

Recording Option

Operating Instructions

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

HKCU-REC55

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Overview

The HKCU-REC55 Recording Option is designed to be installed in an HDCU5500/3500 Camera Control Unit and enables recording of signals from a camera connected to the camera control unit (CCU).

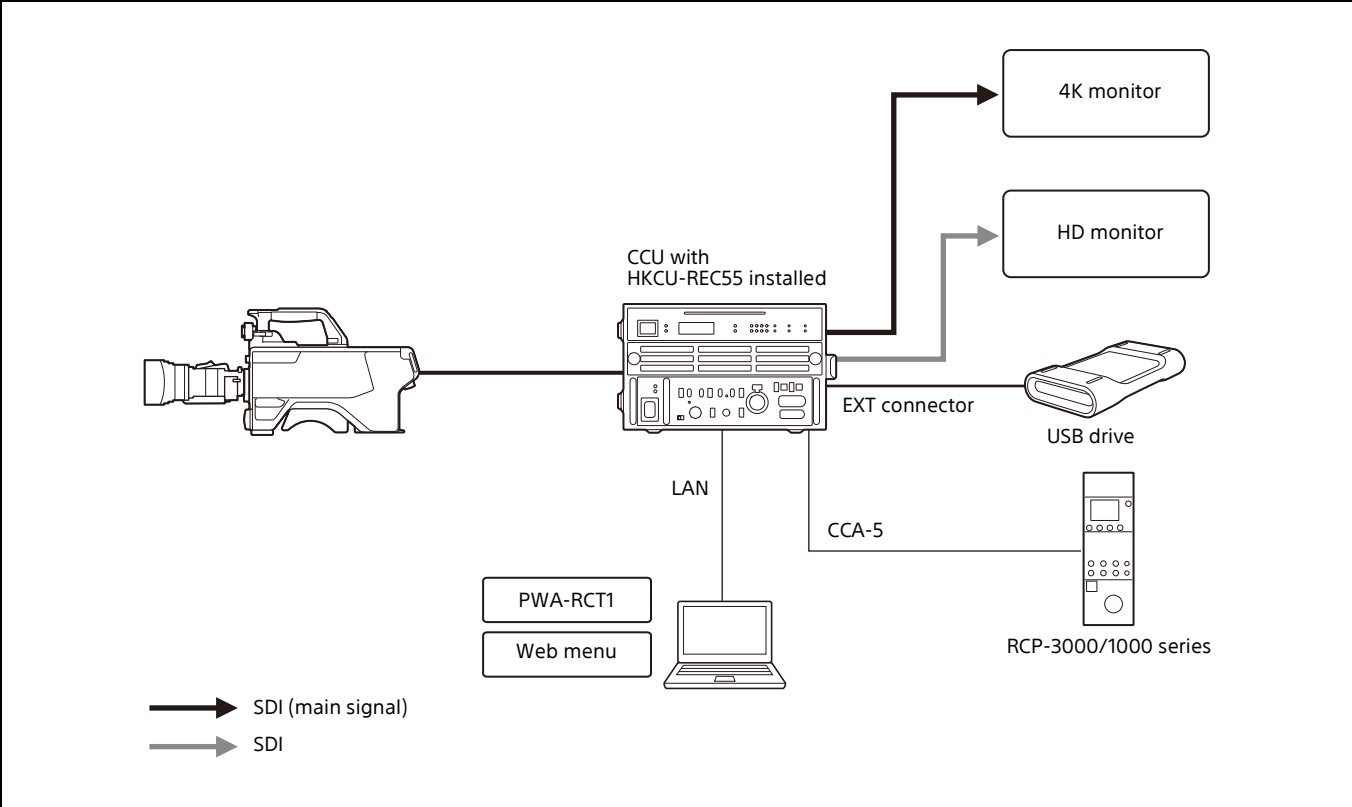
It is equipped with internal storage memory, which supports recording and playback, and supports file transfer to external storage, such as a USB drive or NAS. It supports the ISO REC function¹⁾ by transferring files to external storage while recording to internal storage.

HD signal recording, playback, and file transfer are supported by attaching the HKCU-REC55 to an HDCU3500. 4K (QFHD) signal and HD signal simultaneous recording, playback, and file transfer are supported by installing HZCU-UHD35 4K/HDR Processor Software and an HZCU-UHDR50 4K Recording License on an HDCU3500. 4K (QFHD) signal and HD signal simultaneous recording, playback, and file transfer are supported by installing an HZCU-UHDR50 4K Recording License on an HDCU5500. The unit is controlled using PWA-RCT1 Record Control Software.

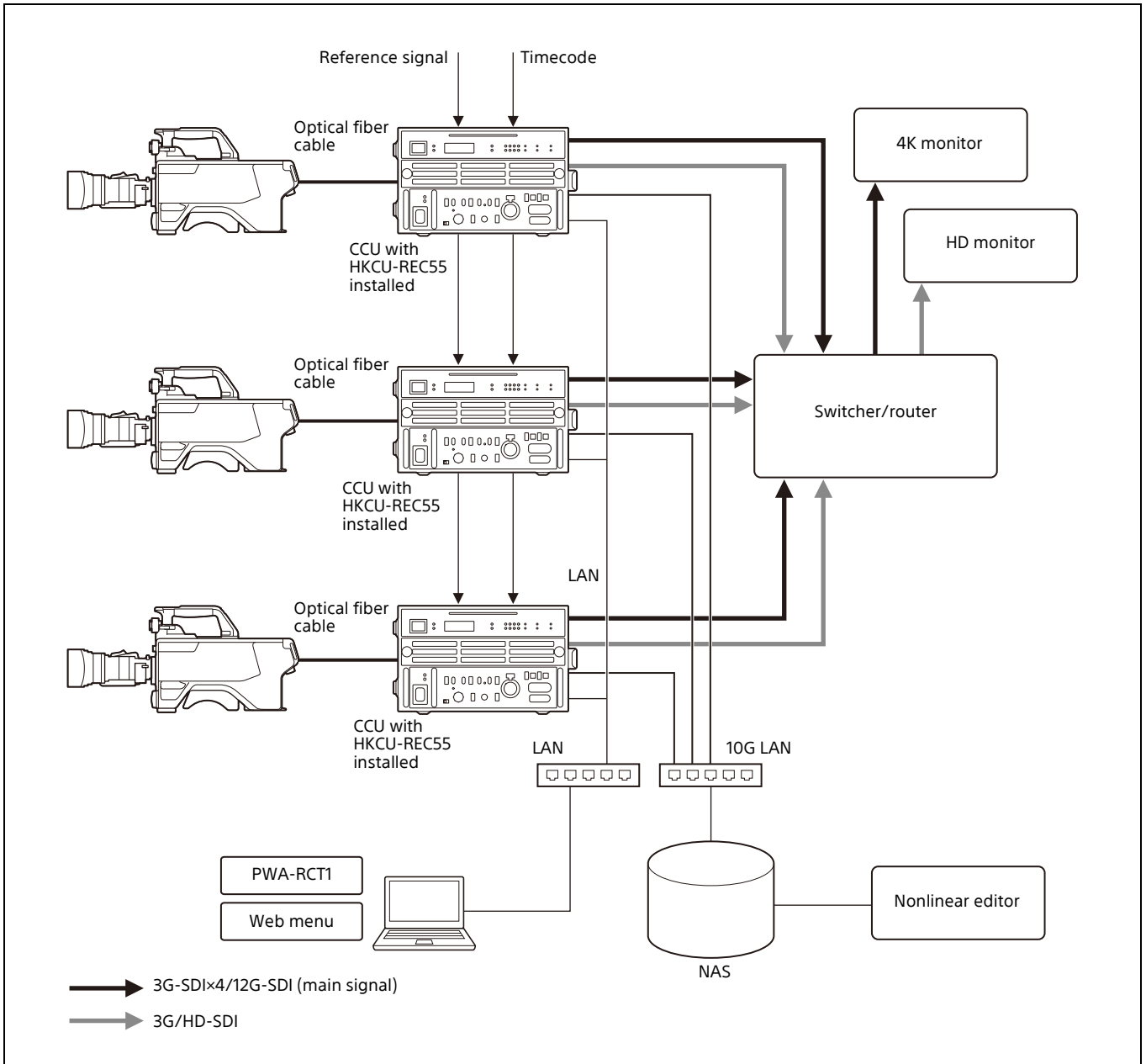
1) ISO REC (ISolation RECORDing): Function to record to external storage separately from the internal storage of the unit for backup or other purposes.

System Configuration

Connection example (when using a USB drive)



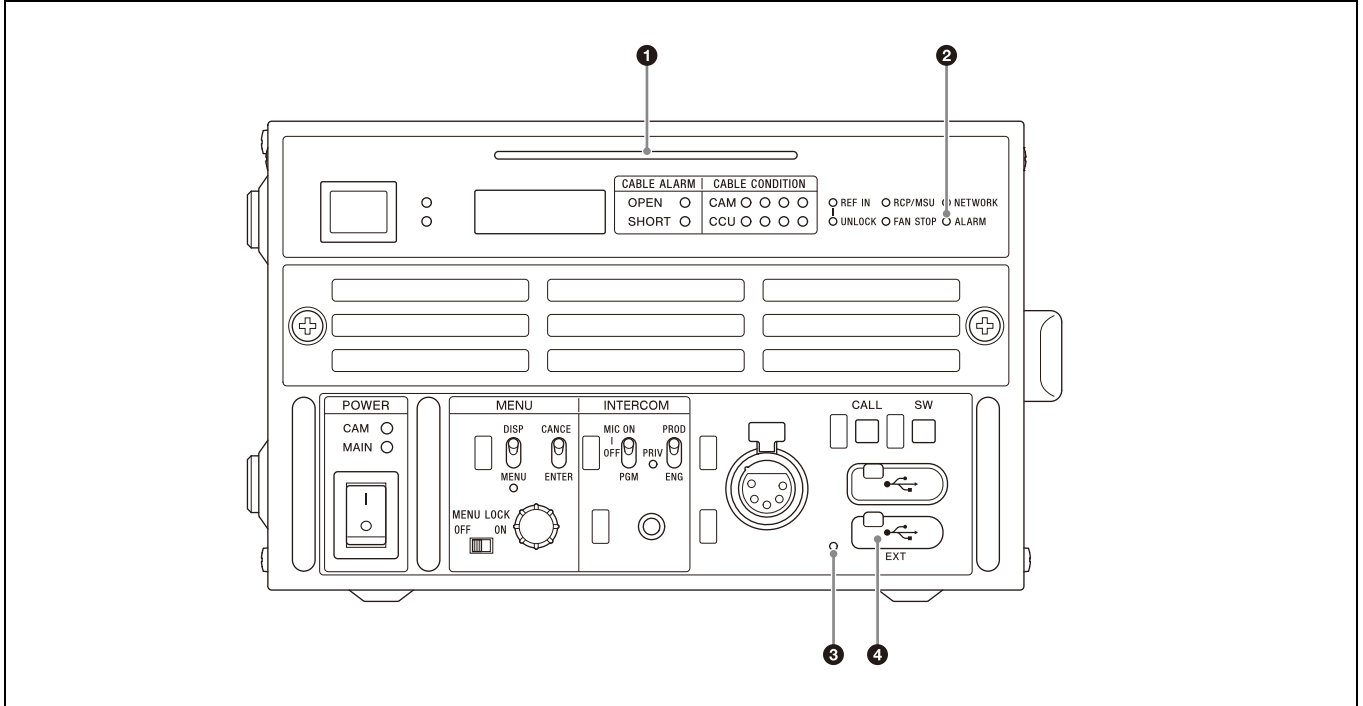
Connection example (when using NAS)



Name and Function of Parts

Refer to the operating instructions for the HDCU5500/3500 for locations not described below.

Front Panel



1 SIGNAL BAR indicator

Flashes blue when internal storage is accessed (during recording, playback, or file transfer).

Note

When flashing blue, do not turn off the CCU.

2 ALARM indicator

Off (not lit): Operating normally.

Lit red: An error occurred on the CCU or HKCU-REC55.

3 USB ACCESS indicator

Lit green: USB drive is connected and mounted.

Flashing green: USB drive is being formatted.

Off (not lit): USB drive is not mounted. When using a USB drive, mount the drive from PWA-RCT1.

