Solid-State Memory Camcorder

Operating Instructions

PXW-X400 / PXW-X400KC / PXW-X400KF

XDCIM SXS

HIIII XAVC

DVCAM

FULL HD 3CMOS

MPEG HD422

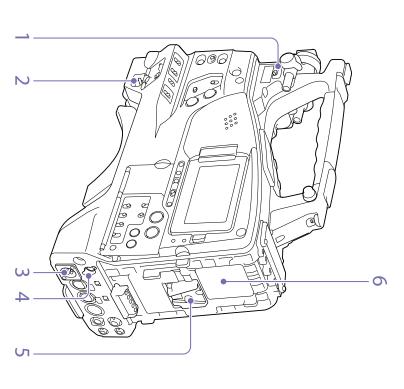


Table of Contents

	123	Gamma Files	57	Obtaining Location Information (GPS)57
	122	Lens Files	55	Planning Metadata
	121	Reference Files121	53	Proxy Data53
	120	Scene Files	49	Advanced Operations49
	119	ALL Files119	47	Basic Operations
	118	User Files118		4. Shooting
	117	User Configuration Data	45	Setting Hille Data
	a 	8. Saving and Loading User Configuration Data	43	Adjusting the Audio Level43
	114	Assigning Functions to Assignable Switches114	42	Adjusting the Focus42
	90	Menu List	40	Setting Auto Iris40
	88	Editing the User Menu88	39	Setting the Electronic Shutter39
	86	Basic Setup Menu Operations86	œ37	
	84	Setup Menu Organization	34	Format Settings
specifications144		7. Menu Display and Settings		3. Settings and Adjustments
Usage Precautions142	78	Clip Operations on the Thumbnail Screen78	33	Using a Media Adaptor33
Messages Displayed During Operation136		6. Clip Operations	ata32	Handling SD Cards for Saving Configuration Data32
11. Appendix	//	Limitations	20	Attaciling alid Adjusting Peripitelal Devices
Error/Warning System133			28	Preparing the Audio Input System28
Maintenance132	72	Configuring from the Web Menu72	26	Mounting and Adjusting the Lens
10. Maintenance and Inspection	70	Streaming High Quality Video	25	Using the Camcorder for the First Time25
Recording External Input Signals131	68	Transmitting Streaming Video and Audio68	22	Preparing a Power Supply
Wanaging/Editing Clips with a Computer	66	Connecting to the internet65 Transferring Files66		2. Preparation
Connecting an External Monitor126	59	Connecting Devices using Wireless LAN	13	Screen Display
Connecting a Remote Control Unit124	r58	Network Functions Supported by the Camcorder	3	Name and Function of Parts3
9. Connecting External Devices		5. Network Configuration		1. Overview

Name and Function of Parts

Power Supply



LIGHT (video light) switch

AUTO: When the POWER switch of the video light LIGHT connector (page 4) is turned on and off. Determines how a video light connected to the is in the on position, the video light is turned

MANUAL: You can turn the video light on or off

on automatically while the camcorder is

manually, using its own switch.

in memory). to start recording is carried out (or while data is being stored mode, it is not possible to turn on the light before operation When the camcorder is set for recording in Picture Cache

POWER switch

Turns the main power supply on (I) and off (U).

- Ψ 4-pin, male) DC IN (DC power input) connector (XLR type,
- DC OUT 12V (DC power output) connector (4-pin, female)

Supplies power for an optional WRR-855S/860C/861/862 UHF Synthesizer Diversity Tuner or HDVF-L750 Viewfinder (maximum 1.8 A).

synthesized diversity tuner. Do not connect any equipment other than the UHF

Battery attachment shoe

operate the camcorder from an AC power supply. you can attach an AC-DN2B/DN10 AC Adaptor to Attach a BP-FLX75 Battery Pack. Alternatively,

"Preparing a Power Supply" (page 22)

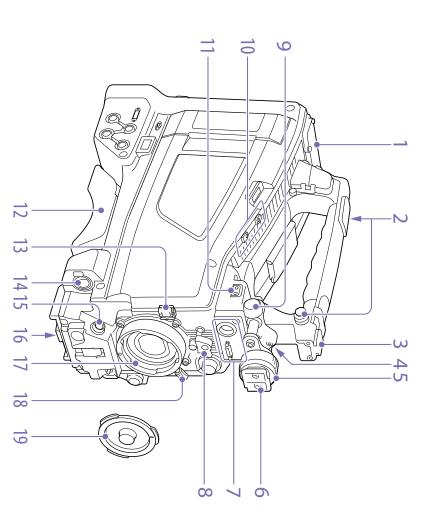
"Attaching a Wireless Receiver" (page 28)

For your safety, and to ensure proper operation of the camcorder, Sony recommends the use of the BP-FLX75 Battery Pack.

6. Camera adaptor connector

Adaptor. To connect an adaptor, remove the Enables connection of a CA-TX70/FB70 HD Camera

Accessory Attachments



- 1. Wireless receiver insertion slot
- 2. Shoulder strap fitting (page 29)
- 3. Accessory shoe (page 29)
- Viewfinder front-to-back positioning lever (page 24)
- 5. Viewfinder left-to-right positioning ring (page 23)
- 6. Viewfinder attachment shoe (page 23)

VF (viewfinder) connectors (26-pin, rectangular and 20-pin, round)

The analog interface connector (20-pin) is for connection of an HDVF series viewfinder, and the digital interface connector (26-pin) is for connection of a CBK-VF02 HD viewfinder. Connect a viewfinder connection cable to the connector compatible with the viewfinder being used.

[Note]

Do not connect viewfinders to both connectors at the same time.

8. Lens mount securing rubber

After locking the lens in position using the lens locking lever, fit this rubber over the lower of the two projections. This fixes the lens mount, preventing it from coming loose.

- Viewfinder front-to-back positioning knob (page 23)
- 10. Attachment for optional microphone holder (page 28)
- LIGHT (video light) connector (2-pin, female) (page 29)
- 12. Shoulder pad (page 29)
- 13. Lens cable clamp

Clamps the lens cable.

14. MIC IN (microphone input) (+48 V) connector (XLR type, 5-pin, female)

Connect a stereo microphone to this connector. The power (+48 V) is supplied via this connector.

15. LENS connector (12-pin) (page 26)

Note]

When connecting or disconnecting the lens cable to this connector, power off the camcorder first.

Tripod mount

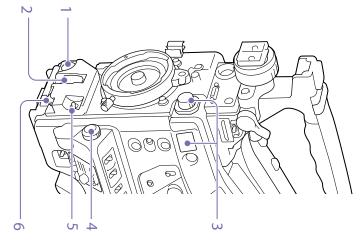
When using the camcorder on a tripod, attach the tripod adaptor (optional).

- Lens mount (special bayonet mount) (page 26)
- 18. Lens locking lever (page 26)

19. Lens mount cap

Remove by pushing the lens locking lever up. When no lens is mounted, keep this cap fitted for protection from dust.

Controls Near the Lens



1. REC START (recording start) button

Press to start recording. Press it again to stop recording. The operation is the same as that of the VTR button on the lens.

SHUTTER switch

Set to ON to use the electronic shutter. Push to SELECT to switch the shutter speed or shutter mode setting. When this switch is operated, the new setting appears on the viewfinder screen for about three seconds.

"Setting the Electronic Shutter" (page 39)

20te

If Flash Band Reduce is on, setting the SHUTTER switch to ON turns off the Flash Band Reduce function and the FBR indicator disappears from the viewfinder screen. Subsequently, setting the SHUTTER switch to OFF turns on the Flash Band Reduce function and the FBR indicator reappears on the viewfinder screen.

Switches between four ND filters built into this camcorder.



When this selector is used, the new setting appears on the viewfinder screen for about three seconds.

FILTER knob	ND filter
setting	
→	CLEAR
2	1/4 ND (attenuates light to
	approximately 1/4)
ω	1/16 ND (attenuates light to
	approximately 1/16)
4	1/64 ND (attenuates light to
	approximately 1/64)

You can change a Maintenance menu setting so that different white balance settings can be stored for different FILTER knob positions. This allows you to automatically obtain optimum white balance for the current shooting conditions in linkage with the filter selection.

"Adjusting the White Balance" (page 37)

4. MENU knob (page 86)

. AUTO W/B BAL (automatic white/black balance adjustment) switch

Activates the automatic white/black balance adjustment functions.

WHITE: Adjust the white balance automatically. If the WHITE BAL switch (page 6) is set to A or B, the white balance setting is stored in the corresponding memory. If the WHITE BAL switch is set to PRST, the automatic white balance adjustment function does not operate.

BLACK: Adjust the black set and black balance automatically.

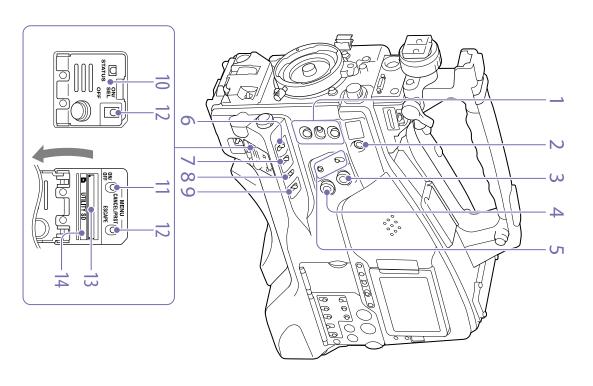
You can use the AUTO W/B BAL switch even when the ATW (Auto Tracing White Balance) function is operating.

If you push the switch to the WHITE side once more during the automatic white balance adjustment, the adjustment is canceled and the white balance setting returns to the original setting.

If you push the switch to the BLACK side once more during the automatic black balance adjustment, the adjustment is canceled and the black balance setting returns to the original setting.

6. MIC (microphone) LEVEL knob (page 43)

LCD Monitor Side (1)



1. ASSIGN. (assignable) 1/2/3 switches

You can assign a function using Operation >Assignable Switch in the setup menu (page 114).

The ASSIGN. 1/3 switches are provided with an indicator to show whether a function is assigned to the switch (ON) or not (OFF).

ONLINE button

When network client mode or the streaming function is assigned to this button, press and hold until the indicator is lit orange. Then, press the button again, turning the indicator blue, to enable network client mode or the streaming function. To exit the enabled function, press and hold the button until the indicator turns off.

The button can also be used as an assignable switch when assigned with functions other than those above (page 115).

ALARM (alarm tone volume adjustment) knob

Controls the volume of the warning tone that is output via the built-in speaker or optional earphones. When the knob is turned to the minimum position, no sound can be heard. However, if Maintenance >Audio >Min Alarm Volume in the setup menu is set to [Set], the alarm tone is audible even when this volume control is at the minimum position.



MONITOR (monitor volume adjustment) knob

Controls the volume of the sound other than the warning tone that is output via the built-in speaker or earphones. When the knob is turned to the minimum position, no sound can be heard.

5. MONITOR (audio monitor selection) switches

By means of combinations of the two switches, you can select audio that you want to hear through the built-in speaker or earphones.

When the lower switch is set to CH-1/2

Upper switch	Audio output
CH-1/CH-3	Channel 1 audio
MIX	Channels 1 and 2 mixed audio
	(stereo) a)
CH-2/CH-4	Channel 2 audio

When the lower switch is set to CH-3/4

Upper switch	Audio output
CH-1/CH-3	Channel 3 audio
MIX	Channels 3 and 4 mixed audio
	(stereo) a)
CH-2/CH-4	Channel 4 audio

 a) By connecting stereo headphones to the EARPHONE jack you can hear the audio in stereo. (Maintenance >Audio >Headphone Out in the setup menu must be set to Stereo.)

ASSIGN. (assignable) 0 switch

You can assign a function using Operation >Assignable Switch in the setup menu (page 114).

Off is assigned to these switches when the camcorder is shipped from the factory.

This is a momentary type switch. Each press of the

GAIN switch

on or off.

switch turns the function assigned to this switch

Switches the gain of the video amplifier to match the lighting conditions during shooting. The gain values corresponding to the L, M, and H settings can be selected using Operation >Gain Switch in the setup menu (page 94) (factory settings are L=0 dB, M=6 dB, and H=12 dB).

When this switch is adjusted, the new setting appears on the viewfinder screen for about three seconds.

OUTPUT/DCC (output signal/dynamic contrast control) switch

Switches the video signal output from the camera module, between the following two.

BARS: Output the color bar signal.

CAM: Output the video signal being shot. When this is selected, you can switch DCC ¹⁾ on and off.

- DCC (Dynamic Contrast Control): Against a very bright background with the iris opening adjusted to the subject, objects in the background will be lost in the glare. The DCC function will suppress the high intensity and restore much of the lost detail. It is particularly effective for shooting in the following cases.
- Shooting people in the shade on a sunny day
- Shooting a subject indoors, against a background through a window
- Any high contrast scene

WHITE BAL (white balance memory) switch Controls adjustment of the white balance.

PRST: Adjust the color temperature to the preset value (the factory default setting: 3200K). Use this setting when you have no time to adjust the white balance.

A or B: Recall the white balance adjustment settings already stored in A or B. Push the AUTO W/B BAL switch (page 5) to the WHITE position to automatically adjust the white balance and save the adjustment settings in memory A or memory B.

B (ATW "):When this switch is set to B and Operation >White Setting >White Switch is set to [ATW] in the setup menu, ATW is activated.

You can use the AUTO W/B BAL switch even when ATW is in use.

When this switch is adjusted, the new setting appears on the viewfinder screen for about three seconds.

 ATW (Auto Tracing White balance): The white balance of the picture being shot is adjusted automatically for varying lighting conditions.

[Note]

It may not be possible to adjust to the appropriate colors using ATW, depending on the lighting and subject conditions.

Examples:

- When a single color dominates the subject, such as sky, sea, ground, or flowers.
- When the subject is under a light source of extremely high or extremely low color temperature.

If execution of automatic tracing by the ATW function takes an unacceptably long time or only results in an inadequate effect, then execute the AWB function.

10. Switch cover

Open this cover to use the MENU ON/OFF switch or the MENU CANCEL/PRST/ESCAPE switch.

11. MENU ON/OFF switch

To use the switch, open the cover

This switch is used to display the menu on the viewfinder screen or the test signal screen. Each time the switch is pushed down, the menu screen is turned on and off.

The function of this switch is the same as that of the MENU button in the thumbnail screen operations section.

Note

It is not possible to turn off the menu screen by closing the cover.

12. MENU CANCEL/PRST (preset) /ESCAPE switch

To use the switch, open the cover.

This switch has different functions depending on whether or not a menu is displayed.

Use the switch in the following way when the menu is displayed.

CANCEL/PRST: Pushing this switch up to this position after a settling is changed in the setup menu displays the message to confirm whether the previous settings are canceled. Pushing this switch up to this position again cancels the previous settings.

Pushing this switch up to this position before a setting is changed in the setup menu or after a setting change is canceled in the setup menu displays the message to confirm whether the setting is reset to the initial value. Pushing

this switch up to this position again resets the settings to the initial value.

ESCAPE: Use this switch when the menu page, which has a hierarchical structure, is opened. Each time the switch is pushed to this position, the page returns to one stage higher in the hierarchy.

Use the switch in the following way when the menu is not displayed.

CANCEL/PRST: Each time this switch is pushed upward, a window to confirm the menu settings and status of the camcorder appears on the viewfinder screen (page 13). The window consists of several pages, which are switched each time the switch is pushed upward.

ESCAPE: To clear the page, push this switch down to the OFF position.

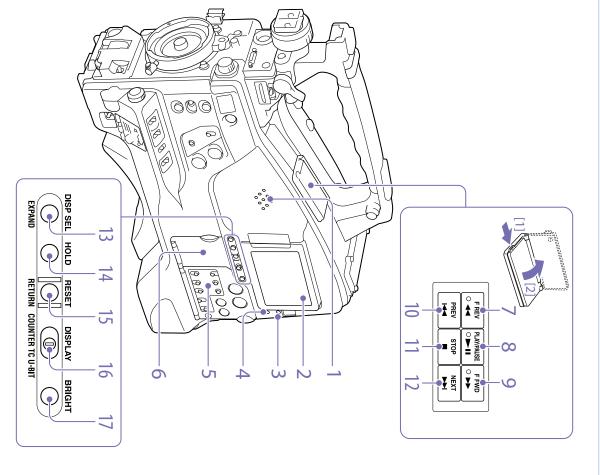
13. UTILITY SD card slot

Insert an SD card for saving camcorder settings.

ACCESS indicator

Lights up orange when the SD card is being accessed.

_CD Monitor Side (2)



Built-in speaker

The speaker can be used to monitor E-E) sound during recording, and playback sound during playback. The speaker also sounds alarms to reinforce visual warnings (page 133). If you connect earphones to the EARPHONE jack, the speaker output is suppressed automatically. 1) E-E: Abbreviation of "Electric-to-Electric." In E-E mode, video and audio signals input to the camcorder are output after passing through internal electric circuits only. This can be used to check input signals.

LCD monitor

Displays remaining battery capacity, remaining media capacity, audio levels, time data, and so on It also allows you to check camera and playback pictures (page 13).

You can adjust the position and angle of the LCD monitor.



WARNING indicator

Lights up or flashes when an abnormality occurs (page 133).

ACCESS indicator

Lights up in blue when data is written to or read from the recording media.

5. Audio control section (page 9)

Thumbnail screen operation section (page 9)

7. F REV (fast reverse) button and indicator This plays back at high speed in the reverse direction. The playback speed changes in the order x4 → x15 → x24 with each press of the button. The indicator lights during high-speed playback in the reverse direction.

8. PLAY/PAUSE button and indicator

Press this button to view playback video images using the viewfinder screen or the LCD monitor. The indicator lights during playback.

Press this button again during playback to pause, outputting a still image. At this time the indicator flashes at a rate of once per second.

Pressing the F REV or F FWD button during playback or pause starts high speed playback in

9. FFWD (fast forward) button and indicator

the forward or reverse direction.

This plays back at high speed in the forward direction. The playback speed changes in the order $\times 4 \longrightarrow \times 15 \longrightarrow \times 24$ with each press of the button. The indicator lights during high-speed playback in the forward direction.

10. PREV (previous) button

This jumps to the first frame of the current clip. If you press this together with the F REV button, the jump is to the first frame of the first recorded clip on the recording media.

If you press this button twice in rapid succession, the jump is to the first frame of the preceding clip (or the first frame of the current clip when no preceding clips exist).

11. STOP button

Press this button to stop playback.

12. NEXT button

This jumps to the first frame of the next clip. If you press this together with the FFWD button, the jump is to the last frame of the last recorded clip on the recording media.

DISP SEL (display selection)/EXPAND (expand function) button

With each press of this button, the display in the LCD monitor changes as follows.

SET

Display indication	Description
Video with	The LCD monitor displays
superimposed	the same text information as
information (CHAR)	the viewfinder.

Display indication	Description
Video without	Only the video appears.
superimposed	
information (MONI)	
Status display	Counter indications,
(STATUS)	warnings, audio levels, and
	similar information appear.
	No video image appears.

The EXPAND button function will be supported in a future upgrade.

14. HOLD (display hold) button

Pressing this button instantly freezes the time data displayed in the LCD monitor. (The timecode generator continues running.) Pressing this button again releases the hold.

For details about the time data display, see page 13.

15. RESET/RETURN button

Resets the value shown in the time data display in the LCD monitor. According to the settings of the PRESET/REGEN/CLOCK switch (page 9) and the F-RUN/SET/R-RUN switch (page 9), this button resets the display as follows.

-	
Switch settings	RESET/RETURN button
	operation
DISPLAY switch:	Reset counter to 00:00:00:00.
COUNTER	
DISPLAY switch:	Reset timecode to
TC	00:00:00:00.
PRESET/REGEN/	
CLOCK switch:	
PRESET	
F-RUN/SET/R-RUN	
switch:	

Switch settings	RESET/RETURN button
	operation
DISPLAY switch:	Reset user bits data a) to
U-BIT	00:00:00:00.
PRESET/REGEN/	
CLOCK switch:	
PRESET	
F-RUN/SET/R-RUN	
switch:	
SET	

 a) Of the timecode bits for every frame recorded on the media, those bits which can be used to record useful information for the user such as scene number, shooting place, etc.

"Setting Time Data" (page 45)

This button returns to the previous screen when pressed during thumbnail screen display or essence mark thumbnail screen display.

DISPLAY switch

This cycles the data displayed in the time data display in the LCD monitor through the sequence COUNTER, TC, and U-BIT (page 13).

COUNTER: Display recording/playback duration counter.

TC: Display timecode.

U-BIT: Display user bits data.

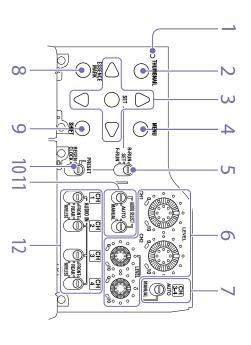
17. BRIGHT (brightness) button

Switches the brightness of the LCD monitor backlight.

Each press of the button selects the next setting in the order shown in the following table. If you press the button with the LCD monitor off, the LCD backlight comes on in the H state.

Setting L	LCD monitor backlight
エ	High (select this to view the LCD
7	monitor outdoors in the daytime)
M	Brightness between H and L
	Low (select this to view the LCD
7	monitor indoors or outdoors at night)
OFF C	Off (the display is also off)

Ihumbnail screen operations section and audio control section



1. Thumbnail indicator

This lights when the thumbnail screen is displayed.

2. THUMBNAIL button

operation. screen (page 78) and to carry out a thumbnail Press this button to display the thumbnail

Press once more to return to the original display.

3. SET button and arrow buttons

select an item or to confirm the setting change. settings, and for thumbnail screen operations. Use these buttons to make timecode and user bit When the menu is displayed, press this button to

MENU button

the MENU ON/OFF switch. display on and off Each press of this button turns the setup menu The function of this button is the same as that of

5. F-RUN/SET/R-RUN (free run/set/recording run) switch

as explained below, depending on the position of timecode generator. The operating mode is set Selects the operating mode of the internal

> F-RUN: Timecode keeps advancing, regardless of whether the camcorder is recording. Use this setting when synchronizing the timecode with external timecode.

SET: Sets the timecode or user bits.

R-RUN: Timecode advances only during recording. timecode on the recording media. Use this setting to have a consecutive

"Setting the Timecode" (page 45)

"Setting the User Bits" (page 45)

9 LEVEL CH1/CH2/CH3/CH4 (audio channel 1/2/3/4 recording level) knobs

and AUDIO SELECT CH 3-4 switches are set to Adjust the audio levels to be recorded on channels 1, 2, 3, and 4 when the AUDIO SELECT CH1/CH2

7. AUDIO SELECT CH 3-4 (audio channel 3/4 adjustment method selection) switches

MANUAL: Manual adjustment **AUTO: Automatic adjustment** audio channels 3 and 4. Select the audio level adjustment method for

8. ESSENCE MARK button

is on the screen, you can view the following All: Thumbnail display of all frames marked with selected in a list displayed on the screen. of the selected clip, depending on the item thumbnail displays of the essence-marked frames By pressing this button when a thumbnail display

Rec Start: Thumbnail display of frames marked with Rec Start marks) clips (when the first frames are not marked with Rec Start marks and of the first frames of

essence marks.

Shot Mark1: Thumbnail display of the frames marked with Shot Mark 1

Shot Mark2: Thumbnail display of the frames marked with Shot Mark 2.

You can also select Shot Mark 0 and Shot Mark 3 to

selection options in the list are displayed by the defined names. If a clip is recorded using planning metadata that defines names for shot mark 0 to shot mark 9, the

9. SHIFT button

Use this in combination with other buttons

10. PRESET/REGEN (regeneration)/CLOCK switch

PRESET: Record new timecode on the media. Selects the type of timecode to record. REGEN: Record timecode continuous with the existing timecode recorded on the media. RUN switch, the camcorder operates in R-RUN Regardless of the setting of the F-RUN/SET/R-

CLOCK: Record timecode synchronized to the operates in F-RUN mode. the F-RUN/SET/R-RUN switch, the camcorder internal clock. Regardless of the setting of

11. AUDIO SELECT CH1/CH2 (audio channel 1/2 adjustment method selection) switches

audio channels 1 and 2. **AUTO:** Automatic adjustment Select the audio level adjustment method for

MANUAL: Manual adjustment

AUDIO IN CH1/CH2/CH3/CH4 (audio channel 1/2/3/4 input selection) switches

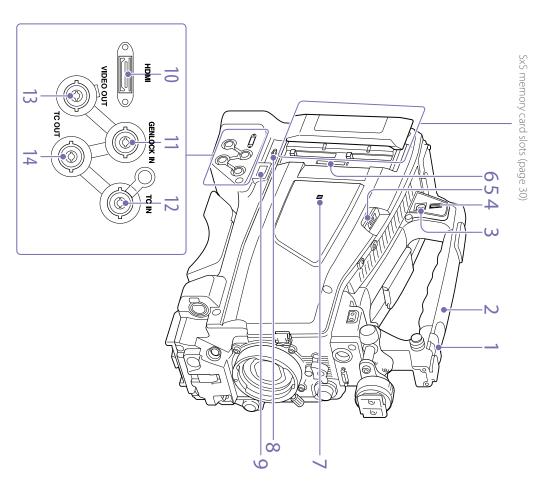
audio channels 1, 2, 3 and 4. Select the audio input signals to be recorded on

FRONT: Audio input signals from the microphone connected to the MIC IN connector

REAR: Audio input signals from an audio device connected to the AUDIO IN CH-1/CH-2 connectors

WIRELESS: Audio input signals from the UHF portable tuner if it is attached

Handle and Memory Card Slot Side



1. ASSIGNABLE 4/5 switches

You can assign a function using Operation >Assignable Switch in the setup menu (page 115).

Off is assigned to these switches when the camcorder is shipped from the factory.

GPS module

Contains a built-in GPS module.

[Note]

Do not grasp this part of the camcorder when the GPS function is in use.

PC connector

Used to put this camcorder into USB connection mode and use it as an external storage device for a computer. When a computer is connected to this connector, every memory card inserted in the camcorder is recognized as a drive on the computer.

External device connector

Connect to a PSZ-HA50 Portable Storage HDD (option), PSZ-SA25 Portable Storage SSD (option), a general-purpose external USB HDD, or USB flash drive to copy clips from the recording media inserted in an SxS card slot of the camcorder to USB media.

Note]

This connector should be used only for connecting the type of devices above. It cannot be used for connecting a USB hub or other devices.

5. USB wireless LAN module connector

Connect to an IFU-WLM3 USB Wireless LAN Module (supplied), CBK-WA02 Wireless LAN Adaptor (option), or combination of CBK-NA1 Network Adaptor Kit (option) and modem (option) to enable communications with wireless LAN devices and networks.

"Connecting Devices using Wireless LAN" (page 59)

"Connecting to the Internet" (page 63)

6. PROXY SD card slot (page 53)

Insert an SD card for recording proxy data.

7. N (NFC) mark

A built-in NFC antenna is provided.

SLOT SELECT (SxS memory card select) button

When SxS memory cards are loaded in both card slots A and B, press this button to select the card you want to use (page 30).

Network connector

Connects to a network via a wired LAN connection using a LAN cable (sold separately).

[CAUTION]

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

"Connecting to the Internet" (page 63)

10. HDMI connector

Connect an HDMI device, such as a monitor or recording unit, to output HD or SD HDMI video and audio signals.

GENLOCK IN (genlock signal input) connector (BNC type)

This connector inputs a reference signal when the camcorder is to be genlocked or when timecode is to be synchronized with external equipment. The supported reference signals vary depending on the current system frequency as shown in the following table.

System frequency	System frequency Supported reference signals
59.94i	1080/59.94i, 480/59.94i
59.94P	1080/59.94i, 480/59.94i
50i	1080/50i, 576/50i
50P	1080/50i, 576/50i
29.97P	1080/59.94i, 480/59.94i
25P	1080/50i, 576/50i
23.98P	1080/23.98PsF

TC IN (timecode input) connector (BNC type) To apply an external lock to the timecode of the

camcorder, input the reference timecode.

"Setting the Timecode" (page 45)

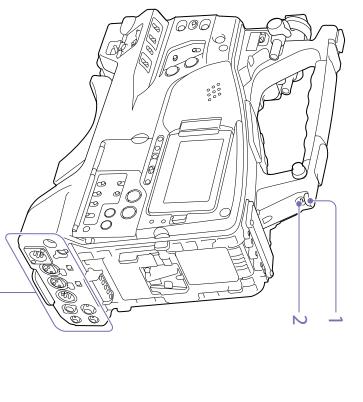
13. VIDEO OUT connector (BNC type)

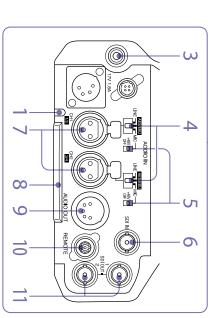
Outputs video signals for monitoring.

14. TC OUT (timecode output) connector (BNC type)

To lock the timecode of an external VTR to the timecode of this camcorder, connect this connector to the external VTR's timecode input connector.

Tally Indicator and Connector Section





TALLY (back tally) indicator (red)

Lights up during recording. It will not light if the TALLY switch is set to OFF. It also flashes when the WARNING indicator operates. The tally indicator or the front of the viewfinder and the REC indication on the viewfinder screen light or flash in the same manner.

"Error/Warning System" (page 133)

TALLY switch

Set to ON to activate the TALLY indicator function.

3. EARPHONE jack (stereo, minijack)

You can monitor the E-E sound during recording and playback sound during playback. When an alarm is indicated, you can hear the alarm sound through the earphone. Plugging an earphone into the jack automatically cuts off the built-in speaker. You can select monaural or stereo using Maintenance > Audio > Headphone Out in the setup menu.

4. AUDIO IN selector switch

Select the audio source you connect to the AUDIO IN CH1/CH2 connectors.

LINE: When connecting a stereo amplifier or other external audio signal source

AES/EBU: When connecting an external digital audio signal source

MIC: When connecting a microphone.

+48V/OFF (+48V external power source on/ off) switch

Switch between the following settings, according to the microphone used for audio input. +48V: Microphone requiring external power

OFF: Microphone using internal power source or not requiring a power source

source (phantom power)

SDI IN (SDI input) connector (BNC type)

Connector used when connecting an external SDI signal source to the camcorder.

AUDIO IN CH-1/CH-2 (audio channel 1 and channel 2 input) connectors (XLR type, 3-pin, female)

Connect to audio equipment or a microphone.

8. Bottom cover

This is provided for protecting the cables connected to the connectors on the rear panel. By loosening the screws which retain the cover to the bottom of the camcorder, you can adjust the position of the cover depending on the size and shape of the microphone or audio cable plugs. After adjusting the position, tighten the screws to secure the cover.

9. AUDIO OUT connector (XLR type, 5-pin, male)

Outputs the audio signals recorded on audio channels 1 and 2 or audio channels 3 and 4.

The audio signals are selected by the MONITOR switch.

10. REMOTE connector (8-pin)

Connect a remote control unit to control the camcorder remotely.

[Note]

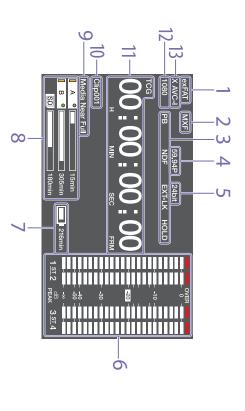
Before connecting/disconnecting the Remote Control Unit to/from the camcorder, be sure to turn off the camcorder POWER switch.

11. SDI OUT 1/2 connectors (BNC type)

Outputs an HD SDI or SD SDI signal (with embedded audio). The output from this connector can be turned on/off using Operation >Input/ Output >SDI Out1 Output or SDI Out2 Output in the setup menu.

Screen Display

Information Screen



Recording mode indicator

? File format indicator

Status display

PB: Appears during media playback.

NDF: Appears when non-drop-frame timecode is

EXT-LK: Appears when the internal timecode to the TC IN (timecode input) connector. generator is locked to an external signal input

HOLD: Appears when the operation mode of the internal timecode generator is set to R-RUN

4. System frequency indicator

currently played or recorded Indicates the system frequency of video being

Audio format indicator

format of clip being currently played Indicates the audio recording format or the audio

		16bit	Indicator
MPEG IMX 50	DVCAM	HD420 HQ	Recording format

Indicator	Recording format
24bit	HD422 50
	MPEG IMX 50
	XAVC Intra
	XAVClong

Audio level meters

Indicates the audio recording or playback levels of channels 1 to 4.

Remaining battery capacity indicator

Displays the battery remaining capacity icon and the remaining recording time.

8. Remaining media capacity indicator

Shows bar segments indicating the remaining capacity of recording media in the slots.

Warning indicator area

Displays warnings when trouble with recording

For details, see "Error/Warning System" (page 133).

Clip name display

clip to be recorded during recording standby. when recording, or displays the name of the next Displays the name of the clip currently recording

Time data display

user bits data, depending on the position of the Switches displays of duration, timecode, and DISPLAY switch.

time data display, as follows. Displays the type of data currently shown in the

TCG: Recorded timecode

UBG: Recorded user bits TCR: Playback timecode

CNT: Counter **UBR**; Playback user bits

DUR: Duration

CLK: Time display (when the PRESET/REGEN/ CLOCK switch is set to CLOCK)

format shown below. When the HOLD button is When the HOLD button is pressed to hold the displayed in the normal format. pressed again to release the hold, the timecode is timecode value, the timecode is displayed in the

00[]00[]00[]00

The three dots indicate that the timecode and counter progress are displayed in hold mode

12. Resolution indicator

Indicates the resolution of the output video.

13. Recording format indicator

recording format of clip being currently played. Indicates the current recording format or the

Status Screens

The status screens allow you to check camcorder

settings and various types of status information.

PRST position to display the status screen. Each The following status screens can be displayed push selects the next status screen CANCEL/PRST/ESCAPE switch up to the CANCEL, When no menu is displayed, push the MENU

Camera Status screer

Displays settings and status information related to shooting.

Gain Switch L:0, M:9, H:18	White Preset	Gamma STD5 R709	Shutter Off	Gain 18dB	9 00 1101 01 0101000
			Zebra2 On (102%)	Zebra1 On (80%)	
Zoom Speed 25	Depth Of Field 2.5~5.8m	Focus Distance 4.3m	Focal Length 75.2mm	Iris F5.6	

Display item	Description
Gain	Gain level in dB units
Shutter	Electronic shutter status
Gamma	Gamma category and curve
White	White balance mode setting
Gain Switch	GAIN switch status
Zebra	Zebra pattern status
lris	Iris f-stop value
Focal Length	Focal length
Focus Distance	Focus distance
Depth Of Field	Depth of field
Zoom Speed	Zoom speed configured for the
	lens ZOOM button

Audio Status screen

audio input and output. Displays settings and status information related to



Display item	Description
CH 1/CH 2/CH	Audio level, input source,
3/CH 4	reference input level, and wind
	noise reduction filter settings for
	each channel

System Status screen

Displays settings and status information related to recording.

