Clip folder on the internal storage
Disc/Clip: Clip folder on the Professional Disc
Disc/User Data: UserData folder on the Professional Disc
Memory-A/Clip: Clip folder on the SxS memory card in slot A
Memory-B/Clip: Clip folder on the SxS memory card in slot B

b Thumbnail

For details, see "Thumbnail display items" (page 60).

c UserData icon (when a Professional Disc is used)

When the currently selected media is a Professional Disc, you can use FOLDER in the Clip F Menu *(see page 62)* to select the folder under the Disc folder containing the clips you want to display in a list.
The appearance of the UserData icon changes as follows, depending on the currently selected folder.

Currently selected folder	Icon
Clip folder (when UserData folder does not exist)	**CLIP**
Clip folder (when UserData folder exists)	**CLIP USER**
XDROOT folder under User Data	**CLIP USER XDROOT**
BPAV folder under User Data folder	**CLIP USER BPAV**

d Clip number/total number of clips

Displays the total number of clips (including EDLs) on the selected media, and the number of the selected clip (or EDL).

e Scrollbar

When not all of the thumbnails can be displayed in the thumbnail display area, the position of the slider shows the relative position of the currently displayed clips, and the length of the slider shows the relative length of currently displayed clips within all of the clips.

f Clip name

Displays the name of the selected clip (or EDL).
When multiple clips are selected, displays the name of the first clip or the most recently selected clip.
Clip names can be displayed in European languages (English, French, German, Italian, etc.) and Japanese.

Note

This unit does not support Chinese clip name display.

g Video format

The video format of the selected clip is displayed as a combination of the following items.
• Video format logo
• Number of system lines and recording quality
• System frequency

h Audio format

The audio format of the selected clip is displayed as a combination of the following items.
• Number of audio channels
• Quantization bit rate

i Clip date and time

Displays the date and time when the selected clip was shot and recorded.

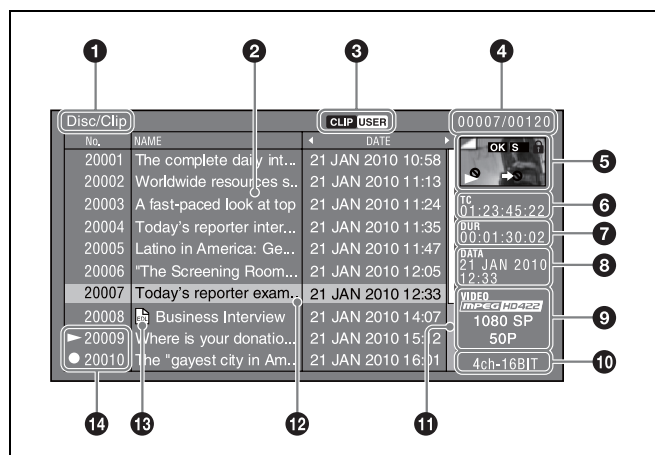### j Duration

Displays the duration (recording time) of the selected clip.
When multiple clips are selected, displays the total recording time of the selected clips.

k Selection frame

Indicates that the clip is selected. To select another clip, move the frame *(see page 63)*. Multiple selection frames appear when multiple clips are selected *(see page 63)*.

Details view

For details about the following items, see "Thumbnails view" (page 59).

➀ Clip storage locations
➂ UserData icon (when a Professional Disc is used)
➃ Clip number/total number of clips
➆ Duration
➇ Clip date and time
➈ Video format
➉ Audio format
➋ Selection frame

➁ Details display area
Displays a details list of clips and EDLs (edit decision lists) on the selected media.
The list is made up of the following columns.
- No. (line number)
- NAME (clip name)
- DATE (clip date and time)
- DURATION (recording time)

➄ Thumbnail
Displays the thumbnail of the selected clip (or the EDL icon when an EDL is selected).

For details, see "Thumbnail display items" (page 60).

➅ Timecode
Displays the starting timecode of the selected clip.

➊ Scrollbar
When not all of the clips can be displayed in the details display area, the position of the slider shows the relative position of the currently displayed clips, and the length of the slider shows the relative length of currently displayed clips within all of the clips.

➌ EDL mark
The mark [EDL] appears when the item is an edit decision list (EDL).

➍ Recording or playback status icon
When the recording media is the internal storage, an icon appears to indicate the recording or playback status (●: recording, ▶: playing, [1] ▶: chase play).

1) "Playing" means that the clip is open (the file is open) because the clip has been selected, in a clip list screen or elsewhere. Therefore, the ▶ icon appears even during jog play of a clip and during still image display.

Thumbnail display items
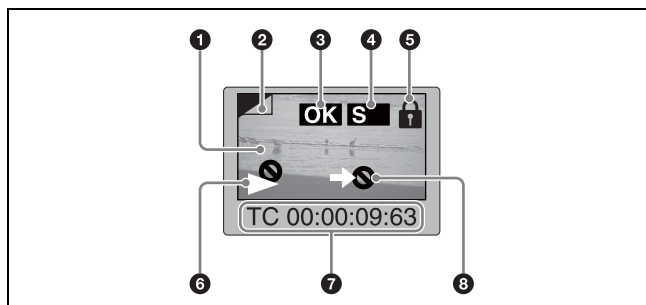
Note

Only ➅ and ➇ are displayed on the EDL icon.

➀ Index picture
Displays an image to stand for the content of the clip. Normally the index picture is the first frame in a clip, but you can change it to any frame in the clip for a different index picture.

For the method of changing the index picture frame, see "Setting the index picture frame" (page 65).

➁ Index picture changed mark
This mark, like the folded-over corner of a page that you want to remember, appears when the index picture has been changed to any frame other than the first frame of a clip.

Note

When you cue up a clip, the unit always cues up the first frame, even when the index picture has been changed to a different frame.

➂ Clip flag icon
Displays the corresponding icon when a clip flag (OK/NG/KP(KEEP)) is set in the clip *(see page 64)*.

➃ S mark
This mark appears when shot marks or other essence marks have been set in the clip.

➄ Lock icon
This icon appears when the clip is locked (protected) *(see page 64)*. Clips cannot be deleted and their clip information cannot be changed when this mark is displayed.

6 Unplayable icon/playback or recording status icon
An unplayable icon appears to indicate that the clip cannot be played (or EDL), for example because the system frequency settings differ from the current settings of this unit.
When the recording media is the internal storage, an icon appears to indicate the recording or playback status (●: recording, ▶ : playing, ●▶ : chase play).

7 Clip information
Displays the clip information selected with the CLP INFO item in the CLIP F Menu *(see page 62)*. The factory default selection is the timecode of the first frame.
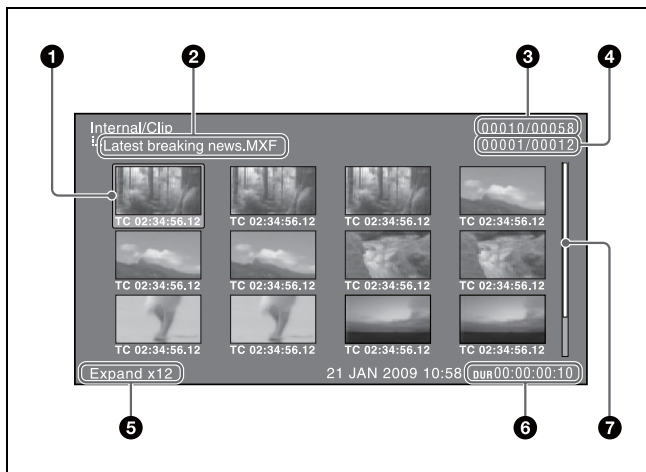
8 "Cannot copy" icon
You cannot copy clips (or EDL) marked with this icon.

Expand thumbnail screen

This screen displays thumbnails of equally sized divisions of the selected clip.

On how to display the expand thumbnail screen, see "To search through a clip in the expand thumbnail screen" (page 63).

1 Selection frame

See the description of "Selection frame" under "Thumbnails view" (page 59).

2 Clip name
Displays the name of the clip displayed in the current expand thumbnail screen.

3 Clip number/total number of clips
Displays the total number of clips on the selected media and the number of the clip whose expanded thumbnails are currently displayed.

4 Thumbnail number/total number of thumbnails
Displays the total number of thumbnails of the divided clip and the number of the currently selected thumbnail.

5 Number of divisions
Displays the number of times that the selected clip has been divided to display the expand thumbnails.

6 Duration
Displays the time from the selected thumbnail to the next one.

7 Scrollbar

See the description of "Scrollbar" under "Thumbnails view" (page 59).

Clip Menu

The Clip Menu provides the following commands for operations on clips.
The shortcut buttons shown in parentheses ( ) allow you to open menu items directly. For example, combinations are indicated by "+". "SHIFT + STOP" means to press the STOP button while holding down the SHIFT button.

Item	Sub-item	Function
Delete Clips (SHIFT + RESET)	Delete Selected Clips	Deletes the selected clips.
	Delete All Clips	Deletes all clips on the selected media.
Lock Unlock Clips (SHIFT + STOP)	Lock Selected Clips	Locks the selected clips.
	Lock All Clips	Locks all clips on the selected media.
	Unlock Selected Clips	Unlocks the selected clips.
	Unlock All Clips	Unlocks all clips on the selected media.
Set Clip Flag	OK	Sets the OK flags in the selected clips.
	NG	Sets the NG flags in the selected clips.
	KP(KEEP)	Sets the KEEP flags in the selected clips.
	none	Clears clip flags that have been set in the selected clips.

Item	Sub-item	Function
Format Disc	–	Formats (initializes) a recorded Professional Disc (when the currently selected media is Professional Disc). **Note** Finalized discs cannot be formatted.
Finalize Disc	–	Finalizes a write-once type Professional Disc (when the currently selected media is "disc"). **Notes** • You cannot write additional data to finalized discs. • Finalized discs cannot be finalized again.

To display the Clip Menu

Press the MENU button with a clip list screen (thumbnails view or details view) displayed.
To return to the original screen, press the MENU button again.

Clip Menu operations

To move the focus bar up or down: Press the ▲ or ▼ button, or turn the PUSH SET knob.
To move from a menu level to the next lower menu level: Press the ➡ button or PUSH SET knob.
To move from a menu level to the next higher menu level: Press the ◄ button or RETURN button.
To execute a command: Press the PUSH SET knob.

Clip F Menu

The clip list screens provide the Clip F Menu, which can be accessed directly with function buttons.
Following is a list of Clip F Menu commands. Underlined settings are the factory defaults.

Item	Function
F1: CLP INFO [a]	Select the information to be displayed at the bottom of the thumbnails. **DATE:** Date and time of creation, or date and time of the more recent modification **TC:** Timecode of first frame **DURATION:** Playback time **SQ NO.:** Sequence number of thumbnail

Item	Function
F2: CLIP PROPERTY	Displays the Clip Properties screen.
F3: FOLDER	When the currently selected media is a Professional Disc, selects the folder (CLIP, UserData >XDROOT, UserData> BPAV) under the Disc folder you want to display the content in the clip list screen.
F6: EXPAND	Displays the expand thumbnail screen.

a) Does not appear when the clip list screen is in details view.

To display the Clip F Menu

Press the PAGE/HOME button or function buttons (F1 to F6) with a clip list screen (thumbnails view or details view) displayed.
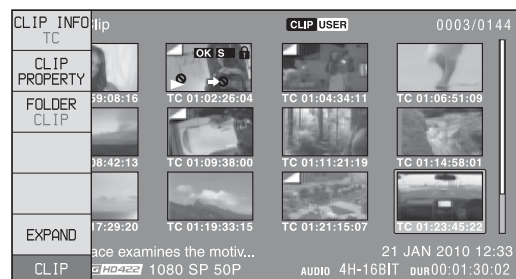
Clip Operations

The following operations target only clips on internal storage/Professional Disc. Before performing these operations, be sure to set the Write-Inhibit tab on the disc so as to enable recording. They cannot be executed for clips on SxS memory cards.
- Set clip flags
- Lock/Unlock
- Delete
- Set the index picture frame

Selecting clips

Select clips with the selection frame *(see page 59)*.

To move the selection frame

Do one of the following.
- Turn the PUSH SET knob.
- Press the arrow buttons.
- Turn the shuttle/jog dial. (The selection frame moves at high speed in shuttle mode and at low speed in jog mode.)

To jump to the first clip

Press the PREV button while holding down the SHIFT button.

To jump to the last clip

Press the NEXT button while holding down the SHIFT button.

To make a continuous selection of clips

Move the selection frame to the first clip that you want to select. Then, while holding down the SHIFT button, turn the PUSH SET knob.
To cancel the continuous selection, move the selection frame without the SHIFT button held down.

Searching with thumbnails

You can put the clip list screen into thumbnails view *(see page 59)* to search for desired clips while viewing thumbnails.
To search for clips while viewing clip names, press the DISPLAY button to switch to details view *(see page 60)*.

To cue up the clip you have found

Select the clip, and then press the PUSH SET knob.

To play the clip you have found

Select the clip, and then press the PLAY button.

To search through a clip in the expand thumbnail screen

The expand function allows you to divide a clip selected in the clip list screen into equally sized blocks, and to display a list of thumbnails of those blocks. This is a quick and efficient way to review the selected clip and search for target scenes. You can specify 12, 144, or 1728 divisions.

1 In the clip thumbnail screen, select the thumbnail of the clip that contains the scene you want to find.

2 Press the EXPAND function button (F6).

The selected clip is divided into 12 blocks, and a list appears in the expand thumbnail screen *(see page 61)* with the first frame of each block displayed as a thumbnail.

3 Select the thumbnail that you want to expand further.

4 Repeat steps **2** and **3** up to 2 times, as required.

If the duration of each block after division would be shorter than one frame, division is performed so that an expand thumbnail screen is displayed in which the duration of each block is one frame. In this case, no such expand thumbnail screen is displayed that represents further expansion.
For example, a 100-frame clip is divided into 100 blocks when you press the EXPAND function button (F6) twice and an expand thumbnail screen is displayed in which the duration of each block is one frame. A third press of the EXPAND function button (F6) displays no expand thumbnail screen representing further expansion.

To return to the previous expansion level

Press the EXPAND function button (F6) while holding down the SHIFT button.

To display the expand thumbnail screen of the previous or next clip

With the expand thumbnail screen still active, press the PREV button or the NEXT button.
An expand thumbnail screen appears displaying the thumbnails of 12 equal blocks resulting from division of the previous or next clip.

Setting clip flags

You can set three types of clip flags (OK/NG/KP(KEEP)) for selected clips. Setting these flags in each clip that you record makes it easy for editors and other colleagues to find and select the clips that they need.

1 In a clip list screen, select the clip where you want to set a flag (multiple selections possible).

2 Display the Clip Menu.

3 Select Set Clip Flag.

The Set Clip Flag screen appears.
In this screen, a ■ mark appears in front of the name of each flag that is set in one or more of the currently selected clips.

```
◆        Set Clip Flag
⤺ Return to Upper Menu
     ☐ OK
       NG
       KP(KEEP)
       none
```

4 Select the clip flag that you want to set (OK/NG/KP(KEEP)), and then press the PUSH SET knob.

The clip flag is set for all selected clips, and the clip flag icon *(see page 60)* appears on thumbnails.

To clear clip flags
Carry out steps **1** to **3**, selecting a clip that has a flag set, and then select "none" in step **4**.

Locking (write-protecting) clips

In a clip list screen, you can lock the selected clips so that they cannot be deleted or altered.
Locking prevents the following operations on clips.
• Deletion
• Changing the index picture
• Adding and deleting shot marks
• Setting and clearing clip flags

Notes

• Locked clips are deleted along with other clips when a media is formatted.
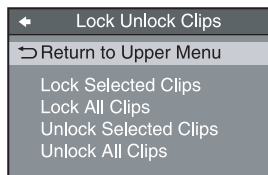• Clips cannot be locked or unlocked when a media is write protected.

To lock clips

1 In a clip list screen, select the clips that you want to lock (multiple selections possible).

This step is not needed if you lock all clips.

2 Display the Clip Menu.

3 Select Lock Unlock Clips.

The Lock Unlock Clips screen appears.

```
◆       Lock Unlock Clips
⤺ Return to Upper Menu
     Lock Selected Clips
     Lock All Clips
     Unlock Selected Clips
     Unlock All Clips
```

4 Select Lock Selected Clips or Lock All Clips, and then press the PUSH SET knob.

The clips selected in step **1** or all clips are locked.
A lock icon *(see page 60)* appears on the thumbnail of the locked clips.

Tip

You can lock the selected clips by pressing the STOP button while holding down the SHIFT button in step **1**.

To unlock clips

1 Execute the steps **1** to **3** in the previous section.

2 Select Unlock Selected Clips or Unlock All Clips, and then press the PUSH SET knob.

3 Select "OK", and then press the PUSH SET knob.

Tip

When you select a clip you want to unlock in the clip list screen and then press the STOP button while holding down the SHIFT button, a dialog appears asking you to confirm unlock. When you select "OK" and press the PUSH SET knob, the selected clip is unlocked. (To cancel unlock, select "CANCEL" and press the PUSH SET knob.)

Deleting clips

Notes

• Clips cannot be deleted when a media is write protected.
• Locked clips cannot be deleted.

1 In a clip list screen, select the clips that you want to delete (multiple selections possible).
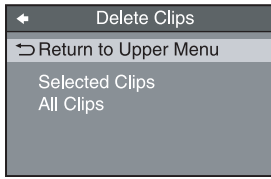
This step is not needed if you delete all clips.

2 Display the Clip Menu.

3 Select Delete Clips.

The Delete Clips screen appears.

```
←        Delete Clips
⤴ Return to Upper Menu

   Selected Clips
   All Clips
```

4 Select Delete Selected Clips or Delete All Clips, and then press the PUSH SET knob.

5 Select "OK", and then press the PUSH SET knob.

The clips selected in step **1** or all clips are deleted.

Tip

You can delete the selected clips by pressing the RESET button while holding down the SHIFT button in step **1** and by carrying out step **5**.

Copying clips

See "Copy operations" (page 54) for information about operations.

Setting the index picture frame

The clip thumbnail screen displays thumbnails as index pictures for clips. Normally the index picture is the first frame in a clip, but you can change it to any frame in the clip for a different index picture.

Note

You cannot set index pictures for EDLs.

1 In the basic operation screen or video monitor screen, play back the clip you want set the index picture frame.

2 Press the STOP button at the frame you want to be the index picture frame, to obtain a still frame display.

3 Display the page P5 OTHER of the function menu, and press the INDEX function button (F1).

A confirmation box appears asking you whether to set the frame of the still image as the index picture frame.

4 To set the current frame as the index picture frame, select "OK" and press the PUSH SET knob.

To set another frame as the index picture frame
Select "CANCEL" and press the PUSH SET knob, turning the confirmation box off. Start again from step **1**.

When you switch the display to the clip list screen, the newly set index picture is displayed as the thumbnail.

Disc Operations

The Clip Menu allows you to format (initialize) and finalize a Professional Disc.

Formatting (initializing) discs

You can format recorded discs.

Note

You cannot format finalized discs.

1 Insert the disc you want to format into the disc slot.

2 Press the DISC button.

3 Switch the display to the clip list screen.

4 Press the MENU button to display the Clip Menu.

5 Select "Format Disc" and press the PUSH SET knob.

A confirmation box appears asking you whether to execute formatting.

6 To execute formatting, select "OK" and press the PUSH SET knob.

The formatting starts, and the message "Format Executing..." appears.

To cancel the formatting
Select "CANCEL" and press the PUSH SET knob.

When the formatting is completed, the message "Format completed." appears.

To format another disc
Remove the disc that has been formatted, and insert another disc into the disc slot. When a confirmation box has appeared asking if you want to execute formatting, execute step **6** once more.