Note

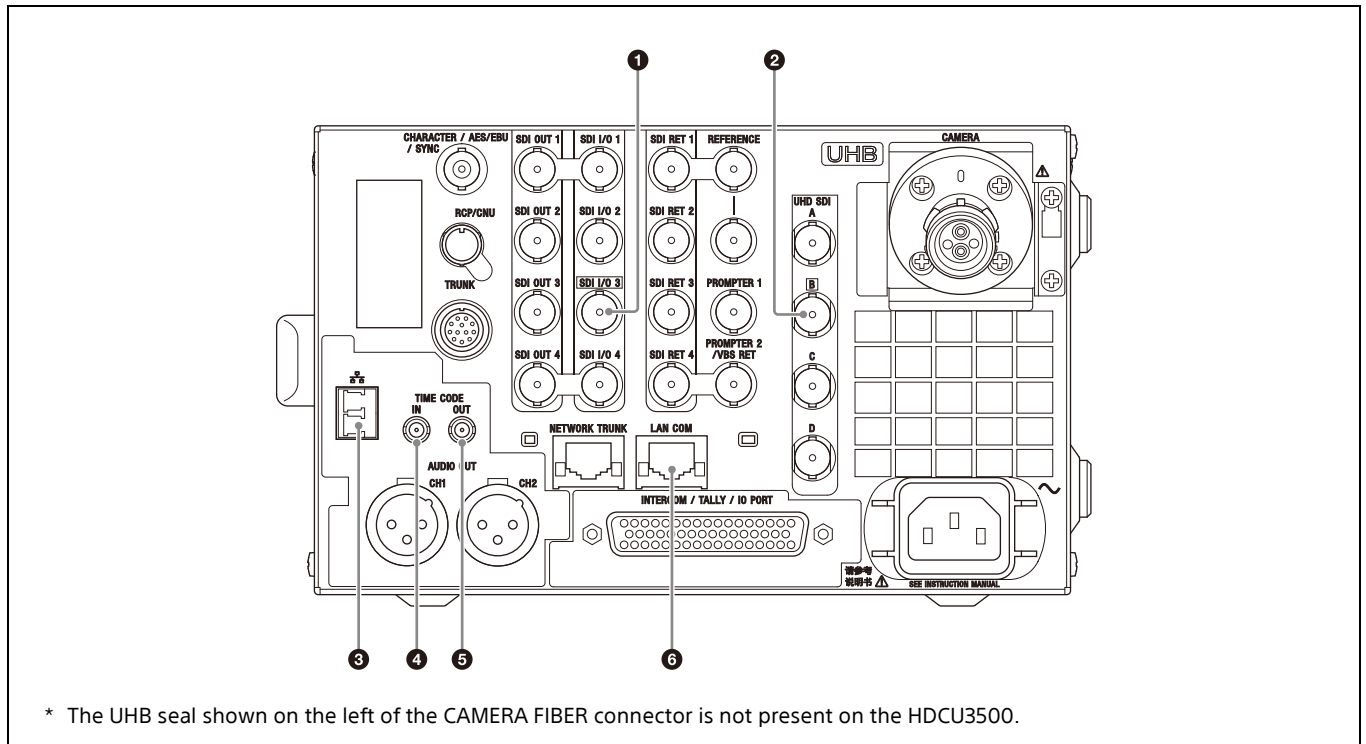
Before removing the USB drive, check that the USB ACCESS indicator is not lit.

4 EXT (USB external storage) connector

Connect to a USB drive.

It supports USB 3.1 Gen1.

Rear Panel



① SDI I/O 3 connector

Outputs HKCU-REC55 playback and EE signals (HD) when "ISO REC" is set on the <VIDEO I/O> page in the menu on the CCU.

Character output is enabled by setting [Character On/Off] to "On" on the [System] screen > [Setup] tab of the web menu.

② UHD SDI B connector

Outputs HKCU-REC55 playback and EE signals (4K/HD) when "ISO REC" is set on the <VIDEO I/O> page in the menu on the CCU.

③ 𠄎 (LC optical) connector (10G SFP+)

Connect an optical fiber cable to transfer files to NAS. Use OM3 multi-mode optical fiber cables for connections. Use an SFP+ transceiver module for 10BASE-SR. (Recommended model: OTM-10GSR1)

④ TIME CODE IN connector

Input a timecode source generated by an external device.

⑤ TIME CODE OUT connector

Outputs a timecode specified on the [System] screen > [Setup] tab of the web menu.

⑥ LAN COM connector (RJ-45 8-pin)

Used to connect to a LAN. Enables access to the web menu of the HKCU-REC55, web menu of the CCU, and the PWA-RCT1. Connect a LAN hub (10BASE-T/100BASE-TX/1000BASE-T), using a LAN cable (shielded type of category 5 or higher).

Preparation and Configuration

Configuring Using the CCU

You can view the status of the unit and the system as a whole and check/configure various settings by connecting a video monitor to the CHARACTER connector, SDI OUT 3 connector, or SDI OUT 4 connector on the CCU. For details about operation, refer to the operating instructions for the HDCU5500/3500.

Configuring Using the Web Menu

You can configure the unit, execute various functions, and check settings information using the web menu. The web menu is accessed from a web browser on a computer.

Note

Use of a monitor with 1000×720 or higher resolution is recommended in order to view the web menu normally.

Accessing the Web Menu

- 1 **Connect a PC which has a web browser installed and the unit on the same private network.**
Connect the network cable to the LAN COM connector on the rear panel.
- 2 **Enter the IP address of the unit in the web browser.**
Address input example:
`http://192.168.0.10/`
The web menu is accessed.

Network Settings

The unit supports connection to two networks using the LAN COM connector (1GbE) and 10GbE (LC optical) connector (10GbE). Configure settings for each network. Configure the settings using [Network Settings] on the [System] screen > [Network] tab of the web menu.

Network 1 (LAN COM connector) settings

Configure the following in [Network1(1GbE)].

Menu item	Setting
IP Address	Register the IP address. (Default value: 192.168.0.10)
Subnet Mask	Register the subnet mask.
Default Gateway	Register the default gateway.
MAC Address	Displays the MAC address (display only).
MTU	Set the MTU of the network.

Network 2 (10GbE (LC optical) connector) settings

Configure the following in [Network2(10GbE)].

Menu item	Setting
IP Address	Register an IP address different from network 1. (Default value: 192.168.10.10)
Subnet Mask	Register the subnet mask.
Default Gateway	Displays the default gateway registered for network 1 (display only).
MAC Address	Displays the MAC address (display only).
MTU	Set the MTU of the network.

When finished, click the [Submit] button to register the settings.

Network settings from the CCU menu

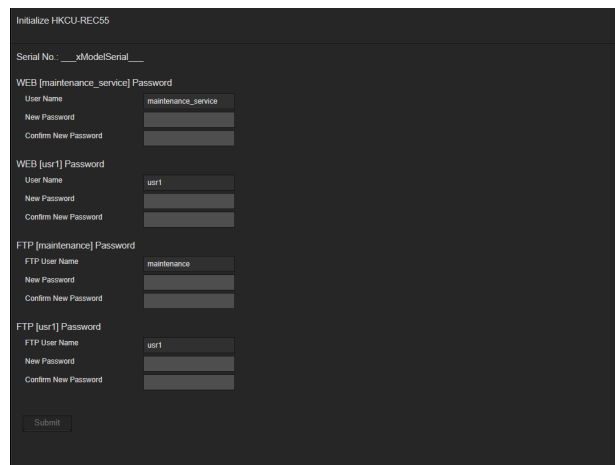
When [PORT] is set to "ISO-1G" under <IP ADDRESS> in the NETWORK menu, the 1GbE IP address, subnet mask, and default gateway are displayed and can be changed. When set to "ISO-10G," the 10GbE IP address, subnet mask, and default gateway are displayed and can be changed.

Web Browsers

The use of Chrome is recommended. Use of a web browser other than Chrome may corrupt the layout of the web menu or may cause some functions to operate incorrectly.

Initial Access

When you access the unit for the first time, a screen appears prompting you to set the user ID and password used for accessing the web menu and for FTP.



Set the following user ID and password settings.

Target	User ID	Authority
Web	maintenance_service	Permission to access the full web menu, including the Maintenance menu and [Control] button on the Home screen.
	usr1	Permission to access the setup menu.

Target	User ID	Authority
FTP	maintenance	Permission to acquire logs via FTP.
	usr1	Communication with the PWA-RCT1. Enter this user name and password in the server settings dialog of PWA-RCT1.

A valid password is a character string of 8 to 32 characters containing both alphabetic and numeric characters. In addition to alphanumeric characters, the _ (underscore), - (hyphen), + (plus), @ (at sign), and * (asterisk) characters can be used.
The login screen appears when the password setup is finished.

Logging In and Logging Out

To log in to the web menu, enter the user name and password on the login screen.
You can log in from multiple computers or multiple browsers using a single user name.

Logging out

Click the [Log Out] button on the [System] screen > [Power] tab of the web menu.
The user is also logged out when the web browser closes.

Input/Output Settings

Configure the input/output settings in the menu of the CCU and the web menu.

To record in 4K format using the HKCU-REC55, install the HZCU-UHDR50 4K/HDR recording license, and select either UHD-SDI A or SDI-OUT 1 as the 4K output.

If using the HDCU3500, also install HZCU-UHD35 4K/HDR Processor Software.

Settings configured in the CCU setup menu

Configure the following items in the menu of the CCU. For details, refer to the operating instructions for the HDCU5500/3500.

For details about items added to the menu of the CCU when this unit is installed, see "CCU Menu" (page 14).

Menu page	Setting
<MULTI FORMAT> in the SYSTEM CONFIG menu	Select the operating frequency and format.
<HDR> in the SYSTEM CONFIG menu	Configure HDR/SDR settings.
<VIDEO I/O> in the SYSTEM CONFIG menu	Sets the output connector for ISO REC. <ul style="list-style-type: none"> Select [ISO REC] in [SDI-I/O 3] and [UHD-SDI B].

Settings configured in the web menu

- 1 Display the [System] screen of the web menu, and click the [Board] tab.

- 2 Check or configure the following settings using [Change Current Settings].

Record Settings

Sets the video format of the main signal output.

Sub-Record Settings

Turns simultaneous recording on/off, and sets the video format for simultaneous recording.

Output Settings

Sets the format of the main signal output from the UHD SDI B connector and the monitor output signal from the SDI I/O 3 connector.

- 3 Check the displayed settings, and click the [Submit] button. A confirmation message appears. Click [OK].
Depending on the settings, the unit may reboot automatically to apply the settings.

To configure the settings of each port, use the [Port] screen (page 24) of the web menu.

Notes

- If the format, HDR, or color space setting is changed from the menu of the CCU or if [Change Current Settings] is executed from the web menu during recording to internal storage or transfer to USB drive/NAS, the change in settings takes precedence and any recording, playback, or transfer operation is interrupted.
- If the input/output settings are changed, the values for [Recording Settings], [Sub-Record Settings], and [Output Settings] are reset to their initial values.
- The values that can be selected in [Output Settings] depend on the values selected using [Video Format] in [Record Settings] and [Sub-Record Settings].

Timecode Settings

Recording port and replay port common settings

Configure common settings for the recording port and replay port on the [System] screen > [Setup] tab of the web menu.

Menu item	Description
DF Mode	Sets drop frame mode. This is set to NDF (fixed) if the CCU frequency setting is not set to 29.97.
Timer Select	Selects the time data to output to the timecode display.
TC OUT	Selects the signal to output from the TIME CODE OUT connector. This is set to Through (fixed) in the current version.

Recording port settings

Configure the recording port settings on the [Port] screen > [Record] tab of the web menu.

Menu item	Description
TCG Source	Selects the operating mode of the timecode generator.
REGENE Source	Selects the signal to regenerate.
RUN Mode	Selects the timecode run mode.

Menu item	Description
Timer Select	Selects the time data to display.
Timer Set	Sets the time counter.

Replay port settings

Configure the replay port settings on the [Port] screen > [Replay] tab of the web menu.

Menu item	Description
TCR Select	Selects the timecode that is read by the timecode reader.
Timer Select	Selects the time data to display.
Timer Set	Sets the timer counter.

Audio Settings

Recording port settings

Configure the recording port settings on the [Port] screen > [Record] tab of the web menu.

Menu item	Description
Internal Audio SG	Sets the type of signal to output from the internal signal generator.

Replay port settings

Configure the replay port settings on the [Port] screen > [Replay] tab of the web menu.

Menu item	Description
Shuttle Muting	Sets whether to output the audio signal in SHUTTLE mode.
VAR Muting	Sets whether to output the audio signal in variable-speed playback mode.

Video Settings

Configure the Y ADD setting on the [Port] screen > [Replay] tab of the web menu.

Menu item	Description
Y ADD	Sets whether to force the "Y-add" function off.

Character Superimposition Settings

Character information, such as the timecode, and audio meter can be superimposed on the signal that is output from the SDI I/O 3 connector.

When text information is displayed, the information is displayed on one or two lines. When a file name is set to be displayed, the information is displayed on three lines.

Line 1: Time data

Line 2: VITC/TM1/TM2/UB/Status or warning

Line 3: File name

When "Timedata & Others" is selected in [Character Type], the information is displayed on three lines.

Line 1: Time data and warnings

Line 2: Codec, resolution and frame frequency, OETF, internal storage remaining capacity

Line 3: File name

Configure the character information to be superimposed using [Character] on the [System] screen > [Setup] tab of the web menu.

Menu item	Description
Character On/Off	Sets whether to superimpose character information.
Character Size	Sets the display size of character information.
Vertical Position	Sets the display position in the vertical direction.
Horizontal Position	Sets the display position in the horizontal direction.
Character Info.	Sets the display content of character information.
Background	Sets the background of character information.
Sub Status	Sets content to be added to the display.
Warning Display	Sets whether to display a flashing warning message on the second line of character information when [Character Info.] is set to an item other than "Timedata Only."

Configure the audio meter setting using [Audio Meter] on the [System] screen > [Setup] tab of the web menu.

Menu item	Description
Audio Meter On/Off	Sets whether to superimpose the audio meter.
Position	Sets the display position of the audio meter.
Translucency	Sets the translucency of the audio meter display.
Channel Setting	Sets the channels to display in the audio meter.

Storage

Internal Storage

The unit is equipped with internal storage of 0.6 TB, which can be used for recording and playback of the video signal from the camera.

The following table shows the recording time for each format.