Title Prefix ABCDEF	Simul Rec Off	File System exFAT	Rec Format XAVC-I	System Frequency 23.98	System Status
Number 00017	Picture Cache Rec Off	Clip Continuous Rec Off	Rec Function S&Q 26/24	Picture Size 1920x1080	
	Proxy Recording Mode Off			Gamma STD	

Display item	Description
System	System frequency
Frequency	
File System	Recording mode
Rec Format	Recording format
Clip	Clip Continuous Rec function on/
Continuous	off setting
Rec	
Title Prefix	Clip name prefix
Picture Size	Picture size
Simul Rec	Simul Rec function on/off
Rec Function	Enabled special recording format and settings
Picture Cache	Picture cache function on/off
Rec	setting

Video Output Status screen

Displays settings and status information related to video output.

Video	HDMI	SDI2	SDI 1		Video	
video HD Sync	ном 1920х1080Р	SDI2 1920x1080P(Level A) YPbPr 3G On	SDI1 1920x1080P(Level A) YPbPr 3G	Picture Size	Video Output Status	
YPbPr	YPbPr 1.5G On	YPbPr	YPbPr	C. Space Freq		
	1.5G	3G	3G			
On	On	On	i	Super		

Display item	Description
SDI	SDI OUT connector output
	settings (output picture size,
	output form, output rate,
	superimposition)
HDMI	HDMI connector output settings
	(output picture size, output form,
	output rate, superimposition)
Video	VIDEO OUT connector output
	settings (output picture size,
	superimposition)

Network Status 1 screen

The Network Status 1 screen displays settings and status information related to the network.

work Status 1	l	
ing On		
eless Network Wi-Fi AP	Wired LAN Enable	
IFU-WLM3	Wired LAN Remote On	
ddress(Wireless)	IP Address(Wired) 192.168.3.131	

Display item	Description
Setting	Network setting status
Wireless Network	Wireless network setting status
Device Name	Name of device attached to the USB wireless LAN module connector
IP Address (Wireless)	IP address of wireless LAN connection
MAC Addr. (Wireless)	MAC address of device attached the USB wireless LAN module connector
Wired LAN	Wired LAN network connection status
Wired LAN Remote	Remote control enabled/disabled state when connected using a LAN cable
IP Address (Wired)	IP address of wired LAN connection

Network Status 2 screen

The Network Status 2 screen displays settings and status information related to streaming.

Streaming Bit Rate 9Mbps	Streaming Size 1280x720	Streaming Status Distributing	CCM Name	NW Client Mode Status Off	Network Status 2
		Streaming Dest. Port 1234	Streaming Dest, Add. 43.0.134.23	Streaming Type MPEG-2 TS/UDP	
		Transfer to: Sony Ci	File Transfer 40%	Number of Distribution	

enabled.

Display item	Description
NW Client	Network client mode status
Mode Status	For details about the status, see
	"Network client mode status"
	(page 14).
CCM Name	Name of the connected CCM
	when using network client mode
Streaming	Streaming distribution status
Status	
Streaming Size	Picture size of the currently
	selected streaming setting
Streaming Bit	Bit rate of the currently selected
Rate	streaming setting
Streaming Type	Type of the currently selected
	streaming setting
Streaming	Streaming destination address
Dest. Add.	
Streaming	Streaming destination port
Dest. Port	
Number of	Number of streaming distribution
Distribution	destinations
File Transfer	File transfer progress status
Transfer to:	Server name of file transfer
	destination

Network client mode status

Status	State	Description
display		
Off	CCM not	Network client
	connected	mode is off.
Connected	Connected CCM connected	Network client
		mode is on, CCM is
		connected, and
		CCM control is

Status display	State	Description	
Connecting	Connecting to	Attempting to connect to CCM (or	
	(disconnected)	disconnecting). Wait	
		(disconnection) is	
		successful. If the	
		status does not	
		change from	
		"Connecting," the	_
		CCM address setting	
		Check that the	_
		address is set	
		correctly.	
Awaiting	CCM connection	Network client	
	standby	mode is on, but the	
		network setting is	
		network setting to	
		connect to the	
		CCM.	
Address	CCM address	The host name or IP	
Error	error	address of the CCM	
		to connect may be	
		that the setting is	
		correct.	
Auth.	CCM user name/	The user name or	
Failed	password error	password used to	
		connect to the CCM	
		Check that the	
		setting is correct.	
No Inet	Internet	Cannot connect to	
Access	connection error	the network. The	
		network settings	
		may be incorrect.	
		Check the network	

Status display	State	Description
Cert. not	CCM	The CCM certificate
Valid	certification not	is not valid. The date
	valid error	setting may be
		invalid. Check the
		date setting

Assignable Button Status screen

Displays the names of functions assigned to assignable switches.

Zoom Tele	3 Marker	2 Front Mic	1 Zebra	0 ATW Hold	Assignable Button Status
		Lens RET Lens RET	Online CC5600K	5 Zoom Wide	

Battery Status screen

Displays the status of the battery attached to the camcorder.

Voltage 13.2V	Capacity 1.93Ah	Charge Count 52	Remaining 54%	Detected Battery BP-GL95	Battery Status
Supplied Voltage 12.8V	Power Source DC In			Manufacture Date Jan/18/2014	

Display item	Description
Detected	Detected type of the battery
Battery	
Remaining	Remaining capacity (%)
Charge Count	Number of recharges
Capacity	Remaining capacity (Ah)
Voltage	Voltage
Manufacture	Date of battery manufacture
Date	
Power Source	Power supply source

Display item Description Supplied Supplied power source voltage Voltage		
	Display item	Description
Voltage	Supplied	Supplied power source voltage
	Voltage	

Media Status screen

Displays the status of the recording media.



Display item	Description
SxSA	Remaining capacity (bar graph
	and remaining time display) and media life of media in slot A
SxSB	Remaining capacity (bar graph
	and remaining time display) and media life of media in slot B
SD Proxy	Remaining capacity (bar graph
	and remaining time display) and
	media life (displayed only if
	available) of media in PROXY SD
	card slot
SD Utility	Remaining capacity (bar graph
	and remaining capacity) and
	media life (displayed only if
	available) of media in UTILITY SD
	Card clot

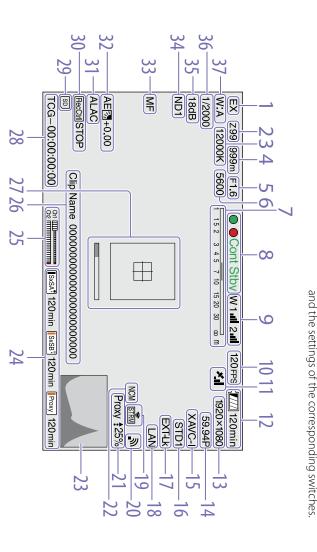
A $^igathbox{@}$ mark is displayed if the media is protected.

Viewfinder Screer

shooting (recording or recording standby) The viewfinder screen displays images during

> using the DISPLAY switch. You can toggle the display of information on/off superimposed on the display. and playback with camcorder information

in Operation >Super Impose in the setup menu, The information to display is linked to the setting:



Extender indicator

and lens extender function. Displays the status of the digital extender function

X2D: Appears when the digital extender function EX: Appears when the lens extender function is ON (x2) is ON

X3D: Appears when the digital extender function (x3) is ON

X4D: Appears when the digital extender function (x4) is ON

EX2D: Appears when both the lens extender function and digital extender function (x2) are

EX3D: Appears when both the lens extender function and digital extender function (x3) are

> EX4D: Appears when both the lens extender function and digital extender function (x4) are

Turn the digital extender on/off using an assignable switch assigned with the Digita Extender function

Motion is enabled The digital extender cannot be turned on when Slow & Quick

range 0 to 99. Displays the zoom position of the zoom lens in the Zoom position indicator (with lens mounted)

Color temperature indicator

Sml Stby

mode

Recording standby in Simul Rec

Displays the color temperature of the white

subject (unit: meters) 4. Focus position indicator (with lens mounted) Displays the focus position as a distance to the

Displays the iris position setting. Iris position indicator (with lens mounted)

Appears when the CC5600K function is on. Electric color temperature filter indicator

meters or feet. >Lens Info in the setup menu, and can be set to for display are set using Operation > Display On/Off Displays the depth of field using a bar. The units Depth of field indicator (serial lens mounted)

8. Recording mode indicator

of the camcorder Displays the following recording operation states

ndicator	Meaning
Rec	During recording
tby	Recording standby
Cont Rec	Clip continuous recording in progress
ont Stby	Recording standby in clip continuous recording mode
S&Q Rec	Recording in progress in Slow & Quick Motion mode
&Q Stby	Recording standby in Slow & Quick Motion mode
Rec	Recording in picture cache mode
Cache	Recording standby in picture cache mode
Int Rec	Recording in progress in Interval Rec mode
nt Stby	Recording standby in Interval Rec mode
Int Stby	Recording paused in Interval Rec mode (during pause intervals)
Sml Rec	Recording in progress in Simul Rec mode

Indicator	Meaning
CALL	Call received from external
	connected device

the following states. Green tally is displayed when the camcorder is in

- Maintenance > Camera Config > HD-SDI Remote recording control signal is output from the SDI I/F is set to Green Tally in the setup menu and a
- Green tally signal received (when a camera adaptor is mounted on the camcorder and a camera extension unit is connected)

9. Wireless receiver function indicator

Displays "W" when a slot-in receiver is attached to for each channel that can be used by the receiver the camcorder, and displays the reception level (1ch, 2ch, or 4ch).

Normal: Displays the strength of the received signal level by the number of white segment indicators.

Analog receiver muting/Digital receiver error rate warning: Displays the strength of the received signal level by the number of gray segment

If the received level exceeds the peak: Displays "P' in place of the indicator. 1)

Receiver battery is low: The corresponding channel number and indicators flash.11

When using the DWR-S02D

10. S&Q Motion (Slow & Quick) frame rate

camcorder is set to Slow & Quick Motion recording Displays the shooting frame rate when the

GPS indicator (page 57)

Battery capacity/voltage display

type of battery power source. Displays the following indicators according to the

Battery type	Indicator
Info battery	Battery remaining capacity
	icon and remaining recording
	time
Anton/Bauer	Remaining battery capacity (%
battery	indicator)
Other batteries	Input voltage

9

9

STD

욲

Gamma

13. Recording format (picture size) indicator

memory cards. Displays the picture size of clips recorded onto SxS

14. Recording format (system frequency and scan method) indicator

system frequency and the recording format scan Displays the currently configured camcorder

PH.

HG1

HG1

STD6 x5.0 STD5 R709 STD4 240M STD3 x3.5 STD2 x4.5 STD1 DVW

STD6 STD5 STD4

STD3 STD2 STD1

3250G36

15. Recording format (codec) indicator

SxS memory cards. Displays the format name of clips recorded onto

16. Gamma indicator

Display the gamma setting

		l		Off
				>Gamma
	Select	Category		On/Off
	Gamma	Gamma	Gamma	>Display
,		Paint >Gamma setting	Paint >Ga	Operation
Indicator		Menu settings	Menu	

9

9

User

User 1

User 1

User 2

User 2

User 3

User 5 User 4 User 3

User 5 User 4

On

9 9

Off. 9

streaming Not

STRM Streaming HG4

HG4

4609G33

HG3

HG3

3259G40

HG2

HG2

4600G30

On/Off Operation >Gamma >Display Paint > Gamma setting 욲 Gamma Menu settings Gamma Category Gamma Indicator

9	connection		
	LAN		
	Connected to LAN		
(flashing	Connecting to LAN	Enable	
1	1	Disable	On
	I		Off
			Condition
			>Network
	status	>Wired LAN	On/Off
	connection	>Network	>Display
	Network	Maintenance	Operation
Icon		State	

19. Streaming indicator

>Streaming Status	
	>Setting

17. Timecode external lock indicator

input from an external source. Displays timecode lock when the timecode is

18. Wired LAN connection status

connection status using icons. Displays the wired LAN network setting and

State	(flashing)	Connecting to LAN Connected to LAN LAN Connection	Disable Enable	
State Maintenance Network >Network connection >Wired LAN status				
	lcon	Network connection status	State Maintenance >Network >Wired LAN	ation blay off work

Displays the status of streaming using icons.

from a CCM. The following icons are displayed when streaming

On	Status	>Streaming	On/Off	>Display	Operation	
Off			>Setting	>Streaming	Maintenance	State
On		>Setting	Client Mode	>Network	Maintenance	
streaming STRM					state/Icon	Streaming

[Note]

Icons are not displayed before streaming starts.

STRM Streaming

20. Wireless network status indicator

status using icons. Displays the network setting and connection

	State		Icon
Operation	Maintenance	Network	
>Display	>Network	connection	
On/Off	>Wireless	status	
>Network	Network		
Condition			
Off			

Mo		W-	,	Operation Mai >Display >Network Net Condition
Modem Connecting using 3G/4G Connected using 3G/4G 3G/4G Gonnection	Access point connection Access point connection error "	Wi-Fi Station Connecting using Wi-Fi Access point search	Off Wi-Fi Access Connecting Point using Wi-Fi " Wi-Fi standby	Maintenance Network >Network connection >Wireless status Network
36/46 (flashing) 36/46 36/48	lcon varies with signal strength.	~	(flashing)	

- 1) This icon is displayed in the following cases
- When a device is not attached
- When a device is attached with different settings

Proxy indicator

Displays "Proxy" when proxy recording is on (Operation >Proxy Recording Mode >Setting in the setup menu is set to On). During setup, "Proxy" blinks. "Proxy Rec" is displayed during proxy recording. Displays and transfer rate (%)

during proxy file transfer. When transfer finishes, disappears to indicate 100% transfer.

22. Network client mode indicator

Displays the status of the connection to the CCM (Network RX Station configured as Connection Control Manager) using icons when network client mode is on.

NGM (flashing) - For details about errors, see (page 14).	CCM (disconnected) (CCM (connection to CCM) (CCM) (CCM) (CCM) (CCM) (CCM) (COnnection trandby (CCM) (C	>Setting >Setting Off	On/Off >NW Client Mode Status Off On
	State	Maintenance >Network	Operation >Display
Icon		State	

23. Video signal indicator

Displays the video signal in realtime as a waveform, vectorscope, or histogram.

Recording media state/remaining capacity indicator for each media slot

Displays the state and remaining capacity of the media in SxS slot A, SxS slot B, and the PROXY SD card slot.

SxS slot icon indicator

*SxS slot A (SxSA) example. The icons for SxS slot B are labeled SxSB.

Icon	Media state
I	Media not inserted or not mounted
SxSA.	Media mounted
SxSA.	Media mounting
(flashing)	
SxSA.	Recording (active)
(orange bar)	
SxSA*	Playback (active)
(green indicator)	
SxSA*	Recording/playback (active)
(orange bar	
+ green	
indicator)	

SD card (for	SD card (for proxy data recording) icon indicator
Icon	Media state
I	Media not inserted or not mounted
Proxy	Media mounted
Proxy	Media mounting
(flashing)	

The remaining recording time is displayed numerically.

(orange bar)

Recording (active)

25. Audio level meter indicators

Displays the levels of audio channels 1 and 2.

26. Clip name display

Displays the name of the clip currently recording when recording, or displays the name of the next clip to be recorded during recording standby.

27. Focus assist indicator

Displays a detection frame (focus area marker) indicating the area for detection of degree of focus, and a level bar (focus assist indicator) indicating the degree of focus within that area

28. Time data display

Displays the remaining recording/playback time, timecode, user bits, etc., as selected by the DISPLAY switch (page 8).

SD card indicator for saving configuration data

Displays the state of the SD card (for saving configuration data) inserted in the UTILITY SD card slot.

lcon	Media state
	SD card not inserted or not mounted
SD	SD card mounted
SD 🏟	Mounted SD card is protected
SD	SD card mounting
(flashing)	

30. SDI output REC trigger indicator

Displays the superimposition state of the recording command sent to the SDI connector output. It is displayed when Maintenance >Camera Config >HD SDI Remote I/F is set to "Characters" in the setup menu.

31. ALAC indicator

Displays "ALAC" when the ALAC (Auto Lens Aberration Correction) function is set to be performed automatically.

ALAC will be performed automatically when an ALAC-compatible lens is attached, the ALAC function is enabled, and Maintenance > Camera Config > ALAC is set to "Auto" in the setup menu

32. AE (auto iris) mode indicator

Displays the current operating mode of the auto iris function using an icon and auto iris override level.

	Mossissa
ICOIL	Medillig
<u>\$</u>	Backlight mode
STD	Standard mode

Icon Ø Spotlight mode Meaning

33. Auto focus mode indicator (when an auto focus lens is attached only)

Displays the focus adjustment mode of the

- AF (auto focus)
- MF (manual focus)
- MF* (manual focus with MF assist function on)
- Full MF (full manual focus)

34. ND filter indicator

Displays the position number of the currently selected ND filter (page 5).

CC filter is displayed on the right of the ND filter switch, the position (A/B/C/D) of the electrical When "Electrical CC" is assigned to an assignable indicator (1 to 4).

35. Gain indicator

switch, of the video amplifier Displays the gain setting (dB), set using the GAIN

36. Shutter mode/shutter speed indicator/Flash Band Reduce status indicator

Displays the shutter mode or shutter speed

"Setting the Electronic Shutter" (page 39)

shutter is in a non-operating state the Operation menu, FBR is displayed when the If Flash Band Reduce (page 98) is set to On in

37. White balance mode indicator

automatic adjustment memory Displays the currently selected white balance

W:A: Memory A mode ATW: ATW (Auto Tracing White Balance) mode

W:B: Memory B mode

W:C: Memory C mode W:P: Preset mode

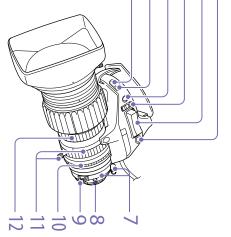
3200K: Appears when an assignable switch assigned with Color Temp SW 3200K is on

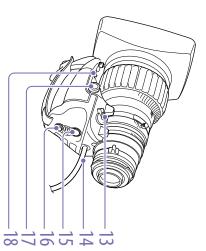
4300K: Appears when an assignable switch assigned with Color Temp SW 4300K is on

> 6300K: Appears when an assignable switch 5600K: Appears when an assignable switch assigned with Color Temp SW 5600K is on assigned with Color Temp SW 6300K is on

Lens Supplied with the PXW-X400K(

The PXW-X400KC is supplied with a lens.





1. DIP switches (page 20)

Used for the shuttle shot function

lris gain adjustment trimmer (page 41)

lris push auto switch

iris adjustment. The iris is automatically adjusted When the iris mode switch is in the M (manual) while the switch is held down position, press this switch for instantaneous auto

Iris mode switch

M (manual): Adjust the iris with the iris ring A (auto): The iris is adjusted automatically.

Zoom seesaw switch

angle) position when you want wide-angle, and set to the I (telephoto) side when you want knob is in the SERVO position. Set to the W (wide This is enabled when the zoom servo/manual

softer for slower zoom action. Press the switch harder for a faster zoom action, or

RET switch

(page 21). appear on the viewfinder screen (Rec Review) While pressed, the last few seconds recorded

F.B. lock screw / F.B. adjustment ring

8. Positioning pin

When attaching the lens, align this pin with the camcorder. recess in the top center of lens mount on the

Macro button / macro ring

macro ring to adjust the focus (minimum focus Press and hold the macro button and turn the distance: 10 mm).

10. Iris ring

rıng. switch to the M (manual) position, then turn this For manual iris adjustment, set the iris mode

Z

Always set the iris mode switch to the M (manual) position first and then adjust the iris.

11. Zoom lever / zoom ring

For manual zoom adjustment, set the zoom servo/manual switch to the MANU position, then operate the lever/ring.

12. Focus ring

Turn this ring to adjust the focus.

13. Zoom servo / manual knob

SERVO (servo): Selects power zoom. Operate the zoom with the zoom seesaw switch.

MANU (manual): Selects manual zoom. Operate

MANU (manual): Selects manual zoom. Operate the zoom with the zoom lever/zoom ring.

14. Power/iris control cable

Connect to the LENS connector on the camcorder.

15. VTR switch

Use this to start and stop recording. Press once to start recording, then press once more to stop.

16. Shtl (shuttle) switch (page 20)

Used for the shuttle shot function.

17. Zoom remote control connector

Connect to an optional zoom servo controller to enable remote control of zooming.

18. Memo switch (page 20)

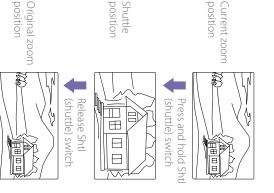
Used for the shuttle shot function.

About shuttle shot

Shuttle shot is a shooting function for rapidly moving to a preset zoom position set by the user.

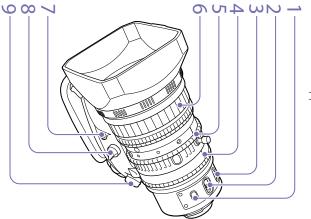
- Set the DIP switch 1 to ON.
- Set the zoom position that you want to register.
- 3 Press and hold the Memo switch and press the Shtl (shuttle) switch. The zoom position is registered as the shuttle position.

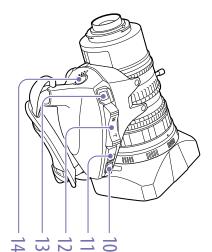
To move rapidly to the shuttle position, press and hold the Shtl (shuttle) switch.
The zoom rapidly returns to the previous zoom position when the Shtl (shuttle) switch is



ens Supplied with the PXW-X400KF-

The PXW-X400KF is supplied with a lens.





1. PUSH AF (auto focus) button

When adjusting focus in manual mode, pressing this button enables auto focus adjustment on the subject.

Press the button to activate auto focus, and release the button when the subject is in focus.

FOCUS (adjustment mode) switch

A (Auto): Activates the normal auto focus function.
You can also adjust the focus manually using the focus ring, even when the switch is in the "A" position.

M (manual): Selects manual mode for focus adjustment with the focus ring.
In manual mode, auto focus adjustment is also possible, by pressing the PUSH AF button.

MACRO switch

When this switch is in the ON position, macro mode is enabled, allowing focusing over the

whole range (5 cm $^{1)}$ to ∞) including the macro range (from 5 cm $^{1)}$ to 80 cm from the front of the lens).

This operation is independent of whether the focus adjustment mode is auto or manual.

1) At the wide-angle setting

Iris ring

For manual iris adjustment, set the IRIS switch to the M (manual) position, then turn this ring.

Zoom ring

For manual zoom adjustment, set the ZOOM switch to the MANUAL position, then turn this ring.

Focus ring

Turn this ring to adjust the focus.

When the ring is set to AF/MF mode, the faster you turn ring the faster the focusing mechanism

operates, minimizing the amount of turning required for focusing.

When you slide the focus ring back (toward the camcorder), the focus mode is set to Full MF

When you slide the focus ring back (toward the camcorder), the focus mode is set to Full MF mode, in which all focus adjustments are manual (page 42).

Flange focal length adjustment button

Press this to adjust the flange focal length (the distance from the lens mounting flange plane to the focusing plane) (page 26).

Zoom control connector (8-pin)Connect to an optional zoom servo c

Connect to an optional zoom servo controller to enable remote control of zooming.

ZOOM switch

SERVO: Selects power zoom. Operate the zoom with the power zoom lever.

MANUAL (manual): Selects manual zoom. Operate the zoom with the zoom ring.

10. PUSH AUTO (instant auto iris) button

When the IRIS switch is in the M position for manual adjustment, press this button for instantaneous auto adjustment. The iris is automatically adjusted while the button is held down.

11. IRIS (adjustment mode) switch

A (auto): The iris is adjusted automatically. M (manual): Adjust the iris with the iris ring.

Power zoom lever

This is enabled when the ZOOM switch is in the SERVO position. Set to the W (wide angle) position when you want wide-angle, and set to the T (telephoto) side when you want telephoto. Press the lever harder for a faster zoom action, or softer for slower zoom action.

Notes about auto focus

- It may be difficult to focus on the subject in the following cases. If this does happen, use manual focusing.
- If the subject has no contrast
- If the subject is moving rapidly

- When shooting point light sources, under street lighting or at night
- When there are very bright objects close to the subject
- When shooting through a glass window
- If there are a number of objects within the screen at close and far range, the focus may not be on the intended subject. In this case, with the subject on which you want to focus in the center of the screen, press the PUSH AF button.
- After focusing with the PUSH AF button, if you operate the zoom or adjust the iris, the depth of field may become shallower, losing crisp focus. In such cases, press the PUSH AF button once more.
- If you focus at wide-angle then zoom to telephoto, the subject may no longer be in focus.
- It may take time until the image is in focus while using the slow shutter mode.

13. RET (return video) button

You can assign a function and use this as an assignable switch (page 114).

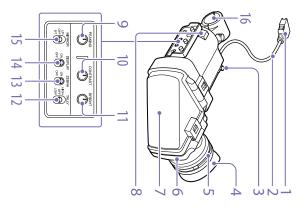
When "Lens RET" is assigned to this button (factory default setting), press this after recording stops to review the last few seconds recorded on the viewfinder screen (Rec Review) (page 47).

Press this button (single click) during recording or playback to record a Shot Mark 1 mark, or double-click to record a Shot Mark 2 mark (page 49).

VTR button

Use this to start and stop recording. Press once to start recording, then press once more to stop.

Viewfinder



Connector

Connect to the VF connector (26-pin) on the camcorder.

. Viewfinder cable

Slide stopper

Prevents the viewfinder from coming off the camcorder when it is slid from side to side.

. Eyecup

Diopter adjustment ring

Turn this ring to adjust the image until it is in sharpest focus.

Eyepiece

You can raise this up when required by the situation.

Viewfinder barrel

You can raise this up or rotate when required by the situation.

8. Tally indicator

Lights up when recording is started by a press of the REC START button on this camcorder, the VTR button on the lens, or the START/STOP button on the remote control unit.

When an abnormality occurs, the tally indicator flashes to indicate a warning.

PEAKING knob

Turning this knob clockwise adjusts the picture sharpness, and makes focusing easier. This control has no effect on the output signals of the camcorder.

10. CONTRAST knob

Adjusts the contrast of the screen. This control has no effect on the output signals of the camcorder.

BRIGHT knob

Adjusts the brightness of the screen. This control has no effect on the output signals of the camcorder.

12. TALLY switch

Controls the tally indicator located on the front of the viewfinder.

HIGH: The tally indicator brightness is set to high. OFF: The tally indicator is disabled. LOW: The tally indicator brightness is set to low.

13. ZEBRA (zebra pattern) switch

Controls the zebra pattern display.
ON: Display a zebra pattern.
OFF: Do not display a zebra pattern

14. DISPLAY switch

ON: Display text information.

OFF: Do not display text information.

15. MIRROR switch

The image display on the monitor screen becomes reversed horizontally or vertically when the viewfinder barrel is raised up or rotated.

L/R: Reverse the image horizontally.

OFF: Do not reverse the image.

B/T: Reverse the image vertically.

Microphone holder

Preparing a Power Supply

For safety, use only the Sony battery packs and AC adaptors listed below.

BP-FLX75 Lithium-ion Battery Pack

[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.

Using a Battery Pack

Press the battery pack against the back of the camcorder, aligning the line on the side of the battery pack with the line on the camcorder. Then slide the battery pack down until its "LOCK" arrow aligns with the line on the camcorder.

To detach the battery pack, pull the battery pack up by holding the release button in.

ואטנפט

- If the battery pack is not attached correctly, the terminals may become damaged.
- During recording and playback (while the ACCESS lamp on the right-side panel is lit in blue and the ACCESS lamp in the card slot section is lit in orange), be careful never to remove the battery pack.
- Doing so may corrupt the data recorded on the card.
 Make sure to power the camcorder off before replacing the battery pack.

When a BP-FLX75 Battery Pack is used, the camcorder will operate continuously for approximately 170 minutes.

[WARNING]

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

[Note]

The battery pack operating time depends on the frequency of use of the battery pack, and the ambient temperature when used.

Before use, charge the battery pack with a charger suitable for each battery.

For details on the battery charging procedure, refer to the battery charger operation manual.

Note on using the battery pack

A warm battery pack may not be able to be fully recharged.

Using AC Power

Mount an AC-DN2B/DN10 on the camcorder in the same way as a battery pack, then connect to the AC power supply.

Attaching a Viewfinder

the PXW-X400KC/PXW-X400KF models. This section describes the viewfinder supplied with 2 Couple the viewfinder connector to the VF

[CAUTION]

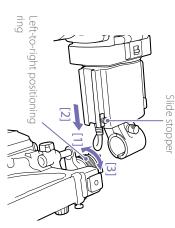
viewfinder and cause fire. Direct sunlight can enter through the lens, be focused in the with the eyepiece lens facing the sun. When the viewfinder is attached, do not leave the camcorder

X400KF models. A viewfinder for the PXW-X400 is available A viewfinder is supplied with the PXW-X400KC/PXW-

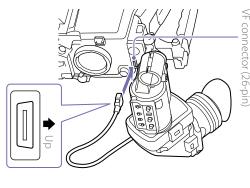
Attaching the Supplied Viewfinder

When attaching a viewfinder, take note of the following

- Be sure to the power off the camcorder before coupling camcorder power is on, the viewfinder may not function the viewfinder connector to the camcorder's VF connector (26-pin). If you make this connection when the
- Couple the viewfinder connector firmly to the camcorder's VF connector (26-pin). If the coupling is loose noise may appear on the video or the tally light may not
- [1] Loosen the viewfinder left-to-right the viewfinder fitting shoe, and [3] tighten the viewfinder left-to-right positioning ring. positioning ring, [2] attach the viewfinder to



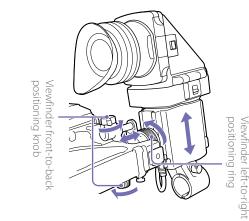
connector (26-pin).



detaching the viewfinder from the attachment attaching procedure in reverse order. But, when You can detach the viewfinder by following the shoe, pull up the stopper

Adjusting the Viewfinder Position

the left-right positioning ring, and to adjust the positioning knob. front-back position, loosen the front-to-back To adjust the viewfinder left-right position, loosen



Adjusting the Viewfinder Angle

You can adjust the angle of the viewfinder.



Reversing the Display (image/text indication) Vertically

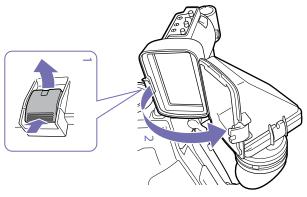
degrees toward the direction facing the subject information displayed in the viewfinder appear When you do this, the picture and other upside down. The viewfinder can be rotated as much as 180

> switch on the rear panel of the viewfinder to B/T. To restore the normal display, set the MIRROR

Lyepiece Lifting Up the Viewfinder Barrel and

barrel or the eyepiece. or its mirrored image by lifting up the viewfinder You can view the LCD screen inside the viewfinder

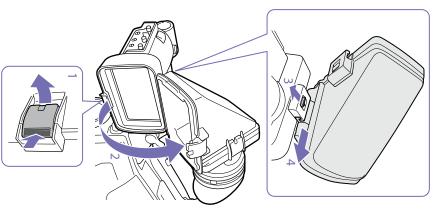
- Push the clip on the bottom to release and flip up the viewfinder barrel
- It locks at the 120-degree position



to lock it at the 120-degree position again position, you must return it to the closed position Normally use it in the locked position. Although you can open it farther from the lock

Detaching the Viewfinder Barrel

- Push the clip on the bottom to release
- 2 Flip up the viewfinder barrel
- ω Slide the knob on the top to the opposite side of the viewfinder barrel.
- 4 Detach the viewfinder barrel by horizontally sliding it.



Reversing the Display (image/text indication) Horizontally

By setting the MIRROR switch on the rear panel of horizontally. and other information displayed in the viewfinder the viewfinder to L/R, you can reverse the picture

D MIRRO

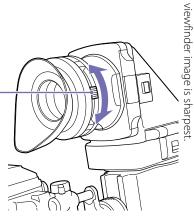
O O

OFF TALLY



Adjusting the Diopter

Turn the diopter adjustment ring until the



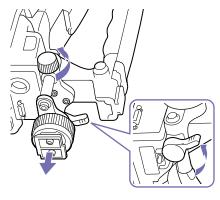
Diopter adjustment ring

in diameter. protection filter, close-up lens, etc. that is 52 mm You can also attach a commercially available

Rotation Bracket

viewfinder while you are carrying the camcorder. the way so that your right leg does not hit the Bracket, you can rotate the viewfinder out of By fitting an optional BKW-401 Viewfinder Rotation

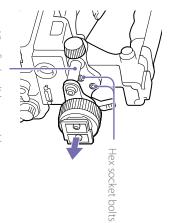
Loosen the front-to-back viewfinder the viewfinder slide assembly forward. viewfinder positioning knobs, and then pull positioning levers and the front-to-back



Using a 2.5 mm diameter hexagonal wrench, detach the viewfinder slide assembly.

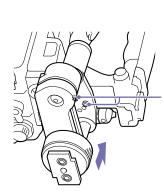
Brightness: Adjust using the BRIGHT knob. Contrast: Adjust using the CONTRAST knob. Outlines: Adjust using the PEAKING knob. viewfinder screen with the controls shown below. Adjust the brightness, contrast, and peaking of the

Adjusting the Screer



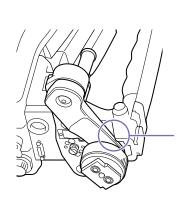
Viewfinder slide assembly

Attach the BKW-401 with the supplied bolts. Bolts supplied with the BKW-401



Adjust the front-to-back position so that the arm of the BKW-401 does not touch the handle when it is raised.

touch handle Adjust position so that arm does not



Using the Camcorder for the First Time

When using the camcorder for the first time, configure the following settings in the menu.

For details about menu operations, see "Basic Setup Menu Operations" (page 86).

Setting the Time Zone

Set the time zone for the region of use. The default value is "UTC Greenwich."

- Select Operation >Time Zone >Time Zone in the setup menu.
- 2 Select the time zone to use.

Setting the Date and Time of the Internal Clock

Set the year, month, day, and day-of-week of the internal clock.

Select Maintenance >Clock Set >Date in the setup menu.
The Date screen appears.



Turn the MENU knob to select the year, month, or day, and then press the knob.
The selected year, month, or day becomes editable.

- 3 Turn the MENU knob to set the year, month, or day, and then press the knob.
- 4 Repeat steps 2 and 3 to set the remaining digits.
- 5 Press the SET button.
 The internal clock is set to the date set in steps 2 to 4.
 Next, set the time.
- 6 Select Maintenance >Clock Set >Time in the setup menu.
 The Time screen appears.



- Set the time in the same way as when setting the date.
- 8 Press the SET button.
 The time is registered in the internal clock

To cancel the setting, press the Cancel button.

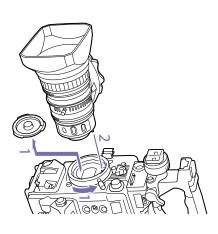
Mounting and Adjusting the Lens

When connecting or disconnecting the lens cable to this connector, power off the camcorder first.

