

SONY[®]

MEMORY STORAGE UNIT

SR-R1000


SRMASTER SRMemory

OPERATION MANUAL English

1st Edition (Revised 2)

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

Important Safety Instructions

- Read these instructions.
- Keep these instructions.
- Heed all warnings.
- Follow all instructions.
- Do not use this apparatus near water.
- Clean only with dry cloth.
- Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- Only use attachments/accessories specified by the manufacturer.
- Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus.  When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
- Unplug this apparatus during lightning storms or when unused for long periods of time.
- Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

WARNING

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

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

THIS APPARATUS MUST BE EARTHED.

CAUTION

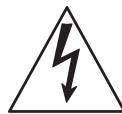
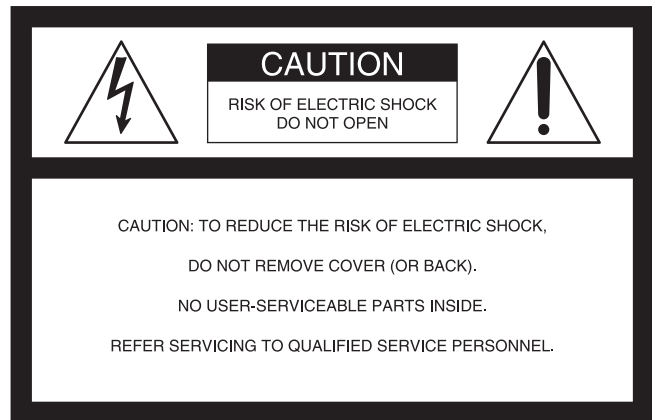
Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer.

When you dispose of the battery, you must obey the law in the relative area or country.

This apparatus is provided with a main switch on the rear panel.

Install this apparatus so that user can access the main switch easily.

To completely turn off the power, turn off the main power switch on the rear panel.



This symbol is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

When installing the installation space must be secured in consideration of the ventilation and service operation.

- Do not block the ventilation slots at the left side and right side panels, and vents of the fans.
- Leave a space around the unit for ventilation.
- Leave more than 40 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.

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 10A, 125V

Using this unit at a voltage other than 120V 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.

CAUTION

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

CAUTION

The unit is not disconnected from the AC power source (mains) as long as it is connected to the wall outlet, even if the unit itself has been turned off.

WARNING

Excessive sound pressure from earphones and headphones can cause hearing loss.

In order to use this product safely, avoid prolonged listening at excessive sound pressure levels.

WARNING

Batteries shall not be exposed to excessive heat such as sunshine, fire or the like.

For kundene i Norge

Dette utstyret kan kobles til et IT-strømfordelingssystem.

Apparatet må tilkoples jordet stikkontakt

Suomessa asuville asiakkaille

Laite on liitettävä suojamaadoituskoskettimilla varustettuun pistorasiaan

För kunderna i Sverige

Apparaten skall anslutas till jordat uttag

For the customers in the U.S.A.

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

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

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

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 the 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 Environment: E4 (controlled EMC environment, ex. TV studio).

For the customers in Europe

The manufacturer of this product is Sony Corporation, 1-7-1 Konan, Minato-ku, Tokyo, Japan.

The Authorized Representative for EMC and product safety is Sony Deutschland GmbH, Hedelfinger Strasse 61, 70327 Stuttgart, Germany. For any service or guarantee matters please refer to the addresses given in separate service or guarantee documents.

This apparatus shall not be used in the residential area.

For the customers in Europe, Australia and New Zealand

WARNING

This is a Class A product. In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures.

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

Avant d'utiliser l'appareil, veuillez lire attentivement ce manuel et le conserver pour future référence.

AVERTISSEMENT

Afin de réduire les risques d'incendie ou d'électrocution, ne pas exposer cet appareil à la pluie ou à l'humidité.

Afin d'écartier tout risque d'électrocution, garder le coffret fermé. Ne confier l'entretien de l'appareil qu'à un personnel qualifié.

CET APPAREIL DOIT ÊTRE RELIÉ À LA TERRE.

ATTENTION

Il y a danger d'explosion s'il y a un remplacement incorrect de la batterie. Remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandé par le constructeur.

Lorsque vous mettez la batterie au rebut, vous devez respecter la législation en vigueur dans le pays ou la région où vous vous trouvez.

Cet appareil est doté d'un interrupteur principal sur son panneau arrière.

Installez l'appareil de sorte que l'utilisateur puisse facilement accéder à l'interrupteur principal.

Pour mettre l'appareil complètement hors tension, éteignez l'interrupteur électrique principal sur le panneau arrière.

ATTENTION

Par mesure de sécurité, ne raccordez pas le connecteur pour le câblage de périphériques pouvant avoir une tension excessive au port NETWORK. Suivez les instructions pour ce port.

AVERTISSEMENT

1. Utilisez un cordon d'alimentation (câble secteur à 3 fils)/fiche femelle/fiche mâle avec des contacts de mise à la terre conformes à la réglementation de sécurité locale applicable.
2. Utilisez un cordon d'alimentation (câble secteur à 3 fils)/fiche femelle/fiche mâle avec des caractéristiques nominales (tension, ampérage) appropriées.

Pour toute question sur l'utilisation du cordon d'alimentation/fiche femelle/fiche mâle ci-dessus, consultez un technicien du service après-vente qualifié.

ATTENTION

Eviter d'exposer l'appareil à un égouttement ou à des éclaboussures. Ne placer aucun objet rempli de liquide, comme un vase, sur l'appareil.

ATTENTION

Cet appareil n'est pas déconnecté de la source d'alimentation secteur tant qu'il est raccordé à la prise murale, même si l'appareil lui-même a été mis hors tension.

AVERTISSEMENT

Une pression acoustique excessive en provenance des écouteurs ou du casque peut provoquer une baisse de l'acuité auditive.

Pour utiliser ce produit en toute sécurité, évitez l'écoute prolongée à des pressions sonores excessives.

AVERTISSEMENT

N'exposez pas les batteries à une chaleur excessive, au soleil ou près d'un feu par exemple.

Pour les clients au Canada

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

Pour les clients en Europe

Ce produit portant la marque CE est conforme à la Directive sur la compatibilité électromagnétique (EMC) émise par la Commission de la Communauté européenne. La conformité à cette directive implique la conformité aux normes européennes suivantes:

- EN55103-1: Interférences électromagnétiques (émission)

- EN55103-2: Sensibilité électromagnétique (immunité)

Ce produit est prévu pour être utilisé dans l'environnement électromagnétique suivant: E4 (environnement EMC contrôlé, ex. studio de télévision).

Pour les clients en Europe

Le fabricant de ce produit est Sony Corporation, 1-7-1 Konan, Minato-ku, Tokyo, Japon.

Le représentant autorisé pour EMC et la sécurité des produits est Sony Deutschland GmbH, Hedelfinger Strasse 61, 70327 Stuttgart, Allemagne. Pour toute question concernant le service ou la garantie, veuillez consulter les adresses indiquées dans les documents de service ou de garantie séparés.

Ne pas utiliser cet appareil dans une zone résidentielle.

Pour les clients en Europe, Australie et Nouvelle-Zélande

AVERTISSEMENT

Il s'agit d'un produit de Classe A. Dans un environnement domestique, cet appareil peut provoquer des interférences radio, dans ce cas l'utilisateur peut être amené à prendre des mesures appropriées.

Remarque sur les pixels défectueux de l'écran LCD

L'écran LCD intégré à cet appareil est fabriqué avec une technologie de haute précision, ce qui permet d'obtenir un taux d'au moins 99,99% de pixels qui fonctionnent. Ainsi, un infime pourcentage de pixels peut être « bloqué », c'est à dire toujours éteint (noir), toujours éclairé (rouge, vert ou bleu), ou clignotant. En outre, après une longue période d'utilisation, en raison des caractéristiques physiques de l'afficheur à cristaux liquides, de tels pixels « bloqués » peuvent apparaître spontanément.

Ces problèmes ne sont pas graves. Sachez que de tels problèmes n'ont aucun effet sur les données enregistrées.

Bitte lesen Sie dieses Handbuch vor der Benutzung des Geräts sorgfältig durch und bewahren Sie es zum späteren Nachschlagen auf.

WARNING

Um die Gefahr von Bränden oder elektrischen Schlägen zu verringern, darf dieses Gerät nicht Regen oder Feuchtigkeit ausgesetzt werden.

Um einen elektrischen Schlag zu vermeiden, darf das Gehäuse nicht geöffnet werden. Überlassen Sie Wartungsarbeiten stets nur qualifiziertem Fachpersonal.

DIESES GERÄT MUSS GEERDET WERDEN.

VORSICHT

Explosionsgefahr bei Verwendung falscher Batterien. Batterien nur durch den vom Hersteller empfohlenen oder einen gleichwertigen Typ ersetzen. Wenn Sie die Batterie entsorgen, müssen Sie die Gesetze der jeweiligen Region und des jeweiligen Landes befolgen.

Dieses Gerät verfügt über einen Hauptschalter an der Rückseite.

Installieren Sie das Gerät so, dass der Benutzer leicht auf den Hauptschalter zugreifen kann.

Um das Gerät vollständig abzuschalten, betätigen Sie den Hauptschalter auf der Rückseite.

VORSICHT

Aus Sicherheitsgründen nicht mit einem Peripheriegerät-Anschluss verbinden, der zu starke Spannung für die NETWORK Buchse haben könnte. Folgen Sie den Anweisungen für diese Buchse.

WARNUNG

1. Verwenden Sie ein geprüftes Netzkabel (3-adriges Stromkabel)/einen geprüften Geräteanschluss/einen geprüften Stecker mit Schutzkontakten entsprechend den Sicherheitsvorschriften, die im betreffenden Land gelten.
2. Verwenden Sie ein Netzkabel (3-adriges Stromkabel)/einen Geräteanschluss/einen Stecker mit den geeigneten Anschlusswerten (Volt, Ampere).

Wenn Sie Fragen zur Verwendung von Netzkabel/ Geräteanschluss/Stecker haben, wenden Sie sich bitte an qualifiziertes Kundendienstpersonal.

VORSICHT

Das Gerät ist nicht tropf- und spritzwassergeschützt. Es dürfen keine mit Flüssigkeiten gefüllten Gegenstände, z. B. Vasen, darauf abgestellt werden.

VORSICHT

Solange das Netzkabel an eine Netzsteckdose angeschlossen ist, bleibt das Gerät auch im ausgeschalteten Zustand mit dem Stromnetz verbunden.

WARNUNG

Zu hoher Schalldruck von Ohrhörern und Kopfhörern kann Gehörschäden verursachen.

Um dieses Produkt sicher zu verwenden, vermeiden Sie längeres Hören bei sehr hohen Schalldruckpegeln.

WARNUNG

Akkus dürfen keinesfalls übermäßiger Wärmeeinwirkung ausgesetzt werden, wie z.B. Sonneneinstrahlung, Feuer o. ä.

Für Kunden in Europa

Dieses Produkt besitzt die CE-Kennzeichnung und erfüllt die EMV-Richtlinie der EG-Kommission.

Angewandte Normen:

- EN55103-1: Elektromagnetische Verträglichkeit (Störaussendung)
- EN55103-2: Elektromagnetische Verträglichkeit (Störfestigkeit)

Für die folgende elektromagnetische Umgebung: E4 (kontrollierter EMV-Bereich, z.B. Fernsehstudio).

Für Kunden in Europa

Der Hersteller dieses Produkts ist Sony Corporation, 1-7-1 Konan, Minato-ku, Tokyo, Japan.

Der autorisierte Repräsentant für EMV und Produktsicherheit ist Sony Deutschland GmbH, Hedelfinger Strasse 61, 70327 Stuttgart, Deutschland. Bei jeglichen Angelegenheiten in Bezug auf Kundendienst oder Garantie wenden Sie sich bitte an die in den separaten Kundendienst- oder Garantiedokumenten aufgeführten Anschriften.

Dieser Apparat darf nicht im Wohnbereich verwendet werden.

Für Kunden in Europa, Australien und Neuseeland

WARNUNG

Dies ist eine Einrichtung, welche die Funk-Entstörung nach Klasse A besitzt. Diese Einrichtung kann im Wohnbereich Funkstörungen verursachen; in diesem Fall kann vom Betreiber verlangt werden, angemessene Maßnahmen durchzuführen und dafür aufzukommen.

Hinweis zu fehlerhaften Pixeln auf der LCD-Anzeige

Die LCD-Anzeige in diesem Geräts wird mit Hochpräzisionstechnologie hergestellt und erzielt so eine effektive Pixelrate von mindestens 99,99 %. Ein sehr geringer Anteil von Pixeln kann jedoch eventuell „hängenbleiben“, entweder immer aus (schwarz), immer an (rot, grün oder blau) oder blinken. Außerdem können nach sehr langem Gebrauch diese „hängengebliebenen“ Pixel spontan auftreten aufgrund der äußeren Eigenschaften der Flüssigkristallanzeige. Diese Probleme stellen keine Fehlfunktion dar. Beachten Sie bitte, dass solche Probleme die aufgezeichneten Daten nicht betreffen.

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Overview

Chapter

1

Features

The SR-R1000 is a storage unit that supports recording and playback from SRMemory cards, the new-generation of high-speed memory cards.

Utilizing the high bandwidth and large capacity of the SRMemory card, the SR-R1000 is capable of real-time recording and playback of high-quality images for increased efficiency in live broadcasts, studio and 3D video productions, and any other video production applications.

SRMASTER and SRMemory are trademarks of Sony Corporation.

High-Quality Recording

The SR-R1000 offers high-quality digital recording and playback by incorporating the HDCAM-SR format, MPEG4 SStP (Simple Studio Profile).

The unit supports recording and playback of 4:2:2 (10-bit) and RGB/XYZ 4:4:4 (10-bit/12-bit) signals. The following compression rates are also supported.

- 220 Mbps (SR-Lite)
- 440 Mbps (SR-SQ)
- 880 Mbps (SR-HQ)

Multiple Ports

The unit supports a maximum of four input/output ports, and comes standard with one output board installed. Based on your production needs and environment, you can replace the existing output board or install optional input/output boards to flexibly create channel configurations that consist of 2 In/2 Out, 1 In/3 Out, 3 In/1 Out, 4 In, 4 Out, etc.

Dual-stream support

Each port on the unit supports dual-stream video, which allows each port to handle two streams of video signals. This allows you to record and play back a pair of 3D stereoscopic signals or fill/key signals with just a single port.

The unit can also handle RGB 4:4:4 3D video with a single port.

4-channel simultaneous recording/playback

With the ability to simultaneously record and play back video from four input/output ports, the unit offers high efficiency in video production.

You can also select which of the video ports and SRMemory cards you want to use, and access a single memory card from multiple ports simultaneously.

Chasing playback and delay-free data transfer

Using the high-speed SRMemory, you can play back a high-quality video while it is recording to the SRMemory card.

In addition, fast processing after a recording operation is complete allows you to quickly eject the SRMemory card and deliver it to post production without delay.

Multiple Resolutions

The SR-R1000 supports the 1280 × 720/4:2:2, 1920 × 1080/4:2:2, 1920 × 1080/4:4:4, 2048 × 1080/4:2:2, and 2048 × 1080/4:4:4 recording formats.

Large Storage Capacity

The SR-R1000 is equipped with four SRMemory slots. Each slot accepts a memory card of up to 1 TB in storage, providing a total of up to 4 TB in removable storage capacity.

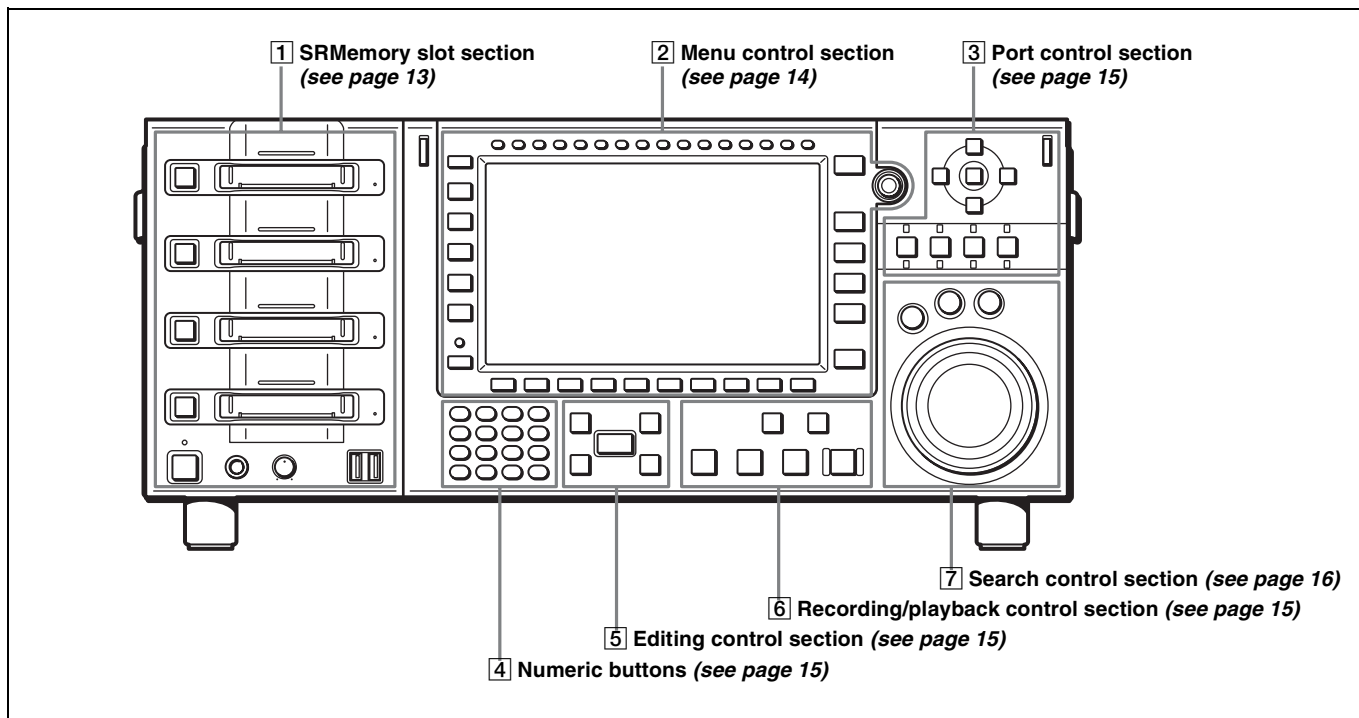


Other Features

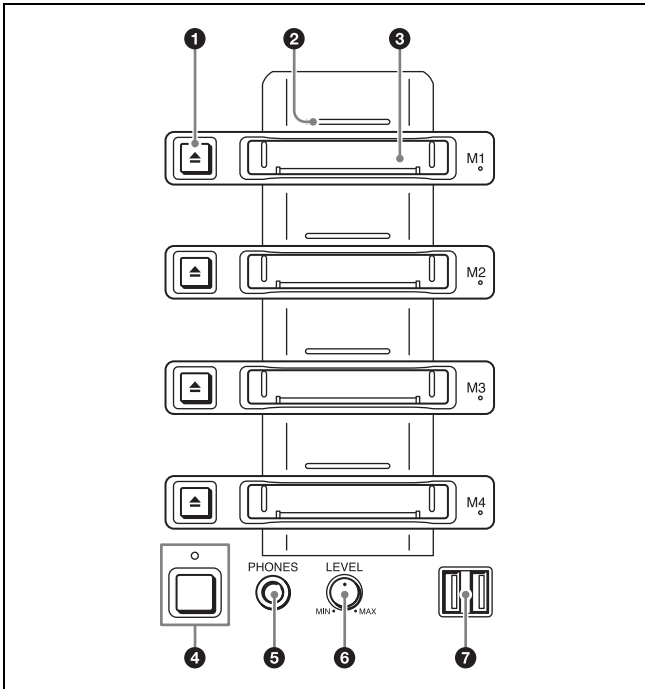
- 16-ch audio (uncompressed, 24 bits, 48 kHz) is supported.
- FTP protocol is supported for video data transfer in MXF format via a network.
- Equipped with two network ports that support Gigabit Ethernet. 10 Gigabit Ethernet is also supported as an option.
- Compatible with Sony VTR protocol, Sony Disk protocol, etc. and switcher and controller operations are supported.

Control Panel

The control panel consists of the following sections:



1 SRMemory slot section



1 Eject button

Ejects a card.

2 SRMemory indicator

Indicates the status of the SRMemory card inserted in the slot.

Off: The SRMemory card is logically detached from the unit.

Blue: An SRMemory card is connected to the unit and available for use.

Red: Data is being recorded to the SRMemory card. Or, files are being copied from another SRMemory card. Changes to this state when receiving data from the FTP.

Green: Data is being read from the SRMemory card. Or, data is being read while copying files to another SRMemory card. Changes to this state when sending data to the FTP.

Amber: Data is simultaneously being recorded to and read from the SRMemory card.

Flashing blue light¹⁾: The SRMemory card is logically being attached to or detached from the unit.

Flashing green light¹⁾: Data other than audio and video signals, such as file name changes, OK/NG/KEEP flag settings, write protection settings for files, is being written.

Flashing purple light¹⁾: Files are being deleted or formatting is being performed from the maintenance menu.

Flashing red light¹⁾: Salvaging or formatting is being performed in response to an error.

Fast flashing red light¹⁾: A problem was detected while processing the SRMemory card. Eject or salvage the

card or perform the appropriate operation as instructed by the message that appears on the control panel.

1) **Flashing LED:** Flashes at 1-second interval.

Fast flashing LED: Flashes at 1/4-second interval.

For details on salvage operations and formatting when problems have occurred, see “Troubleshooting” in the Appendix (page 80).

3 SRMemory slot

Insert an SRMemory card.

4 On/Standby button and indicator

Switches the unit between on and standby when the main power switch on the connector panel is turned on.

The indicator is lit red in the standby state, and green in the on state. It is off when the main power switch is off.

5 PHONES (headphones) jack

Accepts stereo headphones for monitoring audio during recording and playback.

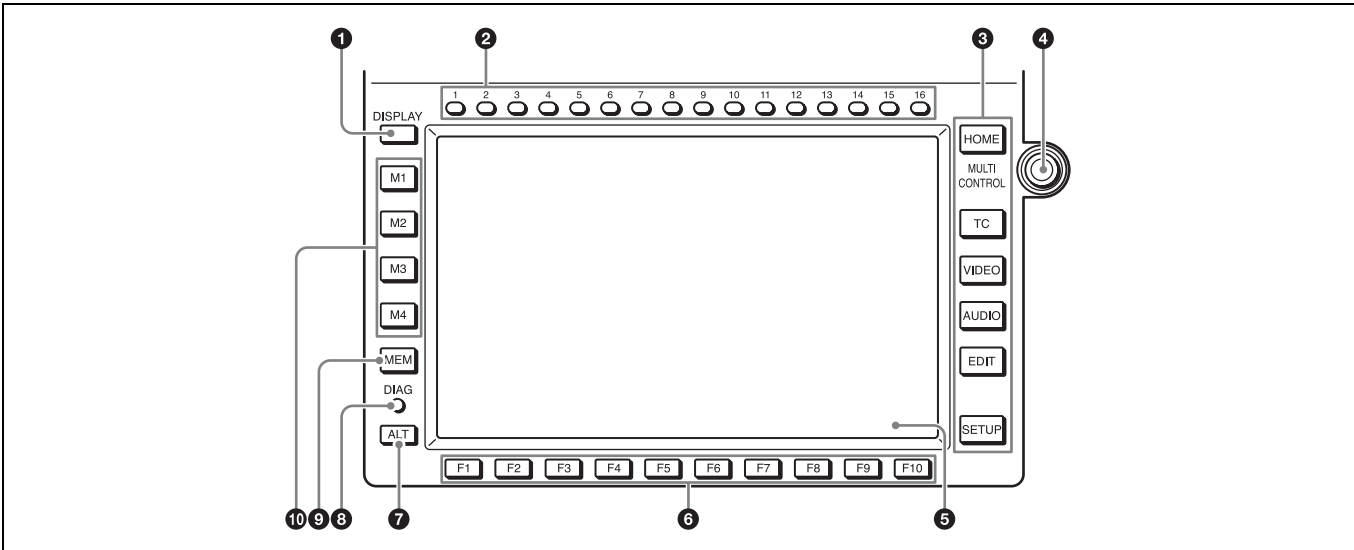
6 LEVEL (volume) knob

Adjusts the output level of the PHONES jack.

7 USB connectors

Mounts USB storage devices for storing Playlists and USB keyboards for file name input.

2 Menu control section



1 DISPLAY button

Used to switch between a screen displaying input/output port information and a screen displaying the video signal on the entire display.

2 CH (channel) selection buttons

Select the channel to adjust the audio recording/playback level or to select an audio input.

3 Menu selection buttons (page 58)

Select the menu screen to display on the display.

4 MULTI CONTROL knob

Sets the audio recording/playback levels, sets menus, selects files, etc.

5 Color display (page 20)

Note on faulty pixels on 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.

6 Function selection buttons (F1 to F10)

Select a function displayed on the menu screen.

7 ALT (alternative) button

Changes the menu screen display.

8 DIAG (diagnostic) button

Displays the maintenance menu when pressed together with the SFT button.

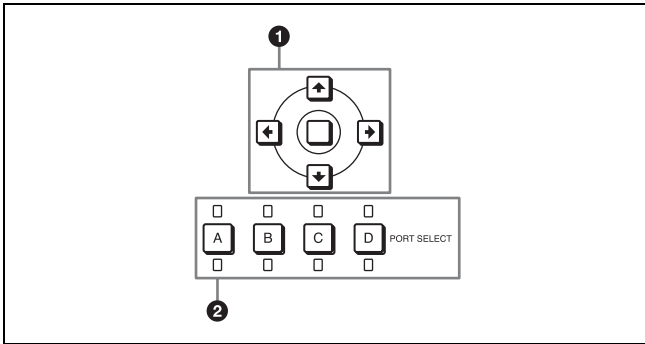
9 MEM button

Currently cannot be used.

10 Memory selection buttons (M1 to M4) (page 41)

Select the SRMemory card to use.

3 Port control section



1 Cursor buttons

Move the cursor (shown in reverse video) on the display. Also used to change settings values.

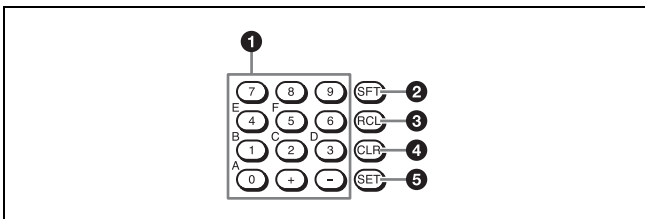
2 PORT SELECT buttons/indicators (page 41)

Buttons: Select the input/output port to use. A button lights up when selected.

Top indicators: Light up red for input ports, and green for output ports.

Bottom indicators: Light up red for ports being used for recording, and green for ports being used for playback.

4 Numeric buttons



1 Numeric buttons and +/- buttons

Press to input an edit point or other numerical value at the position selected by the cursor buttons. Press buttons 0 to 5 while holding down the SFT button to input hexadecimal A to F for user bits. Also use the +/- buttons to increase or decrease numerical values.

2 SFT (shift) button

Press buttons 0 to 5 while holding down the SFT button to input hexadecimal A to F for user bits. Use also in combination with other buttons to perform other operations.

3 RCL (recall) button

Press to recall the previous setting, etc.

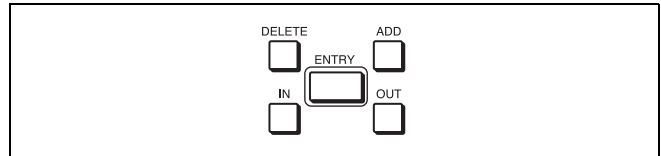
4 CLR (clear) button

Press to clear input data.

5 SET button

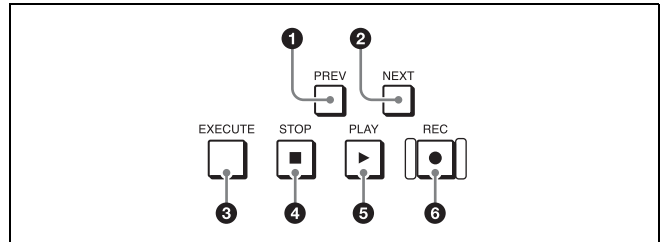
Press to finalize input data.

5 Editing control section



Use to edit Playlists, etc. (see Chapter 5)

6 Recording/playback control section



1 PREV button

Press to display the image of the first frame in the current file. Press again to jump to the first frame in the previous file.

Press this button and the SFT button simultaneously to display the image of the first frame in the file at the top of the file list.

2 NEXT button

Press to display the image of the first frame in the next file. Press this button and the SFT button simultaneously to display the image of the first frame in the file at the end of the file list.

3 EXECUTE button

Press to open the file selected in the file list.

Press the EXECUTE and STOP buttons simultaneously to close a file.

4 STOP button

Press to stop playback or recording.

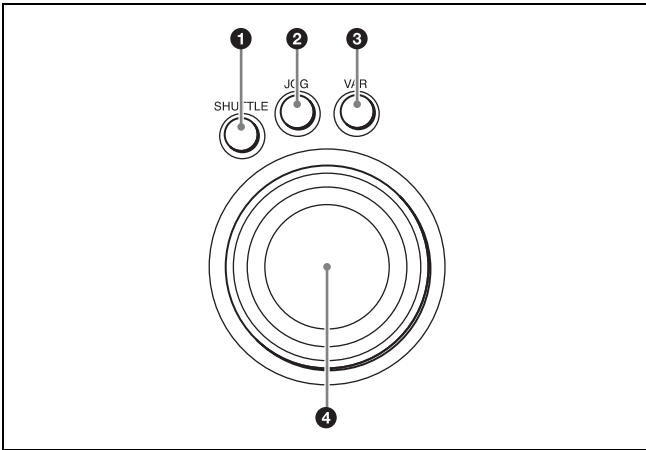
5 PLAY button

Press to start playback. Press the PLAY button while holding down the REC button to start recording. If you press the NEXT button while holding down the PLAY button, the last frame of the current playback file is displayed. If you press the NEXT button while holding down the PLAY button during chasing playback, playback will jump and resume from the playable position that is closest to the recording position at that moment.

6 REC button

Press the PLAY button while holding down the REC button to start recording.

7 Search control section



1 SHUTTLE button

Press to enter shuttle mode. In this mode, the button is lit and playback at the speed corresponding to the position of the search dial is possible (–100 to +100 times normal playback speed). The search dial clicks at the positions for still pictures and ± 10 times normal playback speed.

2 JOG button

Press to enter jog mode. In this mode, the button is lit and playback at the speed corresponding to the rotational speed of the search dial is possible (–1 to +1 times normal playback speed).

3 VAR (variable) button

Press to enable noiseless playback in the range of –1 to +1 times normal playback speed. The button lights when pressed. Playback exceeding this speed range is not possible.