QFHD: XAVC-I Class480	Approx. 1.2 hours
QFHD: XAVC-I Class300	Approx. 2 hours
HD: XAVC-I Class100	Approx. 5.2 hours

The maximum number of files that can be created in internal storage is 2048.

Internal storage settings and information display

Configure the internal storage on the [Storage] screen > [Setup] tab (*page 29*) of the web menu.

Information relating to internal storage is displayed on the [Storage] screen > [Info] tab (*page 28*) of the web menu.

Salvaging storage when recording ends abnormally

When recording ends and the signal bar stops flashing in blue, set the POWER switch on the front panel off to finish operation of the unit. Recording will not end normally if the power switch 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 memory with minimal loss. The salvage function allows the file to be restored based on marker and other information recorded to memory. The salvage process can take a few seconds or up to 10 minutes, depending on the state of the memory when the recording was interrupted.

Notes

- Before disconnecting the power cord on the connector panel, switch the unit off using the POWER switch 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.
- Data immediately before recording was interrupted cannot be restored even if you execute this function. Approximately one second of data prior to the interruption is lost.
- A dialog prompting you to salvage or format is displayed each time you turn the power on if there are files that have not been restored.
- Recording and playback cannot be performed if files have not been restored.
- Formatting memory will immediately enable you to use it again as storage, but all recorded data will be lost.

- Even if data is successfully restored after a salvage, it is recommended that you transfer files you want to keep to external network storage or run playback to copy the files to other media, and then reformat the memory.

Restoring files using salvage

- 1 **If memory for which recording did not end normally is detected, a warning message appears on the web menu screen and a confirmation message appears prompting you to salvage or format memory.**

Note

The salvage process cannot be stopped once it is started. Allow plenty of time for the salvage process to complete.

- 2 **Select [FS Salvage] on the [Storage] screen of the web menu.**

The salvage process begins and a "Please wait." message appears.

The message window closes automatically when the process ends.

When files cannot be restored using salvage

If files cannot be restored even by performing a salvage, the internal memory cannot be used in this condition. Formatting memory will enable you to use it again.

- 1 **If memory for which recording did not end normally is detected, a warning message appears on the web menu screen and a confirmation message appears prompting you to salvage or format memory.**

- 2 **Select [FS Format] on the [Storage] screen of the web menu.**

The format process begins and a "Please wait." message appears.

The message window closes automatically when the process ends.

USB Drives

A USB drive connected to the unit can be used for recording and playback of the video signal from the camera. Format the USB drive in exFAT.

The following Sony USB drives have been tested and verified with the unit.

- PSZ-SC96, SC48
- PSZ-HC2T, HC1T

The unit may not operate correctly if a USB drive other than those above is used. If this occurs, contact your Sony service or sales representative.

Notes

- The transfer speed may vary depending on the USB drive and USB cable used.
- Use an SSD if transfer speed is a priority.
- Operation is not guaranteed when a USB hub is connected or a USB drive that uses a conversion adapter is connected.

Connecting a USB drive

Connect the USB drive to the USB connector on the front panel of the unit. The USB drive is mounted automatically when it is accessed from the PWA-RCT1 or web menu. When removing the USB drive, first unmount it from the PWA-RCT1 or web menu.

USB drive information display

Information relating to the USB drive is displayed on the [Storage] screen > [External] tab (*page 30*) of the web menu.

Formatting a USB drive

- 1 Select [FS Format] in [USB Storage Settings] on the [Storage] screen > [External] tab of the web menu.
- 2 Click the [Start] button.
The format process begins and a "Please wait." message appears.
The message window closes automatically when the process ends.

NAS

A recorded file of the video signal from the camera can be transferred to a NAS connected to the unit via a 10 Gigabit network.

Connecting a NAS

Connect the NAS to a 10 Gigabit network that is connected to the LC optical connector on the rear panel of the unit. The NAS must be registered using the web menu before use. Up to three NAS units can be registered.

Registering a NAS

- 1 Click the [Edit] button in [Network Server List] on the [Storage] screen > [External] tab of the web menu. A NAS registration dialog appears.
- 2 Configure the following items.
 - NAS server name
 - IP address
 - Transfer destination folder
 - NAS user name and password
- 3 Click the [Submit] button.

Recording, Playback, and File Operations

This section describes the recording, playback, and file operations for video and audio using the unit. Each operation is controlled from PWA-RCT1. For details about operation, refer to the PWA-RCT1 Help.

Recording

You can record video and audio in the internal storage of the unit. While recording to internal storage, you can also simultaneously record (chasing transfer) to external storage (USB drive or NAS). Direct recording to external storage only is not supported.

Preparation for recording

Configure the following settings before starting to record. Recording format selection: [System] screen > [Board] tab of the web menu

Video input signal selection: [System Parameter] on the [System] screen > [Setup] tab of the web menu

Audio settings: [Port] screen > [Record] tab of the web menu

Timecode and user bits settings: [System] screen > [Setup] tab and [Port] screen > [Record] tab of the web menu

Displayed timecode settings: [Character] on the [System] screen > [Setup] tab of the web menu

Simultaneous recording

You can simultaneously record in 4K (QFHD) and HD to internal storage.

Configure the settings on the [System] screen > [Board] tab of the web menu.

The following table shows the supported formats for simultaneous 4K+HD recording.

Main recording		Sub recording	
XAVC-I Class480 3840×2160	59.94p	XAVC-I Class100 1920×1080	59.94p, 59.94i
	50p		50p, 50i
	29.97p		29.97p
	25p		25p
XAVC-I Class300 3840×2160	23.98p	XAVC-I Class100 1920×1080	23.98p
	59.94p		59.94p, 59.94i
	50p		50p, 50i
	29.97p		29.97p
XAVC-I Class300 3840×2160	25p	XAVC-I Class100 1920×1080	25p
	23.98p		23.98p

Playback

You can play files that are stored in the internal storage of the unit. Files that are stored in external storage cannot be played.

In addition to normal playback, single file repeat playback is supported.

To set repeated playback, set [Continuous Mode] to [Single File Repeat] on the [Port] screen > [Replay] tab of the web menu.

Notes

- Up-converted output is not supported during playback of an HD recorded file. The output from the UHD-SDI connectors is a gray screen.
- Files with the video format selected using [Video Format] in [Record Settings] and [Sub-Record Settings] are available for playback.

File Operations

You can perform operations on files stored in the internal storage of the unit or files stored on a USB drive connected to the unit from PWA-RCT1.

You can also perform operations on files stored in the internal storage of the unit using the web menu.

Note

Operations on files stored on a NAS are not supported using the web menu or PWA-RCT1.

Operations using the web menu

This section describes the operations on files using the web menu.

For details about operations from PWA-RCT1, refer to the PWA-RCT1 Help.

File list display

A list of the files in internal storage is displayed on the [File] screen of the web menu. You can filter the files to display only the required files.

Click a file in the file list to display the file monitor.

Information relating to the selected file is displayed in the file monitor. You can open, rename, or delete a file using the file monitor.

Opening a file

- 1 Click a file in the file list to display the file monitor.
- 2 Click the [Open] button.

Note

Files cannot be opened while the unit is recording.

Renaming a file

- 1 Click a file in the file list to display the file monitor.
- 2 Enter a new file name in the [Rename] field.
- 3 Click the [Rename] button.

Note

Files cannot be renamed while the unit is recording.

Deleting a file

- 1 Click a file in the file list to display the file monitor.
- 2 Click the [Delete] button.

To delete multiple files, place a check mark in the checkboxes for the files you want to delete, and then click the [Delete] button.

Notes

- Files cannot be deleted while the unit is recording.
- Files cannot be deleted during playback or transfer when [File Delete Mode] is set to "Inhibit" on the [System] screen > [Setup] tab of the web menu.

File Transfer

Files recorded to internal storage and files being recorded to internal storage can be transferred to external storage. In addition to normal file transfer, the following file transfer modes are supported.

• Auto transfer

When auto transfer of files being recorded is enabled, files are transferred in parallel while recording. If recording is stopped during file transfer, the content up to the point recording stopped is transferred.

• Partial transfer

Specify In and Out points to transfer a portion of a file.

Note

During recording, playback, or file transfer operation, the operation will stop if the CCU format, HDR MODE, or COLOR SPACE is changed.

CCU Menu

This section describes the menus added to the HDCU5500/3500 when this unit is installed. For details about menu operations, refer to the operating instructions for the HDCU5500/3500.

SYSTEM CONFIG menu

Page name Page No.	Item	Set value	Description
<VIDEO I/O> S02	SDI-I/O 3		SDI I/O 3 settings
	I/O	IN, OUT	Selects input or output.
	SIGNAL	When I/O is set to OUT: SDI-OUT, HD TRUNK , ISO REC When I/O is set to IN: SDI-RET	Signal usage setting ISO REC is displayed only when the unit is installed.
UHD-SDI B			UHD-SDI B settings
	I/O	OUT	Output (fixed)
	SIGNAL	SDI-OUT , UHD TRUNK, ISO REC	Signal usage setting ISO REC is displayed only when the unit is installed.

MAINTENANCE menu

Page name Page No.	Item	Set value	Description
<RECORDING OPTION> M11	PASSWORD RESET	EXEC, ----	Resets the password of the unit. Notes <ul style="list-style-type: none"> All settings of the unit are cleared. Can be executed only when WEB MENU is set to DISABLE on the <WEB MENU> page of the NETWORK menu of the CCU.
	MODEL NAME	HKCU-REC55	Model name of the unit

DIAGNOSIS menu

Page name Page No.	Item	Display	Description
<BOARD STATUS> D01	ENC	OK, POWER ERROR, PLD ERROR, TEMP WARNING, ISO REC WARNING, ISO REC ERROR	HKCU-REC55 board self-diagnostics result
<VERSION> D03	ENC1(XAVC)		ROM version of ENC1 PLD (XAVC) (HKCU-REC55 board)
	ENC2(REC55)		ROM version of ENC2 PLD (REC55) (HKCU-REC55 board)

Web Menu

Web Menu Organization

The web menu comprises the following screens.

Home screen: Displays the operating status of unit's ports and the network.

Status screen: Displays a list of errors and warnings that have occurred on the unit.

System screen: Makes basic settings for the unit.

Port screen: Makes settings for each port of the unit.

File screen: Displays a file list.

Storage screen: Displays information about storage and configures the storage of the unit.

Maintenance screen: Used for maintenance of the unit. For details about this screen, refer to the Maintenance Manual.

CCU Web screen: Displays the web menu screen of the CCU. You can return to the web menu of the HKCU-REC55 by selecting "ISO REC" from the context menu of the web menu screen of the CCU. For details about this screen, refer to the operating instructions for the HDCU5500/3500.

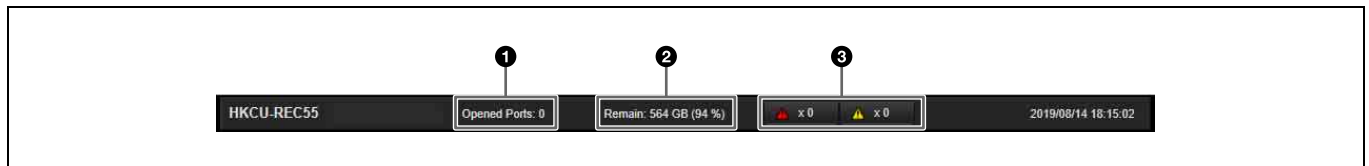
Note

The web menu of the CCU is not displayed if [WEB MENU] is set to [DISABLE] on the <WEB MENU> page in the CCU setup menu.

In the descriptions of each screen, the underlined option is the default value for each item.

Title bar

The title bar is common to each screen of the web menu.



1 Number of open ports

2 Storage capacity

3 Error/warning indicators


Displays the number of errors and warnings that have occurred.

Clicking the indicator displays detailed information about the error/warning.

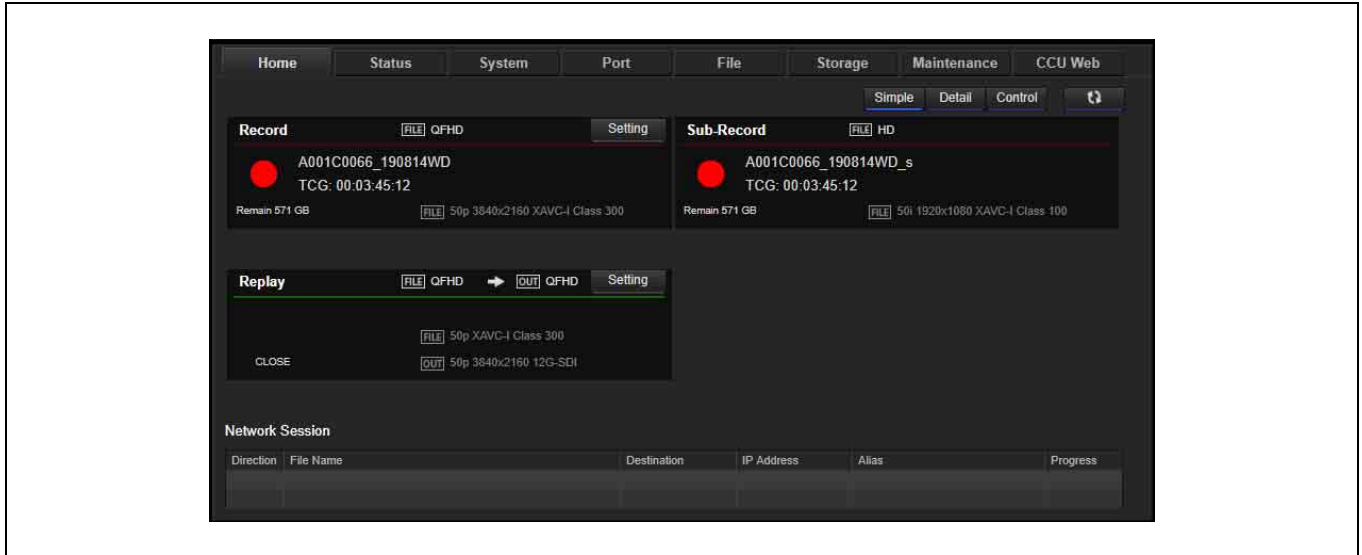
Home Screen

Displays the operating status of the unit's ports and the network.