Attaching a Lens

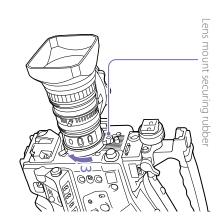
supplied with the PXW-X400KF as an example This section describes how to attach the lens

- Push the lens locking lever up and remove the lens mount cap from the lens mount.
- 2 Align the center pin on the lens with the lens into the mount center slot in the lens mount, and insert the



 ω Holding the lens in place, push the lens locking lever down to lock the lens.

while the camcorder is being used. This could locking lever as illustrated below. mount securing rubber be put on the lens firmly locked. It is recommended that the lens cause a serious accident. Make sure the lens is If the lens is not firmly locked, it may come off



- 4 Connect the lens cable to the LENS connector.
- Secure the lens cable with the cable clamp.

If an aberration correction lens is attached

than normal because of data loading at start-up. automatically. 1) Starting the camcorder with an aberration correction lenses. service representative for information about other aberration correction lens. Contact a Sony sales or The lens supplied with the PXW-X400 is an aberration correction lens may require more time The aberration correction function is activated

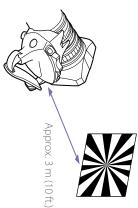
1) The aberration correction function does not operate if is set to Off. Maintenance > Camera Config > ALAC in the setup menu

Adjusting the Flange Focal Length

also called flange-back). of the lens mounting flange to the imaging plane, flange focal length (the distance from the plane zoom from telephoto to wide angle, adjust the If the lens does not stay in focus properly as you

or changing the lens. Make this adjustment just one time after mounting

> focal length adjustment chart as the subject. When carrying out the adjustment, use a flange



[Notes]

- If you use a subject with insufficient contrast, or move the an adjustment error. camcorder or subject during adjustment, this will cause
- Place the subject (the flange focal length adjustment screen at the wide-angle end. chart) so that it appears at the center of the screen at the object closer to the camera than the chart) enters the telephoto end. Arrange it so that no nearby object (no

supplied with the PXW-X400K(Adjusting the flange focal length on the lens

- Place a subject (Siemens star chart, for example) 3 m (10 ft) in front of the camera
- 2 Open the iris. open, making adjustment easier The depth-of-field is reduced when the iris is
- Set the lens zoom to T (telephoto)
- 4 Adjust the focus on the subject
- Set the lens zoom to W (wide angle)
- 0 Loosen the F.B. lock screw on the lens, and turn the F.B. adjustment ring to adjust the

- Repeat steps 3 to 6 until the proper focus is achieved at both ends of the zoom ring.
- When the optimum position of the F.B. adjustment ring is achieved, tighten the F.B. lock screw.

supplied with the PXW-X400KI Adjusting the flange focal length on the lens

length. operations automatically adjust the flange focal With an auto focus lens, zoom and focus

- Place the supplied focal length adjustment chart about 3m (10 ft) in front of the camera
- Open the iris. open, making adjustment easier The depth-of-field is reduced when the iris is
- ω Set the ZOOM switch to SERVO (power zoom
- 4 Hold down the flange focal length adjustment The following message appears on the button for 3 seconds.
- Auto FB Adjust

viewfinder screen.

Executing...

the viewfinder screen changes to the following After successful adjustment, the message on Auto FB Adjust

successfu If the flange focal length adjustment is not

repeat the adjustment Check the subject and lighting conditions, and

Adjusting the flange focal length on manual lenses other than the PXW-X400KC/PXW-X400KF

- Set the iris to manual.
- Place the supplied flange focal length adjustment chart about 3m (10 ft) in front of the camera.
- 3 Open the iris.

 The depth-of-field is reduced when the iris is open, making adjustment easier.
- 4 Loosen the fixing screws on the F.f or F.B ring (flange focal length adjustment ring).
- 5 Use manual or power zoom to set the lens to telephoto.
- 6 Point the camcorder at the chart by turning the focus ring and focus on it.
- 7 Set the zoom ring to wide angle.
- 8 Turn the F.f or F.B ring until the chart is in focus, being careful not to disturb the focus ring.
- Repeat steps 5 to 8 until the chart stays in focus all the way from wide angle to telephoto.
- 10 Tighten the F.f or F.B ring fixing screws.

Preparing the Audio Input System

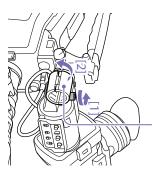
IN Connector Connecting a Microphone to the MIC

 ω

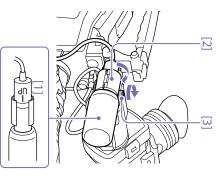
microphone holder of the supplied viewfinder. Attach the supplied microphone to the

Loosen the screw and open the microphone holder clamp.

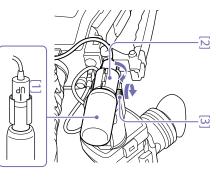
Microphone holder clamp



- 2 Place the microphone in the microphone holder.
- [1] Place the microphone in the holder so that



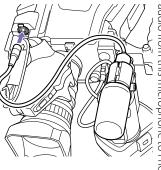
- "UP" is at the top.
- [3] Tighten the screw



[2] Close the microphone holder. **AUDIO IN Connectors**

manual for the microphone.

Plug the microphone cable into the MIC IN audio from this microphone to FRONT. the channel on which you want to record the connector, then set the AUDIO IN switch for



4 Secure the microphone cable with the cable clamp.

Connecting Microphones to the

connectors, using an optional CAC-12 Microphone microphones to the AUDIO IN CH-1/CH-2 You can connect up to two monaural

Supported microphones: ECM-674/678 electret condenser microphone

microphone, refer to the instruction manual of each product. For details about attaching the microphone holder and

Attaching a Wireless Receiver

the camcorder off and then attach a wireless To use a Sony wireless microphone system, power

- DWR-S02D Digital Wireless Receiver
- WRR-855S, URX-S03D UHF Synthesized Tuner

instruction manual of each product. For details about attaching a wireless receiver, refer to the

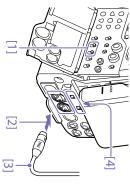
Equipment Connecting Line Input Audio

- Connect the audio output connector of the audio equipment that supplies the line input signal to the AUDIO IN CH-1 or CH-2 connector.
- Set the AUDIO IN selector for the channel to which the audio signal source is connected to

XLR connection automatic detect function

- With the XLR connection automatic detection to REAR for the channels to which the audio setting): Set the AUDIO IN CH1/CH2 switch equipment is connected function switched off (the factory default
- With the XLR connection automatic detection regardless of the setting of the AUDIO IN CH1/ automatically selected for audio recording, connector, the input from that connector is connected to the AUDIO IN CH-1 or CH-2 function switched on: When a cable is CH2 switch.

can be switched on/off using Maintenance >Audio >Rear XLR Auto in the setup menu. The XLR connection automatic detection function

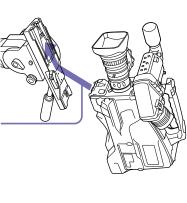


- [1] Place the microphone in the holder so that "UP" is at the top.
- [2] Close the microphone holder
- [3] Tighten the screw

Attaching and Adjusting Peripheral Devices

Mounting on a Tripod

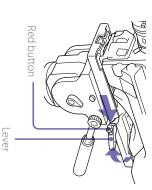
- Attach the optional VCT-14/U14 Tripod Adaptor to the tripod.
- Mount the camcorder on the tripod adaptor.



groove in the adaptor until it clicks. Slide the camcorder forward along the

Make sure that the camcorder is securely attached by moving it back and forth.

attachment, hold down the red button and pull the lever in the direction of the arrow To remove the camcorder from the tripod



The tripod adaptor pin may remain in the engaged position even after the camcorder is removed. If this happens, press camcorder on the tripod adaptor. in the engaged position, you will not be able to mount the the pin returns to the stowed position. If the pin remains the red button and move the lever as shown above until

Connecting a Video Light

Ultralight 2 or equivalent video light (powered by With this camcorder, you can use the Anton Bauer 12 V with maximum power consumption of 50 W)

- If you connect the video light to the LIGHT switch to AUTO, you can turn the light on and connector on the camcorder and set the LIGHT on this camcorder. off automatically as you start and stop recording
- The output of the LIGHT connector on the will not change in response to voltage increase. The brightness or color temperature of the light (through the DC IN connector or battery pack). camcorder is regulated to 12 V even when the camcorder is supplied with over 12 V power

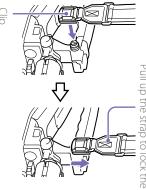
- Do not connect video lights with power consumption of
- The brightness or color temperature of the light will connector or from the battery pack) is less than 12 V. change when the voltage (supplied through the DC IN

and connect the video light cable to the LIGHT the accessory shoe on the camcorder grip, connector To attach a video light, fit the video light to

tapped hole type. If you want to replace this with a slide-type shoe, use the supplied cold shoe kit. The accessory shoe on the camcorder is of the 1/4-inch

Attaching the Shoulder Strap

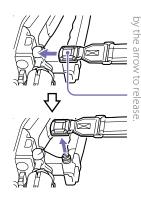
Fit one of the clips to a shoulder strap fitting. Pull up the strap to lock the fitting



Fit the other clip to the shoulder strap fitting on the other side of the grip in the same way

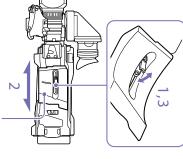
To remove the shoulder strap, refer to the

following diagram. Press here and pull in the direction shown



Adjusting the Shoulder Pad Position

camcorder on your shoulder. within a 40 mm range. This adjustment helps You can slide the shoulder pad back and forth you get the best balance for shooting with the



Shoulder pad

Raise the lever in the center of the shoulder

pad to unlock the shoulder pad

- Slide the shoulder pad backward or forward
- until it is in the most convenient position.
- Bring down the lever to lock the shoulder pad in the selected position

Handling SxS Memory Cards

This camcorder records video and audio on SxS memory cards (not supplied) loaded into one or both of its memory card slots.

You can use the camcorder with the following devices to make recordings.

 MEAD-SD02 Media Adaptor (SDXC only supported) or QDA-EX1 XQD ExpressCard Adaptor

About 5x5 Memory Cards

SxS memory cards

Use Sony SxS memory cards (SxS PRO+, SxS PRO, or SxS-1) with this camcorder.

SxS PRO+ series
SxS PRO series
SxS-1 series

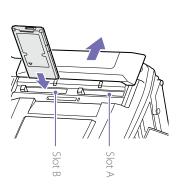
The memory cards listed above comply with the ExpressCard memory card standard.

• Sys Sys BBOLL Sys BBO and Sys 1 are

- SxS, SxS PRO+, SxS PRO, and SxS-1 are trademarks of Sony Corporation.
- The ExpressCard label and logo are the property of the Personal Computer Memory Card International Association (PCMCIA) and are licensed to Sony Corporation. All other trademarks and trade names are the property of their respective owners.

Inserting SxS Memory Cards

- Slide the cover to the left to open.
- 2 Insert an SxS memory card into a card slot.



[Note]

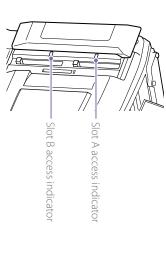
Make sure to insert the SxS card in the correct orientation. Hold the card with the arrow on one side facing the direction shown in the diagram, and then insert the card.

The ACCESS indicator lights in orange, and then lights in green to indicate that the memory card is usable.

3 Close the cover.

ACCESS indicator status

Card slots A and B each have an ACCESS indicator that indicate the slot status.

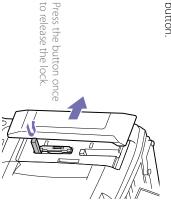


Indicator	Slot status
Lights in	Accessing the SxS memory card
orange	(lights during data reading and
	writing)

Indicator	Slot status
Lights in	Standby (the loaded SxS memory
green	card is ready for recording or
Not lit	No SxS memory card is loaded.
	An unusable card is loaded.
	An SxS memory card is loaded, but
	the other slot is selected.

Ejecting SxS Memory Cards

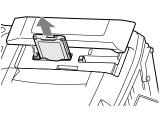
Open the cover, and then press the EJECT button to release the lock and extract the button.



Press the EJECT button again to eject the card.

[Note]

When you press the EJECT button, take care not to impede the SxS memory card. If the movement of the SxS memory card is impeded, the lock may fail to release.



Data integrity cannot be guaranteed if you power the camcorder off or remove a memory card while the card is being accessed. All data recorded on the card may be discarded. Always make sure that the ACCESS indicator is lit green or not lit before you power the camcorder off or remove a memory card.

Selecting the SxS Memory Card to Use

When SxS memory cards are loaded in both slot A and slot B, you can press the SLOT SELECT button to select the SxS memory card to use. When the remaining recording time on the recording SxS memory card falls below 60 seconds, the remaining capacity indicator for the corresponding media slot flashes on the viewfinder screen to indicate that the camcorder will switch SxS memory cards soon.

Subsequently, the camcorder switches automatically to the other card when the selected card becomes full, and recording continues.

The SLOT SELECT button is disabled during playback. The Button operations are enabled when a thumbnail screen memory cards are not switched even if you press the button.

(ards Formatting (Initializing) SxS Memory

SxS memory cards are formatted in exFAT or FAT format the memory card in the following way. inserted, a message notifying you that the media memory card formatted in another specification is by factory default. has a different file system appears. In this case, When an unformatted SxS memory card or an SxS

that supports the exFAT or UDF file system or on this camcorder. Cards in other formats cannot be used. SxS memory cards must be formatted on an XDCAM device

- Select Operation >Format Media in the setup
- 2 Select Media(A) (slot A) or Media(B) (slot B).

in the viewfinder.

the recording media remaining capacity indicator memory cards loaded in the two slots by checking You can check the remaining capacity of the SxS

- ω Turn the MENU knob to select [Execute], then format the card appears. A confirmation screen prompting whether to press the knob.
- 4 Turn the MENU knob to select [Execute] on the During formatting, a message is displayed, and Formatting begins. confirmation message screen, then press the

the ACCESS indicator is lit orange.

When to exchange SxS memory cards

The warning message "Media Near Full" appears

sounds when the total remaining recording on the viewfinder screen flash, and the buzzer the WARNING indicator and the REC indication A 🕞 mark appears when a memory card is write protected.

message. appears. Press the MENU knob to dismiss the When formatting ends, a completion message

If formatting fails

A format operation may fail because the SxS camcorder. not the type of card specified for use with this memory card is write protected, or because it is

instructions in the error message and exchange In this case, an error message appears. Follow the the card for an SxS memory card that can be used with this camcorder.

- Formatting a memory card erases all data, including recorded video data and setup files.
- on this camcorder. Use the format function of this camcorder to format SxS valid formats, making it necessary to format them again cards formatted on other devices are not recognized as memory cards for use on this camcorder. The formats of

When you load an SxS memory card that needs to card, the card must be restored before use to ask whether you want to restore it. be restored, a message appears in the viewfinder

select [Execute], and then press the knob. The restoration starts. To execute the restore, turn the MENU knob to

appears. Press the MENU knob to dismiss the

If restoration fails

graph by displaying the Media Status screen

You can check the remaining capacity on a bar

(page 15).

and the current video format (recording bit rate) the remaining capacity of the media in each slot The remaining recording time is calculated from

and is displayed in units of minutes.

- and unprotect the card or replace it with cards. Follow the instructions in the message restored. A warning message appears for such which memory errors have occurred cannot be
- SxS memory cards on which memory errors reformatted.

- available recording capacity. Exchange one of the cards for media with minutes during recording. time of the two memory cards falls to five
- If you continue recording, the message "Media Full" appears and recording stops when the total remaining recording time falls to 0.

About up to 600 clips can be recorded on one SxS memory

The display of remaining recording time changes to "0" and the message "Media Full" appears when the clip limit is

Restoring SxS Memory Cards

If for any reason an error should occur in a memory

Checking the Remaining Recording

ACCESS indicator is lit orange. During restoration, a message is displayed, and the When restoration ends, a completion message

- Write protected SxS memory cards and cards on
- have occurred may become usable if they are

- In some cases, some clips can be restored while others cannot. The restored clips can be played
- If the message "Could not Restore Some Clips" memory card with the following procedure. restoration, it may be possible to restore the SxS keeps appearing after repeated attempts at [1] Use the application software (page 147)
- to copy the required clips to another SxS memory card.
- Format the unusable SxS memory card on the camcorder
- Copy the required clips back to the newly formatted SxS memory card.

Handling SD Cards for Saving Configuration Data

configuration data. The following SD cards can be used for saving

UHS, Capacity: 4 to 32 GB)

* Referred to as "SD cards" in this manual. SDHC memory cards* (Speed Class: 4 to 10, non-

Formatting (Initializing) SD Cards

SD cards must be formatted the first time they are

is inserted into the camcorder, format the SD card. camcorder. If a message appears when the SD card formatted using the format function of the SD cards for use in the camcorder should be used in the camcorder.

- Select Operation >Format Media >SD Card A confirmation screen prompting whether to format the card appears. (Utility) in the setup menu.
- Turn the MENU knob to select [Execute], then When formatting ends, a completion message the ACCESS indicator is lit orange. press the knob. appears. Press the MENU knob to dismiss the During formatting, a message is displayed, and Formatting begins.

Formatting an SD card erases all data on the card. The card cannot be restored.

Checking the Remaining Capacity

card, then reformat the card in the device to be the slot of another device, make a backup of the To use an SD card formatted on the camcorder in card on the Media Status screen (page 15). You can check the remaining capacity on an SD

Using a Media Adaptor

- For professional applications, the use of other media will not provide the same high reliability and durability that is obtained using 5x5 memory cards.
- Not all memory cards are guaranteed to work with this Sony dealer camcorder. For compatible memory cards, contact you

XQD Memory Cards

SxS memory card the SxS memory card slot and use it instead of an Adaptor, you can insert an XQD memory card into By using an optional QDA-EX1 XQD ExpressCard

refer to the instruction manual supplied with the adaptor. For details about using a QDA-EX1 XQD ExpressCard Adaptor,

- High-speed playback may not be properly achieved with an XQD memory card.
- Slow motion recording using the Slow & Quick Motion recording function cannot be used with an XQD memory

Formatting (initializing

of the camcorder. If a message appears when the should be formatted using the format function XQD memory cards for use in the camcorder time they are used in the camcorder. format the XQD memory card. XQD memory card is inserted into the camcorder XQD memory cards must be formatted the first

system appears notifying you that the media has a different file confirmation to format media or a message specification is inserted, a message asking for memory card that was formatted in a different If an unformatted XQD memory card or an XQD

- Select Operation >Format Media in the setup
- 2 Select Media(A) (slot A) or Media(B) (slot B).

- \mathcal{C} Turn the MENU knob to select [Execute], then press the knob
- A confirmation screen prompting whether to format the card appears.
- 4 Turn the MENU knob to select [Execute] on the confirmation message screen, then press the
- Formatting begins.

the ACCESS indicator is lit orange. During formatting, a message is displayed, and

appears. Press the MENU knob to dismiss the When formatting ends, a completion message

including protected video. The data cannot be restored Formatting an XQD memory card erases all data on the card,

Connection between the camcorder and a

computer using a USB cable. in the camcorder, and connect the camcorder to a Insert the recorded XQD memory card into a slot

camcorder in the slot of another device To use a memory card formatted on the

First, make a backup of the card, then reformat the card in the device to be used.

SDXC Cards

By using an optional MEAD-SD02 Media Adaptor card slot and use it for recording and playback. you can insert an SDXC card into an SxS memory

Do not use SDXC cards at the same time as other memory full camcorder cannot switch cards when the media becomes cards. If a mix of cards are used at the same time, the

> SDXC memory cards (SD speed class: Class 10) The following SDXC cards are supported.

the instruction manual supplied with the adaptor. For details about using an MEAD-SD02 Media Adaptor, refer to

[Notes

- High-speed playback may not be properly achieved with
- Slow motion recording using the Slow & Quick Motion recording function cannot be used with an SDXC card
- Recording and playback using SDXC cards is not guaranteed when shooting in XAVC Intra format

Formatting (initializing)

card is inserted into the camcorder, format the camcorder. If a message appears when the SDXC are used in the camcorder. be formatted using the format function of the SDXC cards for use in the camcorder should SDXC cards must be formatted the first time they SDXC card.

If an unformatted SDXC card or an SDXC card media has a different file system appears. format media or a message notifying you that the inserted, a message asking for confirmation to that was formatted in a different specification is Format the card using the following procedure.

- Select Operation >Format Media in the setup
- Select Media(A) (slot A) or Media(B) (slot B)
- (Turn the MENU knob to select [Execute], then A confirmation screen prompting whether to press the knob.

format the card appears

4 Turn the MENU knob to select [Execute] on the confirmation message screen, then press the

Formatting begins. the ACCESS indicator is lit orange. During formatting, a message is displayed, and

> message. appears. Press the MENU knob to dismiss the When formatting ends, a completion message

Formatting an SDXC card erases all data on the card

- An SDXC card cannot be formatted in UDF mode. including protected video. The data cannot be restored
- Connection between the camcorder and a

computer using a USB cable camcorder, and connect the camcorder to a Insert the recorded SDXC card into a slot in the

camcorder in the slot of another device Io use a memory card formatted on the

First, make a backup of the card, then reformat the card in the device to be used

XQD is a registered trademark of Sony

Format Settings

setup menu You can set the recording mode, system frequency, and video format using Operation >Format in the

For details about menu operations, see "Basic Setup Menu Operations" (page 86).

Selecting the Recording Mode

You can select exFAT or UDF recording mode

- Select Operation >Format >File System in the setup menu
- 2 Turn the MENU knob to select exFAT or UDF, and press the knob A confirmation screen appears.
- Select [Execute] to execute, or select [Cancel] to cancel, and then press the MENU knob. The camcorder will reboot automatically after executing [Execute]

The recording mode cannot be changed during recording/playback or while the thumbnail screen is displayed

Switching the System Frequency

You can switch the system frequency as required

- The system frequency cannot be changed during recording/playback or while the thumbnail screen is displayed.
 After switching between 29.97 and 59.94 or between 25 and 40, the camcorder does not reboot automatically.
- Select Operation >Format >Frequency in the setup menu.
- Turn the MENU knob to select the system frequency, and press the knob A confirmation screen appears.
- ω Select [Execute] to execute, or select [Cancel] to cancel, and then press the MENU knob The camcorder will reboot automatically after executing [Execute]

Switching the Video Format

Refer to "Video Formats" (page 34) as required when switching the video format

- Select Operation >Format >Rec Format in the setup menu.
- Turn the MENU knob to change the video format, and press the knob
- 3 Select [Execute] to execute, or select [Cancel] to cancel, and then press the MENU knob. A confirmation screen appears.

Video Formats

The following recording formats can be selected for different combinations of video resolution and

system frequency.	(
System frequency	Video format	Picture size
	(Operation >Format >Rec Format in setup menu)	
59.94/50	XAVC-I 1920×1080P	1920×1080
	XAVC-I 1920×1080i	
	XAVC-I 1280×720P	1280×720
	XAVC-L 50 1920×1080P	1920×1080
	XAVC-L 50 1920×1080i	1920×1080
	XAVC-L 50 1280×720P	1280×720
	XAVC-L 35 1080P	1920×1080
	XAVC-L 35 1080i	I
	XAVC-L 25 1080i	
	HD422 50 1080i a)	1920×1080
	HD422 50 720P a)	1280×720
	HQ 1920×1080i ^{a)}	1920×1080
	HQ 1440×1080i ^{a)}	1440×1080
	HQ 1280×720P a)	1280×720
	MPEG IMX 50 a)	720×486/720×576
	DVCAM ^{a)}	720×480/720×576

System frequency	Video format	Picture size
	(Operation >Format >Rec Format in setup menu)	
29.97/25/23.98	XAVC-I 1920×1080P	1920×1080
	XAVC-L 50 1920×1080P	I
	XAVC-L 35 1080P	
	HD422 50 1080P a)	1920×1080
	HD422 50 720P a)	1280×720
	HQ 1920×1080P ^{a)}	1920×1080

a) exFAT and UDF files systems are supported. Only exFAT is supported for other options.

SDI OUT Connector and HDMI Output Connector Output Formats

The signals that can be output from the SDI OUT connector and HDMI output connector are shown in the following table according to the Operation >Format setting in the setup menu.

Operation menu	มน		
Format		Input/Output	
Frequency	Rec Format (codec omitted)	Output Format	
		SDI	HDMI
59.94	1920×1080P	1920×1080P (Level A)	1920×1080P
		1920×1080P (Level B)	No signal
		1920×1080i	1920×1080i
		720×486i	720×480i
	1920×1080i	1920×1080i	1920×1080i
		720×486i	720×480i
	1440×1080i	1920×1080i	1920×1080i
		720×486i ^{a)}	720×480i ^{a)}
	1280×720P	1280×720P	1280×720P
		720×486i	720×480i
	720×480i	720×486i	720×480i
		No signal	720×480P
29.97	1920×1080P	1920×1080PsF	1920×1080i
		720×486i	720×480i
	1280×720P	1280×720P	1280×720P
		720×486i	720×480i

Format Input/Output Format Frequency Rec Format (codec omitted) Output Format SDI HDMI	Operation menu	חחו		
Jency Rec Format (codec omitted) Output Format SDI 1920×1080P 1920×1080PsF 1920×1080P 1920×1080i (2-3PD) 720×486i (2-3PD) 1280×720P (2-3PD) 1920×1080P 1920×1080P (1280×720P (2-3PD)) 1920×1080P 1920×1080P (Level A) 1920×1080P 1920×1080P (Level B) 1920×1080i 1920×1080i 720×576i 1920×1080i 1280×720P 1280×720P 720×576i 720×576i No signal 1920×1080PsF 1280×720P 1280×720P 720×576i 720×576i	Format		Input/Output	
SDI 1920×1080P 1920×1080Psf 1920×1080i (2-3PD) 1920×1080i (2-3PD) 720×486i (2-3PD) 720×486i (2-3PD) 1280×720P 1280×720P (2-3PD) 1920×1080P 1920×1080P (Level A) 1920×1080P 1920×1080P (Level B) 1920×1080i 1920×1080i 1920×1080i 1920×1080i 1920×576i 720×576i 720×576i No signal 1920×1080P 1920×1080Psf 1920×720P 1280×720P 1280×720P 1280×720P 1280×720P 1280×720P 720×576i No signal 1280×720P 1280×720P 720×576i 720×576i	Frequency	Rec Format (codec omitted)	Output Format	
1920×1080P 1920×1080PsF 1920×1080i (2-3PD) 1920×1080i (2-3PD) 1280×720P 1280×720P (2-3PD) 720×486i (2-3PD) 720×486i (2-3PD) 720×486i (2-3PD) 720×486i (2-3PD) 720×486i (2-3PD) 1920×1080P (Level A) 1920×1080P (Level B) 1920×1080i 720×576i 720×57			SDI	HDMI
1920×1080i (2-3PD)	23.98	1920×1080P	1920×1080PsF	No signal
720×486i (2-3PD) 1280×720P 1280×720P (2-3PD) 720×486i (2-3PD) 720×486i (2-3PD) 1920×1080P 1920×1080P (Level A) 1920×1080i 1920×1080i 1920×1080i 1920×1080i 1920×1080i 720×576i 1280×720P 720×576i 720×576i No signal 1920×1080P 1280×720P 1280×720P 720×576i No signal 1280×720P 720×576i 720×576i 720×576i			1920×1080i (2-3PD)	1920×1080i (2-3PD)
1280×720P 1280×720P (2-3PD) 720×486i (2-3PD) 720×486i (2-3PD) 1920×1080P 1920×1080P (Level A) 1920×1080P 1920×1080P (Level B) 1920×1080i 1920×1080i 1920×1080i 1920×1080i 1920×1080i 1920×1080i 1280×720P 1280×720P 1920×1080P 720×576i No signal 1920×1080PsF 1280×720P 1280×720P 1280×720P 1280×720P 1280×720P 720×576i 1280×720P 720×576i			720×486i (2-3PD)	720×480i (2-3PD)
720×486i (2-3PD) 1920×1080P 1920×1080P (Level A) 1920×1080P (Level B) 1920×1080i 720×576i 1920×1080i 1920×1080i 1920×1080i 1920×1080i 1920×1080i 1920×1080i 1920×1080i 720×576i 720×576i 720×576i 720×576i No signal 1920×1080P\$F 1280×720P 1280×720P 1280×720P 720×576i 720×576i		1280×720P	1280×720P (2-3PD)	1280×720P (2-3PD)
1920×1080P			720×486i (2-3PD)	720×480i (2-3PD)
1920×1080P (Level B) 1920×1080P (Level B) 1920×1080i 1920×1080i 720×576i 1920×1080i 720×576i 1920×1080i 1920×1080i 720×576i 720×576i	50	1920×1080P	1920×1080P (Level A)	1920×1080P
1920×1080i			1920×1080P (Level B)	No signal
720×576i 1920×1080i 1920×1080i 1920×1080i 1440×1080i 11440×1080i 1280×720P 1280×720P 1280×720P 720×576i 720×576i 1920×1080P 1920×1080P 1920×1080P 1280×720P 1280×720P 1280×720P 720×576i 720×576i 720×576i			1920×1080i	1920×1080i
1920×1080i 1920×1080i 720×576i 720×576i 1440×1080i 1920×1080i 1280×720P 1280×720P 720×576i 720×576i 720×576i No signal 1920×1080P 1920×1080PsF 1280×720P 720×576i 720×576i 720×576i			720×576i	720×576i
720×576i 1440×1080i 1920×1080i 1280×720P 1280×720P 720×576i 720×576i 720×576i No signal 1920×1080P 1920×1080P 1280×720P 720×576i 720×576i 720×576i 720×576i		1920×1080i	1920×1080i	1920×1080i
1440×1080i			720×576i	720×576i
720×576i 720×576i 1280×720P 1280×720P 720×576i 720×576i 720×576i 720×1080P 1920×1080P 1280×720P 1280×720P 720×576i 720×576i 720×576i		1440×1080i	1920×1080i	1920×1080i
1280×720P 1280×720P 720×576i 720×576i 720×576i No signal 1920×1080P 1920×1080PsF 720×576i 720×576i			720×576i ^{a)}	720×576i ^{a)}
720×576i 720×576i 720×576i 720×576i No signal 1920×1080P 1920×1080PsF 720×576i 1280×720P 720×576i 720×576i		1280×720P	1280×720P	1280×720P
720×576i 720×576i No signal 1920×1080P 1920×1080PsF 720×576i 1280×720P 1280×720P 720×576i 720×576i			720×576i	720×576i
No signal 1920×1080P		720×576i	720×576i	720×576i
1920×1080P 1920×1080PsF 720×576i 1280×720P 1280×720P 720×576i			No signal	720×576P
720×576i 1280×720P 720×576i	25	1920×1080P	1920×1080PsF	1920×1080i
1280×720P 720×576i			720×576i	720×576i
		1280×720P	1280×720P	1280×720P
			720×576i	720×576i

a) Switches to 1920×1080i when proxy recording or wireless LAN connection function is on.

VIDEO Connector Output Formats

The signals that can be output from the VIDEO connector are shown in the following table according to the Operation > Format setting in the setup menu.

Operation menu VIDEO OUT signal format Frequency Rec Format (codec omitted) Proxy recording/Wireless LAN connection function ON 59,94 1920×1080P HD Y HD Y 4DPY <		the Operation / Original Setting III the Setup Hieria.	Ξ.	
Juency Rec Format (codec omitted) 1920×1080P 1920×1080i 1440×1080i 1280×720P 1280×720P 1920×1080P 1920×1080P	Operation m	enu	VIDEO OUT signal forma	Ē
1920×1080P	Format			
OFF HDY HDY HDY HDY HDY Composite 1920×1080i HDY Composite 1280×720P HD Sync **) Composite Composite 1920×1080P HD Y 1920×1080P HD Y Composite HD Y Composite HD Y HD Y/HD Sync Composite 1280×720P HD Y Composite HD Y Composite HD Y	Frequency	Rec Format (codec omitted)	Proxy recording/Wireles	s LAN connection function
HD Y			OFF	ON
HD Y	59.94	1920×1080P	HD Y	HDΥ
HD Y Composite HD Y Composite HD Y			HDΥ	HDY
Composite HD Y			HDΥ	HDΥ
1920×1080i HD Y 1440×1080i HD Y 1280×720P HD Sync® 1280×1080i Composite 720×480i Composite 1920×1080P HD Y 1920×1080P HD Y 1920×1080P HD Y Composite Composite 1920×1080P HD Y Composite HD Y Composite Composite			Composite	Composite ^{c)}
Composite HD Y		1920×1080i	HDY	HDY
1440×1080i HD Y Composite Composite 1280×720P HD Sync ^{a)} 720×480i Composite 1920×1080P HD Y 1280×720P Composite 1920×1080P HD Y Composite HD Y Composite Composite HD Y/HD Sync Composite Composite Composite			Composite	Composite c)
Composite		1440×1080i	HDY	HDY
1280×720P HD Syncə) Composite Composite 720×480i Composite 1920×1080P HD Y 1280×720P HD Y ^{b)} Composite Composite 1920×1080P HD Y Composite HD Y 1280×720P HD Y/HD Sync Composite Composite			Composite	ı
Composite Composite		1280×720P	HD Sync ^{a)}	HD Sync ^{a)}
720×480i			Composite	Composite ^{c)}
Composite Composite HD Y HD Y		720×480i	Composite	Composite c)
1920×1080P HD Y Composite 1280×720P HD Y ^{b)} 1920×1080P HD Y 1920×1080P HD Y/HD Sync Composite 1280×720P Composite Composite			Composite	HDY
Composite Composite	29.97	1920×1080P	HDΥ	HDY
1280×720P HD Y ^{b)} Composite 1920×1080P HD Y HD Y/HD Sync Composite 1280×720P HD Y ^{b)} Composite			Composite	Composite ^{c)}
Composite Composite		1280×720P	HD Y b)	HD Y ^{b)}
1920×1080P HD Y/HD Sync Composite 1280×720P HD Y ⁽¹⁾ Composite			Composite	Composite c)
HD Y/HD Sync Composite HD Y ^(b) Composite	23.98	1920×1080P	HDY	HDΥ
Composite HD Y ^(s) Composite			HD Y/HD Sync	HDY
HD Y ^(b) Composite			Composite	Composite ^{c)}
		1280×720P	HD Y ^{b)}	HD Y b)
			Composite	Composite ^{c)}

Operation menu	ะทน	VIDEO OUT signal format	at
Format			
Frequency	Rec Format (codec omitted)	Proxy recording/Wirele	Proxy recording/Wireless LAN connection function
		OFF	ON
50	1920×1080P	HDΥ	HDY
		HDΥ	HDΥ
		HDΥ	HDY
		Composite	Composite ^{c)}
	1920×1080i	HDΥ	HDΥ
		Composite	Composite ^{c)}
	1440×1080i	HDΥ	HDY
		Composite	ı
	1280×720P	HD Sync ^{a)}	HD Sync ^{a)}
		Composite	Composite °
	720×576i	Composite	Composite °
		Composite	HDΥ
25	1920×1080P	HDΥ	HDY
		Composite	Composite ^{c)}
	1280×720P	HD Y b)	HD Y ^{b)}
		Composite	Composite ^{c)}

a) 1080i sync signal output.b) 1080PsF sync signal output.c) Character information (superimposed) turns on/off in sync with the SDI OUTZ/HDMI character information display switching.