4 Search dial

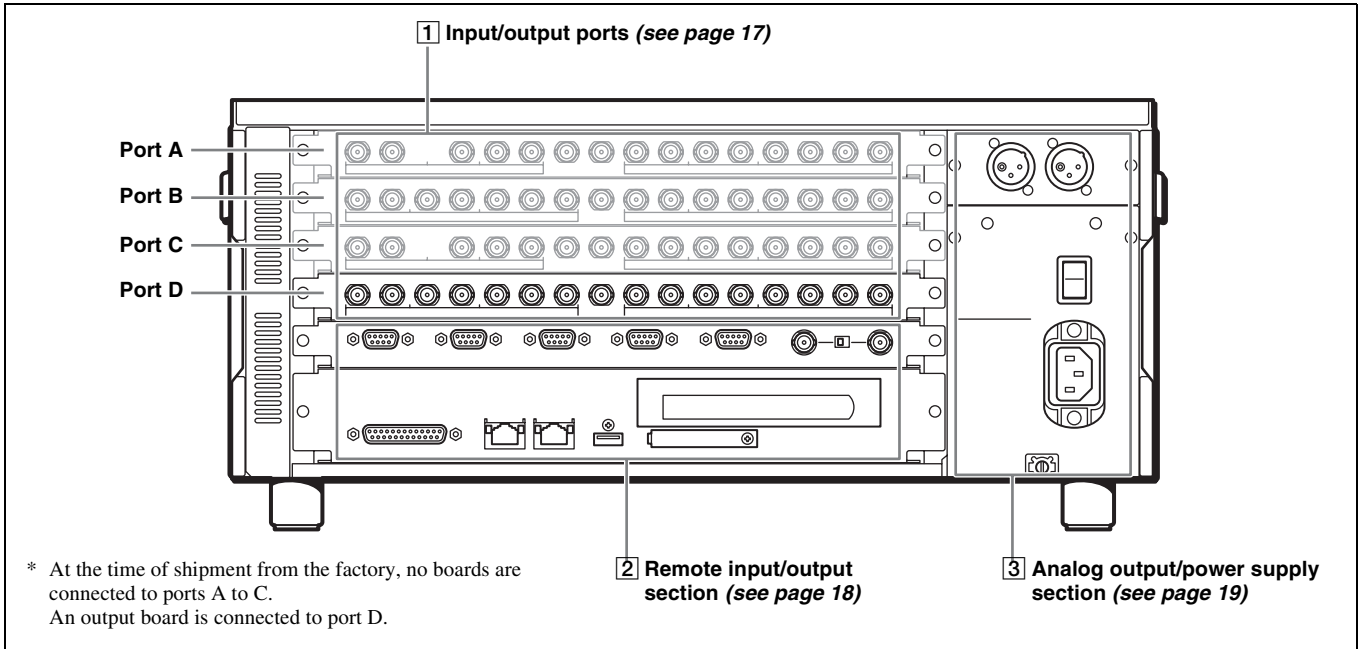
Rotate clockwise for forward playback, and counterclockwise for reverse playback.

Shuttle mode: Enables playback at the speed corresponding to the position (rotation angle) of the search dial (–100 to +100 times normal playback speed). The search dial clicks at the positions for still pictures and ± 10 times normal playback speed.

Jog mode: Enables playback at the speed corresponding to the rotational speed of the search dial (–1 to +1 times normal playback speed). The search dial does not click.

Variable mode: Enables noiseless playback at the speed corresponding to the position of the search dial (–1 to +1 times normal playback speed).

Connector Panel

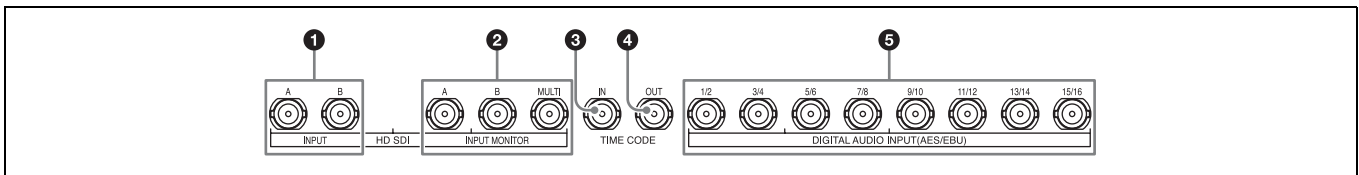


1 Input/output ports

There are the four ports A to D, and an input board or output board can be connected to each of them. At the time of shipment, an output board is connected to port D. Explanations in this operation manual use the configuration example of input boards (SRK-R201)

connected to ports A and C and output boards (SRK-R202) connected to ports B and D.

HD Input board (SRK-R201)



1 HD SDI INPUT A/B connectors

Input the HD SDI video/audio signals.

- They will output in 3G when the input signal is 1.5G Dual Link (4:4:4 or 4:2:2/1080P).
- Audio and TC are not superimposed.
- A signal is not output for double speed input.

2 HD SDI INPUT MONITOR A/B/MULTI connectors

Output the input signals for a monitor. Superimpose and output time data signals from MULTI connectors when ALT/[F10] (CHAR ON) in the TC menu is set to On.

3 TIME CODE IN connector

Inputs a time code generated by an external device.

4 TIME CODE OUT connector

When the time code generator is synchronized to the external time code signals input via the TIME CODE IN connector, this outputs the external time codes input via the TIME CODE IN connector according to the ALT/[F3] (TC OUT) button setting in the TC menu. Outputs generated time code signals when the internal time code generator is generating time codes.

Memo

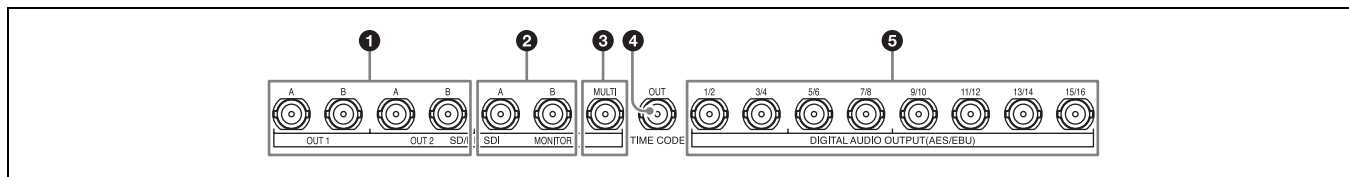
Output signal from MULTI connectors may differ from the input signal format as follows.

- They will output according to ALT/[F8] (MONITOR SETTING) in the VIDEO menu when the input signal is a 3D signal (dual-stream).

5 DIGITAL AUDIO INPUT (AES/EBU) connector

Input the audio signals in AES/EBU format for channels 1 to 16.

HD/SD Output board (SRK-R202)



1 SD/HD SDI OUT A/B connectors

Output two sets of SD SDI or HD SDI video/audio signals.

For details on switching output signals, see “Switching the Signal Format (HD/SD) of the Output Ports” in the Appendix (page 88).

Only the A connector is enabled during SD SDI signal output.

2 SD/HD SDI MONITOR A/B connectors

Output the output signals for MONITOR A/B connectors. Superimpose and output time data signals when ALT/ [F10] (CHAR ON) in the TC menu is set to On.

Only the A connector is enabled during SD SDI signal output.

3 HD SDI MONITOR MULTI connector

This connector is functional when HD SDI is configured as the output signal for the board installed in port D.

The signal selected by [F8] (MULTI MONITOR) > [F1] (MODE) in the SETUP menu is output.

LCD menu

Content identical to the images displayed in the control panel’s color display is output.

Quad menu

Each port monitor screen is reduced to 1/4 size and the video signals for the four side-by-side screens are output. The screens are arranged as follows: port A - top-left; port B - top-right; port C - bottom-left; port D - bottom-right.

Memo

- The signal format is 4:2:2, 1920 × 1080 and either 59i, 50i, 24PsF, or 23.98PsF.
- Audio is not output.

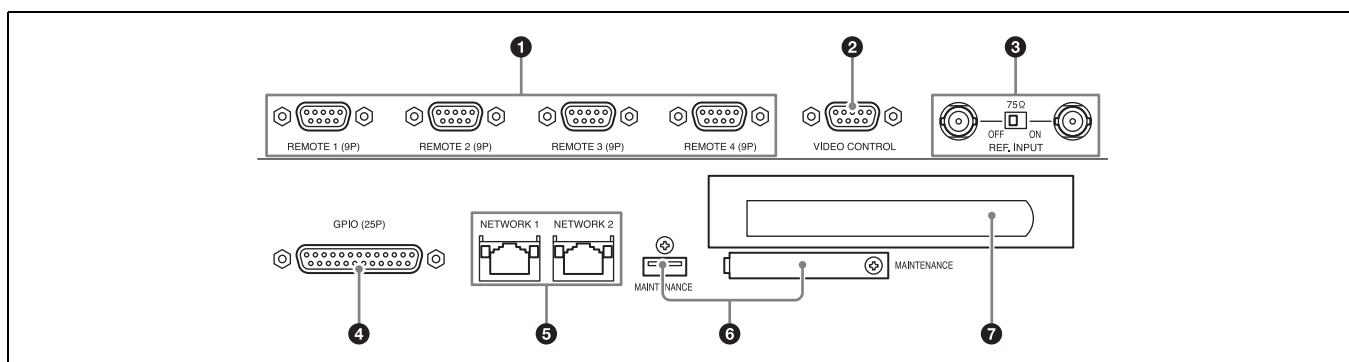
4 TIME CODE OUT connector

Outputs the playback time code.

5 DIGITAL AUDIO OUTPUT (AES/EBU) connector

Output the audio signals in AES/EBU format for channels 1 to 16.

2 Remote input/output section



1 REMOTE 1 to 4 (9-pin) connectors

To control the unit from an external device, connect it to the external device with a remote control cable that has a 9-pin connector.

The Sony 9-pin VTR protocol, Sony 9-pin Disk protocol, VDCP protocol and Odetics protocol are supported.

2 VIDEO CONTROL connector

Currently cannot be used.

3 REF. INPUT connectors and 75 Ω terminal switch

Input the reference video signal of the selected field frequency. Input an HD tri-level SYNC signal or SD black burst signal.

A loop-through connection is also possible. Set the 75 Ω terminal switch to OFF if you are using a loop-through connection, and set it to ON if you are not using a loop-through connection.

4 GPIO (25-pin) connector

A parallel I/O connector.

See the Maintenance Manual and Interface Manual for details.

5 NETWORK 1/2 connectors

Accepts a network cable for monitoring the unit by SNMP, configuring or checking the unit via HTTP, transferring files via FTP, etc.

6 MAINTENANCE connector

Used by the administrator. This is not for normal use.

7 Blank panel for PCI Express board

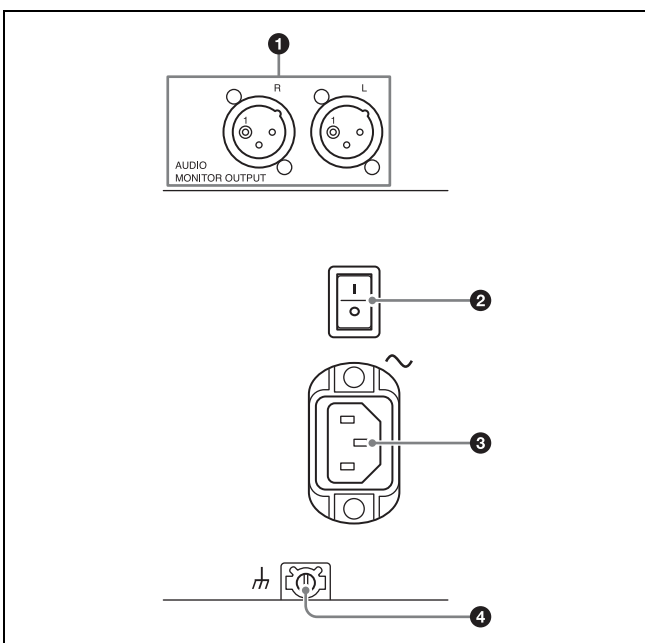
Remove this when mounting a PCI Express board on this unit to enable the use of 10Gbit Ethernet interface.

For details on mounting the PCI Express board, see the Installation Manual.

CAUTION

- For safety, do not connect the connector for peripheral device wiring that might have excessive voltage to this connector. 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.

3 Analog output/power supply section



1 AUDIO MONITOR OUTPUT connectors

Outputs the audio monitor signal of input/output ports selected with the PORT SELECT button.

2 Main power switch

Turns on/off the main power supply. When the main power is turned on, the On/Standby indicator on the control panel lights.

Normally, this switch should be left in the top (on) position during operation, and standby status switching should be performed using the On/Standby button on the control panel.

Note

When turning off the main power supply, always make sure that the On/Standby indicator on the front panel is lit red (standby state) before turning off the switch.

3 ~ AC IN connector

Connect this connector to an AC outlet using the recommended power cord.

4 ⏚ Ground terminal

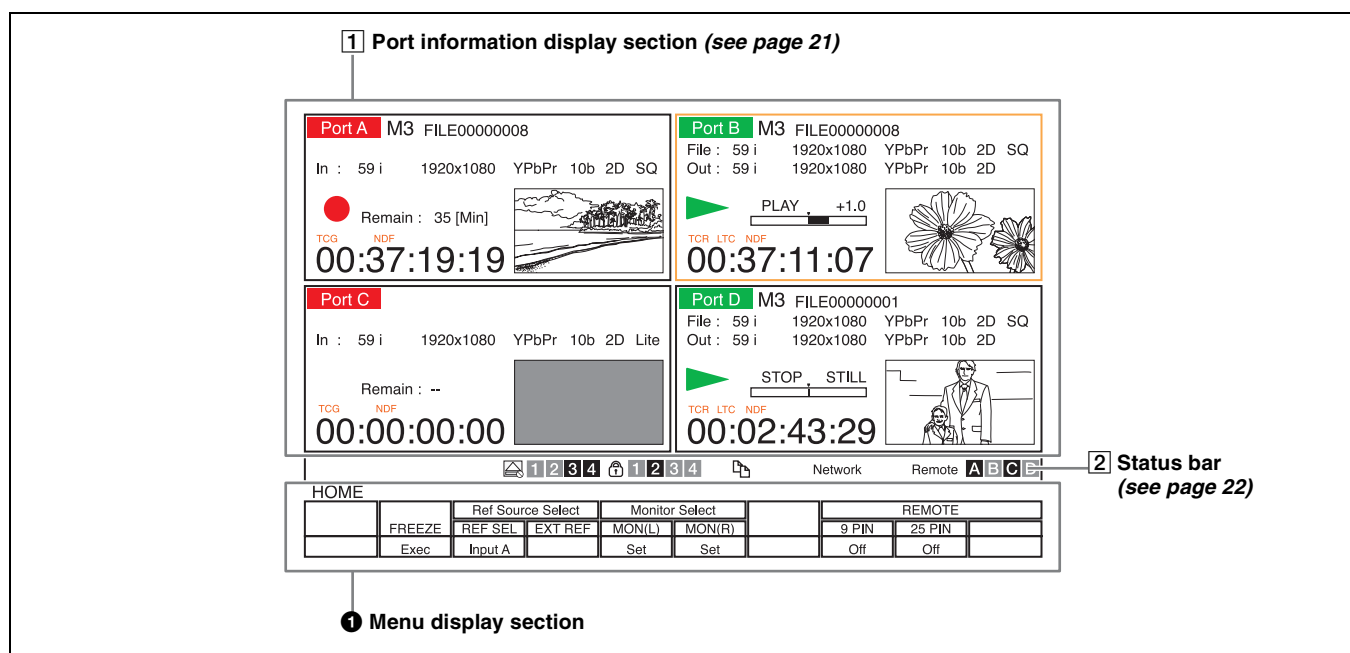
If necessary, use this for grounding.

Display Screen

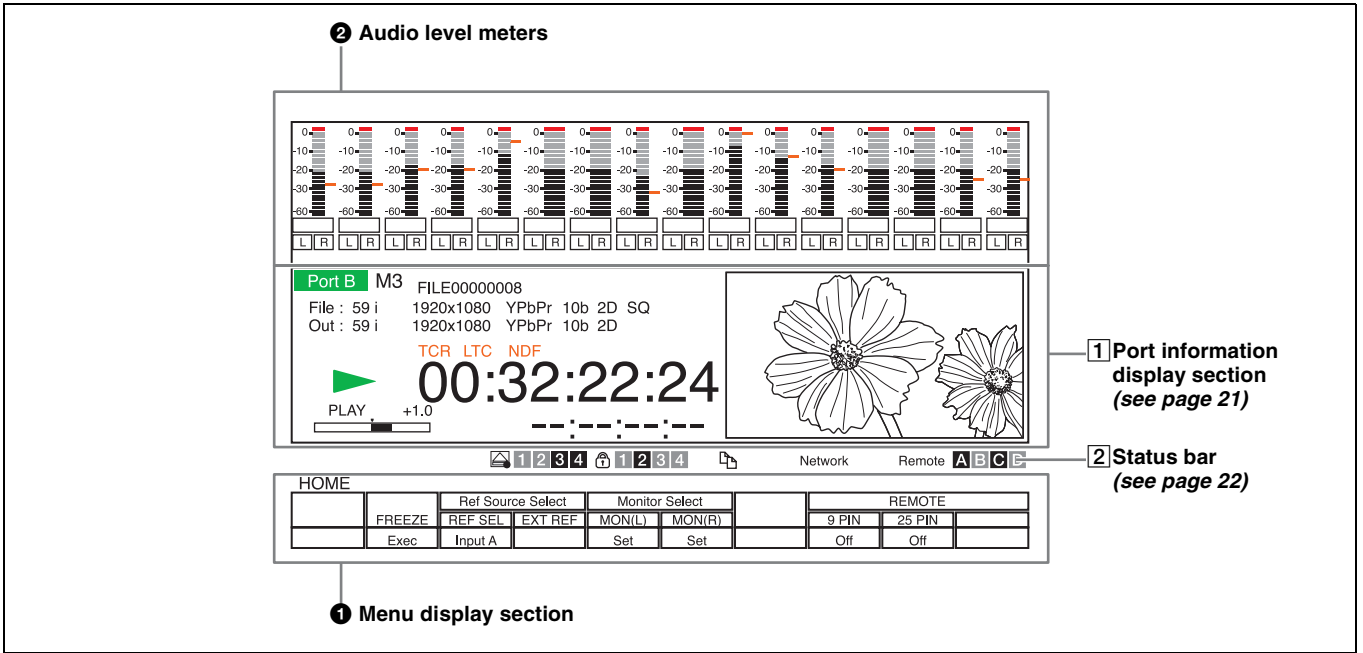
The color display of the unit is capable of displaying a four-port display screen that shows all of the four ports and a one-port display screen that shows only the selected port. When the screen is four-port display, pressing the PORT SELECT button of the selected port switches to one-port display. When the screen is a one-port display, pressing the PORT SELECT button of the selected port redisplay the four-port display.

Main Screen

Four-port display



One-port display

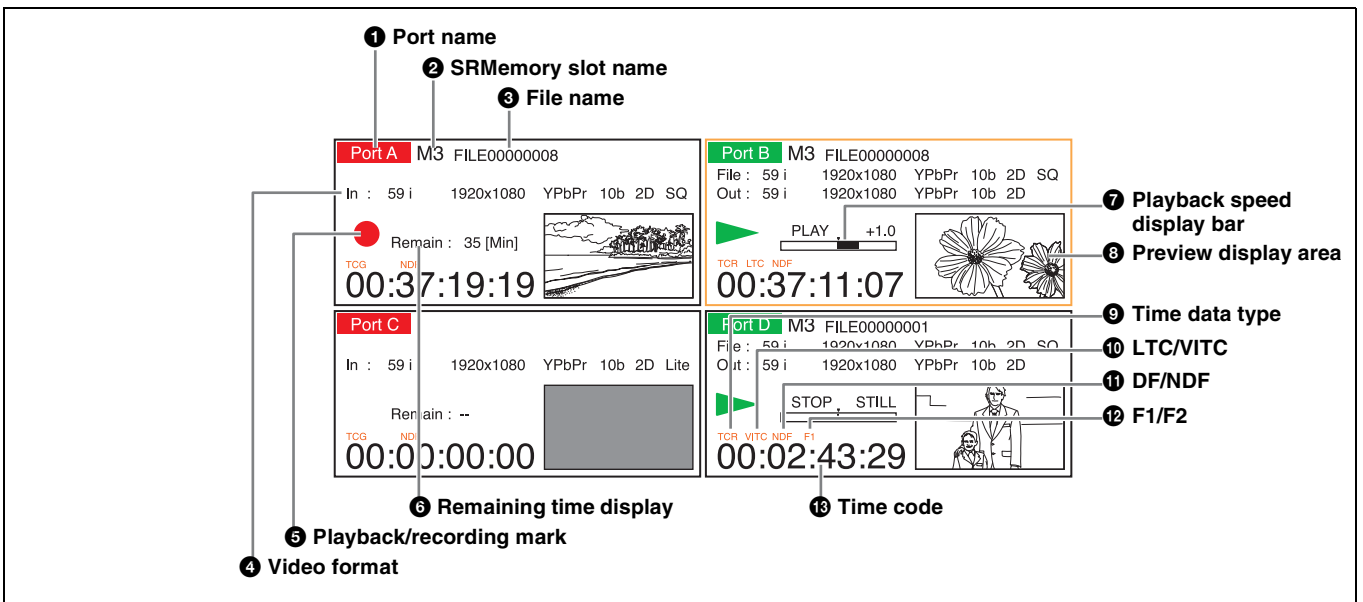


1 Menu display section (page 58)
Displays a menu.

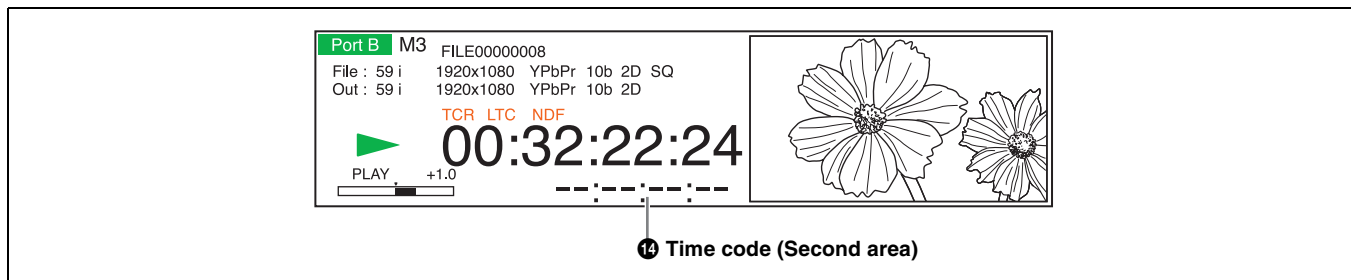
2 Audio level meters
Displays the audio recording/playback levels. The meters are only displayed in the one-port display screen.

1 Port information display section

Four-port display



One-port display



1 Port name

2 SRMemory slot name

3 File name

4 Video format

Displays the video format according to port type.

For input ports

In: Displays the recording format.

For output ports

File: Displays the recording format of a file. When playing a file recorded in a format that differs to the format set for the port, the differing part is displayed in orange.

Out: Displays the video format for output via a port.

5 Playback/recording mark

A mark is displayed during playback/recording.

6 Remaining capacity display

Indicates the remaining capacity of the SRMemory card. (This is displayed only for input ports.) You can select the display format with **[F2]** (PANEL SETTING) - **[F7]** (DISPLAY SETTING) - **[F6]** (RESIDUAL) in the SETUP menu.

7 Playback speed display bar

Indicates the playback speed and other information for variable speed playback.

This is only displayed for output ports.

8 Preview display area

Shows a preview of the selected file.

9 Time data type

Indicates the time data type.

For details on time data type, see “Selecting the Time Data” (page 29).

10 LTC/VITC

Indicates the time code type (LTC or VITC).

11 DF/NDF

Indicates the drop frame mode.

12 F1/F2

Indicates the field number.

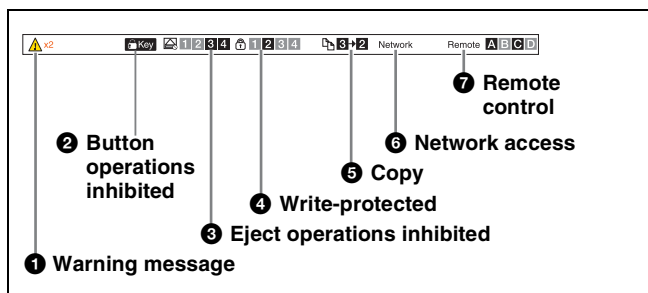
13 Time code

Indicates the time code based on the setting of the TC menu.

14 Time code (Second area)

Indicates the time code when the ALT/**[F5]** (TC2 SEL) buttons are set to anything other than Off in the TC menu. This is only displayed in the one-port display screen.

2 Status bar



1 Warning message

When a problem is detected by the unit, an icon and the detected problem count is displayed. To obtain more information on a detected problem, set ALT/**[F9]** (ERR DLG) to “on” in the SETUP menu.

2 Button operations inhibited

The operation inhibit icon is displayed when button operations on the control panel are inhibited with the **[F5]** (KEY INHI) button in the SETUP menu.

3 Eject operations inhibited

Displays the relevant slot when inhibiting eject operations has been set with **[F6]** (EJECT INHIBIT) in the SETUP menu.

4 Write-protected

Displays the number of the slot in which the write-protected SRMemory card is inserted as set with the write-protect switch or **[F10]** (LOCK) in the file list control menu.

All slot numbers are displayed when recording and editing on all SRMemory cards are inhibited with the ALT/[F9] (REC INHI) buttons in the HOME menu.

5 Copy

When copying files between SRMemory cards inserted in the unit, this indicates the numbers of the source/destination slots and the copying progress.

6 Network access

When an SRMemory card that is inserted in the unit is being accessed via the network, this indicates the storage that is being accessed by the connected session.

7 Remote control

Indicates an input/output port that can be manipulated by a remote controller.

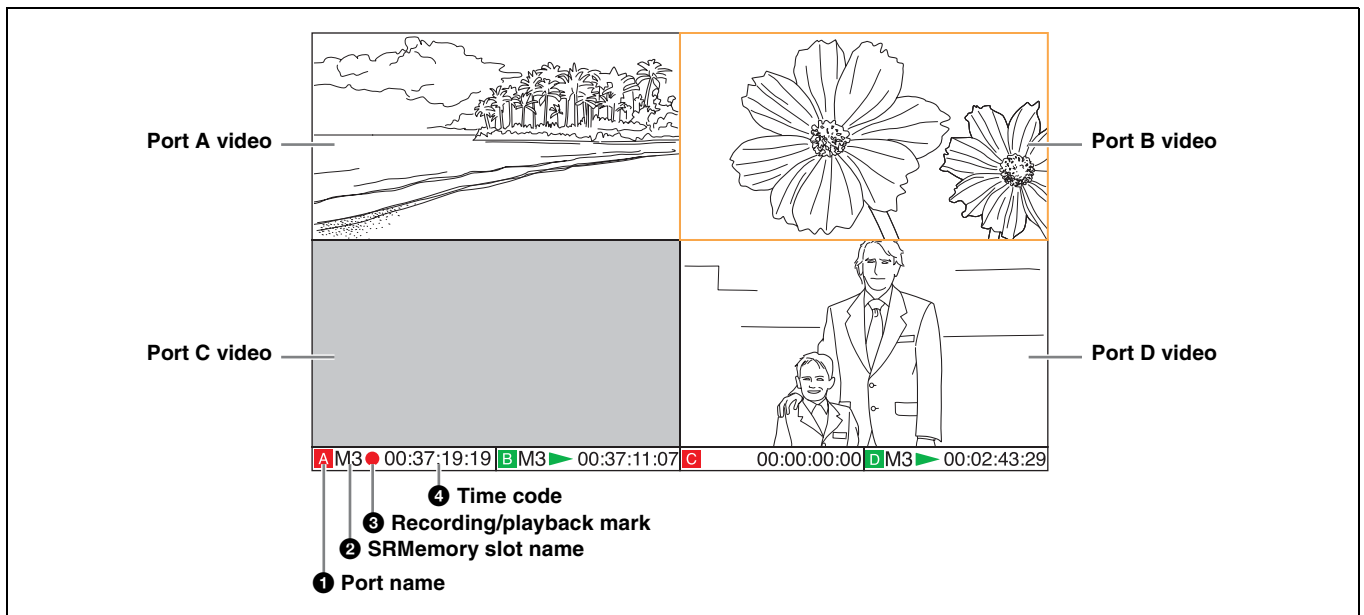
Video Display

The video display appears when the display button (*page 14*) is pressed in the port display screen. The original screen is redisplayed when the display button is pressed again.

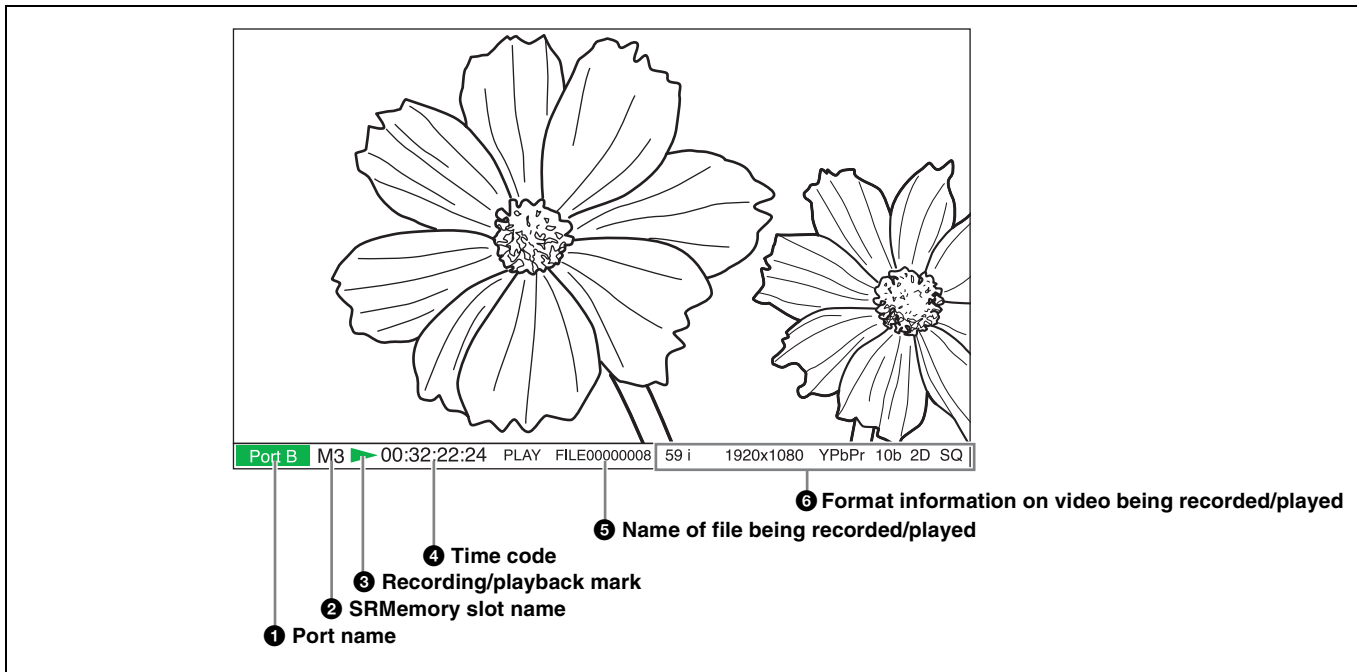
When the main screen is switched to the video display from the four-port display, the screen is split into four and video signals of each port are displayed.

When the main screen is switched to the video display from the one-port display, the video signal of that port is shown on the entire display.

Four-port video display



One-port video display



Information on each port is displayed under the video for both the four-port and one-port display.