The Home screen supports simple display mode and detail display mode. You can switch mode using the [Simple]/[Detail] buttons.

Clicking the  button, turning it on, updates the screen display automatically.

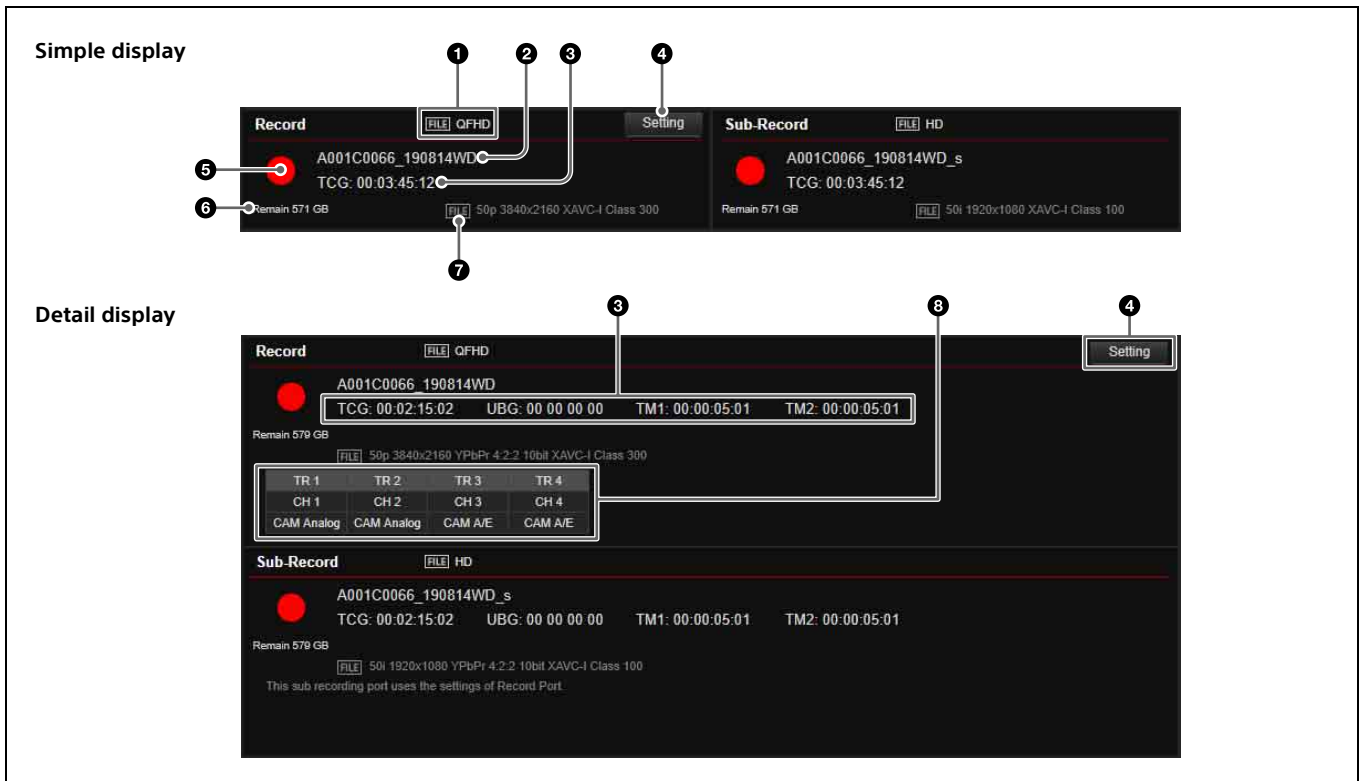
The [Control] button function is provided for service administrators. A password is required to use it.



The Home screen displays the status of each port.

Record Port and Sub-Record Port

The following information is displayed for the recording port and simultaneous recording port.



1 Recording format
[FILE] displays the video format of the recording.

2 File name
Displays the name of the file being recorded. "Next: FILE" is displayed before recording.

3 Timecode display

Displays timecode data (TCG).

In detail display mode, UBG, TM1, and TM2 are also displayed simultaneously.

4 [Setting] button

Displays the [Port] screen (page 24) for the corresponding port to configure port settings.

5 Recording indicator

Displays ● mark when recording.

6 Remaining capacity

Displays the remaining memory capacity.

7 [FILE]

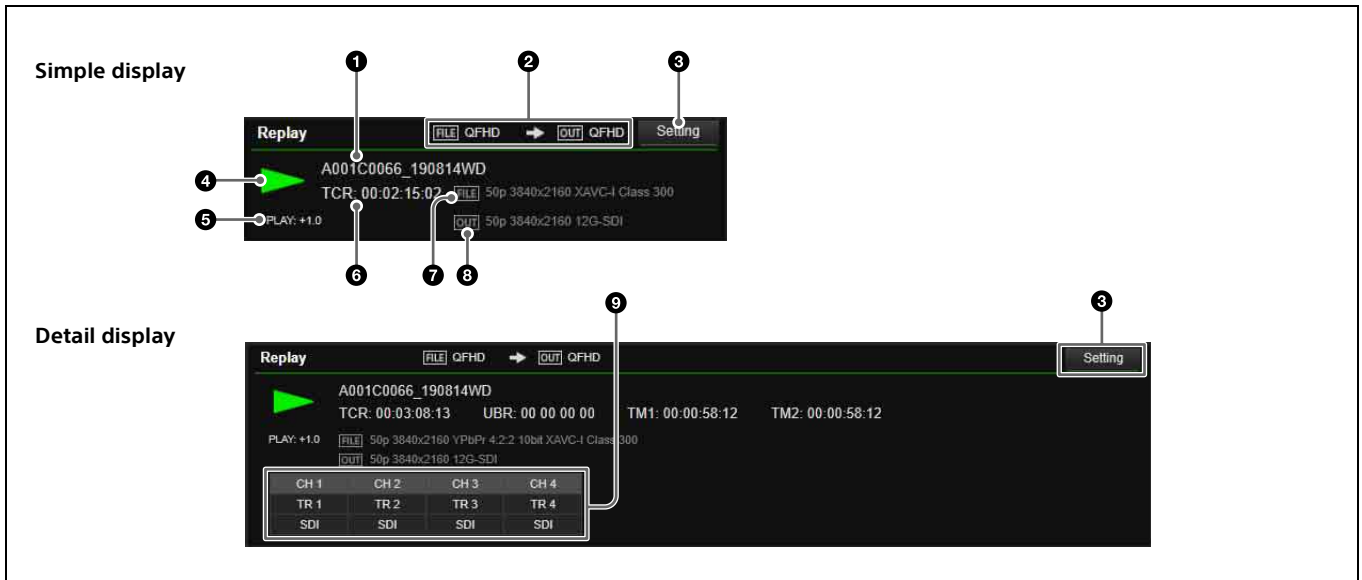
Displays the video format of the recorded file.

8 Audio tracks

Displays the signal (CAM Analog or CAM A/E) used on each audio track.

Replay Port

The following information is displayed.



1 File name

Displays the name of the file being played back.

2 File/output format

[FILE] displays the video format of the file, and [OUT] displays the video format of the output signal.

3 [Setting] button

Displays the [Port] screen (page 24) for the corresponding port to configure port settings.

4 Playback indicator

Displays "▶" during playback. The following is displayed as the playback mode.

- No indication: Normal file playback
- (File Repeat): File repeat playback

5 Playback status indicator

The following are displayed as the playback status.

- CLOSE
- STOP
- PLAY (playback speed)
- SHUTTLE (playback speed)
- JOG (FWD/REV)
- VAR (playback speed)
- STILL

6 Timecode display

Displays timecode data (TCR).

In detail display mode, UBR, TM1, and TM2 are also displayed simultaneously.

7 [FILE]

Displays the video format of the file being played back.

8 [OUT]

Displays the video format of the video signal being output.

9 External audio channels

Displays which audio track is used on each external audio channel.

Network Session

Displays the operating status of the network connection. The following information is displayed.

File Name

Displays the name of the file being transferred.

Direction

Displays the transfer direction as an icon.

Destination

Displays the transfer destination.

IP Address

Displays the IP address of the transfer destination server.


Alias

Displays the name of the transfer destination server.

Progress

Displays the transfer progress.

Status Screen

Displays a list of errors and warnings that have occurred on the unit, and the power supply status. When the  button is on, the display updates automatically.



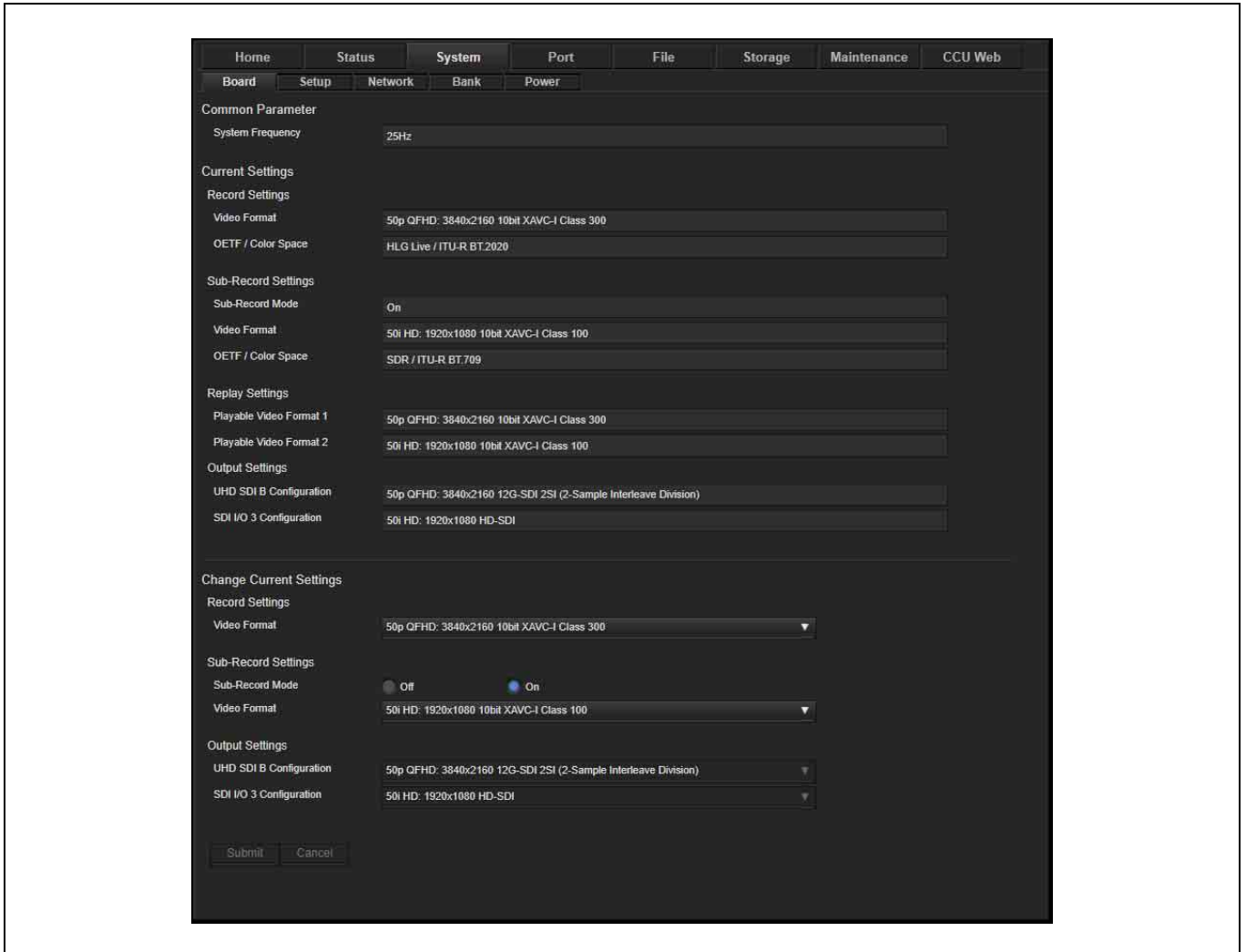
Error/Warning Status

Displays a list of errors and warnings.

System Screen

Makes basic settings for the unit.

Board tab



Makes input/output board settings using [Change Current Settings].

For details about settings, see *“Settings configured in the web menu” (page 9)*.

Step 1: Record Settings

Select the format for the main recording.

Step 2: Sub-Record Settings

Turn simultaneous recording on/off, and set the video format for simultaneous recording.

Step 3: Output Settings > UHD SDI B Configuration

Select the signal to output from the UHD SDI B connector.