Adjusting the Black Balance and White Balance

To ensure excellent image quality when using this camcorder, conditions may require that both the black balance and the white balance be adjusted. Black balance and white balance adjustment values that are automatically set by the camcorder and the various settings are stored in the camcorder memory and retained even when the power is turned off.

Adjusting the Black Balance

The black balance will require adjustment in the following cases.

- When the camcorder is used for the first time
 When the camcorder has not been used for a
- When the camcorder has not been used for a long time
- When the camcorder is used under conditions in which the surrounding temperature has changed greatly
- When the GAIN selector (L/M/H/Turbo) values have been changed with Operation >Gain Switch in the setup menu.

It is not usually necessary to adjust the black balance when using the camcorder after it has been off.

In automatic black balance mode, adjustments are performed in the following order: black set and black balance. Manual black balance adjustment can be selected from the setup menu.

Automatic black balance adjustment is disabled in the following cases.

- During recording
- During special recording modes
- When the shutter mode is SLS
- Set the OUTPUT/DCC switch to CAM.

2 Push the AUTO W/B BAL switch to BLACK and release the switch.

The message "Executing..." appears during execution, and changes to "OK" when the adjustment finishes.

Adjustment values are saved to memory automatically.

[Notes]

- During the black balance adjustment, the iris is automatically closed.
- During the black balance adjustment, the gain selection circuit is automatically activated so you may see flickering on the viewfinder screen, but this is not a fault.

If automatic black balance adjustment cannot be

If the black balance adjustment cannot be completed normally, an error message will appear for about three seconds on the viewfinder screen.

attempts.	stano	com	NG: Timeout Adju	adju	NG: Iris not Closed The I	Error message Meaning
npts.	standard number of	completed within the	Adjustment could not be	adjustment was impossible.	The lens iris did not close;	iing

If any of the above error messages is displayed, retry the black balance adjustment. If the error message occurs again, an internal check is necessary.

For information about this internal check, refer to the Maintenance Manual.

lnote

If the lens cable is not firmly connected to the LENS connector, it may not be possible to adjust the lens iris. If this happens, the black balance will be incorrect.

Adjusting the White Balance

Always readjust the white balance when the lighting conditions change.

- Set the switches and selectors as shown below.
- GAIN switch: L (set to a gain value that is as small as possible)
- OUTPUT/DCC switch: CAM
- WHITE BAL switch: A or B 1)
- Adjustment values are saved to memory B only when Operation >White Setting >White Switch in the setup menu is set to Memory.
- Set the FILTER knob to suit the lighting conditions as follows.
- Place a white test card under the same lighting conditions as the subject to be shot and zoom in on it.

Alternatively, any white object such as a cloth or a wall can be used.

The absolute minimum white area is as follows.

Rectangle centered on the screen
The lengths of the sides are 70% of the length
and width of the screen. 10% or more of the
surface area of the image within the rectangular
area must be white.



[Note]

Make sure there are no bright spots in the rectangle.

4 Adjust the lens iris.
Iris adjusted manually: Set the iris to an appropriate setting.

Iris adjusted using auto iris: Set the automatic, manual switch on the lens to automatic.

Push the AUTO W/B BAL switch to WHITE and then release the switch.

The message "Executing..." appears during execution, and changes to "OK: (color temperature of subject)" when the adjustment finishes.

Ine adjustment values are saved automatically in the memory selected in step 1 (A or B).

[Note]

The iris may hunt ¹⁾ during the adjustment. To prevent this, adjust the iris gain knob (indicated as IG, IS, or S) on the lens.

 Hunting: Repeated brightening and darkening of the image, resulting from repeated response to automatic iris control.

For details, refer to the lens operation manua

If the automatic white balance adjustment cannot be made

If the white balance adjustment cannot be completed normally, an error message will appear for about three seconds on the viewfinder screen.

Error message	Meaning
NG: Low Light	The white video level is too
	low. Either open the lens iris or
	increase the gain.
NG: High Light	The white video level is too
	high. Either stop down the lens
	iris or change the ND filter.
NG: Color Temp.	The color temperature of the
High	subject lighting is too high,
	and could not be adjusted.
	Adjust the color temperature
	of the lighting, then update
	memory.

Error message	Meaning
NG: Color Temp.	The color temperature of the
Low	subject lighting is too low, and
	could not be adjusted. Adjust
	the color temperature of the
	lighting, then update memory.
NG: Out of Range	Value could not be adjusted
	because the difference
	between the current value and
	reference value exceeds the
	adjustment range.
NG: Poor White	The white surface of the
Area	subject is too narrow, and
	could not be adjusted.
NG: Timeout	Adjustment could not be
	completed within the standard
	number of attempts.
	Adjustment could not be
	completed within the specified
	time.

If any of the above error messages is displayed, retry the white balance adjustment. If the error message occurs again, an internal check is necessary.

For information about this internal check, refer to the Maintenance Manual.

If you have no time to adjust the white balance

Set the WHITE BAL switch to PRST.

Changing the color temperature when the ND filter is switched

You can assign electrical CC (color correction) filters to ND filters (page 5) allowing you to change the color temperature automatically when the ND filter is switched.

Set Maintenance > White Filter > ND Filter C.
Temp to On in the setup menu (page 107).

- Z To assign an electrical CC filter to FILTER knob position number 1, select [ND FLT C. Temp<1>]. To assign it to positions 2 to 4, select [ND FLT C.Temp<2-4>].
- 3 Turn the MENU knob to select the desired color temperature.
- 4 Repeat steps 2 and 3 as required

Switching electrical CC filters with an assignable switch

You can assign the function that switches between electrical CC filters to an assignable switch. This allows you to switch between color temperatures (3200K/4300K/5600K/6300K) that have been assigned using up to four positions (A to D) with each press of the assignable switch. Regardless of assignments to assignable switches, you can also switch between the color temperatures assigned to each position from a RM-B170/B750 Remote Control Unit.

- Select Maintenance > White Filter in the setup menu.
- Select the position to which to assign a CC filter by selecting one of [Electrical CC<A>] to [Electrical CC <D>], and then turn the MENU knob to select the desired color temperature. Select "----" with Electrical CC <C> or <D> selected.
- When the assignable switch is pressed, the setting for that position is not displayed. For example, if "----" is set for one position, then switching between the remaining three positions is carried out.
- 3 Repeat step 2 as required.

4 Assign the electrical CC filter switching function (ELECTRICAL CC) to an assignable switch (page 115).

White balance memory

Values stored in memory are held until the white balance is next adjusted, even if the camcorder power is turned off.

The camcorder has two white balance memories, A and B. You can automatically save adjustment values for each ND filter in the memory that corresponds to the WHITE BAL switch setting (A or B). The camcorder has four built-in ND filters, allowing you to save a total of eight adjustment values (4x2). However, the contents of the memories are not linked to ND filter settings in the following cases.

- When the number of memories allocated to each of A and B is limited to one by setting Operation >White Setting >Filter White Memory in the setup menu to Off.
- When the electrical CC filter switching function has been assigned to an assignable switch, or when a remote control unit has been connected. (In these cases, the contents of white balance memory are linked to electrical CC filter positions (A to D).)

Also, when Operation >White Setting >White Switch in the setup menu is set to [ATW (Auto Tracing White Balance)], and the WHITE BAL switch is set to B, the ATW function is activated to automatically adjust the white balance of the picture being shot for varying lighting conditions.

Setting the Electronic Shutter

Shutter Modes

The shutter modes that can be used with the electronic shutter and the shutter speeds that can be selected are listed below.

[Note]

When a remote control unit, such as the RM-B170, is connected, only standard mode (Speed) can be selected.

Standard mode

Select this mode for shooting fast-moving subjects with little blurring.

You can set the shutter speed in one of two shutter modes: Speed mode, in which the speed is set in seconds, and Angle mode, in which the speed is set in degrees.

Speed mode

System	Shutter speed (unit: seconds)
frequency	
59.94i	1/60, 1/100, 1/120, 1/125, 1/250, 1/500,
59.94P	1/1000, 1/2000
50i	
50P	
29.97P	1/40 a), 1/50 a), 1/60, 1/100, 1/120, 1/125,
	1/250, 1/500, 1/1000, 1/2000
25P	1/33 a), 1/50 a), 1/60, 1/100, 1/120, 1/125,
	1/250, 1/500, 1/1000, 1/2000
23.98P	1/32 a), 1/48 a), 1/50 a), 1/60, 1/96, 1/100,
	1/120, 1/125, 1/250, 1/500, 1/1000,
	1/2000

a) This speed cannot be selected when the camcorder is in Slow & Quick Motion mode and Operation >Rec Function >Frame Rate in the setup menu is set to a value that is greater than the system frequency.

Angle mode 180°, 90°, 45°, 22.5°, 11.25°

ECS (Extended Clear Scan) mode

Select this mode for obtaining images with no horizontal bands of noise when shooting subjects such as monitor screens.

As shown in the following tables, the range of shutter speeds that can be set varies depending on whether the Slow & Quick Motion (S&Q) function is on or off.

System	Shutter speed (unit: Hz)	: Hz)
frequency	S&Q: Off	S&Q: On
59.94i	60.00 to 7000	
59.94P	60.00 to 8000	60.00 to 8000
29.97P	30.00 to 8000	30.00 to 8000
23.98P	23.99 to 6000	30.03 to 6000
50i	50.00 to 7000	
50P	50.00 to 7000	50.00 to 7000
25P	25.02 to 7000	30.00 to 7000

SLS (slow speed shutter) mode

This mode is used to shoot subjects with low illumination. The number of accumulated frames shot when using the slow speed shutter function can be set to 2, 3, 4, 5, 6, 7, 8, 16 using Operation >Slow Shutter >Number of Frames in the setup menu.

- SLS mode cannot be used when the camcorder is in Slow & Quick Motion mode.
- It is not possible to turn the SLS mode on or off, or change the number of accumulated frames when recording.

Setting the Shutter Mode and Shutter Speed

[INOTES]

 When the automatic iris is used, the iris opens wider as the shutter speed increases, thus reducing the depth of field.

> The selectable shutter speeds vary depending on the current system frequency.

Switching between Speed mode and Angle mode

- Select Operation >Shutter >Mode in the setup menu.
- Turn the MENU knob to select [Speed] or [Angle], and then press the knob.

Setting the shutter mode and shutter speed (standard mode)

Once the shutter speed is selected, it is retained even when the camcorder power is turned off.

- Push the SHUTTER switch from ON to SELECT. The current shutter setting indication appears in the viewfinder for about three seconds.
- 2 Before the shutter setting in step 1 disappears, push the SHUTTER switch down to SELECT again. Repeat this step until the desired mode or speed appears.
 When all modes and speeds are displayed, the



display changes in the following order.

[Note]

Depending on the frame rate setting (page 50), some shutter speeds cannot be selected in Slow & Quick Motion mode. These speeds are replaced by the slowest selectable shutter speed.

Example when shooting in XAVC-I 1080P/29.97P frame rate of 60, and Slow & Quick Motion:

- Slow & Quick Motion mode: Off
- 1/40→1/50→1/60→1/100→...
- Slow & Quick Motion mode: Or 1/60→1/100→...

Setting the shutter speed (ECS mode)

- Set the shutter mode to ECS (see the previous item).
- Turn the MENU knob to select the desired frequency or number of frames.

Setting the shutter speed (SLS mode

- Select Operation >Slow Shutter >Setting in the setup menu and set the shutter mode to On.
- Select Operation >Slow Shutter >Number of Frames in the setup menu and select the desired number of frames.

Setting Auto Iris

The reference value for automatic iris adjustment can be changed to aid the shooting of clear pictures of back-lit subjects, or to prevent blownout highlights.

Setting the Auto Iris Operating Mode

Set the operating mode used when adjusting levels using auto iris.

- Select Operation >Auto Iris >Mode in the setup menu.
- 2 Turn the MENU knob to select the operating mode, then press the knob.

Operating mode	Description
Backlight	Mode for shooting in backlight conditions
Standard	Standard mode
Spotlight	Mode for reducing blown out highlights when there are
	spotlights centered on a
	subject.

Set the target convergence level for auto iris

- Select Operation >Auto Iris >Level in the setup menu.
- $2\,$ Turn the MENU knob to select the level in the range -99 to +99, then press the knob.

Convergence level	Description
_99	Sets the iris 2 f-stops or more
	darker
±0	Reference level
+99	Sets the iris 2 f-stops or more
	lighter

Setting the auto iris speed

Set the operating speed when adjusting levels using auto iris.

- Select Operation > Auto Iris > Speed in the setup menu.
- Turn the MENU knob to select the speed in the range –99 (slowest) to +99 (fastest), then press the knob.

Changing the Reference Value of the Lens Iris

The reference value for the lens iris can be set within the following range with respect to the standard value.

- +0.25 to +1 (increments of 0.25): About 0.25 to 1 stop further open
- \bullet -0.25 to -1 (increments of 0.25): About 0.25 to 1 stop further closed
- Also you can set the area where light detection occurs.
- Set Operation >Auto Iris >Iris Override in the setup menu to On.

 ω

Turn the MENU knob until the desired auto iris

window appears, and then press the knob.

Set the MENU ON/OFF switch to OFF.

3 Turn the MENU knob to change the reference value.

[Note]

Be sure to confirm that the current shutter mode is not ECS.

The current reference value is shown by the iris position indicator (page 16) on the viewfinder screen.

- To open the iris slightly, turn the MENU knob counterclockwise as seen from the front of the camcorder.
 Select one of +0.25, +0.5, +0.75, or +1.
- To close the iris slightly, turn the MENU knob clockwise as seen from the front of the camcorder.
 Select one of −0.25, −0.5, −0.75, or −1.

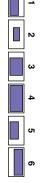
The changed reference value is retained until the power of the camcorder is turned off. Even if the reference value is changed, it reverts to the standard value every time the power is turned on.

Setting the Auto Iris Detection Window

- Set Operation >Auto Iris >Detect Window Indication in the setup menu to On.

 The current automatic iris window appears on the viewfinder screen.

 If it is not necessary to display the auto iris window on the screen, set to Off.
- Select Operation >Auto Iris >Detect Window in the setup menu.
- אפנטט וויפווע (ט טוו.



The shaded parts indicate the area of light detection.

If you select Var, the following items become effective and you can set the window of the desired size. Set Operation >Auto Iris >Iris Var Width, Iris Var Height, Iris Var, Iris Var H Position and Iris Var V Position in the setup menu.

ltem	setting
Iris Var Width	The width of the window
Iris Var Height	The height of the window
lris Var H	The position of the window
Position	in the horizontal direction
lris Var V	The position of the window
Position	in the vertical direction.

When you exit the menu, the auto iris window selected in step 3 appears.
Unless you need to keep this window displayed

Unless you need to keep this window displayed, set Operation >Auto Iris >Detect Window Indication in the setup menu to Off.

Reducing the Effect of Bright Highlights

If the subject is too bright, the iris may close too much, leaving the overall image dark, a condition known as clipped blacks. In such cases, switching the clip highlight function on will clip the signal above a certain level, reducing the effects of the auto iris.

Set Operation >Auto Iris >Clip High Light in the setup menu to On.

Adjusting the Iris Gain on the Lens Supplied with the PXW-X400KC

- Set the iris mode switch to the A (auto) position.
- 2 Flip off the rubber cap of the iris gain adjustment trimmer.
- 3 Turn the iris gain adjustment trimmer using a screwdriver, or similar object, to adjust the gain.

 Turn clockwise to increase the gain. Turn counterclockwise to decrease the gain.

 Adjust while watching the iris ring on the lens body.
- 4 Reattach the rubber cap.

Adjusting the Focus

This section describes the focus adjustment when using the lens supplied with the PXW-X400KF.

[Note]

The lens is designed with an extra margin at the infinity position (∞), to compensate for focus drifting due to variations in temperature. When shooting a subject at infinity in MF or Full MF mode, check the picture in the viewfinder as you focus.

One-push Auto Focus

Press the PUSH AF button. The auto focus activates temporarily.

The one-push auto focus stops when the subject comes into focus.

Adjusting in Full MF Mode

When you slide the focus ring back (toward the camcorder), the focus mode is set to Full MF mode for full manual focus adjustment.

[Note]

When you slide the focus ring back, the focus instantly moves to the marker position.

Focus by turning the focus ring while viewing the viewfinder.

The distance indications on the ring are valid in Full MF mode. The distances where the picture is in focus correspond to absolute positions of the focus ring.

Peaking

You can turn the PEAKING knob on the viewfinder to use the peaking function. Edges are emphasized in the monitor picture, which facilitates manual focusing.

The recorded video signals are not affected.

Adjusting in AF Mode

When you slide the focus ring forward and set the FOCUS switch to A (auto), the focus mode becomes AF mode, in which auto focus is available continuously.

The distance indications on the ring are invalid in AF mode.

Using the Focus Ring

Adjust the focus by turning the focus ring while viewing the viewfinder.

The distance indications on the ring are invalid in MF mode.

Using Macro Mode

When the focus mode is MF or AF, set the MACRO switch to the ON position to enable macro mode. Macro mode allows you to adjust the focus over a range that includes the macro area.

Macro mode is disabled in Full MF mode.

MF Assist Function

When the MF assist function is on (page 115), auto focus is activated after you stop focusing using the focus ring and provides fine control adjustment of the focus of the subject in the center of the display (focus tracking).

When fine adjustment stops, the MF assist auto focus operation ends.

Adjusting the Audio Leve

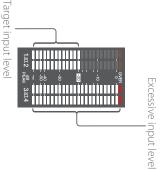
When you set the AUDIO SELECT switch to AUTO, the input levels of analog audio signals recorded on each channel are adjusted automatically. You can also make manual adjustments.

[NOTE]

Even if you set the AUDIO SELECT switch to AUTO, the input levels of digital audio signals are not adjusted automatically.

Target Audio Level for Manual Adjustment

Make adjustment using -20 dB as the target level. If the audio level meter shows a maximum level of 0 dB, then it indicates that the input audio level is excessive.



Manually Adjusting the Audio Levels of the Audio Inputs from the AUDIO IN CH-1/CH-2 Connectors

I To adjust the signal input to the AUDIO IN CH-1 or CH-2 connector, set the AUDIO IN CH1 or CH2 switch to REAR.

To adjust both input signals, set both switches to REAR.

- 2 Set the AUDIO SELECT switch(es) corresponding to the channel(s) selected in step 1 to MANUAL.
- 3 With the LEVEL knob(s) for the channel(s) selected in step 1, adjust so that the audio level meter shows up to -20 dB for a normal input volume.

Selecting the knob used for adjusting the recording level

In Maintenance > Audio in the setup menu, you can select which audio level control controls the audio recording level of the input to each of the AUDIO IN CH-1/CH-2 connectors. The correspondences between the settings of the menu items and the controls are as follows.

[Note]

If an AES/EBU digital audio signal is input, the recording level cannot be adjusted using the camcorder.

Rear1/WRR Level: Channel 1 recording level

Setting	Knob
Side1	LEVEL (CH1) knob
Front	MIC LEVEL knob
Front+Side1	LEVEL (CH1) knob and MIC LEVEL
	knob (linked operation)

Rear2/WRR Level: Channel 2 recording level

0.100	Front+Side2	Front I	Side?	Setting
knob (linked operation)	TEVEL (CH3) knob and MIC LEVEL	THE LEVEL KNOW	FVFI (CH2) knoh	Knob

[Note

When you have operation of the LEVEL (CH1/CH2) knobs and MIC LEVEL knob linked together, if the MIC LEVEL knob is set to 0, the audio signals on channels 1 and 2 cannot be recorded. Check the position of the MIC LEVEL knob before adjusting the LEVEL (CH1/CH2) knobs.

Manually Adjusting the Audio Level of the MIC IN Connector

- Set either or both of the AUDIO IN switch(es) to FRONT.
- 2 Set the AUDIO SELECT switch(es) for the desired channel(s) selected in step 1 to MANUAL.
- Turn the MIC LEVEL knob, and adjust so that the audio level meter shows up to -20 dB for a normal input volume.

Selecting the knob used for adjusting the recording level

In Maintenance >Audio in the setup menu, you can select which audio level control controls the audio recording level of the front microphone input. The correspondences between the settings of the menu items and the controls are as follows MIC CH1 Level: Channel 1 recording level

WIRELESS

Wireless microphone audio

CH2 connector

etting	Knob
ide1	LEVEL (CH1) knob
ront	MIC LEVEL knob
ront+Side1	LEVEL (CH1) knob and MIC LEVEL
	knob (linked operation)

MIC CH2 Level: Channel 2 recording level

Setting	Knob
Side2	LEVEL (CH2) knob
Front	MIC LEVEL knob
Front+Side2	LEVEL (CH2) knob and MIC LEVEL
	knob (linked operation)

[Note]

When you have operation of the MIC LEVEL knob and LEVEI (CH1/CH2) knobs linked together, if the LEVEL (CH1/CH2) knobs are set to 0, the audio signals on channels 1 and 2 cannot be recorded. Check the position of the LEVEL (CH1/CH2) knobs before adjusting the MIC LEVEL knob.

Recording Audio on Channels 3 and 4

Select the audio recorded on audio channels 3 and 4 with the AUDIO IN CH3/CH4 switches.

CH3 switch	Channel 3 recording target
FRONT	Front microphone audio
REAR	Audio signal input to AUDIO IN CH1 connector
WIRELESS	Wireless microphone audio
CH4 switch	Channel 4 recording target
FRONT	Front microphone audio
REAR	Audio signal input to AUDIO IN

- To adjust automatically, set the AUDIO SELECT CH. CH 3-4 switch to AUTO.
- To adjust manually, set the AUDIO SELECT CH 3-4 switch to MANUAL.
- 3 Select the knobs that adjust the audio levels with the Audio CH3 Level and Audio CH4 Leve items under Maintenance >Audio in the setup menu.

Audio CH3 Level: Channel 3 recording level

Setting	Knob
Side3	LEVEL (CH3) knob
Front	MIC LEVEL knob

	Front+Side3 LEVEL (CH3) knob and MIC	I EVEL knob (linked operation)
--	--------------------------------------	--------------------------------

Audio CH4 Level: Channel 4 recording level

Setting	Knob
Side4	LEVEL (CH4) knob
Front	MIC LEVEL knob
Front+Side4	LEVEL (CH4) knob and MIC
	LEVEL knob (linked operation)

You can now adjust the levels of audio channels 3 and 4 with the knobs selected here.

Setting Time Data

Setting the Timecode

23:59:59:29 (hours:minutes:seconds:frames) The timecode setting range is from 00:00:00:00 to

- Press the DISP SEL/EXPAND button to switch the display in the LCD monitor to status
- Set the DISPLAY switch to TC
- ω Set the PRESET/REGEN/CLOCK switch to
- 4 Set the F-RUN/SET/R-RUN switch to SET. The first (leftmost) digit of the timecode
- S Use the up and down arrow buttons to until all digits are set. change values, and use the left and right arrow To reset the value to 00:00:00:00, press the buttons to move the flashing digit. Repeat RESET/RETURN button.
- 0 Set the F-RUN/SET/R-RUN switch to F-RUN or
- F-RUN: Free run (timecode generator keeps running)
- R-RUN: Recording run (timecode generator runs only while recording)

Switching between DF and NDF

data, turn picture cache mode off.

>Timecode >DF/NDF in the setup menu. non-drop frame (NDF) mode using Maintenance You can select the drop frame (DF) mode or

To make the timecode consecutive

R-RUN, recording a number of scenes on the be consecutive when you use the original media on another media, the timecode will no longer When the F-RUN/SET/R-RUN switch is set to However, once you remove the media and record media normally produces consecutive timecode.

the PRESET/REGEN/CLOCK switch to REGEN. In this case, to make the timecode consecutive, set

Saving the real time in the timecode

the real time. time of the camcorder internal clock is applied as Setting the PRESET/REGEN/CLOCK switch to CLOCK saves the real time in the timecode. The

Date and Time of the Internal Clock" (page 25). For details about adjusting the internal clock, see "Setting the

Setting the User Bits

digits), you can record user information such as By setting the user bits (up to 8 hexadecimal the date, time, or scene number on the timecode

- Press the DISP SEL/EXPAND button to switch the display in the LCD monitor to status display.
- 2 Set the DISPLAY switch to U-BIT

When picture cache mode is active, time data cannot be set by switching the F-RUN/SET/R-RUN switch to SET. To set time

- ω Set the F-RUN/SET/R-RUN switch to SET. The first (leftmost) digit flashes
- 4 change values, and use the left and right arrow Use the up and down arrow buttons to until all digits are set buttons to move the flashing digit. Repeat

RESET/RETURN button. To reset the value to 00 00 00 00, press the

S Set the F-RUN/SET/R-RUN switch to F-RUN or mode for the timecode generator. R-RUN, corresponding to the desired operating

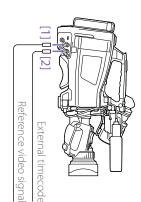
User bit memory function

power is turned off. automatically retained in memory even when the The user bit setting (apart from the real time) is

External Source Synchronizing the Timecode to an

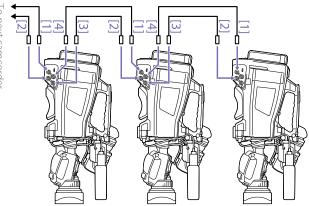
generators of other camcorders/VTRs with the internal generator of this camcorder. generator. You can also synchronize the timecode generator of this camcorder with an external You can synchronize the internal timecode

Connect both the reference video signal and Example 1: Synchronizing with an external the external timecode as illustrated below.



- [1] GENLOCK IN connector [2] TC IN connector

Example 2: Interconnecting a number of camcorders with one camcorder as reference



To next camcorder

- [1] VIDEO OUT connector
- [2] TC OUT connector
 [3] TC IN connector
- Ξ GENLOCK IN connector
- Turn on the POWER switch
- Set the PRESET/REGEN/CLOCK switch to
- 4 Set the F-RUN/SET/R-RUN switch to F-RUN
- Set the DISPLAY switch to TC
- 0 Supply a timecode signal and a reference the TC IN connector and to the GENLOCK IN video signal, complying with the SMPTE standard and in proper phase relationship, to connector, respectively

This operation synchronizes the internal

timecode generator with the external timecode. Once about ten seconds have elapsed after the timecode locks, the external lock state is maintained even if the external timecode source is disconnected.

To release the external synchronization, first stop the external timecode input, then set the F-RUN/SET/R-RUN switch to R-RUN.

[Notes

- When you finish the above procedure, the internal timecode is immediately synchronized with the external timecode and the time data display will show the value of the external timecode. However, wait for a few seconds until the sync generator stabilizes before recording.
- If the frequency of the reference video signal is not the same as the system frequency of the camcorder, the camcorder cannot be correctly genlocked. If this occurs, the timecode will not acquire successful lock with the external timecode.

User bit settings during synchronization

When the timecode is synchronized to an external signal, only the time data is synchronized with the external timecode value.

Note on changing the power supply from the battery pack to an external power supply during external synchronization

To maintain a continuous power supply, connect the external power supply to the DC IN connector before removing the battery pack. You may lose timecode external synchronization if you remove the battery pack first.

Camcorder genlock during external synchronization

During external synchronization, the camcorder is genlocked to the reference video signal input from the GENLOCK IN connector.

Basic Operations

This section explains the basic shooting and recording procedures.

Before starting to shoot, inspect the camera system to verify that it is operating properly.

- Attach a fully charged battery pack (page 22).
- Load one or two SxS memory cards (page 30).
 If you load two cards, the camcorder switches automatically to the second card when the first card becomes full.
- 3 Set the camcorder's POWER switch (page 3) to ON.
- 4 Make the following settings.

 Marker display: On (page 93)
 Iris: Auto (page 40)
 Zoom: Auto
 Camera output: Select the picture currently
 being shot (camera picture), and turn the
 DCC function on (page 6)
 Timecode advance mode: F-RUN (Free Run) or
- R-RUN (Rec Run) (page 45)
 Audio input channel selection: Auto
 (page 9)

 5 Push the AUTO W/B BAL switch to the BLACI
- D Push the AUTO W/B BAL switch to the BLACK position to adjust the black balance (page 37).
- Select a filter according to the lighting conditions, and adjust the white balance (page 37).
- Point the camcorder at the subject, and adjust the focus and zoom.
- 8 If you are using the electronic shutter, select an appropriate shutter mode and speed (page 39).

- 9 Do one of the following to start recording.
- Press the REC START button (page 4).
- Press the VTR button on the lens.
- Turn on the assignable switch to which the Rec function has been assigned (page 114).

During recording, the TALLY indicators, the tally indicator on the front panel of the viewfinder, and the REC indicator on the viewfinder screen light. Adjust the zoom and focus as required.

[Notes

- Never remove the battery pack while the camcorder is recording (while the ACCESS indicator on the right-side panel is lit in blue and the ACCESS indicator in the card slot section is lit in orange). Doing so risks the loss of several seconds of data before the recording was interrupted, because internal processing will not end normally.
- The playback control buttons (EJECT, F REV, F FWD, NEXT, PREV, PLAY/PAUSE, STOP) do not function during recording.
- 10 To stop recording, perform one of the operations listed in step 9.

The TALLY indicators, the tally indicator on the front panel of the viewfinder, and the REC indicator on the viewfinder screen go out, and camcorder enters recording standby (Stby) mode.

A clip is created from the video and audio data and the metadata recorded between steps 9 and 10.

To review the recording (rec review)

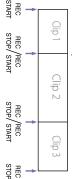
With the camcorder in recording standby mode, press an assignable switch assigned with the Rec Review function to play back the last two seconds of the clip at normal speed. Press and hold an assignable switch assigned with the Rec Review function for one second or longer to start play back from the frame two seconds prior to the last frame at four times speed in the reverse direction. Then, release

the button to play the clip from that point at normal speed. The clip is played to the end, then Rec Review ends and the camcorder returns to Stby mode.

When the Rec Review function is assigned to the RET button on the lens, you can also

Repeat steps 9 and 10 to continue recording. With each repetition, another clip is created on the memory card.

conduct a review by using the RET button.



[Notes]

- You cannot resume recording for about one second after stopping recording.
- The maximum number of clips that can be recorded on one memory card is 600. Even if the memory card has enough free capacity to record more clips, when 600 clips have been recorded, no further recording is possible.

Clip names

Eight-character clips names (consisting of a four-character prefix and a four-digit number) are generated automatically for clips recorded by this camcorder.

Example: ABCD0001

You can also use Operation >Clip >Title Prefix in the setup menu to set the clip name prefix to a user-specified string of characters (four to 46 characters in length). (A user-specified prefix cannot be changed after recording.)

The four-digit number at the end of clip names is generated automatically, incrementing as clips are

Playing Recorded Clips

When the camcorder is in standby (Stby) mode, you can play all or part of the most recently recorded clip (page 47).

- Insert the SxS memory card to play (page 30).
- Let Press the PREV button (page 8) or the F REV button (page 7) to cue up the clip to play.
- Press the PLAY/PAUSE button.
 The PLAY/PAUSE indicator lights, and the playback picture appears in the viewfinder.

Pausing playback

Press the PLAY/PAUSE button.
The PLAY/PAUSE indicator flashes while play is paused.

Press the button again to return to play mode.

High-speed playback

are Press the F FWD button (page 8) or the F REV this button (page 7).

To return to normal playback, press the PLAY/ PAUSE button.

Stopping playback

Press the STOP button: Playback stops, and the camcorder enters E-E mode.

Press the THUMBNAIL button: Playback stops and the thumbnail screen (page 78) appears in the viewfinder.

Playback also stops and the timecode screen appears in the viewfinder when you start recording during playback, and when you eject an SxS memory card.

Switching between memory cards

When two memory cards are loaded, press the SLOT SELECT button (page 30) to select the It is not possible to switch between memory cards during playback. active slot.

Advanced Operations

Recording Shot Marks

positions to make it easier for editors to cue up available. You can record them at user-specified On this camcorder, two types of shot marks are those positions.

The maximum number of shot marks per clip is

marks in clips. For details, see "Adding/Deleting Essence Marks on You can also use the Thumbnail menu to add and delete shot

assigned with the Shot Mark 1 or Shot Mark 2 To record shot marks, turn on an assignable switch

for about three seconds near the timecode "Shot Mark 2" indication appears in the viewfinder When a shot mark is recorded, a "Shot Mark 1" or

SD02 Media Adaptor (option) cannot be used for recording. An SDXC card inserted in an SxS card slot using the MEAD-

Setting Clip Flags

and "Deleting a Clip Flag" (page 82) details, see "Adding Clip Flags to Clips" (page 81) Clip flags are set in the Thumbnail menu. For you can set clip flags in recorded clips. To make it easier for editors to select good clips,

SD02 Media Adaptor (option) cannot be used for recording. An SDXC card inserted in an SxS card slot using the MEAD-

Recording Retroactive Images (Picture Cache Rec Function)

to any of the following video formats (page 34). This function is enabled when the camcorder is set of footage before the start of recording. shooting, allowing you to record several seconds and audio data for a set interval (maximum of 15 seconds) in internal storage memory when The camcorder always maintains a cache of videc

XAVC-L XAVC-I

MPEG HD 422 MPEG HD 420

MPEG IMX 50

circumstances, as described in [Notes] below. by the picture cache time. The duration that can that can be recorded retroactively is determined When recording is started, the duration of footage beforehand in the Operation menu. cache mode and the storage time of images To start recording in picture cache mode, picture be recorded retroactively may be reduced in some in memory (picture cache time) must be set

- mode will not be recorded. images shot immediately prior to selecting picture cache immediately after selecting this mode, a portion of the cache mode is selected. However, if recording is started The storage of video in memory starts when picture
- Images are not stored in memory during playback cache recording of images during these periods is not recording review, or thumbnail display, so picture

Setting the picture cache time

- Select Operation >Rec Function >Picture Cache Rec in the setup menu
- Turn the MENU knob to select [On], then press the knob.

- Select Operation > Rec Function > Cache Rec Time in the setup menu.
- to 14, or 13 to 15 seconds can be selected. 0 to 2, 2 to 4, 4 to 6, 6 to 8, 8 to 10, 10 to 12, 12 cache time setting, then press the knob. Turn the MENU knob to select the picture

assigned with the Picture Cache function. an assignable switch (page 114) which has been Alternatively, instead of performing steps 1 and 2, you can also select picture cache mode using maintained until the settings are changed Once picture cache mode is selected, it is

- Only one special recording function, such as picture cache recording, can be used at any one time. cache recording is in use, picture cache recording is If another special recording mode is enabled while picture
- Changing system settings, such as the video format, shot just before changing settings cannot be recorded, if clears all images stored in memory. Consequently, images recording is started immediately after changing settings Picture cache mode is automatically released.
- The picture cache time cannot be set during recording.

Starting picture cache recording

Shoot as described in "Basic Operations'

the front panel of the viewfinder light as they do The TALLY indicators and the tally indicator on the viewfinder changes to the "•Rec" indication. When recording starts, the "
Cache" indication in during normal recording.