7 To quit formatting, select "Exit" and press the PUSH SET knob.

Finalizing discs

You can finalize write-once type Professional Discs.

Notes

- You cannot write additional data to finalized discs.
- Finalized discs cannot be finalized again.

1 Insert the disc you want to finalize into the disc slot.

2 Select "disc" as media.

3 Switch the display to the clip list screen.

4 Display the Clip Menu.

5 Select "Finalize Disc" and press the PUSH SET knob.

A confirmation box appears asking you whether to execute finalizing.

6 To execute finalizing, select "OK" and press the PUSH SET knob.

The finalizing starts, and the message "Finalize Executing...." appears.

To cancel the finalizing
Select "CANCEL" and press the PUSH SET knob.

When the finalizing is completed, the message "Finalize completed." appears.

To finalize another disc
Remove the disc that has been finalized, and insert another disc into the disc slot. When a screen has appeared asking if you want to execute formatting, execute step **6** once more.

7 To quit finalizing, select "Exit" and press the PUSH SET knob.

File Operations

Overview

A remote computer can be connected to this unit and used to operate on recorded data which has been saved in data files, such as video and audio data files.
To perform file operations, use either of the following methods to interconnect this unit and a computer.
- Make FTP connections *(see page 69)*.
- Make CIFS connections *(see page 73)*.

Directory structure

The directory structure of the internal storage can be selected with the maintenance menu item M33: FILE I/F CONFIG >FOLDER STYLE.
To use a directory structure matching existing XDCAM devices: Select "xdcam style".
To use a directory structure supporting multiple media: Select "xds style" (factory default setting).

The following figure shows the directory structure example of the internal storage visible to a remote computer.

Note

This structure is not the same as the actual structure recorded on the internal storage.

root [a)]
- INTERNAL
  - DISCMETA.XML
  - MEDIAPRO.XML
  - SYSPRO.XML
  - Clip
    - CLIP00001.MXF
    - CLIP00001M01.XML
    - CLIP00001M02.KLV
    - CLIP00002.MXF
    - CLIP00002M01.XML
    - CLIP00002M02.KLV
  - Edit
    - E00001E01.SMI
    - E00001M01.XML
    - E00002E01.SMI
    - E00002M01.XML
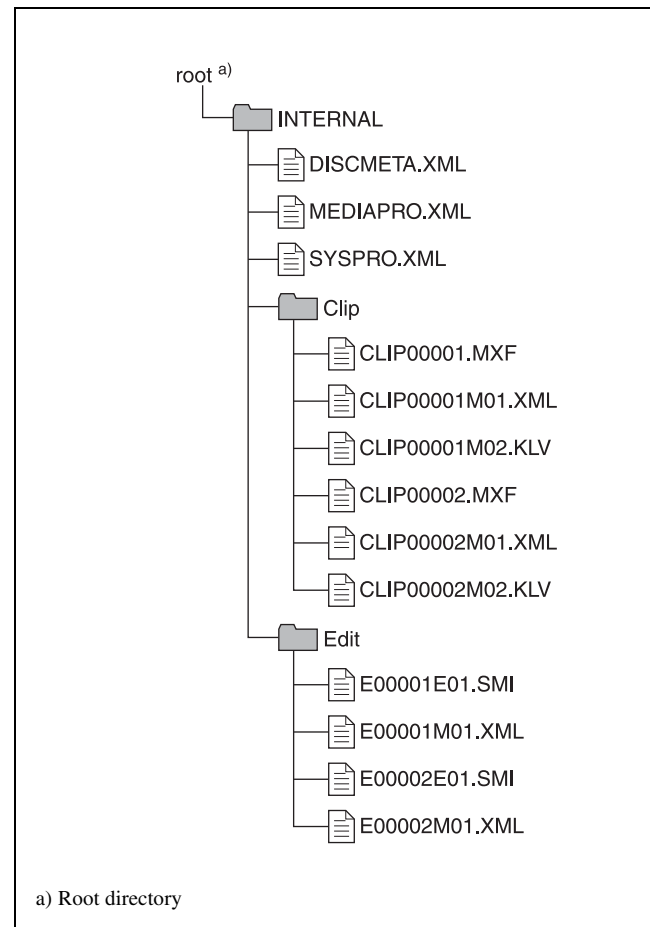
a) Root directory

Example when "xds style" is selected

File operation restrictions

This section explains which operations are possible on files stored in each directory.
"Read" and "write" are defined as follows.
Read: Read data sequentially from the start to the end of the file.
Write: Write data sequentially from the start to the end of the file.

INTERNAL directory (xds style)/root directory (xdcam style)

File name	Content	Operations				
		Read	Write	Rename	Create	Delete
DISCMETA.XML	Contains metadata to indicate the internal storage properties.	Yes	Yes [a]	No	No	No
MEDIAPRO.XML	Contains a list of material on the internal storage, basic properties, related information, and information about access methods.	Yes	No	No	No	No
SYSPRO.XML	Contains information about device system settings and menu settings.	Yes	No	No	No	No
Other files	Files other than the above	–	No	–	No	–

a) Only files which can be written by XDS devices

Clip directory

File name	Content	Operations				
		Read	Write	Rename	Create	Delete
*.MXF [a]	Clip file created by recording (MXF file)	Yes	Yes [b], [c]	Yes	Yes [b]	Yes
*M01.XML [a]	Metadata file generated automatically when *.MXF file is created.	Yes	Yes [b]	No [d]	No [e]	No [f]
*M02.KLV [a]	User metadata file. This type of file is generated automatically during recording via an FTP connection when the unit recognizes that an MXF file contains metadata that was generated by a non-XDS device.	Yes	Yes	No [d]	Yes [b]	Yes [f]
Other files	Files other than the above	–	No	–	No	–

a) The unit can handle files with user-defined names in the "*" part.
b) Only files which can be written by XDS devices
c) Overwriting is not possible.
d) When the "*" part of a *.MXF file name is changed, a *M01.XML file and a *M02.KLV file with the same name in the "*" part are also changed automatically.
e) When a *.MXF file is created, a *M01.XML file with the same name in the "*" part is generated automatically.

f) When a *.MXF file is deleted, a *M01.XML file and a *M02.KLV file with the same name in the "*" part are also deleted automatically.

Notes

- Directories cannot be created in the Clip directory.
- File names are not case-sensitive.

Edit directory

File name	Content	Operations				
		Read	Write	Rename	Create	Delete
*E01.SMI [a]	EDL file	Yes	Yes [b]	Yes	Yes [b]	Yes
*M01.XML [a]	Metadata file generated automatically when *E01.SMI file is created.	Yes	Yes [b]	No [c]	No [d]	No [e]
Other files	Files other than the above	–	No	–	No	–

a) The "*" part can be changed to a user-defined name.
b) Only files which can be written by XDS devices
c) When the "*" part of an "*E01.SMI" file name is changed, an *M01.XML file with the same name in the "*" part is also changed automatically.
d) When an *E01.SMI file is created, an *M01.XML file with the same name in the "*" part is also generated automatically.
e) When an *E01.SMI file is deleted, an *M01.XML file with the same name in the "*" part is also deleted automatically.

Notes

- Directories cannot be created in the Edit directory.
- File names are not case-sensitive.

FTP File Operations

File operations between this unit and a remote computer can be carried out by the File Transfer Protocol (called "FTP" below).

Preparations

1 Connect the network connectors of this unit and a remote computer with a network cable *(see connections illustration on page 31)*. Or connect this unit to the network to which the remote computer is connected *(see connections illustration on page 31)*.

2 Set the IP address and other network setting items for this unit. [1]

For details, see "To change network settings" (page 96).

If network settings have already been made
Check the IP address of this unit.

For details, see "To check the assigned IP address" (page 96).

[1] This unit is able to acquire an IP address automatically from a DHCP server. It also supports an Auto-IP function to assign an IP address automatically when access from this unit to the DHCP server times out. You can check DHCP settings and the assigned IP address on page M5:NETWORK of the maintenance menu.

To connect a computer running Windows Vista or Windows 7
Disable the Internet Protocol Version 6 (TCP/IPv6).
Windows Vista: (1) Open "Network and Sharing Center" >"Manage network connections" >"Local Area Connection" in the control panel. (2) In the "Local Area Connection Properties", uncheck the "Internet Protocol Version 6 (TCP/IPv6)", and then click the OK button.
Windows 7: (1) Open "View network status and tasks" >"Change adapter settings" >"Local Area Connection" in the control panel. (2) In the "Local Area Connection Properties", uncheck the "Internet Protocol Version 6 (TCP/IPv6)", and then click the OK button.

Making FTP connections

FTP connections between this unit and a remote computer can be made with either of the following.
• The command prompt
• FTP client software

This section explains how to use the command prompt. For more information about using FTP client software, refer to the documentation of the FTP client software on your system.

To log in

1 Start the command prompt.

2 Enter "ftp <SP> <IP address>", and press the Enter key. (<SP> refers to a space.)

For example, if the IP address of this unit is set to "192.168.001.010", enter "ftp 192.168.1.10".

Refer to the Windows help for more information about the FTP command.

If the connection succeeds, you are prompted to enter a user name.

3 Enter the user name "admin" and press the Enter key.

When the user name is verified, you are prompted to enter a password.

4 Enter the password and press the Enter key.

The password is set to the model name ("xds-pd1000" or "xds-pd2000") when the unit is shipped from the factory.
The login is complete when the password is verified.

See "Command list" (page 69) for the FTP protocol commands supported by this unit.

If the connection times out
This unit terminates FTP connections if no command is received within 90 seconds of the last command. If this occurs, log out *(see the next section)* and repeat steps **1** to **3**.

Note

If you power this unit off during an FTP connection, the data transferred thus far may be discarded.

To log out

To log out after finishing file operations, enter "QUIT" at the command prompt and press the Enter key.

Command list

The FTP protocol commands supported by this unit include standard commands *(see the next section)* and extended commands *(see page 72)*.

- To execute FTP commands, you must install application software such as XDCAM Browser on your computer.
- The commands supported by application software vary.
- An FTP client software that supports UTF-8 is required to use Unicode characters other than ASCII characters. Command prompt FTP commands do not support UTF-8.

Standard commands

In the command syntax, <SP> means a space, entered by pressing the space bar, and <CRLF> means a new line, entered by pressing the Enter key.

USER

Send this command to begin the login process.

Command syntax: USER <SP> <user name> <CRLF>
Input example: USER admin

PASS

Send this command to complete the login process.

Command syntax: PASS <SP> <password> <CRLF>
Input example: PASS xds-1000

QUIT

Terminates the FTP connection. If a file is being transferred, terminates after completion of the transfer.

Command syntax: QUIT <CRLF>

PORT

Specifies the IP address and port to which this unit should connect for the next file transfer (for data transfer from this unit).

Command syntax: PORT <SP> <h1,h2,h3,h4,p1,p2> <CRLF>
- h1 (most significant byte) to h4 (least significant byte): IP address
- p1 (most significant byte), p2 (least significant byte): Port number

Input example: PORT 10,0,0,1,242,48
(IP address: 10.0.0.1, Port number: 62000)

PASV

This command requests this unit to "listen" on a data port (which is not its default data port). (It puts this unit into passive mode, waiting for the remote computer to make a data connection.)

Command syntax: PASV <CRLF>

TYPE

Specifies the type of data to be transferred.

Command syntax: TYPE <SP> <type-code (options delimited by <SP>)> <CRLF>

<type-code> can be any of the following. However, for XDS devices, data is always transferred as "I", regardless of the type-code specification.
- A: ASCII
  - N: Non-print
  - T: Telnet format
  - C: ASA Carriage Control
- E: EBCDIC
  - N: Non-print
  - T: Telnet format
  - C: ASA Carriage Control
- I: IMAGE (Binary) (default)
- L: LOCAL BYTE
  - SIZE: byte size

Input example: TYPE I

STRU

Specifies the data structure.

Command syntax: STRU <SP> <structure-code> <CRLF>

<structure-code> can be any of the following. However, for XDS devices, the structure is always "F", regardless of the structure-code specification.
- F: File structure (default)
- R: Record structure
- P: Page structure

Input example: STRU F

MODE

Specifies the transfer mode.

Command syntax: MODE <SP> <mode-code> <CRLF>

<mode-code> can be any of the following. However, for XDS devices, the mode is always "S", regardless of the mode-code specification.
- S: Stream mode (default)
- B: Block mode
- C: Compressed mode

Input example: MODE S

LIST

Sends a list of files from this unit to the remote computer.

Command syntax: LIST <SP> <options> <SP> <path-name> <CRLF>

<options> can be any of the following.
- -a: Also display file names that begin with "."
- -F: Append "/" to directory names.

The following data is transferred, depending on whether <path-name> specifies a directory or file.
- Directory specified: A list of the files in the specified directory
- File specified: Information about the specified file
- No specification: A list of the files in the current directory

The wildcard characters "*" (any string) and "?" (any character) may be used in <path-name>.
Input example 1: LIST-a Clip
Input example 2: LIST Clip/*.MXF

NLST

Sends a list of file names from this unit to the remote computer, with no other information.

> **Command syntax: NLST <SP> <options or path-name> <CRLF>**

The following options may be specified when no path-name is specified.
- -a: Also display file names that begin with ".".
- -l: Also display information other than file name (gives the same result as the LIST command).
- -F: Append "/" to directory names.

The following data is transferred, depending on whether <path-name> specifies a directory or file.
- Directory specified: A list of the file names only in the specified directory
- No specification: A list of the file names only in the current directory.

The wildcard characters "*" (any string) and "?" (any character) may be used in <path-name>.
Input example 1: NLST-l
Input example 2: NLST Clip/*.MXF

RETR

Begins transfer of a copy of a file in the specified path on this unit to the current directory on the remote computer.

> **Command syntax: RETR <SP> <path-name> <CRLF>**
> **Input example:** RETR Clip/CLIP00001.MXF

STOR

Begins transfer of a copy of a file in the specified path on the remote computer to the current directory on this unit. Depending on the type of file transferred, the following files are created.
- *.MXF file
  - *M01.XML file (metadata)
  - *M02.KLV file (user metadata)
- *E01.SMI file
  - *M01.XML file (metadata)

Notes

- For *.MXF files or *E01.SMI files, the UMID of the copy source file is not saved. However, it is saved if an immediately preceding SITE UMMD extended command has been issued. For *E01.SMI files, execution of the STOR command results in an error if material with the same UMID already exists at the transfer destination directory.
- For *.MXF files, some data, such as file header metadata, may be missing.
- Depending on the transfer destination directory and the file type, transfer may not be possible.

For details, see "File operation restrictions" (page 67).

> **Command syntax: STOR <SP> <path-name> <CRLF>**
> **Input example:** STOR Edit/E00001E01.SMI

RNFR
RNTO

Rename a file.
Specify the file to be renamed with the RNFR command, and specify the new name with the RNTO command. (Always follow a RNFR command with a RNTO command.)

For details, see "File operation restrictions" (page 67).

> **Command syntax: RNFR <SP> <path-name (before change)> <CRLF>**
> **RNTO <SP> <path-name (after change)> <CRLF>**
> **Input example:** RNFR Clip/CLIP00001.MXF
> RNTO Clip/News_digest.MXF

DELE

Deletes the specified file on this unit.

Note

Depending on the directory and file type, deletion may not be possible.

For details, see "File operation restrictions" (page 67).

> **Command syntax: DELE <SP> <path-name> <CRLF>**
> **Input example:** DELE Clip/CLIP00099.MXF

STAT

Sends information about properties of the specified file, or about data transfer status, from this unit to the remote computer.
The following property information is sent, depending on the file type.
- MXF file
  - File name
  - File type

- CODEC type
- Frame rate
- Number of audio channels
- Duration
- UMID
- non-MXF file
  - File name

Command syntax: STAT <SP> <path-name> <CRLF>

The following data is transferred, depending on whether a file is specified with <path-name>.
- File specified: The properties of the specified file
- No specification: [1]

Input example: STAT Clip/CLIP00001.MXF

1) Not supported in this version; always size 0.

ABOR

Requests this unit to abort a file transfer currently in progress.

Command syntax: ABOR <CRLF>

SYST

Displays the system name of this unit.

Command syntax: SYST <CRLF>

HELP

Displays a list of the commands supported by this unit, or an explanation of the specified command.

Command syntax: HELP <SP> <command-name> <CRLF>

The following data is transferred, depending on whether a command name is specified with <command-name>.
- Command name specified: Explanation of the specified command.
- No specification: Command list

Input example: HELP RETR

NOOP

Does nothing except return a response. (Used to check whether this unit is running.)

Command syntax: NOOP <CRLF>

PWD

Displays the current directory ("/" if the directory is the root directory).

Command syntax: PWD <CRLF>

CWD

Changes the current directory (moves from the current directory to another directory).

Command syntax: CWD <SP> <path-name> <CRLF>

Moves to a directory as follows, depending on whether a directory is specified with <path-name>.
- Directory specified: To the specified directory
- No specification: To the root directory

Input example: CWD Clip

CDUP

Moves one level up in the directory structure (makes the parent of the current directory be the current directory).

Command syntax: CDUP <CRLF>

MKD

Creates a new directory.

Note

Some limitations apply to the creation of directories.

For details, see "File operation restrictions" (page 67).

Command syntax: MKD <SP> <path-name> <CRLF>

RMD

Deletes a directory.

Note

Some limitations apply to the deletion of directories.

For details, see "File operation restrictions" (page 67).

Command syntax: RMD <SP> <path-name> <CRLF>

Extended commands

In the Command syntax, <SP> means a space, entered by pressing the space bar, and <CRLF> means a new line, entered by pressing the Enter key.

SITE UMMD

When a *.MXF file is sent with the STOR command, the copy source UMID is saved if this command is invoked immediately before the STOR command.

Command syntax: SITE UMMD <CRLF>

If you make the transfer without issuing this command, new UMID data is generated and added to the file.

SITE REPF

Transfers an MXF file existing in the specified path of this unit to the current directory of the computer. This command allows you to specify a section of the body of MXF file (data comprised of video and audio) and transfer that section only.

- You cannot specify such section that exceeds the file size.
- If the file name character string contains one or more spaces, this command cannot be used. Use the SITE REPFL command.

> **Command syntax: SITE REPF <SP> <path-name> <SP> <start frame> <SP> <transfer size> <CRLF>**

<start frame> specifies the offset of the video frame to start transfer with respect to the top of the file ("0" for the top frame).
<transfer size> specifies the number of video frames to transfer (specifies "0" to perform transfer of data up to the end of the file).

> **Input example:** SITE REPF Clip/C0001.MXF 5 150
> Transfer C0001.MXF. For the body, however, data from sixth frame through 150th frame is only transferred.

SITE REPFL

Transfers an MXF file existing in the specified path of this unit to the current directory of the computer. This command allows you to specify a section of the body of MXF file (data comprised of video and audio) and transfer that section only.

Note

You cannot specify such section that exceeds the file size.

> **Command syntax: SITE REPFL <SP> "<path-name>" <SP> <start frame> <SP> <transfer size> <CRLF>**

<path-name> specifies the file path name by enclosing it in double quotation marks (" ").
<start frame> specifies the offset of the video frame to start transfer with respect to the top of the file ("0" for the top frame).
<transfer size> specifies the number of video frames to transfer (specifies "0" to perform transfer of data up to the end of the file).

> **Input example:** SITE REPFL "Clip/sakura 0001.MXF" 5 150
> Transfer sakura 0001.MXF. For the body, however, data from sixth frame through 150th frame is only transferred.

CIFS File Operations

You can perform file operations using the Common Internet File System (CIFS) between this unit and the computer.

Preparations

See "Preparations" under "FTP File Operations" (page 69).