Step 4: Output Settings > SDI I/O 3 Configuration

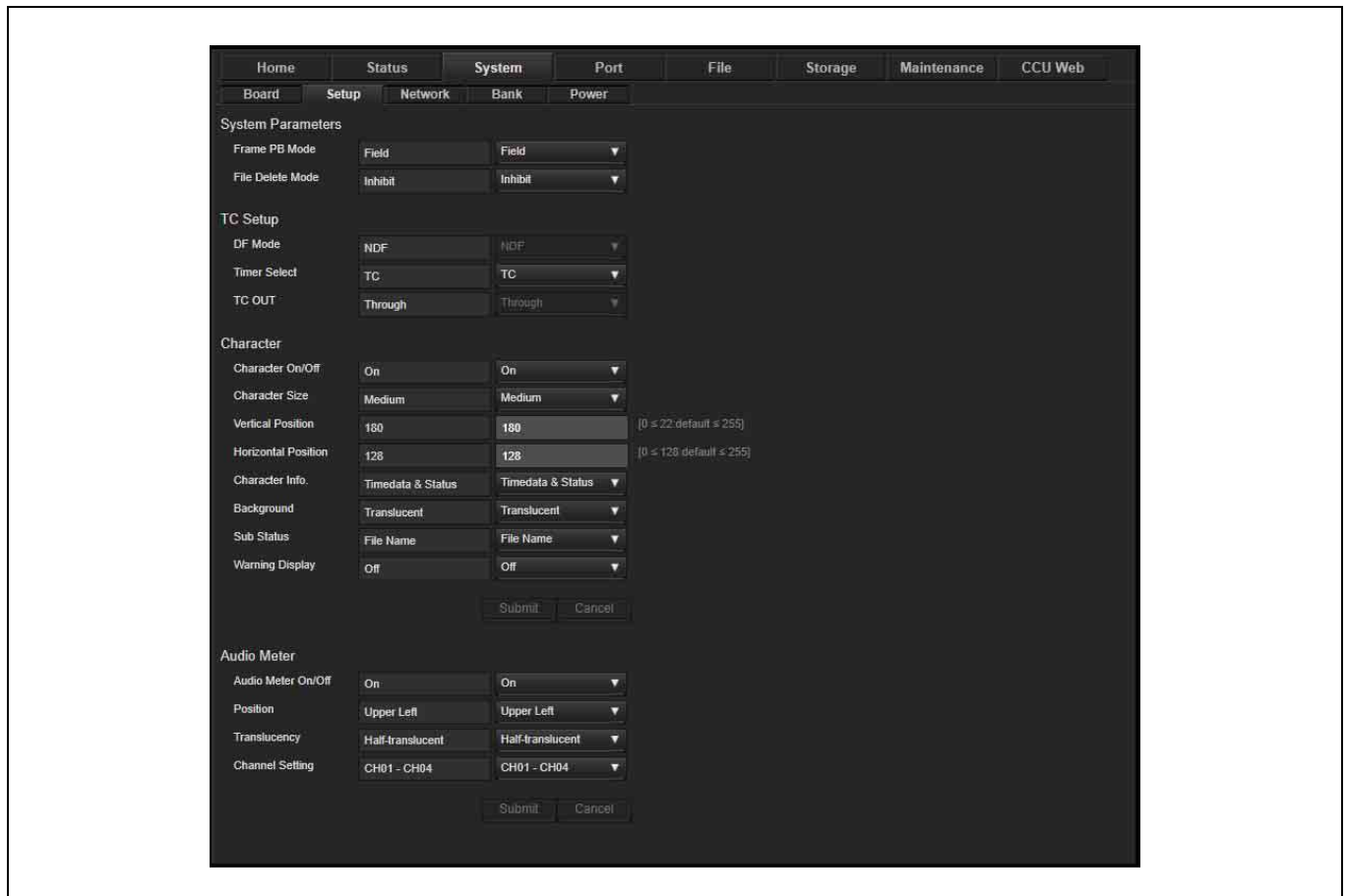
Select the signal to output from the SDI I/O 3 connector.

Step 5: Submit

Check the settings, and click the [Submit] button.

Setup tab

Makes basic operating mode settings of the unit.



System Parameters

Frame PB Mode

Selects the playback mode during variable speed playback.

- Field: Field playback
- Frame: Frame playback

File Delete Mode

Selects whether to delete a file if the Delete command is received for a file for which playback or file transfer (export) is in progress.

- Inhibit: Prevents deletion of files during playback or file transfer.
- Permit: For a file during playback, it deletes the file when the port closes. For a file during file transfer, it stops the transfer and then deletes the file.

TC Setup

DF Mode

Sets the drop frame mode of the timecode generator or timer counter.

- NDF
- DF

Note

This setting is valid only when the frame frequency is 29.97 Hz.

Horizontal Position

Sets the horizontal display position of character information.

Timer Select

Selects the time data to display.

- TC
- UB
- TM1
- TM2

TC Out

Selects the signal to output from the TIME CODE OUT connector on the rear panel. This is set to Through (fixed) in the current version.

Character

Character On/Off

Selects whether to display superimposed character information, such as the timecode, on the monitor signal.

- Off
- On

Character Size

Sets the display size of character information.

- Small
- Medium

Vertical Position

Sets the vertical display position of character information.

- 0 (top) to 22 to 255
- 0 (left) to 128 to 255

Character Info.

Sets the character information content if [Character On/Off] is set to On.

- Timedata & Others
- Timedata Only: Timer counter only
- Timedata & VITC: Timer counter and VITC
- Timedata & TM1: Timer counter and TM1
- Timedata & TM2: Timer counter and TM2
- Timedata & UB: Timer counter and user bits
- Timedata & Status: Timer counter and operating status

Background

Sets the character information background.

- Outline: White characters with black outlines
- Translucent: White characters on a gray translucent background
- without BG: White characters with no background
- with BG: White characters on a black background

Sub Status

Sets additional information displayed with the character information.

- Off: Displays no additional information.
- File Name: Displays the file name.

Warning Display

Sets whether to display a flashing warning message on the second line of character information when [Character Info.] is set to an item other than "Timedata Only."

- Off
- On

Audio Meter

Audio Meter On/Off

Sets the audio meter display.

- Off
- On

Position

Sets the display position of the audio meter.

- Upper Left: Upper left
- Upper Right: Upper right
- Left: Left
- Right: Right
- Lower Left: Lower left
- Lower Right: Lower right

Translucency

Sets the translucency of the audio meter display.

- Off: Non-translucent display
- Half-translucent: Semi-translucent display

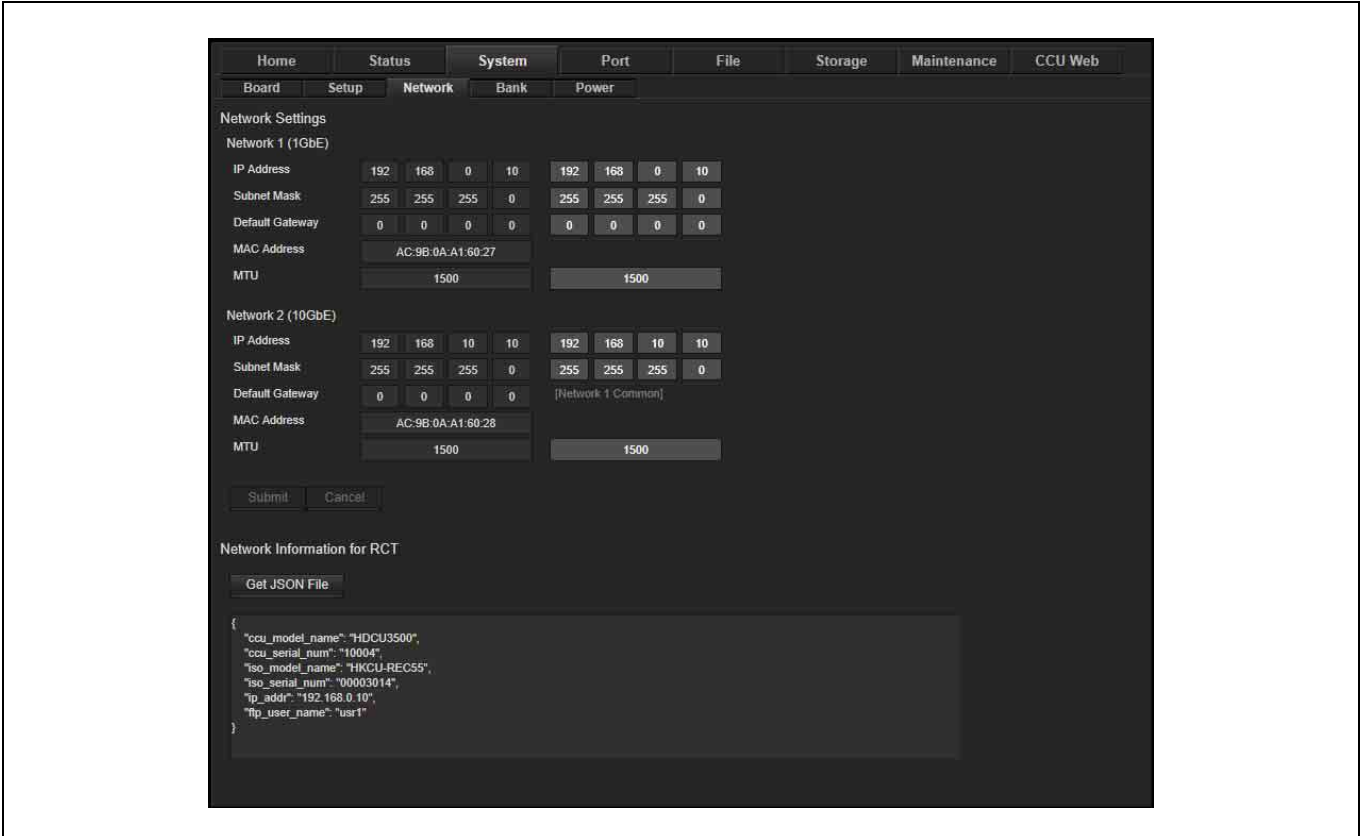
Channel Setting

Sets the channels to display in the audio meter.

- L - R
- CH01 - CH02
- CH03 - CH04
- CH01 - CH04

Network tab

Makes network settings.



Network 1 (1GbE)

Sets the IP address, subnet mask, default gateway, and MTU of the LAN COM connector.

It also displays the MAC address of the LAN COM connector.

The following values are the factory default values.

IP Address: 192.168.0.10


Subnet Mask: 255.255.255.0

Default Gateway: 0.0.0.0

MTU: 1500

Network 2 (10GbE)

When a 10 Gigabit network is used, this sets the IP address, subnet mask, and MTU. The default gateway setting for Network 1 is displayed.

It also displays the MAC address of the  (LC optical) connector.

The following values are the factory default values.

IP Address: 192.168.10.10

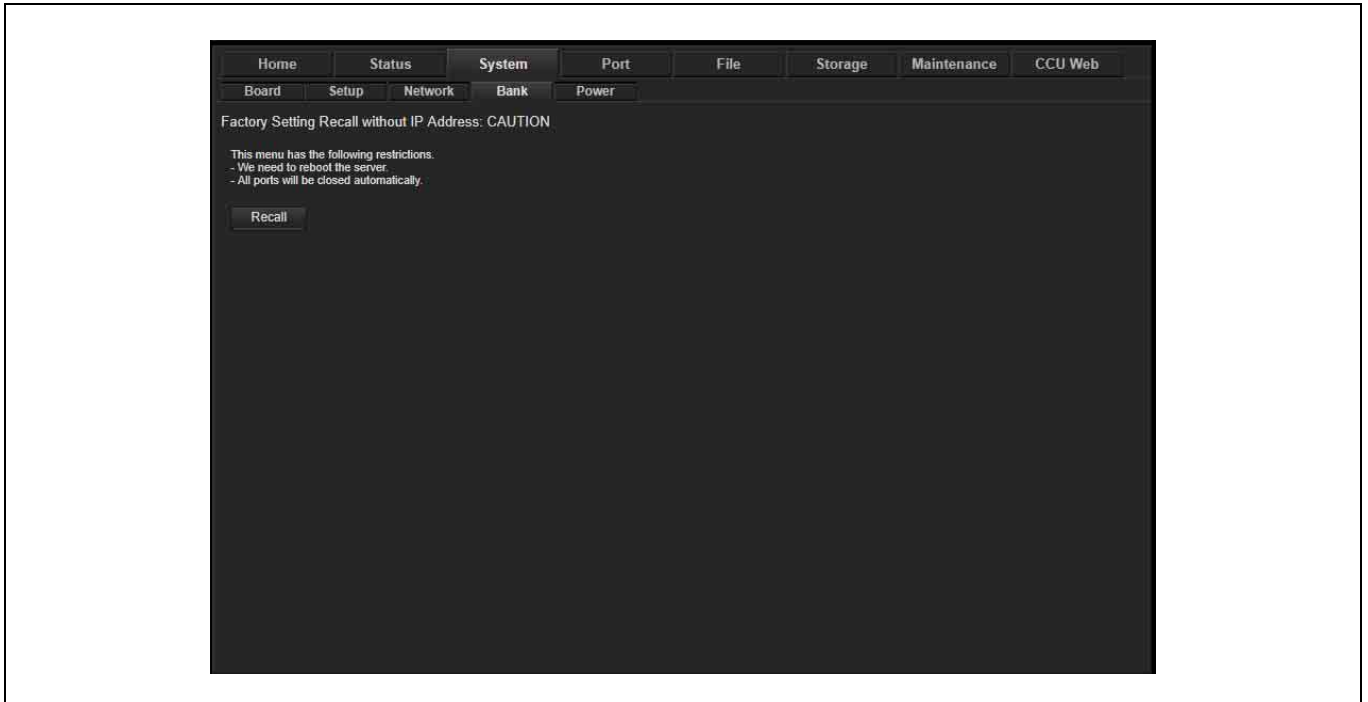
Subnet Mask: 255.255.255.0

Default Gateway: 0.0.0.0

MTU: 1500

Bank tab

Makes settings for user banks for saving settings.