To exit, stop the recording

Canceling picture cache mode

Function > Picture Cache Rec in the setup menu In recording standby mode, set Operation >Rec

Device operation when recording in picture cache

varies from normal. except for the following points where operation The recording procedure is essentially the same,

- If recording is started while accessing media, of recorded clips, so stopping recording and time. The delay increases with the number delayed even longer than the set picture cache in picture cache mode. quickly restarting recording should be avoided the actual start point of recording may be
- Regardless of the setting of the F-RUN/SET/R-RUN switch, the camcorder operates in F-RUN
- In picture cache mode, time data cannot be set by switching the F-RUN/SET/R-RUN switch to

To set time data, first stop picture cache mode

- If the remaining recording time of the media in the currently selected slot is shorter than the time) in the non-selected slot. media (if there is sufficient remaining recording picture cache time, images are recorded to the However, images are not recorded if there is no
- Shot marks are not recorded, even if the shot marks are set before the recording start appear on the viewfinder screen. is insufficient remaining recording time will time. (A message notifying you that there in the slot has insufficient remaining recording media in the non-selected slot or if the media

the camcorder is turned off during recording

- If the POWER switch on the camcorder is set power turns off automatically. in memory up till that moment, and then the to the OFF position, the media is accessed for several seconds to record the images stored
- If the battery is removed, the DC cable disconnected, or the AC adaptor turned off

during recording, the video and audio data stored in memory is erased, and images up till that point are not recorded. Care should be exercised when exchanging the battery.

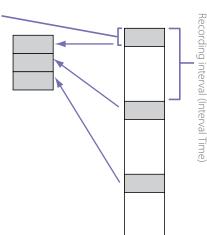
Recording Time-lapse Video (Interval Rec Function)

The camcorder's Interval Rec function allows you to capture time-lapse video to the camcorder's internal memory. This function is an effective way to shoot slow-moving subjects.

When you start recording, the camcorder automatically records a specified number of frames at a specified interval time.

XAVC-L MPEG HD 422 This function is enabled when the camcorder is set to any of the following video formats (page 34).

Recording interval (Interval Tir



Number of frames in one take (Number of Frames)

A pre-lighting function is available when Interval Rec is enabled. This function automatically turns on the video light before recording starts, which

allows you to record pictures under stable light and color temperature conditions.

[Notes]

- Only one special recording function, such as Interval Rec recording, can be used at any one time.
 If another special recording mode is enabled while Interval Rec is in use, for example, Interval Rec is automatically released.
- Interval Rec settings cannot be changed during recording.

Setting Interval Rec

- Select Operation >Rec Function >Interval Rec in the setup menu.
- Turn the MENU knob to select [On], then press
- The camcorder enters Interval Rec mode, and "Int Stby" appears at the REC indicator position on the viewfinder screen. (The green tally indicator in the HDVF series viewfinder also flashes.)
- 3 Select [Number of Frames], turn the MENU knob to select the number of frames to record in one take, and then press the knob.
 You can select 2, 6, or 12 when the format is 50P or 59.9P.
 You can select 1, 3, 6, or 9 when the format is 23.98P, 25P, 29.97P, 50i, or 59.94i.
- 4 Select [Interval Time], turn the MENU knob to select the desired interval, and then press the knob.
- You can select 1 to 10/15/20/30/40/50 sec, 1 to 10/15/20/30/40/50 min, or 1 to 4/6/12/24 hour.
- 5 As required, select [Pre-Lighting], turn the MENU knob to select the length of lighting time before recording starts, and then press the knob.

You can select 2, 5, 10 seconds. or Off.

[Notes]

- If you want to turn the video light on before the start
 of recording, set the camcorder's LIGHT switch to
 AUTO. The video light switch must also be turned on.
 When this is done, the video light turns on and off
 automatically. However, the video light remains lit if
 the time that it would be off is five seconds or less.
- If you set the LIGHT switch to MANUAL and turn the video light switch on, the video light is always lit. (The video light does not turn on and off automatically.)

The camcorder exits Interval Rec mode when it is powered off, but the number of frames, interval time, and pre-lighting settings are maintained. You do not need to set them again the next time you shoot in Interval Rec mode.

Starting Interval Rec recording

Make the settings and preparations described in "Basic Operations" (page 47), secure the camcorder so that it does not move, and begin shooting.

When Interval Rec mode is set to On, "Int Stby" appears at the REC position on the viewfinder screen. When you start recording, "Ont Rec" and "Item to the TALLY"

"Ont Stby" are displayed alternately. The TALLY indicators and the tally indicator on the front panel of the viewfinder light as they do during normal recording. (The green tally indicator in the HDVF series viewfinder also flashes at high speed.) If you are using the pre-lighting function, the video light comes on before recording starts.

To exit, stop the recording,
When shooting ends, the video data stored in
memory up to that point is written to the media

Canceling Interval Rec mode

Do one of the following.

- Set the POWER switch to OFF.
- In recording standby mode, set Operation >Rec Function >Interval Rec in the setup menu to Off

[Note]

Restarting the camcorder automatically releases Interval Rec mode.

Limitations during recording

- Regardless of the setting of the F-RUN/SET/R-RUN switch, the advance mode of the internal timecode generator is always R-RUN.
- Audio is not recorded.
- Reviewing the recording (Rec Review) is not possible.
- Genlock is not possible.

If the camcorder is turned off during recording

- If the POWER switch on the camcorder is set to the OFF position, the media is accessed for several seconds to record the images stored in memory up till that moment, and then the power turns off automatically.
- If power is lost because the battery was removed, the DC power cord was disconnected or the power was turned off on the AC adaptor side, then the video and audio data shot up to that point may be lost (maximum 10 seconds). Care should be exercised when exchanging the battery.

Shooting with Slow & Quick Motion

When the video format (page 34) is set to one of the formats listed below, you can specify a recording frame rate that is different from the playback frame rate.

If shooting in XAVC recording format, the use of SxS Pro+ memory cards is recommended. The use of other SxS memory cards may be subject to limitations, so you should contact your dealer.

Recording format	frequency	S&Q frame rate
XAVC-I 1080P	59.94P/50P/	1 FPS to 60 FPS
	29.97P/23.98P/	(1 FPS units)
	25P	I
XAVC-L 50	59.94P/50P/	
1080P	29.97P/23.98P/	
	25P	l
XAVC-L 35	59.94P/50P/	
1080P	29.97P/23.98P/	
	25P	
HD422 50	29.97P	1 FPS to 30 FPS
1080P	23.98P	(1 FPS units)
	25P	1 FPS to 25 FPS
		(1 FPS units)

By shooting with a frame rate that differs from the playback frame rate, you can obtain slow and quick motion effects that are smoother than lowspeed or high-speed playback of content recorded at the normal frame rate.

Setting Slow & Quick Motion

- Select Operation >Rec Function >Slow & Quick Motion in the setup menu.
- 2 Turn the MENU knob to select [On], then press the knob.
 Slow & Quick Motion starts, and "S&Q Stby" appears in the recording status indicator area in the viewfinder.

 Next, set the frame rate.
- 3 Select Operation >Rec Function >Slow & Quick Motion >Frame Rate in the setup menu.
- 4 Turn the MENU knob to select the frame rate, then press the knob.

When you finish making these settings, the system frequency and the frame rate appear at the top of

the viewfinder screen. You can change the frame rate while viewing the display in the viewfinder by turning the MENU knob.

The Slow & Quick Motion mode setting and the frame rate are retained even after the camcorder is

[Notes]

powered off.

- Only one special recording function, such as Slow & Quick Motion, can be used at any one time.
- If another special recording function is enabled while using Slow & Quick Motion, Slow & Quick Motion is automatically canceled.
- Slow & Quick Motion cannot be set during recording playback, or while the thumbnail screen is displayed.
- Slow & Quick Motion cannot be set if the slow shutter function is set.

Starting Slow & Quick Motion recording

Shoot as described in "Basic Operations" (page 47).

When recording starts, the "S&Q Stby" indication in the viewfinder changes to the "S&Q Rec" indication. The TALLY indicators and the tally indicator on the front panel of the viewfinder light as they do during normal recording.

To exit, stop the recording,

INOTE

It takes longer than normal for recording to stop when the frame rate is set to a low value (for a slow frame rate).

Canceling Slow & Quick Motion mode

With the camcorder in recording standby mode, set Operation >Rec Function >Slow & Quick in the setup menu to Off.

Limitations during recording

- Regardless of the setting of the F-RUN/SET/R-RUN switch, the advance mode of the internal timecode generator is always R-RUN.
- Audio cannot be recorded when the recording and playback frame rates differ.

- Reviewing the recording (Rec Review) is not possible.
- If you change the recording frame rate to a value faster than the current shutter speed, the shutter speed is changed to the slowest value for which shooting is possible.

 Example: If the frame rate is 32 and the shutter speed is 1/40, and you change the frame rate to 55, then the shutter speed is changed to 1/60. It is not possible to select a shutter speed that is slower than the recording frame rate.
- Genlock is not possible

Recording with the Clip Continuous Rec Function

Normally, a clip is created as an independent file each time that you start and stop recording. But this function allows you to start and stop recording while continuously recording to the same clip, for as long as the function remains enabled. This is convenient when you do not want to generate a large number of short clips, and when you want to record without worrying about exceeding the clip limit.

It is still easy to find recording start points, because a Rec Start essence mark is recorded at the recording start point each time you start recording. This function is enabled when the camcorder is set to any of the following video formats (page 34). XAVC-I

XAVC-L MPEG HD 422

Setting Clip Continuous Rec

Select Operation >Rec Function >Clip
Continuous Rec in the setup menu.

- Turn the MENU knob to select [On], then press the knob.
- "Cont Stby" appears in the viewfinder, and the function is enabled.

ויטנפט

- Only one special recording function, such as Clip Continuous Rec, can be used at any one time.
- If another special recording mode is enabled while Clip Continuous Rec is in use, for example, the currently selected mode is automatically released.

You can assign the Clip Continuous Rec on/off function to one of the ASSIGN. 1/2/3 switches, ASSIGNABLE 4/5 switches, or the ONLINE button

For details, see "Assigning Functions to Assignable Switches" (page 114).

Starting Clip Continuous Rec recording

Shoot as described in "Basic Operations" (page 47).

When recording starts, the "Cont Stby" indication in the viewfinder changes to "•Cont Rec" indication.

The TALLY indicators and the tally indicator on the front panel of the viewfinder light as they do during normal recording.

[Note]

During recording or in recording standby mode (when "Cont Stby" indication is displayed), if you remove the media, the battery, or the power source, the media needs to be restored. It is not possible to restore media on a device other than this camcorder.

Exit Clip Continuous Rec mode (page 52) and then remove the media.

When "Cont Stby" indication is flashing (once per second) you can remove the media.

To exit, stop the recording,

Note]

Stop the recording after recording for two or more seconds.

Canceling Clip Continuous Rec mode

With the camcorder in recording standby mode, set Operation >Rec Function >Clip Continuous Rec in the setup menu to Off.

Limitations during recording

A single continuous clip cannot be created if you perform one of the following operations while the camcorder is in recording or recording standby mode. (A new clip will be created when you next start recording.)

- Operate on a clip (lock, delete, or rename a clip)
- Switch slots
- Change the recording format
- Turn off the POWER switch
- Playback
- Switch to the thumbnail screen

Recording Video Simultaneously to Two SxS Memory Cards (Simul Rec)

When the video format (page 34) is set to one of the options in the following table, you can record the same video to two SxS memory cards. This function is useful for making a video backup while shooting.

[INOTE

It is recommended that both SxS memory cards be formatted (initialized) using the camcorder before use.

Operation >Format >Rec Format in the	Operation >Format >Frequency in the setup
setup menu	menu
XAVC-I 1920×1080P	59.94/59/29.97/25/23.98
XAVC-I 1920×1080i	59.94/50
XAVC-I 1280×720P	59.94/50
XAVC-L 50	59.94/50/29.97/25/23.98
1920×1080P	

Operation >Format	Operation >Format
>Rec Format in the	>Frequency in the setup
setup menu	menu
XAVC-L 50	59.94/50
1920×1080i	
XAVC-L50 1280×720P 59.94/50	59.94/50
XAVC-L 35 1080P	59.94/50/29.97/25/23.98
XAVC-L 35 1080i	59.94/50
XAVC-L 25 1080i	59.94/50
HD 422 50 1080P	29.97/25/23.98
HD 422 50 1080i	59.94/50
HD 422 50 720P	59.94/50/29.97/25/23.98
HQ 1920×1080P	29.97/25/23.98
HQ 1920×1080i	59.94/50
HQ 1440×1080i	59.94/50
HQ 1280×720P	59.94/50

Setting Simul Rec

- Select Operation > Rec Function > Simul Rec in the setup menu.
- Turn the MENU knob to select [On], then press the knob.

[Notes

- Only one special recording function, such as Simul Rec, can be used at any one time.
- If another special recording mode is enabled while using Simul Rec, Simul Rec is automatically released.
- Simul Rec cannot be set during recording, playback, or while the thumbnail screen is displayed.

Starting Simul Rec recording

- Insert SxS memory cards in both memory slots A and B.
- The ACCESS indicators for SxS slots A and B are lit. Also, icons for SxS slots A and B appear in the viewfinder (page 18).

Shoot as described in "Basic Operations" (page 47).

[Notes]

- Simultaneous recording is not possible if either of the media is defective or if the media is write protected.
- During simultaneous recording, if either of the media becomes full or an error occurs and recording cannot continue, recording to that media stops but recording to the other media continues.

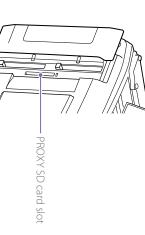
To exit, stop the recording,

Canceling Simul Rec mode

In recording standby mode, set Operation >Rec Function >Simul Rec in the setup menu to Off.

Proxy Data

the SD card inserted into the PROXY SD card slot. During clip recording, proxy data is recorded onto quickly, for more efficient viewing and editing. original data, but it can be transferred more proxy data can be used in the same way as the (H.264) and audio data (AAC-LC). This lightweight Proxy data is made up of low-resolution video data



You can record proxy data separately from recorded content or perform rapid offline editing. card into a computer, you can quickly check the By importing proxy data recorded on the SD recording to SxS memory cards

Proxy Recording using the Camcorder

- Proxy recording will not start unless an SxS memory card is inserted.
- When the camcorder has been turned on for flashing or is not lit, proxy files are not recorded monitor and viewfinder screen to indicate that indicator for Proxy SD slot) turns on in the LCD about 35 seconds, the [Proxy] icon (media status If you start shooting while the Proxy icon is proxy recording is enabled.
- Before removing an SD card from the then turn off the camcorder or turn off the proxy camcorder, always check that the ACCESS indicator for the PROXY SD card slot is not lit, recording/wireless LAN connection function.

- settings in the setup menu. connection function, make the following To turn off the proxy recording/wireless LAN
- Set Operation > Proxy Recording Mode >Setting to Off.

4

- Set Maintenance > Network > Setting to Off.
- while recording, data is still recorded correctly Attempting to remove the SD card while either by turning the camcorder off and then on again to the SxS memory cards, but proxy files are not (E91-1C0) in some cases. If the warning appears function is enabled may display a warning the proxy recording or wireless LAN connection recorded. The warning message can be cleared
- Proxy recording will not start if Picture Cache streaming is enabled Rec, Interval Rec, Slow & Quick Motion, or

SD Cards

SD cards supported for recording proxy data

Capacity: up to 32 GB) SDXC memory cards* (Speed Class: 4 or higher) SDHC memory cards* (Speed Class: 4 or higher Referred to as "SD cards" in this manual

Formatting (initializing) SD cards

is inserted into the camcorder, format the SD card camcorder. If a message appears when the SD card formatted using the format function of the SD cards for use in the camcorder should be SD cards must be formatted the first time they are used in the camcorder.

- Select Operation > Proxy Recording Mode >Setting in the setup menu
- Turn the MENU knob to select [On], then press the knob.

- ω Select Operation >Format Media >SD Card(Proxy) in the setup menu.
- Turn the MENU knob to select [Execute], then format the card appears. A confirmation screen prompting whether to press the knob.
- Turn the MENU knob to select [Execute], then Formatting begins. press the knob.

is lit orange. state (%) is displayed and the ACCESS indicator During formatting, a message and progress

appears. Press the MENU knob to dismiss the When formatting ends, a completion message message.

Formatting an SD card erases all data on the card. The card cannot be restored.

Checking the remaining recording capacity

card on the Media Status screen (page 15). You can check the remaining capacity on an SD

the slot of another device To use an SD card formatted on the camcorder in

card in the device to be used. First, make a backup of the card, then reformat the

Recording Proxy Data

To record proxy data simultaneously

Select Operation >Proxy Recording Mode >Setting in the setup menu

- Turn the MENU knob to select [On], then press the knob
- Insert an SD card for recording proxy data into the PROXY SD card slot
- Start recording.

same time as the original data is being PXROOT/Clip" directory of the SD card at the you stop recording. Proxy data recording automatically stops when recorded onto an SxS memory card. The proxy data file is saved in the "/PRIVATE/

original data To record proxy data separately from recording

independently by assigning the Proxy Rec Start/ Stop function to an assignable switch You can start and stop proxy recording

- If simultaneous proxy recording is started while recording proxy data independently is in progress, the proxy data when simultaneous recording is stopped, proxy data recording continues without interruption. Subsequently recording also stops.
- If independent proxy recording is stopped while recording stops. simultaneous recording is in progress, only the proxy data

Proxy recording limitations

Proxy recording is not supported in the following

- During streaming (Maintenance >Streaming >Setting in the setup menu set to On)
- During Interval Rec (Operation > Rec Function >Interval Rec in the setup menu set to On)
- Picture Cache Rec (Operation >Rec Function >Picture Cache Rec in the setup menu set to
- During Slow & Quick Motion (Operation >Rec menu set to On) Function >Slow & Quick Motion in the setup

- When network client mode is enabled (Maintenance >Network Client Mode >Setting in the setup menu is set to On). However, proxy recording is enabled when Maintenance >Network Client Mode >Detail Settings >NCM with Proxy in the setup menu is set to Enable.
 When Operation >Format >Frequency in the
- When Operation >Format >Frequency in the setup menu is set to 23.98P and Operation >Proxy Recording Mode >Size is set to HD Auto(9Mbps) or HD Auto(6Mbps)
- Proxy recording is not possible when power is being supplied to the external device connector (Operation >USB in the setup menu).

About the recorded files

- The file name extension is ".mp4".
- The timecode is also recorded simultaneously.
- A still image of the first frame is also recorded simultaneously.
- Location information and a Log file are recorded simultaneously if the GPS function is enabled.
 The Log file is saved in "Root/PRIVATE/SONY/ GPS."

Canceling proxy data recording

Set Operation >Proxy Recording Mode >Setting in the setup menu to Off.

When there is insufficient remaining capacity on an SD card

A warning is displayed to indicate that there is insufficient free space.

Changing proxy recording settings

Select Operation >Proxy Recording Mode >Size and Audio Channel in the setup menu to change the settings for the size of the proxy recording format and the audio channel for proxy recording, respectively.

When Operation >Proxy Recording Mode >Size in the setup menu is set to HD Auto(9Mbps) or HD Auto(6Mbps) and the system frequency is set to 29.97, 25, or 23.98, the proxy data picture size will be set to 1920×1080 even if the picture size of the recording video format is set to 1280×720.

Checking proxy recording settings

Select Operation >Proxy Recording Mode >Frame Rate and Bit Rate in the setup menu to view the settings for the video frame rate and video bit rate, respectively.

Planning Metadata

Planning metadata is information about shooting and recording plans, recorded in an XML file. You can shoot using clip names and shot mark names defined in advance in a planning metadata file.

[Note]

Use a font set that is compatible with the language set using Maintenance >Language in the setup menu when defining clip names and shot mark names. Using fonts for a language that is different from the language setting on the camcorder may cause characters to be displayed abnormally.

Loading a Planning Metadata File into Camcorder Memory when Recording a Clip

- Save the planning metadata file on an SxS memory card beforehand.
 Planning metadata files are stored in the "General/Sony/Planning" directory.
- 2 Insert an SxS memory card in slot A or B
- 3 Select Operation >Planning Metadata >Load Media(A) or Load Media(B) in the setup menu. A file list screen appears. Up to 64 planning metadata files are displayed in the list.
- 4 Turn the MENU knob to select a file to load and press the knob.
- 5 Turn the MENU knob to select [Load] and press the knob, then select [Execute] and press the knob again.

Data cannot be loaded from SDXC cards.

Displaying Detailed Information in Planning Metadata

After loading planning metadata into the camcorder, you can check the detailed information that it contains, such as file names, date and time of creation, and titles.

- Select Operation >Planning Metadata>Properties in the setup menu.
- 2 Turn the MENU knob to select [Execute], and then press the knob.
 The planning metadata information is displayed.

ltem	Information
File Name	File name
Assign ID	Assign ID
Created	Date and time of creation
Modified	Date and time of most recent
	modification
Modified by	Name of person who
Title	Title1 specified in file (ASCII format clip name)
Title2	Title2 specified in file (UTF-8 format clip name)
Material Group	Number of material groups ^{a)}
Shot Mark0 to Shot Mark9	Names defined in file for Shot Mark 0 to Shot Mark 9

 a) Material group: A group of clips recorded with the same planning metadata.

You can turn the MENU knob to scroll the list.

Clearing the Loaded Planning Metadata

- Select Operation >Planning Metadata >Clear Memory in the setup menu.
- 2 Turn the MENU knob to select [Execute], and then press the knob.
- Deletion starts.
 The message "Clear Planning Metadata File OK" appears when the deletion finishes.

Defining Clip Names in Planning Metadata

The following two types of clip name strings can be written in a planning metadata file.

- An ASCII format name that appears in the viewfinder
- A UTF-8 format name that is actually registered as the clip name

You can select which type of clip name is displayed with Operation >Planning Metadata >Clip Name Disp in the setup menu. When a clip name is set with planning metadata the clip name is displayed.

[Note]

When you define both an ASCII format name and a UTF-8 format name with planning metadata, the UTF-8 format string is used as the clip name string. If you define either an ASCII format name or a UTF-8 format name with planning metadata, the defined format name is displayed though it is not selected by menu setting.

Clip name string example

Use a text editor to modify the two fields in the <Title> tag that contain the clip name strings. The shaded fields in the example are clip name strings. "Typhoon" is described in ASCII format (up to 44 characters). "Typhoon_Strikes_Tokyo" is described in UTF-8 format (up to 44 bytes). "sp" indicates a space and — indicates a carriage return.

```
planning metadata" spassignId="
</PlanningMetadata>←
                                                                                                                                                                                                                                                                                               version="1.00">↑
                                                                                                                                                                                                                                                                                                                           2016-12-06T17:00:00+09:00"sp
                                                                                                                                                                                                                                                                                                                                                           lastUpdate="
                                                                                                                                                                                                                                                                                                                                                                                           2016-11-30T17:00:00+09:00"<sub>sp</sub>
                                                                                                                                                                                                                                                                                                                                                                                                                           P0001"<sub>sp</sub>creationDate="
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       xmlns.sony.net/pro/metadata/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       <Planning Metadata<sub>sp</sub>xmlns="http://
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        <?xml<sub>sp</sub>version="1.0"<sub>sp</sub>encoding='
                                                                                                                                                                                                                                                          <Properties<sub>sp</sub>propertyId="
                                                                                                                                                              modifiedBy="Chris">↑
                                                                                                                                                                                              2016-12-06T17:00:00+09:00"<sub>sp</sub>
                                                                                                                                                                                                                          assignment" spupdate="
                                                                                                xml:lang="en">Typhoon_Strikes_Tokyo
                                                                                                                                <Title<sub>sp</sub>usAscii="Typhoon"
                                </Properties>↑
                                                                    ✓Title>t
```

[Notes]

- When you create a file, enter each statement as a single line with a CRLF only after the last character in the statement line, and do not enter spaces except where specified.
- Up to 44 bytes (or characters) can be entered for the clip name.
 If the UTF-8 format string exceeds 44 bytes, the first 44

If the UTF-8 format string exceeds 44 bytes, the first 44 bytes are used as the clip name. If only an ASCII format name is specified, a 44-character string is used as the clip name.

When neither an ASCII format name string nor UTF-8 format name string can be used, the standard format clip name is used.

Setting clip names

- Load a planning metadata file that contains clip names into camcorder memory (page 97).
- 2 Set Operation >Clip >Clip Naming in the setup menu to Plan.

Each time that you record a clip, the camcorder automatically generates a name consisting of the clip name defined in the planning metadata file, with the addition of an underbar (_) and a five-digit serial number (00001 to 99999).

Examples:Typhoon_Strikes_Tokyo_00001, Typhoon_Strikes_Tokyo_00002,... After the number reaches 99999, the next increment returns the number to 00001.

[Note]

When you load another planning metadata file, the serial number continues incrementing. You can change the numbering using Operation >Clip >Number Set in the setup menu.

Selecting the clip name display format

When names are defined in both ASCII format and UTF-8 format, you can use Operation >Planning Metadata >Clip Name Disp in the setup menu to select which of the names to display on the LCD monitor and on the viewfinder screen.

To display ASCII format names:

To display ASCII format names:

Select Title 1 (ASCII).
The clin name becomes "Tyr

The clip name becomes "Typhoon_Strikes_Tokyo_SerialNumber", but "Typhoon_SerialNumber" is displayed on the screen.

To display UTF-8 format names:

Select Title2(UTF-8).

The clip name becomes "Typhoon_Strikes_ Tokyo_SerialNumber", and the same name is displayed on the screen.

Game"_{sp}xml:lang="en"> Football Game 30/11/2016</

Defining Shot Mark Names in Planning Metadata

When you use planning metadata to set shot marks, you can define names for Shot Mark 0 to Shot Mark 9.

When you record shot marks, you can add the shot mark name strings defined in the planning metadata.

Only Shot Mark 1 and Shot Mark 2 can be recorded on the camcorder.

Shot mark name string example

Use a text editor to modify the fields in the <Meta name> tag.

The shaded fields in the example are essence mark name strings. Names can be either in ASCII format (up to 32 characters) or UTF-8 format (up to 16 characters).

"sp" indicates a space and ← indicates a carriage return.

Note

If a name string contains even one non-ASCII character, the maximum length of that string is 16 characters.

```
<?xml<sub>sp</sub>version="1.0"<sub>sp</sub>encoding="
UTF-8"?>
UTF-8"?>
<PlanningMetadata xmlns="http://
xmlns.sony.net/pro/metadata/
planningmetadata"<sub>sp</sub>assignId="
H00123"<sub>sp</sub>creationDate="
2016-11-30T08:00:00Z"<sub>sp</sub>lastUpdate="
2016-11-30T15:00:00Z"<sub>sp</sub>version=
"1.00">
"1.00">
"assignment"<sub>sp</sub>class="original"<sub>sp</sub>
update="2016-11-30T15:00:00Z"<sub>sp</sub>
modifiedBy="Chris">
<Title<sub>sp</sub>usAscii="Football
```

```
</PlanningMetadata>←
                                       </Properties>1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Title>1
                                                                                                                                                                                                                                                                                                                                                 content="Foul"/>↑
                                                                                                                                                                                                                                                                                                                                                                                                                      content="Goal Kick"/>←
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      content="Goal"/>
                                                                       content="Kick Off"/>1
                                                                                                                                        content="2nd Half"/>←
                                                                                                                                                                                                               content="1st Half"/>←
                                                                                                                                                                                                                                                <Meta<sub>sp</sub>name="_ShotMark8"<sub>sp</sub>
                                                                                                                                                                                                                                                                                  content="PK"/>1
                                                                                                                                                                                                                                                                                                                   <Meta<sub>sp</sub>name="_ShotMark7"<sub>sp</sub>
                                                                                                                                                                                                                                                                                                                                                                                     <Meta<sub>sp</sub>name="_ShotMark6"<sub>sp</sub>
                                                                                                                                                                                                                                                                                                                                                                                                                                                           <Meta<sub>sp</sub>name="_ShotMark5"<sub>sp</sub>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         content="Free Kick"/>←
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              <Meta<sub>sp</sub>name="_ShotMark4"<sub>sp</sub>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     content="Corner Kick"/>1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   <Meta<sub>sp</sub>name="_ShotMark3"<sub>sp</sub>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 content="Shoot"/>↑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      <Meta<sub>sp</sub>name="_ShotMark2"<sub>sp</sub>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         <Meta<sub>sp</sub>name="_ShotMark1"<sub>sp</sub>
                                                                                                       <Meta<sub>sp</sub>name="_ShotMark0"<sub>sp</sub>
                                                                                                                                                                             <Meta<sub>sp</sub>name="_ShotMark9"<sub>sp</sub>
```

[Note]

When you create a definition file, enter each statement as a single line with a CRLF only after the last character in the statement line, and do not enter spaces except where specified, except within essence mark name strings.

Obtaining Location Information (GPS)

Location and time information of video shot when positioning is enabled is recorded by the camcorder.

The GPS function is set to Off by factory default.

- Check that the camcorder is in standby state.
- Set Operation GPS to On in the setup menu.

 Set Operation GPS to On in the setup menu.

 Set Operation GPS to On in the setup menu.

 Set Operation menu.

The icon displayed in the viewfinder varies, depending on the signal reception from the GPS satellites.

Positioning status	Display	GPS reception state
Off	No display	GPS is set to Off or an error occurred.
Positioning	NO GPS SIGNAL	Location information
not available		could not be obtained
2		could not be received.
		Move to a location with
		a clear view of the sky.
Searching	0	Searching for GPS
for satellites		satellites. Several
		minutes may be required
		to acquire satellites.
Positioning	Χ.	A weak GPS signal is
		being received.
	<u>.</u> ×	A GPS signal is being
		received. Location
		information can be
		acquired.
	<u>.×</u>	A strong GPS signal is
		being received. Location
		information can be
		acquired.

 It may take some time to start acquiring location information after turning on the camcorder.

- If a positioning icon is not displayed after several minutes, there may be a problem with signal reception. Start shooting without location information, or move to an area with a clear view of the sky. Shooting when a positioning icon is not displayed means that location information will not be recorded.
- The GPS signal may not be received when indoors or near tall structures. Move to a location with a clear view of the sky.
- The recording of location information may be interrupted, depending on the strength of the received signal, even if a positioning icon is displayed.

Network Functions Supported by the Camcorder

The camcorder supports various network functions. This section provides an overview and detailed description of the network connections and functions.

Network Connection Overview

Connecting devices using wireless LAN

Adaptor (option). Module (supplied) or CBK-WA02 Wireless LAN connection using the IFU-WLM3 USB Wireless LAN tablets, and other devices using wireless LAN The camcorder can connect to smartphones,

- Select the wireless connection device (supplied) ←> (page 59) IFU-WLM3 USB Wireless LAN Module CBK-WA02 Wireless LAN Adaptor (option) ➡
- 2 Select the wireless LAN access mode. Wi-Fi Station mode ► (page 61) Wi-Fi Access Point mode ←> (page 60)

Connecting to the Internet using a LAN cable

using the network connector Connect the camcorder to the Internet via a router

Connect the camcorder and router using a → (page 63) LAN cable.

Connecting to the Internet using wireless LAN

modem (option). CBK-WA02 Wireless LAN Adaptor (option), or IFU-WLM3 USB Wireless LAN Module (supplied), Connect the camcorder to the Internet using the

The CBK-NA1 Network Adaptor Kit (option) is required if connecting using a CBK-WA02 Wireless LAN Adaptor (option)

When using the IFU-WLM3 (supplied)

- Attach the IFU-WLM3 to the camcorder. ➡ (page 59)
- Set the wireless LAN access mode to Wi-Fi Station mode and connect to the Internet → (page 64)

server on the Internet

When using the CBK-WA02 (option)

- Attach the CBK-WA02 to the camcorder. ⇒ (page 59)
- 2 Set the wireless LAN access mode to Wi-Fi Station mode and connect to the Internet → (page 64)

Using a modem

- Attach the USB extension adaptor of the ➡ (page 63) CBK-NA1 (option).
- 2 Connect the modem.

Iransferring files recorded on the camcorder to a

Network Function Overview

via a 3G/4G/LTE network, access point, wired LAN card and original files recorded on SxS memory cards to a server on the Internet when connected You can transfer proxy files recorded on an SD

Iransmitting streaming video and audic

→ (page 66)

You can transmit the video and audio captured/ played back with the camcorder via the Internet or local network.

→ (page 68) Streaming using the streaming settings on the camcorde

→ (page 69) (option) as a Connection Control Manager High-quality streaming using a Sony Network RX Station

رommon Information ر

Using Wi-Fi remote contro

device over a wireless LAN connection. the camcorder from a smartphone, tablet, or other You can access the Wi-Fi remote control built into

⇒ (page 70)

Configuring from the web ment

on a device connected using a wireless LAN the camcorder is accessed from a browser The web menu of the camcorder appears when

limitations supported network functions and operating

□ (page 77)

onnecting Devices using Wireless LAN

The following operations can be performed Wireless LAN Adaptor (option). Wireless LAN Module (supplied) or CBK-WA02 connection by attaching the IFU-WLM3 USB tablets, and other devices using wireless LAN The camcorder can connect to smartphones,

using a wireless LAN. between the camcorder and devices connected

WLM3 or CBK-WA02 cannot be used USB wireless LAN modules/adaptors other than the IFU-

Remote operation via wireless LAN

using a wireless LAN. smartphone, tablet, or computer that is connected The camcorder can be operated remotely from a

File transfer via wireless LAN

transferred to a server via a wireless LAN. camcorder SD card and original files (highresolution files) recorded on the camcorder can be Proxy files (low-resolution files) stored on the

Monitoring video via wireless LAN

monitoring from a device via wireless LAN using the You can create a stream (H.264) of the camera "Content Browser Mobile" application. picture or playback picture of the camcorder for

screen, while streaming content, and can be used to configure the camcorder can operate the camcorder remotely on the device "Content Browser Mobile" is an application that

specifying In and Out points in the proxy file You can also transfer a cutout part of a file by (page 66).

the "Content Browser Mobile" application Always check that you have the latest version of

contact your Sony sales or service representative For details about the "Content Browser Mobile" application

 Proxy files (low-resolution files) recorded on the SD card in the camcorder can be streamed via a wireless LAN.

- Streaming is not supported when the video format is set to MPEG-IMX or DVCAM.
- the camcorder and wireless LAN access point or terminal Obstructions and electromagnetic interference between prevent connections altogether. If you experience these device, or the ambient environment (such as wall the camcorder and access point/terminal device closer after moving the camcorder to a new location, or bringing problems, check the connection/communication status materials) could shorten the communication range or

Compatible Devices

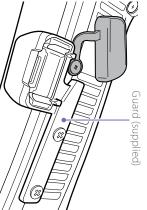
supported devices, OS, and browsers are shown in to configure and operate the camcorder. The the following table. You can use a smartphone, tablet, or computer

					Computer				Tablet				Smartphone	Device
Mac OS 10 9/10 10	Microsoft Windows 10	Windows 8/	Microsoft	Windows 7/	Microsoft	8.3/8.4/9.0	iOS 8.0/8.1/8.2/	4.4/5.0/5.1/6.0	Android	8.3/8.4/9.0	iOS 8.0/8.1/8.2/	4.4/5.0/5.1/6.0	Android	OS
Safari					Chrome			l	Chrome		Safari		Chrome	Browser

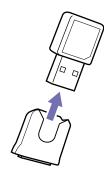
operating system of the terminal device used and the Playback may not be supported, depending on the browser version. If this occurs, use "Content Browser Mobile."