Making CIFS connections

CIFS connections between this unit and a Windows computer can be made with either of the following.
- Use Windows Explorer to map this unit as a network drive
- Refer to this unit directly from Windows Explorer

The following describes the procedure for using Windows Explorer to map this unit as a network drive.

1 Start Windows Explorer.

2 In the Tools menu, select "Map Network Drive...".

The Map Network Drive dialog appears.

3 Enter "\\<IP address>\xds\" in the "Folder" field.

For example, if the IP address of this unit is set to "192.168.001.010", enter "\\192.168.1.10\xds\".

4 Click on "Connect using a different name".

The Connect As... dialog appears.

5 Enter the user name "admin" and the password, and click OK.

The password is set to the model name ("xds-pd1000" or "xds-pd2000") when the unit is shipped from the factory.

6 Click Finish.

The network drive allocation is complete when the password is verified.

To break the connections
In Windows Explorer, select the network drive and right-click it, then click "Disconnect".

Menus

Menu System Configuration

The settings for this unit use the following menus.

Setup menu
The setup menu system of this unit comprises the basic setup menu and extended setup menu.

Maintenance menu
This provides audio control, and network and setup menu settings, and also shows version information.

For details, see "Maintenance Menu" (page 92).

Function menu

For details, see "Basic Operations of the Function Menu" (page 41).

Clip Menu

For details, see "Clip Menu" (page 61).

Setup Menu

The setup menu system of this unit comprises the basic setup menu and extended setup menu.

Basic menu
This menu is used to make settings relating, for example, to the following.
- the operating hours meter
- the text information superimposed on the video output to the monitor
- the menu banks for retaining menu settings

Extended menu
This menu is used to make a wide range of settings relating to the functions of this unit, for example, the control panel functions, video and audio control, and digital data processing.

Configuration of the basic menu
The basic menu comprises the following groups of items.

Item group	Function	Refer to
Items H01 to H19	Display of the total number of hours the unit has been powered on, and other information collected by the operating hours meter	*page 100*
Items 001 to 099	Settings relating to the superimposed text information, switching between 59.94i/59.94P/29.97P/50i/50P/25P modes, etc.	*page 75*
Items B01 to B20	Settings relating to the menu banks for saving menu settings	*page 77*

Configuration of the extended menu
The extended menu comprises the following groups of items.

Item group	Function	Refer to
Items 100 to 199	Settings relating to control panels	*page 79*
Items 200 to 299	Settings relating to the remote control interface	*page 79*
Items 300 to 399	Settings relating to editing operations	*page 80*
Items 600 to 649	Settings relating to the timecode generator	*page 80*

Item group	Function	Refer to
Items 650 to 699	Settings relating to the metadata and UMID	*page 82*
Items 700 to 799	Settings relating to video control	*page 83*
Items 800 to 899	Settings relating to audio control	*page 85*
Items 900 to 999	Settings relating to digital processing	*page 86*

Items in the basic menu

The basic menu items (excluding the items related to the operating hours meter) are listed in the following table.

• The values in the "Settings" column are the values that appear in settings screens. The values in brackets [ ] are

the value shown in menu screens (when they differ from the values shown in settings screens).
• The underlined values are the factory defaults.

Item number	Item name	Settings
002	CHARACTER H-POSITION	Adjust the horizontal screen position (as a hexadecimal value) of the text information output from the HD-SDI OUTPUT 2 (SUPER), SD-SDI OUTPUT 2 (SUPER), HD-SDI MONITOR, SD-SDI MONITOR, or COMPOSITE OUTPUT 2 (MONITOR) connector for superimposed display on the monitor. The hexadecimal value 00 is for the far left of the screen. Increasing the value moves the position of the characters to the right. **00 to 0C to 28 (When the number of system lines is 1080 and the system frequency is 59.94i, 29.97P, 50i, 25P, or 23.98P)** **00 to 0B to 28 (When the number of system lines is 720 and the system frequency is 59.94P or 50P)** Set this item by adjusting to the required position while viewing the monitor.
003	CHARACTER V-POSITION	Adjust the vertical screen position (as a hexadecimal value) of the text information output from the HD-SDI OUTPUT 2 (SUPER), SD-SDI OUTPUT 2 (SUPER), HD-SDI MONITOR, SD-SDI MONITOR, or COMPOSITE OUTPUT 2 (MONITOR) connector for superimposed display on the monitor. The hexadecimal value 00 is for the top of the screen. Increasing the value lowers the position of the characters. **00 to 2A to 32 (When the number of system lines is 1080 and the system frequency is 59.94i, 29.97P, 50i, 25P, or 23.98P)** **00 to 29 to 32 (When the number of system lines is 720 and the system frequency is 59.94P or 50P)** Set this item by adjusting to the required position while viewing the monitor.
005	DISPLAY INFORMATION SELECT	Determine the kind of text information to be output from the HD-SDI OUTPUT 2 (SUPER), SD-SDI OUTPUT 2 (SUPER), HD-SDI MONITOR, SD-SDI MONITOR, or COMPOSITE OUTPUT 2 (MONITOR) connector. **time data & status [T&sta]**: Time data and the units status. **time data & UB [T&UB]**: Time data and user bits data. (When "UB" (user bits data) is selected with CNTR SEL on the HOME page of the function menu, the "user bits data" and "time data" arranged in that order are displayed.) **time data & CNT [T&CNT]**: Time data and counter count. (When "COUNTER" is selected with CNTR SEL on the HOME page of the function menu, the counter count and time data arranged in that order are displayed.) **time data & timecode [T&T]**: Time data and timecode (TC or VITC) **time data only [time]**: Time data only

Item number	Item name			Settings
006	LOCAL FUNCTION ENABLE			Determine which recording and playback control buttons on the front panel are enabled when this unit is controlled from external equipment via a REMOTE (9P) connector. **all disable [dis]**: All buttons and switches are disabled. <u>**stop & eject [st&ej]**</u>: Only the STOP button and the EJECT button can operate. **all enable [ena]**: All buttons and switches are enabled.
013	SYSTEM FREQUENCY SELECT MENU			Specify whether to enable switching the system frequencies (1080/59.94i, 50i, 29.97P, 25P, 23.98P or 720/59.94P, 50P). <u>**off**</u>: Do not enable switching the system frequencies. **on**: Enable switching the system frequencies. *For details about switching the system frequencies, see page 37.* **Note** Settings for both basic and extended menu items are saved separately for different system frequencies. • 1080 59.94i/29.97P • 1080 50i/25P • 1080 23.98P • 720 59.94P • 720 50P Therefore, when you switch system frequencies, all menu items are reset to the current settings for the new mode. (They are different from the setting for the previous mode.)
027	SD CHARACTER			Specify whether to superimpose text information on the SD video signal.
	Sub-item			
	1	SD-SDI2 [a)]		Specify whether to superimpose text information on the video signal output from the SD-SDI OUTPUT 2 (SUPER) connector. **off:** Do not superimpose. <u>**on:**</u> Superimpose.
	2	MONITOR SD [a)]		Specify whether to superimpose text information on the video signal output from the SD-SDI MONITOR OUTPUT or COMPOSITE OUTPUT 2 (MONITOR) connector. **off:** Do not superimpose. <u>**all:**</u> Superimpose on the outputs from both the above connectors. **comp:** Superimpose on the output from the COMPOSITE OUTPUT 2 (MONITOR) connector. **sdi:** Superimpose on the output from the SD-SDI MONITOR OUTPUT connector.
	3	LCD/VGA		Specify whether to superimpose text information over the display on the front panel, and on the video signal output from the MONITOR (VGA) connector. **off:** Do not superimpose. <u>**on:**</u> Superimpose.
028	HD CHARACTER			Specify whether to superimpose text information on the HD video signal.
	Sub-item			
	1	HD-SDI2		Specify whether to superimpose text information on the video signal output from the HD-SDI OUTPUT 2 (SUPER) connector. **off:** Do not superimpose. <u>**on:**</u> Superimpose.
	2	MONITOR HD		Specify whether to superimpose text information on the video signal output from the HD-SDI MONITOR OUTPUT connector. **off:** Do not superimpose. <u>**sdi:**</u> Superimpose.
031	RECORDING FORMAT			Set the recording format. <u>**HD422:**</u> HD422 **420HQ:** HD420HQ **IMX 50Mbps [IMX50]:** IMX 50Mbps **DVCAM:** DVCAM

Chapter 7 Menus

76 Setup Menu

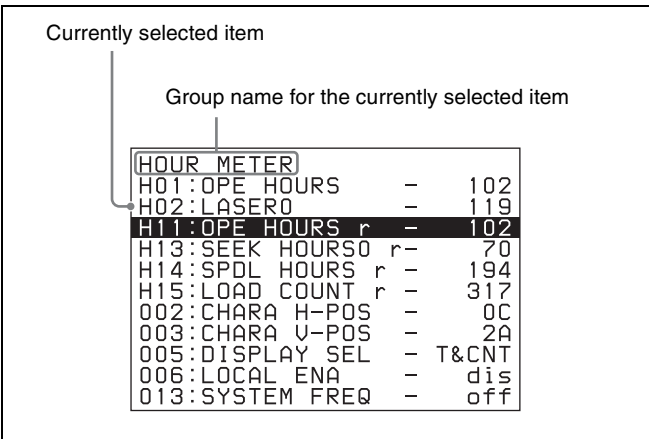| Item number	Item name	Settings
B01	RECALL SETUP BANK-1	Set to "on" to recall menu bank 1 to replace the current menu settings.
B02	RECALL SETUP BANK-2	Set to "on" to recall menu bank 2 to replace the current menu settings.
B03	RECALL SETUP BANK-3	Set to "on" to recall menu bank 3 to replace the current menu settings.
B11	SAVE SETUP BANK-1	Set to "on" to save current menu settings to menu bank 1.
B12	SAVE SETUP BANK-2	Set to "on" to save current menu settings to menu bank 2.
B13	SAVE SETUP BANK-3	Set to "on" to save current menu settings to menu bank 3.
B20	RESET SETUP MENU	Set to "on" to return the settings of the current menu to the factory default settings.

a) Not displayed when the unit is in 23.98P mode.

Basic menu operations

Setup menus are displayed on the video monitor screen or on a PC monitor connected to the MONITOR connector.

To display the setup menu

MENU button

PUSH SET knob

RESET button

Function buttons (F1 to F6)
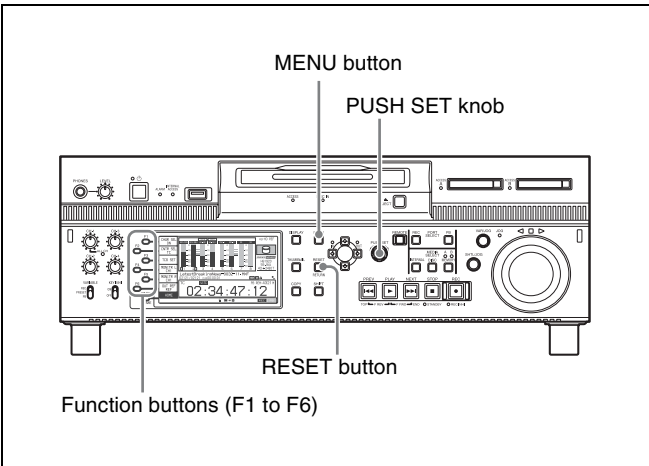
To display a setup menu, press the MENU button.
The currently selected menu item is displayed in reverse video.

Currently selected item

Group name for the currently selected item

```
HOUR METER
H01:OPE HOURS     -      102
H02:LASER0        -      119
H11:OPE HOURS  r  -      102
H13:SEEK HOURS0 r-       70
H14:SPDL HOURS  r -      194
H15:LOAD COUNT  r -      317
002:CHARA H-POS   -       0C
003:CHARA V-POS   -       2A
005:DISPLAY SEL   -    T&CNT
006:LOCAL ENA     -      dis
013:SYSTEM FREQ   -      off
```

Buttons used to change settings

Use the following buttons to change setup menu settings.

Menu control buttons	Functions
MENU button	Displays and hides the setup and user interface menus.
PUSH SET knob	• When turned clockwise or counterclockwise, moves the reverse video to select the item to change. • When turned clockwise or counterclockwise, changes a menu item setting. • When pressed, answers "Yes" to a question.
Function buttons F1 to F6 (The function to be displayed varies depending on the situations.)	**RETURN:** Goes up one level. **SELECT:** Selects an item. **UP:** Skips back 100 or 50 items in the list of menu items. **DOWN:** Skips forward 100 or 50 items in the list of menu items. **SAVE:** Saves a new setting to memory. **EXIT:** Exits the current menu. **–:** Changes a setting. **+:** Changes a setting.
RESET button	• Returns the current setting to the factory default. • Answers "No" to a question.

To change the settings of menu items

Proceed as follows to change the settings of menu items.

1 Use the PUSH SET knob to select the required item.

**Example:** Screen display when item 005 DISPLAY SEL is selected

Current setting

```
KEY PARAMETER
002:CHARA H-POS   -    0C
003:CHARA V-POS   -    2A
005:DISPLAY SEL   - T&CNT
006:LOCAL ENA     -    dis
013:SYSTEM FREQ   -    off
027:SD CHARA
028:HD CHARA
031:REC FORMAT    - HD422
101:SEARCH ENA    -   dial
114:AUD MON LEV   -  fixed
121:FRAME PB      -   auto
```

2 Press the PUSH SET knob or the SELECT function button (F2).

This displays the setting screen for the menu item selected in step **1**.

Example: Setting screen display when item 005 DISPLAY INFORMATION SELECT is selected

```
        ITEM-005

    DISPLAY INFORMATION
          SELECT
      time data & CNT
```

Current setting
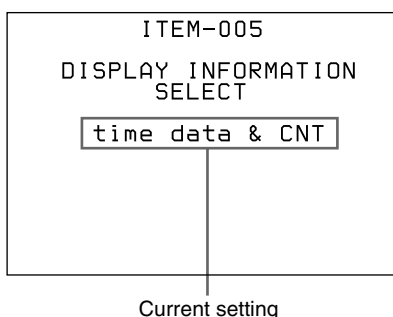
3 Use the PUSH SET knob or the +/– function button (F3 or F4) to change the setting.

Turning the PUSH SET knob while holding down the SHIFT button increases the increment of adjustment.

4 To change other settings, press the PUSH SET knob or the RETURN function button (F1) to return to the previous screen, then repeat steps **1** to **3.**

5 When you have completed the settings, press the SAVE function button (F5).

The message "NOW SAVING..." appears on the video monitor screen, while the new settings are saved in memory. When the saving operation is completed, the video monitor screen returns to its normal indications.

Notes

- If you power off the unit before a save operation is completed, settings may be lost. Wait until the save is completed before powering off the unit.
- If, instead of pressing the SAVE function button (F5), you press the MENU button, the new settings are not saved. The message "ABORT !" appears on the video monitor screen for about 0.5 seconds, and the system exits the menus. To change more than one setting, be

sure to press the SAVE function button (F5) after making the settings.

To return menu settings to their factory default settings

After changing menu settings, use the following procedure to return the settings to their factory default settings (setting initialization).

To return a particular setting to its factory default setting

In the screen that selects the setting of that item, press the RESET button.
For example, proceed as follows to return the 005 DISPLAY INFORMATION SELECT item to its default setting. This assumes that the setting has been changed from the factory default "time data & status" in step **3** of the procedure in *"To change the settings of menu items" (page 77)*.

1 Press the RESET button.

"time data & status" (factory default setting) is selected.

2 Press the SAVE function button (F5).

The setting returned to its factory default is saved in memory as the current setting.

To return all settings to their factory default settings

1 Press the MENU button to display the setup menu.

2 Press the RESET button.

The message "INITIALIZE ALL ITEMS TO FACTORY PRESET VALUES?" appears, to confirm whether you wish to return all settings to their factory default settings.

3 Press the SAVE function button (F5).

The message "NOW SAVING..." appears on the video monitor screen, while the settings of all items are returned to their factory default settings. These factory default settings are saved in memory.
If you power off the unit while settings are being saved, settings may not be correctly returned to their factory default settings. Wait until the saving is completed before powering off the unit.

To abandon the resetting operation
Instead of pressing the SAVE function button (F5), press the RESET button.
The display returns to the top level of the setup menu, leaving the settings unchanged.

Items in the extended menu

The following tables show the items in the extended menu.
- The values in the "Settings" column are the values that appear in settings screens. The values in brackets [ ] are the value shown in menu screens (when they differ from the values shown in settings screens).
- The underlined values are the factory defaults.

Menu items in the 100s, relating to the control panels

Item number	Item name	Settings
101	SELECTION FOR SEARCH DIAL ENABLE	Select how the unit enters the shuttle, jog, or variable-speed mode. **dial direct [dial]**: Press the SHTL/JOG or VAR/JOG button or, except during recording/editing, turn the jog dial or shuttle dial. **via search key [key]**: Press the SHTL/JOG or VAR/JOG button.
114	AUDIO MONITOR OUTPUT LEVEL	Select whether to control the level of the audio signal output from the AUDIO MONITOR OUTPUT R, L connectors with the LEVEL adjustment knob for the PHONES jack. **variable [var]**: Control. **fixed**: Do not control.
121	FRAME PB MODE	Select the variable-speed playback field/frame mode. **auto:** Field playback **frame:** Frame playback. Compared to field playback, frame playback gives more detail during playback of still pictures.
130	DISPLAY DIMMER CONTROL	Set the brightness of the indication on the LCD. **10%, 25%, 50%, 75%, 100%**
131	AUDIO VOLUME	Select whether each of the CH-1/ALL CH, CH-2 to CH-4 adjustment knobs on the control panel is effective to control the audio recording level and playback level on each channel or the CH-1/ALL CH adjustment knob alone functions as a master control to control the audio level on all channels together. **each**: Each of the CH-1/ALL CH, CH-2 to CH-4 adjustment knobs is effective to control each channel. **all**: The CH-1/ALL CH adjustment knob alone functions as a master control. When "all" is selected, the ALL CH indicator under the CH-1/ALL CH adjustment knob lights up.
155	STREAM CHASE	Specify whether perform chase output with CIFS during recording. **disable (disc style) [disc]:** Do not perform chase output with CIFS (perform output in an MXF format compatible with existing devices). **enable (growing style) [ena]:** Perform chase output with CIFS (perform output in the MXF format unique for chase output). This unit supports MXF V1.3 format. MXF V1.3 format supports chase output by enabling data in the header metadata area storing information on clip length, etc. to the footer partition at the end of the MXF file as well as to the header partition. This enables clips being recorded to be output via CIFS and handled on the network. **Note** When using a nonlinear editor that is not a Sony product, please contact the maker to confirm whether it is possible or not to receive clips output by the chase output function using MXF V1.3 format.

Menu items in the 200s, relating to the remote control interface

Item number	Item name		Settings
208	PROTOCOL FOR REMOTE(9P)		Select the protocol used with a REMOTE (9P) connector, for each port.
	Sub-item		
	1	#2 (PB)	Select the protocol used with the playback port. **VTR:** Sony 9-pin VTR protocol **VDCP:** VDCP protocol

Menu items in the 200s, relating to the remote control interface

Item number	Item name	Settings
212	VIDEO REMOTE CONTROL SELECT [a)]	Select the method used to control the internal digital video processor and to make related settings. **menu:** Use the setup menu to change settings. **remote (down converter) [dc]:** Control the down-converter from an HKDV-900 or another device connected to the VIDEO CONTROL connector. **remote (up converter) [uc]:** Control the up-converter from an HKDV-900 or another device connected to the VIDEO CONTROL connector.

a) Not displayed when the unit is in 23.98P mode.