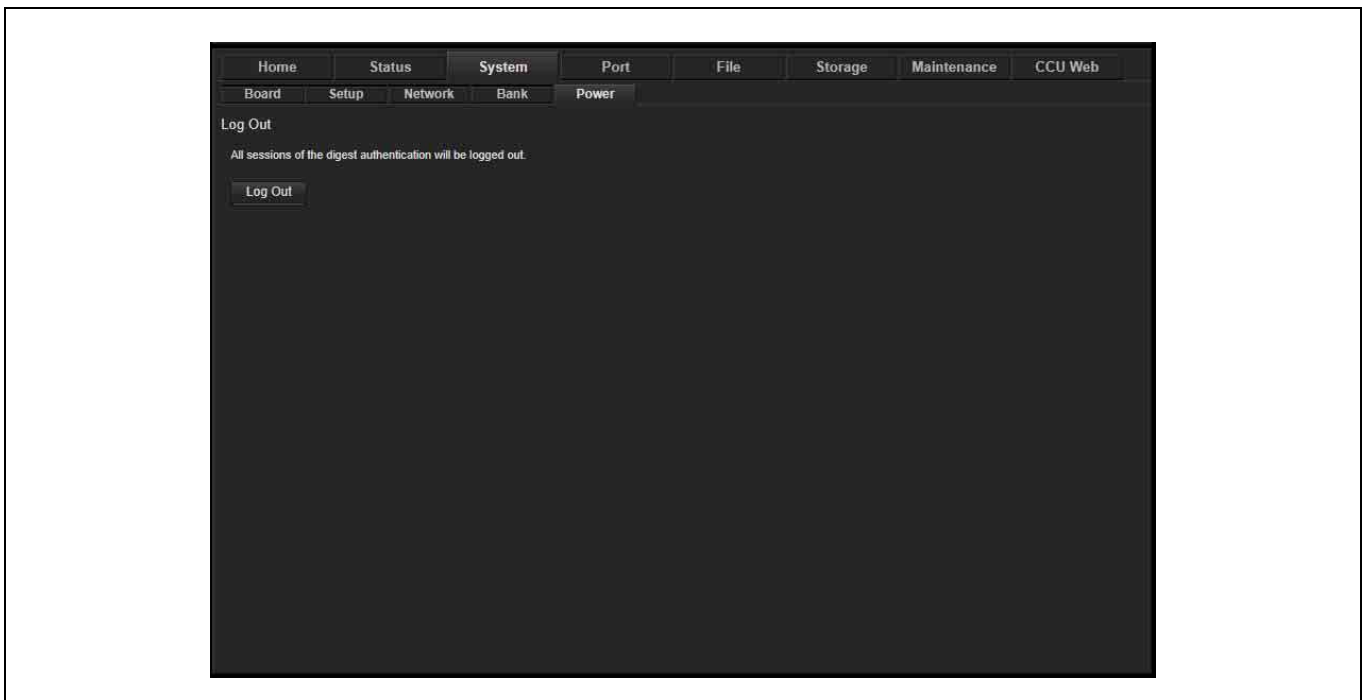
Bank Recall

Factory Setting Recall without IP Address

Click the [Recall] button to return the settings on the System screen to their default factory values. The network IP address settings are not initialized.

Power tab

Use to log out from the web menu.



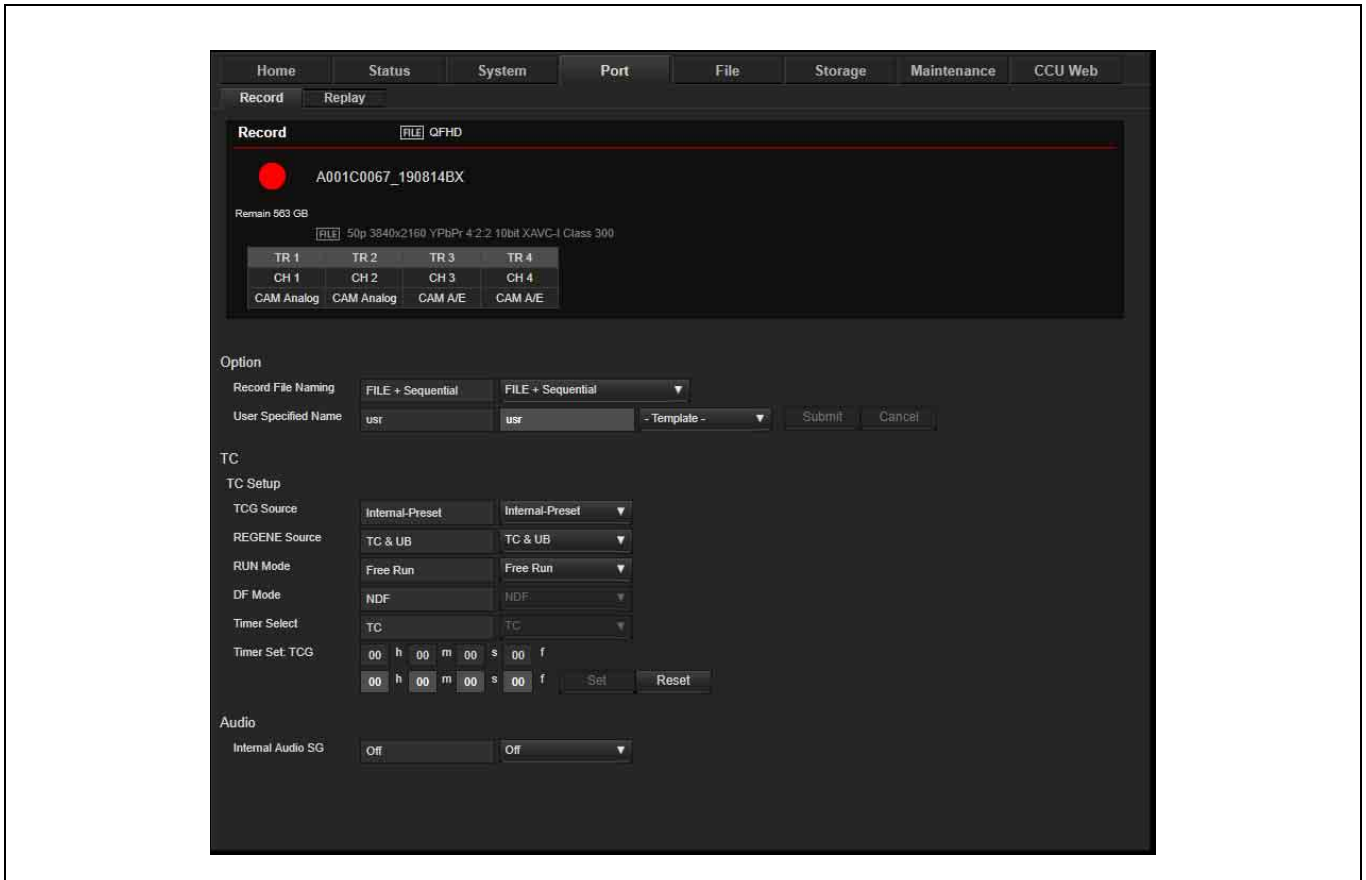
Log Out

Click the [Log Out] button to log out from the web menu.

Port Screen

Makes settings for each port of the unit.

Record tab



Port information

Displays the operating status of the selected port. The display is the same as on the Home screen.

Option

Record File Naming

Selects the file naming convention for automatically generated files.

- **File + Sequential:** Assigns a sequential number.
- **CCU Serial No. + Time:** Uses the date and time of recording for the file name.
- **User Specified Name:** Allows the user to specify a 1 to 8-character prefix for the file name.

User Specified Name

Sets the 1 to 8-character prefix for the names of recorded files. Enter an arbitrary string in the text box or select a prefix from the drop-down list. [Record File Naming] must be set to [User Specified Name] in order to enable this setting.

TC

Makes timecode settings.

TCG Source

Selects the source signal for synchronizing the internal timecode generator.

- **Internal-Preset**
- **External-LTC**

REGENE Source

Selects the signal to regenerate when the timecode generator is in regenerate mode.

- **TC&UB:** Regenerates both the timecode signal and user bit signal.
- **TC Only:** Regenerates the timecode signal only.
- **UB Only:** Regenerates the user bit signal only.

RUN Mode

Sets the running mode of the timecode generator.

- **Free Run:** The timecode advances when the power is on, regardless of the unit's operating mode.
- **Rec Run:** The timecode advances during recording only.

DF Mode

Displays the drop frame mode of the timecode generator or timer counter.

Timer Select

Displays the time data to display.

Timer Set

Displays the time counter.

To change the counter, enter a value and click the [Set] button. Clicking the [Reset] button resets the counter.

Note

Displayed only when [Timer Select] is set to TC, UB, or TM1.

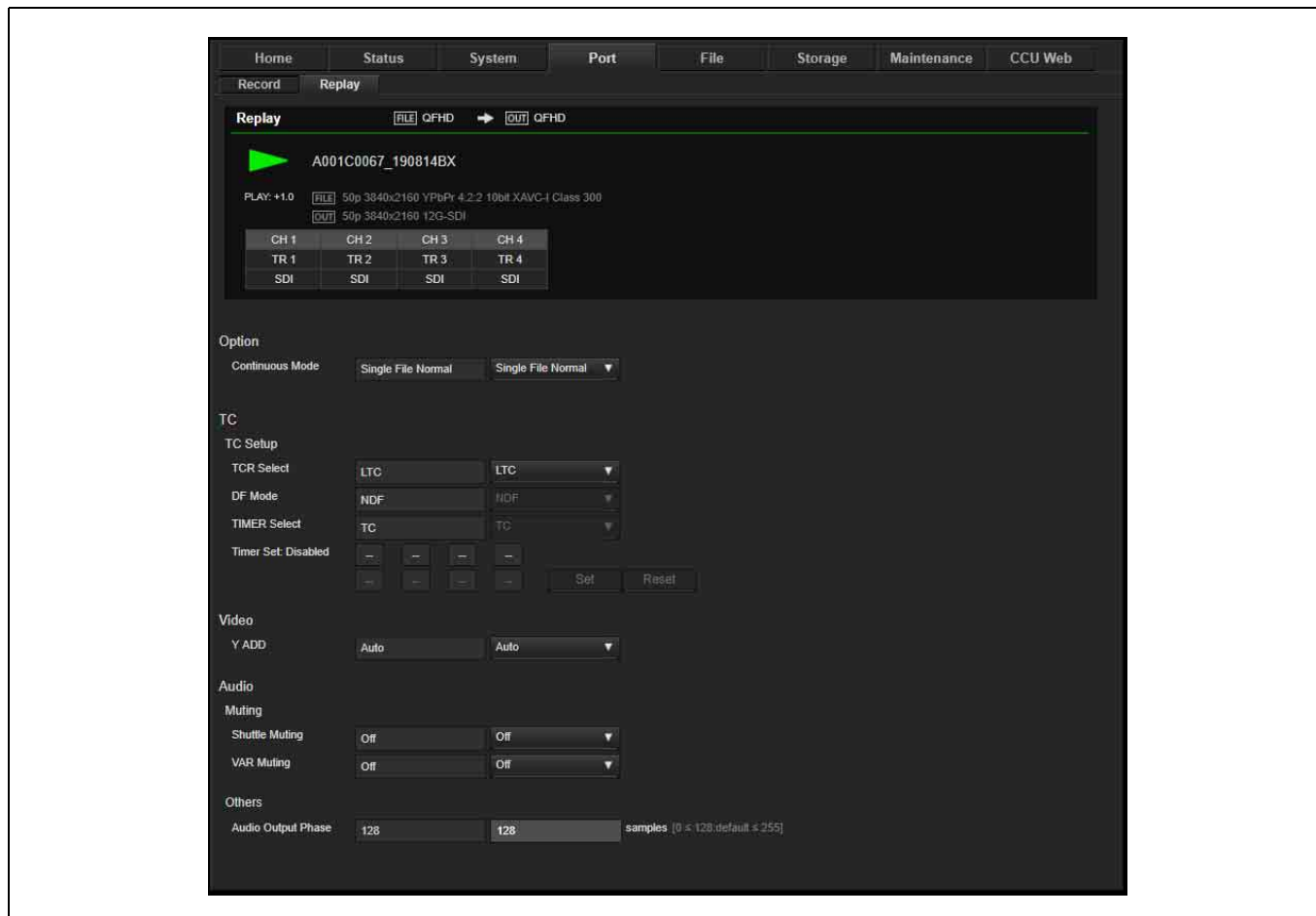
Audio

Internal Audio SG

Selects the type of signal output from the internal signal generator.

- Off: No output
- Silence: Silence signal
- 1kHz: 1 kHz sine wave

Replay tab



Port information

Displays the operating status of the selected port. The display is the same as on the Home screen.

Option

Continuous Mode

Sets the preview file selection and the repeat operation.