Attaching the IFU-WLM3

Open the cover of the USB wireless LAN module connector.



2 Attach the protective cap to the IFU-WLM3



 ω Plug the IFU-WLM3 into the connector



[Notes]

 Always turn the camcorder off before connecting or removing the IFU-WLM3.

representative

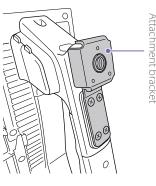
For attachment of the guard, contact a Sony service

If not using the IFU-WLM3

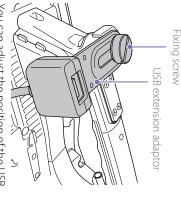
close the connector cover. Unscrew the two screws, remove the guard, and

Attaching the CBK-WA02

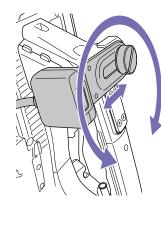
Attach the attachment bracket to the handle service representative. (Service Part No. A-2092-367-), contact a Sony For attachment of the attachment bracket in the position shown in the following



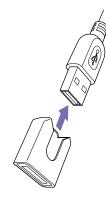
- 2 Attach the USB extension adaptor, supplied with the CBK-WA02 (option), to the attachment bracket.
- Turn the fixing screw clockwise to secure the USB extension adaptor.



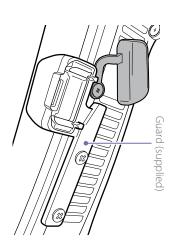
extension adaptor over the range shown in the following diagram. You can adjust the position of the USB



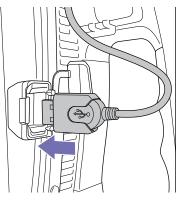
4 Attach the protective cap (supplied) to the USB connector of the USB extension adaptor



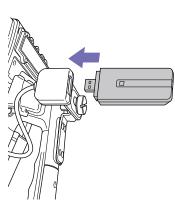
S Open the cover of the USB wireless LAN For attachment of the guard, contact a Sony service representative. module connector.



6 Plug the USB connector of the USB extension adaptor into the USB wireless LAN module connector.



Plug the CBK-WA02 into the USB connector of the USB extension adaptor.



 ∞ Set the wireless LAN channel in Maintenance (page 108). >Network >Channel in the setup menu

manual supplied with the CBK-WA02. For details about using the CBK-WA02, refer to the instruction

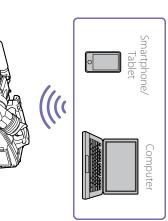
- Always turn the camcorder off before connecting or removing the CBK-WA02.
- Attaching the CBK-WA02 and selecting Wi-Fi Station
- The Ch setting "Auto(5GHz)" in Wi-Fi Access Point mode in Maintenance >Network >Setting in the setup menu enables connection to a 5 GHz access point.
- "Auto(5GHz)" is not displayed in the menu if use of the details, refer to the CBK-WA02 operation manual. CBK-WA02 is permitted in your country or region. For use in your country or region. Check that the use of the CBK-WA02 in the 5 GHz band is prohibited for outdoor may not be displayed, depending on the CBK-WA02 used.

It not using the CBK-WA02

close the connector cover. Unscrew the two screws, remove the guard, and

Mode) Access Point (Wi-Fi Access Point Connecting using Wireless LAN

up as an access point. The camcorder can connect to devices that are set

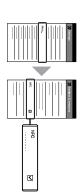


configuration. to connect before starting the connection Install "Content Browser Mobile" on the device

devices One-touch connection using NFC-equipped

one touch using NFC. Devices that support NFC can be connected by

Select [Settings] on the device and enable the NFC] function



- 2 Turn the camcorder on, and set Maintenance >Network >Wireless Network to Wi-Fi Access Point.
- 3 Set Maintenance >Network >Setting to On
- 4 Enable the NFC function.

 Set NFC connection mode by executing
 Maintenance > Network > NFC in the setup
 menu or by pressing and holding an
 assignable switch that has been assigned with
 the NFC function for three seconds.
 The NFC function can be used only when \(\mathbb{N}\) is
 displayed on the screen.

Note

It may take some time (30 seconds to 90 seconds) for **10** to appear on the screen. Wait until the network "AP" (access point) wireless network indicator (page 17) stops flashing on the viewfinder screen.

5 Touch the device against the camcorder.
The device connects to the camcorder, and
"Content Browser Mobile" launches.



ואסנפ

- Wake a sleeping device and unlock the lock screen beforehand.
- Continue to hold the device against the camcorder without moving it until "Content Browser Mobile" launches (1 to 2 seconds).
- If a device with identical SSID has already been registered, the device may not be able to be connected, depending on the OS version of the device. In this case, you can connect the device by deleting the registered SSID from the device.

Connecting using WPS-equipped devices

Devices that support WPS can be connected using WPS.

- Set Maintenance > Network > Wireless Network to Wi-Fi Access Point.
- Set Maintenance > Network > Setting to On.

[Note] [Note] It may take some time (30 seconds to 90 seconds) to enable access point mode. Wait until the network "AP" (access point) indicator (page 17) stops flashing on the LCD monitor or in the viewfinder.

- Select Maintenance >Network >WPS in the setup menu.
- 4 Turn the MENU knob to select [Execute], then press the knob.
- 5 Open the device Network Settings or Wi-Fi Settings, and turn Wi-Fi on.
- Select the camcorder SSID from the Wi-Fi network SSID list, display Option, and select WPS Push Button.

ן ייטנק

The steps will vary depending on the device used.

Connecting using SSID and password on the device

Connect by entering the SSID and password on the device.

- Set Maintenance > Network > Wireless Network to Wi-Fi Access Point.
- Set Maintenance > Network > Setting to On.

[Note]

It may take some time (30 seconds to 90 seconds) to enable access point mode. Wait until the net work "AP" (access point) indicator (page 17) stops flashing on the LCD monitor or in the viewfinder.

- Open the device Network Settings or Wi-F Settings, and turn Wi-Fi on.
- 4 Select the camcorder SSID from the Wi-Fi network SSID list, then enter a password to connect.
 For the camcorder SSID and password, see

[Note]

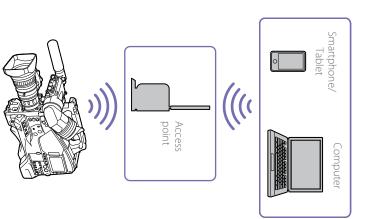
(page 108) in the setup menu.

Maintenance > Network > SSID & Password

The steps will vary depending on the device used.

Connecting Using Wireless LAN Station Mode (Wi-Fi Station Mode)

The camcorder can connect to an existing wireless LAN access point as a client.
The device connects via the access point.



Connecting to an access point using WPS

If an access point supports the WPS function, you can connect using a basic setting. If an access point does not support the WPS function, see "Connecting to an access point in station mode without using WPS" (page 74).

- Turn the access point on.
- Z Turn the camcorder on
- Set Maintenance > Network > Wireless Network to Wi-Fi Station.
- 4 Set Maintenance > Network > Setting to On.

[Note]

It may take some time (30 seconds to 1 minute) to enable station mode. Wait until the network indicator (page 17) signal strength icon stops flashing on the LCD monitor or in the viewfinder.

- 5 Select Maintenance > Network > WPS in the setup menu.
- O Turn the MENU knob to select [Execute], then press the knob.
- Press the access point WPS button. For details about WPS button operation, refer to the instruction manual for the access point. When the connection is successful, the network indicator (page 17) signal strength icon will show a strength of 1 or higher on the LCD monitor or in the viewfinder.

Note

If the connection fails, perform the procedure again from step $\mathbb{1}$.

8 Connect the device to the access point.
For details about how to connect, refer to the instruction manual for each device.

onnecting to the Internet

or wireless LAN.

For wireless LAN, connect to the Internet using the For wired LAN, connect a LAN cable (not supplied) connect to the Internet via a router. to the network connector on the camcorder, and

IFU-WLM3 USB Wireless LAN Module (supplied),

CBK-WA02 Wireless LAN Adaptor (option), or

Required device for network connection

modem (option).

Wireless LAN connection

One of the following devices is required

- IFU-WLM3 USB Wireless LAN Module (supplied)
- CBK-WA02 Wireless LAN Adaptor (option) + the CBK-NA1 Network Adaptor Kit (option) CBK-NA1E USB Extension Adaptor supplied with
- Modem (option) + CBK-NA1E USB Extension Adaptor Kit (option) Adaptor supplied with the CBK-NA1 Network

Wired LAN connection

LAN cable (not supplied)

- The wireless LAN module may not be available in some countries/regions.
- The frequency band for the wireless LAN module is shared communication may be disconnected, by using other transmission speed and distance may be decreased, or by various devices. Depending on the use environment,
- To use the 3G/4G/LTE services, you need to contract with a cell phone company
- For details about the required compatible device for the service representative. network connection, contact your Sony dealer or a Sony

connection function Limitations on simultaneous use of network

wireless LAN or wired LAN methods. of these connection functions. However, there are limits on the simultaneous use The camcorder can connect to a network using

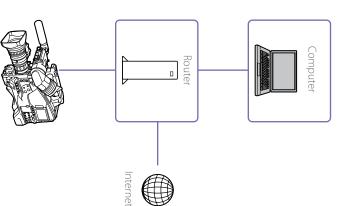
You can connect to the Internet using a wired LAN For details, see "Limitations on Simultaneous Use of Network Functions" (page 77).

Connect the network connector of the

camcorder and a router using a LAN cable

Connecting Using a LAN Cable Wired LAN Connection)

connector on the camcorder. connection via a router connected to the network You can connect to the Internet using a wired LAN





- Set Maintenance >Network >Wired LAN to
- Set Maintenance > Network > Setting to On. An IP address is automatically assigned to the camcorder

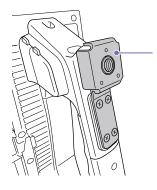
- It may take some time (30 seconds to 1 minute) for the the network status indicator (page 17) LAN icon stops wired LAN connection to become enabled. Wait until flashing on the LCD screen or in the viewfinder.
- To transfer original files/proxy files recorded on the LAN Remote in the setup menu to On (page 108) Mobile" application, set Maintenance > Network > Wired menu, or monitor output using the "Content Browser camcorder, use Wi-Fi remote control, operate the web
- When connected to a network, using a LAN cable, that will to the Internet, check that the network connection is to a secure network before use unauthorized access from the Internet. When connecting that Wired LAN Remote be set to On to prevent not be used to connect to the Internet, it is recommended
- A wired LAN connection is not possible if a modem modem (option). connector. For wired LAN connection, first remove the (option) is attached to the USB wireless LAN module
- When connected to the Internet using Wi-Fi Station mode and connect to the Internet using Wi-Fi- Station mode and the wired LAN is not connected to the Internet, a may not operate. In this case, set Wired LAN to Disable network error may occur and Internet-related functions

Preparation for Connection to the Internet Using a Modem

supplied with the CBK-NA1 Network Adaptor the USB wireless LAN module connector. connect to the Internet via a 3G/4G network using connector on the camcorder when planning to Kit (option), to the USB wireless LAN module Attach the CBK-NA1E USB extension adaptor,

Attach the attachment bracket to the handle For attachment of the attachment bracket in the position shown in the following (Service Part No. A-2092-367-), contact a Sony

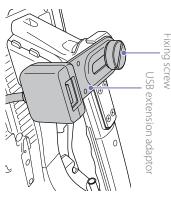




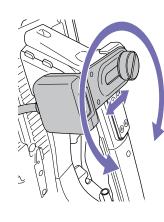
Attach the USB extension adaptor to the attachment bracket.

 ω Turn the fixing screw clockwise to secure the USB extension adaptor.

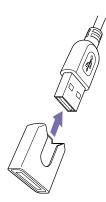
S



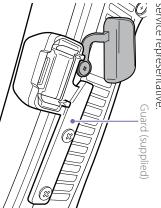
extension adaptor over the range shown in the following diagram. You can adjust the position of the USB



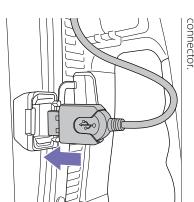
4 Attach the protective cap (supplied) to the USB connector of the USB extension adaptor.



Open the cover of the USB wireless LAN For attachment of the guard, contact a Sony service representative. module connector.



O Plug the USB connector of the USB extension adaptor into the USB wireless LAN module



Connecting Using a Modem

to the camcorder using a CBK-NA1 Network a 3G/4G network by attaching a modem (option) You can connect the camcorder to the Internet via



Internet

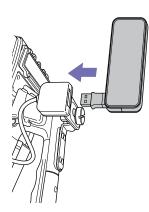






Connecting

Connect the modem (option) to the USB connector of the CBK-NA1E USB extension adaptor



instruction manual supplied with the modem. For details about connecting a modem, refer to the

- Set Maintenance > Network > Wireless Network to Modem.
- ω Set Maintenance > Network > Setting to On.

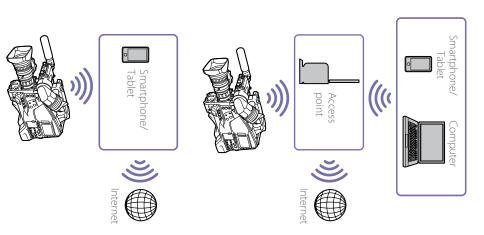
[Notes]

- Always turn the camcorder off before connecting or removing the CBK-NA1 and modem.
- It may take some time (30 seconds to 1 minute) to enable in the viewfinder. indicator (page 17) stops flashing on the LCD screen or modem mode. Wait until the "3G/4G" network status

Station Mode (Wi-Fi Station Mode) connecting Using Wireless LAN

mode by attaching the IFU-WLM3 USB Wireless using device tethering. 3G/4G/LTE-compatible access point (option) or Adaptor (option) to the camcorder, and using a LAN Module (supplied) or CBK-WA02 Wireless LAN You can connect to the Internet using Wi-Fi station

CBK-WA02" (page 59). the IFU-WLM3" (page 59) and "Attaching the For details about attaching devices, see "Attaching



If the access point and device supports WPS, connect using the procedure in "Connecting to an access point using WPS" (page 61). If WPS is not supported, connect using the procedure in "Connecting to an access point in station mode without using WPS" (page 74).

First, turn the access point and device on, and configure the device tethering function if planning to use tethering.

Transferring Files

wired LAN router. Internet via a 3G/4G/LTE network, access point, or to a server on the Internet when connected to the and original files recorded on SxS memory cards You can transfer proxy files recorded on an SD card

Preparation for Iranster

- Connect the camcorder to the Internet using the Internet" (page 63). the procedures in "Connecting Devices using Wireless LAN" (page 59) and "Connecting to
- You must first register a server to which you register a new destination server" (page 75). For details about registering a server, see "To want to transfer files

Iransterring

files on SxS memory cards for transfer to a server. You can select proxy files on an SD card or original

Transferring proxy files on an SD card

- Connect the camcorder and device using a device to access the camcorder. LAN connection, then launch a browser on the
- 2 Display a file list screen to select files
- \mathcal{C} Tap 🖃 and select [Media Info], then tap [SD The SD Card screen appears.



thumbnail for a proxy file on an SD card by version 2.0 or later, you can quickly display a using the still image of the first frame. Using "Content Browser Mobile" application

- 4 Select the files you want to transfer the file to check its content. de-select it. You can double-tap a file to play Tap a file to select it. Tap a file a second time to
- 5 Tap [Transfer]. The default destination server specified in

select a different server. Enter the directory on destination server to display a list and then To change the destination server, tap the new destination server" (page 75)). the destination server, as required. [Default Setting] appears (see "To register a



0 Tap [Transfer].

file transfer, tap [Cancel] Transfer of the selected files begins. To cancel

in the setup menu is set to On beforehand, the file when proxy recording finishes. is automatically uploaded to the specified server If Maintenance >File Transfer > Auto Upload(Proxy)

Iransferring parts of proxy files

version 2.0 or later, you can specify In/Out points in Using "Content Browser Mobile" application multiple files using the Storyboard. You can also transfer the cutout portions of proxy files to cut out and transfer the cutout parts.

- Margins of up to 15 frames are added before and after the cutout region in the created file.
- Files created from cutouts from proxy files recorded using imported into non-linear editors. network function software (V1.25 or earlier) may not be
- When partial transfer is performed using the Storyboard the file for sending Storyboard information to a non-linear editor is displayed in the Job List.
- When transferring, a General/Sony/tmp folder is created transfer is completed. in this folder, and is automatically deleted after the file automatically on the SD card. The file is temporarily stored

Transferring original files on SxS memory cards

- Connect the camcorder and device using a device to connect to the camcorder "Connecting Devices using Wireless LAN" LAN connection, then launch a browser on the
- Select Maintenance > File Transfer > File Transfer in the setup menu.
- ω Turn the MENU knob to select [Execute], ther File transfer mode is initiated press the knob.
- 4 Display a file list screen to select files in the browser on the device.
- (J Tap 🖃 and select [Media Info], then tap Slot A Example: Slot A screen The Slot A or Slot B screen appears. (for files recorded on media in slot A) or Slot B (for files recorded on media in slot B).



- Select the files you want to transfer de-select it. Tap a file to select it. Tap a file a second time to
- Tap [Transfer] destination server to display a list and then select a different server. new destination server" (page 75)). [Default Setting] appears (see "To register a To change the destination server, tap the The default destination server specified in



Enter the directory on the destination server in

lap [Iransfer]

file transfer, tap [Cancel]. Transfer of the selected files begins. To cancel

the display returns to the camera shooting transfer mode is automatically released, and When the transfer of all files is completed,

automatically without performing steps 2 and 3. If Maintenance >File Transfer >Remote File beforehand, file transfer mode is initiated Transfer in the setup menu is set to Enable

 During recording, playback, or when displaying the Files cannot be transferred under the following conditions

- When Maintenance > Network > Wireless Network > Wi-Fi are set to Disable Access Point and Wired LAN >Disable in the setup menu
- When the streaming function is enabled (Maintenance >Streaming >Setting is set to On)

Iransterring parts of original files

out and transfer the cutout parts. in original files recorded by the camcorder to cut version 2.0 or later, you can specify In/Out points Using "Content Browser Mobile" application

multiple files using the Storyboard. You can also transfer the cutout portions of

The following formats of original files are

supported.

- XAVC-I
- XAVC-L
- HD422 (exFAT/UDF)
- HD420HQ (exFAT/UDF)

[Note]

file is required. Mobile," a proxy file with the same file name as the original To transfer a part of an original file using "Content Browser

The relevant settings are shown below.

• Set Operation >Proxy Recording Mode >Setting in the Enable the creation of proxy files before you start to record.

- When network client mode is enabled, set Maintenance setup menu to On. >Network Client Mode >Detail Settings> NCM with Proxy
- in the setup menu to Enable.

Monitoring the File Transfer

status of the file transfer (page 75). screen to display the Job List screen to check the Tap [Job List] on the SD Card, Slot A, or Slot B

Transmitting Streaming Video and Audio

You can transmit the video and audio captured/ played back with the camcorder via the Internet or local network.

Preparation for Streaming Transmission

- Connect the camcorder to the Internet using the procedures in "Connecting Devices using Wireless LAN" (page 59) and "Connecting to the Internet" (page 63).
- Select Preset1 (or Preset2, Preset3) in Maintenance > Streaming in the setup menu. The streaming connection destination setup screen appears.
- 3 Set Size, Bit Rate, Type, and items according to Type on the screen.
 For details and limitations about settings, see "Streaming settings" (page 73).
- 4 Select Preset1 (or Preset2, Preset3), set in steps 1 and 2, in Maintenance >Streaming >Preset Select in the setup menu.

Starting Streaming

Set Maintenance > Streaming > Setting in the setup menu to On.
Streaming starts according to the settings.
You can assign Streaming to an assignable switch. For details about assignment, see "Assigning Functions to Assignable Switches" (page 114).

[Notes

- Streaming cannot be started under the following menusertings
- When Maintenance > Network > Setting in the setup menu is set to Off
- When Maintenance >Network Client Mode >Setting in the setup menu is set to On
- When Maintenance > Network > Setting in the setup menu is set to On, but Maintenance > Network > Wireless Network is set to Off and Maintenance > Network > Wired LAN is set to Disable
- It may take several tens of seconds to stream actual video or audio after starting streaming.
- You cannot start streaming when playing back an SD format clip.
- If you set the streaming transmission destination is set incorrectly or the camcorder does not connect to the network, "x" appears on the screen as the streaming that is indicator.
- status indicator.
 Streaming in network client mode (page 69), monitoring, proxy recording, and file transfer are not available after switching to streaming mode.
- Starting streaming while monitoring, proxy recording, or transferring files will stop the corresponding function.

Stopping Streaming

Set Maintenance > Streaming > Setting to Off to stop streaming.

When Streaming is On, streaming can also be stopped by pressing the assignable switch to

which Streaming has been assigned.

When the camcorder is connected to a device via Wireless LAN (page 59) or is connected to the Internet using wireless LAN station mode (page 61), you can also set the streaming transmission destination and start/stop streaming from the web menu (page 72).

Streaming High Quality Video

Control Manager (CCM). a Network RX Station (option) as a Connection network client mode and connecting and using High-quality streaming is supported by enabling

- Connect the camcorder to the network the Internet" (page 63). For details, see "Connecting Devices using Wireless LAN" (page 59) and "Connecting to
- 2 Set each item in Maintenance > Network Client Mode >Detail Settings in the setup menu.

Item	Description
CCM Address	Enter the IP address of the
	CCM to connect. (Host name
	or IP address)
CCM Port	Enter the port number of the
	CCM to connect.
User Name	Enter the user name.
Password	Enter the password.
NCM With Proxy	NCM With Proxy Enable/disable proxy
	recording when connected
	with a CCM.

- Network client mode cannot be set if values are not entered for all items.
- Setting Maintenance > Network Client Mode > Detail Proxy setting, set Operation > Proxy Recording Mode client mode is enabled. To enable the NCM with Enable enables proxy recording, even when network Settings > NCM with Proxy in the setup menu to >Setting in the setup menu to On.
- to restart proxy recording. If original file recording is continuing, set both to Off is set to On during recording. If Maintenance > Network Client Mode > Detail Disable, proxy recording stops if network client mode Settings > NCM with Proxy in the setup menu is set to
- If Operation >Proxy Recording Mode >Proxy File If HD Auto(9Mbps) or HD Auto(6Mbps) is set after or HD Auto(6Mbps), NCM with Proxy cannot be >Size in the setup menu is set to HD Auto(9Mbps) NCM with Proxy is set to Enable, the setting is

maintained, but proxy recording is not performed.

- ω Set Maintenance > Network Client Mode camcorder connects to the Network RX Network client mode is enabled, and the >Setting in the setup menu to On.
- details about assignment, see "Assigning Client Mode to an assignable switch. For instruction manual for the Network RX Station. RX Station operation. Live streaming starts in response to Network You can assign Setting (On/Off) for Network For details about operation, refer to the

- Changing to network client mode during normal streaming (page 68) is not possible.
- After changing to network client mode, normal streaming (page 68) and monitoring are not available.
- Changing to network client mode while monitoring will
- client mode. File transfer is supported after stopping File transfer is not supported during streaming in network
- If streaming in network client mode is started during file transfer, the file transfer stops. File transfer restarts after stopping streaming.
- depending on the proxy recording format. by the Network RX Station are limited to the following, The available streaming bit rates that can be configured
- or lower. 9Mbps/6Mbps, the streaming bit rate is set to 1 Mbps If the proxy recording format is 1280×720
- If the proxy recording format is 640×360 3Mbps, the streaming bit rate is set to 3 Mbps or lower.
- mode. To change the format, first set Network Client The proxy format cannot be changed in network client

I ransferring files in network client mode

and the camcorder in network client mode connecting a Network RX Station acting as a CCM You can transfer files to a server set by the CCM by

- Select the files you want to transfer
- To transfer a proxy recording: Follow steps 1 to 4 in "Transferring proxy files on an SD card" (page 66)

- To transfer original files: Follow steps 1 to 6 in "Transferring original files on SxS memory cards" (page 66)
- Tap [Transfer].
- Specify "NCM: RX Server" as the destination. "NCM: RX Server" is displayed as a destination
- ω Tap [Transfer].

specified on the CCM starts. Transfer of the selected files to the server

Functions to Assignable Switches" (page 114)

in network client mode. The destination can also be set to "NCM: RX Server" when not

In this case, transfer is placed on hold, and then transfer to the CCM in network client mode the server specified on the CCM starts after connecting to

Using Wi-Fi Remote Control

mounted on a crane, for example. the camcorder is fixed in a remote location or remotely, and is useful in applications where you to start/stop recording or configure settings operate the camcorder remotely. This allows Using the Wi-Fi remote control allows you to device over a wireless LAN connection. the camcorder from a smartphone, tablet, or other You can access the Wi-Fi remote control built into

Displaying the Wi-Fi Remote Control

to match the screen size of the connected device The Wi-Fi Remote screen is automatically resized

- Connect the camcorder to the Internet using the procedures in "Connecting Devices using the Internet" (page 63). Wireless LAN" (page 59) and "Connecting to
- 2 Launch a browser on the device and enter where "<IP_address>" is the IP address enter "http://192.168.1.1/rm.html" in the URL For example, if the IP address is 192.168.1.1 in the setup menu) of the camcorder. (Maintenance > Network > IP Address (Wireless) "http://<IP_address>/rm.html" in the URL bar,
- ω Enter the user name and password sliding the Lock knob to the right on the You can disable the REC button operation by the camcorder. You use the Wi-Fi Remote screen to operate Remote screen appears on the device. When connection is successful, the Wi-Fi browser screen. (page 108) in the setup menu) on the (Maintenance >Basic Authentication

You can also display the Wi-Fi remote control

the web menu. using [Cam Remote Control] (page 72) from

- To display the page for a smartphone, change "rm. tablet, change "rm.html" to "rmt.html" in the URL. When appropriate page may not be displayed, depending on for display on the corresponding device. However, the "rm.html" is entered, the page automatically switches html" to "rms.html" in the URL. To display the page for a
- The Wi-Fi Remote screen may not match the camcorder settings under the following circumstances. If this occurs reload the browser window.
- If the camcorder is restarted while connected
- If the camcorder is operated directly while connected
- If the device has been reconnected
- signal strength becomes weak The Wi-Fi remote control may not function if the wireless If the browser Forward/Back buttons have been used

Main screen





- Shooting settings Status display Black, Auto White Iris, Gain, ATW, Color Bars, Auto Shutter, White, Gamma, Auto Iris, Focus, Zoom, S&Q FPS

Assign screen



- Status display
- - Assignable switches Assignable switch 0, 1, 3, 4, 5

Playback screer

15:41:35.18 Play/Pause Playback control buttons Status display F Rev, Play/Pause, F Fwd, Prev Stop, Next

Cursor screen

Wi-Fi Remote Screen (Smartphones)



Up, Left, Set, Right, Down, Thumbnail, Option (SHIFT + status display Cancel/Back, Menu, Status,

Wi-Fi Remote Screen (Tablets)

Main screen



- Status display
- Shooting settings Assignable switches Assignable switch 0, 1, 3, 4, 5
- S&Q FPS, Shutter, White, Gamma, Auto Iris, Gain, ATW, Color Bars, Auto Black, Auto White

Playback screen



- Status display
 Playback control buttons
- F Rev, Play/Pause, F Fwd, Prev, Stop, Next

Cursor screen



- Status display
 Cursor control buttons, menu/status display
 Up, Left, Set, Right, Down, Cancel/Back, Menu, Status, Thumbnail, Option (SHIFT + SET)

Assign screen



 Assignable switches Assignable switch 0, 1, 3, 4, 5

Configuring from the Web Menu

The web menu of the camcorder appears when the camcorder is accessed from a browser on a device connected using a wireless LAN connection. Using the web menu, you can configure settings related to wireless functions, transfer files, and perform other actions.

Displaying the Web Menu

- I Connect the camcorder to the Internet using the procedures in "Connecting Devices using Wireless LAN" (page 59) and "Connecting to the Internet" (page 63).
- 2 Launch a browser on the device and enter "http://192.168.1.1:8080/index.html" in the URL bar.

The user name and password entry screen

3 Enter a user name and password, then select [OK].
For the user name and password for access authentication, see Maintenance >Basic Authentication (page 108) in the setup menu.

Setup Menu

Launch a browser on the device and enter "http://<IP_address>:8080" in the URL bar, where "<IP_address>" is the IP address (Maintenance >Network >IP Address in the setup menu) of the camcorder, to display the Media Info >SD Card screen of the camcorder.

Tapping in the top left of the web menu screen will display the configuration menus. Tap the item you want to configure.

The menu has the following items: Settings, Media Info, Job List, and Cam Remote Control.

Setting

Used to configure the camcorder. This screen has the following items.

ltem	Description	See
Wireless	Streaming	Streaming Format
Module	format	Settings (page 72)
>Streaming	settings	
Format		
Wireless	Proxy format	Proxy Format
Module	settings	Settings (page 73)
>Proxy		
Format		
Wireless LAN	Wireless LAN	Wireless LAN Station
>Station	settings	Settings (page 73)
Settings		
Wireless LAN	Wireless LAN	Checking wireless
>Status	settings status	LAN settings
		(page 74)
Wired LAN	Wired LAN	Wired LAN Settings
>Wired LAN	settings	(page 74)
Wired I AN	WiredIAN	Checking wired I AN
>Status	settings status	settings (page 74)
Upload	Transfer	Transfer (Upload)
Settings	settings	Settings (page 75)

Media Info

Displays media information and is used to select files to transfer from media.

 SD Card: Media inserted into the PROXY SD card slot of the camcorder
 Double-clicking a file will start playback of the selected file.

Note

Playback may not be supported, depending on the operating system of the terminal device used and the browser version. If this occurs, use "Content Browser Mobile."

- Slot A: Media inserted into card slot A of the camcorder
- Slot B: Media inserted into card slot B of the camcorder

Job List

Displays the Job List screen for managing file transfers (page 75).

Cam Remote Control

Displays the Wi-Fi remote control screen (page 70).

Streaming Format Settings

You can configure the stream for monitoring by devices, and set the format and transmission destination of the stream for streaming via the Internet or local network.

VIGeo

- AVC/H.264 Main Profile, 4:2:0 Long GOP
- Size is selected in the following settings.

Audio

- AAC-LC compression
- Sampling frequency: 48 kHz
- Bit rate: 128 kbps for stereo



Monitoring Settings

You can set the format for monitoring by devices.

	Cocinocion	2000
Monitoring	Monitoring Sets the video size	480×270(1Mbps).
Size	and bit rate for	480×270(0.5Mbp
	monitoring.	
Monitoring	Monitoring Displays the video	23.98fps/25fps/
Frame Rate	frame rate for	29.97fps/50fps/
	monitoring.	59.94fps
Monitoring	Displays the video	1Mbps(VBR)/
Bit Rate	bit rate for	0.5Mbps(VBR)
	5	

[Notes]

- The bit rate is an average value, so this value may be exceeded at times.
- A video frame rate of 24 fps is not supported.
- 640x360 (3Mbps (VBR)) is not supported for Monitoring Size.

Streaming settings

be preset. destination for streaming. Up to three settings can You can set the format and transmission

Item	Description	Setting
On/Off	Switches streaming	On/Off
	transmission on/off.	
Preset	Selects the preset	Preset1/Preset2/
	from Preset 1 to	Preset3
	Preset 3. You can	
	edit Preset by	
	tapping Edit.	
Type	Selects the type of	MPEG-2 TS/UDP/
	video for streaming. MPEG-2 TS/	MPEG-2 TS/
		RTP

							Size
setting of the	according to the	1280×720,	set to 1920×1080 or 320×180	selected, the size is	When HD Auto is	video for streaming.	Sets the size of
			320×180	480×270/	640×360/	1280×720/	HD Auto/

	Address	Destination							Bit Rate	
destination server	the transmission	n Enter the address of Host name or IP		Size setting.	depending on the	rate varies	The selectable bit	video for streaming.	Sets the bit rate of	
	address	Host name or IP	0.2Mbps(Mono R)	0.2Mbps(Mono L)/	0.3Mbps(Mono R)/	0.3Mbps(Mono L)/	1Mbps/0.5Mbps/	3Mbps/2Mbps/	9Mbps/6Mbps/	

for streaming data

ltem	Description	Setting
Destination	Enter the port	1 to 65535
Port	number of the	
	transmission	
	destination server	
	used for streaming.	
Audio	Selects the audio	Ch-1 & Ch-2/
Channel	channels for the	Ch-3 & Ch-4
Select	streaming output.	

- When Streaming is set to On, the monitoring function cannot be used.
- Audio/video data is transmitted as-is via the Internet Accordingly, the data may potentially be exposed to other

Always check that the transmission destination can address or other settings are configured incorrectly. receive the streaming data. The data may be sent to an unintended party if the

Not all frames may be played, depending on the status of

- excessive motion. The picture quality may deteriorate in scenes with
- Not all frames may be played when the stream is set to a To reduce this, select a smaller size for the Size setting. large size with a small bit rate.
- If a network with bandwidth of less than 500 kbps is used, Size and Bit Rate are set to the following.
- When Size is 480×270, Bit Rate is set to 0.3Mbps(Mono 0.2Mbps(Mono R). L), 0.3Mbps(Mono R), 0.2Mbps(Mono L), or
- When Size is 320×180, Bit Rate is set to 0.2Mbps(Mono L) or 0.2Mbps(Mono R).
- audio is set to a sampling frequency of 48 kHz and a bit When this occurs, video is set to a frame rate of 10 fps, and

the format of the clip to be played

SxS memory card or recorded on the recording format

When Bit Rate is 0.3Mbps(Mono L) or 0.2Mbps(Mono L), & Ch-4 is set to Ch-4. & Ch-4 is set to Ch-3 Audio Channel Select >Ch-1 & Ch-2 is set to Ch-1 or Ch-3 When Bit Rate is 0.3Mbps(Mono R) or 0.2Mbps(Mono R), Audio Channel Select >Ch-1 & Ch-2 is set to Ch-2 or Ch-3

0.5Mbps(VBR)

Proxy Format Settings

recorded on the SD card of the camcorder. You can set the format of the proxy file that is

Video

- XAVC Proxy (AVC/H.264 Main Profile, 4:2:0 Long
- Size is selected in the following settings.