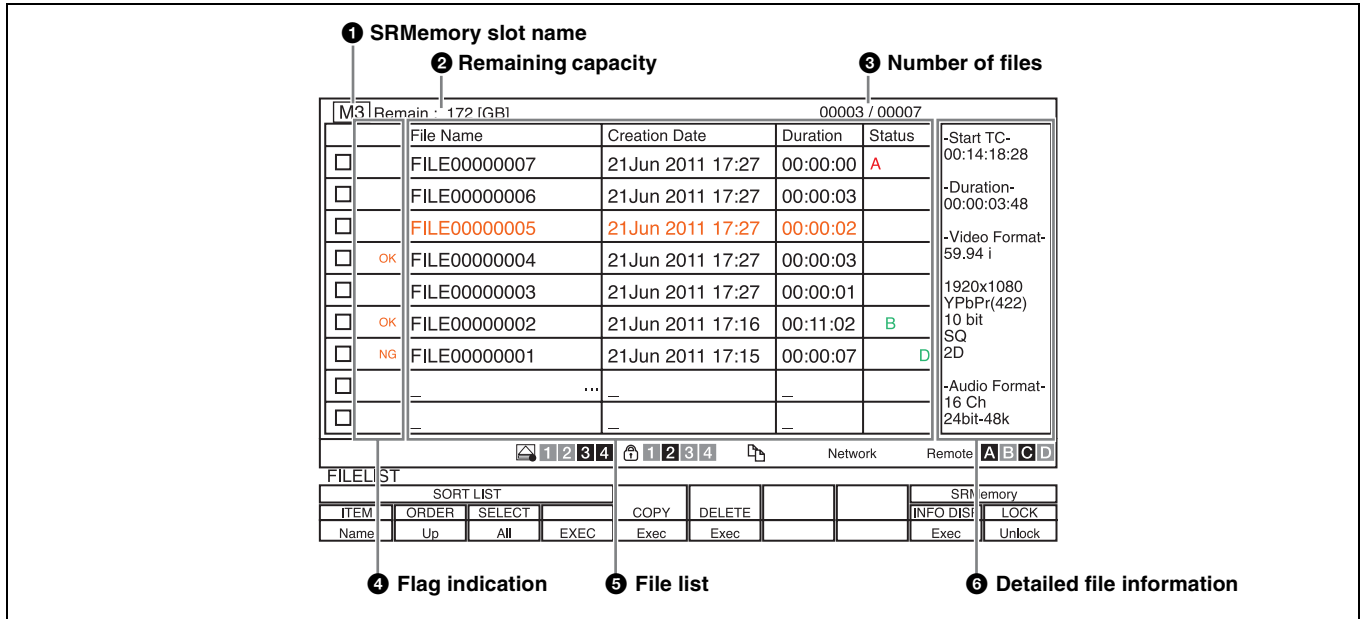
- ❶ Port name
- ❷ SRMemory slot name
- ❸ Recording/playback mark
- ❹ Time code
- ❺ Name of file being recorded/played
“CLOSE” is displayed when not recording or playing.
- ❻ Format information on video being recorded/
played

See the description given in “Main Screen” (page 20) for details on each display.

You can switch to the video displays of other ports and switch between the one-port and four-port displays when pressing the PORT SELECT button while the video display is displayed.

File List Screen

Press the memory selection buttons to display the list of files in the SRMemory card inserted.



1 SRMemory slot name

2 Remaining capacity

You can select the display format with **[F2]** (PANEL SETTING) - **[F7]** (DISPLAY SETTING) - **[F6]** (RESIDUAL) in the SETUP menu. However, when an input port is selected and “Time” is selected in the menu, the remaining capacity will be displayed as remaining storage space.

3 Number of files

Indicates the number of the current file and total number of files.

4 Flag indication

Indicates the flag (OK/NG/KEEP) or lock state set for a file.

5 File list

Displays the list of files in the SRMemory card. The file list shows the following information.

- File name
- Date created
- Duration
- Access status (the port accessing a file)

6 Detailed file information

Displays detailed information on files selected in the file list. The following information is displayed.

- Start time code
- Duration
- Video format

- Audio format

File list screen displayed when the output port is selected

Files recorded in a video format differing to the output port video format are displayed below.

- Files that cannot be played are displayed in grey in the file list.
- An asterisk (“*”) appears at the start of a file name when that file’s format has been converted or will be played at a different frame rate.
- The detailed file information display shows inconsistent items in orange.

File Name	Creation Date	Duration	Status
FILE00000001	9Nov2011 19:22	00:03:26	
FILE00000002	9Nov2011 19:22	00:03:26	
FILE00000009	1Dec2011 17:17	00:01:51	
FILE00000010	1Dec2011 17:19	00:03:13	
FILE00000011	1Dec2011 17:24	00:01:12	
FILE00000012	1Dec2011 17:26	00:01:03	
FILE00000013	1Dec2011 17:28	00:01:32	
FILE00000014	4Jan2012 19:21	00:00:22	
* FILE00000019	25Jan2012 17:18	00:00:23	

Detailed file information for selected file:

- Start TC- 00:14:18:28
- Duration- 00:00:03:48
- Video Format- 23PsF, 1920x1080 YPbPr(422) 10 bit SQ 2D
- Audio Format- 0 Ch 24bit-48k

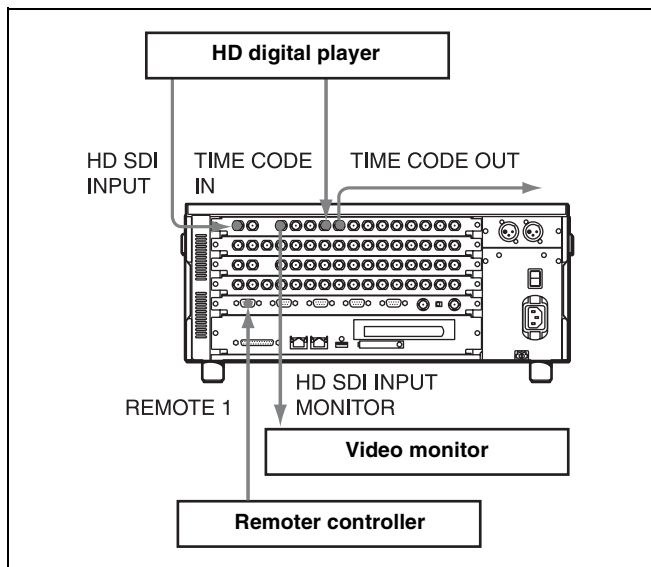
The above figure shows the state of a 23PsF file being played in 25PsF.

Connecting External Devices

This section describes how to connect the unit to external devices to record or play back data. In the explanations in this section, input boards are connected to ports A and C, and output boards to ports B and D.

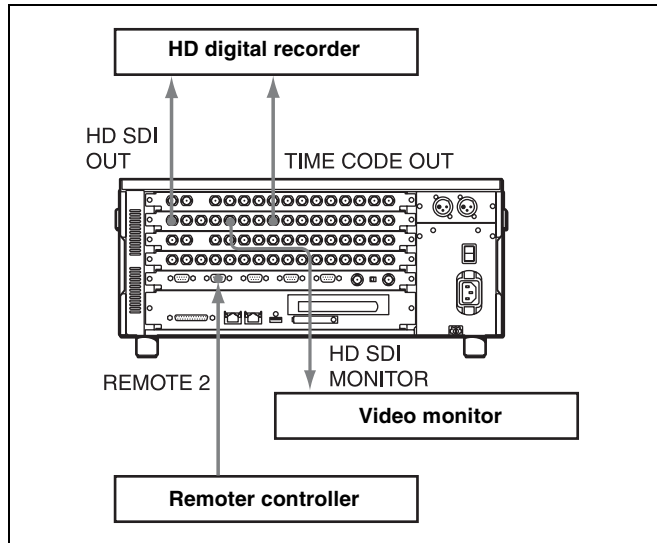
Using the Unit as a Recorder

The following shows an example of connecting an HD digital player and other devices to the input ports in order to use the unit as a recorder.



Using the Unit as a Player

The following shows an example of connecting an HD digital recorder and other devices to the output ports in order to use the unit as a player.

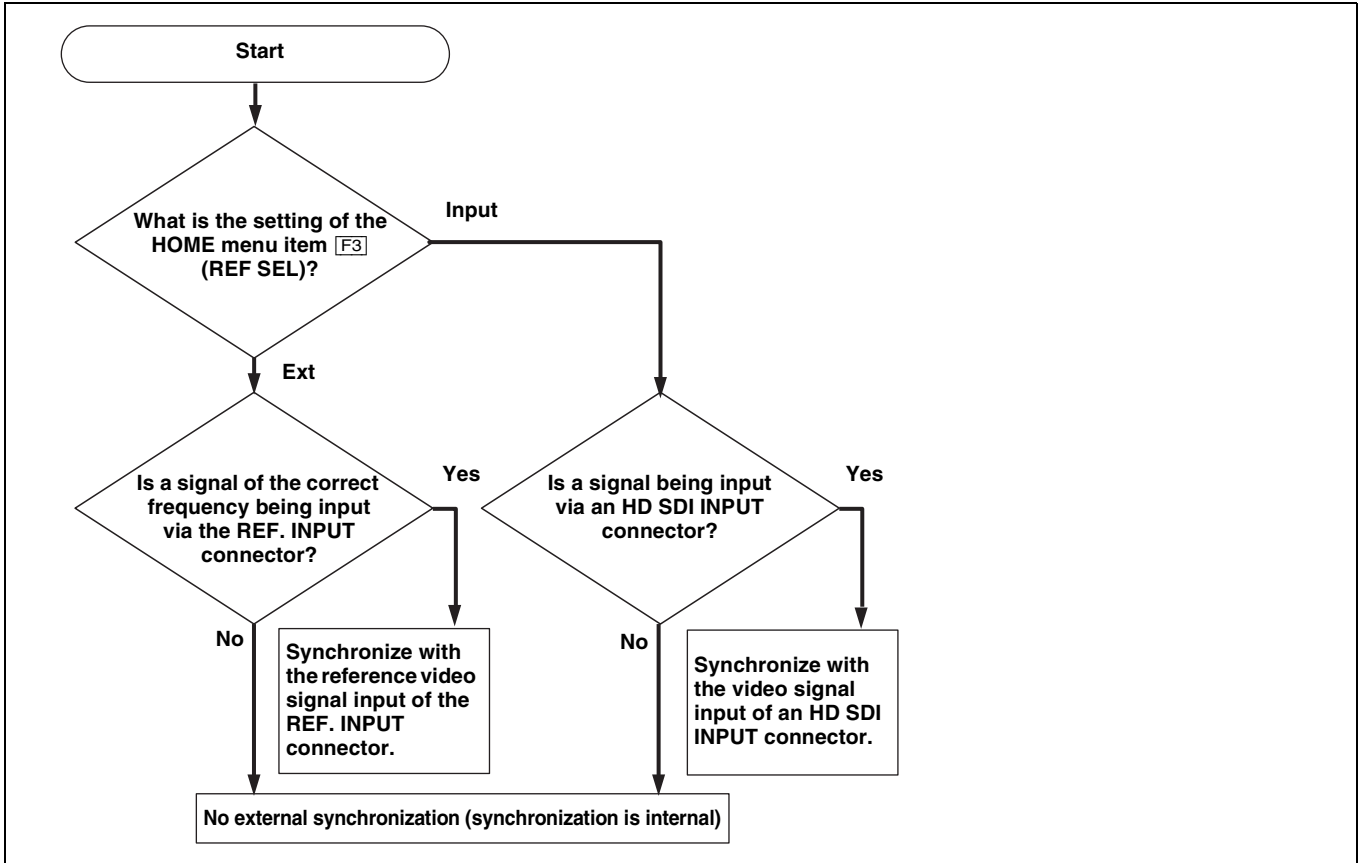


Reference Signals

This section describes how the reference signals for video output are selected.

Reference Signals for Output Video Signals

The output video signals of the unit are synchronized and output as follows depending on the unit's operation state, settings, and input signals.

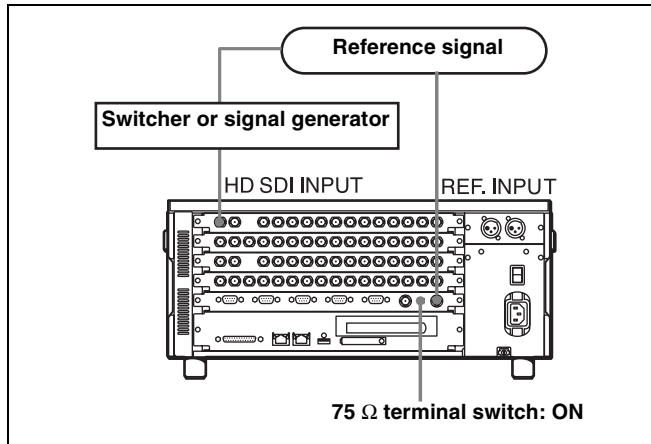


Reference Signal Connections

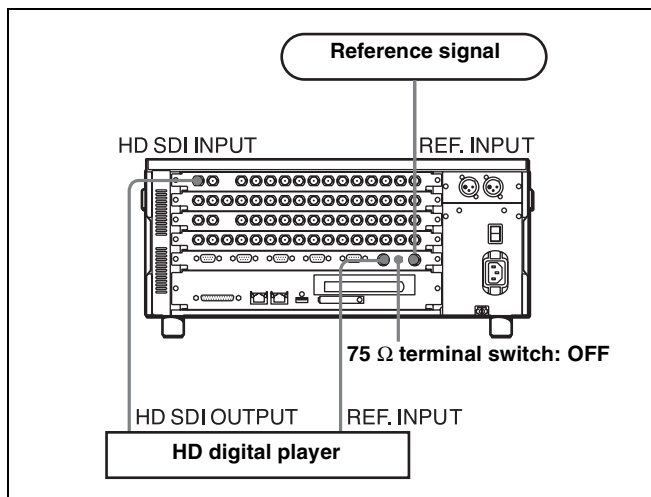
Connect reference signals as follows, according to your recording or playback requirements.

Reference signal connections

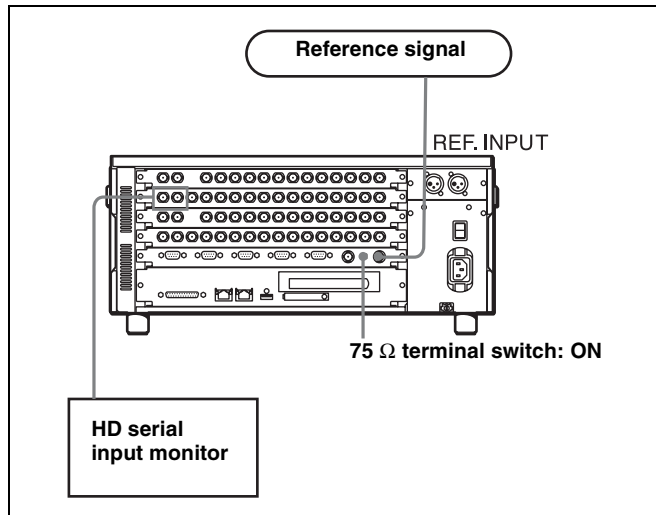
For recording signals from a switcher or signal generator



For recording signals from an HD VTR



For playback



Note

Either an HD tri-level SYNC signal of an appropriate field frequency for external synchronization or a black burst signal can be input as the reference signal. Input a signal of the appropriate field frequency for your system.

Sync signals in 720P mode

Synchronize with an external sync signal when you want to record or play back 720P signals on this unit (including editing).

- When the 720/59.94P system is selected:
 - EXT HD: 1080/59.94i tri-level SYNC signal
 - EXT SD: 525 black burst signal
- When the 720/50P system is selected:
 - EXT HD: 1080/50i tri-level SYNC signal
 - EXT SD: 625 black burst signal

Selecting the Reference Signal for Output

Press the **[F3]** (REF SEL) button in the HOME menu to select the signal to be the reference for operation of the unit.

Ext: Uses the external reference signal input to the REF. INPUT connectors as the reference signal.

Input A, Input B, Input C, and Input D: Uses the signal input to the HD SDI INPUT connector connected to ports A to D as the reference signal.

To switch the external reference signals between HD and SD, press the **[F4]** (EXT REF) button in the HOME menu.

Time Code Settings

Selecting the Time Data

The display shows the following types of time data.

Control panel indication	Superimposed display	Time data type
TCR LTC	TCR	The LTC value read by the time code reader during playback.
TCR VITC	TCR.	The VITC value read by the time code reader during playback.
TCG	TCG	The value generated by the time code generator during recording.
UBR LTC	UBR	The user bit ¹⁾ value read by the time code reader (LTC) during playback.
UBR VITC	UBR.	The user bit value read by the time code reader (VITC) during playback.
UBG	UBG	The user bit value generated by the time code generator during recording.
TM1	TM1	Time counter value that can be preset.
TM2	TM2	Time counter value for which the beginning of the file is 0.
ORG LTC	ORG	The value read by the LTC before time code conversion.
ORG VITC	ORG.	The value read by the VITC before time code conversion.

1) User bits

These represent supplementary information as part of the recorded time code, and consist of eight hexadecimal digits (0-9 and A-F).

Selecting the time data

Press the **[F5]** (TM SEL) button in the TC menu repeatedly to select the time data display.

TC: Displays the value read by the time code reader or the value generated by the time code generator. To switch between VITC and LTC, press the **[F10]** (TCR SEL) button in the TC menu.

UB: Displays the user bits inserted in the playback time code or the user bits inserted in the time code being recorded. To switch between VITC and LTC, press the **[F10]** (TCR SEL) button in the TC menu.

TM1: Displays the time counters that can be preset or reset.

TM2: Displays the time counters for which the beginning of the file will be 0. They cannot be preset or reset.

Setting the Time Code Generator

The output of the unit's internal time code generator is used to record time codes.

The output from the internal time code generator can either be set to any initial value, or synchronized with an external time code generator.

Set the internal time code generator with **[F1]** (TCG SRC) in the TC menu.

preset: Generates time codes with the internal time code generator. Any initial value can be set for the time codes.

ext-LTC: Synchronizes to the time data of the TIME CODE IN connector, and regenerates the time codes.

SDI-LTC: Synchronizes to the LTC time data of the video signal of the HD SDI INPUT A connector, and regenerates the time codes.

SDI-VITC: Synchronizes to the VITC time data of the video signal of the HD SDI INPUT A connector, and regenerates the time codes.

Selecting the signal to regenerate

Select the signal to regenerate with the **[F2]** (REGENE) button in the TC menu.

TC & UB: Regenerates both the time code signal and user bit signal.

TC: Regenerates only the time code signal.

UB: Regenerates only the user bit signal.

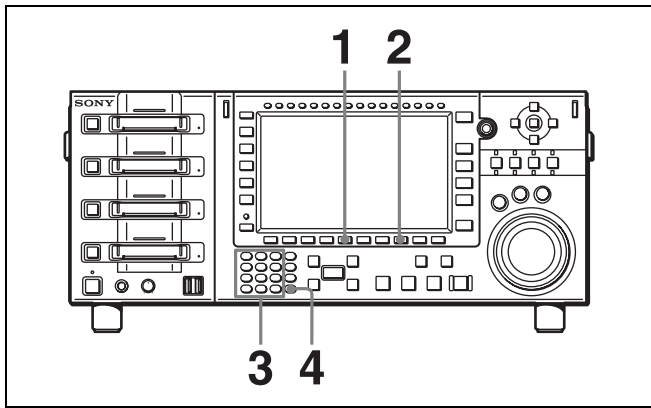
For a signal that is not regenerated, the mode always becomes preset mode regardless of the **[F1]** (TCG SRC) button setting.

Setting the Time Data

To set the time codes

Note

Use the **[F3]** (RUN) button in the TC menu to select "Rec" before setting the time code for recording. In rec mode, time code recording begins from the set value. In "Free" mode, the time code advances in real time after the setting has been made.



1 Use the **[F5]** (TM SEL) button in the TC menu to select the TC (time code) to be set.

2 Use the **[F8]** (TM SET) button in the TC menu to select preset mode.

The numbers in the time code display section turn orange.

3 Use the numeric buttons to input the time code.

Pressing a numeric button inputs a value in the flashing digit in the time code display section. Use the right and left cursor buttons to move the flashing digit.

To cancel the input data

Press the CLR button.

4 Press the SET button to confirm the input data.

If you press the + or – button and then enter a value, the input data becomes the result of the addition or subtraction.

Notes

- The data from an external time code generator cannot be set.
- The time data cannot be set when the internal time code generator is locked to external time codes or to values read by the time code reader.
- Entries made in preset mode are shown in the 24-hour display even when $\pm 12H$ is set.

To reset time data

Press the **[F7]** (TM RESET) button in the TC menu. The time data is reset as follows in accordance with the setting of the **[F5]** (TM SEL) button in the TC menu.

For TC (time codes) or UB (user bits)

The internal time code generator is reset and the time data display becomes 00:00:00:00 (for TC) or 00 00 00 00 (for UB).

Notes

- The values read by the time code reader cannot be reset.
- Time data cannot be reset when the internal time code generator is locked to external time codes or to values read by the time code reader.

To set the user bits

1 Use the **[F5]** (TM SEL) button in the TC menu to select “UB”.

2 Use the **[F8]** (TM SET) button to select preset mode.

The numbers in the time code display section turn orange.

3 Use the numeric buttons to enter the desired user bit value in hexadecimal notation.

Press the 0 to 5 buttons while holding down the SFT button to enter the letters A to F.

4 Press the SET button.

To record the current time

1 Use the **[F4]** (DF/NDF) button in the TC menu to select “DF”.

2 Use the **[F3]** (RUN) button in the TC menu to select “Free”.

3 Use the numeric buttons to enter the target time.

4 When the target time arrives, press the SET button.

The time code generator starts operating from the specified time.

To pause the current time

Press and hold down the **[F9]** (TM HOLD) button in the TC menu.

The current time is paused only while the button is held down.

Time Code Conversion

The unit can play files at a frame frequency that differs from the frequency during recording. For example, files

recorded at 24PsF can be played at 25 frames, or files recorded at 50P can be played at 59P.

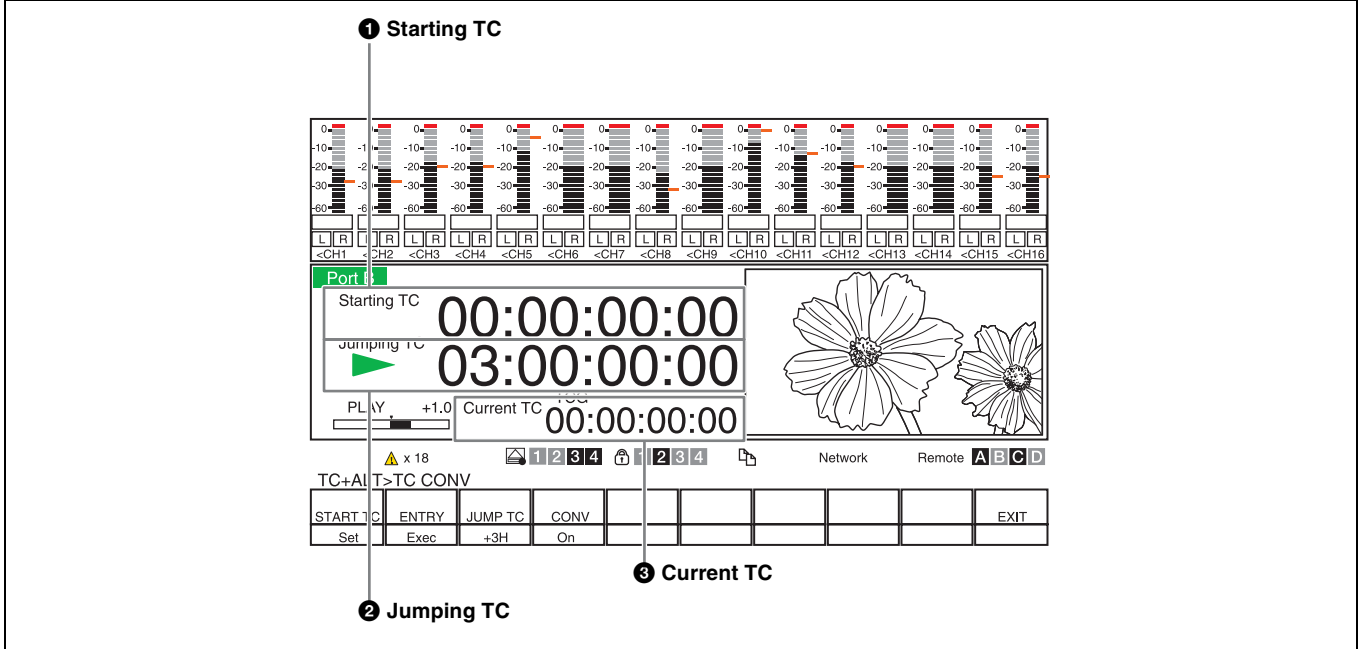
In such a case, the file's time code can be output while being converted in accordance with the running frame frequency.

To make time code conversion settings

With the output port selected, press ALT/[F2] (TC CONV) in the TC menu.

The one-port display appears and the time data display area changes to the time code conversion screen.

The normal screen is redisplayed when [F10] (Exit) or the PORT SELECT button is pressed.



1 Starting TC

The standard time code when being converted.

2 Jumping TC

A midway point when the time code is being converted in a positive or negative direction based on the Starting TC. The time code will be discontinued before or after this point.

3 Current TC

The current value of the time code. The time code is displayed after the conversion. The time code of the file being played is displayed when the time code is not converted.

	24 Frames TC	25 Frames TC	
JUMPING TC	22:00:00:00	20:09:36:00	
	:	:	
	01:00:01:01	01:00:01:00	
Forward direction	01:00:01:00	01:00:00:24	
	:	:	
↑			
STARTING TC	01:00:00:00	01:00:00:00	
↓			
Reverse direction	00:59:59:23	00:59:59:24	
	:	:	
	22:00:00:01	22:07:12:01	Non-consecutive part
JUMPING TC	22:00:00:00	21:09:36:00	

The following table demonstrates the discontinuity of a 25 frame time code when the running frequency is 25 frames; the playback file is 24 frames; and the Starting TC is set to 01:00:00:00 and the 24F Jumping TC to 22:00:00:00 (JUMP TC = -3H).

To preset the Starting TC with numeric buttons

Press the [F1] (START TC) key.

The Start TC setup screen is displayed and the Start TC and Jumping TC displays turn orange. The numerical value at the left end of the Starting TC display will start to blink, so similar to TC Preset set the value with the numeric buttons and confirm this with the SET key.

To set the time code being played to Starting TC

Press the **[F2]** (ENTRY) key. The value of the time code being played at that time (recorded time code) is set as the Starting TC.

To set the Jumping TC value

Press the **[F3]** (JUMPING TC) key.

Select any of the following: 0, -3H, -2H, -1H, +1H, +2H, +3H

To select whether to convert the time code

Press the **[F4]** (CONV) key and select any of the following:

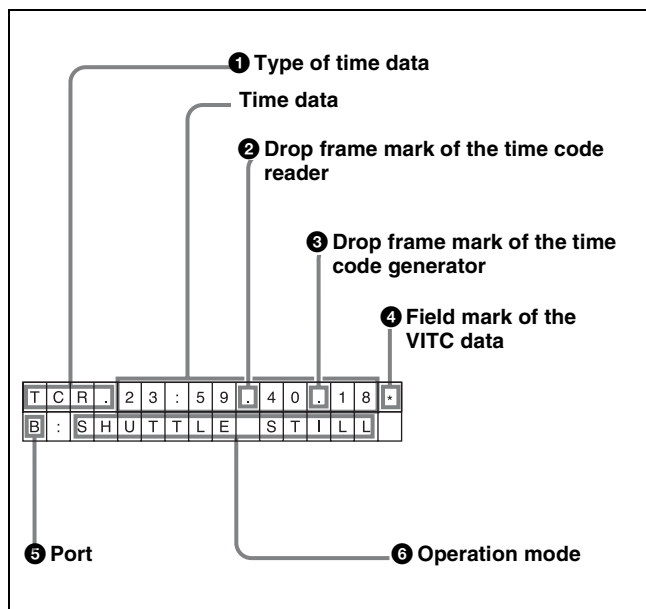
On: Converts the time code

Off: Does not convert the time code

Superimposing Character Information

To superimpose characters representing the time data, operation mode, and other information on output signals, set the ALT/**[F10]** (CHAR ON) buttons to On in the TC menu. Character information is superimposed on signals output from the SD/HD SDI MONITOR connector.

Contents of superimposed data



Note

The example above shows the factory-set contents of data. If you change the setting of the ALT/**[F7]** - **[F3]** (INFO SEL) buttons in the TC menu, a different type of time data can also be displayed on the second line.

1 Types of time data

Indication	Meaning
TCR	Time code data of LTC reader
UBR	User bit data of LTC reader
TCR.	Time code data of VITC reader
UBR.	User bit data of VITC reader
TCG	Time code data of time code generator
UBG	User bit data of time code generator
TM1	Time counter value that can be preset.
TM2	Time counter value for which the beginning of the file is 0.

2 Drop frame mark of the time code reader

“.”: Drop frame mode
 “.”: Non-drop frame mode

3 Drop frame mark of the time code generator

“.”: Drop frame mode
 “.”: Non-drop frame mode

4 Field mark of the VITC data

“ ” (blank space): When displaying fields 1 and 3
 “*”: When displaying fields 2 and 4

5 Port

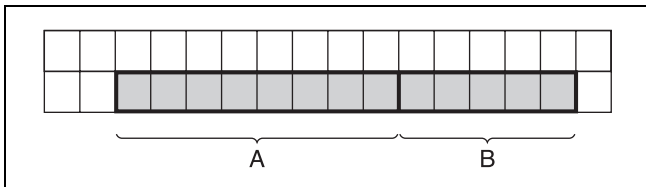
Indicates the output port.

6 Operation mode

The contents are divided into blocks A and B as shown in the following table.

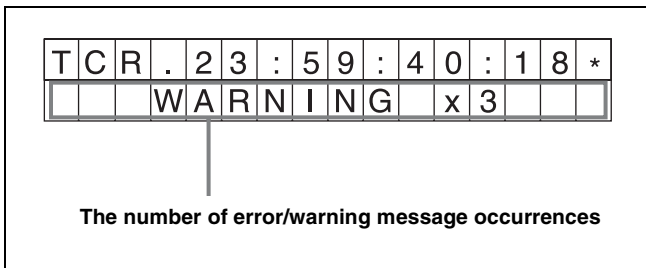
Block A: Operation mode

Block B: Lock state or playback speed



Indication		Operation mode
Block A	Block B	
STOP		Stop mode
PLAY		Playback mode (unlocked)
PLAY	LOCK	Playback mode (locked)
JOG	STILL	Still-picture jog mode
JOG	FWD	Forward jog
JOG	REV	Reverse jog
SHUTTLE	(Speed)	Shuttle mode
VAR	(Speed)	Variable mode
PORT	CLOSE	Port closed

To display an error/warning message



Set the ALT/[F7] - [F6] (WARNING) key in the TC menu to On.

In the event that an error or warning message occurs when the ALT/[F7] - [F3] (INFO SEL) key in the TC menu is set to anything apart from “Time” and “T&Audio”, the

blinking warning/error count will be shown in the second line.

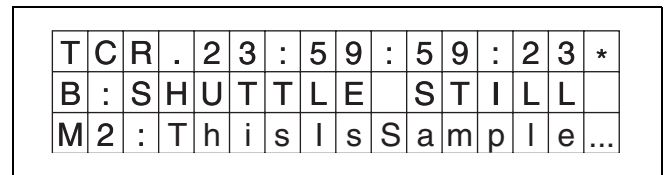
For details on error messages, see “Error Messages” (page 82). For details on warning messages, see “Warning Messages” (page 84).

When error messages and warning messages occur simultaneously, the number of error message occurrences flashes twice, and then the number of warning message occurrences flashes twice.

When a warning message is not being displayed, the contents set with the ALT/[F7] - [F3] (INFO SEL) buttons flash on the second line.

To display the file name

The file name is displayed in the line following the time data (operation mode) when the ALT/[F7] - [F5] (SUB STAT) key in the TC menu is set to “File”.



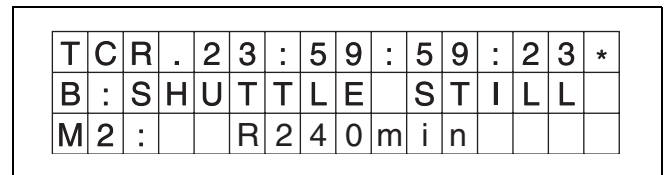
The storage information is displayed by the first two characters. The above example is SLOT M2. The third character is a colon.

The 4th to 32nd characters display the file name.

If the file name exceeds 29 characters, the 29th character is shown as “...” and the part of the name following the 29th character is not displayed.

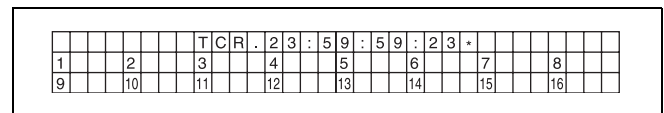
To display the remaining memory of the input port

The remaining memory is displayed in the line following the time data (operation mode) when the ALT/[F7] - [F5] (SUB STAT) key in the TC menu is set to “REMAIN”.