- Single File Normal
- Single File Repeat

TC Setup

TCR Select

Sets the readout value of the timecode reader.

- LTC
- VITC

DF Mode

Displays the drop frame mode of the timer counter.

Timer Select

Displays the time data to display.

Timer Set

Displays the time counter.

To change the counter, enter a value and click the [Set] button. Clicking the [Reset] button resets the counter.

Note

Displayed only when [Timer Select] is set to TM1.

Video

Y ADD

Selects whether to set the “Y add” function forcibly to Off.

- Auto
- Off

Muting

Shuttle Muting

Sets whether to output the audio signal during shuttle playback.

- Off: Output
- On: No output

VAR Muting

Sets whether to output the audio signal in variable-speed playback modes other than normal playback (PLAY).

- Off: Output
- On: No output

Others

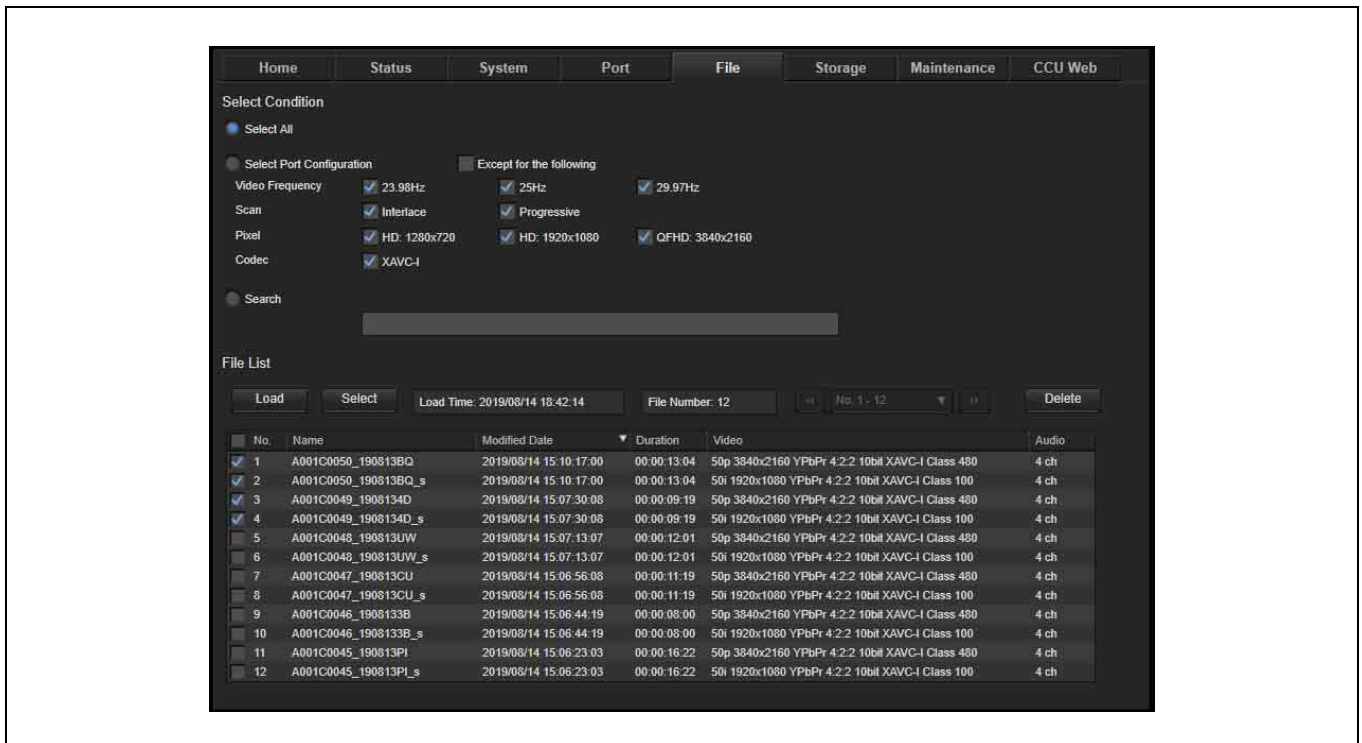
Audio Output Phase

Adjusts the audio output phase.

- 0 to 128 to 255 samples

File Screen

Displays a list of the files stored in the unit. You can filter the files to display only the required files.



Select Condition

Select All

Displays all files in the list.

Select Port Configuration

Displays files filtered by system frequency, scanning method, resolution, and codec.

You can place a check mark in [Except for the following] to exclude the display of files matching the selected conditions.

Search

Displays files with file names that contain the specified character string.

File List

Displays the file list.

To filter the files using options, specify the search criteria in [Select Condition] and click the [Load] button.

To filter the currently displayed files using different search criteria, change the setting in [Select Condition] and click the [Select] button.

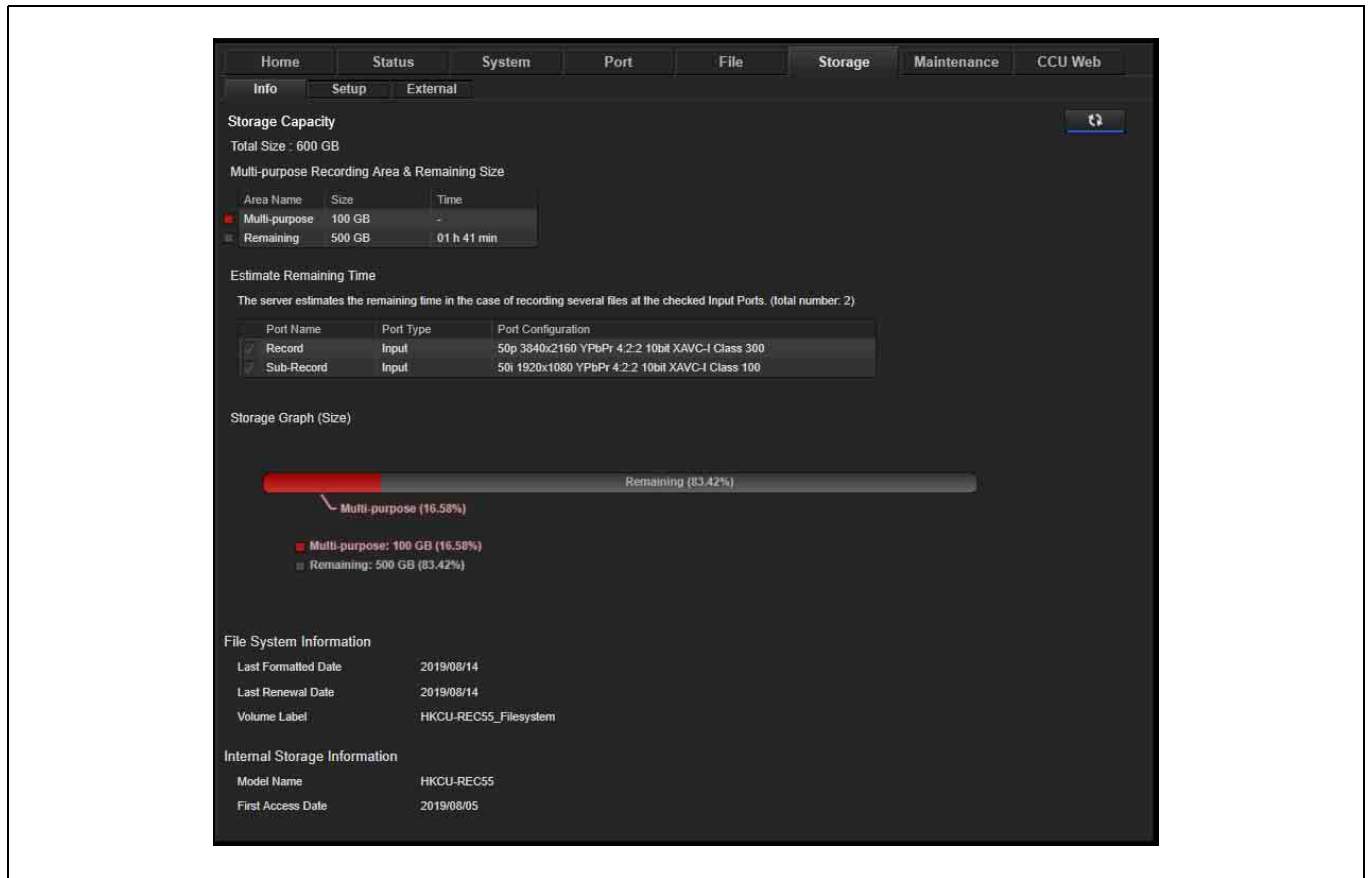
Click a file in the file list to display the file monitor. You can open, rename, or delete the selected file using the file monitor.

Storage Screen

Displays information about storage and configures the storage of the unit.

Info tab

Displays the status of the internal storage of the unit.



Storage Capacity

Total Size

Displays the total capacity of the internal storage.

Multi-purpose Recording Area & Remaining Size

Displays estimated values for the used capacity, remaining free space, and remaining recording time for the area used for normal recording or the recording of files received from the network.

Estimate Remaining Time

Selects the recording port parameters to use when calculating the estimate of the remaining recording time.

Storage Graph

Displays a graph of the usage status of each recording area in internal storage.

File System Information

Last Formatted Date

Displays the date the file system was last formatted.

Last Renewal Date

Displays the date the file system was last updated.

Volume Label

Displays the volume label of the internal storage.

Storage Information

Displays information about the internal storage.

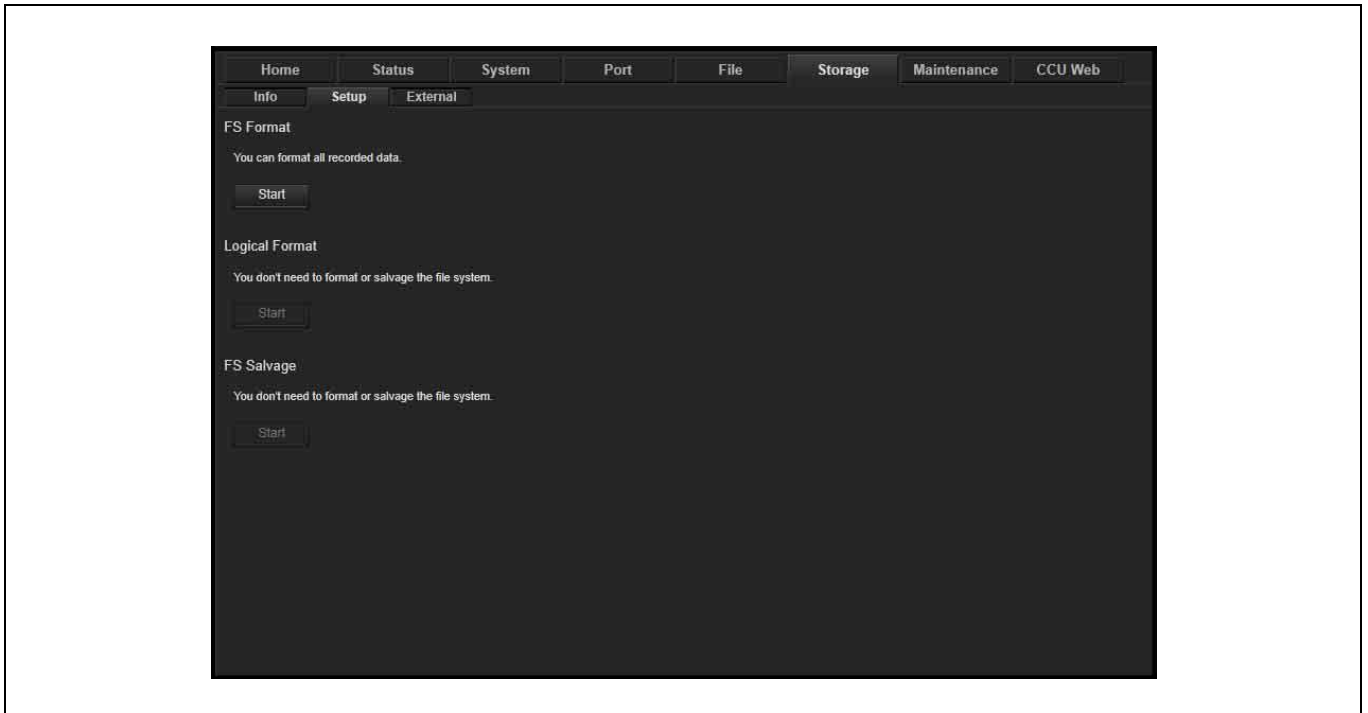
Model Name

Displays the model name of the internal storage.

First Access Date

Displays the date that files were first accessed.

Setup tab



FS Format

Formats the file system. All recorded data is deleted.

Logical Format

Formats the logical file system.

Use to recover memory, when required, due to power outage while writing data to internal storage or other cause. All recorded data is deleted.