Menu items in the 300s, relating to editing operations

Item number	Item name	Settings
320	DIGITAL AUDIO PB PROCESS ON EDIT POINT	Specify the handling of audio at clip joints. **cut**: Carry out a cut (possibly resulting in audio discontinuities at the edit point). **fade**: Fade out and fade in.

Menu items in the 500s, relating to the disc drive

Item number	Item name	Settings
501	STILL TIMER	To protect the disc against shock and vibrations, and to lengthen the life of the laser diodes, the unit automatically enters standby off mode whenever a specified time elapses in a disc stop mode (stop mode or the still picture mode of search mode). This allows you to set the time after which the unit exits a disc stop mode and enters standby off mode. **0.5 sec [0.5 s] to 8 min [8 m] to 30 min [30 m]:** Can be set in the range from 0.5 seconds to 30 minutes. **off:** Do not put into standby off mode.

Menu items in the 600s, relating to the timecode, metadata, and UMID

Item number	Item name		Settings
601	VITC POSITION SEL-1 [a)]	In 59.94i/59.94P/29.97P mode	Select the line into which to insert VITC signals (SD output) **12H to 16H to 20H:** Any line from line 12 through line 20. **Notes** • You can insert VITC signals in two places. To insert in two places, set both item 601 and item 602. • In 59.94i/59.94P/29.97P mode (J), output of wide picture information is given priority if OUTPUT in setup menu item 731 is set to "auto" and the VITC insertion line is set to line 16. • In 59.94i/59.94P/29.97P mode (UC), output of wide picture information is given priority if OUTPUT in setup menu item 731 is set to "auto" and the VITC insertion line is set to line 20.
		In 50i/50P/25P mode	Select the line into which to insert VITC signals (SD output) **9H to 19H to 22H:** Any line from line 9 through line 22. **Note** You can insert VITC signals in two places. To insert in two places, set both item 601 and item 602.

Menu items in the 600s, relating to the timecode, metadata, and UMID

Item number	Item name		Settings
602	VITC POSITION SEL-2 [a)]	In 59.94i/59.94P/ 29.97P mode	Select the line into which to insert VITC signals (SD output) **12H to 18H to 20H:** Any line from line 12 through line 20. [Notes] • You can insert VITC signals in two places. To insert in two places, set both item 601 and item 602. • In 59.94i/59.94P/29.97P mode (J), output of wide picture information is given priority if OUTPUT in setup menu item 731 is set to "auto" and the VITC insertion line is set to line 16. • In 59.94i/59.94P/29.97P mode (UC), output of wide picture information is given priority if OUTPUT in setup menu item 731 is set to "auto" and the VITC insertion line is set to line 20.
		In 50i/50P/25P mode	Select the line into which to insert VITC signals (SD output) **9H to 21H to 22H:** Any line from line 9 through line 22. [Note] You can insert VITC signals in two places. To insert in two places, set both item 601 and item 602.
605	TCG REGEN MODE		Select the signal to be regenerated when the timecode generator is in the regeneration mode. **TC&UB**: Both the timecode and user bits are regenerated. **TC**: Only the timecode is regenerated. **UB**: Only the user bits are regenerated.
607	U-BIT BINARY GROUP FLAG		Select the user bits to be used in the timecode generated by the timecode generator. **000:not specified [000]**: Character set not specified. **001:iso character [001]**: 8-bit characters compliant with ISO 646 and ISO 2022. **010:unassigned-1 [010]**: Undefined. **011:unassigned-2 [011]**: Undefined. **100:unassigned-3 [100]**: Undefined. **101:page / line [101]**: SMPTE-262M page/line multiplex system. **110:unassigned-4 [110]**: Undefined. **111:unassigned-5 [111]**: Undefined.
618	UPCONV EMBEDDED VITC [a)]		Select the source of the VITC embedded into output HD-SDI signal when up converting during playback of an SD clip. **VITC:** Select the VITC of the SD clip. **LTC:** Select the LTC of the SD clip.
619	VITC [a)]		Select whether to record the VITC generated by the internal timecode generator during IMX recording. **off:** Do not record the internally generated VITC. **on:** Record the internally generated VITC. [Note] Even if this item is set to "off", VITC is recorded if the input video signal contains VITC and the VITC line is set to "throu" in menu item 723.

Menu items in the 600s, relating to the timecode, metadata, and UMID

Item number	Item name	Settings
638	TIME CODE FOR VDCP CONTROL	Make a setting for timecode generated when the REC INIT command or CUE WITH DATA command is executed from a VDCP-compliant controller. **REC:VDCP PB:TC [VDCP]:** Recording timecode is continuous timecode starting from 00:00:00:00 generated in accordance with the VDCP controller. Timecode for cueing is the same as clip timecode. **REC:TCG PB:TC [menu]:** Timecode for recording depends on the settings of the menu items related to the timecode generator. Timecode for cueing is the same as clip timecode. **REC:VDCP PB:Zero Base [VDCP/0]:** Recording timecode is continuous timecode starting from 00:00:00:00 generated in accordance with the VDCP controller. Timecode for cueing is generated taking 00:00:00:00 as the timecode value of the clip's first frame. **REC:TCG PB:Zero Base [menu/0]:** Timecode for recording depends on the settings of the menu items related to the timecode generator. Timecode for cueing is generated taking 00:00:00:00 as the timecode value of the clip's first frame.
651	UMID SDI OUTPUT	Select whether to output UMID in the VANC of the SDI output. **off**: Do not output. **<u>on</u>**: Output. *See "Using UMID Data" (page 113) for more information about UMID.*
652	UMID SD VANC LINE a)	Select the line in which UMID is output when menu item 651 is set to "on". **12H, 13H, 15H, 16H, <u>17H</u>, 18H, 19H (59.94i/59.94P/29.97P mode)** **9H, 10H, 12H, 13H, 14H, 15H, 16H, <u>17H</u>, 18H (50i/50P/25P mode)** *See "Using UMID Data" (page 113) for more information about UMID.*
653	UMID HD VANC LINE	Select the line in which UMID is output when menu item 651 is set to "on". **9H to <u>17H</u> to 20H (59.94i, 50i, 29.97P, 25P, 23.98P mode)** **9H to <u>17H</u> to 25H (59.94P, 50P mode)** *See "Using UMID Data" (page 113) for more information about UMID.*
657	ESSENCE MARK SDI OUTPUT	Select whether to output essence marks in the SDI output VANC. **off:** Do not output. **<u>on</u>:** Output.
660	ESSENCE MARK SD VANC LINE a)	Select the line to which to output essence marks when menu item 657 is set to "on". **12H, 13H, 15H, 16H, <u>17H</u>, 18H, 19H (59.94i/59.94P/29.97P mode)** **9H, 10H, 12H, 13H, 14H, 15H, 16H, <u>17H</u>, 18H (50i/50P/25P mode)**
665	ESSENCE MARK HD VANC LINE	Select the line to which to output essence marks when item 657 is set to "on". **9H to <u>17H</u> to 20H (59.94i, 50i, 29.97P, 25P, 23.98P mode)** **9H to <u>17H</u> to 25H (59.94P, 50P mode)**
666	METADATA ITEM OUT	Specify whether to include the information from recorded VANC packets in data items in the DATA ITEM section of MXF files. **off:** Do not include VANC packet information in DATA ITEM. **<u>on</u>:** Include VANC packet information in DATA ITEM.
668	USER META DATA OUTPUT IN MXF	Select whether to output user metadata to MXF files. **off:** Do not output. **<u>on</u>:** Output.

a) Not displayed when the unit is in 23.98P mode.

Menu items in the 700s, relating to video control

Item number	Item name		Settings
703	BLANK LINE SELECT [a)]		Switch blanking of the video output signal on or off for individual lines in the vertical blanking interval.
	Sub-item		The Y/C signal and odd/even fields are blanked simultaneously.
	ALL LINE		**- - -**: Specify the blanking for each line separately. **blank [blnk]**: Regardless of the setting of other sub-items, blank all lines which can be specified in this menu item. **throu [thru]**: Regardless of the setting of other sub-items, switch off blanking for all lines which can be specified in this menu item.
	In 59.94i/59.94P/29.97P mode (UC)	LINE 12 ... LINE 19	Specify blanking for lines 12 to 19. **blank [blnk]**: Carry out blanking. **throu [thru]**: Switch off blanking.
		LINE 20	Specify blanking for line 20. **blank [blnk]**: Carry out blanking. **half**: Carry out half-blanking. **throu [thru]**: Switch off blanking.
	In 59.94i/59.94P/29.97P mode (J)	LINE 12 … LINE 20	Specify blanking for lines 12 to 20. **blank [blnk]**: Carry out blanking. **throu [thru]**: Switch off blanking.
		LINE 21	Specify blanking for line 21. **blank [blnk]:** Carry out blanking. **half:** Carry out half-blanking. **throu [thru]**: Switch off blanking.
	In 50i/50P/25P mode	LINE 9 ... LINE 22	Specify blanking for lines 9 to 22. **blank [blnk]:** Carry out blanking. **throu [thru]**: Switch off blanking.
		LINE 23	Specify blanking for line 23. **half**: Carry out half-blanking. **throu [thru]**: Switch off blanking.
705	EDGE SUBCARRIER REDUCER MODE [a)]		Select whether to enable the edge subcarrier reducer (ESR). **on:** Enable ESR. **off:** Do not enable ESR.
707	FORCED VERTICAL INTERPOLATION OFF		The "Y-add" function is normally switched on automatically during jog or variable-speed playback. This item selects whether to force the "Y-add" function off. **auto**: Automatically switch the "Y-add" function on. **forced YADD off [off]**: Force the "Y-add" function off. The "Y-add" function is a circuit operation to interpolate the video signal vertically during jog or variable speed playback for the purpose of reducing the vertical movement of the playback picture.
710	INTERNAL VIDEO SIGNAL GENERATOR		Select the test signal to be output from the internal test signal generator. When INT SG on page P1 INPUT of the function menu is set to "ON", the internal test signal generator operates to output the selected test signal. This signal can also be recorded. **Off [OFF]:** Do not output test signal. **75% Color Bars [CB75]:** 75% color bar signal **100% Color Bars [CB100]:** 100% color bar signal **Multi Burst [MLTBS]:** Multi-burst signal **10 steps [10STP]:** 10-step signal **Pulse and Bar [PLSBR]:** Pulse and bar signal **Ramp [RAMP]:** Ramp signal **Black [BLACK]:** Black signal **ARIB Color Bars [ARBCB]:** ARIB color bar signal (modify width: 100%) **Note** "ARIB Color Bar" cannot be specified when SD recording is selected. If "ARIB Color Bar" is selected, the selection is changed to "75% Color Bars" ([CB75]).

Menu items in the 700s, relating to video control

Item number	Item name			Settings
713	VIDEO SETUP REFERENCE			Set the video setup amount to be added to the composite output signal (in 59.94i/59.94P/29.97P mode only).
	Sub-item			
	OUTPUT LEVEL	In 59.94i/59.94P/ 29.97P mode (UC)		Add the setup level selected by this item to the output signal. **0.0**%, **7.5**%
		In 59.94i/59.94P/ 29.97P mode (J)		Add the setup level selected by this item to the output signal. **0.0**%, **7.5**%
715	VIDEO GAIN CONTROL [a)]			Adjust the video output level of SD video signals output from the SD-SDI OUTPUT, COMPOSITE OUTPUT, or HDMI OUTPUT connectors. **−2048 to 0 to 848**
716	CHROMA GAIN CONTROL [a)]			Adjust the chroma output level of SD video signals output from the SD-SDI OUTPUT, COMPOSITE OUTPUT, or HDMI OUTPUT connectors. **−2048 to 0 to 848**
717	CHROMA PHASE CONTROL [a)]			Adjust the chroma phase of SD video signals output from the SD-SDI OUTPUT, COMPOSITE OUTPUT, or HDMI OUTPUT connectors. **−128 to 0 to 127**
718	SETUP LEVEL (59.94i/59.94P/ 29.97P mode)/BLACK LEVEL (50i/ 25P mode) [a)]			Adjust the setup level (black level) of SD video signals output from the SD-SDI OUTPUT, COMPOSITE OUTPUT, or HDMI OUTPUT connectors. **−272 to 0 to 272**
719	SYSTEM PHASE SYNC [a)]			Adjust the sync phase of SD video signals output from the SD-SDI OUTPUT, COMPOSITE OUTPUT, or HDMI OUTPUT connectors. **−128 to 0 to 127**
720	SYSTEM PHASE SC [a)]			Adjust the subcarrier phase of SD video signals output from the SD-SDI OUTPUT, COMPOSITE OUTPUT, or HDMI OUTPUT connectors. **0 to 511**
723	INPUT VIDEO BLANKING			Switch blanking on or off for lines in the vertical blanking interval of input video signals. Lines can be specified individually. Y/C signals and odd/ even fields are blanked simultaneously.
	Sub-item			Blanking in recorded signals is carried out according to these settings.
	1	ALL LINE		**---:** Specify the blanking for each line separately **blank [blnk]:** Regardless of the settings of other sub-items, blank all lines which can be specified in this menu item. **throu [thru]:** Regardless of the settings of other sub-items, switch blanking off for all lines which can be specified in this menu item.
	2 | 10	LINE12-LINE20	In 59.94i/59.94P/ 29.97P mode	Specify blanking for lines 12 to 20. **blank [blnk]:** Switch blanking on. **throu [thru]:** Switch blanking off.
	2 | 15	LINE9-LINE22	In 50i/50P/25P mode	Specify blanking for lines 9 to 22. **blank [blnk]:** Switch blanking on. **throu [thru]:** Switch blanking off.
726	H BLANKING WIDTH [a)]			Select the horizontal blanking width of the output analog video signal. **narrow [narow]:** Digital blanking (narrow) **wide:** Analog blanking (wide) When "wide" is selected, the horizontal blanking width complies with SMPTE-170M, and normally the blanking is widened and the image becomes narrower. It is recommended to select "narrow" at the editing stage, then later, for broadcast transmission to select "wide", to output a signal conforming to the standard. Note, however, that "narrow" has to be always selected for SDI signals.
728	OUTPUT SCH PHASE [a)]			Set the subcarrier H phase. **−512 to 0 to 511**

Menu items in the 700s, relating to video control

Item number	Item name			Settings
731	WIDE MODE [a]			Specify whether to record and play back with the addition of wide picture information.
	Sub-item			
		1	INPUT	Select whether to save wide picture information when recording. **auto:** Automatically save wide picture information when it is detected in the selected input video signal. **on:** Always save wide picture information. **off:** Never save wide picture information
		2	OUTPUT	Select whether to add wide picture information to the signal output when down-converter output is set to squeeze mode. **through [thru]:** Do not add. **auto:** Add. **Notes** • To add wide picture information to the output signal, another setting is required in addition to this item. In setup menu item 703, set line 16 (59.94i/59.94P/29.97P mode (J)), line 20 (59.94i/59.94P/29.97P mode (UC)), or line 23 (50i/25P mode) to "throu". • In 59.94i/59.94P/29.97P mode (J), output of wide picture information is given priority if the VITC insertion line is set to line 16 in setup menu item 601 or 602. • In 59.94i/59.94P/29.97P mode (UC), output of wide picture information is given priority if the VITC insertion line is set to line 20 in setup menu item 601 or 602.
740	MASTER LEVEL (HD)			Adjust the high-definition video signal output from the HD-SDI OUTPUT or HDMI OUTPUT connectors. This adjusts the Y, PB, and PR levels simultaneously. **–2048 to 0 to 846**
741	Y LEVEL (HD)			Adjust the Y level of the high-definition video signal output from the HD-SDI OUTPUT or HDMI OUTPUT connectors. **–2048 to 0 to 846**
742	PB LEVEL (HD)			Adjust the PB level of the high-definition video signal output from the HD-SDI OUTPUT or HDMI OUTPUT connectors. **–2048 to 0 to 846**
743	PR LEVEL (HD)			Adjust the PR level of the high-definition video signal output from the HD-SDI OUTPUT or HDMI OUTPUT connectors. **–2048 to 0 to 846**
745	SETUP LEVEL (HD)			Adjust the setup level of the high-definition video signal output from the HD-SDI OUTPUT or HDMI OUTPUT connectors. **–272 to 0 to 272**
746	SYNC PHASE (HD)			Control the H sync phase of the high-definition video signal output from the HD-SDI OUTPUT or HDMI OUTPUT connectors. **–128 to 0 to 127**
747	FINE (HD)			Fine control the H sync phase of the high-definition video signal output from the HD-SDI OUTPUT or HDMI OUTPUT connectors. **0 to 1023**

a) When the optional PDBK-202 is installed.
b) Not displayed when the unit is in 23.98P mode.

Menu items in the 800s, relating to audio control

Item number	Item name	Settings
802	DIGITAL AUDIO MUTING IN SHUTTLE MODE	Set the audio muting conditions during shuttle playback. **off**: Not muted. **on**: Muted.

Menu items in the 800s, relating to audio control

Item number	Item name		Settings
807	AUDIO OUTPUT PHASE		Set the output timing of digital audio playback signals (HD-SDI, SDI, AES/EBU only) as a hexadecimal value, with 80 as a reference position. Output timing is earlier for values smaller than 80 and later for values greater than 80. (80, 128 samples = approx. 2.7 ms, 80, 1 sample = approx. 20 μs) **0 to 80 to FF:** Values can be set in this range.
808	INTERNAL AUDIO SIGNAL GENERATOR		Select the operation of the internal audio test signal generator. **off:** Do not output test signal. **silence [silnc]**: Silent signal **1kHz sine [1kHz]**: 1 kHz, –20 dB FS sine wave signal When you set the INT SG item on page P1 INPUT of the function menu to "ON", the internal signal generator operates and outputs simultaneous test signals to channels 1 to 8 *(see page 42)*.
815	AUDIO SAMPLING RATE CONVERTER		Select the mode of operation of the sampling rate converter for AES/EBU input to channels 1 to 8. **off**: Do not operate. **on**: Operate.
823	NON-AUDIO FLAG PB		Control non-audio flags in digital audio output.
	Sub-item		
	1	CH1/CH2	During playback (except in E-E mode), set non-audio flags in digital audio output to the following states. **on:** Set to on (data is non-audio.) **auto:** Set as follows. • When data is read from media and confirmed: Follow the media. • When data from media is not confirmed: Maintain current state.
	2	CH3/CH4	
	3	CH5/CH6	
	4	CH7/CH8	
824	ANALOG LINE OUTPUT SELECT		Select the analog audio signals (tracks 1 to 8) to be assigned to audio output channels 1 and 2. **tr1/2**: Tracks 1 and 2 assigned to audio output channels 1 and 2. **tr3/4**: Tracks 3 and 4 assigned to audio output channels 1 and 2. **tr5/6**: Tracks 5 and 6 assigned to audio output channels 1 and 2. **tr7/8**: Tracks 7 and 8 assigned to audio output channels 1 and 2.
828	SDI AUDIO OUTPUT SELECT		Select the audio signals to assign to SDI audio output channels.
	Sub-item		
	1	CH1/CH2	**tr1/2**: Tracks 1 and 2 assigned to audio output channels 1 and 2. **tr3/4**: Tracks 3 and 4 assigned to audio output channels 1 and 2. **tr5/6**: Tracks 5 and 6 assigned to audio output channels 1 and 2. **tr7/8**: Tracks 7 and 8 assigned to audio output channels 1 and 2.
	2	CH3/CH4	**tr1/2**: Tracks 1 and 2 assigned to audio output channels 3 and 4. **tr3/4**: Tracks 3 and 4 assigned to audio output channels 3 and 4. **tr5/6**: Tracks 5 and 6 assigned to audio output channels 3 and 4. **tr7/8**: Tracks 7 and 8 assigned to audio output channels 3 and 4.
831	TS OUT AUDIO MODE [a) b)]		Select the number of audio output channels for DVB-ASI TS signals. **4ch:** 4 channels **2ch:** 2 channels

a) When the optional PDBK-202 is installed.
b) Not displayed when the unit is in 23.98P mode.