Audio

- AAC-LC compression
- Sampling frequency: 48 kHz
- Bit rate: 128 kbps for stereo



ltem	Description	Setting
Proxy File recording	Sets the video size and bit rate for	HD Auto(9Mbps)/ HD Auto(6Mbps)/
>Size	proxy files.	1280×720(9Mbps)/ 1280×720(6Mbps)/ 640×360(3Mbps)/ 480×270(1Mbps)/ 480×270(0.5Mbps)
Proxy File	Displays the video	23.98fps/
recording >Frame	frame rate for proxy files.	25fps/ 29.97fps/
Rate		50fps/ 59.94fps
Proxy File recording	Displays the video bit rate for proxy	9Mbps(VBR)/ 6Mbps(VBR)/
0	i i	1Mbps(VBR)/

ltem	Description	Setting
Proxy File	Sets the audio	Ch-1 & Ch-2/
recording	channel to record	Ch-3 & Ch-4
>Audio	to proxy data.	
Channel		

Select

- The bit rate is an average value, so this value may be exceeded at times.
- 24 fps is not supported.
- When HD Auto is selected for Size in the proxy format the format of the clip to be played back the recording format recorded on the SxS memory card or settings, the proxy format is set according to the setting of
- Proxy files recorded with Size set to HD Auto in the proxy proxy files directly into a computer to play the files. or Content Browser Mobile. Insert SD cards for recording format settings may not be able to be played in a browse

Wireless LAN Station Settings

the camcorder to a wireless LAN. Use this screen to make settings for connecting



ltem	Description
Host Name	Name of the camcorder (can be
	modified)
SSID	Displays the SSID selected in
	[Access Point].
Key	Enter the password for the
	access point.

Item	Description
DHCP	Enables/disables DHCP.
	When set to [On], an IP address
	is automatically assigned to the
	camcorder.
	To enter the camcorder IP
	address manually, set to [Off].
IP Address	Enter the IP address of the
	camcorder. Enabled only when
	DHCP is [Off].
Subnet mask	Enter the subnet mask of the
	camcorder.
	Enabled only when DHCP is
	[Off].
Gateway	Enter the gateway for the access
	point.
	Enabled only when DHCP is
DNS Auto	Obtains DNS address
	automatically.
	When set to On, the address of
	the DNS server is obtained
	automatically.
Primary DNS	Enter the primary DNS server for
Server	the access point.
	Enabled only when DNS Auto is
Secondary DNS	Enter the secondary DNS server
Server	for the access point.
	Enabled only when DNS Auto is
-	
SUDITIFE	Applies the wileless LAN
	•

Connecting to an access point in station mode without using WPS

- Connect the camcorder and device using access point mode (page 60).
- 2 Configure settings on the Station Settings screen.

Configure settings to match the settings of the access point connection.

Station mode

For details about access point settings, refer to the instruction manual for the access point.

- 3 Tap [Submit].
 The specified settings are applied
- 4 Select Maintenance >Network >Wireless Network in the setup menu.
- 5 Turn the MENU knob to select [Wi-Fi Station], then press the knob.

 This step connects the camcorder to the access point in station mode. Proceed to step 9 in "Connecting to an access point using WPS"

Checking wireless LAN settings

device.

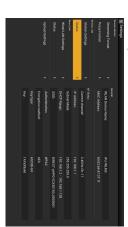
(page 61) to access the camcorder from the

Use the Wireless LAN >Status tab to monitor the wireless LAN status.

The displayed settings will vary depending on the

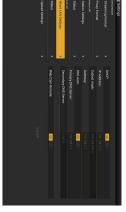
Access point mode

wireless LAN mode of the camcorder.



Wired LAN Settings

Use this screen to make settings for connecting the camcorder to a wired LAN.



Item	Description
DHCP	Enables/disables DHCP.
	When set to [On], an IP address
	is automatically assigned to the
	camcorder.
	To enter the camcorder IP
	address manually, set to [Off].
IP Address	Enter the IP address of the
	camcorder.
	Enabled when DHCP is [Off].
Subnet mask	Enter the subnet mask of the
	camcorder. Enabled when
	DHCP is [Off].
Gateway	Enter the gateway for the access
	point.
	Enabled when DHCP is [Off].

Item	Description
DNS Auto	Obtains DNS address automatically.
	When set to On, the address of
	the DNS server is obtained
	automatically.
Primary DNS	Enter the primary DNS server of
Server	the router.
	Enabled when DNS Auto is [Off].
Secondary DNS	Enter the secondary DNS server
Server	of the router.
	Enabled when DNS Auto is [Off].
Web/Cam	Enables/disables access to the
Remote	camcorder web menu and Wi-Fi
	remote control.
	When set to On, access is
	permitted.
Submit	Sets the wired LAN settings.

[Note]

To prevent unauthorized access from the Internet, it is recommended that Web/Cam Remote be set to On only when the wired LAN network is not connected to the Internet. When connecting to the Internet, check that the network connection is a secure network before use.

Checking wired LAN settings

Use the Wired LAN >Status tab to monitor the wired LAN status.



Iransfer (Upload) Settings

You can register and set servers for transferring proxy files or original files recorded on the camcorder.



Auto transfer ON/OFF

If [Auto upload] is [On] and an Internet connection exists, proxy files are automatically transferred to the default server specified on the Upload Settings tab when recording ends.

The default server is set to "Sony Ci" by factory default.

"Sony Ci" is the Media Cloud Services provided by Sony. You can transfer files to the "Sony Ci" cloud service.

[Notes]

- A subscription is required in order to use the "Sony Ci" cloud service. For details, visit www.SonyMCS.com/ wireless.
- The name of the transfer destination folder is specified in [Destination Directory]. If not specified, a folder name with the current date is used. To change the setting, see "To change registered server settings" (page 75).

Use the following procedure to register with "Sony Ci."

- I Check that "Sony Ci" is displayed on the [Upload Settings] tab, then click [Edit].
 The "Sony Ci" setup screen appears.
- 2 Enter a user name and password.
 For details, visit www.SonyMCS.com/wireless.

append a colon and the port number at the end of the address

- 3 Tap [Link]
- A completion message appears after a short while.

User

Item

PASV Mode

Password

Destination Directory

[Link] associates the user with the camcorder.
An Internet connection is required to execute [Link].

4 Tap [OK].

After registering with "Sony Ci," [Unlink] appears on the Settings screen. Tapping [Unlink] releases the user account to enable other user accounts to link with the camcorder.

To register a new destination server

Tap [Create New] to display a configuration screen.



After specifying settings, tap [OK] to apply the settings. Tapping [Cancel] discards the settings.

	Control of the state of the sta
Item	Description
Default Server	Set to [On] to set the default file destination server.
	(Displayed at the top of the
	server list for file transfers.)
Display Name	Enter the name of the server
	to display in the list.
Service	Displays the type of server.
	FTP: FTP server
Host Name	Enter the address of the server.
	[Note] If a port number other than the
	default number of 21 is used,

[Note] If an invalid character is entered in the directory name, the directory is not created and files are transferred to the top level of	Specify the destination directory.	Enable/disable PASV mode.	Enter the password.	Enter the user name.	Description	
Moi	and	mes	Setti	<u> </u>	Dele	

|--|

the default transfer destination

[Notes]

Displayed when Using Secure

Protocol is set to On.

certificate.

- Communication using FTP is not encrypted. The use of FTPS is recommended.
- An intermediate CA certificate containing a root certificate is required.
- The certificate to be loaded must be in PEM format, and should be written to the root directory of the SD card with "certification.pem" file name.

[Note]

Communication using FTP is not encrypted. The use of FTPS is recommended.

To change registered server settings

Select the server whose settings you want to change on the Upload Settings screen, then tap [Edit]. Change the setting on the displayed configuration screen.

For details about items, see "To register a new destination server".

Deleting a registered server

Select the server you want to delete on the Upload Settings screen, then tap [Delete]. A confirmation message appears. Tap [OK] to delete the server and return to the previous screen.

Monitoring File Transfers (Job List)

You can monitor file transfer status, manage files in the transfer file list, and start/stop file transfers. The camcorder supports the FTP resume function (for continuing file transfer if transfer stops).



Item	Description
Total	Progress status of the transfer of all files
Status	Progress status of the file being transferred
Remain time	Predicted remaining transfer time
Transfer data rate	Transfer rate

To stop/restart file transfer or delete a file from the transfer list

- Select a file.
- 2 Tap on the top right of the screen. Select a menu item.

- Abort selected: Stop file transfer.Delete from list: Delete the file from the

- transfer list.

 Start selected: Start file transfer.

 Select All: Select all files in the list.

 Clear completed: Delete all files that have been transferred from the list.

Supported Network Functions and Operating Limitations

Network Functions and Network Connection Settings

>Network > Wireless Network and Wired LAN settings) are shown below. The supported network functions and corresponding network connection settings (Maintenance

To enable the network functions, set Maintenance > Network > Setting in the setup menu to On.

Network function	Maintenance > Network > Wireless Network in the setup menu	ork>Wireless Ne	etwork in th	ie	Maintenan >Wired LAI	Maintenance >Network
					menu	
	Wi-Fi Access Point	Wi-Fi Station	Modem	Off	Enable	Disable
Proxy recording ¹⁾ (page 53)	Yes	Yes	Yes	Yes	Yes	Yes
Proxy playback (page 72)	Yes ²⁾	Yes ²⁾	No	No	Yes ²⁾	N O
File transfer (page 66)	N _O	Yes ²⁾	Yes ²⁾	No	Yes ²⁾	N O
Streaming transmission (page 68)	N _o	Yes	Yes	Z _O	Yes	N _O
Monitoring (page 72)	Yes ²⁾	Yes ²⁾	No	No	Yes ²⁾	N _O
Network client mode (page 69)	Z ₀	Yes	Yes	N _O	Yes	No
Camcorder remote control (page 70)	Yes ²⁾	Yes ²⁾	Z o	Z _O	Yes ²⁾	N _O

Proxy recording is enabled when Operation >Proxy Recording Mode >Setting in the setup menu is set to On.
 Supports camcorder and network-connected device functions.

Limitations on Simultaneous Use of Network Functions

The following limitations apply to the simultaneous use of network functions.

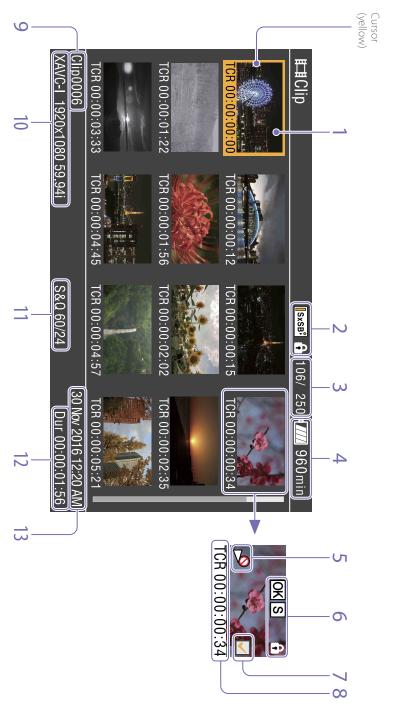
Wireless LAN connection	Wired LAN	Operation
	connection	
None	Disabled	Network function stopped
USB wireless LAN module	Disabled	USB wireless LAN module operating
3G/4G/LTE USB modem	Disabled	3G/4G/LTE USB modem operating
None	Enabled	Wired LAN operating
USB wireless LAN module	Enabled	USB wireless LAN module and wired LAN operating

¹⁾ Streaming and file transfer operate using wired LAN. The USB wireless LAN module is reserved for Wi-Fi remote control

CBK-NA1 (option), is attached to the USB wireless LAN module on the camcorder. Wired LAN connection is not possible when the USB extension adaptor of the CBK-NA1R Ethernet Adaptor, supplied with the

Clip Operations on the Thumbnail Screen

Thumbnail Screen



The thumbnail screen appears if you press the THUMBNAIL button in E-E or playback mode. Thumbnail screens display lists of the index pictures of clips stored on SxS memory cards as thumbnails. You can select any clip (page 79) on the thumbnail screen and start playback of that clip (page 79). You can also add a clip flag to any clip on the thumbnail screen to filter clips according to the flags. You can also switch to the Essence Mark thumbnail screen from the thumbnail screen and add essence marks (for example, shot marks) to any frame in the clip.

To hide the thumbnail screen, press the THUMBNAIL button.

1. Thumbnail (index picture)

When a clip is recorded, its first frame is automatically displayed as the index picture. You can change the index picture to any frame (page 82).

2. Selected media icon/media status

A (2) mark is displayed if the media is protected. If two SxS memory cards are inserted in the camcorder, you can switch between them using the SLOT SELECT button.

[Note]

You cannot switch between SxS memory cards while the Essence Mark thumbnail screen is displayed.

. Clip number / total number of clips

- 4. Battery / Voltage status
- Playback disabled indicator

Clip status

Displays the clips status using an icon.

	9
, OK, NG, KP	Essence mark or clip flag attached
cons	to a clip
ock icon	Clip is locked (protected)

Clip select checkbox

Place a check mark in the checkbox to select a clip (thumbnail).

8. Thumbnail information

Displays thumbnail information. The displayed information varies according to the Customize View setting (page 83).

Clip name / title

Displays the name or title of the selected clip.

Recording video format

11. Special recording information

Displays the recording mode if the clip was recorded using a special recording mode (Slow & Quick Motion) For Slow & Quick Motion clips, the [Recording frame rate/Playback frame rate] are displayed on the right.

12. Clip duration

13. Creation date

Selecting Clips

to move the yellow cursor to the thumbnail that To select a clip thumbnail, do one of the following you want to select.

- Press the ¹√
 √
 √
 √
 buttons.
- Turn the MENU knob.
- Press the PREV or NEXT button.

Selecting the First Thumbnai

Press and hold the F REV button, and press the PREV button.

Selecting the Last Thumbnai

Press and hold the FFWD button, and press the **NEXT button**

Playing Clips Sequentially Starting from the Selected Clip

- Select the thumbnail of the clip that you want to play first
- 2 Press the PLAY/PAUSE button. Playback begins from the start of the selected clip.

It plays all clips sequentially starting from the selected clip.

> Press the THUMBNAIL button to return to the thumbnail screen. the last frame of the last clip. camcorder enters pause (still image) mode at After the last clip has been played, the

- Not all clips may be played back sequentially if the mixture of different recording formats. clips on the SxS memory cards were recorded with a
- Clips with an playback disabled icon (page 78) playback continues. The corresponding clips are skipped and sequential displayed on the thumbnail screen are not played
- image display at the boundary between clips. During this time, the play controls and the THUMBNAIL button cannot be operated. There may be momentary picture breakup or still
- When you select a clip in the thumbnail screen and mode, pause, use the PREV button to return to the star begin playback, there may be momentary picture of the clip, and start play again clip without breakup, put the camcorder into playback breakup at the start of the clip. To view the start of the

Pausing Playback

Press the button again to return to play mode. The PLAY/PAUSE indicator flashes while play is Press the PLAY/PAUSE button.

Playing at High Speed

button (page 7). Press the F FWD button (page 8) or the F REV

PAUSE button. To return to normal playback, press the PLAY/

Returning to the Start of the Current Clip

Press the PREV button

- During playback or F FWD, this jumps to the start of the current clip and starts playback.
- of the current clip and displays a still image. During F REV or pause, this jumps to the start
- Each subsequent press of the button moves to the previous clip.

Playing from the Start of the First

on the SxS memory card. buttons. This jumps to the start of the first clip Simultaneously press the PREV and F REV

Jumping to the Start of the Next

Press the NEXT button.

- During playback or F FWD, this jumps to the start of the next clip and starts playback.
- During F REV or pause, this jumps to the start of the next clip and displays a still image.
- Each subsequent press of the button moves to the next clip.

Jumping to the Last Clip

clip recorded on the SxS memory card buttons. This jumps to the last frame of the last Simultaneously press the F FWD and NEXT

Adding a Shot Mark during Playback

by using the same method used during recording (page 49). You can add shot marks to clips during playback

card is write protected.

- Shot marks cannot be recorded when the SxS memory
- Shot marks cannot be added to the first frame of each clip or the last frame of the last clip.

Stopping Playback

Press the STOP button: Playback stops, and the camcorder enters E-E mode.

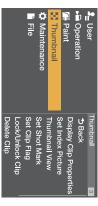
Press the THUMBNAIL button: Playback stops appears in the viewfinder and the thumbnail screen (page 78)

viewfinder. In this case, the camera picture appears in the Play also stops if you eject the memory card.

Basic Thumbnail Menu Operations

The Thumbnail menu is used to protect/delete clips, check properties, add/delete clip flags and essence marks to frames in a clip, and other tasks.

- Press the THUMBNAIL button.
 The thumbnail screen appears.
- 2 Set the MENU ON/OFF switch to ON, or press the MENU button.
 The menu screen appears.
- 3 Turn the MENU knob to select [Thumbnail], then press the knob. You can also press the Ω or V button to select [Thumbnail], and press the SET button.



To hide the Thumbnail menu, press the MENU button again.

To select a menu item/sub-item, do one of the following.

- Turn the MENU knob to select an item or subitem, then press the knob.
- Press the arrow buttons (t̂), t̄, ←, ⇐⇒) to select an item or sub-item, then press the SET button.
 A selection list or a clip properties screen appears (page 81) according to the selected item or sub-item.

To return to the previous screen, push the MENU CANCEL/PRST/ESCAPE switch down to the ESCAPE position.

וויסנ

- When an SxS memory card is write protected, it is not possible to copy, delete, change index pictures, or add and delete clip flags marks and shot marks.
- Some items cannot be selected, depending on the state when the menu was displayed.

For details about the thumbnail screen structure, see "Thumbnail Menu" (page 83).

Protecting Clips

You can protect a specified clip or all clips to protect the clips from being deleted.

(a) is added to the thumbnails of protected clips. Clips can be protected on the thumbnail screen or the filtered clip thumbnail screen (page 82).

Protecting a specific clip

- Select Thumbnail >Lock/Unlock Clip >Select Clip in the setup menu.
- Turn the MENU knob to select [Execute], then press the knob.
 The clip selection screen appears.
- 3 Turn the MENU knob to select a clip to protect, then press the knob.
 A check mark is attached to the selected clip.
- 4 Simultaneously press the SET button and SHIFT button.
 A confirmation screen appears.
- 5 Turn the MENU knob to select [Execute], then press the knob.
 The clip is protected, and a completion message appears.
- O Press the MENU knob to dismiss the message.

Protecting all clips

- Select Thumbnail >Lock/Unlock Clip >Lock All Clips in the setup menu.
- Turn the MENU knob to select [Execute], then press the knob.
 A confirmation screen appears.

2

- Turn the MENU knob to select [Execute], then press the knob.
 All clips are protected, and a completion
- Press the MENU knob to dismiss the message.

4

message appears

Unlocking all clips

- Select Thumbnail >Lock/Unlock Clip >Unlock All Clips in the setup menu.
- Turn the MENU knob to select [Execute], then press the knob.
 A confirmation screen appears.
- 3 Turn the MENU knob to select [Execute], then press the knob.
 All clips are unlocked, and a completion message appears.
- 4 Press the MENU knob to dismiss the message.

Copying Clips

You can copy clips to another SxS memory card. Clips are copied to destination SxS memory cards using the same names as the original clips.

[Notes]

- If a clip with the same name already exists at the copy destination SxS memory card, a one-digit number in parentheses is added to the original name.
- The number in parentheses is the smallest number that does not exist at the copy destination.

Example:

ABCD0002→ABCD0002(1)

 $ABCD0002(1) \longrightarrow ABCD0002(2)$ $ABCD0005(3) \longrightarrow ABCD0005(4)$

- If the parenthetical numbers (1) to (999) already exist at the copy destination, because a clip has been copied more than 1000 times, it is not possible to copy any more clips under that name.
- A message appears if there is not enough free space on the copy destination SxS memory card Exchange the card for one with more free space
- When multiple clips are recorded on the source SxS memory card, it may not be possible to copy all clips even when the source and destination memory cards have the same capacity, depending on the memory characteristics and usage of the memory cards.

Copying a specific clip

- Select Thumbnail >Copy Clip >Select Clip in the setup menu.
- Z Turn the MENU knob to select [Execute], then press the knob. The clip selection screen appears.
- J Turn the MENU knob to select a clip to copy, then press the knob.
 A check mark is attached to the selected clip.
- 4 Simultaneously press the SET button and SHIFT button.
- A confirmation screen appears.

- S Turn the MENU knob to select [Execute], then press the knob.
- The clip is copied, and a completion message
- 6 Press the MENU knob to dismiss the message.

Copying all clips

memory card. memory card at the same time to another SxS You can copy all clips stored on the same SxS

- Select Thumbnail >Copy Clip >All Clips in the setup menu.
- 2 Turn the MENU knob to select [Execute], then A confirmation screen appears. press the knob
- ω Turn the MENU knob to select [Execute], then All clips are copied, and a completion message press the knob
- 4 Press the MENU knob to dismiss the message.

Deleting Clips

filtered clip thumbnail screen (page 82) can be deleted on the thumbnail screen or the You can delete clips from SxS memory cards. Clips

- Select Thumbnail >Delete Clip >Select Clip in the setup menu.
- 2 Turn the MENU knob to select [Execute], then press the knob
- The clip selection screen appears.

- ω Turn the MENU knob to select a clip to delete, then press the knob.
- A check mark is attached to the selected clip
- 4 Simultaneously press the SET button and SHIFT button.

A confirmation screen appears.

- (J Turn the MENU knob to select [Execute], then The clip is deleted, and a completion message press the knob.
- 0 Press the MENU knob to dismiss the message.

screen move up one position The clips below the deleted clip on the thumbnail

Deleting all clips

memory card at the same time. You can delete all clips stored on the same SxS

Deleted clips cannot be restored

If the media or clip is protected, this function is disabled.

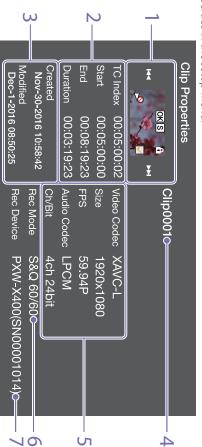
- Select Thumbnail > Delete Clip > All Clips in the setup menu.
- Turn the MENU knob to select [Execute], then press the knob.
- A confirmation screen appears.
- ω Turn the MENU knob to select [Execute], then All clips are deleted, and a completion press the knob.

message appears

4 Press the MENU knob to dismiss the message.

Displaying Clip Properties

Properties in the setup menu. The clip properties screen for the selected clip appears when you select Thumbnail >Display Clip



Current clip image

Displays the index picture and status of the

Timecode display

Duration: Duration between start and end points End: Timecode of the recording end point Start: Timecode of the recording start point TC Index: Timecode of the displayed image

3. Creation date and modified date

4. Clip name

Recording format

Video Codec: Video codec

FPS: Frame rate Size: Picture size

Ch/Bit: Audio recording channel/Number of bits Audio Codec: Audio codec for audio recording

Special recording information

Recording device name

following. To hide the clip properties screen, do one of the

> Press the RESET/RETURN button: Returns to the Thumbnail menu screen.

Press the PLAY/PAUSE button: Starts playback of Press the THUMBNAIL button: Sets the camcorder to E-E mode and displays the camera picture. the selected clip.

Adding Clip Flags to Clips

(page 82). to filter the display of clips based on the clip flags. screen or the filtered clip thumbnail screen You can perform this operation on the thumbnail You can add clip flags (OK, NG or KP marks) to clips

- Select the thumbnail for the clip to which you want to add the clip flag, then select Thumbnail >Set Clip Flag in the setup menu
- Turn the MENU knob to select a clip flag, then press the knob

Setting	Added clip flag
Add OK	OK
Add NG	NG
Add KEEP	KP

The clip flag is added to the thumbnail of the selected clip.

You can also use an assignable switch assigned with the clip flag function to add clip flags (page 114).

Deleting a Clip Flag

Select the thumbnail for the clip from which you want to delete a clip flag, then select Thumbnail >Set Clip Flag >Delete Clip Flag in the setup menu.

The clip flag is deleted.

Filtering the Clips Displayed using the Filtered Clip Screen

- Select Thumbnail > Filter Clips in the setup menu.
- 2 Turn the MENU knob to select a clip flag used to filter clips, then press the knob.

Setting	Filter clip flag
읒	OK
NG	NG
KEEP	KP
None	(Clips are not filtered)

The clip screen appears showing the clips filtered by the selected clip flag. This screen is referred to as the filtered clip screen.

To cancel filtering, do one of the following

- Press the RESET/RETURN button.
- Select Thumbnail >Thumbnail View >All in the setup menu.

Adding/Deleting Essence Marks on

You can add (and delete) essence marks (shot marks, recording start marks) to any frame in a clip. You add/delete essence marks on the essence mark thumbnail screen.

Adding a shot mark

- Select Thumbnail > Thumbnail View > Essence
 Mark Thumbnail in the setup menu.
- Turn the MENU knob to select [All], and then press the knob.
- 3 Select the thumbnail for the frame to which you want to add the essence mark on the essence mark thumbnail screen, then select Thumbnail >Set Shot Mark in the setup menu.
- 4 Turn the MENU knob to select one of the following, then press the knob.

ı			
Add Shot Mark2	Add Shot Mark1	Setting	
Adds Shot Mark 2	Adds Shot Mark 1	Operation	

The shot mark is added to the selected frame.

Deleting a shot mark

- Select Thumbnail > Thumbnail View > Essence Mark Thumbnail in the setup menu.
- Select the type of shot mark to delete
- Select the thumbnail for the frame from which you want to delete a shot mark on the essence mark thumbnail screen, then select Thumbnail >Set Shot Mark in the setup menu.

Shot Mark9

 ω

Turn the MENU knob to select one of the following, then press the knob.

Setting	Operation
Delete Shot Mark1	Deletes Shot Mark 1
Delete Shot Mark2	Deletes Shot Mark 2

The shot mark is deleted from the selected frame.

Filtering Clips (Frames) using the Essence Mark Thumbnail Screen

The essence mark thumbnail screen displays only those frames in a clip where an essence mark has been recorded in thumbnail view. Display the thumbnail screen, then either press the ESSENCE MARK button (page 9) or use the following procedure to display the essence mark thumbnail screen.

- Select Thumbnail >Thumbnail View >Essence
 Mark Thumbnail in the setup menu.
- Turn the MENU knob to select an essence mark used to filter frames, then press the knob.

Setting All Rec Start	Description All frames with added essence marks Frames with a recording start
Rec Start	Frames with a recording start mark and the first frame of clips that do not have a recording start mark
Shot Mark0 to	Frames with each shot mark

The essence mark thumbnail screen appears filtered by the selected essence mark.

If a clip is recorded using planning metadata that defines names for shot mark 0 to shot mark 9, the selection options in the list are displayed by the defined names.

Thanging the Index Picture of a Clip

You can set the frame selected on the essence mark thumbnail screen as the index picture for the clip.

Select the thumbnail of the frame you want to set as the index picture for the clip, then select Thumbnail > Set Index Picture in the setup menu

Thumbnail Menu

Default values are shown in bold.

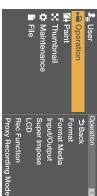
Delauit values are snown in bold.	n bold.	
Item	Sub-item setting	Description
Display Clip Properties	I	Displays clip properties (page 81).
Set Index Picture	1	Sets/changes the index picture of a clip (page 82).
Thumbnail View Changes the thumbnail	Essence Mark Thumbnail All/Rec Start/Shot Mark 1/Shot	Displays the essence mark thumbnail screen with clips filtered by essence mark (page 82).
screen displayed.	Mark2/Shot Mark3/Shot Mark4/ Shot Mark5/Shot Mark6/Shot Mark7/Shot Mark8/Shot Mark9/ Shot Mark0	
	Clip Thumbnail	Displays the thumbnail screen (clip thumbnail screen) (page 78).
Set Shot Mark	Add Shot Mark1	Adds Shot Mark 1 to a frame (page 82).
Adds/deletes shot marks.	Delete Shot Mark1	Deletes Shot Mark 1 (page 82).
	Add Shot Mark2	Adds Shot Mark 2 to a frame (page 82).
	Delete Shot Mark2	Deletes Shot Mark 2 (page 82).
Set Clip Flag	Add OK	Adds an OK flag to a clip (page 81).
Adds/deletes clip liags.	Add NG	Adds an NG flag to a clip (page 81).
	Add KEEP	Adds a KP (Keep) flag to a clip (page 81).
	Delete Clip Flag	Deletes a clip flag (page 82).
Lock/Unlock Clip	Select Clip	Selects the clip to protect (page 80).
Protects/uniocks a clip.	Lock All Clips	Protects all clips on the media (page 80).
	Unlock All Clips	Unlocks all clips on the media (page 80).
Copy Clip	Select Clip	Selects the clip to copy (page 80).
Copies clips.	All Clips	Copies all clips on the media (page 81).
Delete Clip	Select Clip	Selects the clip to delete (page 81).
Deletes cips.	All Clips	Deletes all clips on the media (page 81).

Item	Sub-item setting	Description
Filter Clips	OK	Filters the display of clips by OK flags
Filters the display of clips		(page 82).
by clip flag.	NG	Filters the display of clips by NG flags
		(page 82).
	KEEP	Filters the display of clips by KP (Keep) flags
		(page 82).
	None	Clips are not filtered (page 82).
Customize View	Thumbnail Caption	Selects the information displayed beneath clip
	Date Time/Time Code/	thumbnails.
	Duration/Sequential	Date Time: Displays the date and time.
	Number	Time Code: Displays the timecode.
		Duration: Displays the duration of the clip.
		Sequential Number: Displays a sequential
		number for each clip.

Setup Menu Organization

The setup menu can also be displayed on an appears in the viewfinder. playback are made in the setup menu, which On this camcorder, settings for shooting and

external video monitor (page 126). **≗** User



Menu Structure

User menu

menu in any chosen order (page 88). Menu used to arrange items from the setup

Operation menu

quality). shooting (excluding settings related to picture Menu used to make settings related to

Paint menu

quality. Menu used to make settings related to picture

Thumbnail menu

thumbnails (page 83). Menu used to make settings related to clip

[Note]

The Thumbnail menu can be used only when a thumbnail screen (page 78) is displayed. It is disabled when the thumbnail screen is not displayed.

Maintenance Menu

management. camcorder maintenance and system Menu used to make settings related to

File menu

Menu used to make perform operations on

Operation menu

Menu Items

Item	Description	Page
Format	System settings	90
Format Media	Media format settings	91
Input/Output	Input/output signal settings	91
Super Impose	Superimposition settings	91
LCD	LCD monitor settings	91
Rec Function	Special recording mode settings	92
Proxy Recording Mode	Proxy data settings	92
Assignable Switch	Assign functions to assignable switches	93
VF Setting	Viewfinder settings	93
Marker	Marker settings	93
Gain Switch	Gain value settings	94
Auto Iris	Auto iris settings	94
Zebra	Zebra pattern settings	94
Display On/Off	Viewfinder display item settings	94
"i" LED	Viewfinder "!" settings	95
White Setting	White balance settings	96
Offset White	Offset white settings	96
Shutter	Shutter settings	96
Slow Shutter	Slow shutter settings	96
Time Zone	Time settings	96
Clip	Clip settings	97
Update Media	Update media management	97
	information	3
GPS	(GPS) settings	9/

Planning ltem Reduce Flash Band Metadata settings Planning metadata Flashband correction settings Description Page 97 98

Paint menu

Noise Suppression	Saturation Mode	Low Key Saturation	V Modulation	Multi Matrix	Matrix	Skin Detail	Aperture	Detail(SD)	Detail(HD)	White Clip	Knee	Black Gamma	Gamma	Flare	Black	White		Switch Status	Item
Noise suppression settings	Saturation correction settings	Low key saturation correction settings	V modulation shading correction settings	Multi matrix correction settings	Matrix correction settings	Skin detail correction settings	Aperture correction settings	Detail settings	Detail settings	White clip settings	Knee correction settings	Black gamma correction settings	Gamma correction settings	Flare correction settings	Black level settings	Color temperature settings	settings	Correction functions and	Description
102	102	102	102	101	101	101	101	100	100	100	100	99	99	99	99	98		98	Page

Maintenance menu

110	Network reset	Network Reset
110	Digital time counter settings	Hours Meter
_	Settings	Language
110	Internal clock settings	Clock Set
109	Streaming settings	Streaming
109	Wi-Fi transfer settings	File Transfer
	settings	Mode
109	Network client mode	Network Client
	settings	
108	Network connection	Network
	settings	Authentication
108	Basic authentication	Basic
108	APR settings	APR
-	correction settings	
100	Auto black settings	Auto Shadina
100		
108	Flicker correction settings	Flicker Reduce
107	DCC settings	DCC Adjust
107	Filter settings	White Filter
107	Preset white settings	Preset White
	settings	
106	Camcorder operation	Camera Config
106	Essence mark settings	Essence Mark
105	Timecode settings	Time Code
105	Wireless tuner settings	WRR Setting
103	Audio settings	Audio
	voltage alarm settings	Alarm
103	External DC source	DC Voltage
103	Battery settings	Battery
103	Black shading correction settings	Black Shading
	correction settings	
103	White shading	White Shading
Page	Description	Item

111	Version settings	Version
	settings	Setting
110	Viewfinder display	VF Display
110	Fan control settings	Fan Control
Page	Description	Item

Item	Description	Page
User File	User file settings	111
All File	ALL file settings	111
Scene File	Scene file settings	112
Reference File	Reference file settings	112
Lens File	Lens file settings	112
User Gamma	Gamma file settings	113

Basic Setup Menu Operations

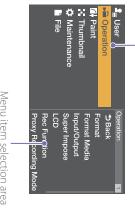
Displaying the Setup Menu

MENU button. Set the MENU ON/OFF switch to ON, or press the

list appears on the screen. The camcorder enters menu mode and the menu

positioned at the Operation menu The following example shows the cursor

Menu list



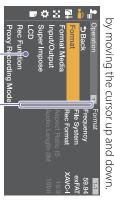
Menu item selection area

function has been assigned. by pressing the assignable switch to which the Focus Mag focus magnification mode. Exit focus magnification mode The setup menu cannot be used when the camcorder is ir

Making Menu Settings

- Turn the MENU knob, or press the $\hat{\mathbf{T}}$ or $\hat{\mathbf{V}}$ A list of selectable menu items appears in the button, to move the cursor to the desired
- menu item selection area to the right of the
- Press the MENU knob or the SET button. screen by pressing the 🗢 button. You can also display the menu item selection The menu item selection screen appears.