To display the audio level



The audio level is displayed in the second and third lines following the time data when the ALT/[F7] - [F3] (INFO SEL) key is set to “T&Audio”.



The numeric characters show the audio channels. Audio levels from CH1 to CH8 are displayed in the second line. Audio levels from CH9 to CH16 are displayed in the third line.

In the three character area to the right of the channel numbers, the audio levels are displayed in bar graph format extending from left to right.

Although the display is linked to the control panel's audio meter, it is not suitable for level adjustment, etc. Use the state of audio output as a guide.

Maximum level	5 
Minimum level	16 

Non-audio channels are displayed as three hyphens (“---”).

Information displayed and selected by the ALT/[F7] - [F5] (SUB STAT) key or the ALT/[F7] - [F6] (WARNING) key in the TC menu will be displayed at the right hand side of the first line.

Time data is displayed at the left hand side of the first line.

To change the superimpose position

The superimpose position can be moved in the horizontal and vertical directions.

To change the position, press the ALT/[F7] - [F1] (POSITION) buttons in the TC menu and move the position up, down, left, or right with the cursor buttons. Move to the preset position by pressing the center cursor button.

Switching to a menu screen other than the TC menu screen ends the setting.

Handling SRMemory Cards

Recommended SRMemory Cards

The SRMemory cards supported by the unit and their approximate maximum recording times are as follows.

For 59.94i

Model	Maximum recording time		
	SR-Lite	SR-SQ	SR-HQ
SR-256S15/S55	114	60	31
SR-512S25/S55	228	120	63
SR-1TS25/S55	457	241	128

Unit: minutes (approx.)

For 50i

Model	Maximum recording time		
	SR-Lite	SR-SQ	SR-HQ
SR-256S15/S55	136	72	38
SR-512S25/S55	273	144	76
SR-1TS25/S55	548	289	153

Unit: minutes (approx.)

For 23.98PsF

Model	Maximum recording time		
	SR-Lite	SR-SQ	SR-HQ
SR-256S15/S55	142	77	39
SR-512S25/S55	285	155	79
SR-1TS25/S55	571	311	160

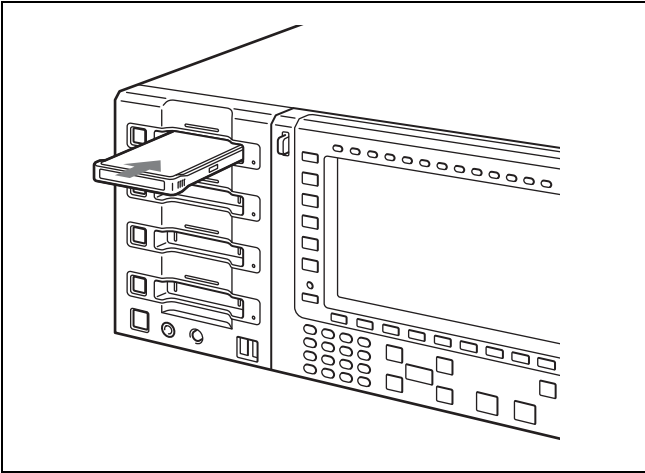
Unit: minutes (approx.)

The maximum recording times may vary depending on the SRMemory card and recording format. For example, 59.94P and 50P will be about half of 59.94i and 50i. Similarly, the maximum recording times for 3D will be about half of 2D.

Inserting and Ejecting SRMemory Cards

Always turn on the unit before inserting or ejecting SRMemory cards.

Inserting SRMemory cards



- 1 Set the On/Standby switch to On.
- 2 Insert the SRMemory card in any of the SRMemory slots 1 to 4.

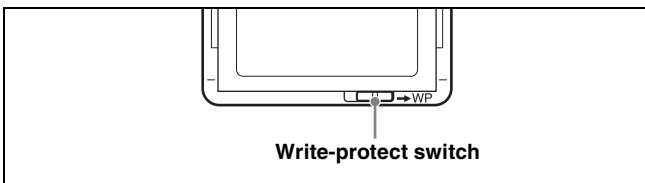
When the SRMemory card is inserted, the mount process is performed automatically.

Ejecting SRMemory cards

Press the corresponding eject button. The file close and unmount processes are performed, and the SRMemory card is ejected automatically.

Preventing Accidental Data Loss

To prevent the accidental erasure of data recorded on an SRMemory card, set the write-protect switch to the “WP” position.



When a card is inserted in this state, the corresponding slot number will appear in red figure to the right of the write-protect mark in the status bar, and recording, deleting and setting flags will be disabled for that card.

To enable recording, return the write-protect switch to its original position.

Virtual Volumes

Three SRMemory cards of the same type can be used as a single virtual volume with triple the capacity for storage. This is useful when you want to record continuously for prolonged periods. The maximum continuous recording time is 24 hours.

The SRMemory cards must be formatted as virtual volumes in sets of three. Combinations of cards that were formatted in different sets cannot be used together. SR-512S25/S55 (512 GB) and SR-1TS25/S55 (1 TB) SRMemory cards can be used. SR-256S15/S55 (256 GB) cards cannot be used as a virtual volume.

Changing the operation mode of the unit

- 1 Remove any cards from slots M2, M3, and M4.
- 2 Press the ALT/[F7] (VIRTUAL) buttons in the SETUP menu, and change the setting.

Off: Standard operation mode (default)

On: Operation mode that supports virtual volumes

Note

If any cards are inserted in slots M2, M3, and M4, a warning message will appear and the operation mode cannot be changed. Press any button to close the warning message dialog box, and eject the cards from the slots before trying again.

Features of the virtual volume operation mode

- Slots M2, M3, and M4 are designated for virtual volume use. Slot M1 can be used for standard SRMemory cards.
- The M2 memory selection button is used to specify the virtual volume. The eject button for slot M2 is used for ejection. The memory selection buttons and eject buttons for slots M3 and M4 are not used.
- Only slots “1” and “2” will appear for the eject-inhibit and write-protect indicators in the status bar of the display screen. “2” indicates the virtual volume.

Creating a virtual volume

Format standard SRMemory cards as a virtual volume.

- 1 Set the unit to the virtual volume operation mode, and insert the SRMemory cards in slots M2, M3, and M4.

Notes

- Make sure all three cards are of the same type.
- To enable formatting, release the write-protect switch and the file/card locks on each card beforehand.

- 2 When the warning message appears, select “FORMAT”.

Warning message example:

```
“WARNING-E41000 VIRTUAL VOLUME
MOUNT FAILURE
```

```
All cards are normal format. Virtual volume format
required.”
```

Memo

Depending on the status of the inserted cards, the warning message may differ from the above. However, as long as you can select “FORMAT”, the remainder of the procedure will be the same.

- 3 When the confirmation message for virtual volume formatting appears, select “OK”.

Note

The formatting procedure will delete all data stored on the cards.

When formatting completes properly, the set of three cards will be ready for use as a virtual volume.

Reverting a virtual volume to standard SRMemory cards

- 1 Insert the SRMemory card being used as part of a virtual volume into a slot designated for use with standard SRMemory cards.

If the unit is in the virtual volume operation mode, insert the card in slot M1.

- 2 When the warning message appears, select “FORMAT”.

Warning message:

```
“WARNING-E400ss SLOT M-x VIRTUAL VOL
CARD
```

```
Normal format card is required.”
```

Numbers indicating the slot number appear for “ss” and “x” in the above.

- 3 When the confirmation message for formatting appears, select “OK”.

When formatting completes properly, the card will be ready for use as a standard SRMemory card.

Note

If you format any one of the three cards that compose a virtual volume, the remaining two cards must also be reformatted to enable use.

The formatting procedure will delete all stored data.

Using a virtual volume on the unit

- 1 Set the unit to the virtual volume operation mode, and insert the three SRMemory cards composing the virtual volume in slots M2, M3, and M4.

Note

Insert each card into the same respective slot that was used during formatting.

When you insert any one of the cards, the SRMemory indicators on slots M2, M3, and M4 will blink blue. When you insert all three cards, the system performs a check. If no errors are detected, the SRMemory indicators will switch from blinking to remaining steadily lit blue, and the virtual volume will be ready for use.

If for some reason an inserted SRMemory card cannot be used as a virtual volume, a warning message will appear.

For details on the messages and how to resolve them, see the next section.

- 2 Perform recording and playback using the virtual volume.

The M2 memory selection button is used to specify the virtual volume.

The eject button for slot M2 is used for ejection.

The memory selection buttons and eject buttons for slots M3 and M4 are not used.

Error/warning messages concerning virtual volumes

The procedures for resolving error/warning messages that concern virtual volumes are as follows.



Code	Display	Description
ERROR-E10App	PORT x MAX LENGTH, STOP REC	<p>This error message appears when recording is stopped automatically to prevent the maximum continuous recording time from being exceeded. If the remaining capacity on the virtual volume is sufficient, another recording session can be started.</p> <p>Memo Numbers indicating the input port number where the error was detected appear for “pp” in the code and “x” in the message.</p>
WARNING-E400ss	SLOT M-x VIRTUAL VOL CARD	<p>This warning message appears when a virtual volume SRMemory card is inserted in the slot for standard SRMemory cards. Replace the card with a standard SRMemory card. Alternatively, you can use the cursor buttons to select “FORMAT”, and format the inserted card as a standard SRMemory card.</p> <p>Memo Numbers indicating the card slot number where the error was detected appear for “ss” in the code and “x” in the message.</p> <p>Note If you format the card and convert it back to a standard SRMemory card, the remaining two cards that compose the virtual volume must also be reformatted to enable use.</p>

Code	Display	Description
WARNING-E40100 to WARNING-E40500	VIRTUAL VOLUME WRONG POSITION	<p>This warning message appears when the SRMemory cards that compose the virtual volume are inserted in the wrong slots. Switch the cards inserted in slots M2, M3, and M4 as instructed by the message to enable use of the virtual volume. For example, if “WARNING-E40100 VIRTUAL VOLUME WRONG POSITION Please exchange M3 and M4” appears, switch the cards that are inserted in slots M3 and M4. Alternatively, you can use the cursor buttons to select “FORMAT”, and reformat the cards as a new virtual volume.</p>
WARNING-E41000 to WARNING-E41A00	VIRTUAL VOLUME MOUNT FAILURE	<p>This warning message appears when a standard SRMemory card or a card that belongs to a different virtual volume set is included among the inserted cards. Replace the appropriate SRMemory card as instructed by the message. Alternatively, you can use the cursor buttons to select “FORMAT”, and reformat the cards as a new virtual volume.</p>
WARNING-E42000	CAN NOT MAKE A VIRTUAL VOLUME	<p>This warning message appears when a virtual volume cannot be created using the three inserted SRMemory cards. Possible causes may include the inclusion of a 256 GB card, a combination of different card types, a card’s WP switch or FS lock, or other conditions that make formatting impossible.</p>

For details on each message, see the error/warning message lists in the Appendix.

Displaying information related to virtual volumes

- 1 Specify the virtual volume using the M2 memory selection button.

The file list appears.

2 Press the **[F9]** (SRmemory INFO DISP) button.

The display changes to the SRMemory information screen. SRMemory information for slots M2, M3, and M4 appears from left to right.

3 Press the **[F9]** button.

The display returns to the file list screen.

Display example:

M2 REMAIN : 13 [%]			
Model Name	SR-1TS25	SR-1TS25	SR-1TS25
Serial Number	C002003	C002005	C003008
Volume Label	SRMemory	SRMemory	SRMemory
First Access Date	5Apr2012	29Jul2011	13Jan2011
Last Formatted Date	10Aug2012		
Last Renewal Date	16Aug2012		
General Area Remain	100		

FILELIST		SORT LIST		COPY		DELETE		SRMemory	
ITEM	ORDER	SELECT		Exec	Exec	Exec		INFO DISP	LOCK
Date	Reverse	All		Exec	Exec	Exec		Exit	Unlock

Synchronizing the Input and Output Ports

You can synchronize an input port with other input ports or an output port with other output ports.

Input ports and output ports cannot be synchronized with each other.

Two sync modes are available. Select the mode based on your intended purpose.

Switching the port sync mode

Change the ALT/**[F1]** (SYNC) setting in the HOME menu.

Off: The ports are not synchronized. (default)

Port: Synchronizes multiple input ports and multiple output ports.

P&File: Synchronizes two input ports and two output ports.

For details on specifications, see the next section.

Note

If the ports described in the following section do not exist on your unit, this setting cannot be changed.

Sync mode specifications

The specifications for the Port and P&File sync modes are as follows

	ALT/ [F1] (SYNC) selection in the HOME menu	
	Port	P&File
Synchronized ports	<p>Synchronizes up to four ports; two or more input ports (SRK-201) or two or more output ports (SRK-202). The input ports are not synchronized with the output ports.</p> <p>Memo Ports of different signal formats will also be synchronized.</p>	<p>1 If two output ports (SRK-202) are mounted on the unit and their signal formats are the same, the ports are synchronized.</p> <p>2 If two input ports (SRK-201) and two output ports (SRK-202) are mounted on the unit and all four signal formats are the same, the two input ports are synchronized and the two output ports are synchronized. The input ports are not synchronized with the output ports.</p>



	ALT/[F1] (SYNC) selection in the HOME menu	
	Port	P&File
Examples for use	<ul style="list-style-type: none"> When you want to play back multiple files of differing signal formats simultaneously. When you want to record multiple files of identical durations. When you want to control multiple ports of differing signal formats using an external controller for stand-alone devices. 	<ul style="list-style-type: none"> When you want to synchronize more functions than in the "Port" mode. When you want to record the files that can be opened with the output ports of the "P&File" mode. <p>Memo When using the 3D (Dual) signal format, this mode simulates recording and playback of four inputs and four outputs, each from a single port.</p>
Recording operations	<p>Synchronized (start/stop times for recordings are identical).</p> <p>Memo Depending on operating conditions, the start/stop times for recordings may be off by one frame.</p>	<p>Synchronized. The two recorded files will be SYNC-Files recorded according to the port settings of the port closest to port A and using the same time code.</p>
File opening operations	<p>Not synchronized. The operation for files that can be opened is identical to that during normal operation. File opening operations are performed separately for each port.</p>	<p>Synchronized. The files recorded from the two synchronized input ports are opened as a pair (SYNC-Files). When you open a file on the selected output port, the other file in the pair will be opened automatically on the synchronized output port.</p>
Playlist function for output ports (see Chapter 5)	<p>Synchronized only during playback operations.</p> <p>Note Configure the sync mode before using the Playlist function, and do not change the setting while using the Playlist function. Perform configuration of the Playlist and operations for starting playback individually for each port.</p>	<p>Synchronized during playback operations and operations for the Playlist.</p> <p>Note Configure the sync mode before using the Playlist function, and do not change the setting while using the Playlist function. Perform Playlist operations on only one of the ports.</p>

	ALT/[F1] (SYNC) selection in the HOME menu	
	Port	P&File
Playback operations	Synchronized. (STOP, PLAY, variable speed playback operations)	Synchronized. (STOP, PLAY, variable speed playback operations)
Signal format switching during sync (ALT/[F10] (PORT CONFIG) in VIDEO menu)	Not synchronized. Configured separately for each port.	Synchronized. Changing the signal format for one port changes the format for the other port automatically.
PREV button operations	<ul style="list-style-type: none"> Playback position in middle of file: Synchronized. Playback position at start of file: Not synchronized. Switches to playback of the preceding file in the file list for the selected port. (Same as during normal operation.) No change in the port that is not selected. 	<p>Synchronized.</p> <ul style="list-style-type: none"> Playback position in middle of file: Jumps to the start of that file. Playback position at start of file: Switches to playback of the preceding file in the file list.
NEXT button operations	<p>Not synchronized. Switches to playback of the next file in the file list for the selected port. (Same as during normal operation.) No change in the port that is not selected.</p>	<p>Synchronized. Switches to playback of the next file in the file list.</p>
PLAY+NEXT operations	<p>Synchronized. Jumps to the end of the opened files for each port. (For files that are currently being recorded, this jumps to a position close to the current recording position.)</p>	<p>Synchronized. Jumps to the end of the opened files for each port. (For files that are currently being recorded, this jumps to a position close to the current recording position.)</p>
Menu items that can be configured for each port	Not synchronized. Each item must be configured separately to enable identical operations.	Not synchronized. Each item must be configured separately to enable identical operations.
CONTINUE (continuous playback)	Enabled.	Disabled.

	ALT/[F1] (SYNC) selection in the HOME menu	
	Port	P&File
Chasing playback (playback of files being recorded)	Operations are identical to those during normal operation.	Operations are identical to those during normal operation and apply to the files from the synchronized input ports that are being recorded.
Controls from the REMOTE connectors	Synchronized. (Controls are identical to those on the control panel.)	Synchronized. (Controls are identical to those on the control panel.)
Four-port display on LCD screen	The selected port appears in an orange frame. The port synchronized to the selected port appears in a dark orange frame.	The selected port appears in an orange frame. The port synchronized to the selected port appears in a dark orange frame.
Port D (output port) Multi Monitor (Quad) display	The selected port appears in an orange frame. The port synchronized to the selected port also appears in an orange frame.	The selected port appears in an orange frame. The port synchronized to the selected port also appears in an orange frame.

Simultaneously recording input audio signals on other ports

When recording using multiple input ports, you can simultaneously record the audio signal input on one port on all other ports.

Use the ALT/[F5] (A.MSTR) buttons in the SETUP menu to configure the port. The input ports are displayed with each press of ALT/[F5]. Select the port with the input audio signal to record the input audio signal from that port on all input ports.

Files created in P&File mode

When output ports are synchronized in P&File mode, the files that can be opened will be the file pairs recorded from the input ports synchronized in P&File mode. These pairs of files are referred to as “SYNC-Files” in this manual.

When you open one of the SYNC-Files on an output port synchronized in P&File mode, the other SYNC-File is opened automatically on the other output port.

Each file in the SYNC-File pair can also be opened individually as a standard file on an output port that is not synchronized.

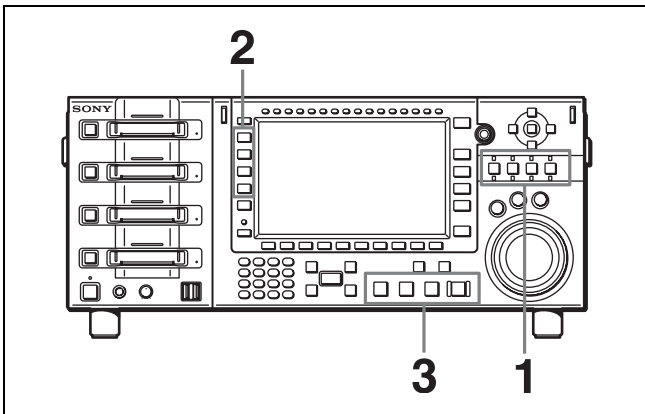
When you copy a pair of SYNC-Files using the unit’s file operating functions, the files are copied to the destination as SYNC-Files.

However, if the files are replicated via FTP transfer/receiving or other methods, the sync property will not be retained. In such cases, the files can still be opened as standard files.

Delete and copy operations performed on individual SYNC-Files are not synchronized. The operations must be performed on each file.

Selecting Input/Output Ports and SRMemory Slots

The unit is equipped with four input/output ports and four SRMemory slots, and the signals from an input/output port can be recorded to SRMemory cards in any of the slots and the files on the SRMemory cards can be output to any output port when played back. It is thus necessary to specify the port and slot to use when recording or playing back data.



1 Specify the input/output port.

Press any one of the PORT SELECT buttons to specify the input/output port. A port with the indicator above the PORT SELECT button lit red is an input port, and a port with the indicator lit green is an output port. When a PORT SELECT button is pressed, the button lights up and a border appears around the corresponding port in the four-port display screen to indicate it is selected.

2 Specify the SRMemory slot.

Press any of the M1 to M4 buttons to specify the SRMemory slot.

3 Perform a recording or playback operation.

When recording to an SRMemory card from an input port and when playing back data from an SRMemory card to an output port, select the port first and then the SRMemory slot.

Association between input/output port and SRMemory slot

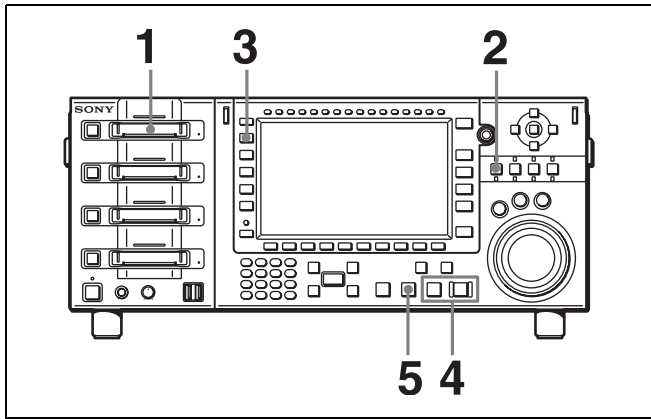
Once you record or play back data, the unit will memorize the association between the input/output port and SRMemory slot selected at that time. The next time you operate the unit, the SRMemory slot used last time will be selected automatically if you perform a recording or playback operation without specifying the SRMemory slot.

To clear the association

The association will be cleared if another SRMemory slot is selected or the SRMemory card is ejected from the slot. For output ports, pressing the EXECUTE button while holding down the STOP button will also clear the association even when the played file is closed.

Recording

This section describes the example of recording input signals from port A to the SRMemory card in slot M1.



- 1** Insert the SRMemory card in slot M1.
The slot indicator lights up blue.
- 2** Select port A with the corresponding PORT SELECT button.
The PORT SELECT button of port A lights up and a border appears around port A in the four-port display screen. The video of the input signal from port A is displayed in the preview area in the screen.
- 3** Select M1 with the corresponding memory selection button.
A list of files in the SRMemory card appears in the screen.
- 4** Press the PLAY button while holding down the REC button.
The input signal from port A is recorded to the SRMemory card. During recording, “●” is displayed in the port A area in the screen. Also, the indicator below the PORT SELECT button and the indicator for the SRMemory slot are lit red. (If the SRMemory card is played back at the same time, the indicator turns amber.)
- 5** Press the STOP button when you want to stop recording.

Press the STOP button while holding down the SFT button in the numeric keypad when [F2] - [F4] (STOP REC) in the SETUP menu is set to “w/shift”.

To check the time code at the start of recording
Before starting to record, press the REC button by itself to display the time code generator value on the control panel display and superimposed on the SDI output.

Recording simultaneously to one SRMemory card

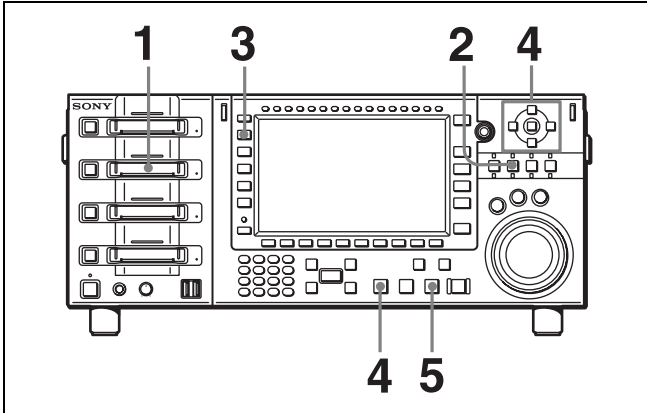
The input signal from another port can be simultaneously recorded to the SRMemory card during recording. To record simultaneously, select the SRMemory card that is already being used for recording in step 3 of the procedure above.

Note

When multiple SRMemory cards, input and output ports are used to record or play back files simultaneously, some functions are limited depending on the SRMemory card type used or the port configuration. For details, see “Restrictions on Simultaneous Recording and Playback” (page 79).

Playback

This section describes the example of playing back a file in the SRMemory card inserted in slot M2 on a device connected to port B.



- 1 Insert the SRMemory card in slot M2.
- 2 Select port B with the corresponding PORT SELECT button.

In the four-port display screen a border appears around port B.

- 3 Select slot M2 with the corresponding memory selection button.

A list of the files recorded to the SRMemory card appears in the screen.

- 4 Use the cursor buttons or MULTI CONTROL knob to select a file, and then press the EXECUTE button.

The file opens. The first frame of the selected file appears in the preview area for port B in the screen.

- 5 Press the PLAY button.

Playback begins.

The indicator for slot M2 and the bottom indicator for port B light up green.

When recording is simultaneously made to an SRMemory card in slot M2, the slot indicator turns amber.

In the event that the file has not been opened by the selected port, playback can be started at the time the selected file opens by pressing the PLAY button without pressing the EXECUTE button after the file has been selected in step 4.

Chasing Playback

A file being recorded to an SRMemory card can be played back without waiting for recording to end.

This section describes the example of recording signals from port A to slot M1 and playing back the same file using port B during recording.

- 1 Select port B with the corresponding PORT SELECT button during recording from port A to M1.

- 2 Select M1 with the corresponding memory selection button.

A list of files in M1 appears in the screen.

- 3 Use the cursor buttons or MULTI CONTROL knob to select the file being recorded, and then press the EXECUTE button.

The file opens. The first frame of the selected file appears in the preview area for port B in the screen.

- 4 Press the PLAY button.

Chasing playback begins. The M1 memory indicator turns amber.

If you press the NEXT button while holding down the PLAY button during chasing playback, playback will jump and resume from the playable position that is closest to the recording position at that moment.

Variable Speed Playback

In the Jog, Shuttle, and Variable modes, you can change the playback speed as follows:

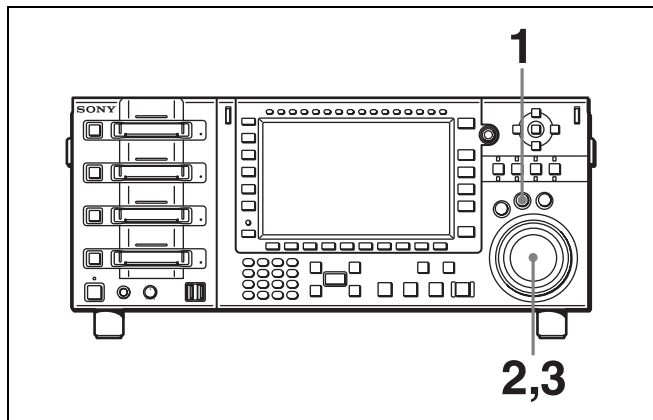
Jog mode: The playback speed corresponds to the rotational speed of the search dial, ranging from -1 to +1 times normal playback speed.

Shuttle mode: The playback speed corresponds to the position (rotation angle) of the search dial, ranging from -100 to +100 times normal playback speed. The search dial clicks at the positions for still pictures and ± 10 times normal playback speed.

Variable mode: The playback speed corresponds to the position (rotation angle) of the search dial, ranging from -1 to +1 times normal playback speed.

Jog mode playback

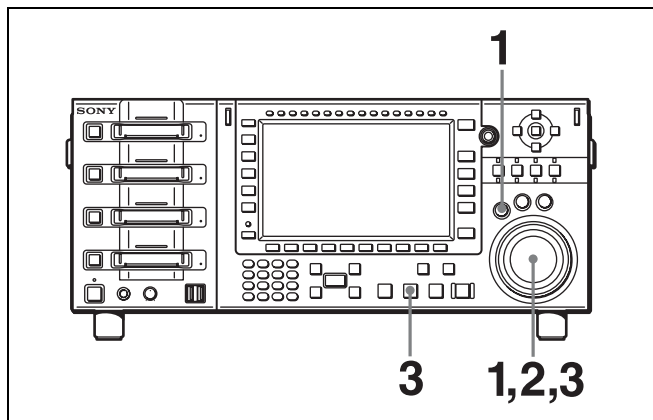
Follow the procedure below to play back in jog mode.



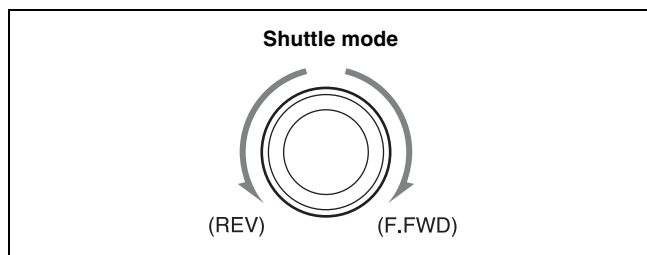
- 1** Press the JOG button so that it lights up.
The unit enters still-picture mode.
- 2** Rotate the search dial to start playback.
The data is played back slowly at a speed corresponding to the rotational speed of the search dial.
- 3** Stop rotating the search dial to stop jog mode playback.

Shuttle mode playback

Follow the procedure below to play back in shuttle mode.



- 1** Press the SHUTTLE button so that it lights up.
The unit enters still-picture mode.
- 2** Rotate the search dial in the desired playback direction and set the rotation angle as required to achieve the desired playback speed.



The data is played back at a speed that corresponds to the position of the search dial.
The dial clicks at the positions for -10 , 0 , and $+10$ times normal playback speed.

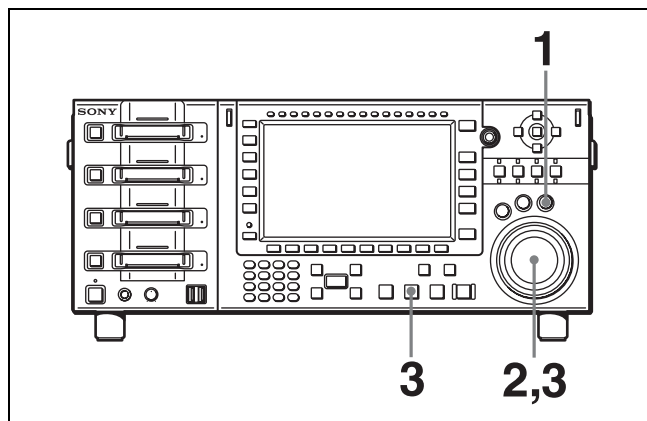
- 3** Return the search dial to the center position or press the STOP button to stop shuttle mode playback.

To return to normal-speed playback

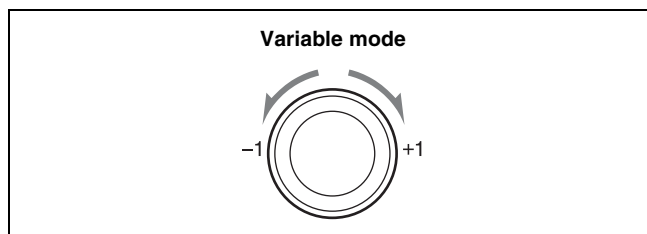
Press the PLAY button.

Variable mode playback

Follow the procedure below to play back in variable mode.



- 1** Press the VAR button so that it lights up.
The unit enters variable mode.
- 2** Rotate the search dial in the desired playback direction and set the rotation angle as required to achieve the desired playback speed.



The data is played back at a speed that corresponds to the position of the search dial.
The search dial clicks at the positions for still pictures and ± 1 times normal playback speed.

- 3** Return the search dial to the center position or press the STOP button to stop variable mode playback.

To return to normal-speed playback

Press the PLAY button.

To alternate between normal-speed playback and variable mode playback

After you have set the search dial to the angle that corresponds to the desired playback speed, press the PLAY button or VAR button to select normal-speed playback or variable mode playback, respectively. To stop or start variable mode playback, press the STOP button or VAR button, respectively.

To use only the search dial to switch between shuttle/variable mode and jog mode

Press the search dial during shuttle mode or variable mode playback to switch to jog mode. Press it once again to return to shuttle mode or variable mode.

To play in jog/variable mode at high speed

Set F.SHTL to “On” using the ALT/[F5] buttons in the HOME menu to enable jog/variable mode playback at high speeds up to -100 to +100 times. When operating from the control panel, the maximum speed is configured using the [F2] (PANEL SETTING) - [F6] (JOG MAX) buttons in the SETUP menu.

Note

When F.SHTL is set to “On,” the audio played back in jog/variable mode is identical to that in shuttle mode.


Continuous Playback

You can play files on repeat or automatically alternate playback between different files when ALT/[F3] (CONTINU) is set in the HOME menu.

When menu is Off

Continuous playback is not performed.