Menu items in the 900s, relating to digital process

Item number	Item name		Settings
920	SD-SDI H-ANC CONTROL [a)]		Select whether to add information to the SDI output.
	Sub-item		
	1	AUDIO 5CH-8CH	**off**: Do not add digital audio data channels 5 to 8. **on**: Add digital audio data channels 5 to 8.
	2	RP188 ATC	**off**: Do not add RP188 timecode data. **on**: Add RP188 timecode data.

Menu items in the 900s, relating to digital process

Item number	Item name		Settings
925	HDMI OUTPUT SELECT [a)]		Select the resolution of the video output from the HDMI OUTPUT connector. **1080i, 480i, 480P (59.94i, 29.97P mode)** **1080i, 576i, 576P (50i, 25P mode)** **720P, 480i, 480P (59.94P mode)**
926	DVB-ASI SETTING [a) b)]		Sets the parameters for DVB-ASI output, and specifies the number of the program to receive when DVB-ASI signals are input.
	Sub-item		
	1	I/O MODE	Sets DVB-ASI input /output. **input [in]:** Fixedly input mode **output [out]:** Fixedly output mode
	2	TS MODE [c)]	Selects the TS mode. (59.94i/29.97P/50i/25P mode only). **HDV:** HDV mode **Manual [manu]:** Encoding rate mode
	3	ENC RATE(Mbps)	Sets the encoding rate. **15.00Mbps to 25.00 to 43.25Mbps:** Sets the encoding rate.You can set the rate in units of 0.01 Mbps (or units of 0.20 Mbps, when the SHIFT button is held down). **- - -:** When sub item TS MODE of menu item 926 is set to "HDV".
	4	RESOLUTION [c)]	Selects the number of horizontal pixels for the 1080i format. (59.94i/29.97P/50i/25P mode only). **1440:** 1440 When sub-item TS MODE of menu item 926 is set to "HDV", this is fixed as "1440". When the encoding rate is set to lower than 35.00 Mbps with sub-item ENC RATE(Mbps), this is also fixed as "1440". **1920:** 1920
	5	PROGRAM NUMBER	Specifies a DVB-ASI input/output signal program number. **1 to 100 to 65535:** Sets the program number (decimal). You can set this in units of 1 (or 20 when the SHIFT button is held down). **- - -:** When sub item TS MODE of menu item 926 is set to "HDV".
	6	OUTPUT MODE	Selects the output mode. **Packet [packt]:** Packet mode **Burst:** Burst mode
	7	PACKET LENGTH	Selects the packet length. **188Byte [188B]:** 188 bytes **204Byte [204B]:** 204 bytes
	8	META PACKET OUT	Specifies output of DVB-ASI TS signal metadata packets. **on:** Output metadata packets. **off:** Do not output metadata packets **- - -:** When sub item TS MODE of menu item 926 is set to "HDV".
	9	PID(PMT)	Changes the PMT packet PID value for DVB-ASI output. **30 to 81 to 1FFE:** Set PID value (as a hexadecimal value). You can set the value in 1 units (or 20 units, when the SHIFT button is held down). **- - -:** When sub item TS MODE of menu item 926 is set to "HDV". **Note** Do not use the same PID value as for any other sub-item.
	10	PID(PCR)	Changes the PCR packet PID value for DVB-ASI output. **30 to 134 to 1FFE:** Set PID value (as a hexadecimal value). You can set the value in 1 units (or 20 units, when the SHIFT button is held down). **- - -:** When sub item TS MODE of menu item 926 is set to "HDV". **Note** Do not use the same PID value as for any other sub-item.

Menu items in the 900s, relating to digital process

Item number	Item name		Settings
926	11	PID(VIDEO)	Changes the VIDEO packet PID value for DVB-ASI output. **30 to 810 to 1FFE:** Set PID value (as a hexadecimal value). You can set the value over the range from 30 to 1FFE in 1 units (or 20 units, when the SHIFT button is held down). **- - -:** When sub item TS MODE of menu item 926 is set to "HDV". **Note** Do not use the same PID value as for any other sub-item.
	12	PID(AUDIO)	Changes the AUDIO packet PID value for DVB-ASI output. **30 to 814 to 1FFE:** Set PID value (as a hexadecimal value). You can set the value over the range from 30 to 1FFE in 1 units (or 20 units, when the SHIFT button is held down). **- - -:** When sub item TS MODE of menu item 926 is set to "HDV". **Note** Do not use the same PID value as for any other sub-item.
	13	PID(AUX1)	Changes the AUX1 packet PID value for DVB-ASI output. **30 to 815 to 1FFE:** Set PID value (as a hexadecimal value). You can set the value over the range from 30 to 1FFE in 1 units (or 20 units, when the SHIFT button is held down). **- - -:** When sub item TS MODE of menu item 926 is set to "HDV". **Note** Do not use the same PID value as for any other sub-item.
	14	PID(AUX2)	Changes the AUX2 packet PID value for DVB-ASI output. **30 to 811 to 1FFE:** Set PID value (as a hexadecimal value). You can set the value over the range from 30 to 1FFE in 1 units (or 20 units, when the SHIFT button is held down). **- - -:** When sub item TS MODE of menu item 926 is set to "HDV". **Note** Do not set to the same PID value as other values.
930	DOWN CONVERTER MODE [a]		Select the down-converter mode. **EDGE CROP [CROP]:** Select the edge crop mode. **LETTER BOX [L-BOX]:** Select the letter box mode. **SQUEEZE [SQUEZ]:** Select the squeeze mode.
931	DOWN CONVERTER LETTER BOX MODE [a]		Select the aspect ratio of the down-converter output when menu item 930 is set to "LETTER BOX". **16:9:** Set the aspect ratio of the HD-SD converter output to 16:9. **14:9:** Set the aspect ratio of the HD-SD converter output to 14:9. **13:9:** Set the aspect ratio of the HD-SD converter output to 13:9.
932	H CROP POSITION (DC) [a]		Adjust the H-crop (the horizontal position when cropping in the edge crop mode) of the down-converter output when menu item 930 is set to "EDGE CROP". **−120 to 0 to 120**
934	CROSS COLOR (DC) [a]		Adjust the down-converter cross color. **0 to 8 to 15**
935	DETAIL GAIN (DC) [a]		Adjust the down-converter image enhancer. Adjust the sharpness of edge enhancement. **0 to 7FH**
936	LIMITER (DC) [a]		Adjust the down-converter image enhancer. Set the maximum detail level added to emphasize the original signal. **0 to 20H to 3FH**
937	CRISP (DC) [a]		Adjust the down-converter image enhancer. Set the threshold amplitude for emphasis (signals of amplitude lower than the threshold are not emphasized). **0 to FH**

Menu items in the 900s, relating to digital process

Item number	Item name	Settings
938	LEVEL DEPEND THRESHOLD (DC) [a)]	Adjust the down-converter image enhancer. Set the luminance range for edge enhancement. **0 to 8 to FH**
939	H DETAIL FREQUENCY (DC) [a)]	Adjust the down-converter image enhancer. Set the central frequency for edge enhancement. **2.6MHz, 3.4MHz, 3.9MHz, 4.6MHz**
940	H/V RATIO (DC) [a)]	Adjust the down-converter image enhancer. Set the horizontal/vertical ratio for edge enhancement. **0 to 3 to 7**
942	V FILTER SELECT (DC) [a) c)]	Set the vertical interpolation filter coefficient for down-converter output (in 1080 mode only). If the setting value is large, the vertical resolution is high. **1 to 3**
943	CROSS COLOR CRISP (DC) [a)]	Set the cross color crisp level for down-converter output. **0 to 4 to FH**
950	UP CONVERTER MODE [a)]	Select the up-converter mode. **EDGE CROP [CROP]:** Select the edge crop mode. **LETTER BOX [L-BOX]:** Select the letter box mode. **SQUEEZE [SQUEZ]:** Select the squeeze mode.
951	H CROP POSITION (UC) [a)]	Adjust the H-crop (the horizontal position when cropping in the edge crop mode) of the up-converter output when menu item 950 is set to "EDGE CROP". **−120 to 0 to 120**
952	LETTER BOX POSITION (UC) [a)]	When menu item 950 is set to "LETTER BOX", adjust the vertical position where the picture is cut out for up-converter output in letter box mode. **−120 to 0 to 120**
953	UP CONVERTER PROCESS [a)]	Select the source picture to use in converting SD to HD. **FIELD:** Use field pictures. **ADAPTIVE [ADAPT]:** Frame or field is selected automatically.
954	DETAIL GAIN (UC) [a)]	Adjust the up-converter image enhancer. Adjust the sharpness of edge enhancement. **00 (HEX) to 40 (HEX) to 7F (HEX)**
955	LIMITER (UC) [a)]	Adjust the up-converter image enhancer. Set the maximum detail level added to emphasize the original signal. **00 (HEX) to 20 (HEX) to 3F (HEX)**
956	CRISP THRESHOLD (UC) [a)]	Adjust the up-converter image enhancer. Set the threshold amplitude for emphasis (signals of amplitude lower than the threshold are not emphasized). **00 (HEX) to 08 (HEX) to 0F (HEX)**
957	LEVEL DEPEND THRESHOLD (UC) [a)]	Adjust the up-converter image enhancer. Set the luminance range for edge enhancement. **00 (HEX) to 08 (HEX) to 0F (HEX)**
958	H DETAIL FREQUENCY (UC) [a)]	Adjust the up-converter image enhancer. Set the center frequency and frequency properties for edge enhancement. **3.2MHz:** 3.2 MHz ±1.1 MHz **4.5MHz:** 4.5 MHz ±1.4 MHz **5.0MHz:** 5.0 MHz ±0.7 MHz **4.0MHz:** 4.0 MHz ±2.0 MHz
959	H/V RATIO (UC) [a)]	Adjust the up-converter image enhancer. Set the horizontal/vertical ratio for edge enhancement. **00 (HEX) to 03 (HEX) to 07 (HEX)**

Menu items in the 900s, relating to digital process

Item number	Item name		Settings
965	IMAGE ENHANCER (INPUT UP CONVERTER) [a]		Set up the operation of the up converter image enhancer for SD input, separately from the settings for playback (menu items 950 to 959).
	Sub-item		**pb:** While SD signals are input, make the behavior of the image enhancer of the up-converter follow the settings for playback (menu items 950 to 959). (Settings for sub-items 2 to 11 under menu item 965 become invalid.) **input:** While SD signals are input, make the behavior of the image enhancer of the up-converter follow the settings for sub-items 2 to 11 under menu item 965 (separate settings during input of SD signals from those during playback).
	1	ENH SETTING	
	2	CONVERT	Select the up-converter mode. **EDGE CROP [CROP]:** Select the edge-crop mode. **LETTER BOX [L-BOX]:** Select the letter box mode. **SQUEEZE [SQUEZ]:** Select the squeeze mode.
	3	H CROP P	When sub-item CONVERT is set to "CROP", adjust the H-crop (horizontal crop) position for up converter output in edge crop mode. **–120 to 0 to 120**
	4	L BOX P	When sub-item CONVERT is set to "L-BOX", adjust the vertical location of the position where the picture is cut out for up converter output in letter box mode. **–120 to 0 to 120**
	5	CNV PROC	Select the source picture to use in converting SD to HD. **FIELD:** Use field pictures. **ADAPTIVE [ADAPT]:** Frame or field is selected automatically.
	6	DETAIL	Adjust the up-converter image enhancer. Set the sharpness of edge enhancement. **00 to 40 to 7F (hexadecimal value)**
	7	LIMITER	Adjust the up-converter image enhancer. Set the maximum detail level added to emphasize the original signal. **00 to 20 to 3F (hexadecimal value)**
	8	CRISP	Adjust the up-converter image enhancer. Set the threshold amplitude at which low amplitude signals are not emphasized. **00 to 08 to 0F (hexadecimal value)**
	9	DEPEND	Adjust the up-converter image enhancer. Set the luminance range for edge enhancement. **00 to 08 to 0F (hexadecimal value)**
	10	H DETL F	Adjust the up converter image enhancer. Set the center frequency and frequency properties for edge enhancement. **3.2MHz:** 3.2 MHz ±1.1 MHz **4.5MHz:** 4.5 MHz ±1.4 MHz **5.0MHz:** 5.0 MHz ±0.7 MHz **4.0MHz:** 4.0 MHz ±2.0 MHz
	11	HV RATIO	Adjust the up-converter image enhancer. Set the horizontal/vertical ratio for edge enhancement. **00 to 03 to 07 (hexadecimal value)**

a) Not displayed when the unit is in 23.98P mode.
b) When the optional PDBK-202 is installed
c) Not displayed when the unit is in 720P mode.

Extended menu operations

The extended menu can be used with the same procedures as in the basic menu.
However, since with the factory default settings the extended menu is not displayed, it is first necessary to enable display of the extended menu.

To enable display of the extended menu

Proceed as follows to use the maintenance menu.

1 Holding down the PAGE/HOME button and the SHIFT button, press the MENU button.

The maintenance menu appears on the video monitor screen.

```
        MAINTENANCE MENU
M0:CHECK                      →
M1:ADJUST
M2:SERVICE SUPPORT
M3:OTHERS
M4:SETUP MAINENANCE
M5:NETWORK
M6:DRIVE
```
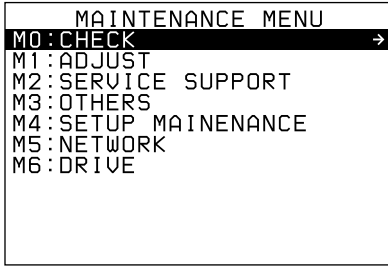
2 Turn the PUSH SET knob to select "M4 SETUP MAINTENANCE", then press the PUSH SET knob or the SELECT function button (F2).

The sub-items of M4: SETUP MAINTENANCE appears.

```
        MAINTENANCE MENU
M4:SETUP MAINTENANCE
←M40:EXTEND MENU:  dis →
 M49:RESET ALL SETUP
```
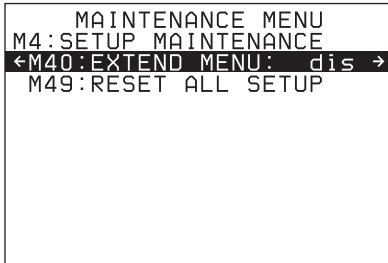
3 Turn the PUSH SET knob to select "M40 EXTENDED MENU", then press the PUSH SET knob or the SELECT function button (F2).

The setting screen for M40: EXTENDED MENU appears.

```
        MAINTENANCE MENU
M4:SETUP MAINTENANCE
 M40:EXTEND MENU:  dis
←    * DISABLE               →
       ENABLE
```
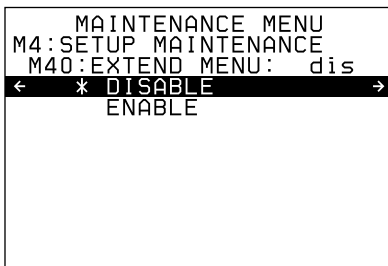
4 Turn the PUSH SET knob to select "ENABLE", and press the SAVE function button (F5).

The message "NOW SAVING..." appears on the video monitor screen, while the new settings are saved in memory. When the saving operation is completed, the video monitor screen returns to its normal indications.

When you next display the menu and change the item display, the extended menu will appear after the basic menu.

Maintenance Menu

Items in the maintenance menu

The following tables show the items in the maintenance menu.
- The values in the "Setting" column are the values that appear in settings screens. The values in brackets [ ] are the value shown in menu screens (when they differ from the values shown in settings screens).

- The underlined values are the factory defaults.

Refer to the Maintenance Manual for information about menu items M0: CHECK and M1: ADJUST, and about M2: SERVICE SUPPORT settings not covered here.

M2: SERVICE SUPPORT: Items related to service support

Item		Setting
M22: OPTION SETTING		Set option installation states.
	REDUNDANT PSU	Set whether to install the optional XDBK-101 and make power supply redundant. **ON:** Make redundant. **OFF:** Do not make redundant.
	DVB-ASI I/O	Specify whether to install the optional PDBK-202. **on:** Install. **off:** Do not install.

M3: OTHERS: Other setting items

Item		Setting
M30: SOFTWARE VERSION		Display of the software version of this unit.
M31: SERIAL NUMBER		Display of the serial number and Media Access Control (MAC) address of this unit.
M33: FILE I/F CONFIG		Select the directory structure to be displayed on the side of the computer when this unit is accessed through FTP/CIFS connections.
	FOLDER STYLE	**xdcam style [xdcam]:** A structure matching with existing XDCAM devices **xds style [xds]:** A structure supporting multiple media
M36: HOURS METER RESET		Reset the display of resettable items of the operating hours meter.
	H11: OPE HOURS	
	H13: SEEK HOURS0	
	H14: SPDL HOURS	
	H15: LOAD COUNT	

M3: OTHERS: Other setting items

Item			Setting
M37: AUDIO CONFIG	M370: HEAD ROOM		Select the audio reference level (headroom). **–20dB**, **–18dB**, **–16dB**, **–12dB**, **EBUL** **Note** EBUL can be selected only when the system frequency is 50i/25P.
	M371: DATA LEN		Select the audio channel configuration for IMX recording. **16bit x 8ch [16x8]:** 16-bit, 8-channel configuration **24bit x 4ch [24x4]:** 24-bit, 4-channel configuration
	M372: NON-AUDIO INPUT		Select whether to handle digital audio signals as non-audio signals during recording. **audio [Audio]:** Handle as linear PCM audio signals. **data:** Handle as non-audio signals.
	Sub-item		
	1	Tr1/Tr2	
	2	Tr3/Tr4	
	3	Tr5/Tr6	
	4	Tr7/Tr8	
	M373: IN LEVEL		Set the upper limit for the signal level input to audio channels 1/3/5/7 or 2/4/6/8. **+4dB**, **0dB**, **–3dB**, **–6dB**, **EBUL** **Note** EBUL can be selected only when the system frequency is 50i/25P.
	Sub-item		
	1	CH1/3/5/7	
	2	CH2/4/6/8	
	M377: OUT LEVEL		Set the reference level for audio output signals. **+4dB**, **0dB**, **–3dB**, **–6dB**, **EBUL** **Note** EBUL can be selected only when the system frequency is 50i/25P.
M395: FRMT DISC			Specify whether to disable the Format Disc command of the Clip Menu. **disable [dis]:** Disable the Format Disc command. **enable [ena]:** Enable the Format Disc command.
M396: VERIFY DISC			Specify whether to make verification at the time of recording to a Professional Disc. **OFF:** Do not make verification. **ON:** Always make verification.