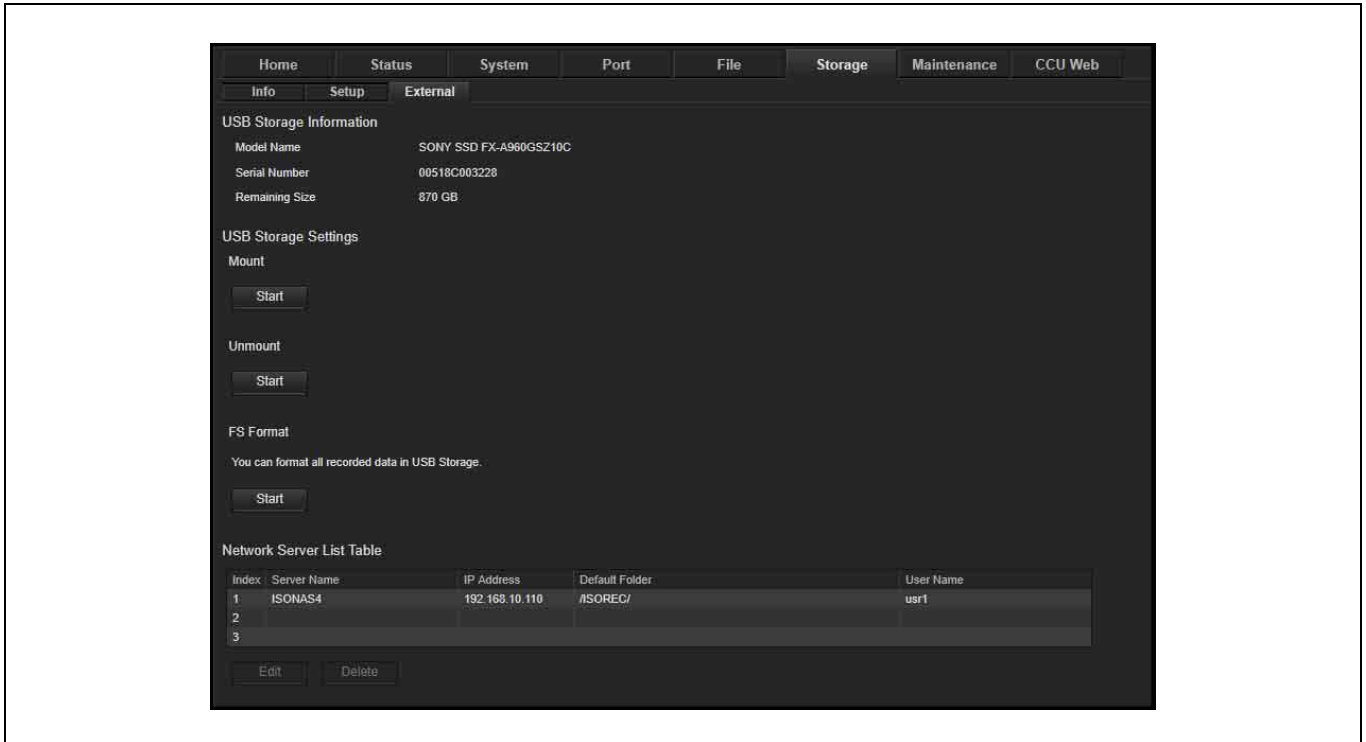
FS Salvage

Salvages the file system.

Use to recover memory, when required, due to power outage while writing data to internal storage or other cause. Recorded data is recovered where possible.

External tab

Makes settings for external storage (USB drive, NAS).



USB Storage Information

Displays USB drive information.

Model Name

Displays the model name of the USB drive.

Serial Number

Displays the serial number of the USB drive.

Remaining

Displays the available recording capacity of the USB drive.

USB Storage Settings

Mount

Mounts a USB drive.

Unmount

Unmounts a USB drive.

FS Format

Formats a USB drive. All recorded data is deleted.

Network Server List

Displays a list of NAS units registered in the unit. The following items are displayed.

- Server name
- IP address
- Transfer destination folder
- NAS user name

To change the registered information, select a NAS in the list and click the [Edit] button.

To delete a NAS, select a NAS in the list and click the [Delete] button.

Usage Precautions

If the unit is suddenly taken from a cold to a warm location, or if ambient temperature suddenly rises, moisture may form on the outer surface of the unit and/or inside of the unit. This is known as condensation. If condensation occurs, turn off the unit and wait until the condensation clears before operating the unit. Operating the unit while condensation is present may damage the unit.

The fan is a consumable part that will need periodic replacement.

When operating at room temperature, a normal replacement cycle will be about 5 years. However, this replacement cycle represents only a general guideline and does not imply that the life expectancy of this part is guaranteed. For details on parts replacement, contact your dealer.

SONY WILL NOT BE LIABLE FOR DAMAGES OF ANY KIND RESULTING FROM A FAILURE TO IMPLEMENT PROPER SECURITY MEASURES ON TRANSMISSION DEVICES, UNAVOIDABLE DATA LEAKS RESULTING FROM TRANSMISSION SPECIFICATIONS, OR SECURITY PROBLEMS OF ANY KIND.

This unit uses the FTP protocol for communication with PWA-RCT1 and NAS.

Depending on the operating environment, unauthorized third parties on the network may be able to access the unit. When connecting the unit to the network, be sure to confirm that the network is protected securely.

From a safety standpoint, when using the unit connected with the network, it is strongly recommended to access the Control window via a Web browser and change the access limitation settings from the factory preset values.

Also, it is recommended that you set a password with a sufficiently long character string that is hard to guess by others, and that you store it safely.

Do not browse any other website in the Web browser while making settings or after making settings. Since the login status remains in the Web browser, close the Web browser when you complete the settings to prevent unauthorized third parties from using the unit or harmful programs from running.

To prevent electromagnetic interference from portable communications devices

The use of portable telephones and other communications devices near this camera can result in malfunctions and interference with audio and video signals.

It is recommended that the portable communications devices near this camera be powered off.

Troubleshooting

Error Messages

If the unit ceases to operate correctly due to malfunction or an internal system error, the ALARM indicator on the front panel lights up red, and an error message appears on the web menu screen.

After an error message appears, resolve 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.

For details about error and warning messages, refer to the operating instructions for the HDCU5500/3500.

Code ¹⁾	Display	Description
030300	ENC1 EEPROM INITIAL ERROR	EEPROM initialization error was detected.
030400	ENC1 PROC1 INITIAL ERROR	PROC1 initialization error was detected.
030500	ENC1 PROC2 INITIAL ERROR	PROC2 initialization error was detected.
030700	SFP INITIAL ERROR	SFP+ initialization error was detected.
030800	ENC1 MEMORY1 INITIAL ERROR	MEMORY1 initialization error was detected.
030A00	ENC1 EMMC INITIAL ERROR	eMMC initialization error was detected.
110100	SYS2 FATAL ERROR	Data could not be received from SYS2 CPU in communication between CPUs (SYS1 and SYS2).
2103pp	PORT x ENC PROC ERROR	An encoding processing error occurred on port x. Recording may not have been performed normally.
2203pp	PORT x DEC PROC ERROR	A decoding processing error occurred on port x. Playback may not have been performed normally.
2301ls	MDC AV WRITE ERROR1	A video/audio recording error caused by an interface problem was detected in the internal memory.
2302ls	MDC AV WRITE ERROR2	A video/audio recording error caused by a memory problem was detected in the internal memory.
2305ls	MDC AV READ ERROR1	A video/audio playback error caused by an interface problem was detected in the internal memory.
2401ls	MDC INTERFACE ERROR1	Cannot communicate with the internal memory. The internal memory cannot be used in the current state. If the error persists every time the power is turned on, the unit or the internal memory may have failed.
2402ls	MDC INTERFACE ERROR2	Cannot communicate with the internal memory. The internal memory cannot be used in the current state. If the error persists every time the power is turned on, the unit or the internal memory may have failed.
2501ls	MDC MOUNT ERROR1	An interface error occurred when connecting the internal memory to the system. If the error persists, salvage is required.
2601ls	MDC FILESYSTEM ERROR	An error was detected with the file system in the internal memory. If the error persists every time the power is turned on, the memory must be formatted.
3101pp	PORT x STOP RECORDING, MDC COND3 BAD	Recording was stopped because 100% of the swap space to replace bad memory cells has been consumed in the internal memory.
3102pp	PORT x STOP RECORDING, MDC FS INFO FULL	Recording was stopped and data was protected because file system control limits have been reached in the internal memory.
3103pp	PORT x STOP RECORDING, MDC WRITE FAIL	Recording was stopped and data was protected because an overwrite operation occurred in the internal memory.
3104ls	MDC CANNOT REC	An error occurred in an unrecorded area in the internal memory.
3105pp	PORT x STOP RECORDING, MDC MAX LENGTH	Recording was stopped because the maximum recording time of the port was reached.

1) The portion in lower case letters in the above codes is one of the following numbers.
pp: Number identifying the corresponding port.

Warning Messages

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

After a warning message appears, resolve the cause of the warning based on the message.

Code ¹⁾	Display	Description
810100	ENC REF UNLOCKED	The lock state of the ENC board is unstable.
810200	LOST LOCK	Synchronization signal of the ENC board was interrupted during playback or recording.
910100	SYS-APP SHARED MEM ACCESS FAIL	Access privilege for accessing APP shared memory could not be obtained within a set time.
920200	SYS1 INTERNAL COMMUNICATION FAILED	SYS1 internal communication process failed.
920300	NEW SETUP MENU CREATED	New menu data was created because menu data was not detected.
A101pp	PORT x NO AV INPUT	Video and audio input signal could not be detected on port x of the ENC board.
A201pp	PORT x VIDEO DATA ERROR	Video data error occurred on the replay port.
A301ls	MDC CONDITION1 DOUBTFUL	The number of errors when writing/reading internal memory is becoming large.
A302ls	MDC CONDITION1 BAD	The number of errors when writing/reading internal memory is extremely large.
A303ls	MDC CONDITION2 DOUBTFUL	The number of internal memory repetitive operations is becoming large.
A304ls	MDC CONDITION2 BAD	The number of internal memory repetitive operations is extremely large.
A305ls	MDC CONDITION3 DOUBTFUL	The swap space used to replace bad memory cells in internal memory is becoming smaller.
A306ls	MDC CONDITION3 BAD	The swap space used to replace bad memory cells in internal memory has been exhausted.
A307ls	MDC AV READ ERROR2	A video/audio playback error caused by an internal memory problem was detected.
A60100	UNFORMATTED MEMORY BOARD DETECTION	An unformatted internal memory board was detected.
B101ls	MDC FULL, NOT RECORDABLE	Recording was canceled because the remaining recording space in internal memory has been exhausted.
B102ls	MDC COND3 BAD, NOT RECORDABLE	Recording was canceled because the swap space used to replace bad memory cells in internal memory has been exhausted.
B103ls	MDC FUNCTION LIMIT	The recording/playback operation was canceled due to internal memory function limits related to recording and playback.
B104ls	MDC MAXIMUM FILES, NOT RECORDABLE	Recording was canceled because the maximum number of files that can be recorded in internal memory was reached.
B105ls	MDC FILE SYSTEM INFO FULL, NOT RECORDABLE	Recording to internal memory was canceled because recording reached the memory management information upper limit.
B106pp	PORT x STOP RECORDING, MDC FULL	Recording was stopped because the internal memory is full.
C10100	EXPORT FILE TRANSFER ERROR 1	An error occurred during recorded file transfer. (Initialization process)
C10200	EXPORT FILE TRANSFER ERROR 2	An error occurred during recorded file transfer. (BANK->WRAP)
C10300	EXPORT FILE TRANSFER ERROR 3	An error occurred during recorded file transfer. (WRAP->export)
C10400	NETWORK WRITE ERROR	Could not write to network destination session during recorded file transfer.
C10500	USB STORAGE DISK FULL	USB external storage is full.
C20100	FAIL TO MOUNT USB STORAGE	Failed to mount USB external storage.
C20200	USB STORAGE LOW CAPACITY	The remaining capacity on USB external storage fell below threshold value.
C30100	LOGIN FAIL TO NETWORK SERVER	Cannot log in to NAS external storage.

Specifications

General

Current consumption	4.5 A (max.)
Power consumption	47 W (max.) (including USB power delivery 4.5 W)
Operating temperature	-10 °C to +40 °C (14 °F to 104 °F)
Storage temperature	-20 °C to +60 °C (-4 °F to +140 °F)
Mass	Approx. 0.8 kg (1 lb 12 oz)
Dimensions (width / height / depth)	258 × 116 × 41 mm (10 ¹ / ₄ × 4 ⁵ / ₈ × 1 ⁵ / ₈ in) (excluding protrusions)

Input/output connectors

4K/HD SDI OUTPUT (UHD SDI B)	BNC (1) 12G/6G/3G-SDI SMPTE-2082, SMPTE-424M/425M, Embedded 48kHz/24-bit/4ch audio
HD SDI OUTPUT (SDI I/O 3)	BNC (1) 3G/HD-SDI SMPTE-292M, SMPTE-424M/425M, Embedded 48kHz/24-bit/4ch audio, Character ON/OFF selectable
EXT REF INPUT	BNC (1) SMPTE-170/BTA S001B
Network	RJ-45 (1) IEEE 802.3ab/1000BASE-T
TIME CODE IN	DIN (1) SMPTE12M
TIME CODE OUT	DIN (1) SMPTE12M
FTP	SFP+ (1) 10GBASE-SR
USB	Type-A, USB 3.1 Gen1 compliant (900 mA)

Supplied accessories

Before Using This Unit (1)
Operating Instructions (CD-ROM) (1)

Optional accessories

HZCU-UHDR50 4K Recording License
Service manual

Related equipment

HDCU5500 Camera Control Unit
HDCU3500 Camera Control Unit
HZCU-UHD35 4K/HDR Processor Software
PWA-RCT1 Record Control Software
PWAL-RCT50 Recording Control Option

Notes

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