When menu is set to File Rpt

Returns to the start of the same file and plays on repeat when the file is played to the end. Returns to the end of the file from the start when played in the opposite direction. A mark  showing the Rpt status is displayed in the control panel’s output port display.

When menu is set to List

Continuously plays playable files displayed in the file list screen.

Stops playback when the last file in the file list is played until the end.


A mark  showing the List status is displayed in the control panel’s output port display.

When menu is set to List Rpt

Repeatedly plays playable files displayed in the file list screen.

Switches to the top of the file list when the last file in the file list is played until the end.

Switches to the last file from the first file when played in the opposite direction.

Marks  showing the List status and Rpt status are displayed in the control panel’s output port display.

Note

The screen freezes temporarily when returning to the start of the file or starting to play different files. This freeze time is usually less than one second, but will increase slightly when switching to the playback of files with a different video format.

Still Picture Output

To output a still picture, press the [F2] (FREEZE) button in the HOME menu. The picture that was playing just before the button was pressed will be frozen on the screen. Select the field or frame that specifies the still picture with the ALT/[F2] (FRZ MODE) buttons in the SETUP menu.

To output a still picture continuously

Use the ALT/[F3] (FRZ CTRL) buttons in the SETUP menu to select “Latch.”

Pressing the buttons outputs a still image, and pressing the buttons again cancels freezing.

To momentarily output a still picture

Use the ALT/[F3] (FRZ CTRL) buttons in the SETUP menu to select “Moment.”

A still picture is output for as long as you hold down the buttons.

Stop Playback

Press the STOP button to stop playback.

The file remains open when this happens. Playback can be started instantly by pressing the PLAY button.

Press the EXECUTE button while holding down the STOP button to close the file and completely stop playback.

File Operations

Files recorded to SRMemory cards can be operated on the unit.

Displaying a file list

- 1 Insert the SRMemory card containing recorded files in the SRMemory slot.
- 2 Press the memory selection button of the slot in which the SRMemory was inserted.

The file list appears on the display.

File Name	Creation Date	Duration	Status	Client TC
FILE00000007	21Jun 2011 17:27	00:00:00	A	00:14:18:28
FILE00000006	21Jun 2011 17:27	00:00:03		00:00:03:48
FILE00000005	21Jun 2011 17:27	00:00:02		Audio Format: 96.9k
FILE00000004	21Jun 2011 17:27	00:00:03		1820x1080 YPrPb(422) 10.0k SIO
FILE00000003	21Jun 2011 17:27	00:00:01		Audio Format: 16 CP 96.9k/48k
FILE00000002	21Jun 2011 17:16	00:11:02	B	
FILE00000001	21Jun 2011 17:15	00:00:07		

File list control menu

The following menu is available when the file list is open.

Button	Indication	Description
[F1]	ITEM	Selects any of the following items as a sort key for sorting the files. Name Cre. Date (creation date and time) Mod. Date (modification date and time) Duration
[F2]	ORDER	Selects the display order for the file list. Default (normal order) Reverse (reverse order)
[F3]	SELECT	Selects any of the following items to narrow the list down. All Check OK NG KEEP w/o NG (except for NG)
[F4]	EXEC	Applies the settings configured with the [F1] to [F3] buttons.
[F5]	COPY	Copies the selected files.
[F6]	DELETE	Deletes the selected files.
[F9]	INFO DISP	Displays the detailed information on the selected SRMemory card.

Button	Indication	Description
[F10]	LOCK	Locks the selected SRMemory card to prevent them from being recorded or deleted.
ALT/[F1]	ALL CHK	Selects all the files on the selected SRMemory card.
ALT/[F2]	FILE LOCK	Locks the selected files to prevent them from being edited or deleted.
ALT/[F3]	SET FLAG	Sets any of the following flags for the selected files. OK NG KEEP None
ALT/[F5]	RENAME	Renames the file.
ALT/[F10]	ALL DEL	Deletes all files in the SRMemory card.

Memo

Under normal circumstances, the creation dates and times will appear for the date and time displays in the file list. However, if you specify “Mod. Date” with the [F1] button to sort the file list, the modification dates and times will appear.

Deleting a file

Note

When a delete operation is performed, any operations on the port using the SRMemory card on which the target file is stored will be closed.

- 1 Use the cursor buttons or MULTI CONTROL knob to select the file you want to delete.
- 2 Press the [F6] (DELETE) button.
- 3 When the confirmation message appears, use the cursor buttons to select [OK] and press the center cursor button.

The selected file is deleted.

To delete all files in the SRMemory card, press the ALT/[F10] (ALL DEL) buttons.

Memo

Locked files cannot be deleted.

Copying a file

- 1 Use the cursor buttons or MULTI CONTROL knob to select the file.
- 2 Press the [F5] (COPY) button.

The screen for selecting the card to which a file is copied.

- 3** Use the cursor buttons or MULTI CONTROL knob to select the SRMemory card and press the center cursor button.
- 4** When the confirmation message appears, use the cursor buttons to select **[OK]** and press the center cursor button.

The selected file is copied.
To cancel copying, press the **[F5]** button again.

Memo

Files can be duplicated by selecting the same SRMemory card as the copy source as per step **3**. The E07ss (ALTERNATE UMID GENERATED) warning message may be displayed when duplicating files or copying the same file several times to the same SRMemory. Despite this, duplicated/copied files can be used without any problems.

Deleting/copying multiple files

- 1** Use the cursor buttons or MULTI CONTROL knob to select the file, and press the center cursor button to select the check box on the left side of the file list.
- 2** Repeat step **1** to select multiple files.
- 3** While holding down the SFT button, press the **[F6]** (DELETE) button to delete the files or the **[F5]** (COPY) button to copy the files.
- 4** When copying files, select an SRMemory card. (See step **3** of “Copying a file”.)
- 5** When the confirmation message appears, use the cursor buttons to select **[OK]** and press the center cursor button.

The selected files are deleted or copied.

Note

The copying operation will stop when the remaining capacity on the destination SRMemory card becomes insufficient. Therefore, all the files for which the check box is selected may not be copied in some cases.

Locking files or SRMemory cards

To lock a file

You can lock files to prevent them from being edited or deleted.

Locking a file disables the deleting operations and setting flags.

Note

Formatting an SRMemory card will also delete the locked files.

- 1** Use the cursor buttons or MULTI CONTROL knob to select the file.
- 2** Press the ALT/**[F2]** (FILE LOCK) buttons.
The selected file is locked.
To unlock a file, select the locked file and press the ALT/**[F2]** buttons.

To lock an SRMemory card

Locking an SRMemory card will disable recording to and deleting data and setting flags in the SRMemory card.

- 1** Use a memory selection button to select an SRMemory card to be locked.
- 2** Press the **[F10]** (LOCK) button.

The selected SRMemory card is locked.
The number of the slot into which the card has been inserted is displayed in red at the right side of the write-protect mark on the status bar.
To unlock an SRMemory card, select the locked SRMemory card and press the **[F10]** button.

Setting flags for files

You can set a flag (OK/NG/KEEP) for a file. Setting flags makes it easier to select files required when editing.

- 1** Use the cursor buttons or MULTI CONTROL knob to select the file.
- 2** Press the ALT/**[F3]** (SET FLAG) buttons repeatedly until the desired flag appears.

Renaming files

You can rename a file using a USB keyboard.

- 1** Connect a keyboard to the USB connector on the control panel.
- 2** Select the file you want to rename using the cursor button or the MULTI CONTROL knob.
- 3** Press the ALT/**[F5]** buttons.
- 4** Enter a file name from the keyboard, and then press the ENTER button.

The file name is updated.

To cancel renaming a file, press the **[F5]** button or the ESC key on the keyboard.

Note

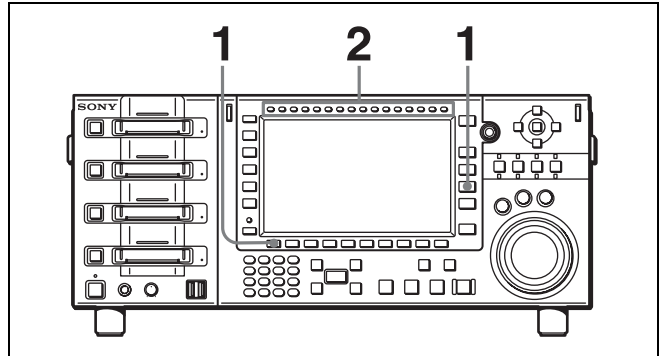
The USB keyboard option supports English 101/102 keyboards.

Selecting Audio Signals

This section describes how to select the audio signals to input or monitor before you start recording or playback.

Selecting the Audio Input Signals

Make the settings as follows in accordance with the audio input signals.



- 1** Press the AUDIO button and then press the **[F1]** (AUD IN) button from the AUDIO menu.

The audio level meters are displayed highlighted.

- 2** Press the CH selection buttons, and make audio input signal settings for each channel.

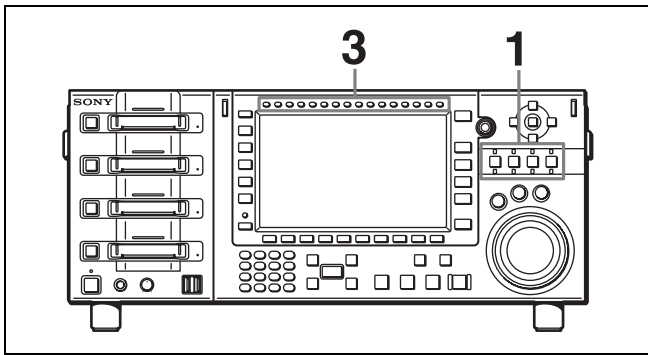
SDI: Selects the audio signal input from the HD SDI INPUT A connector.

A/E: Selects the audio signal input from a DIGITAL I/O (AES/EBU) connector.

Press the CH1 button while holding down the SFT button to simultaneously select channels 1 to 16.

Selecting the Audio Signals to Monitor

Use the channel selection buttons positioned in the upper left of the control panel to switch the audio signal output from the PHONES jack and AUDIO MONITOR OUTPUT L/R connectors as follows.



- 1 Press the PORT SELECT button of the input port you want to set once or twice to display the one-port display screen on the color display.
- 2 Check the audio level meters on the color display and confirm that the mode is not level setting mode (state in which the audio level meters are displayed highlighted in orange).

The channels for which the signals are currently being monitored are indicated with the reverse video characters “L” and “R” below the audio level meters.
- 3 Press **[F5]** (MON (L)) button or **[F6]** (MON (R)) button in the HOME menu, and then use the channel selection buttons to select channels 1 to 16.

To adjust the audio output level of the PHONES jack

Rotate the LEVEL knob on the control panel.

To select non-audio data as the audio input signal

Use the ALT/**[F2]** (NON-AUD) buttons in the AUDIO menu to select non-audio data such as Dolby¹⁾ E and Dolby Digital (AC-3²⁾) as the audio input signal.

1) Dolby is a trademark of Dolby Laboratories.

2) AC-3 is a trademark of Dolby Laboratories.

Note

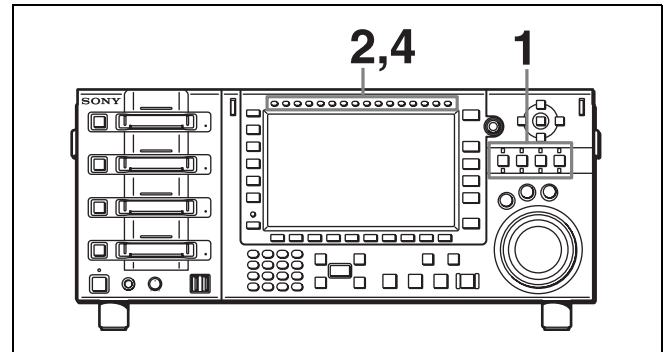
The following describes the operations for the selected channels.

- For the input signal, the setting of the ALT/**[F2]** (NON AUD) buttons has priority over the setting of the **[F1]** (AUD IN) button of the AUDIO menu.
- “DATA” is displayed in white characters in the audio level meters.
- Audio monitor output (output to the MONITOR OUTPUT connector and PHONES jack) is turned off.
- The recording level settings of the channels for which non-audio is selected do not affect the recording or playback of DATA.
- Non-audio input channels are selected in stereo pairs.

Adjusting the Audio Levels

This section describes how to adjust the audio level for recording/playback before you start recording or playback. The recording level is set automatically when you select the input port, and the playback level is set automatically when you select the output port.

To adjust the audio level



- 1 Press the PORT SELECT button of the port you want to set once or twice to display the one-port display screen on the color display.

The audio level meter appears.

Memo

When the entire display is showing the video signal, press the display button to operate it.

- 2 Press the button for the channel you want to adjust to make the channel active.

For active channels, the audio level meter is displayed in orange and the adjustment level display bar appears at the right side of the meter.

The displayed position of the adjustment level display bar should indicate where it is within the adjustable range and is unrelated to the level meter scale.

- 3 Use the cursor buttons or MULTI CONTROL knob to adjust the level.

Memo

- Press the center cursor button or MULTI CONTROL knob when you want to set the level to the preset value.
The input/output gain multiplies by 1 (0db). At that time the digital reference level audio will become

the analog reference level audio signal and output from the AUDIO MONITOR OUTPUT connectors.

- When manually adjusting the input level, determine a level so that the level meter indicates a level close to the digital reference level when at average volume.
- When manually adjusting the output level, set the level at the desired volume.

The signal may be clipped and warped when audio recorded at a high level is output at an even higher level.

- 4** After finishing adjustment, press the active channel button once again to return it to the normal display.

The audio level meter returns to the normal display color (white). For channels set to any value apart from the preset value, the adjustment level display bar remains displayed in its unchanged state.

Memo

The digital reference level (maximum level - headroom) and analog reference value are set at their factory default settings of -20dB and $+4\text{dBu}$ respectively.

These values can be set with the MAINTENANCE INFORMATION - **[F8]** (MAINTENANCE) - **[F9]** (OTHERS CHECK) - **[F4]** (HEAD/REF) keys in the Maintenance menu. Changed settings are enabled from the next time power is turned on.

A simple description of Maintenance menu startup methods is included in “ERROR LOG Menu” appended to this Manual. For details, see the Maintenance Manual.

Adjusting the Output Video Signal

Setting procedure

Set the output video signal menu items as follows.

- 1** Press a function selection button (e.g.: **[F1]**).
The setting value display area lights up.
- 2** Use the cursor buttons or MULTI CONTROL knob to change the numerical value.
To set to the preset values
Press the center cursor button or MULTI CONTROL knob.
The prst (preset) indication appears.
- 3** Press the function selection button (e.g.: **[F1]**) for the desired setting value.

Adjusting the master output level

Use the **[F1]** (MASTER) button in the VIDEO menu to set the level.

prst: 100% (4000H)

Numerical value: 0.0 (0H) to 141.3% (5A70H)

Adjustable range: $-\infty$ to +3 dB

Adjusting the Y output level

Use the **[F2]** (Y) button in the VIDEO menu to set the level.

prst: 100% (4000H)

Numerical value: 0.0 (0H) to 141.3% (5A70H)

Adjustable range: $-\infty$ to +3 dB

Adjusting the Pb output level

Use the **[F3]** (PB) button in the VIDEO menu to set the level.

prst: 100% (4000H)

Numerical value: 0.0 (0H) to 141.3% (5A70H)

Adjustable range: $-\infty$ to +3 dB

Adjusting the Pr output level

Use the **[F4]** (PR) button in the VIDEO menu to set the level.

prst: 100% (4000H)

Numerical value: 0.0 (0H) to 141.3% (5A70H)

Adjustable range: $-\infty$ to +3 dB

Adjusting the setup level

Use the **[F5]** (SETUP) button in the VIDEO menu to set the level.

prst: 0% (0)

Numerical value: -10.0% to +10.0%

Adjustable range: -10% to +10%

Adjusting the black output level

Use the **[F6]** (BLK LV) button in the VIDEO menu to set the level.

prst: 0.0% (110H)

Numerical value: -31.0% (0H) to +31.0% (220H)

Adjustable range: -31.0% to +31.0%

Adjusting the chroma phase output level

Use the **[F7]** (CRM PH) button in the VIDEO menu to set the chroma phase.

prst: 0

Value: -127 to +127

Adjustable range: -30° to +30°

Note

In 4:4:4 mode, adjustment of the output level, setup level, and chroma phase is disabled.

Adjusting the sync phase

Adjust this when you want to precisely match the output phase of the unit to the reference signal or when the unit is used with multiple VTRs and a switcher or other device is connected and used to create special effects such as fading, wrapping, and dissolving.

Use the **[F8]** (SYNC PHASE) button in the VIDEO menu to adjust the output signal sync phase in relation to the reference input of the unit.

Press the **[F8]** button and then press the **[F1]** (SYNC) button to roughly adjust the synch phase.

prst: 0 (0)

Numerical value: -128 to +127

Adjustable range: -1.4 to +1.4H

Use the **[F2]** (FINE) button to finely adjust the sync phase.

prst: 0 (0)

Numerical value: 0 to 1024

Adjustable range: 0 to 323 nsec

Playlist Creation and Playback

Chapter

5

This unit allows you to specify particular video/audio files (subclips) stored on SRMemory cards and create a list of up to 128 registered subclips. This list is referred to as a “Playlist.” You can play back Playlists as you can with normal files, with seamless video/audio transitions between subclips.

You can also copy specific portions of a file to an SRMemory card as a new file.

Notes

- You can only create and play back Playlists of signal formats that match that of the output port. If you change the signal format of the output port while creating a Playlist, the Playlist will be lost.
- Playlists cannot be copied or transferred via FTP.
- When copying specific portions of files, you can only copy files of a signal format that can be played back from the output port.
- If you change the name of a file being referenced by a subclip after creating a Playlist, a portion of the Playlist functions may not operate properly.
- Files being referenced by the subclips of a Playlist cannot be replaced with other files.

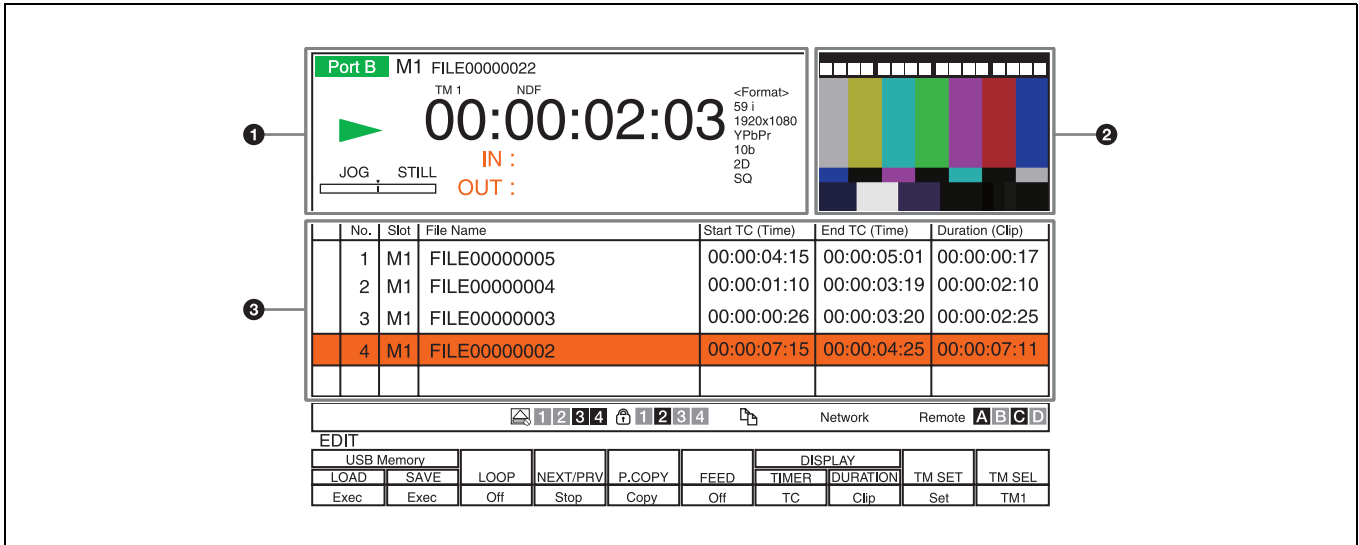
Playlist Operations

Creation and playback operations for Playlists are performed in the EDIT menu.

EDIT Menu Display and Components

To display the EDIT menu, select an output port in the port display (port 1 or port 4) and press the EDIT button.

The screen appears as follows.



1 Playback information display area

Displays the playback status of the file or Playlist.

2 Video / audio level display area

Displays the video of the file or Playlist currently being played back.

The audio level appears at the top of the video with CH1 to CH16 displayed in order from the left.

3 Playlist information display area

Displays the Playlist. The slots, file names, IN points, OUT points, and clip durations of the subclips being referenced are displayed. The subclip specified by the cursor will be highlighted in orange.

Memo

- If you change the [F8] (DURATION) button setting from “Clip” to “Total,” the clip duration display will change to the duration from the start point of the Playlist.
- The IN point and OUT point display can be switched to either “TC” or “TM2” mode using the [F7] (TIMER) button.

To exit the EDIT menu, press a menu selection button such as HOME or an input port selection button.

Memo

- The Playlist will be stored even if you exit the EDIT menu. In addition, if you exit the EDIT menu while the Playlist is playing (playback mode), the playback operation will continue.
- If you select another output port while the EDIT menu is active, the EDIT menu will switch to that of the selected port. In addition, if you switch to the video display while the EDIT menu is active, pressing the DISPLAY button again will return you to the EDIT menu.

EDIT Menu Modes and Operations

The EDIT menu operates in one of two modes: Playlist edit mode or Playlist playback mode.

Playlist edit mode

Register or remove subclips and edit the Playlist in this mode. An orange frame appears around the playback information display area. Operations for copying a portion of a file are also performed in Playlist edit mode.

Switching from Playlist playback mode to Playlist edit mode

Press the EXECUTE button while holding down the STOP button to close Playlist playback.

Registering subclips to the Playlist

- 1 Play back a file, and determine the start and end points for the subclip.

Open and close operations for files are identical to those during normal playback.

Include at least 10 frames between the start point and end point. Subclips that consist of less than 10 frames cannot be registered.

- 2 Register the time data of the start point as the IN point by pressing the IN button while holding down the ENTRY button.

- 3 Register the time data of the end point as the OUT point by pressing the OUT button while holding down the ENTRY button.

If a start point is not registered, the start point of the file will be registered as the start point.

If an end point is not registered, the end point of the file will be registered as the end point.

When the time data is registered, the IN and OUT buttons light.



- 4 Move the cursor in the Playlist to the position where you want to register the subclip, and then press the ADD button.

The new subclip will be registered in the position immediately following the subclip selected with the cursor.

You can also register the new subclip in the position immediately preceding the cursor by pressing the ADD button while holding down the SFT button.

Memo

To delete the IN point or OUT point displayed in the playback information display area, press the IN or OUT button while holding down the CLR button.

Removing a single subclip

Use the cursor to select the subclip you want to remove, and press the DELETE button.

Removing all the subclips at one time

Press the DELETE button while holding down the SFT button.

Saving the Playlist to a USB storage device

- 1 Insert the USB storage device into the USB connector in the SRMemory slot section.

Use only one of the USB connectors.

- 2 Press the **[F2]** (USB Memory SAVE) button.

A list of Playlist data stored on the USB storage device appears.

The screenshot shows a list of playlist data on a USB storage device. The list is organized into three columns: File number, Saved data information, and Save date and time. The fourth row is highlighted in orange.

File number	Saved data information	Save date and time
No. 1	PLAY LIST No. 1	09 OCT 2012 13:45
No. 2	-----	-----
No. 3	-----	-----
No. 4	PLAY LIST No. 4	09 OCT 2012 13:45
No. 5	-----	-----
No. 6	-----	-----
No. 7	-----	-----
No. 8	-----	-----

- 1 File number
 - 2 Saved data information (hyphens (-) appear if there is no saved data)
 - 3 Save date and time
- The row selected by the cursor is displayed in orange. Up to eight Playlists can be saved.

- 3 Use the cursor buttons to select the file number to which you want to save, and press the center cursor button.

Note

If you selected a file number to which data is already saved, the data will be overwritten.

- 4 When the confirmation message appears, use the cursor buttons to select [OK] and press the center cursor button.

- 5 When the message indicating that saving is complete appears, press any button.

The message closes.

Memo

- We recommend using USB storage devices formatted in the FAT32 file system.
- The Playlist will be saved to the "SONY\PRO\SRMASTER\R1000" folder on the USB

storage device. Create this folder if it does not already exist. Depending on the condition of the USB storage device, a write error may occur and a message indicating this may appear. Using a computer to create the above folder on the USB storage device beforehand may prevent write errors.

Loading a Playlist from a USB storage device

- 1 Insert the USB storage device into the USB connector in the SRMemory slot section.

Use only one of the USB connectors.

- 2 Press the **[F1]** (USB Memory LOAD) button.

A list of Playlist data stored on the USB storage device appears.

For details on the content of the list display, see the screen in step 2 of “Saving the Playlist to a USB storage device” (page 54).

- 3 Use the cursor buttons to select the file number you want to load, and press the center cursor button.

- 4 When the confirmation message appears, use the cursor buttons to select **[OK]** and press the center cursor button.

The Playlist of the selected file number is loaded.

- 5 When the message indicating that loading is complete appears, press any button.

The message closes.

Notes

- If you load a Playlist that was created in a signal format that differs from the output port, you will not be able to switch to Playlist playback mode. If you attempt to switch modes, a message asking you to check the signal format will appear.
- If the system frequency is 29.97 Hz, the drop frame setting of the port will change to the drop frame setting stored on the Playlist that was loaded.

Opening a referenced file from a subclip registered to the Playlist

- 1 Use the cursor to select the subclip you want to open, and press the center cursor button.

The original file being referenced by the selected subclip opens, starting at the IN point.

Memo

You can also open the file by pressing the **PLAY** button after using the cursor to select the subclip you

want to open. In this case, the file will open at the start point of the original file.

Copying a portion of a file

- 1 Specify the start and end points for the portion you want to copy.

For details on specifying, see “Registering subclips to the Playlist” (page 54).

- 2 Press the **[F5]** (P.COPY) button.

- 3 Follow the instructions in the message that appears, and select the copy destination SRMemory card.

- 4 Follow the instructions in the message that appears, and select **[OK]** using the center cursor button.

The message closes, Playlist edit mode returns, and copying starts.

A status bar appears to indicate the copying progress. To cancel copying, press the **[F5]** button again.

Memo

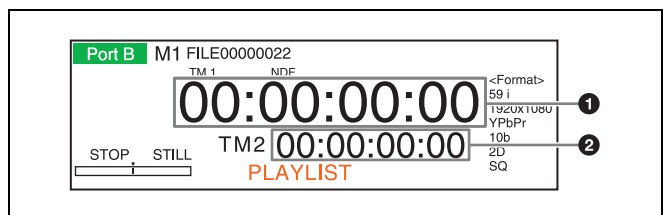
To increase the speed of the copying, close the opened file after Playlist edit mode returns in step 4. (You can close the file by pressing the **EXECUTE** button while holding down the **STOP** button.)

Notes

- The start point of the new file created as a result of copying may be earlier than the start point you specified. As calculated in time data, the start point may be off by up to 9 frames.
- You cannot switch to Playlist playback mode while copying is in progress.

Playlist playback mode

Playback mode refers to the state in which the Playlist is being played back. An orange frame appears around the Playlist information display area, and “PLAYLIST” appears in the playback information display area.



- 1 Playback information display area (time data row 1)

If **TC** or **UB** is selected with **[F10]** (TM SEL), the time code information of the file being referenced by the subclip is displayed.

If TM1 or TM2 is selected with **[F10]** (TM SEL), the time data that indicates the playback position of the Playlist is displayed.

2 Playback information display area (time data row 2)

TM2 is displayed regardless of **[F10]** (TM SEL).

Memo

- Variable speed playback operations identical to those during normal playback are possible in Playlist playback mode.
- The cursor in the Playlist information display area will move to the subclip that contains the current playback position.

Switching from Playlist edit mode to Playlist playback mode

Press the EXECUTE button.

The Playlist opens in a stop state at the start point.

Note

You cannot switch to the playback mode if there are no subclips registered to the Playlist.

Jumping between start points of subclips

Press the NEXT or PREV button.

The playback state after jumping is determined by the **[F4]** (NXT/PRV) setting.

Jumping to the end of the Playlist

Press the NEXT button while holding down the PLAY button.

Menus related to Playlist playback

Button	Setting
[F3] (LOOP)	<p>Selects whether to enable repeat playback. This can be configured individually for each output port.</p> <p>Off: Disables repeat playback.</p> <p>On: Enables repeat playback. Returns to the start of the same Playlist and plays on repeat when the Playlist is played to the end. Returns to the end of the Playlist from the start when played in the opposite direction.</p> <p>Notes</p> <ul style="list-style-type: none"> • This setting can only be changed in Playlist edit mode. • This setting resets to [Off] at unit startup. • The maximum repeat playback duration in regards to the TM2 time data is about 24 hours from 00:00:00:00 (23:58:33:17 when the system frequency is 29.97 Hz).

Button	Setting
[F4] (NXT/PRV)	<p>Selects the playback state that occurs after jump operations. This setting applies to all output ports.</p> <p>Stop: Stop state after jump.</p> <p>Play: Play state after jump.</p> <p>In addition to NEXT and PREV button operations, this setting applies to [F9] (TM SET) jumps as well.</p> <p>Note</p> <p>This setting resets to [Stop] at unit startup.</p>
[F6] (FEED)	<p>Selects whether to play back files recorded at 50i×2 or 59i×2 at actual speed. This setting is ignored for normal playback of files not recorded at double speed.</p> <p>On: Plays back at actual speed.</p> <p>Off: Plays back at slow speed.</p> <p>Note</p> <p>When set to “On,” files recorded at 50i or 59i will play back at double speed when playing back a Playlist.</p>
[F9] (TM SET)	<p>Jumps to a position based on the TM2 time data.</p> <p>When you press the button and change the display to “Exit,” row 2 of the time data display in the playback information display area turns orange, allowing you to specify a value.</p> <p>Use the numeric buttons to specify the value and press the EXECUTE button, and playback will jump to the specified position.</p>

Playlist Operations while the Input and Output Ports are Synchronized

Be aware of the following when using the sync function for input/output ports (*see Chapter 3*) and the Playlist function at the same time.

- Configure the sync mode (ALT/**[F1]** (SYNC) in the HOME menu) before using the Playlist function. Do not change the sync mode while using the Playlist function.
- If the sync mode is changed to “P&File,” all the subclips registered to the Playlist will be deleted. When changing the sync mode, save the Playlist to a USB storage device beforehand if necessary.
- Playlist function operations may differ depending on the sync mode. For details, see “*Sync mode specifications*” (*page 38*).

Drop Frame Settings (DF/NDF) for the Playlist

When the system frequency is 29.97 Hz, configure the DF/NDF setting for the time data before starting creation of the Playlist, and do not change the DF/NDF setting while

using the Playlist function. If you change the DF/NDF setting of a port that is using the Playlist setting, all the registered subclip data for the Playlist of that port will be deleted.

Transferring Subclips

You can transfer subclips for a Playlist by operations via an FTP connection.

If a Playlist has been opened, establishing an FTP connection between the unit and a computer displays the Playlist directory displayed directly beneath this unit, and the individual subclips are displayed directly beneath the directory as MXF files. You can transfer the MXF files to the computer using FTP commands.



Menu Items

Chapter

6

This unit has the following menus to enable a number of settings.

HOME menu: Sets the basic operation modes for recording and playback.

TC menu: Makes time code settings.

VIDEO menu: Adjusts video signals.

AUDIO menu: Adjusts audio signals.

SETUP menu: Saves and recalls settings and sets unit operation settings.