M3: OTHERS: Other setting items

Item			Setting
M3B: VANC RX PARAMETER	M3B0: VANC RX PACKET		For setting HD-SDI VANC data input parameters
			Notes
			• In 59.94i, 50i, 29.97P or 25P mode, selecting the line also selects the corresponding line in the second field (for example, if line 9 is selected, line 572 is also selected for VANC packet reception).
			• Menu item M3B0 enables recording of one VANC packet when the selected line contains any packets whose DID/SDID matches the value set with this menu item.
			• Up to four packets are recorded per each line regardless of the DID and SDID for the VANC set with menu item M3B1 or M3B2.
			• It is not possible to set the same line with menu items M3B0, M3B1, and M3B2. If the same line is specified, priority is given in the order of M3B0, M3B1, and M3B2 (for example, if the same line is specified with M3B0 and M3B1, the setting with M3B1 is ignored).
			• When VANC data is output to HD-SDI playback signals, the number of the output VANC line is the same as that of the input VANC line.
	Sub-item		• When a UMID or essence mark line is selected with M3B1 or M3B2, UMID or essence mark output takes priority. To disable UMID or essence mark output, set setup menu item 651 or 657 to "off".
	1	LINE	Selects the LINE for the VANC to be received. **OFF, 9LINE to 20LINE** (59.94i/50i/29.97P/25P/23.98P mode) **OFF, 9LINE to 25LINE** (59.94P/50P mode)
	2	DID	Specification of the DID of the VANC to receive **00h-FFh**
	3	SDID	Specification of the SDID of the VANC to receive **00h-FFh**
	M3B1: LINE1 SEL		Selects the LINE to be received for the HD-SDI VANC data. **OFF, 9LINE to 20LINE** (59.94i/50i/29.97P/25P/23.98P mode) **OFF, 9LINE to 25LINE** (59.94P/50P mode)
	M3B2: LINE2 SEL		Selects the LINE to be received for the HD-SDI VANC data. **OFF, 9LINE to 20LINE** (59.94i/50i/29.97P/25P/23.98P mode) **OFF, 9LINE to 25LINE** (59.94P/50P mode)
M3D: DATE/TIME PRESET			Specifies the year, month, day, time, and time zone.
M3F: FACTORY SETUP			*For details, refer to the Maintenance Manual.*

M4: SETUP MAINTENANCE: Items relating to the setup menu

Item	Setting
M40: EXTENDED MENU	Select whether to display the extended menu. **DISABLE [dis]**: Do not display. **ENABLE [ena]**: Display.
M49: RESET ALL SETUP	Reset all the menu settings to the factory settings. **Push the SAVE function button (F5)**: Reset. **Push the MENU button**: Return to the next highest menu level without resetting.
	Notes
	• The system frequency setting is also cleared. If you execute this item, reset the system frequency *(see page 28)*.
	• Date and time settings are not cleared, but the time zone setting is cleared. After executing this item, reset the time zone *(see page 28)*.

M5: NETWORK: Items relating to network settings

Item	Setting
M50: DHCP	Set whether to assign an IP address automatically with the DHCP server. **DISABLE [dis]**: Do not assign automatically. **ENABLE [ena]**: Assign automatically.

M5: NETWORK: Items relating to network settings

Item	Setting
M51: IP ADDRESS	Set the IP address of this unit. **192.168.001.010** **Notes** • IP address cannot be set when DHCP is set to "ENABLE". • To check the automatically acquired IP address of this unit, close the maintenance menu and then open it again.
M52: SUBNET MASK	Set the subnet mask. **255.255.255.000** **Notes** • Subnet mask cannot be set when DHCP is set to "ENABLE". • To check the automatically acquired subnet mask, close the maintenance menu and then open it again.
M53: DEFAULT GATEWAY	Set the address of the default gateway. **000.000.000.000** **Notes** • The address of the default gateway cannot be set when DHCP is set to "ENABLE". • To check the automatically acquired address of the default gateway, close the maintenance menu and then open it again.
M54: LINK SPEED	Set the communications speed and protocol. **AUTO [auto]:** Sets automatically. **1Gbps FullDuplex [1G F]:** 1 Gbps, full duplex **100Mbps FullDuplex [100 F]:** 100 Mbps, full duplex **100Mbps HalfDuplex [100 H]:** 100 Mbps, half duplex **10Mbps FullDuplex [10 F]:** 10 Mbps, full duplex **10Mbps HalfDuplex [10 H]:** 10 Mbps, half duplex
M56: JUMBO FRAME [a]	Set the size of jumbo frames. **4088, OFF(1514)** **Note** This value does not include the 4 bytes of the FCS (Frame Check Sequence).
M5F: RESET NET CONFIG	Reset network settings to the factory defaults. **Push the SAVE function button (F5):** Reset. **Push the MENU button:** Return to the next highest menu level without executing the reset.

a) A "jumbo" frame is a frame larger than the maximum 1514 bytes (not including FCS) of the standard Ethernet frame. Jumbo frames make it possible to deliver larger payloads per packet. Since fewer packets need to be routed, packet processing overhead is lower and network throughput is potentially improved. (Note that this item is enabled only when LINK SPEED is set to "1Gbps FullDuplex". For it to work, all other devices that handle packets on the network must also support jumbo frames.)

M6: DRIVE: Items relating to drive settings

Item		Setting
D0: DRIVE MAINTENANCE		Perform maintenance on the Professional Disc drive.
D1: SSD/HDD		Specify whether to install the optional XDBK-102. **on:** Install. **off:** Do not install.
	D11: RAID	
	D13: FORMAT	Format (initialize) the internal storage. **Push the SAVE function button (F5):** Format (initialize). **Push the MENU button:** Return to the next highest menu level without executing the format.

Maintenance menu operations

This section describes the indications in the maintenance menu and how to change the settings.

To display the maintenance menu

Holding down the PAGE/HOME button and the SHIFT button, press the MENU button.
The maintenance menu appears on the video monitor screen and the currently-set menu item is displayed in reverse video.

Meanings of indications on the menu screen

On-screen indication	Meaning
Right-pointing arrow (→) at the right of a menu item	Pressing the PUSH SET knob or the → button switches to the next lower menu level or to a setting selection screen.
Left-pointing arrow (←) at the left of a menu item	Pressing the PUSH SET knob or the ← button switches to the previous (higher) menu level.
Character string at the right of a menu item	Current setting of the menu item **When shown with a colon (:):** the current setting is the same as the factory default setting. **When shown with a raised dot (.):** the current setting is different from the factory default setting.
An ∗ (asterisk) in a complete list of settings	Factory default setting

To change a menu item setting

Carry out the following operations to change the setting.

For information about how to change network settings see next section "To change network settings".

MENU button
Arrow buttons
PUSH SET knob
Function buttons
SHIFT button
PAGE/HOME button
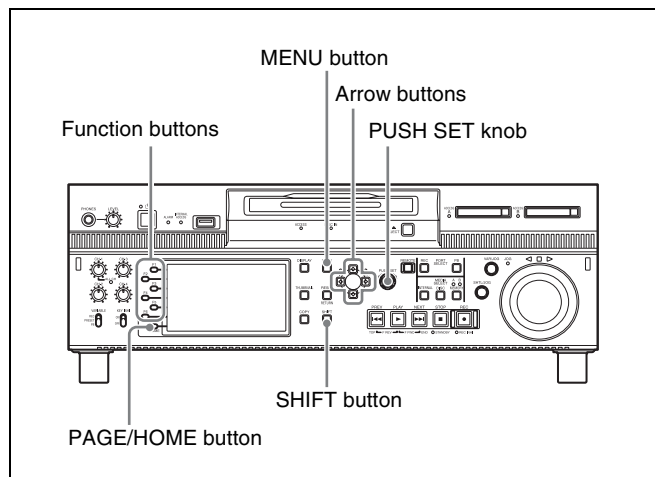
1 Use the PUSH SET knob or the ▲ and ▼ buttons to select the required item, then press the PUSH SET knob or the SELECT function button (F2).

The sub-items of the selected item appears.

2 Select a sub-item with the same operation as step **1**, and use the PUSH SET knob or the ▲ and ▼ buttons to change the setting.

3 Press the PUSH SET knob or the SELECT function button (F2) to confirm the setting change.

4 Press the SAVE function button (F5).

The message "NOW SAVING..." appears on the video monitor screen, while the new settings are saved in memory. When the saving operation is completed, the video monitor screen returns to its normal indications.

To cancel changing a setting
Before pressing the SAVE function button (F5), press the MENU button.
The menu disappears from the video monitor screen, without saving the new setting.

To change network settings

To change network settings, carry out the procedure described in the previous section, "To display the maintenance menu", to display the NETWORK menu item, then carry out the following operations.

For details of the settings, consult your network administrator.

When the IP address is assigned automatically

Note

Check that the network cable is connected to this unit before carrying out the operation.

1 Set maintenance menu item M5: NETWORK >M50: DHCP to "ENABLE".

2 In the NETWORK menu, press the SAVE function button (F5).

3 When the "NOW SAVING..." message vanishes, power the unit off and then on again with the on/standby button.

To check the assigned IP address
Select maintenance menu item M5: NETWORK >M51: IP ADDRESS.

If the IP address cannot be assigned, this is shown as "000.000.000.000." In this case, consult the network administrator.

To set the IP address

First set DHCP to "DISABLE" *(see the previous section, "When the IP address is assigned automatically").*

1 Select maintenance menu item M5: NETWORK >M51: IP ADDRESS.

2 Press the PUSH SET knob.

The IP address appears, and the digit that can be changed flashes.

3 Set the IP address.

To select a different digit to be changed
Use the ◀ and ▶ buttons.

To change the value of a digit
Turn the PUSH SET knob.
Turning clockwise increases the value, and turning counterclockwise decreases the value.
The ▲ and ▼ buttons can also be used.

To return to the factory default setting
Press the RESET button.

4 When all digits are set, press the SAVE function button (F5).

This returns to the NETWORK menu.

5 Repeat steps **1** to **4** as required, to set the subnet mask and default gateway.

6 In the NETWORK menu, press the SAVE function button (F5).

7 When the message "NETWORK CONFIG WAS CHANGED. PLEASE REPOWER." appears, power the unit off and then on again with the on/standby button.

To set the communications speed and protocol

Set the communications speed and protocol (LINK SPEED) to match the network environment.

To set the communications speed and protocol, proceed as explained in the previous section "To display the maintenance menu" to display the NETWORK menu and then proceed as follows.

Contact your network administrator if you have any questions about the proper settings for these items.

1 Select maintenance menu item M5: NETWORK >M54: LINK SPEED.

2 Press the PUSH SET knob.

Combinations of the communications speed and protocol (1Gbps FullDuplex, 100Mbps FullDuplex, 100Mbps HalfDuplex, 10Mbps FullDuplex, 10Mbps HalfDuplex) appear, and the arrow flashes.

3 Press the PUSH SET knob or use the ▲ or ▼ button to select a combination of communications speed and protocol.

To return to the factory default setting
Press the RESET button.

4 Press the SAVE function button (F5).

This returns to the NETWORK menu.

5 In the NETWORK menu, press the SAVE function button (F5).

6 When the message "NETWORK CONFIG WAS CHANGED. PLEASE REPOWER." appears, power the unit off and then on again with the on/standby button.

Appendix

Important Notes on Operation

Use and storage

Do not subject the unit to severe shocks
The internal mechanism may be damaged or the body warped. Shocks may also damage the internal storage.

Do not cover the unit while operating
Doing so will cause temperatures to rise inside the unit, possibly resulting in failure.

After use
Turn off the on/standby button.
If you plan not to use the unit for a long time, turn off the main power switch on the rear panel as well.

Shipping
- To prevent damage to the internal storage, always power the unit off.
- Remove memory cards before transporting the unit.
- If sending the unit by truck, ship, air or other transportation service, pack it in the shipping carton of the unit.

Care of the unit
If the body of the unit is dirty, clean it with a soft, dry cloth. In extreme cases, use a cloth steeped in a little neutral detergent, then wipe dry. Do not use organic solvents such as alcohol or thinners, as these may cause discoloration or other damage to the finish of the unit.

In the event of operating problems
If you should experience problems with the unit, contact your Sony service or sales representative.

Use and storage locations

Store in a level, ventilated place. Avoid using or storing the unit in the following places.

- In excessive heat or cold (operating temperature range: 5°C to 40°C (41°F to 104°F))
  Remember that in summer or in warm climates the temperature inside a car with the windows closed can easily exceed 50°C (122°F).
- In damp or dusty locations
- Locations where the unit may be exposed to rain
- Locations subject to violent vibration
- Near strong magnetic fields
- Close to radio or TV transmitters producing strong electromagnetic fields.
- In direct sunlight or close to heaters for extended periods

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 panel

The LCD panel fitted to this unit is manufactured with high precision technology, giving a functioning pixel ratio of at least 99.99%. Thus a very small proportion of pixels maybe "stuck", either always off (black), always on (red, green, or blue), or flashing. In addition, over a long period of use, because of the physical characteristics of the liquid crystal display, such "stuck" pixels may appear spontaneously. These problems are not a malfunction. Note that any such problems have no effect on recorded data.

Condensation

If you move the unit from a very cold place to a warm place, or use it in a damp location, condensation may form on the optical pickup.
Then, if the unit is operated in this state, recording and playback may not be performed properly.

When you move or operate the unit in an environment where condensation may form, be sure to insert a disc in advance.

Precautions for products with built-in HDD

PD1000

This unit has a built-in hard disk drive (HDD). The HDD is a precision device. If subject to shock, vibration, static electricity, high temperature or humidity, data corruption can occur. When installing and using the unit, closely observe the following precautions.

Protect from shocks and vibrations

When subject to shocks or vibrations, the HDD can be damaged and corruption of data on the HDD can occur.
- When transporting the unit, use the specified packing material. When transporting on a dolly or similar, use a type which does not transmit excessive vibrations. Excessive shocks and vibrations can damage the HDD.
- Never move the unit while it is powered.
- Protect all HDD-equipped devices in the rack from shocks.
- Before removing or inserting the unit in a rack, make sure that power to any other HDD-equipped devices in the rack is also switched OFF.
- Place the unit on a level and stable location.
- Do not place the unit near other devices that may become a source of vibrations.

Do not expose to static electricity

Remove any plastic items that can produce static electricity (bubble wrap, etc.) from the work area. Also, when handling the HDD, make sure to wear a grounded antistatic strap.

Wait for 30 seconds after turning the power off

For a brief interval after the power is turned off, the platters inside the HDD will still keep spinning and the heads will be in an insecure position. During this interval, the unit is more susceptible to shocks and vibrations than during normal operation. For a period of at least 30 seconds after turning the power off, avoid subjecting the unit even to very light shocks. After this period, the hard disk will be fully stopped and the unit can be manipulated.

Temperature and humidity related precautions

Use and store the unit only in locations where the specified temperature and humidity ranges are not exceeded. Also, do not power the unit on while its outer case is removed.
  Temperature range for operation: +5 to +40ºC (+41 to +104ºF)
  Humidity range for operation: 20 to 90% relative humidity (no condensation)
  Temperature range for storage: –20 to +60ºC (–4 to +140ºF)

When HDD seems to be faulty

Even if the HDD is showing signs of malfunction, be sure to observe all the above precautions. This will prevent further damage from occurring until the problem can be diagnosed and corrected.

HDD replacement

Contact your Sony service or sales representative about periodic replacement of the HDD.

Appendix

Periodic Maintenance

Operating hours meter

The operating hours meter can provide six items of information about the operational history of the unit. The information can be displayed in the status display area and also, by text superimposition, on the video monitor screen or PC monitor connected to the MONITOR connector. Use the information as a guide in scheduling periodic maintenance.
For periodic maintenance, contact your Sony service or sales representative.

Display modes of the operating hours meter

H01: OPERATION HOURS mode
Displays the total number of hours the unit has been powered on in units of 1 hour.

H02: LASER PARAMETER 0 mode (not resettable)
Of the two optical heads, this shows a counter of the cumulative light output time by one optical head in units of hours. [1] This can be used as a guide in determining when to replace the optical head.

1) The counter advances at different rates during recording and playback. It is also affected by the ambient temperature.

H11: OPERATION HOURS mode (resettable)
Same as H01 except that the count is resettable.
This can be used as a guide in determining when to replace parts.

H13: SEEK RUNNING HOURS 0 mode (resettable)
Of the two optical heads, this shows the cumulative seek operation time for one optical head in units of hours.
The count is resettable.
This can be used as a guide in determining when to replace the seek motor.

H14: SPINDLE RUNNING HOURS mode (resettable)
This shows the cumulative spindle rotation time, in units of hours.
The count is resettable.
This can be used as a guide in determining when to replace the spindle motor.

H15: LOADING COUNTER mode (resettable)
Display the total number of times disc has been loaded in the unit.
The count is resettable.

To display the operating hours meter
Press the MENU button to display the setup menu, then turn the PUSH SET knob to display the required item (H11 to H15).

To reset the display of the operating hours meter
Select the item you want to reset with the menu item M36: HOURS METER RESET, and press the PUSH SET knob.

To exit from the operating hours meter
Press the RETURN function button (F1) to return to the setup menu.
Press the EXIT function button (F6) to return to the screen that was displayed before you entered the setup menu.

Troubleshooting

Alarms

An alarm (warning message) appears in the status display area when an operation is attempted which is inappropriate for the settings on this unit or the state of a media. Both the alarm message and the action to take to resolve the problem appear on the video monitor screen or on a PC monitor connected to the MONITOR connector.

$$\boxed{\textsf{High TEMP!}}$$

Example alarm in status display area

```
          ALARM

    HIGH TEMPERATURE.



```
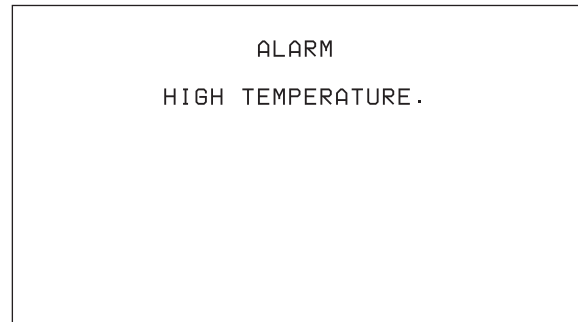
Example alarm in video monitor screen

When an alarm is displayed, remove the alarm cause by following the action to take. If the alarm display does not disappear, contact your Sony service or sales representative.

When the unit is powered on

Alarm message in status display area	Alarm message in video monitor screen	Description/action
ILL. SETUP!	INVALID SETTINGS SELECTED IN SETUP MENU. SET ITEMS IN THE SETUP MENU TO THE APPROPRIATE VALUES. CONTACT SERVICE IF THIS ALARM APPEARS AGAIN AFTER ABOVE PROCEDURE.	Reset the settings in the setup menu *(see page 78)*. If the same message appears after you reset the settings, contact your Sony service or sales representative.
Exchg batt!	BATTERY NEEDS REPLACING. PLEASE CONTACT SERVICE.	The battery of the internal clock is exhausted. Contact your Sony service or sales representative.
Update Err!	RUN SOFTWARE UPDATE PROGRAM.	The software update is not properly performed. Update the software version again. If the same message appears after you update the software version, contact your Sony service or sales representative.
ADJ. Mode!	–	This appears when the unit is in adjustment mode. Contact your Sony service representative.
PSU detect	OPTIONAL REDUNDANT POWER SUPPLY UNIT HAS BEEN DETECTED.PLEASE CHECK AND SET MAINTENANCE MENU ITEM M22.	An optional power supply unit has been detected. Set the maintenance menu item M22: OPTION SETTING.
DVB-ASI detect	OPTIONAL DVB-ASI I/O UNIT HAS BEEN DETECTED.PLEASE CHECK AND SET MAINTENANCE MENU ITEM M22.	An optional DVB-ASI I/O unit has been detected. Set the maintenance menu item M22: OPTION SETTING.

Appendix

Alarm message in status display area	Alarm message in video monitor screen	Description/action
SSD detect	OPTIONAL SSD HAS BEEN DETECTED. PLEASE CHECK AND SET MAINTENANCE MENU ITEM D11.	An optional SSD has been detected. Set the maintenance menu item D11: RAID.

When a memory card is inserted

Alarm message in status display area	Alarm message in video monitor screen	Description/action
Unknown Media(A/B)	UNKNOWN MEDIA(A/B). PLEASE CHANGE.	The inserted memory card has been partitioned, or it contains more clips that the maximum that can be handled by this unit. Insert a memory card that has not been partitioned, or one that contains fewer than the maximum number of clips.
Media Error(A/B)	MEDIA ERROR. MEDIA(A/B) NEEDS TO BE RESTORED.	A memory card must be restored because an error has occurred in the card. Remove the card, and then use an XDCAM EX device to restore or format it.
Unknown FS!(A/B)	CANNOT USE MEDIA(A/B). UNSUPPORTED FILE SYSTEM.	The inserted memory card is formatted with an unsupported file system, or it is not formatted. Exchange the memory card for one that is formatted with a file system supported by this unit.
R/W Limit(A/B)	MEDIA REACHED REWRITE LIMIT. CHANGE MEDIA(A/B).	The memory card has reached its lifetime rewriting limit. Copy clips on the memory card to internal storage as required, and then exchange the memory card. **Note** If you continue to use the memory card, normal recording and playback may not be possible.
Over DUR!(A/B)	EXCESSIVE DURATION IS IN MEDIA(A/B) .	A clip with a duration that exceeds 12 hours is recorded on a memory card. This memory card cannot be used.

When a disc is inserted

Alarm message in status display area	Alarm message in video monitor screen	Description/action
Unknown FS!	UNKNOWN FILE SYSTEM. PLEASE FORMAT DISC OR EJECT.	Format the disc *(see page 62)* or eject it *(see page 44).*
ILL. Index!	INDEX FILE ERROR. PLEASE FORMAT DISC OR EJECT.	
No FS!	NO FILE SYSTEM. PLEASE EJECT DISC.	Eject the disc.
ILL. Disc!	IRREGULAR DISC IS USED. PLEASE EJECT DISC.	Use another disc.
Over DUR!	EXCESSIVE DURATION IS IN DISC.	The total amount of recorded data exceeds the capacity of the disc.
No Support!	FORMAT NOT SUPPORTED. RECORDING AND PLAYBACK IS NOT POSSIBLE.	This appears when a disc recorded in an unsupported recording format has been inserted. Use a disc that is supported by this unit.

Alarm message in status display area	Alarm message in video monitor screen	Description/action
DISC frequency mismatch!	RECORDING OR PLAYBACK IS NOT POSSIBLE. SYSTEM SETTINGS DIFFERENT FROM DISC.	This appears when the system frequency setting of this unit and the system frequency of the inserted disc do not coincide. (In the case of discs recorded in 23.98P mode, pull-down play is possible.) Replace the disc with one that is compatible with the system frequency setting of this unit, or change the system frequency setting of this unit.
REC INHI.!	AUTO FORMATTING WAS NOT COMPLETED. THE DISC WRITE PROTECT TAB IS SET TO SAVE. PLEASE EJECT DISC.	Set the Write Inhibit tab on the disc so as to enable recording *(see page 44)*.
FORMAT NG!	AUTO FORMATTING WAS NOT COMPLETED.	Once eject the disc and then insert it again or insert another disc.
DI read err	CANNOT READ DISC INFORMATION. PLEASE EJECT DISC.	
DRV ADJ err	CANNOT PERFORM AUTO DRIVE ADJUSTMENT.	
Read err	CANNOT READ DISC DATA. PLEASE EJECT DISC.	
BCA Read Error!	CANNOT READ DISC BCA AREA. PLEASE EJECT DISC.	
DISC Error	DISC NEEDS TO BE RESTORED.	The inserted disc requires to be restored. Eject the disc, and restore it or format it on another XDCAM device.
XDROOT Error!	USERDATA XDROOT ERROR.	You cannot use clips in the UserData >XDROOT directory.
BPAV Error!	USERDATA BPAV ERROR.	You cannot use clips in the UserData >BPAV directory.

During front panel operations

Alarm message in status display area	Description/action
KEY INHI.!	This appears when the KEY INHI switch is "ON". Set the KEY INHI switch to "OFF".
Not Open Clip!	This appears when a clip operation is attempted with no clip selected. Select a clip in the clip list screen and try the operation again.
Clip Top!	During playback, this appears if you execute a reverse search when the unit is stopped at the first frame of a clip. To move to another clip, press the PREV, NEXT, SHIFT + PREV, or SHIFT + NEXT button, or perform a thumbnail search.
Clip End!	During playback, this appears if you execute a forward search when the unit is stopped at the last frame of a clip. To move to another clip, press the PREV, NEXT, SHIFT + PREV, or SHIFT + NEXT button, or perform a thumbnail search.
MAX # Clips	No more clips can be recorded because the maximum number of recorded clips has been reached. Delete unneeded clips.
Media Full!	Recording or copying is not possible because the internal storage is full. Delete unneeded clips.
TC EXT!	This appears when TCG on page P4 TC of the function menu is set to "EXT", and you try to preset timecode or user bits by setting PRST/RGN to "PRESET". Set TCG to "INT" *(see page 43)*.
REGEN mode!	This appears when PRST/RGN on page P4 TC of the function menu is set to "TC" or "VITC", and you try to preset timecode or user bits. Set PRST/RGN to "PRESET" *(see page 43)*.
REC mode!	Stop recording and try again.

Appendix

Alarm message in status display area	Description/action
STOP ONCE!	This appears when an attempt is made to change media during recording or playback. Stop the recording or playback and try the operation again.
Exit THUMBNAIL mode!	This appears when an attempt is made to change media while the clip list screen is displayed. Switch to the basic operation screen or the video monitor screen and try the operation again.
Internal Storage Only!	This appears when an attempt is made to carry out a recording operation on a memory card/disc.
REMOTE!	Press the REMOTE button, turning it off, to put this unit into local control mode.
No Media!	Try again after loading an SxS memory card.
No Disc!	Insert a Professional Disc before operate.
Operation isn't supported for this MEDIA.	This appears when an attempt is made to play material on a memory card.
	This appears when you have selected an SxS memory card as media and have attempted to specify the index picture by pressing the INDEX function button (F1) on page P5 OTHER of the function menu.
PORT SELECT mismatch.	This appears when you have selected an SxS memory card as media and have attempted to specify the index picture by pressing the INDEX function button (F1) on page P5 OTHER of the function menu.
Media Top!	An attempt has been made to execute a reverse search when the unit is stopped at the first frame of the first clip after disc playback.
Media End!	An attempt has been made to execute a forward search when the unit is stopped at the last frame of the last clip after disc playback.
REC INHI.!	Set the Write-Inhibit tab on the disc so as to enable recording *(see page 44)*.

During recording operations

Alarm message in status display area	Alarm message in video monitor screen	Description/action
Input Sig!	VIDEO INPUT SIGNAL DOES NOT MATCH SYSTEM SETUP.	This appears when the signal that does not correspond to the system frequency or the number of lines set in this unit is being input, or when HD-SDI is selected as a video input signal while setting the SD signal recording. Input a signal that matches the system frequency, or change this unit's system frequency setting *(see page 37)*.
ILL. REC!	ENCODING DOES NOT SYNCHRONIZE WITH REF VIDEO.	Check the signals being input to this unit.
MEM. Full!	MEMORY FULL !!	Recording on a media is not possible because a buffer overflow has occurred in the recording buffer memory.
Verify ERR!	DISC ERROR DETECTED.	The Verify function detected abnormality in signals recorded on the disc. Replace the disc.
Disc Damage	DISC CANNOT BE RECORDED TO. USE ANOTHER DISC FOR RECORDING.	Use another disc.
Index File!	UNSUPPORT INDEX FILE. DISC CANNOT BE RECORDED TO.	
Disc Busy!	–	A copy operation is being performed, so simultaneous recording is impossible at present.

During playback operations

Alarm message in status display area	Alarm message in video monitor screen	Description/action
ILL. PLAY!	ILLEGAL PLAYBACK.	Normal playback is not possible.
MEM. Empty!	MEMORY EMPTY !!	Playback is not possible because a buffer underflow has occurred in the playback buffer memory.
This Clip cannot be Played back.	–	This clip cannot be played back because its format is not supported by this unit. No clips in the USER folder can be played back.

Alarms related to operations in the clip list screen/copy operations

Alarm message in clip list screen	Description/action
Clip is Locked.	The clip is locked. This appears when an attempt is made to delete a clip, or set or clear a clip flag when the clip is locked.
Copy Running!	A copy operation is being performed, so another copy operation is not allowed.
Internal Error	The target operation failed because of generation of an internal error.
Not Supported Format.	The format is not supported by this unit, so copy operation is impossible. Copy Aborted.
Copy Aborted.	The copy operation was aborted.
Some Clips are Locked.	Some of the selected clips are locked (protected).
Clip Error.	The clip is substandard, so the copy operation failed.
The Disc Protect TAB is Set to Save.	You have attempted to format a disc whose Write Inhibit tab is set so as to disable recording. To execute formatting, set the Write Inhibit tab on the disc so as to enable recording.
Irregular Disc is Used. Use Professional Disc.	The inserted disc cannot be recorded/played back on this unit. Insert a disc that can be recorded / played back on this unit.
Disc Busy!	The disc is being used.
Set Appropriate IN/OUT Points.	The settings of IN and OUT points for partial copy operation are not proper. Check the IN and OUT point settings.
No Clip!	The clip selected for expansion has been deleted.
Cannot Expand this Clip.	You have selected an unexpandable clip or file (such as a clip being recorded or an EDL file).

Alarms relating to audio and video signals

Alarm message in status display area	Alarm message in video monitor screen	Description/action
No INPUT!	INPUT VIDEO IS NOT DETECTED. CHECK THE VIDEO INPUT MODE AND SUPPLY A VIDEO SIGNAL TO VIDEO INPUT.	• Check the setting of V INPUT on page P1 INPUT of the function menu *(see page 42)*. • Input an HD-SDI signal.
EMPHASIS!	INPUT AUDIO EMPHASIS IS NOT SUPPORTED. CHECK THE EMPHASIS OF THE AUDIO INPUT SIGNAL.	Check the emphasis of the audio input signal.
REF Not Exist	–	Input a reference signal.
REF NON-STD	A NON-STANDARD REF SIGNAL IS BEING USED FOR REF VIDEO. USE A STANDARD SIGNAL.	Input a standard reference signal.

Alarms relating to sensors and drivers

Alarm message in status display area	Alarm message in video monitor screen	Description/action
FAN(1/2) Error	FAN(1/2) ERROR.	Contact your Sony service or sales representative.
FAN(1/2) Warning	FAN(1/2) WARNING.	**Note** The unit will not stop operating, but if you continue to use it in this state, temperatures inside the unit will rise, possibly resulting in failure or fire.
DC Power Warning	DC POWER STATUS IS NOT NORMAL. PLEASE CONTACT SERVICE.	
Power Unit(A/B) Err!	POWER SUPPLY UNIT(A/B) STATUS IS NOT NORMAL. PLEASE CONTACT SERVICE.	
DR-FAN Stop	DRIVE FAN MOTOR STOPPED.	
High TEMP!	HIGH TEMPERATURE IN DRIVE.	
High TEMP!	HIGH TEMPERATURE.	
Low TEMP!	LOW TEMPERATURE.	The unit is being used in a low-temperature environment. **Note** The unit will operate, but the performance of the hard disk drives will decline, possibly affecting recording or playback.
CF Warning	IT IS NESSESARY TO REPLACE CF DISK. PLEASE CONTACT SERVICE.	Contact your Sony service or sales representative. **Note** The unit will operate, but if you continue to use it, the CF disc may be damaged and all information may be lost.
LASER 0 Lifetime	DISC DRIVE LASER 0 LIFETIME HAS ENDED. PLEASE CONTACT SERVICE.	The lifetime of the Professional Disc drive laser has come to an end. Contact your Sony service or sales representative.

Alarms relating to the internal storage

Alarm message in status display area	Alarm message in video monitor screen	Description/action
HDD(1/2/3) Warning	ERRORS OCCUR FREQUENTLY WHILE READING/WRITING HDD NUMBER (1/2/3). PLEASE CONTACT SERVICE.	Errors are occurring frequently when reading or writing an HDD (1, 2, or 3). The HDD must be replaced. Contact your Sony service or sales representative.
HDD(1/2/3) Fail	HDD(1/2/3) FAIL. PLEASE CONTACT SERVICE.	An HDD (1, 2, or 3) had malfunctioned. The HDD must be replaced. Contact your Sony service or sales representative.
SSD(1/2/3) Warning	ERRORS OCCUR FREQUENTLY WHILE READING/WRITING SSD NUMBER (1/2/3). PLEASE CONTACT SERVICE.	Errors are occurring frequently when reading from or writing to SSD (1/2/3). The SSD must be replaced. Contact your Sony service or sales representative.
SSD(1/2/3) Lifetime	SSD (1/2/3) LIFETIME HAS ENDED. PLEASE CONTACT SERVICE.	The lifetime of SSD (1/2/3) has come to an end. The SSD must be replaced. Contact your Sony service or sales representative.
SSD(1/2/3) Fail	SSD (1/2/3) FAIL. PLEASE CONTACT SERVICE.	The SSD (1/2/3) malfunctions. The SSD must be replaced. Contact your Sony service or sales representative.
Rebuilding xx%	REBUILDING NOW. PLEASE DO NOT TURN OFF.	Data is being rebuilt. Do not power the unit off until the rebuild has finished.
CONFIG MIS	INTERNAL STORAGE CONFIGURATION MISMATCH.	Check whether the required number of SSD/HDD is installed. If that does not solve the problem, contact your Sony service or sales representative.

Other alarms

Alarm message in status display area	Alarm message in video monitor screen	Description/action
Turn off/on POWER!!	SYSTEM CONFIGURATION WAS CHANGED. PLEASE TURN OFF/ON POWER.	The system frequency was changed. Power off this unit and then power it on again.
Turn off/on POWER!!	MENU CONFIG WAS CHANGED. PLEASE TURN OFF/ON POWER.	Menu settings were changed. To put the change of menu settings into effect, power this unit off and then power it on again.

Error messages

Error codes appear in the status display area when an error (usually a hardware problem) occurs. In addition, both error messages and error codes appear on the video monitor screen or on a PC monitor connected to the MONITOR connector.
When an error message appears, follow the instructions in the error message to resolve the problem.

Error code

Error70-101

Example error code in status display area

```
           ERROR

     AN ERROR HAS BEEN
 DETECTED. INFORM SERVICE
   OF FOLLOWING CODE:

         70-101
```

Error code

Example error message in video monitor
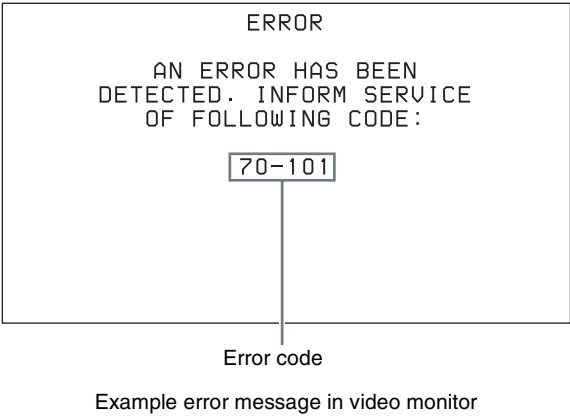
Specifications

General

External dimensions (w/h/d, excluding projections)

$424 \times 132 \times 460$ mm ($16\,{}^3/_4 \times 5\,{}^1/_4 \times$

$18\,{}^1/_8$ inches)

in mm (inches)
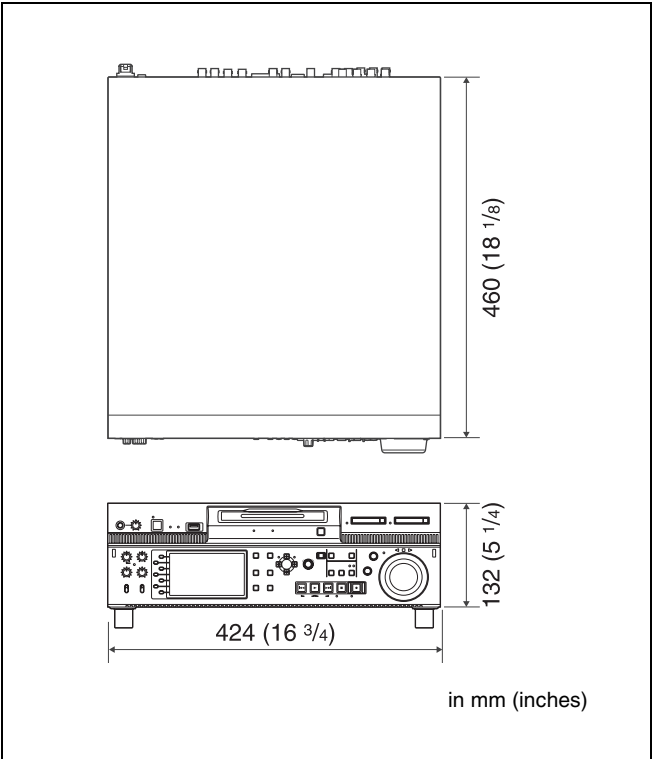
Mass
XDS-PD1000: 17 kg (37 lb. 7.7 oz.)
XDS-PD2000: 16 kg (35 lb. 4.4 oz.)

Power requirements

90 V to 264 V AC, 47 Hz to 63 Hz

Power consumption

XDS-PD1000: 190 W
XDS-PD2000: 210 W

Inrush current

(1) Maximum possible inrush current at
initial switch-on (Voltage changes
caused by manual switching): 32 A
peak, 7 A r.m.s. (240 V AC)

(2) Inrush current after a mains
interruption of five seconds (Voltage
changes caused at zero-crossing):
13 A peak, 5 A r.m.s. (240 V AC)

Operating temperature

5ºC to 40ºC (41ºF to 104ºF)

Storage temperature

–20ºC to +60ºC (–4ºF to +140ºF)

Operating relative humidity

20% to 90%

System

Recording/playback format

Video/audio
MPEG-2 422P@HL, 50 Mbps, 8 ch/16
bit/48 kHz
MPEG-2 MP@HL, 35 Mbps/VBR, 4 ch/
24 bit/48 kHz
MPEG IMX, 50 Mbps, 4 ch/24 bit/48
kHz, 8 ch/16 bit/48 kHz
DVCAM, 25 Mbps, 4 ch/24 bit/48 kHz

Proxy video
MPEG-4

Proxy audio
A-Law, 8 bit, 8 kHz, 8 channels

Recording/playback times

Note

The actual recording and playback time may differ slightly
from the values shown here, depending on usage
conditions, etc.
Please take the following table on recording and playback
time as a guide.

		Recording formats			
		MPEG HD422	MPEG HD	MPEG IMX	DVCAM
Recording modes		50 Mbps	HQ mode (35 Mbps/VBR)	50 Mbps	25 Mbps
Number of audio channels		8	4	4/8	4
Recording and playback time	HDD	Approx. 30 hours	48 hours or longer	Approx. 33 hours	Approx. 61 hours
	SSD	Approx. 16 hours	24 hours or longer	Approx. 16 hours	Approx. 30 hours
	PFD23A	Approx. 43 minutes	65 minutes or longer	Approx. 45 minutes	Approx. 85 minutes
	PFD50DLA	Approx. 95 minutes	145 minutes or longer	Approx. 100 minutes	Approx. 185 minutes
	PFD128QLW	Approx. 240 minutes	360 minutes or longer	Approx. 240 minutes	Approx. 450 minutes

Multiple SD/HD codec

When recording
> SD IMX 50 Mbps, and DVCAM
> HD MPEG HD422, and MPEG HD
> HQ

When playing back
> SD IMX 30/40/50 Mbps, and DVCAM
> (MPEG HD LP supports only 1080i,
> and does not support 720P.)