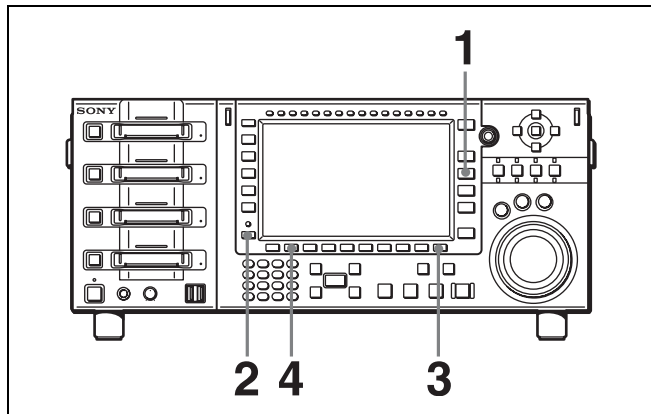
Menu Operating Procedures

Each menu screen can be displayed by pressing the corresponding menu selection button. Menu items are assigned to function buttons (F1 to F10) in each menu. Press the ALT button to display a separate screen containing separate menu items for function buttons F1 to F10.

Some menus also have submenus. Select a submenu to open a submenu screen; submenus are registered in the function menu.

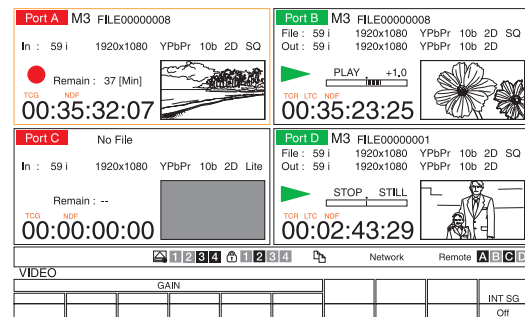
The menu items include operations and settings for the overall unit and settings for each port. To access menu items for each port, press a Port Select button to select a port and then select a menu.

For example, do as follows to change the F2 (SCAN) button setting of the ALT/F10 (PORT CONFIG) button submenu in the VIDEO menu.



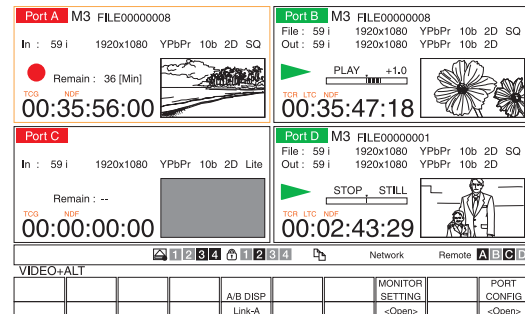
- 1 Press the VIDEO button.

The VIDEO menu screen appears.



- 2 Press the ALT button.

A separate VIDEO menu screen appears.

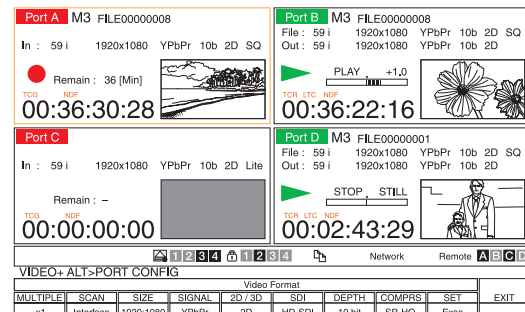


To return to the first page

Press the ALT button again.

- 3 Press the F10 (PORT CONFIG) button.

The PORT CONFIG button submenu appears.



- 4 Press the **[F2]** (SCAN) button to change the setting.

Each press of the button changes the setting.

The menu items include settings for the overall unit and settings for each port. With the settings for the ports, different settings can be applied to each port. Make the settings for each port when the port to be set is selected. The settings for an input port and output port are only valid when the corresponding ports are selected.

Saving Settings

You can store up to 8 sets of unit settings in the user banks along with title. Overall unit settings, input port settings, and output port settings are separately stored.

Saving in the user banks

- 1 Press the SETUP button.
- 2 Press the **[F1]** (USER BANK) button.
- 3 Press one of the following buttons depending on the settings you want to save.

Overall unit settings: **[F4]** (SYSTEM SAVE) button

Output port settings: **[F5]** (PB PORT SAVE) button

Input port settings: **[F6]** (REC PORT SAVE) button

- 4 Press one of the **[F1]** (BANK1) to **[F8]** (BANK8) buttons to select the bank in which to store.

Recalling settings from the user banks

- 1 Press the SETUP button.
- 2 Press the **[F1]** (USER BANK) button.
- 3 Press one of the following buttons depending on the settings you want to recall.

Overall unit settings: **[F1]** (SYSTEM RECALL) button

Output port settings: **[F2]** (PB PORT RECALL) button

Input port settings: **[F3]** (REC PORT RECALL) button

- 4 Press one of the **[F1]** (BANK1) to **[F8]** (BANK8) buttons to select the bank to be recalled.

Memo

Press **[F1]** (SYSTEM RECALL) as per step **3** and then press the **[F9]** (FACTORY) key to restore the factory default settings.

Detailed Menu Description

HOME Menu

The HOME menu allows you to set the basic operation modes for recording and playback.

Settings in the Setting column are the values that appear in the menu display section of the screen. Underlined values are the factory default settings.

The Target column displays the following data.

Unit: Settings for the overall unit

In: Settings for the input ports

Out: Settings for the output ports

I/O: Settings for the input/output ports

Button	Indication	Setting	Target
[F2]	FREEZE	Outputs a still picture (the picture that was playing just before the button was pressed). Select the field or frame that specifies the still picture with the ALT/[F2] (FRZ MODE) buttons in the SETUP menu. (see page 45)	Out
[F3]	REF SEL	Selects the signal to be the reference for operation of the unit. Ext: Forces the reference signal to be external. Input A, Input B, Input C, and Input D: Uses the signal from the HD SDI INPUT connector of ports A to D as the reference signal.	Unit
[F4]	EXT REF	Sets whether the reference signal is an HD signal or SD signal when using an external reference signal. HD SD	Unit
[F5]	MON(L)	Selects the audio channel output from the MONITOR OUTPUT L connector. (see page 48) After pressing the button, use the channel selection buttons to select channels 1 to 16.	I/O
[F6]	MON(R)	Selects the audio channel output from the MONITOR OUTPUT R connector. (see page 48) After pressing the button, use the channel selection buttons to select channels 1 to 16.	I/O
[F8]	9PIN	Turn this On to enable the unit to be controlled from a device connected to a REMOTE connector. On Off	I/O
[F9]	25 PIN	When set to On, the unit can be controlled from devices connected to the GPIO connector. On Off	Unit, I/O
ALT/[F1]	SYNC	Selects whether to synchronize input ports and output ports. Off: The ports are not synchronized. Port: Basic operations are synchronized between all output ports and between all input ports. P&File: Basic operations are synchronized between two output ports. In configurations that consist of two inputs and two outputs, the basic operations are also synchronized between the two input ports. Files recorded from input ports synchronized in this mode can be opened (played back) in pairs. <i>For details on sync operations, see "Synchronizing the Input and Output Ports" in Chapter 3.</i>	Unit, I/O
ALT/[F3]	CONTINU	Selects the operation mode for continuous playback. (see page 45) Off: Files are not played continuously. File Rpt: Files are played on repeat. List: The file list is played continuously. List Rpt: The file list is played on repeat.	Unit

Button	Indication	Setting	Target
ALT/[F4]	FEED	<p>Selects whether to play back files recorded at 50i×2 or 59i×2 at actual speed. This setting is ignored for normal playback of files not recorded at double speed.</p> <p>On: Plays back at actual speed. Off: Plays back at slow speed.</p> <p>Note When set to “On,” files recorded at 50i or 59i will play back at double speed when playing back a Playlist.</p>	Out
ALT/[F5]	F.SHTL	<p>Selects whether to play back in jog/variable mode at high speed. The maximum speed is configured using the [F2] (PANEL SETTING) - [F6] (JOG MAX) buttons in the SETUP menu.</p> <p>On: Plays back in jog/variable mode at high speed. Off: Does not play back in jog/variable mode at high speed.</p>	Out
ALT/[F8]	PREROLL	<p>Sets the preroll time. This can be set in 1 second increments.</p> <p>To make the setting, press the ALT/[F8] buttons, use the cursor buttons or MULTI CONTROL knob to set the value, and then press the ALT/[F8] buttons again.</p> <p>0 to 5 sec to 30 sec</p>	Unit
ALT/[F9]	REC INHI	<p>Sets record inhibit mode.</p> <p>Off: Enables recording. All: Setting record/delete/flag is inhibited for all SRMemory cards.</p> <p>When “All” is set, the numbers of all slots is displayed in red on the right side of the write-protect mark on the status bar.</p>	Unit

Button	Indication	Setting	Target
ALT/ [F10]	REMOTE CONFIG	Makes advanced settings regarding Remote control.	Unit
[F1]	REMOTE SLOT	Sets association between Remote (9P) connectors and SRMemory card slots. Selects the relevant slot when executing commands in a form not specifying a slot. Slot1: Associates slot M1. Slot2: Associates slot M2. Slot3: Associates slot M3. Slot4: Associates slot M4.	Unit
[F1]	9PIN 1	Sets REMOTE (9P) -1 association	Unit
[F2]	9PIN 2	Sets REMOTE (9P) -2 association	Unit
[F3]	9PIN 3	Sets REMOTE (9P) -3 association	Unit
[F4]	9PIN 4	Sets REMOTE (9P) -4 association	Unit
[F10]	EXIT	Returns to the original menu.	–
[F2]	REMOTE PROTCL	Selects the protocol to be used for each Remote (9P) connector. VTR/Disk: Sony VTR protocol and Sony Disk protocol VDCP: VDCP protocol Odetics: Odetics protocol	Unit
[F1]	9PIN 1	Sets REMOTE (9P) -1 protocol	Unit
[F2]	9PIN 2	Sets REMOTE (9P) -2 protocol	Unit
[F3]	9PIN 3	Sets REMOTE (9P) -3 protocol	Unit
[F4]	9PIN 4	Sets REMOTE (9P) -4 protocol	Unit
[F10]	EXIT	Returns to the original menu.	–
[F3]	REMOTE FILELIST	Selects return information for file information sense commands made with each Remote (9P) connector. All: All file information Playable A: Information on files playable in port A Playable B: Information on files playable in port B Playable C: Information on files playable in port C Playable D: Information on files playable in port D Editable A: Information on files that can be switched smoothly during playback in port A. Editable B: Information on files that can be switched smoothly during playback in port B. Editable C: Information on files that can be switched smoothly during playback in port C. Editable D: Information on files that can be switched smoothly during playback in port D. Only ports running as output ports can be selected.	Unit
[F1]	9PIN 1	Sets REMOTE (9P) -1 return information	Unit
[F2]	9PIN 2	Sets REMOTE (9P) -2 return information	Unit
[F3]	9PIN 3	Sets REMOTE (9P) -3 return information	Unit
[F4]	9PIN 4	Sets REMOTE (9P) -4 return information	Unit
[F10]	EXIT	Returns to the original menu.	–
[F10]	EXIT	Returns to the original menu.	–

TC Menu

The TC menu allows you to set all of the items related to time codes from a single menu.

Button	Indication	Setting	Target
[F1]	TCG SRC	Selects whether to synchronize the internal time code generator with the external signal. (see page 29) preset ext-LTC SDI-LTC SDI-VITC	In
[F2]	REGENE	Selects the signal to regenerate when the time code generator is in regenerate mode. TC & UB: Regenerates both the time code signal and user bit signal. TC: Regenerates only the time code signal. UB: Regenerates only the user bit signal.	In
[F3]	RUN	Selects the running mode of the time code generator. Free: The time code advances when the power is on regardless of the unit's operation mode. Rec: The time code advances only during recording.	In
[F4]	DF/NDF	Selects the drop frame mode of the time code generator or timer counter. DF: Drop frame mode NDF: Non-drop frame mode Notes <ul style="list-style-type: none"> This setting is only enabled when the frame frequency of the unit is 29.97 Hz or 59.94 Hz. This setting is only valid when [F1] (TCG SRC) is set to "preset." 	I/O
[F5]	TM SEL	Selects the time data to display on the display. To switch between VITC and LTC, press the [F10] (TCR SEL) button. (see page 29) TC UB TM1 TM2	I/O
[F7]	TM RESET	Resets the time counter.	I/O
[F8]	TM SET	Inputs time data. (see page 29)	I/O
[F9]	TM HOLD	The time counter is temporarily stopped while the button is pressed.	Out
[F10]	TCR SEL	Sets the value read by the time code reader. LTC VITC	Out
ALT/[F2]	TC CONV	Sets time code conversion when playing files recorded in a different frame frequency. (see page 30)	Out
[F1]	STRT TC	Sets the Starting TC when converting the time code.	Out
[F2]	ENTRY	Sets the current Original time code as the Starting TC when converting time codes.	Out
[F3]	JUMP TC	Sets a midway point when the time code is being converted in a positive or negative direction based on the Starting TC.	Out
[F4]	CONV	Sets whether to convert the time code. Off: Does not convert the time code. On: Converts the time code.	Out
[F10]	EXIT	Returns to the original menu.	–

Button	Indication	Setting	Target
ALT/[F3]	TC OUT	Sets the time code that is output from the TIME CODE OUT connector during recording when the internal time code generator is set to a mode for regenerating the playback time code. Through: Outputs the time code signal input from the TIME CODE IN connector as is. Regene: Regenerates the time code signal input from the TIME CODE IN connector before outputting it.	In
ALT/[F4]	TM DISP	Sets whether TM1 is in 12-hour display mode or 24-hour display mode. Note When ±12H is set, the tens digit of the hours value is dropped. +–12H 24H	I/O
ALT/[F5]	TC2 SEL	Sets whether to use two lines for the time code display section and selects the time code type for 2nd line when the screen is one-port display. For input ports: Off: No value display on the 2nd line TCG: Value generated by the time code generator when recording TM1: Time counter value that can be preset TM2: Time counter value for which the beginning of the file is 0 UBG: User bit value generated by the time code generator during recording For output ports: Off: No value displayed on the 2nd line LTC: LTC value read by the time code reader VITC: VITC value read by the time code reader TM1: Time counter value that can be preset TM2: Time counter value for which the beginning of the file is 0 UBR: User bit value (LTC) read by the time code reader UBV: User bit value (VITC) read by the time code reader ORG LTC: LTC value read by the time code reader before conversion ORG VITC: VITC value read by the time code reader before conversion	I/O
ALT/[F7]	CHAR SET	Sets the time code and other character information to superimpose on the signal output from the SD/HD SDI MONITOR connector. (see page 32)	I/O
[F1]	POSITION	Allows you to set the display position of character information with the cursor buttons.	I/O
[F2]	SIZE	Sets the display size of character information. Small Medium	I/O
[F3]	INFO SEL	Sets the character information content for when ALT/[F10] (CHAR ON) is set to On. Time (Timedata Only): Timer counter display information only T&V (Timedata & VITC): Timer counter display information and VITC (only output ports can be set) T&T1 (Timedata & TM1): Timer counter display information and TM1 T&T2 (Timedata & TM2): Timer counter display information and TM2 T&UB (Timedata & UBIT): Timer counter display information and user bits T&UBG for input ports and T&UBR for output ports. T&sta (Timedata & Status): Timer counter display information and operation status T&Org (Timedata & Original): Converted time code timer counter display information and original time code before conversion (only output ports can be set) T&Audio (Timedata & Audio Level): Timer counter display information and audio level display	I/O
[F4]	TYPE	Sets the background of character information. Outl (Outline): White characters with black outlines Trnsl (Translucent): White characters on a gray screen background w/oBG (Without BG): White characters with no background w/BG (With BG): White characters on a black background	I/O
[F5]	SUB STAT	Selects information to be displayed in addition to characters. Off: Not added. Remain: Displays remaining memory. (can only be set with input ports) File Name: Displays file name.	I/O

Button	Indication	Setting	Target
[F6]	WARNING	Sets whether to display a flashing warning message on the second line when an item other than "Time" is selected with [F3] (INFO SEL). Off On	I/O
[F10]	EXIT	Redisplays the previous menu.	–
ALT/[F9]	META SET	Sets uncompressed metadata.	I/O
[F1]	LINE1	Sets from which lines to acquire the uncompressed metadata. In 1080 59.94i, 1080 50i, 23.98P/24P mode: 9H to 16H or 18H to 20H In 720 59.94P, 720 50P mode: 9H to 16H or 18H to 25H	In
[F2]	LINE2		
[F3]	LINE3		
[F10]	EXIT	Redisplays the previous menu.	–
ALT/[F10]	CHAR ON	Sets whether to superimpose the characters representing the time data and operation status on the signal output from the SD/HD SDI MONITOR connector. (see page 32) Off On	I/O

VIDEO Menu

The VIDEO menu allows you to adjust video signals.

Button	Indication	Setting	Target
[F1]	MASTER	Simultaneously adjusts the Y, PB, and PR levels of the HD video signal output via the SD/HD SDI OUT connectors. (see page 50) 0.0 to 100% (4000H) to 141.3% (5A70H)	Out
[F2]	Y	Adjusts the Y level of the HD video signal output via the SD/HD SDI OUT connectors. (see page 50) 0.0 to 100% (4000H) to 141.3% (5A70H)	Out
[F3]	PB	Adjusts the Pb level of the HD video signal output via the SD/HD SDI OUT connectors. (see page 50) 0.0 to 100% (4000H) to 141.3% (5A70H)	Out
[F4]	PR	Adjusts the Pr level of the HD video signal output via the SD/HD SDI OUT connectors. (see page 50) 0.0 to 100% (4000H) to 141.3% (5A70H)	Out
[F5]	SETUP	Adjusts the setup level of the HD video signal output via the SD/HD SDI OUT connectors. (see page 51) –10% to 0.0% to 10.0%	Out
[F6]	BLK LV	Adjusts the black level of the HD video signal output via the SD/HD SDI OUT connectors. (see page 51) –31.0% to 0% to 31.0%	Out
[F7]	CRM PH	Adjusts the chroma phase of the HD video signal output via the SD/HD SDI OUT connectors. (see page 51) –127 to 0 to 127	Out
[F8]	SYNC PHASE	Adjusts the sync phase of the HD video signal output via the SD/HD SDI OUT connectors. (see page 51)	Out
[F8]	SYNC	Roughly adjusts the sync phase. –128 to 0 to 127	Out
[F9]	FINE	Finely adjusts the sync phase. 0 to 1024	Out
[F10]	EXIT	Redisplays the previous menu.	–

Button	Indication	Setting	Target
[F9]	DOWN CONVERT	Allows you to configure down converter settings.	Out
[F1]	MODE	Selects the down converter mode. EdgeCrop: Edge crop mode. L.Box: Letterbox mode. Squeeze: Squeeze mode.	Out
[F10]	EXIT	Returns to the original menu.	–
[F10]	INT SG	Sets the type of signal output from the internal signal generator. Off: No signal is output from the internal signal generator. CB100: COLOR BARS (100%) CB75: COLOR BARS (75%) SMPTE: SMPTE COLOR BARS ARIB: ARIB COLOR BARS MB1: MULTI BURST 1 MB2: MULTI BURST 2 10STEP: 10 STEPS PBAR: PULSR & BAR RAMP: RAMP Black: Black	In
ALT/[F1]	OUT BLNK	Turns on or off vertical interval blanking processing of the HD video signals output via the SD/HD SDI OUT connectors. Through: Does not perform blanking processing. Blank: Performs blanking processing.	Out
ALT/[F3]	YADD	Sets whether to forcibly turn off Y add. Auto Off	Out
ALT/[F4]	A/B SWP	Selects whether to swap LINK A signal and LINK B signal for output when playing back a 3D signal. On: Outputs swapped LINK A and LINK B signals. Off: Outputs LINK A and LINK B signals as-is.	Out
ALT/[F5]	A/B DISP	Sets whether to display the video for the left or right when displaying 3D video signals on the display. Link-A Link-B Monitor: Performs the same operation as the ALT/[F8] (MONITOR SETTING) – [F1] (DUAL) setting in the VIDEO menu.	I/O
ALT/[F6]	VPID SEL	Selects VPID to be multiplexed with the HD SDI output in 3D mode. Dual: Uses as two separate sets of signals. 3D: Uses as 3D signals.	Out

Button	Indication	Setting	Target
ALT/[F8]	MONITOR SETTING	Sets the settings for monitor output in 3D mode.	I/O
[F1]	DUAL	<p>Sets the monitor output for 3D mode.</p> <p>Link-AB: Outputs each of the LINK-A signal (the signal input from the HD SDI INPUT A connector) and LINK-B signal (the signal input from the HD SDI INPUT B connector) in the same way as with main output.</p> <p>Link-BA: Outputs with LINK-A and LINK-B interchanged in relation to the main output.</p> <p>Note When this item is set to any of the following, the same signal is output for LINK A output and LINK B output.</p> <p>Link-A: Outputs the LINK-A signal.</p> <p>Link-B: Outputs the LINK-B signal.</p> <p>Split-AB: Splits the screen into two and outputs the LINK-A signal to the left screen and the LINK-B signal to the right screen.</p> <p>Split-BA: Splits the screen into two and outputs the LINK-B signal to the left screen and the LINK-A signal to the right screen.</p> <p>FSq-AB: Outputs the LINK-A signal to the 1st field and the LINK-B signal to the 2nd field.</p> <p>FSq-BA: Outputs the LINK-B signal to the 1st field and the LINK-A signal to the 2nd field.</p> <p>SxS-AB: Splits the screen into two and then reduces the width of the LINK-A signal by half and outputs it to left screen and reduces the width of the LINK-B signal by half and outputs it to the right half.</p> <p>SxS-BA: Splits the screen into two and then reduces the width of the LINK-B signal by half and outputs it to left screen and reduces the width of the LINK-A signal by half and outputs it to the right half.</p>	I/O
[F2]	BORDER	<p>Selects whether to display a dividing line on the screen when the unit is set to split the screen into two and output the signals to the monitor during 3D mode.</p> <p>Off On</p>	I/O
[F3]	BD LEVEL	<p>Sets the brightness level of the dividing line on the screen when the unit is set to split the screen into two and output the signals to the monitor during 3D mode.</p> <p>1 to 8 to 127</p>	I/O
[F4]	BD SLOPE	<p>Selects whether the dividing line is sloped on the screen when the unit is set to split the screen into two and output the signals to the monitor during 3D mode.</p> <p>Off On</p>	I/O
[F5]	BD POS	<p>Sets the position of the dividing line on the screen when the unit is set to split the screen into two and output the signals to the monitor during 3D mode.</p> <p>-480 to 0 to 480</p>	I/O
[F10]	EXIT	Redisplays the previous menu.	-
ALT/[F9]	FORMAT CONVERT	Sets format conversion operations.	Out
[F1]	BLK CLIP	<p>Selects whether to restrain signals with a lower level than black level (040H) when converting from 4:4:4 to 4:2:2.</p> <p>Off On</p>	Out
[F10]	EXIT	Returns to the original menu.	-

Button	Indication	Setting	Target
ALT/ [F10]	PORT CONFIG	Sets the input/output signals of the input/output ports. Note For details on how to switch the signal format of the output ports, see “Switching the Signal Format (HD/SD) of the Output Ports” in the Appendix.	I/O
[F1]	MULTIPLE	Sets double speed input. x1 : Input speed × 1 x2 : Input speed × 2 When x2 is selected, no audio will be recorded on the audio track.	In
[F2]	SCAN	Sets the scanning method. Interlace PsF p : Progressive 50P/59P	I/O (HD only)
[F3]	SIZE	Sets the resolution. 1280 : 720 1920 : 1080 2048 : 1080	I/O (HD only)
[F4]	SIGNAL	Sets the sampling rate of video signals. YPbPr RGB XYZ	I/O (HD only)
[F5]	2D/3D	Sets 2D/3D operation. 2D 3D When 3D is selected for an output port that is set to SD signal output, the video signals output from OUT1 and OUT2 will be the same as the monitor output.	I/O
[F6]	SDI	Sets the format of SDI signals. HDSDI : 1.5G SDI 3GSDI(A) : 3G SDI Level A 3GSDI(B) : 3G SDI Level B	I/O (HD only)
[F7]	DEPTH	Sets the bit length of input/output signals. 10bit 12bit	I/O (HD only)
[F8]	COMPRS	Sets the compression mode. SR-Lite SR-SQ SR-HQ	In
[F9]	SET	Applies the settings.	I/O
[F10]	EXIT	Redisplays the previous menu.	–

AUDIO Menu

The AUDIO menu allows you to adjust audio signals.

Button	Indication	Setting	Target
[F1]	AUD IN (ch1 to 16)	Selects the input signal for each audio channel. (see page 48) SDI : Selects the signal input to the HD SDI INPUT A connector. A/E : Selects the signal input to the DIGITAL AUDIO INPUT (AES/EBU) connector.	In
[F2]	METER	Switches the display range of the audio level meters between FULL and FINE. Full : The audio level meter display is from –60 dB to 0 dB, or –40 dB to +20 dB. Use the ALT/[F10] – [F1] (SCALE) menu item to set which range (peak level: 0 dB or +20 dB) to display. Fine : The audio level meter display range is expanded, and the signal level is indicated by a scale with 0.25 dB steps.	I/O
[F7]	SHTL AUD	Sets whether to disable the audio signal output during shuttle playback. PB : Turns muting off. Muting : Turns muting on.	Out

Button	Indication	Setting	Target
[F9]	MON MIX	Sets the method for mixing the digital audio output via the AUDIO MONITOR OUTPUT L/R connectors. add: Simple addition rms: Geometric mean ave: Simple average	I/O
[F10]	INT SG	Selects the operation of the internal audio test signal generator. off: Turns off operation of the audio test signal generator. silence: Silence signal 1 kHz: 1 kHz sine wave (In this case, a 1 kHz, –20 dB sine wave is supplied to all audio inputs.)	In
ALT/[F2]	NON-AUD	Selects a non-audio input signal. The setting is in units of stereo pairs. (see page 49) When this is set to other than “off,” the setting of AUDIO INPUT select is disabled. A/E: Selects the signal input to the DIGITAL I/O (AES/EBU) INPUT connector as a data input. HD SDI: Selects the signal input to the HD SDI INPUT A connector as a data input. off: Treats input as audio. Select the input signal in AUD IN select.	In
ALT/[F3]	OUT PH	Sets the output timing for the digital audio playback signal (SDI and AES/EBU only). The 128 setting specifies the reference position. A setting lower than 128 advances the output timing, and a setting higher than 128 delays the output timing. (128 samples = approx. 2.7 ms, 1 sample = approx. 20 µs) 0 to 128 to 255 samples	Out
ALT/[F4]	CH EXCHG	Sets the relation between the digital signals (audio multiplexed with HD SDI and AES/EBU-format audio) assigned to channels 1 to 16, and recording/playback track. This menu setting is ignored for non-audio channels. ch1 to ch16	I/O
ALT/[F5]	A/E IN	Selects whether to pass the signals input to the DIGITAL AUDIO INPUT (AES/EBU) connector through the sampling rate converter. Auto: Passes the input signals through the sampling rate converter. In this case, there are no limitations on input signals. Vlock: Does not pass the input signals through the sampling rate converter. In this case, the input signals need to be locked to video signals at 48 kHz. Noise will occur if this condition is not met.	In
ALT/[F9]	MON PH	Selects video signals as the signals output timing standard for the AUDIO MONITOR OUTPUT L/R connectors. Default: Input signal for input ports ¹⁾ Output signal for output ports Select: Monitor signal output to input ports’ Multi Monitor connectors ²⁾ Quad: Multi Monitor output “Quad” for output port D ³⁾ LCD: Multi Monitor output “LCD” for output port D ³⁾ 4) Does not affect ALT/[F3] (OUT PH) in the AUDIO menu. 1) Audio signal is a few milliseconds late. 2) Can be set in the input port. 3) See [F8] (MULTI MONITOR) > [F1] (MODE) in the SETUP menu. 4) Output so that the average phase difference is kept to a minimum because LCD signal images may be skipped/duplicated in frames.	I/O
ALT/[F10]	AUDIO SETTING	Sets other settings.	I/O
[F1]	SCALE	Sets the mode for displaying digital audio levels. Peak0: Displays minus audio levels with the maximum level set to 0 dB. Ref0: Displays plus/minus audio levels with the reference level set to 0 dB.	I/O
[F10]	EXIT	Redisplays the previous menu.	–

EDIT Menu

The EDIT menu is a menu related to output ports. For details, see “Chapter 5 Playlist Creation and Playback” .