Search speed

Jog mode ±1 times normal speed
Variable-speed mode
> ±2 times normal speed
Shuttle mode ±20 times normal speed

Video performance

Sampling frequency
> Y: 74.25 MHz, R–Y/B–Y: 37.125 MHz
Quantization 8 bits/sample
Compression MPEG-2 422P@HL

Composite outputs

Frequency response
> 0.5 to 5.75 MHz, +0.5/–2.0 dB
S/N (Y) 53 dB or more
Y/C delay ±20 ns or less
K-factor (K2T) 1.0% or less

Processor adjustment range

Video level $-\infty$ to +3 dB
Chroma level $-\infty$ to +3 dB
Set up/black level
> ±30 IRE/±210 mV
Chroma phase ±30°
System phase SYNC: ±15 μs
> SC: 0 to +400 ns

Audio performance

Sampling frequency
> 48 kHz
Quantization 24 bits
Headroom –20 dB/–18 dB/–16 dB/–12 dB/–9 dB
> (EBU level) (selectable)
Frequency response
> 20 Hz to 20 kHz, +0.5/–1.0 dB (0 dB at
> 1 kHz)
Dynamic range 90 dB or more
Distortion 0.05% or less (at 1 kHz)

Input connectors

Digital video inputs
HD/SD-SDI INPUT
> BNC type (1)

> SD-SDI input: complying with SMPTE-
> 259M
> HD-SDI input: complying with SMPTE-
> 292M
> DVB-ASI TS input [1]

1) When the optional PDBK-202 is installed.

Analog video inputs
REF. VIDEO INPUT
> BNC type (2) (loop-through), HD Tri-
> level sync (0.6 Vp-p, 75 Ω, sync
> negative), or SD black burst, SD
> composite sync (0.286 Vp-p, 75 Ω,
> sync negative)

Analog audio inputs
ANALOG AUDIO INPUT 1, 2
> XLR 3-pin (2) female, +4 dBu, high
> impedance, balanced

Digital audio inputs
DIGITAL AUDIO (AES/EBU) IN 1/2, 3/4, 5/6, 7/8
> BNC type (4), channels 1/2, 3/4, 5/6, 7/8,
> complying with AES-3id-1995

Timecode inputs
TIME CODE IN
> BNC type (1), SMPTE timecode, 0.5 to
> 18 Vp-p, 10 kΩ, unbalanced
SYSTEM TC INPUT
> BNC type (1), SMPTE timecode, 0.5 to
> 18 Vp-p, 10 kΩ, unbalanced

Output connectors

Digital video outputs
HD-SDI OUTPUT 1, 2 (SUPER)
> BNC type (2), complying with SMPTE-
> 292M
SD-SDI OUTPUT 1, 2 (SUPER)
> BNC type (2), complying with SMPTE-
> 259M
HD-SDI MONITOR OUTPUT
> BNC type (1), complying with SMPTE-
> 292M
SD-SDI MONITOR OUTPUT
> BNC type (1), complying with SMPTE-
> 259M
HDMI OUTPUT
> Type A 19-pin (1), HDMI version 1.x
MONITOR (VGA)
> DE-15 (1), complying with VGA
> standards
DVB-ASI OUTPUT [1]
> BNC (1)

1) When the optional PDBK-202 is installed.

Analog video outputs

COMPOSITE OUTPUT 1, 2 (MONITOR)
> BNC type (2), 1.0 Vp-p, 75 Ω, sync negative, complying with SMPTE-170M

Analog audio outputs

ANALOG AUDIO OUTPUT 1, 2
> XLR 3-pin (2) male, +4 dBu, 600 Ω load, low impedance, balanced

AUDIO MONITOR OUTPUT R, L
> XLR 3-pin (2) male, +4 dBu, 600 Ω load, low impedance, balanced

PHONES   Stereo phone jack (1), –∞ to –13 dBu, 8 Ω, unbalanced

Digital audio outputs

DIGITAL AUDIO (AES/EBU) OUT 1/2, 3/4, 5/6, 7/8
> BNC type (4), channels 1/2, 3/4, 5/6, 7/8, complying with AES-3id-1995

Timecode output

TIME CODE OUT
> BNC type (1), SMPTE timecode, 1.0 Vp-p, 75 Ω, unbalanced

Remote control connectors

REMOTE (9P) D-sub 9-pin (2) female, complying with RS-422A

VIDEO CONTROL
> D-sub 9-pin (1) female, complying with EIA RS-423

GPIO   D-sub 15-pin (1), input: CMOS 5 V, output: open-collector

🖧 (network) RJ-45 type (1)
> 1000BASE-T: complying with IEEE802.3ab
> 100BASE-TX: complying with IEEE802.3u
> 10BASE-T: complying with IEEE802.3

Other

MAINTENANCE connectors
> High Speed USB (USB 2.0) Type-A (5) (1 on front panel, 4 on rear panel)

PCIe expansion slot
> × 8 slot (25 W) (2)

Media drives

Internal storage XDS-PD1000: Three units of 500 GB HDD (Data: 2 HDDs; Fault tolerance: 1 HDD)
> XDS-PD2000: Two units of 256 GB SSD

Professional Disc drive
> 1 drive

SxS memory card drives
> 2 drives

Accessories supplied

Operation manuals
> English version (1)
> Japanese version (1)
> CD-ROM manual (1)

Installation manual (1)

Accessories not supplied

AC power cord
- For the customers in the U.S.A and Canada
  Part number 1-551-812-41 (125 V, 10 A, about 2.4 m)
- For the customers in the United Kingdom
  Part number 1-777-823-12 (250 V, 10 A, about 2.0 m)
- For the customers in European countries other than the United Kingdom
  Part number 1-551-631-61 (250 V, 10 A, about 2.0 m)

RCC-5G 9-pin Remote Control Cable
RM-280 Editing Controller
Rack mount kit
PFD23A Professional Disc
PFD50DLA Dual-Layer Professional Disc
PFD128QLW Quad-Layer Write-Once Professional Disc
SxS memory card
> SxS PRO: SBP-8 (8 GB), SBP-16 (16 GB), SBP-32 (32 GB)
> SxS-1: SBS-32G1 (32 GB), SBS-64G1 (64 GB), SBS-32G1A (32 GB), SBS-64G1A (64 GB)

MEAD-MS01 Media Adapter (for "Memory Stick PRO-HG Duo" HXA series)
MEAD-SD01 SD Card Adapter (for SDHC card)
XDBK-101 Optional Power Supply
XDBK-102 Optional RAID Drive (for XDS-PD2000 only)
PDBK-202 MPEG TS Board

Design and specifications are subject to change without notice.

About DVB-ASI Input/Output (When the Optional PDBK-202 Is Used)

When the optional PDBK-202 MPEG TS board is installed, you can input/output DVB-ASI TS signals via this connector.

Note

Even when the PDBK-202 is installed, this unit does not allow for input/output of i.LINK TS signals.

Stream formats

The stream formats of DVB-ASI TS signals that can be input to / output from this unit are listed below.

Notes

- This unit does not allow for input/output of DVB-ASI TS signals in any format other than listed below.
- Set the program number for DVB-ASI TS of this unit so as to match that of a device from which DVB-ASI TS signals are input to this unit or a device to which DVB-ASI TS signals are output from this unit. The program number for DVB-ASI TS can be set with the setup menu item 926 DVB-ASI SETTING *(see page 87)*.

Video resolution/system frequency
1440 × 1080/59.94i, 50i, 29.97P, 25P
1920 × 1080/59.94i, 50i, 29.97P, 25P
1280 × 720/59.94P, 50P

Note

When the system frequency is 23.98P, input/output of DVB-ASI TS signals is impossible.

Video codec
MPEG-2 MP@HL (manual mode)
MPEG-2 MP@H-14 (HDV-compliant mode)

Audio codec
MPEG-1 Layer2: 2 channels, 48 kHz, 384 kbps
MPEG-2 Layer2: 4 channels, 48 kHz, 384 kbps

Auxiliary packet
AUX1, AUX2: For HDV-compliant mode
When in manual mode, metadata can be output to the AUX1 packet.

Bit rate selection range
15.00 Mbps to 43.25 Mbps (in steps of 0.01Mbps)

Menu settings

Setting the number of audio output channels for DVB-ASI TS signals: Setup menu item 831 TS OUT AUDIO MODE

Switching DVB-ASI input/output and setting various items: Setup menu item 926 DVB-ASI SETTING

About DVB-ASI Input/Output (When the Optional PDBK-202 Is Used)

Appendix

Using UMID Data

Metadata is additional information recorded on media along with audio-visual data. It is used to bring greater efficiency to the flow of operations from material acquisition through editing, and to make it easier to find and reuse material.
As one of application of metadata, the UMID has been internationally standardized.

What is a UMID?

A UMID (Unique Material Identifier) is a unique identifier for audio-visual material defined by the SMPTE-330M-2004 standard.
A UMID may be either as a 32-byte Basic UMID or an Extended UMID, which includes an additional 32 bytes of Source Pack to make a total 64 bytes.

For details, refer to SMPTE-330M.

Extended UMID (64 bytes)

Basic UMID (32 bytes)				Source Pack (32 bytes)				
Universal label	L	Instance No.	Material Number	Time/Date	Spatial Coordinates	Country	Org	User
12 bytes	1	3 bytes	16 bytes	8 bytes	12 bytes	4 bytes	4 bytes	4 bytes
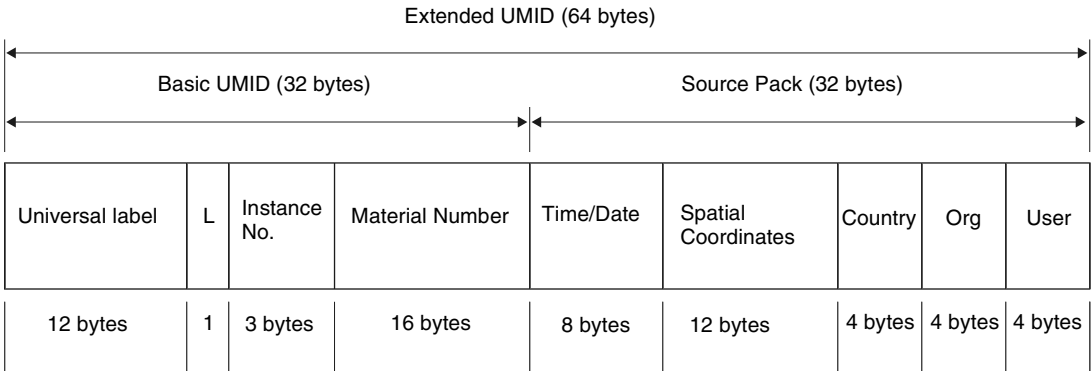
A globally unique ID is automatically recorded for every clip.

The Extended UMID is metadata that provides additional information such as location, time/date, company ID and so on.
The UMID is applied as follows.

Instance No.	Material No. ID generated when shooting Same as the above	Source Pack Shooting information (when, where and who) Same as the above

Original material: 00 00 00
Copied material: generation number (1 byte) + random number (2 bytes)

↑ Distinguish between the original material and copied material

↑ Material source ID/ detecting material

↑ Metadata pack that identifies the source of material unit by defining the when, where and who of the material unit with which it is associated.

Functions of UMID data

UMID data enables the following:
- Addition of a globally unique ID to every clip of audio-visual material. The unique ID is used to detect the material source and to link it with the original source material.
- Distinguishing between original material and copied material. 00 is added to the Instance Number for original material.

- Recording with UTC time. UTC (coordinated universal time) is used when recording the UMID. Use of a universal time system enables uniform management of source material recorded all over the world.
- Calculation of date differences. Source material is recorded using modified Julian dates (MJD), which enables easy calculation of date differences between different source material items.

State of UMID data when copying of / writing to / reading out an MXF file is performed

When you perform a copy operation on an MXF file between media: UMID data is maintained intact.

When you perform a copy operation on an MXF file converted from an MP4/AVI file: UMID data are changed to arbitrary values.

When you record an MXF file to this unit via FTP/ CIFS: You can select whether UMID data is to be maintained intact or it is to be changed to arbitrary values.

When you read out an MXF file from this unit via FTP/ CIFS: UMID data is maintained intact.

Correspondence between Setting Items of the HKDV-900 and Setup Menu of This Unit

When setup menu item 212 VIDEO REMOTE CONTROL SELECT is set to a setting other than "menu", you can connect an HKDV-900 or other device to the VIDEO CONTROL connector to control this unit's down-converter or up-converter. In this case, control from the HKDV-900 can be carried out without changing the video control and digital process settings in the setup menu.

Setting item of HKDV-900	Menu item of this unit's setup menu
HD Master	740: MASTER LEVEL (HD)
HD Y	741: Y LEVEL (HD)
HD Pb	742: Pb LEVEL (HD)
HD Pr	743: Pr LEVEL (HD)
HD Setup	745: SETUP LEVEL (HD)
HD Sync Phase	746: SYNC PHASE (HD/UC)
HD Fine	747: FINE (HD/UC)
D1 Master	No menu item corresponds to this setting item.
D1 Y	No menu item corresponds to this setting item.
D1 B-Y	No menu item corresponds to this setting item.
D1 R-Y	No menu item corresponds to this setting item.
D2 VIDEO	715: VIDEO GAIN CONTROL (DC)
D2 CHROMA	716: CHROMA GAIN CONTROL (DC)
D2 HUE	717: CHROMA PHASE CONTROL (DC)
SETUP	718: SETUP LEVEL/BLACK LEVEL (HD/ DC/UC)
SD Sync Phase	719: SYSTEM PHASE SYNC (DC)
SD Fine	720: SYSTEM PHASE SC (DC)
CROSS COLOR	934: CROSS COLOR (DC)
H CROP POSITION	932: H CROP POSITION (DC)/ 951: H CROP POSITION (UC) [a]
LETTER BOX POSITION	952: LETTER BOX POSITION (UC) [a]
DETAIL GAIN	935: DETAIL GAIN (DC)/ 954: DETAIL GAIN (UC) [a]
LIMITTER	936: LIMITER (DC)/955: LIMITER (UC) [a]
CRISP	937: CRISP (DC)/ 956: CRISP THRESHOLD (UC) [a]

Setting item of HKDV-900	Menu item of this unit's setup menu
DEPEND	938: LEVEL DEPEND THRESHOLD (DC)/ 957: LEVEL DEPEND THRESHOLD (UC) [a]
FREQUENCY	939: H DETAIL FREQUENCY (DC)/ 958: H DETAIL FREQUENCY (UC) [a]
H/V RATIO	940: H/V RATIO (DC)/ 959: H/V RATIO (UC) [a]
GAMMA	No menu item corresponds to this setting item.
CROP	930: DOWN CONVERTER MODE/ 950: UP CONVERTER MODE [a]
LETTER BOX	930: DOWN CONVERTER MODE/ 950: UP CONVERTER MODE [a]
SQUEEZE	930: DOWN CONVERTER MODE/ 950: UP CONVERTER MODE [a]

a) Set setup menu item 212 VIDEO REMOTE CONTROL SELECT to either "menu", "remote (down converter)", or "remote (up converter)".

Meaning of abbreviations within parentheses in the table

HD: HD-SDI output during playback of HD format video

DC: Down-conversion output to SD (SD-SDI/ COMPOSITE) during playback of HD format video

UC: Up-conversion output when SD-SDI is input

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About IJG (Independent JPEG Group)

This software is based in part on the work of the Independent JPEG Group.

Character display software "iType"

This product includes technology from Monotype Imaging Inc., including iType® and certain fonts.

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Appendix

Glossary

AES/EBU
A standard established jointly by the AES (Audio Engineering Society) and EBU (European Broadcasting Union) for serial transmission of digital audio. Two channels of audio can be transmitted via a single connector.

CIFS
Abbreviation of Common Internet File System.
An open protocol for common file service provided by Microsoft Corporation.

Clip
A recording unit. Clips are created every time recording starts and stops.

Composite video signal
A video signal in which luminance and chrominance are combined along with timing reference "sync" information to make composite video.

Drop-frame mode
SMPTE timecode runs at 30 frames/ second, while the NTSC color television system runs at about 29.97 frames/second. Drop-frame mode adjusts the running of timecode to eliminate the discrepancy between timecode value and actual time by dropping two frames from the timecode value at the beginning of each minute except every tenth minute.

DVB-ASI
Abbreviation of Digital Video Broadcasting-Asynchronous Serial Interface.
An asynchronous signal system for transmitting MPEG2-TS (Transport Stream) signals via a standard video interface adopted in the DVB Project (a digital video broadcasting standardization project in Europe).

EDL
Edit Decision List.

A list of locations in the material recorded on a media, arranged in any order.

E-E mode
Electric-to-Electric mode. When you operate a VDR in E-E mode, input video and/or audio signals pass through electric circuits only and then come out from the output connectors, without passing through electromagnetic conversion circuits such as recording heads.

Essence mark
A type of metadata that may be set for a specified frame.

Finalize
A processing to finalize information management structure for write-once type media such as the PFD128QLW. When a disc is finalized, additional writing to that disc becomes impossible but the mount time for that disc is shortened.

HD tri-level sync
An HDTV analog reference signal that applies to 59.94/50Hz systems. A sync signal defined in SMPTE-274M with positive, negative, and zero values.

HD-SDI signal
Abbreviation of HD Serial Digital Interface.
A signal in the HDTV serial interface defined by SMPTE-292M.

Metadata
Information about the properties of video and audio content. XDS devices record metadata such as UMIDs and essence marks, and the XDCAM Browser can be used to record information such as titles and comments.

MXF
Material eXchange Format. A file exchange format developed by the Pro-MPEG Forum. Equipment from different manufacturers can exchange files in this format.

Non-audio
General term for audio signals other than linear PCM, such as Dolby E [1] and Dolby Digital (AC-3).[1] XDS

devices can record non-audio as an input signal.
[1] Dolby is a trademark of Dolby Laboratories.

Non-drop-frame mode
A mode of advancing timecode which ignores the difference in frame values between real time and the timecode. Using this mode produces a difference of approximately 86 seconds per day between real time and timecode, which causes problems when editing programs in units of seconds using the number of frames as a reference.

Proxy AV data
Low-resolution data with a video bandwidth of 1.5 Mbps and an audio bandwidth of 64 kbps per channel. This unit records proxy AV data automatically whenever high-resolution MPEG HD data is recorded.

Reference video signal
A video signal that contains a sync signal or sync and burst signals, used as a reference for synchronization of video equipment.

SD-SDI signal
SD Serial Digital Interface. An interface standardized as SMPTE-259M which enables the transmission of an uncompressed digital component stream.

S/N
Signal-to-Noise ratio. The relation of the strength of the desired signal to the accompanying electronic interference, the noise. If S/N is high, sounds are reproduced with less noise and pictures are reproduced clearly without snow.

Sub clip
One of the sections which make up an EDL. A sub clip may be part of a clip or an entire clip.

Thumbnail image
A reduced still picture of video for display on a clip list screen.

Timecode
A digitally encoded signal which is recorded with video data to identify each frame of the video by hour,

minute, second and frame number. SMPTE timecode is applied to NTSC system, and EBU timecode to PAL and SECAM systems.

UMID

Unique Material Identifier. A standard (SMPTE-330M) for video and audio metadata. The Basic section of a UMID contains a globally unique number and a material number for the identification of recorded material. An optional section called the "Source Pack" contains information such as the time and location of recording. A UMID with the Basic section only is called a Basic UMID. A UMID with the Source Pack is called an Extended UMID.

User bits

A total of 32 bits are provided in the timecode which the user can use to record such information as date, reel number, or scene number on recording media. Also called user's bits.

VBID

Video Blanking ID. This is a video ID signal, defined in the EIAJ CPR-1204 standard, which is inserted into VBS video output to enable the aspect ratio to be detected.
The ID signal is inserted into line 20, VBI 283.

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