Button	Indication	Setting	Target	
[F1]	USB Memory	LOAD	Loads a Playlist from a USB storage device. (disabled during Playlist playback mode)	Out
[F2]		SAVE	Saves the Playlist to a USB storage device.	Out
[F3]	LOOP	<p>Selects whether to enable repeat playback for the Playlist.</p> <p>Off (setting at startup): Disables repeat playback.</p> <p>On: Enables repeat playback.</p> <p>This setting can only be changed in Playlist edit mode.</p>	Out	
[F4]	NEXT/PRV	<p>Selects the Playlist playback state that occurs after jump operations.</p> <p>Stop (setting at startup): Stop state.</p> <p>Play: Play state.</p>	Unit, Out	
[F5]	P.COPY	Copies a portion of the file playing back.	Out	
[F6]	FEED	<p>Selects whether to play back files recorded at 50i×2 or 59i×2 at actual speed. This setting is ignored for normal playback of files not recorded at double speed.</p> <p>On: Plays back at actual speed.</p> <p>Off: Plays back at slow speed.</p> <p>Note</p> <p>When set to “On,” files recorded at 50i or 59i will play back at double speed when playing back a Playlist.</p>	Out	
[F7]	TIMER	<p>Selects the type of time code used to display IN points and OUT points when creating a Playlist.</p> <p>TC</p> <p>TM2</p>	Unit	
[F8]	DURATION	<p>Selects the duration display item in the Playlist information.</p> <p>Clip (setting at startup): Displays the duration of the single subclip.</p> <p>Total: Displays the duration from the start of the Playlist to the end of the subclip.</p>	Unit, Out	
[F9]	TM SET	<p>Jumps to a position based on the TM2 time data during Playlist playback.</p> <p>This setting is only available during Playlist playback mode.</p> <p>Change the display to “Exit,” use the numeric buttons to enter a jump position, and press the EXECUTE button.</p>	Out	
[F10]	TM SEL	<p>Selects the time data to display.</p> <p>TC</p> <p>UB</p> <p>TM1</p> <p>TM2</p>	Out	

SETUP Menu

Button	Indication	Setting	Target
[F1]	USER BANK	Saves or recalls menu settings. (see page 59)	Unit
[F1]	SYSTEM RECALL	Recalls overall unit settings from the user banks.	Unit
[F2]	PB PORT RECALL	Recalls output port settings from the user banks.	Out
[F3]	REC PORT RECALL	Recalls input port settings from the user banks.	In
[F4]	SYSTEM SAVE	Stores overall unit settings in the user banks.	Unit
[F5]	PB PORT SAVE	Stores output port settings in the user banks.	Out
[F6]	REC PORT SAVE	Stores input port settings in the user banks.	In
[F10]	EXIT	Redisplays the previous menu.	–

Button	Indication	Setting	Target
[F2]	PANEL SETTING	Sets the settings for panel operation.	Unit
[F1]	BEEP KEY	Turns on or off the click sound emitted during panel operation. On Off	Unit
[F2]	BEEP ALARM	Turns on or off the alarm sound when an error occurs. On Off	Unit
[F3]	REF ALRM	Sets whether to display a warning when the video/audio reference signal selected in REF SEL is not present or not in sync with the video input signal. On Off	Unit
[F4]	STOP REC	Selects method to stop recording from the control panel. Simple: Stops recording when the STOP button is pressed. w/ Shift: Stops recording when the STOP button is pressed while holding down the SFT button in the numeric keypad.	Unit
[F6]	JOG MAX	Sets the maximum speed for jog/variable mode playback when F.SHTL is set to "On" using the ALT/[F5] buttons in the HOME menu. x1 x2 x3 x5 x10 x24 x50 x100	Unit
[F7]	DISPLAY SETTING	Sets the settings for the display.	Unit
[F1]	DIMMER	Adjusts the brightness of the display backlight. Level 1 to Level 3 to Level 5	Unit
[F3]	WARN	Sets whether to popup warning messages. Off On	Unit
[F6]	RESIDUAL	Sets what to display in the remaining amount indication for the SRMemory card. Time: Displays the remaining recording time. (Times that are under 10 hours are displayed in minutes, and times that are 10 hours or more are displayed in hours.) Capacity: Displays the remaining amount of memory. Ratio: Displays the remaining amount as a ratio.	Unit
[F10]	EXIT	Redisplays the previous menu.	–
[F10]	EXIT	Redisplays the previous menu.	–
[F3]	LOCAL KEY ENABLE	Sets the buttons that can be operated on the control panel for when remote control mode is enabled for all the ports. Disable: Disables all switches and buttons. Enable: Enables all switches and buttons. Stop: Enables only the STOP button. Lcl map (Local Key Map): Enables the buttons set to Enable in [F4] (MAP).	Unit
[F4]	LOCAL KEY MAP	Sets the settings for the local key map.	Unit
[F1]	STOP	Sets whether each of the switches and buttons can be operated during remote control. Disable Enable	Unit
[F2]	PLAY		Unit
[F3]	REC		Unit
[F4]	JOG		Unit
[F5]	SHTL		Unit
[F6]	VAR		Unit
[F7]	NXT/PRV		Unit
[F8]	EXECUTE		Unit
[F10]	EXIT	Redisplays the previous menu.	–

Button	Indication	Setting	Target
[F5]	KEY INHI	Sets whether to inhibit the button operations for this unit. Off: All buttons are available. On: The button operation inhibit icon appears on the status bar and the editing control section, recording/playback section and search control section are disabled.	Unit
[F6]	EJECT INHIBIT	Inhibits ejection of SRMemory cards from each slot. Off: Does not inhibit ejection of cards. Key Dsabl: Disables the eject button (SRMemory slot area). All Dsabl: Inhibits ejection by the eject button or remote control.	Unit
[F1]	SLOT1		Unit
[F2]	SLOT2		Unit
[F3]	SLOT3		Unit
[F4]	SLOT4		Unit
[F10]	EXIT	Redisplays the previous menu.	–
[F8]	MULTI MONITOR	Sets the video signal output from the port D MULTI MONITOR connectors when that port is the output port.	Unit
[F1]	MODE	Selects the video signal to be output. LCD: Outputs video signal same as the color display in the control panel. Quad: Splits the screen into four and outputs video signals that are fitted into the monitors of each port respectively. (See <i>page 23</i> for screen configuration details)	Unit
[F2]	PORT SEL	Selects whether to display in the Quad screen an orange-colored frame, which indicates the selected port by pressing the PORT SELECT button. Off On	Unit
[F3]	FRAME	Selects whether to enclose each port's screen in the Quad screen in a black frame. Off On	Unit
[F4]	PORT DISP	Selects whether to display the port name in the Quad screen. Off: Does not display On: In the lower center of each port screen, port names (A, B, C, D) are displayed in white text against a red background for input ports and green background for output ports.	Unit
[F5]	REC TALY	Selects whether to enclose the Quad screen's input port screen in a red frame indicating that recording is in progress. Off Auto	Unit
[F6]	PB TALY	Selects whether to enclose the Quad screen's output port screen in a green frame indicating that playback is in progress (PLAY LOCK). Off Auto Playback states apart from PLAY, such as STOP, JOG, VAR, and SHTL, are not displayed.	Unit
[F10]	EXIT	Redisplays the previous menu.	–
[F9]	SYS FRQ	Sets the system frequency. 23.98 24 25 29.97	Unit
[F10]	SET	Applies the setting configured with the [F9] (SYS FRQ) button.	–
ALT/[F1]	PB MODE	Sets the playback mode. Field: Field playback Frame: Frame playback	Unit
ALT/[F2]	FRZ MODE	Specifies the freeze mode and freeze timing for during manual freeze (freeze control with the control panel, REMOTE 1 to 4 (9-pin) connectors, and GPIO (25-pin) connector) or auto freeze. Field1: Freezes the 1st (odd) field. Field2: Freezes the 2nd (even) field. Frame: Freezes in frame mode.	Unit

Button	Indication	Setting	Target
ALT/[F3]	FRZ CTRL	Sets the freeze operation performed by button operation. Moment: Performs the freeze operation only while the button is held down. Latch: Pressing the button performs the freeze operation and pressing the button again cancels the freeze operation.	Unit
ALT/[F4]	ALPHA LV	Sets the output level of ALPHA CHANNEL of LINK B output for during 4:4:4 DUAL LINK output. White: Outputs the white level. Black: Outputs the black level.	Unit
ALT/[F5]	A.MSTR	Records the input audio signal for the specified port on all input ports, when SYNC is set to "Port" or "P&File" using the ALT/[F1] buttons in the HOME menu. Off PortA PortB PortC PortD	Unit
ALT/[F6]	NAMING	Specifies the file naming rule used during recording. Seq: Generates file names using sequential numbers. Time: Generates file names using dates and times. User: Specifies the first four characters (arbitrary) of the file name. The fifth and subsequent characters are generated automatically based on the time of day. The first four characters can be specified for each port. Character selection and entry is performed using the cursor button or MULTI CONTROL knob.	Unit
ALT/[F7]	VIRTUAL	Specifies whether to use virtual volumes. This determines the operation mode of slots M2, M3, and M4. Off: Allows you to use standard SRMemory cards in all slots. On: Allows you to use the SRMemory cards inserted in slots M2, M3, and M4 as a single large storage location (i.e., a virtual volume). <i>For details, see "Virtual Volumes" in Chapter 3.</i>	Unit
ALT/[F9]	ERR DLG	Displays error dialogs on the control panel. Off On	Unit

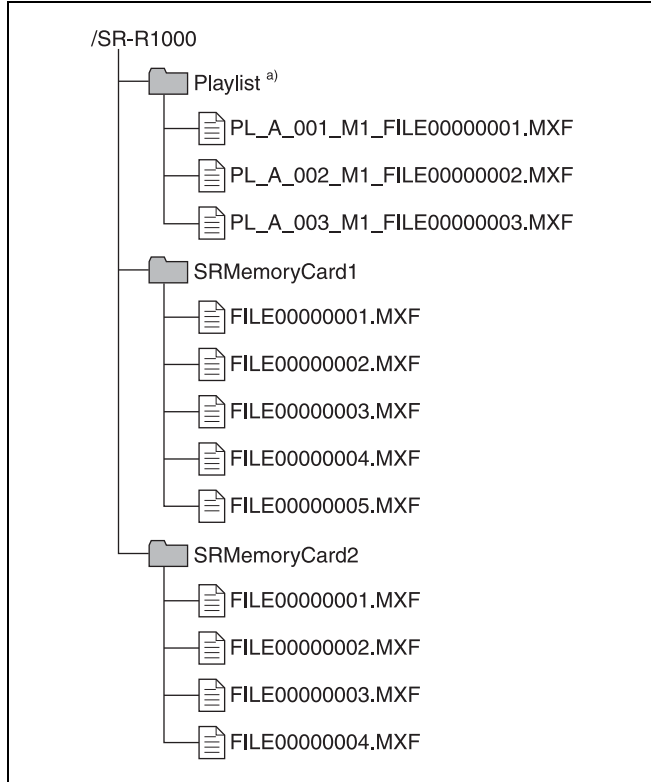
Appendix

FTP File Operations

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

Directory Structure

The following figure shows the directory structure example of the SR-R1000 visible to a remote computer. This figure assumes that the SRMemory cards are inserted in SRMemory slots 1 and 2.



a) Displayed only when a Playlist has been opened. The subclips in the Playlist are displayed as files.

Preparations

- 1 Connect the network connectors of this unit and a remote computer with a network cable. Or connect this unit to the network to which the remote computer is connected.
- 2 Set the IP address and other network setting items for this unit.

For details, see “Network Interface Settings” (page 78).

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 “192.168.000.001”, enter “ftp 192.168.0.1”.

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 “usr1” 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 (“sr-r1000”). The login is complete when the password is verified.

User names and passwords cannot be changed.

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 77*).

Notes

- To execute FTP commands, you must install application software on your computer.
- The commands supported by application software vary.
- Only ASCII characters can be used in file names.

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

Verifies the user name.

Command syntax: USER <SP> <user name> <CRLF>

Input example: USER usr1

PASS

Verifies the password.

Command syntax: PASS <SP> <password> <CRLF>

Input example: PASS sr-r1000

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 the unit, 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 the unit, 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 the unit, 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> <path-name> <CRLF>

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

Input example 1: SRMemoryCard1

Input example 2: FILE00000010.MXF

NLST

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

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

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.

Input example: NLST SRMemoryCard1

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 FILE00000010.MXF

STOR

Copies the MXF files on the computer to the current directory.

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

Input example: STOR FILE00000010.MXF

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.)

Command syntax: RNFR <SP> <path-name (before change)> <CRLF>

RNTO <SP> <path-name (after change)> <CRLF>

Input example: RNFR FILE00000010.MXF

RNTO SCENE100.MXF

DELE

Deletes the specified file on this unit.

Note

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

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

Input example: DELE FILE00000099.MXF

STAT

Sends information about properties of the specified file, or about data transfer status, from this unit to the remote computer.

When you specify the file, the following property information is displayed.

- MXF file
 - File name (extension (.MXF) excluded)
 - Owner name
 - Group name
 - File protection information
 - File type
 - File length (frame count)
 - File size (bytes)
 - File recording date
 - File recording time

- File update date
- File update time
- DF flag (NDF/DF)
- Starting LTC value
- Flag (OK/NG/KEEP)
- System frequency (23/24/25/29)
- Target system frequency (23/24/25/29/50/59)
- Video scan type (Interlace/PsF/Progressive)
- Video pixel count (e.g., 1920 x 1080)
- Video signal type (YPbPr/RGB)
- Video bit depth (10 bit)
- Video codec information
- Video compression mode
- Video 3D flag
- Audio codec and sampling frequency information
- Number of audio channels
- Non-audio information (1 bit x 16 ch)
- Emphasis information (2 bit x 16 ch)
- Recording device information (21:R4, 31:R1, 41:R1000)
- Propriety information for playback and editing

When you specify the storage, the following storage information is displayed.

- Model name of SRMemory card
- Serial number
- Protection information
- Volume label
- Date access started
- Last format date
- Last update date
- Remaining capacity (GB)
- Remaining capacity of the area for generic files (%)

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
- Storage specified: The detailed information of the specified storage
- No specification: RETR transfer progress (%) (for two sessions)

Output example: 211 45 75

Input example 1: STAT FILE0000001.MXF

Input example 2: STAT SRMemoryCard1

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>

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 SRMemoryCard1

CDUP

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

Command syntax: CDUP <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 REPF

Transfers the MXF file in the specified path on this unit to the current directory on the computer.

You can specify a certain section of the body to transfer only the necessary section of the MXF file with this command.

Command syntax: SITE REPF <SP> <path-name> <SP> <start-frame> <SP> <transfer-size> <SP> <Audio ch count> <SP> <Metadata packet addition> <CRLF>

Specify the video frame from which to start the transfer by specifying the offset from the file starting point in <start-frame>. (The starting frame is 0.)

Specify the number of video frames for transfer in <transfer-size>. (To transfer up to the end of the file, specify 0.)

Specify the number of audio channels of the audio data that will be transferred with the video in <Audio ch count>.

Specify whether to add a metadata packet in <Metadata packet addition>. Specify 1 to add a packet, or 0 to not add a packet.

Input example: SITE REPF FILE00000010.MXF 50 200 4 0
This transfers FILE00000010.MXF. The body consists of 200 frames starting from frame 50, audio consists of CH 1 to 4, and a metadata packet will not be added.

SITE MEID

Obtains the ID of a memory card inserted in this unit.

Command syntax: SITE MEID <SP> <memory card slot number> <CRLF>

Input example: SITE MEID SRMemoryCard1

Network Interface Settings

IP addresses and other settings related to the network are configured in the NETWORK SETUP menu of the maintenance menu. This section provides a simple overview. For details, see the Maintenance Manual.

To change the settings in the NETWORK SETUP menu

- 1 While a normal menu (e.g., HOME) is displayed, press the DIAG button while holding down the SFT button.

The MAINTENANCE INFORMATION menu appears.

- 2 Press the [F8] (MAINTENANCE), [F9] (OTHERS CHECK), and then [F3] (NETWORK SETUP) buttons.

The menu display changes with each button, and the NETWORK SETUP menu appears.

The current setting configurations appear on the menu screen.

- 3 Press the parameter button of the setting you want to change.

[F1] (NETWORK1 IP ADRS): IP address of Network 1

[F2] (NETWORK1 SUBNET): Subnet mask of Network 1

[F3] (NETWORK2 IP ADRS): IP address of Network 2

[F4] (NETWORK2 SUBNET): Subnet mask of Network 2

[F5] (NET1/2 GATEWAY): Default gateway of Networks 1 and 2

[F6] (10G NETWORK IP ADRS): IP address of optional 10Gbit network

[F7] (10G NETWORK SUBNET): Subnet mask of optional 10Gbit network

[F8] (10G NETWORK GATEWAY): Default gateway of optional 10Gbit network

[F9] (10G NETWORK MTU): MTU of optional 10Gbit network

- 4 Change the settings.

If you pressed [F1] to [F8] in step 3:

The display for the selected setting turns orange. Use the numeric buttons to enter a value.

To move the cursor, use the left and right cursor buttons (←/→).

To confirm the setting, press the SET button and verify that the value display turns white.

If you pressed [F9] in step 3:

The background of the value display for the [F9] button turns orange. Use the up and down cursor buttons (↑/↓) or the MULTI CONTROL knob to change the value.

To confirm the setting, press the SET button and verify that the value display turns to normal.

- 5 Press the [F10] (EXIT) button three times.

The MAINTENANCE INFORMATION menu appears.

- 6 Press the button for a normal menu such as HOME to close the maintenance menu.

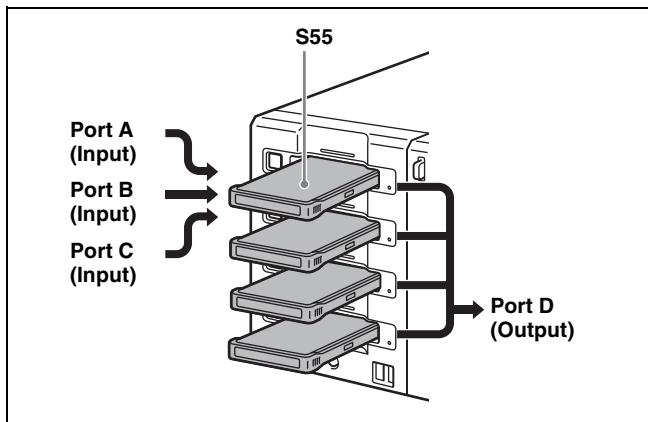
Restrictions

Restrictions on Simultaneous Recording and Playback

With this unit, you can record the signals simultaneously from multiple input ports in separate files on one SRMemory card and play back the files in the SRMemory card being used for recording. However, recording and playback functions are limited depending on the port configuration or SRMemory card type used. There are three types of SRMemory cards (S55/S25/S15), each with a different data transfer rate. Use the card type that best suits your needs.

- **S55**
These cards have a data transfer rate of 5.5 Gbps. The high data transfer rate of this card makes it suitable for recording multiple signals simultaneously in files and playing back files at the same time.
- **S25**
These cards have a data transfer rate of 2.5 Gbps. One or more signals can be recorded or played back simultaneously. However, functioning limitations may arise depending on the card's transfer rate.
- **S15**
These cards have a data transfer rate of 1.5 Gbps. One or more signals can be recorded or played back simultaneously. However, functioning limitations may arise depending on the card's transfer rate.

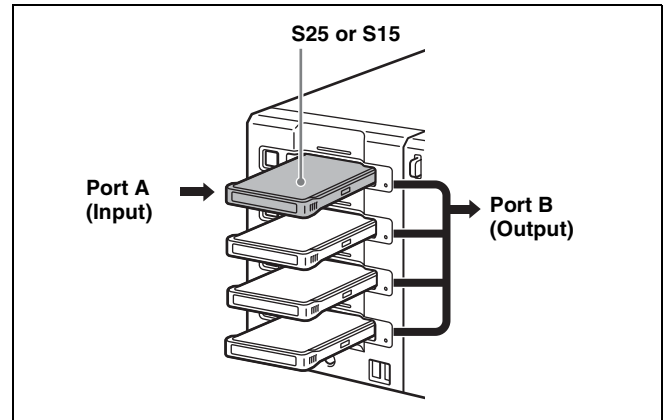
Using only S55 SRMemory cards



When all SRMemory cards which you use simultaneously are S55 cards, you can select any of the SRMemory cards in the unit for both recording and playback. In the above example, the input signals from port A, B and C on SR-SQ (3D) mode can be simultaneously recorded to one SRMemory card.

When both S25/S15 and S55 cards are used

Using S25 or S15 cards for recording



When one or more S25 or S15 cards are used, some limitations to recording and playback apply. The following table indicates the number of simultaneous recordings that can be performed in relation to the types of cards that are used, and the recordable data formats. Refer to the table, and use the appropriate SRMemory card types based on your intended purpose

Types of cards used	Number of simultaneous recordings	Recordable data formats
At least one S15 card	1	SR-Lite (2D/3D), SR-SQ (2D/3D)
	1	SR-HQ (2D) However, it is used after inserting a card in slot 1.
	2	SR-Lite (2D/3D), SR-SQ (2D) The cards must be inserted in slots 1 and 2.
	3	SR-Lite (2D/3D), SR-SQ (2D) The cards must be inserted in slots 1 to 3.
	4	Simultaneous recording not possible.
Only S25 cards, or a combination of S25 and S55 cards	1	SR-Lite (2D/3D), SR-SQ (2D/3D)
	1	SR-HQ (2D/3D) However, it is used after inserting a card in slot 1.
	2	SR-Lite (2D/3D), SR-SQ (2D/3D), SR-HQ (2D/3D) The cards must be inserted in slots 1 and 2.
	3	SR-Lite (2D/3D), SR-SQ (2D/3D), SR-HQ (2D) The cards must be inserted in slots 1 to 3.
	4	SR-Lite (2D) Cards in any of the slots (one or more) can be used.

Types of cards used	Number of simultaneous recordings	Recordable data formats
Only S55 cards	1 to 3	SR-Lite (2D/3D), SR-SQ (2D/3D), SR-HQ (2D/3D) The cards must be inserted in slots 1 to 3.
	4	SR-Lite (2D/3D), SR-SQ (2D/3D), SR-HQ (2D) Cards in any of the slots (one or more) can be used.

Network access

When using a network cable to access the files in SRMemory cards, you can access the files if other recording or playback is in process. However, since SDI input/output has priority, the transfer rate via the network may decrease depending on input/output port usage.

Troubleshooting

Salvaging SRMemory Card in the Event Recording does not End Normally

After recording is completed, press the Eject button to safely eject the SRMemory card, or press the On/Standby button on the front panel to end unit operation. Recording will not end normally if the main power switch of the connector panel is turned off or the power cord is disconnected during recording. If this happens, the file system will not be updated and the video/audio data that was recorded in real time will not be recognized as a file, resulting in the content of the file that was recorded being lost.

The unit is equipped with a function (salvage function) for restoring the data in SRMemory card with minimal loss. The salvage function allows the file to be restored based on the marker and other information recorded to the SRMemory card.

The salvage process takes a few seconds to up to 60 minutes, depending on the state of the SRMemory card when the recording was interrupted.

Notes

- Before turning off the main power switch on the connector panel, switch the unit to the standby state with the On/Standby button on the front panel.
- The salvage function is designed to salvage as much recorded material as possible in the event that an unforeseen accident occurs but there is no guarantee that 100% of the data will be restored.
- The data immediately before recording was interrupted cannot be restored even if you execute this function. The amount of data that is lost is as follows.
 - In SR-Lite mode:** approx. 8 seconds of the data
 - In SR-SQ mode:** approx. 4 seconds of the data
 - In SR-HQ mode:** approx. 2 seconds of the data
- Each time you insert an SRMemory card containing a file that has not been restored or turn the power on with such card in the unit, a confirmation dialog will appear asking you whether to perform a salvage.
- An SRMemory card containing a file that has not been restored cannot be used to play back or record.
- Formatting the SRMemory card will enable you to use it again, but all recorded data will then be lost.

Using salvage to restore files

- 1 Insert the SRMemory card for which recording did not end normally into a slot.

A warning message and a message for confirming whether to perform the salvage or format appear on the display.

Notes

- If the write-protect switch on the SRMemory card is set to the “WP” position, slide the switch to the opposite position.
- The salvage process cannot be stopped once it is started. Allow plenty of time for the salvage process to complete.

- 2 Use the right and left cursor buttons to select “Salvage” and then press the center cursor button.

The salvage process begins and the “Please wait.” message appears.

The message window will be closed automatically when the process ends.

Note

Before performing the salvage process, be sure to remove any other SRMemory cards that may be inserted.

During the salvage process, the SRMemory card being processed and all other cards in the unit cannot be used.

In case files cannot be restored with salvage process

If the SRMemory card cannot be restored even by performing a salvage, formatting the SRMemory card will enable you to use it again.

- 1 Insert the SRMemory card which the salvage did not end normally into a slot.

A warning message and a message for confirming whether to perform the salvage or format appear on the display.

- 2 Use the right and left cursor buttons to select “Format” and then press the center cursor button.

The format process begins and the “Please wait.” message appears.

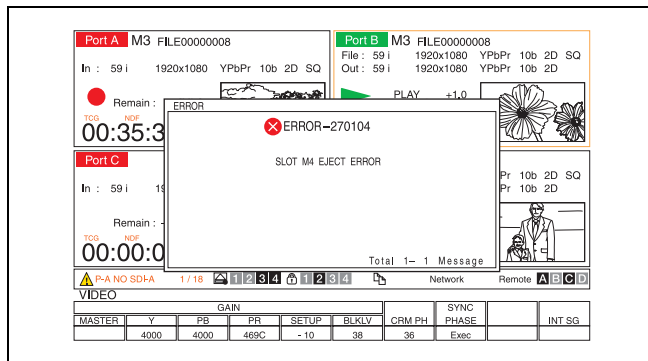
The message window will be closed automatically when the process ends.

Notes

- If the ALT/[F9] (REC INHI) buttons in the HOME menu are set to anything other than Off, change it to Off.
- During the format process, the SRMemory card being processed and all other cards in the unit cannot be used.

Error Messages

When the unit ceases to operate correctly due to a malfunction or internal system error, the alarm will sound and an error message will appear on the display. After an error message is displayed, eliminate the cause of the error based on the error message and then turn the unit back on. If the error message appears again when the unit is turned on, contact your Sony representative.



Code ¹⁾	Indication	Meaning
14xx00 14xxpp	PS FAN1 TROUBLE, etc.	A malfunction of cooling fan motor was detected. For details, see the Maintenance Manual.
260100	POWER SUPPLY UNIT TROUBLE	A power failure was detected.
2701ss	SLOT Mx EJECT ERROR	Pressing the Eject button failed to eject an SRMemory card from the indicated slot. When the slot indicator is off, forcibly ejecting an SRMemory card will not damage recorded data.
2801ss	SLOT Mx EXIST ERROR	The SRMemory card in the indicated slot could not be detected even though the Eject button had not been pressed.
2901ss	SLOT Mx EJECT MOTOR LOCK	A malfunction of eject motor was detected at the indicated slot. When the slot indicator is off, forcibly ejecting an SRMemory card will not damage recorded data.
960100	CALENDAR CLOCK ERROR	An internal calendar clock error was detected.
B3xx00 B3xxpp	SY CPLD2 INITIAL ERROR, etc.	An error was detected at the device initialization stage. For details, see the Maintenance Manual.
B80300	SYS1-NW NO COMMUNICATION ERROR	A communication error occurred between CPU (SYS1) of the SY-422 board and CPU (NW) of the CPU-453 board.
B9zz00	CP-SYS1 NO COMMUNICATION ERROR, etc.	CP CPU has detected a communication error between CPUs (SYS1, CP, KP). For details, see the Maintenance Manual.
D101pp	PORT x ENC DMA1 ERROR, etc.	A data processing error occurred on the input and output boards. Recording or playback may not have been performed properly.
D3xxss	SLOT Mx AV WRITE ERROR1, etc.	An error occurred while writing to the SRMemory card in the indicated slot. For details, see the Maintenance Manual.
D4xxss	SLOT Mx AV READ ERROR1, etc.	An error occurred while reading from the SRMemory card in the indicated slot. For details, see the Maintenance Manual.
D5xxss	SLOT Mx INTERFACE ERROR1, etc.	Could not communicate with the SRMemory card inserted in SLOT Mx. This SRMemory card cannot be used in this state. Either the unit or SRMemory card may be faulty if an error occurs even when the SRMemory card is re-inserted or power is turned off and on.
D6xxss	SLOT Mx UNMOUNT ERROR1, etc.	An error occurred when ejecting the SRMemory card from the indicated slot. The ejected SRMemory card may not be available. If the error code D7xxss appears every time the SRMemory card is inserted, the card must be salvaged. Salvage the SRMemory card by following the instructions in the error display screen or remove the card.

Code ¹⁾	Indication	Meaning
D7xxss	SLOT Mx MOUNT ERROR1, etc.	An error occurred when inserting an SRMemory card into the indicated slot. If the error code D7xxss appears every time the SRMemory card is inserted, the card must be salvaged. Salvage the SRMemory card by following the instructions in the error display screen or remove the card.
D801ss	SLOT Mx FILE SYSTEM ERROR	An error was detected in the file system on the SRMemory card in the indicated slot. If the same error appears every time the SRMemory card is inserted, the card must be formatted. Format the SRMemory card by following the instructions in the error display screen or remove the card.
E101pp	PORT x COND3 BAD, STOP REC	Recording was stopped because all the space for replacing bad sectors is consumed on the SRMemory card inserted in the indicated port.
E106pp	PORT x FS STUFFED, STOP REC	Stopped recording because the SRMemory card used in the displayed port has reached its file system management limit. Format the SRMemory card to enable recording.
E108pp	PORT x WRITE FAIL, STOP REC	Recording was stopped and data was protected because you attempted to overwrite data with a SRMemory card used in the displayed port. The SRMemory card must be formatted to make it recordable.
E109ss	SLOT Mx CANNOT REC	A problem was detected in the unrecorded area of the SRMemory card in the displayed slot. Recording is not possible with this SRMemory card. The SRMemory card must be formatted to make it recordable.
E10App	PORT x MAX LENGTH, STOP REC	Recording was stopped as the maximum continuous recording time has been reached. This error can occur when using a virtual volume composed of 1 TB SRMemory cards. You can continue recording to a separate file by starting another recording session.

1) The portion in lower case letters in the above codes is one of the following numbers.

ss is one of the following numbers which identifies the SRMemory card slot.

- 01: Slot 1
- 02: Slot 2
- 03: Slot 3
- 04: Slot 4

pp is one of the following numbers which identifies the port.

- 81: Port A
- 82: Port B
- 83: Port C
- 84: Port D

xx is the number that identifies the error location. For details, see the Maintenance Manual.

zz is the number that identifies the error type. For details, see the Maintenance Manual.

Warning Messages

When one of the problems described below is detected by the unit, a warning mark appears on the status bar.

Operation can continue even when the warning mark appears. When multiple errors occur simultaneously, the number of errors is indicated to the right of the warning mark.

If you set ALT/[F9] to “On” in the SETUP menu while a warning mark is displayed, an error dialog box and the details of the warning message appear.

Only one warning message will be displayed even when multiple problems occur, but you can use the cursor buttons (↑/↓) to check all errors.

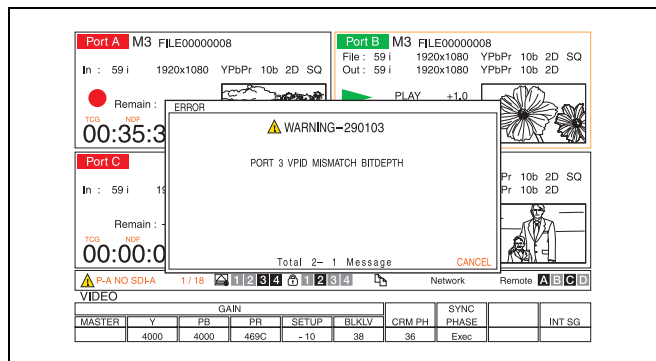
After a warning message is displayed, eliminate the cause of the warning based on the message.

For details on eliminating the causes of warning messages, see the Maintenance Manual.

To display warning messages as pop-ups

Press the [F2] – [F7] – [F3] (WARN) buttons in the SETUP menu to change the setting to On.

Warning message



Code ¹⁾	Indication ²⁾	Meaning
010100	NO EXTERNAL REFERENCE (NO EXT REF)	No reference signal is input to the selected REF. INPUT connector. The unit is using the internal reference signal.
020100	LOST LOCK	Synchronization was lost during playback, recording, or editing.
0601pp	PORT x SDI A-B PHASE NG (P-x A-B PHASE)	The signals input to the HD SDI INPUT A/B connector at the indicated port are out of phase with each other.
0801pp	PORT x NO SDI-A INPUT (P-x NO SDI-A)	Signal input to the HD SDI INPUT A connector at the indicated port cannot be detected.
0802pp	PORT x NO SDI-B INPUT (P-x NO SDI-B)	Signal input to the HD SDI INPUT B connector at the indicated port cannot be detected. This message appears only for a signal format that uses the HD SDI INPUT B connector.
1901pp	PORT x NO A1/A2 INPUT (P-x NO A1/A2)	No carrier detected on digital audio input on channel 1/ channel 2 for the indicated port.
1A01pp	PORT x NO A3/A4 INPUT (P-x NO A3/A4)	No carrier detected on digital audio input on channel 3/ channel 4 for the indicated port.
1B01pp	PORT x NO A5/A6 INPUT (P-x NO A5/A6)	No carrier detected on digital audio input on channel 5/ channel 6 for the indicated port.
1C01pp	PORT x NO A7/A8 INPUT (P-x NO A7/A8)	No carrier detected on digital audio input on channel 7/ channel 8 for the indicated port.
1D01pp	PORT x NO A9/A10 INPUT (P-x NO A9/10)	No carrier detected on digital audio input on channel 9/ channel 10 for the indicated port.
1E01pp	PORT x NO A11/A12 INPUT (P-x NO A11/12)	No carrier detected on digital audio input on channel 11/ channel 12 for the indicated port.
1F01pp	PORT x NO A13/A14 INPUT (P-x NO A13/A14)	No carrier detected on digital audio input on channel 13/ channel 14 for the indicated port.
2001pp	PORT x NO A15/A16 INPUT (P-x NO A15/A16)	No carrier detected on digital audio input on channel 15/ channel 16 for the indicated port.
2101ss	SLOT Mx REC INHIBIT (Mx REC INHBIT)	A menu setting prevents recording to the card in the indicated slot.

Code ¹⁾	Indication ²⁾	Meaning
2201ss	SLOT Mx WRITE PROTECTED (Mx WP SW ON)	The write-protect switch on the SRMemory card is set to on and prevents recording to the card in the indicated slot.
2202ss	SLOT Mx FS LOCKED (Mx FS LOCKED)	The SRMemory card in the indicated slot is locked and cannot be recorded.
2203ss	SLOT Mx WRITE PROTECTED AND FS LOCKED (Mx WP AND FS)	The SRMemory card in the indicated slot is write-protected or locked and cannot be recorded.
2901pp	PORT x VPID MISMATCH BITDEPTH (P-x VPID B-DP)	The bit length in VPID of the input signal from the indicated port does not match the system bit length.
2A01pp	PORT x VPID MISMATCH COLORSPACE (P-x VPID C-SP)	The color space in VPID of the input signal from the indicated port does not match the system color space.
2B01pp	PORT x VPID MISMATCH LINK INFORMATION (P-x VPID LINK)	Link data in VPID of the input signal from the specified connector does not match the data of the connected port.
2C01pp	PORT x X2 ORDER MISMATCH (P-x X2 ORDER)	The order described in the VPID of the specified port's input signal and the system order do not match. Note This warning only occurs when x2 mode is selected by Port Config.
2D01pp	PORT x INVALID SDI DATA (P-x INVLD SDI)	The SDI input signal data for the displayed port is invalid.
2E01pp	PORT x LEVEL A/B MISMATCH (P-x LVL-A/B)	Level-A/B of the 3G input signal for the displayed port does not match. Note This warning only occurs when SDI is set to 3G SDI (A) or 3G SDI (B) for Port Config.
470100	RTC BATTERY LOW LEVEL (RTC BATT LOW)	The lithium battery on the SY-350 board is low on power.
7301pp	PORT x NO REF INFORMATION (P-x FLD INFO)	Since there is no 30 frames/sec reference data for the 720/59.94P HD SDI signal input to the indicated port, the signal cannot be properly locked.
7401pp	PORT x ASYNCHRONOUS VIDEO INPUT (P-x ASYNC VIN)	The HD SDI input signal at the indicated port is out of phase by $\pm 5H$ or more from the reference signal.
E101ss	SLOT Mx FULL, NOT RECORDABLE (Mx FULL)	Because SRMemory card in the indicated slot has no space to use for recording, the record operation/command for the SRMemory card was terminated. Delete the files on the SRMemory card.
E102ss	SLOT Mx COND3 BAD, NOT RECORDABLE (Mx COND3 BAD)	Recording is not possible because the space to replace the bad memory cell is consumed on the SRMemory card in the indicated slot. The recording operation/command was terminated. Replace it with a recordable SRMemory card.
E103ss	SLOT Mx FUNCTION LIMIT (Mx FUNC LIMIT)	Recording and playback operations for the SRMemory card inserted in the displayed slot were canceled due to restrictions on recording and playback.
E105ss	SLOT Mx MAXIMUM FILES, NOT RECORDABLE (Mx MAX FILES)	Cancelled SRMemory card recording operations and commands because the number of files in the SRMemory card has reached its upper limit. Delete files in the SRMemory card.
E106ss	SLOT Mx FILE SYSTYEM STUFFED, NOT RECORDABLE (Mx FS STUFFED)	Cancelled SRMemory card recording operations and commands because the SRMemory card in the displayed slot has reached its file system management limit. Format the SRMemory card to enable recording.
E107ss	SLOT Mx ALTERNATE UMID GENERATED (Mx ALT LIMID)	Replaced the UMID of newly-generated files to avoid duplication of UMID in the SRMemory card in the displayed slot.
E202pp	PORT x FULL, STOP RECORDING (P-x FULL STOP)	The SRMemory card in the indicated port is full and recording was terminated.

Code ¹⁾	Indication ²⁾	Meaning
E400ss	SLOT M-x VIRTUAL VOL CARD Normal format card is required.	An SRMemory card that is formatted as a virtual volume is inserted. To enable use, reformat the card as a standard card.
E40100	VIRTUAL VOLUME WRONG POSITION Please exchange M3 and M4.	The SRMemory cards of a virtual volume are not inserted properly. Switch the cards that are inserted in slots M3 and M4.
E40200	VIRTUAL VOLUME WRONG POSITION Please rotate position to downward.	The SRMemory cards of a virtual volume are not inserted properly. Move the position of each card one slot lower. Move the card inserted in slot M4 to slot M2.
E40300	VIRTUAL VOLUME WRONG POSITION Please exchange M2 and M3.	The SRMemory cards of a virtual volume are not inserted properly. Switch the cards that are inserted in slots M2 and M3.
E40400	VIRTUAL VOLUME WRONG POSITION Please rotate position to upward.	The SRMemory cards of a virtual volume are not inserted properly. Move the position of each card one slot higher. Move the card inserted in slot M2 to slot M4.
E40500	VIRTUAL VOLUME WRONG POSITION Please exchange M2 and M4.	The SRMemory cards of a virtual volume are not inserted properly. Switch the cards that are inserted in slots M2 and M4.
E41000	VIRTUAL VOLUME MOUNT FAILURE All cards are normal format. Virtual volume format required.	Failed to mount the virtual volume. All the cards are formatted as standard cards. To enable use, reformat the cards as a virtual volume.
E41100	VIRTUAL VOLUME MOUNT FAILURE M4 is other group of virtual volume.	Failed to mount the virtual volume. The card in slot M4 belongs to a different virtual volume.
E41200	VIRTUAL VOLUME MOUNT FAILURE M3 is other group of virtual volume.	Failed to mount the virtual volume. The card in slot M3 belongs to a different virtual volume.
E41300	VIRTUAL VOLUME MOUNT FAILURE M2 is other group of virtual volume.	Failed to mount the virtual volume. The card in slot M2 belongs to a different virtual volume.
E41400	VIRTUAL VOLUME MOUNT FAILURE M4 is normal format.	Failed to mount the virtual volume. The card in slot M4 is formatted as a standard card.
E41500	VIRTUAL VOLUME MOUNT FAILURE M3 is normal format.	Failed to mount the virtual volume. The card in slot M3 is formatted as a standard card.
E41600	VIRTUAL VOLUME MOUNT FAILURE M2 is normal format.	Failed to mount the virtual volume. The card in slot M2 is formatted as a standard card.
E41700	VIRTUAL VOLUME MOUNT FAILURE M2 and M3 are normal format.	Failed to mount the virtual volume. The cards in slots M2 and M3 are formatted as standard cards.
E41800	VIRTUAL VOLUME MOUNT FAILURE M2 and M4 are normal format.	Failed to mount the virtual volume. The cards in slots M2 and M4 are formatted as standard cards.
E41900	VIRTUAL VOLUME MOUNT FAILURE M3 and M4 are normal format.	Failed to mount the virtual volume. The cards in slots M3 and M4 are formatted as standard cards.
E41A00	VIRTUAL VOLUME MOUNT FAILURE Any card does not match each other.	Failed to mount the virtual volume. The formatting of the cards does not match, the cards belong to different virtual volumes, etc.
E42000	CAN NOT MAKE A VIRTUAL VOLUME Please make sure that all cards are, [1]512GB or larger, [2]same type, [3]formattable (WP SW, FS lock, REC INHI, etc.).	Failed to create a virtual volume. <ul style="list-style-type: none"> • Use cards of the same type that are 512 GB or higher in capacity. • Check for settings that disable formatting (e.g., WP switch, FS lock, REC INHIBIT).

1) The portion in lower case letters in the above codes is one of the following numbers.
ss is one of the following numbers which identifies the SRMemory card slot.
01: Slot 1
02: Slot 2
03: Slot 3

04: Slot 4
pp is one of the following numbers which identifies the port.
81: Port A
82: Port B
83: Port C
84: Port D

2) Information inside brackets () indicates the short messages for displaying on the status bar or the superimposed display.

SRMemory Status Messages

The following warning messages appear depending on the wear or usage of the SRMemory card. Using repeatedly an SRMemory card gradually increases the possibility that errors will occur during recording and playback. When any

of the following messages appear, it is time to replace an SRMemory card with a new one. If the “CONDITION x BAD” message appears, it is best to replace the SRMemory card with a new one as soon as possible.

Code ¹⁾	Indication	Meaning
C101ss	SLOT Mx CONDITION1 DOUBTFUL (Mx COND1 DBT)	Errors increase when writing to/reading from the SRMemory card in the indicated slot. Although all errors are corrected, you are recommended to replace the SRMemory card with a new one.
C102ss	SLOT Mx CONDITION1 BAD (Mx COND1 BAD)	Errors increase greatly when writing to/reading from the SRMemory card in the indicated slot. Although all errors are corrected, you are strongly recommended to replace the SRMemory card with a new one.
C103ss	SLOT Mx CONDITION2 DOUBTFUL (Mx COND2 DBT)	The SRMemory card in the indicated slot has been used many times. Although currently no error occurs in this card, you are recommended to replace the SRMemory card with a new one.
C104ss	SLOT Mx CONDITION2 BAD (Mx COND2 BAD)	The SRMemory card in the indicated slot has been used too many times. Although currently no error occurs in this card, you are strongly recommended to replace the SRMemory card with a new one.
C105ss	SLOT Mx CONDITION3 DOUBTFUL (Mx COND3 DBT)	The SRMemory card in the indicated slot has little space to replace the bad memory cell. Although currently no error occurs in this card, you are recommended to replace the SRMemory card with a new one.
C106ss	SLOT Mx CONDITION3 BAD (Mx COND3 BAD)	The SRMemory card in the indicated slot has no space to replace the bad memory cell. Although playback is still available, recording is no longer possible. You are strongly recommended to replace the SRMemory card with a new one.

1) The portion in lower case letters in the above codes is one of the following numbers.

ss is one of the following codes which identifies the SRMemory card slot.

- 01: Slot 1
- 02: Slot 2
- 03: Slot 3
- 04: Slot 4

To cancel warning message detection

1 Simultaneously press the SFT key and DIAG key when a normal menu is displayed such as the HOME menu.

The MAINTENANCE INFORMATION menu appears.

2 Press the ALT/[F8] (WARNING CANCEL) key.

The WARNING CANCEL menu appears and the function keys then switch for use with this menu.

Memo

Press the ALT key if “WARNING CANCEL” is not displayed in [F8].

3 Press the [F1], [F2] or [F3] function key depending on the category of the warning message with the detection status you want to change.

[F1] (SYSTEM): Items relating to the entire unit
 [F2] (STRAGE): Items relating to the SRMemory
 [F3] (PORT): Items relating to the input/output ports
 List of items displayed in a dialog box.

4 Align the cursor with the setting you want to change and press the center cursor key.

The line is highlighted in orange when a cursor is aligned with it.

Items, for which detection has been cancelled, are marked with an asterisk (“*”) at the beginning.

- 5 Press either the **[F1]**, **[F2]** or **[F3]** function key, as mentioned in step 3, to conclude setup.

Press a function key corresponding to one mentioned in step 3 to set another warning message category.

- 6 Press a menu selection button such as the HOME button when the necessary settings have been made.

See the Maintenance Menu for details about the WARNING CANCEL menu.

ERROR LOG Menu

A maximum of 99 detected error and warning messages can be confirmed in the ERROR LOG menu in the Maintenance menu.

To start the ERROR LOG menu

- 1 Simultaneously press the SFT key and DIAG key when a normal menu is displayed such as the HOME menu.

The MAINTENANCE INFORMATION menu appears.

- 2 Press the **[F2]** (ERROR LOG) key.

The ERROR LOG menu appears and the function keys then switch for use with this menu.

The saved message is displayed from the fourth line onwards. The following items are displayed from the left: “Date” (date of the occurrence), “Time” (time of the occurrence), “TM2” (time from the start of the file), “Code” (error or warning code), “Message” (error or warning message (simple display)).

The “E-” and “W-” letters at the start of the “Code” field respectively indicate “error” and “warning” and these are followed by related code.

The screen can be scrolled with the cursor keys (↑/↓).

Error or warning items can be displayed or hidden by pressing the **[F4]** (WARN CODE) key or the **[F5]** (ERROR CODE) key. In the second line, a “Searching Now” message is displayed blinking in orange while the screen is updating.

To close the ERROR LOG menu

When MAINTENANCE INFORMATION is displayed after pressing the **[F10]** (EXIT) key several times, press a menu selection key such as the HOME button.

See the Maintenance Menu for details about the ERROR LOG menu.

Switching the Signal Format (HD/SD) of the Output Ports

- 1 Turn on the unit with the SRK-202 output board mounted.
- 2 While a normal menu (e.g., HOME) is displayed, press the DIAG button while holding down the SFT button.

The MAINTENANCE INFORMATION appears in the menu display section.

- 3 Press the **[F8]** (MAINTENANCE) button.
- 4 Press the **[F9]** (OTHERS CHECK) button.
- 5 Press the **[F7]** (HD/SD CONFIG) button.
- 6 Change the setting for the output port you want to switch using the HD/SD CONFIG : **[F1]** (PORT A) to **[F4]** (PORT D) buttons.

HD: Sets the output signal format to HD. (default)
SD: Sets the output signal format to SD.

- 7 Turn the unit off, and turn it on again.
- 8 Configure the ALT/**[F10]** port in the VIDEO menu.

Memo

- The signal format setting (HD/SD) of the output port is stored on the SRK-202 output board. If you add or replace any SRK-202 boards, configure the above settings again.
- For details on the maintenance menu, see the Maintenance Manual.

Notes

- Signals will not be output from the B connectors of OUT1, OUT2, and MONITOR for output ports that are set to SD.
- When switching from HD output to SD output, do so while the unit is operating with a system frequency of 25 or 29.97. If the unit is operating with a system frequency that does not support SD output (23.98 or 24), the output setting will switch from SD to HD automatically when the unit is turned on.

Recording Formats

COMPRS	SIGNAL/SIZE	DEPTH	SCAN	FRAME	2D/3D	SDI	Rec Rate	MULTIPLE				
Lite	YPbPr (4:2:2) 1920:1080	10	Interlace	25	2D	1.5G	220	x1				
					3D	1.5G/3G	440					
				29.97	2D	1.5G	220					
					3D	1.5G/3G	440					
			50 (100i)	2D	1.5G/3G	440	x2					
				59.94 (119i)	2D	1.5G/3G		440				
			PsF/ Progressive	10	10	Progressive	23.98	2D	1.5G	220	x1	
								3D	1.5G/3G	440		
							24	2D	1.5G	220		
								3D	1.5G/3G	440		
	25	2D					1.5G	220				
		3D					1.5G/3G	440				
	29.97	2D					1.5G	220				
		3D					1.5G/3G	440				
	Progressive	10	10	Progressive	50	2D	1.5G/3G	440				
						3D	3G (Dual)	880				
					59.94	2D	1.5G/3G	440				
						3D	3G (Dual)	880				
	YPbPr (4:2:2) 1280:720	10	10	Progressive	50	2D	1.5G	220	x1			
						3D	1.5G/3G	440				
59.94					2D	1.5G	220					
					3D	1.5G/3G	440					
100					2D	1.5G/3G	440	x2				
					119	2D	1.5G/3G		440			
YPbPr (4:2:2) 2048:1080					10	10	Progressive	50	2D	1.5G/3G	440	x1
									3D	3G (Dual)	880	
	59.94	2D	1.5G/3G	440								
		3D	3G (Dual)	880								

COMPRS	SIGNAL/SIZE	DEPTH	SCAN	FRAME	2D/3D	SDI	Rec Rate	MULTIPLE
SQ	YPbPr (4:2:2) 1920:1080	10	Interlace	25	2D	1.5G	440	x1
					3D	1.5G/3G	880	
				29.97	2D	1.5G	440	
					3D	1.5G/3G	880	
			50 (100i)	2D	1.5G/3G	880	x2	
				59.94 (119i)	2D	1.5G/3G		880
			PsF/ Progressive	23.98	2D	1.5G	440	x1
					3D	1.5G/3G	880	
				24	2D	1.5G	440	
					3D	1.5G/3G	880	
	25	2D		1.5G	440			
		3D		1.5G/3G	880			
	29.97	2D		1.5G	440			
		3D		1.5G/3G	880			
	Progressive	50	2D	1.5G/3G	880			
			3D	3G (Dual)	1760			
		59.94	2D	1.5G/3G	880			
			3D	3G (Dual)	1760			
	YPbPr (4:2:2) 1280:720	10	Progressive	50	2D	1.5G	440	x1
					3D	1.5G/3G	880	
59.94				2D	1.5G	440		
				3D	1.5G/3G	880		
YPbPr (4:2:2) 2048:1080	10	Progressive	50	2D	1.5G/3G	880	x1	
				3D	3G (Dual)	1760		
			59.94	2D	1.5G/3G	880		
				3D	3G (Dual)	1760		
RGB (4:4:4) 1920:1080	10	Interlace	25	2D	1.5G/3G	440	x1	
				3D	3G (Dual)	880		
			29.97	2D	1.5G/3G	440		
				3D	3G (Dual)	880		
			PsF/ Progressive	23.98	2D	1.5G/3G		440
					3D	3G (Dual)		880
		24		2D	1.5G/3G	440		
				3D	3G (Dual)	880		
		25		2D	1.5G/3G	440		
				3D	3G (Dual)	880		
		29.97	2D	1.5G/3G	440			
			3D	3G (Dual)	880			
RGB (4:4:4) 2048:1080	10	PsF/ Progressive	23.97	2D	1.5G/3G	440	x1	
				3D	3G (Dual)	880		
			24	2D	1.5G/3G	440		
				3D	3G (Dual)	880		
			25	2D	1.5G/3G	440		
				3D	3G (Dual)	880		

COMPRS	SIGNAL/SIZE	DEPTH	SCAN	FRAME	2D/3D	SDI	Rec Rate	MULTIPLE	
HQ	RGB (4:4:4) 1920:1080	10	Interlace	25	2D	1.5G/3G	880	x1	
					3D	3G (Dual)	1760		
				29.97	2D	1.5G/3G	880		
					3D	3G (Dual)	1760		
				PsF/ Progressive	23.98	2D	1.5G/3G		880
						3D	3G (Dual)		1760
			24		2D	1.5G/3G	880		
					3D	3G (Dual)	1760		
			25	2D	1.5G/3G	880			
				3D	3G (Dual)	1760			
			29.97	2D	1.5G/3G	880			
				3D	3G (Dual)	1760			
	RGB (4:4:4) 1920:1080	12	Interlace	25	2D	1.5G/3G	880	x1	
					3D	3G (Dual)	1760		
				29.97	2D	1.5G/3G	880		
					3D	3G (Dual)	1760		
				PsF/ Progressive	23.98	2D	1.5G/3G		880
						3D	3G (Dual)		1760
24			2D		1.5G/3G	880			
			3D		3G (Dual)	1760			
25			2D	1.5G/3G	880				
			3D	3G (Dual)	1760				
29.97			2D	1.5G/3G	880				
			3D	3G (Dual)	1760				
RGB (4:4:4) 2048:1080	10	PsF/ Progressive	23.98	2D	1.5G/3G	880	x1		
				3D	3G (Dual)	1760			
			24	2D	1.5G/3G	880			
				3D	3G (Dual)	1760			
			25	2D	1.5G/3G	880			
				3D	3G (Dual)	1760			
XYZ (4:4:4) 2048:1080	12	PsF/ Progressive	23.98	2D	1.5G/3G	880	x1		
				3D	3G (Dual)	1760			
			24	2D	1.5G/3G	880			
				3D	3G (Dual)	1760			
			25	2D	1.5G/3G	880			
				3D	3G (Dual)	1760			

“SDI” explanation

1.5G: 1.5Gbps Single Link

1.5G/3G: 1.5Gbps Dual Link or 3.0Gbps Single Link

3G (dual): 3.0Gbps Dual Link

Note on (100i) and (119i) for “FRAME”

Double-speed inputs are recorded as 50i/59.94i. There will be no audio on the audio track.

Playback Format Conversions (1)

Output signal format																								
SD (2D only)	YPbPr (4:2:2) 1920:1080					RGB (4:4:4) 1920:1080 10 bit					YPbPr (4:2:2) 2048:1080													
	Interlace	Interface	PsF/Progressive	Progressive	Progressive	Interlace	Interface	PsF/Progressive	Progressive	Progressive	Interlace	Interface	PsF/Progressive	Progressive	Progressive									
SIGNAL/SIZE	DEPTH	SCAN	Frame	2D/3D	MULTIPLE	25	29.97	25	29.97	23.98	24	25	29.97	25	29.97	23.98	24	25	29.97					
YPbPr (4:2:2) 1920:1080	10	Interface	25	2D	x1	△	⊗	○						△	△									
				3D		(△)	⊗	○									△	△						
				2D		△	○	⊗										△	△					
				3D		(△)	○	⊗										△	△					
				2D			⊗	○																
				3D			○	⊗																
				2D			○	⊗																
				3D			⊗	○																
				2D			○	⊗																
				3D			⊗	○																
YPbPr (4:2:2) 1920:1080	10	PsF/ Progressive	23.98	2D	x1	△	○	○	○	○	⊗	○	○	○	△	△	△	△	△	△	△			
				3D		(△)	○	○	○	○	⊗	○	○	○	○	○	△	△	△	△	△	△		
				2D		△	○	○	○	○	⊗	○	○	○	○	○	△	△	△	△	△	△	△	
				3D		(△)	○	○	○	○	⊗	○	○	○	○	○	△	△	△	△	△	△	△	
				2D			○	○	○	○	⊗	○	○	○	○	○	△	△	△	△	△	△	△	
				3D			○	○	○	○	⊗	○	○	○	○	○	△	△	△	△	△	△	△	
				2D			○	○	○	○	⊗	○	○	○	○	○	△	△	△	△	△	△	△	
				3D			○	○	○	○	⊗	○	○	○	○	○	△	△	△	△	△	△	△	
				2D			○	○	○	○	⊗	○	○	○	○	○	△	△	△	△	△	△	△	
				3D			○	○	○	○	⊗	○	○	○	○	○	△	△	△	△	△	△	△	
YPbPr (4:2:2) 1920:1080	10	Progressive	29.97	2D	x1	△	○	○	○	○	⊗	○	○	○	△	△	△	△	△	△	△			
				3D		(△)	○	○	○	○	⊗	○	○	○	○	△	△	△	△	△	△			
				2D		△	○	○	○	○	⊗	○	○	○	○	○	△	△	△	△	△	△		
				3D		(△)	○	○	○	○	⊗	○	○	○	○	○	△	△	△	△	△	△		
				2D			○	○	○	○	⊗	○	○	○	○	○	△	△	△	△	△	△		
				3D			○	○	○	○	⊗	○	○	○	○	○	△	△	△	△	△	△		
				2D			○	○	○	○	⊗	○	○	○	○	○	△	△	△	△	△	△		
				3D			○	○	○	○	⊗	○	○	○	○	○	△	△	△	△	△	△		
				2D			○	○	○	○	⊗	○	○	○	○	○	△	△	△	△	△	△		
				3D			○	○	○	○	⊗	○	○	○	○	○	△	△	△	△	△	△		

Conversion support explanation

△: Outputs after format conversion.

(△): Converts and outputs 3D files as 2D files. Outputs the video signal that corresponds to the A connector during HD as SD, according to the ALT/[FB] (MONITOR SETTING) > [F1] (DUAL) setting in the VIDEO menu.

○: Outputs in a different frame frequency.

⊗: Outputs in the same format as during recording.

Slow: Playback speed is reduced by half to play back double-speed inputs at normal speed.

Output signal format																																
SIGNAL/SIZE	Recording format				SD (2D only)				YPbPr (4:2:2) 1920:1080				RGB (4:4:4) 1920:1080 10 bit				RGB (4:4:4) 1920:1080 12 bit				YPbPr (4:2:2) 2048:1080											
	DEPTH	SCAN	Frame	2D/3D	MULTIPLE	Interface	PsF/Progressive	25	29.97	25	29.97	25	29.97	25	29.97	25	29.97	25	29.97	25	29.97	25	29.97	25	29.97	50	59.94					
RGB (4:4:4) 1920:1080	10	Interface	25	2D	MULTIPLE	△	△	△	△	⊗	○	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△				
				3D		△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△
				2D		△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△
		3D	29.97				△	△	△	△	⊗	○	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△		
		2D	PsF/Progressive	23.98	2D	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	
		3D			△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△
	3D	24				△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△		
	2D	PsF/Progressive	25	2D	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△		
	3D			△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	
	2D	Interface	29.97	2D	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△		
	3D			△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	
	2D	PsF/Progressive	23.98	2D	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△		
3D	△			△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△		
2D	PsF/Progressive	24	2D	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△			
3D			△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△		
2D	Interface	25	2D	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△			
3D			△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△		
2D	PsF/Progressive	29.97	2D	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△			
3D			△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△		
2D	Interface	23.98	2D	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△			
3D			△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△		
2D	PsF/Progressive	24	2D	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△			
3D			△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△		
2D	Interface	25	2D	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△			
3D			△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△		
2D	PsF/Progressive	29.97	2D	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△			
3D			△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△		

Conversion support explanation

- △: Outputs after format conversion.
- (△): Converts and outputs 3D files as 2D files. Outputs the video signal that corresponds to the A connector during HD as SD, according to the ALT/[F8] (MONITOR SETTING) > [F1] (DUAL) setting in the VIDEO menu.
- : Outputs in a different frame frequency.
- ⊗: Outputs in the same format as during recording.
- Slow: Playback speed is reduced by half to play back double-speed inputs at normal speed.

Output signal format																																
SIGNAL/SIZE	DEPTH	Recording format				SD (2D only)						YPbPr (4:2:2) 2048:1080																				
		SCAN	Frame	2D/3D	MULTIPLE	YPbPr (4:2:2) 1920:1080		RGB (4:4:4) 1920:1080 10 bit		RGB (4:4:4) 1920:1080 12 bit																						
						Interlace	25	29.97	25	29.97	23.98	24	25	29.97	25	29.97	25	29.97	23.98	24	25	29.97	Interlace	Psf/Progressive	50	59.94						
YPbPr (4:2:2) 1920:1080	10	Progressive	50	2D	MULTIPLE																											
				3D																												
				2D			x1																									
				3D																												

Conversion support explanation

- △: Outputs after format conversion.
- (△): Converts and outputs 3D files as 2D files. Outputs the video signal that corresponds to the A connector during HD as SD, according to the ALT/[EB] (MONITOR SETTING) > [F1] (DUAL) setting in the VIDEO menu.
- : Outputs in a different frame frequency.
- ⊙: Outputs in the same format as during recording.
- Slow: Playback speed is reduced by half to play back double-speed inputs at normal speed.

Playback Format Conversions (2)

SIGNAL/SIZE	DEPTH	Recording format				Output signal format																	
		SCAN	Frame	2D/3D	MULTIPLE	YPbPr (4:2:2) 1280:720				RGB (4:4:4) 2048:1080													
						50	59.94	23.98	24	25	23.98	24	25										
YPbPr (4:2:2) 1280:720	10	Progressive	50	2D	x1																		
				3D																			
				2D																			
				3D																			
				2D																			
				3D																			
RGB (4:4:4) 2048:1080	10	PsF/Progressive	24	2D	x1																		
				3D																			
				2D																			
				3D																			
				2D																			
				3D																			
XYZ (4:4:4) 2048:1080	12	PsF/Progressive	24	2D	x1																		
				3D																			
				2D																			
				3D																			
				2D																			
				3D																			

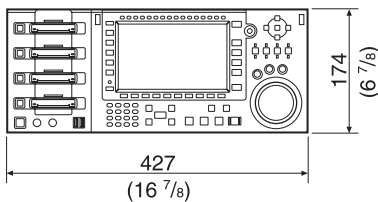
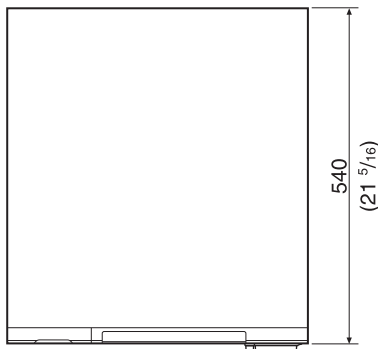
Conversion support explanation

- : Outputs in a different frame frequency.
- ⊗: Outputs in the same format as during recording.

Specifications

General

Recording format	MPEG4 SStP format
Power requirements	100 V to 240 V AC
Power consumption	Maximum 480 W
Inrush current	(1) Maximum possible inrush current at initial switch-on (Voltage changes caused by manual switching): 75 A peak, 5 A r.m.s. (240 V AC) (2) Inrush current after a mains interruption of five seconds (Voltage changes caused at zero-crossing): 4 A peak, 2 A r.m.s. (240 V AC)
Operating temperature	5 °C to 40 °C (41 °F to 104 °F)
Storage temperature	-20 °C to +60 °C (-4 °F to +140 °F)
Humidity	25% to 90% (no condensation)
Mass	23 kg (50 lb 11 oz) (with all options installed)
Dimensions	427 × 174 × 540 mm (16 7/8 × 6 7/8 × 21 5/16 in) (W/H/D)



Appendix

Video

422 format

Sampling frequency	Y: 74.25 MHz, Pb/Pr: 37.125 MHz
Quantization	10 bits
Compression	MPEG4 SStP

444 format

Sampling frequency	RGB: 74.25 MHz
Quantization	10 bits/12 bits
Compression	MPEG4 SStP

Audio

Digital audio signal format

Sampling frequency	48 kHz (video sync)
Quantization	24 bits
Headroom	20 dB / 18 dB / 16 dB / 15 dB / 12 dB / 9 dB (selectable)

Analog monitor output

D/A quantization	24 bits
------------------	---------

Input/Output Connectors

When the SRK-R201 is installed (optional)

HD SDI INPUT

A/B	BNC (2) HD SDI (1.485 Gbps) (SMPTE-292M / BTA-S004B standard) 3G SDI (2.97 Gbps) (SMPTE-424M) Level A, B
-----	-------------------------------------------------------------------------------------------------------------------

INPUT MONITOR

BNC (2) HD SDI (1.485 Gbps) (SMPTE-292M / BTA-S004B standard) 3G SDI (2.97 Gbps) (SMPTE-424M) Level A, B

HD SDI OUTPUT

MULTI MONITOR

BNC (1) HD SDI (1.485 Gbps) (SMPTE-292M / BTA-S004B standard) 3G SDI (2.97 Gbps) (SMPTE-424M) Level A, B

TIMECODE INPUT

BNC (1) 0.5 to 18 Vp-p, 10 kΩ

TIMECODE OUTPUT

BNC (1) 2.2 Vp-p, low impedance

DIGITAL AUDIO (AES/EBU) INPUT
BNC (8)
CH1/2 to CH15/16
AES/EBU format, unbalanced

When the SRK-R202 is installed (standard equipped, optional additions supported)

HD/SD SDI OUTPUT
A/B BNC (6) (MONITOR includes character superimpose)
HD SDI (1.485 Gbps) (SMPTE-292M / BTA-S004B standard)
3G SDI (2.97 Gbps) (SMPTE-424M) Level A, B
SD SDI (270 Mbps) (SMPTE-259M) (A connector only)

HD SDI OUTPUT
MULTI MONITOR
BNC (1)
HD SDI (1.485 Gbps) (SMPTE-292M / BTA-S004B standard)

TIMECODE OUTPUT
BNC (1)
2.2 Vp-p, low impedance

DIGITAL AUDIO (AES/EBU) OUTPUT
BNC (8)
CH1/2 to CH15/16
AES/EBU format, unbalanced

Reference

REF. INPUT
BNC (1 + loop through 1)
75 Ω with terminal switch
HD (tri-level sync)
SD (Black Burst)
NTSC: 0.286 Vp-p, 75 Ω
PAL: 0.3 Vp-p, 75 Ω

Remote

REMOTE1 to REMOTE4
D-sub 9-pin, female (4)
VIDEO CONTROL
D-sub 9-pin, female (1) (for connection to optional HKDV-900)
GPIO (25P) D-sub 25-pin, female (1)
NETWORK1 to 2
RJ-45 jack (2)
1000BASE-T
USB
USB type (2)

MAINTENANCE
USB type (2)
RJ-45 jack (1)

Memo

The MAINTENANCE RJ-45 jack is only available on models with product serial numbers 10001 to 11000 or 50001 to 51000.

Analog audio output
ANALOG MONITOR OUT
XLR, male (2)
HEADPHONE Phone jack (1)

Accessories supplied

Operation Guide (1)
Installation Manual (1)
Operation Manual (CD-ROM) (1)

Optional accessories

SRK-R201 HD Input Board
SRK-R202 HD Output Board
SRMemory cards
SR-256S15/S55 (256 GB)
SR-512S25/S55 (512 GB)
SR-1TS25/S55 (1 TB)
Power cord (1-846-283-11)

Design and specifications are subject to change without notice.

Notes

- Always make a test recording, and verify that it was recorded successfully. SONY WILL NOT BE LIABLE FOR DAMAGES OF ANY KIND INCLUDING, BUT NOT LIMITED TO, COMPENSATION OR REIMBURSEMENT ON ACCOUNT OF FAILURE OF THIS UNIT OR ITS RECORDING MEDIA, EXTERNAL STORAGE SYSTEMS OR ANY OTHER MEDIA OR STORAGE SYSTEMS TO RECORD CONTENT OF ANY TYPE.
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