 The menu item selection area displays a through menus with more than seven lines maximum of seven lines. You can scroll



menu items below. Displayed when there are further

Menu item selection area

- If the selected item has sub-items, they appear on the right
- If there are no sub-items, the current setting appears on the right.
- Select [Back] to return to the previous
- Turn the MENU knob, or press the $\hat{\mathbf{1}}$ or $\hat{\mathbf{1}}$ pressing the MENU knob or the SET button. button, to move the cursor to the menu item moves to the first sub-item. menu item selection area, and the cursor that you want to set, and then confirm by The sub-items area appears to the right of the

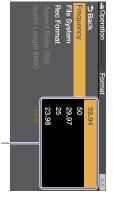
5



settings area

- Displays sub-items and their current settings
- To return to the previous level, select [Back] press the 📤 button, or push the MENU CANCEL/PRST/ESCAPE switch down to the

Turn the MENU knob, or press the $\hat{\mathbf{T}}$ or $\hat{\mathbf{V}}$ and the cursor moves to the currently selected that you want to set, and then confirm by The settings of the selected sub-item appear, pressing the MENU knob or the SET button. button, to move the cursor to the sub-item



 The settings area displays a maximum of the cursor up and down. with more than nine sub-items by moving nine lines. You can scroll through menus

Settings area

- For sub-items with a large settings range (for to indicate that the value can be changed displayed. The current setting is highlighted example, –99 to +99), the settings area is not
- Turn the MENU knob, or press the $\hat{\mathbf{1}}$ or $\hat{\mathbf{1}}$ confirm by pressing the MENU knob or the SET button, to select the value to set, and then

the corresponding function is executed If you select [Execute] for an executable item The setting is changed, and the display is updated to show the new setting.

a confirmation message appears. Follow the selecting the item in step 3 hides the menu and If an item requires confirmation before execution instructions in the message to execute or cancel

Entering lext

which requires character entry, the character entry screen appears. When you select an item, such as a file name,



- Press the MENU knob to select the type of character to enter, then press the MENU knob or SET button.
- abc: Lowercase alphabetic characters !#\$: Special characters 123: Numeric characters ABC: Uppercase alphabetic characters
- Select a character from the selected character type, then press the knob.
- Space: Enters a space character at the cursor The cursor moves to the next field
- BS: Deletes the character on the left of the **←/→**: Moves the position of the cursor. cursor (backspace)
- When finished, select [Done] and press the
- character entry screen disappears. The character string is confirmed and the

Canceling Changes to Settings

I Push the MENU CANCEL/PRST/ESCAPE switch down to the ESCAPE position.

Exiting the Menu

Set the MENU ON/OFF switch to OFF or press the MENU button.
The normal camera picture reappears.

Locking/Unlocking the Menu

You can lock the setup menu so that only the User menu is displayed.

Locking the menu

- Press and hold the MENU knob and press the MENU ON/OFF switch down to display the setup menu.
- Display Maintenance >Camera Config >User Menu with Lock in the setup menu.

Notes

- When you press and hold the MENU knob and press the MENU ON/OFF switch down, Camera Config >User Menu Only changes to User Menu with Lock.
- If you press the MENU ON/OFF switch down without pressing the MENU knob or you press the MENU button to display the menu, Camera Config >User Menu with Lock is not displayed.
- 3 Select "On," then press the MENU knob.
 The viewfinder screen display switches to the passcode number input screen.

4 Enter an arbitrary passcode number.
The valid input range is 0000 to 9999. The default value is 0000.
Enter a number and press the MENU knob to move the cursor to the next digit.
When all digits have been entered, move the

cursor to [Set].

With [Set] selected, press the MENU knob.
 The entry is applied.
 A confirmation message appears.
 Subsequently, only the User menu is displayed

[Notes]

- If the menu is locked without registering the following setup menu items in the User menu, assigning the menu function to an assignable switch is not possible.
- If some of the following setup menu items are assigned to an assignable switch when the menu is locked, the setting for the functions assigned to assignable switches are forcibly set to Off when the menu is locked.

		Setup menu
switches	to assignable	Functions assignable

Operation >Rec Function Picture Cache Rec >Picture Cache Rec

Operation > Rec Function Clip Continuous Rec > Clip Continuous Rec Operation > VF Setting VF Mode > Color Mode

Operation > Display On/ Video Signal Monitor
Off > Video Signal
Monitor
Operation > Display On/ Lens Info
Off > Lens Info

Off >Lens Info
Operation > Auto Iris
>Mode
Spotlight
>Mode
Operation > Marker
Operation > Marker
Settling
Maintenance > Audio
>Front MIC Select
Maintenance > Network Client
Maintenance > Network Mode

Maintenance > File Auto
Transfer > Auto
Upload(Proxy)

Auto Upload(Proxy)

Unlocking the menu

- Press and hold the MENU knob and press the MENU ON/OFF switch down to display the setup menu.
- Display User > Camera Config > User Menu with Lock in the setup menu.

[Notes]

- When you press and hold the MENU knob and press the MENU ON/OFF switch down, Camera Config >User Menu Only changes to User Menu with Lock.
- If you press the MENU ON/OFF switch down without pressing the MENU knob or you press the MENU button to display the menu, Camera Config >User Menu with Lock is not displayed.
- 3 Select "Off," then press the MENU knob.
 The viewfinder screen display switches to the passcode number input screen.
- 4 Enter the passcode number used to lock the menu.
 The valid input range is 0000 to 9999.
 Enter a number and press the MENU knob to move the cursor to the next digit.
 When all digits have been entered, move the cursor to [Set].
- With [Set] selected, press the MENU knob.
 The entry is applied.
 If the entered passcode number matches the passcode number used to lock the menu, a confirmation message appears and the display of all menus is enabled.

Inotes

 If the entered passcode number does not match the passcode number used to lock the menu, the menu is not unlocked.

> It is recommended that you leave a record of the passcode nearby, just in case it is forgotten. If you do forget the passcode number, contact your Sony service representative.

Editing the User Menu

You can edit the User menu, such as adding items, deleting items, and rearranging items, to make the User menu more useful using Edit User Menu. You can select items in the Operation menu, Paint menu, Maintenance menu, and some items in the File menu, and add them to the User menu. Up to 20 items can be registered in the User menu by factory default, one of which must always be present, allowing you to add up to 19 new items.

1 2 3

Editing is unavailable when the menu is locked.

Displaying the Edit User Menu Screen

You edit the User menu on the Edit User Menu screen.

Turn the MENU knob to select User >Edit User Menu, then press the knob.



The Edit User Menu screen appears.



Adding Items and Sub-Items

- I Turn the MENU knob to select Edit User Menu >Add Item, then press the knob.
 The items that can be added are displayed.
- 2 Turn the MENU knob to select an item, then press the knob.

A screen for selecting sub-items to add appears.



- 3 Turn the MENU knob to select a sub-item, then press the knob.
- Place a check mark in the All checkbox to add all sub-items.
 Place a check mark in the individual checkboxes to specify which sub-items to add
- 4 Turn the MENU knob to select [OK], then press the knob.
 The item/sub-item(s) are added.

[Note

The same item or sub-item cannot be registered twice. Also, the name of the item or sub-item cannot be changed.

Editing Sub-Items

You can specify the sub-items to display

Display the Edit User Menu screen.

- Turn the MENU knob to select an item to edit, then press the knob.
 The edit function list appears.
- Turn the MENU knob to select Edit Sub Item in the edit function list, then press the knob.



The Edit Sub Item screen appears.



All sub-items are checked when the screen is first opened (function to display all sub-items). Remove the check marks for the sub-items you do not want to display in the User menu.

Turn the MENU knob to select [OK], then press the knob. Editing is completed.

4

Deleting Items

- Display the Edit User Menu screen.
- Turn the MENU knob to select an item to edit, then press the knob.
 The edit function list appears.
- Turn the MENU knob to select Delete in the edit function list, then press the knob.

 ω



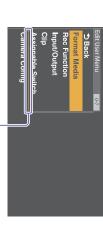
The item is deleted

Moving Items

- Display the Edit User Menu screen
- Turn the MENU knob to select an item to move, then press the knob. The edit function list appears.
- 3 Turn the MENU knob to select Move in the edit function list, then press the knob.



The item to move is highlighted, and a triangle mark and line indicate the destination position.



Triangle mark and line indicating move destination

4 Turn the MENU knob to move the triangle and line to the desired destination, then press the knob.

The item is moved.



Restoring the User Menu to Factory Default State

- Turn the MENU knob to select Edit User Menu >Customize Reset, then press the knob.
 The Customize Reset screen appears.
- 2 Turn the MENU knob to select [Reset], then press the knob.
 A confirmation screen appears
- A confirmation screen appears.
- 3 Turn the MENU knob to select [Execute], then press the knob.
- The User menu is restored to the factory default state.

Menu List

User Menu (Factory Default Configuration)

The User menu consists of the following items when it is in the factory default state.

• Format Media (page 91)

• Rec Function (page 92)

• Input/Output (page 91)

• Clip (page 97)

- Assignable Switch 1) (page 93)
 Camera Config²⁾ (page 106)
- Excluding sub-item 0
 Contains only User Menu Only as sub-item

For details about editing the User menu, see "Editing the User Menu" (page 88).

Operation Menu

Default values are shown in bold.

Operation >Format Sets the system fr	requency, recording mode, recordin	eration >Format Sets the system frequency, recording mode, recording format, and recording aspect ratio.
Item	Setting	Description
Frequency	59.94 /50/29.97/25/23.98	Selects the system frequency (execute by
		selecting Execute).
File System	exFAT/UDF	Switches the recording mode between exFAT and
		UDF (execute by selecting Execute)

ltem	n Setting Description	Description
	000000000000000000000000000000000000000	7000
Rec Format	Settings vary according to the system frequency setting.	Selects the recording format (execute by selecting Execute).
	XAVC-I 1920×1080P XAVC-I 1920×1080i	When the file system is exFAT and the system frequency is 59.94 or 50.
	XAVC-I 1280×720P XAVC-L 50 1920×1080P	
	XAVC-L 50 1920×1080i	
	XAVC-L 50 1280×720P	
	XAVC-L 35 1080F	
	XAVC-L 35 1080i	
	HD422 50 1080i	
	HD422 50 720P	
	HQ 1920×1080i	
	HQ 1440×1080i	
	HQ 1280×720P	
	MPEG IMX 50	
	XAVC-I 1920×1080P	When the file system is exFAT and the system
	XAVC-L 50 1920×1080P	frequency is 29.97, 25, or 23.98.
	XAVC-L 35 1080P	
	HD422 50 720P	
	HQ 1920×1080P	
	HD422 50 1080i	When the file system is UDF and the system
	HD422 50 720P	frequency is 59.94 or 50.
	HQ 1920X 10801	
	HQ 1280×720P	
	MPEG IMX 50	
	HD422 50 1080P HD422 50 720P	When the file system is UDF and the system frequency is 29 97 25 or 23 98
	HQ 1920×1080P	11 C (act 1c) 13 25.77, 22, 01 23.70.
Aspect Ratio (SD)	16:9/4:3	Selects the SD mode aspect ratio.
Audio Length	24bit/16bit	Selects the audio bit rate for recording in IMX
		format.

Formats the media.	·	
Item	Setting	Description
Media (A)	Execute/Cancel	Initializes the SxS memory card in slot A (execute by selecting Execute).
Media (B)	Execute/Cancel	Initializes the SxS memory card in slot B (execute by selecting Execute).
SD Card(Utility)	Execute/Cancel	Initializes the SD card in the UTILITY SD card slot (execute by selecting Execute).
SD Card (Proxy)	Execute/Cancel	Initializes the SD card in the PROXY SD card slot (execute by selecting Execute).
Operation >Input/Output Sets input/output signals	:put signals.	
Item	Setting	Description
Output Format	Settings vary according to the system frequency setting.	Selects the output format (execute by selecting Execute). Settings vary according to the recording format setting (page 35).
Source Select	Camera/External	Selects the camera picture (Camera) or SDI IN connector input signal for the video input source.
SDI Out1 Output	On/Off	Turns the output signal from the SDI OUT1 connector on/off.
SDI Out2 Output	On/Off	Turns the output signal from the SDI OUT2 connector on/off.
HDMI Output	On/Off	Turns the output signal from the HDMI connector on/off.
SDI Out2/HDMI Super	Off/On	Turns character information (superimposed) from the SDI OUT2 and HDMI connectors on/off.
Video Out Super	Off/On	Turns character information (superimposed) from the VIDEO OUT connector on/off.
Down Converter	Edge Crop/Letter Box/Squeeze	Selects the signal conversion mode for output of SD signals. Edge Crop: Crops the edges of the 16:9 picture for output as a 4:3 picture. Letter Box: Masks the top and bottom of the 4:3 picture and displays a 16:9 picture in the center of the screen. Squeeze: Squeezes the 16:9 picture horizontally

Operation >Input/Output Sets input/output signals	utput It signals.	
Item	Setting	Description
Wide ID	Through/Auto	Selects whether to add a wide ID signal to the SD output signal. Through: Outputs without adding a wide ID signal. Signal. Auto: Adds and outputs a wide ID signal to the
Wide Mode(Ext)	Auto/16:9	When the input signal is SD, sets the method that determines wide screen information. Auto: Records with 16:9 aspect ratio when the wide screen information of the input signal is Squeeze. Otherwise, records with 4:3 aspect ratio.

16:9: Records with 16:9 aspect ratio.

Sets character informat	sets character information/markers to be superimposed	mposed.
ltem	Setting	Description
Super(VF Display)	On/Off	When Input/Output >SDI Out2/HDMI Super or
Super(Menu)	On/Off	Input/Output >Video Out Super is set to On, this turns superimposition of character information on the output from the SDI OUT connector or VIDEO
		OUT connector, respectively.
Super(Marker)	On/Off	When Input/Output >SDI Out2/HDMI Super or Input/Output >Video Out Super is set to On, this
		turns superimposition of markers on the output
		from the SDI OUT connector or VIDEO OUT
		connector on/off, respectively.
Operation >LCD Sets the LCD monitor.	nitor.	
Item	Setting	Description
LCD Color	$-99 \text{ to } \pm 0 \text{ to } +99$	Adjusts the color depth of the LCD monitor.
LCD Marker&Zebra	On/Off	Turns the marker and zebra pattern display on the
		LCD monitor on/off.

Item	Setting	Description
Slow & Quick Motion	On/Off	Turns Slow & Quick Motion on/off. (When set to On, the settings for other special recording modes are set to Off.)
Frame Rate	Settings vary according to the recording format setting.	When Slow & Quick Motion is On, selects the frame rate for Slow & Quick Motion shooting.
	1 to 60	When the recording mode is exFAT, and the recording format is XAVC Intra or XAVC Long.
	1 to 50	When the recording mode is UDF, and the recording format is MPEG2 HD 422 50M (1280×720), 50P/25P.
	1 to 30	When the recording mode is exFAT or UDF, and the recording format is MPEG2 HD 422 50M (1920×1080), 29.97P/23.98P.
	1 to 25	When the recording mode is exFAT or UDF, and the recording format is MPEG2 HD 422 50M (1920×1080), 25P.
Clip Continuous Rec	On/Off	Turns Clip Continuous Rec mode on/off. (When set to On, the settings for other special recording modes are set to Off.)
Picture Cache Rec	On/Off	Turns picture cache recording mode on/off. (When set to On, the settings for other special recording modes are set to Off.)
Cache Rec Time	Settings vary according to the recording format setting. 0 to 2/2 to 4sec	Sets the picture cache recording time, when Picture Cache Rec is set to On. When the recording format is XAVC-I 1920×1080P (system frequency is 59.94/50)
	0 to 2/2 to 4/4 to 6/6 to 8sec	When the recording format is XAVC-I 1920×1080P (system frequency is 29.97/25/23.98), XAVC-I 1920×1080i, or XAVC-I 1280×720P
	0 to 2/2 to 4/4 to 6/6 to 8/ 8 to 10/10 to 12/12 to 14/ 13 to 15sec	When the recording format is XAVC-L, MPEG2 HD 422, MPEG2 HD 420, or MPEG IMX 50.
Interval Rec	On/Off	Turns Interval Rec mode on/off. (When set to On, the settings for other special recording modes are

Item	Setting	Description
Number of Frames	The available settings vary	When Interval Rec is set to On, this sets the
	depending on the Format >Frequency setting.	number of frames to shoot in one Interval Rec take.
	2frames/6frames/12frames	When the recording format frame rate is 50P or 59.94P.
	1frame/3frames/6frames/ 9frames	When the recording format frame rate is 23.98P, 25P, 29.97P, 50i, or 59.94i.
Interval Time	1/2/3/4/5/6/7/8/9/10/15/20/30/ 40/50 (sec) 1/2/3/4/5/6/7/8/9/10/15/20/30/ 40/50/ (min) 1/2/3/4/6/12/24 (hour)	When Interval Rec is set to On, this sets the interval for Interval Rec shooting.
Pre-Lighting	Off/2sec/5sec/10sec	Sets the number of seconds that the video light is turned on prior to the start of Interval Rec shooting. To not turn the video light on, select Off.
Simul Rec	On/Off	Turns simultaneous recording to slots A and B on/off.
Operation >Proxy Recording Mode Sets proxy recording.	ording Mode ¹ g.	
Item	Setting	Description
Setting	On/Off	Turns proxy recording on/off.
Size	HD Auto(9Mbps)/ HD Auto(6Mbps)/ 1280×720(9Mbps)/ 1280×720(6Mbps)/ 640×360(3Mbps)/ 480×270(1Mbps)/ 480×270(0.5Mbps)	Selects the size of the proxy recording format.
Frame Rate	23.98fps/25fps/29.97fps/50fps/ 59.94fps	Selects the frame rate of the proxy recording format.
Bit Rate	9Mbps/6Mbps/3Mbps/1Mbps/ 0.5Mbps	Selects the bit rate of the proxy recording format.
Audio Channel	CH1/CH2/CH3/CH4	Selects the audio channel to record to proxy data.

Assigns functions to assignable switches.	Operation > Assignable Switch	le Switch	
Setting 114 115 114 115 115 RET 116 ne 115 ation >VF Setting sets the viewfinder screen. Setting Mode Color/B&W Normal/High Ing Type Normal/High Ing Frequency Normal/High Setting Normal/High	Assigns runctions For details about assigns	to assignable switches. gning functions, see "Assigning Function	ns to Assignable Switches" (page 114).
114 115 114 114 115 115 115 115 115 116 11 116 1115 115 115 116 11 116 117 118 119 119 119 119 119 119 119 119 119	Item	Setting	Description
115 114 115 115 115 115 116 1116 1115 1116 1115 1116 1115 1116 1116 1117 1118 1118 1119 1119 1119 1119 1119	<0>	114	Assigns a function to the ASSIGN. 0 switch.
114 115 115 115 115 116 1e 116 1ne 115 n Speed 0 to 20 to 99 ation > VF Setting sets the viewfinder screen. Setting -99 to ±0 to +99 Mode Color/B&W Ing Type Normal/High Ing Frequency Normal/High Ing Color B&W/Red/Yellow/Blue Settill Level -99 to ±0 to +99 Settill Level -99 to ±0 to +99	<1>	115	Assigns a function to the ASSIGN. 1 switch.
115 RET 116 RET 116 ne 115 n Speed 0 to 20 to 99 ration > VF Setting sets the viewfinder screen. Setting -99 to ±0 to +99 Mode Color/B&W ing Type Normal/High ing Frequency Normal/High getail Level -99 to ±0 to +99 etail Level -99 to ±0 to +99	<2>	114	Assigns a function to the ASSIGN. 2 switch.
115 RET 116 n Speed 0 to 20 to 99 ation >VF Setting sets the viewfinder screen. Setting -99 to ±0 to +99 Mode Color/B&W ing Type Normal/Color ing Frequency Normal/High ing Color B&W/Red/Yellow/Blue etail Level -99 to ±0 to +99 etail Level -99 to ±0 to +99	<3>	115	Assigns a function to the ASSIGN. 3 switch.
RET 116 RET 116 RET 116 RET 116 RET 116 RET 115 RET 116 RET	<4>	115	Assigns a function to the ASSIGNABLE 4 switch.
n Speed 0 to 20 to 99 ation >VF Setting sets the viewfinder screen. Setting -99 to ±0 to +99 Mode Color/B&W ing Type Normal/Color ing Frequency Normal/High ing Color B&W/Red/Yellow/Blue atail Level -99 to ±0 to +99 etail Level -99 to ±0 to +99	<5>	115	Assigns a function to the ASSIGNABLE 5 switch.
n Speed 0 to 20 to 99 ation >VF Setting sets the viewfinder screen. Setting -99 to ±0 to +99 Mode Color/B&W ing Type Normal/Color ing Frequency Normal/High ing Color B&W/Red/Yellow/Blue etail Level -99 to ±0 to +99 etail Level -99 to ±0 to +99	Lens RET	116	Assigns a function to RET button on the lens.
ation > VF Setting Setting Setting Setting -99 to ±0 to +99 Mode Color/B&W Ing Type Normal/High Ing Color B&W/Red/Yellow/Blue Setting -99 to ±0 to +99 Normal/High And Color B&W/Red/Yellow/Blue	Online	115	Assigns a function to the ONLINE button.
ation >VF Setting Sets the viewfinder screen. Setting -99 to ±0 to +99 -Mode Color/B&W Ing Type Normal/Color Ing Frequency Normal/High Ing Color B&W/Red/Yellow/Blue Setting Color B&W/Red/Yellow/Blue The color B&W/Red/Yellow/Blue	Zoom Speed	0 to 20 to 99	When Zoom has been assigned to the ASSIGNABLE 4 or 5 switch, this sets the zoom speed.
Setting -99 to ±0 to +99 Mode Color/B&W Ing Type Normal/Color Ing Frequency Normal/High Ing Color B&W/Red/Yellow/Blue Etail Level -99 to ±0 to +99	Operation >VF Settin	g er screen.	
-99 to ±0 to +99 Color/B&W Normal/Color Normal/High B&W/Red/Yellow/Blue -99 to ±0 to +99	ltem	Setting	Description
Color/B&W Normal/Color Normal/High B&W/Red/Yellow/Blue -99 to ±0 to +99	Color	-99 to ±0 to +99	Adjusts the color depth of the viewfinder image.
Normal/Color ency Normal/High B&W/Red/Yellow/Blue -99 to ±0 to +99	Color Mode	Color/B&W	Selects the viewfinder display mode (when using CBK-VF02). Color: Color B&W: Black & white
ency Normal/High B&W/Red/Yellow/Blue -99 to ±0 to +99	Peaking Type	Normal/Color	Selects the type of peaking (when using CBK-VF02). Normal: Normal peaking Color: Color peaking
B&W/Red/Yellow/Blue -99 to ±0 to +99	Peaking Frequency	Normal/High	When Peaking Type is set to Normal, this selects Normal or High peaking frequency (when using CBK-VF02).
-99 to ±0 to +99	Peaking Color	B&W/Red/Yellow/Blue	Selects the peaking color when Peaking Type is set to Color (when using CBK-VF02). B&W: Black & white Red: Red Yellow: Yellow Blue: Blue
	VF Detail Level	-99 to ±0 to +99	Sets the detail level (set on the camcorder) of the viewfinder (when using HDVF-20A).

Sets the marker di	Sets the marker display in the viewfinder.	
Item	Setting	Description
Setting	On/Off	Turns the display of all markers on/off.
		[Note] When Marker is assigned to the ASSIGN. 2 switch, this setting is disabled.
Color	White/Yellow/Cyan/Green/ Magenta/Red/Blue	Selects the marker display color.
Center Marker	1/2/3/4/Off	When the center marker is displayed, selects the type. Select Off if you do not want to display the marker.
Safety Zone	On/Off	Turns the safety zone indicator on/off.
Safety Area	80%/90%/92.5%/95%	Selects the safety zone range.
Aspect Marker	Line/Mask/Off	When an aspect marker is to be displayed, selects the display method. Select Off if you do not want
		Line: Show as white lines. Mask: Displays a lower video signal level for areas outside the marker area.
Aspect Select	15:9/14:9/13:9/ 4:3 /1.66:1/ 1.85:1/2.35:1/2.4:1	Selects the aspect ratio of the marker.
Aspect Mask	0% to 12% to 15%	When the Aspect Marker setting is Mask, this sets the video signal level of areas outside the marker area as a percentage value relative to the video signal level of areas inside the marker area.
Aspect Safety Zone	On/Off	Turns the aspect safety zone marker on/off.
Aspect Safety Area	80%/90%/92.5%/95%	Selects the size of the aspect safety zone marker (as a percentage of total screen size).
100% Marker	On/Off	Turns the 100% safety zone marker indicator on/off.
User Box	On/Off	Turns the box cursor display on/off.
User Box Width	40 to 500 to 999	Sets the box cursor width (distance from the center to the left and right edges).
User Box Height	70 to 500 to 999	Sets the box cursor height (distance from the center to the top and bottom edges).
User Box H Position	-479 to 0 to 479	Sets the horizontal position of the box cursor center.
User Box V Position	-464 to 0 to 464	Sets the vertical position of the box cursor center.

0 0 0 0 0 0	بالان داد بالاناماد بالاناداء بالادداء بالادداء المادداء	
Item	Setting	Description
Gain <l></l>	-3dB/0dB/3dB/6dB/9dB/12dB/1 8dB/24dB/30dB/36dB/42dB	Selects the gain value for the L position of the GAIN switch.
Gain <m></m>	-3dB/0dB/3dB/ <mark>6dB</mark> /9dB/12dB/1 8dB/24dB/30dB/36dB/42dB	Selects the gain value for the M position of the GAIN switch.
Gain <h></h>	-3dB/0dB/3dB/6dB/ 9dB/1 <mark>2dB</mark> /18dB/24dB/30dB/ 36dB/42dB	Selects the gain value for the H position of the GAIN switch.
Gain <turbo></turbo>	-3dB/0dB/3dB/6dB/ 9dB/12dB/8dB/24dB/30dB/36dB/ 42dB	Selects the gain value when the Turbo Gain function is assigned to an assignable switch.
Shockless Gain	On/Off	Turns shockless gain (function that switches the gain smoothly when the gain is switched) on/off.
Operation > Auto Iris Sets the auto iris.		
Item	Setting	Description
Iris Override	On/Off	Turns iris override (setting opens or closes the iris more than normal) on/off.
Mode	Backlight/Standard/Spotlight	Selects the control mode of the auto iris. Backlight: Backlight mode (mode for reduced darkening of a subject when the subject is backlit) Standard: Standard mode (cannot be selected when using optional remote control connection) Spotlight: Spotlight mode (mode for reduced blown out highlights when subject is lit by spotlighting)
Level	-99 to ±0 to +99	Sets the convergence target level (larger values increase brightness.)
Speed	-99 to ±0 to +99	Sets the control speed (speed of response to changes in the video). (Larger values specify quicker reaction times.)
Clip High light	On/Off	Turns the function that ignores brightest areas to provide a flatter reaction to high luminance on/off.
Detect Window	1/2/3/4/5/6/Var	Selects the type of auto iris detection window. Var. Variable
Detect Window Indication	On/Off	Turns the function that displays the auto iris detection window frame using a marker on/off

Item	Setting	Description
Iris APL Ratio	-99 to ±0 to +99	If the Mode setting for Auto Iris is set to Standard, sets the mix ratio of peak to mean auto iris
Iris Var Width	40 to 500 to 999	Sets the width of the window when Iris Window is set to Var.
lris Var Height	70 to 500 to 999	Sets the height of the window when Iris Window is set to Var.
Iris Var H Position	-479 to 0 to 479	Sets the horizontal position of the window when Iris Window is set to Var.
Iris Var V Position	-464 to 0 to 464	Sets the vertical position of the window when Iris Window is set to Var.
Operation > Zebra Sets the display of zebra patterns.	ebra patterns.	
ltem	Setting	Description
Zebra Select	1/2/Both	Selects the zebra pattern type (Zebra 1, Zebra 2, Both).
Zebra1 Level	50% to 70 % to 107%	Sets the Zebra 1 display level.
Zebra1 Aperture Level	1 to 10% to 20%	Sets the Zebra 1 aperture level.
Zebra2 Level	52% to 100% to 109%	Sets the Zebra 2 display level.
Operation > Display On/Off Selects the items to disp	eration > Display On/Off Selects the items to display in the viewfinder.	
Item	Setting	Description
Video Level Warning	On/Off	Turns the warnings that appear when the video level is too bright or too dark on/off.
Shutter Setting	On/Off	Turns the shutter mode and shutter speed indicators on/off.
ND Filter Position	On/Off	Turns the ND filter setting indicator on/off.
Gain Setting	On/Off	Turns the gain setting indicator on/off.
Rec/Play Status	On/Off	Turns the recording and playback indicators on/off.
Color Temp.	On/Off	Turns the color temperature indicator on/off.
Frame Rate/Interval	On/Off	Turns the special recording mode indicator on/

Selects the items to	Selects the items to display in the viewfinder. Setting	Description
ielli	Jettillig	pescilption
Battery Remain	Auto/Voltage/Off	Sets the mode of the remaining battery capacity and input voltage indicators. Auto: Displays the remaining capacity, according to the battery type. Voltage: Displays the input voltage, regardless of the battery type. Off: No display.
Timecode	On/Off	Turns the display of time data (timecode, user bits, counter, duration) on/off.
Audio Level Meter	On/Off	Turns the display of the audio level meter on/off.
Media Status	On/Off	Turns the media status indicator on/off.
SD Card (Utility)	On/Off	Turns the SD card (Utility) indicator on/off.
Focus Position	Meter/Feet/Off	Turns the lens focus position indicator on/off and selects the display units.
Iris Position	On/Off	Turns the lens iris position indicator on/off.
Zoom Position	On/Off	Turns the lens zoom position indicator on/off.
Extender	On/Off	Turns the lens and digital extender indicator on/off.
ALAC	On/Off	Turns the lens aberration correction indicator on/ off.
AE Mode	On/Off	Turns AE mode and the AE level setting indicator on/off.
Focus Mode	On/Off	Turns the focus mode indicator on/off.
White Balance Mode	On/Off	Turns the white balance mode indicator on/off.
CC5600K	On/Off	Turns the CC5600K indicator on/off.
Rec Format	On/Off	Turns the recording format indicator on/off.
Gamma	On/Off	Turns the selected gamma type indicator on/off.
Timecode Lock	On/Off	Turns the timecode indicator on/off.
Network Condition	On/Off	Turns the network connection status indicator on/ off.
Proxy Status	On/Off	Turns the proxy status indicator on/off.
NW Client Mode Status	On/Off	Turns the network client mode indicator on/off.
Streaming Status	On/Off	Turns streaming transmission on/off.
GPS	On/Off	Turns the GPS reception status indicator on/off.

Operation > Display On/Off	/Off	
Item	ר Setting	Description
Video Signal Monitor	Off/Waveform/Vector/Histogram	Selects whether to display the video signal, and the type of video signal to display.
		[Note] Not displayed in the following circumstances. When Operation >Input/Output >SDI Out1 Select and SDI Out2 Select in the setup menu are both set to Off. When Operation >Input/Output >Output Format in the setup menu is set to 720x480P or 720x576P.
Clip Name	On/Off	Turns the clip name display on/off.
Focus Assist Indicator	On/Off	Turns the focus assist indicator on/off.
Focus Area Marker	On/Off	Turns the focus area marker indicator on/off.
Lens Info	Meter/Feet/Off	Selects whether to display depth of field and the units to display.
WRR RF Level	On/Off	Turns the wireless tuner reception status indicator on/off.
Clip Number	On/Off	Turns the clip information display on/off.
Operation > "!"LED Sets the "!" indicato	eration >"!"LED Sets the "!" indicator in the viewfinder. (Enabled when using HDVF-20A)	using HDVF-20A).
Item	Setting	Description
Gain	On/Off	Turns the function to light the ! indicator on/off when the gain is set to other than 0 dB.
Shutter	On/Off	Turns the function to light the ! indicator on/off when the SHUTTER switch is set to ON.
White Preset	On/Off	Turns the function to light the ! indicator on/off when the WHITE BAL switch is set to PRST.
ATW Run	On/Off	Turns the function to light the ! indicator on/off when ATW is used.
Extender	On/Off	Turns the function to light the ! indicator on/off when the digital extender function or lens extender is used.
Filter	On/Off	Turns the function to light the ! indicator on/off when the ND filter is set to other than 1.
Iris Override	On/Off	Turns the function to light the ! indicator on/off when the auto iris override is not set to Standard.

Item Switch I White Switch I White Switch I ATW Speed A ATW Speed A AWB Fixed Area AWB Fixed Area AWB Filter White Memory Operation > Offset White Makes settings related Item Soffset White<a> Offset White<a> Offse	Makes settings related to white balance adjustment.	
White Switch Shockless White ATW Speed AWB Fixed Area AWB Fixed Area Filter White Memory Operation > Offset White Makes settings relate Makes settings relate Offset White<a> Offset White<a> Warm Cool <a> Warm Cool Balance<a>	Setting	Description
Shockless White ATW Speed AWB Fixed Area AWB Fixed Area Filter White Memory Operation > Offset White Makes settings relate Marm Cool <a> Warm Cool <a>	Memory/ATW	Sets the operating mode selected by the B position of the WHITE BAL switch. Memory: Auto white balance ATW: Auto tracing white balance
ATW Speed AWB Fixed Area AWB Fixed Area Filter White Memory Poperation > Offset White Makes settings relate Makes settings relate Makes warm Cool <a> Warm Cool <a> Warm Cool <a>	Off/1/2/3	Selects the transition time when the WHITE BAL switch setting is changed (1 is fastest).
AWB Fixed Area Filter White Memory Filter White Memory Operation > Offset White Makes settings relate Makes settings relate tem Offset White < A > Warm Cool < A > Warm Cool < A >	1/2/3/4/5	Selects the ATW (auto tracing white) transition speed (1 is fastest).
Filter White Memory Operation > Offset White Makes settings relate tem Offset White < A > Warm Cool < A > Warm Cool < A >	On/Off	Runs AWB (auto white balance) for the center of the screen.
Operation > Offset White Makes settings relate Item Offset White < A > Warm Cool < A > Warm Cool Balance < A >	On/Off	Sets the white balance memory area for each
Operation > Offset White Makes settings relate Item Offset White <a> Warm Cool <a> Warm Cool Alance<a> Balance<a>		FILTER knob position number when White Balance is set to Preset or ATW. • When Electrical CC is assigned to an assignable switch, this sets independent white balance memory areas for Electrical CC A, B, C, and D settings.
n Cool <a>	hite	 When Electrical CC is not assigned to an assignable switch, this sets white balance memory areas for each FILTER knob position number.
	Makes settings related to white balance offset values.	When Electrical CC is not assigned to an assignable switch, this sets white balance memory areas for each FILTER knob position number.
\ \ \ \	lated to white balance offset values. Setting	When Electrical CC is not assigned to an assignable switch, this sets white balance memory areas for each FILTER knob position number. Description
Warm Cool Balance <a>	Setting On/Off	When Electrical CC is not assigned to an assignable switch, this sets white balance memory areas for each FILTER knob position number. Description Selects whether to add (On) or not to add (Off) are offset value to the white balance in memory A.
Warm Cool Balance <a>	Setting On/Off Approximate color temperature display	When Electrical CC is not assigned to an assignable switch, this sets white balance memory areas for each FILTER knob position number. Description Selects whether to add (On) or not to add (Off) are offset value to the white balance in memory A. When Offset White-(A) is set to On, this specifies the offset (as a color temperature) to add to the
	Setting On/Off Approximate color temperature display (Approx. 1600K to 3200K to 16000K)	When Electrical CC is not assigned to an assignable switch, this sets white balance memory areas for each FILTER knob position number. Description Selects whether to add (On) or not to add (Off) are offset value to the white balance in memory A. When Offset White <a> is set to On, this specifies the offset (as a color temperature) to add to the white balance in memory A. (Note that the error increases for higher offset color temperatures. Adjust while viewing the actual image.)
Offset White 	Setting On/Off Approximate color temperature display (Approx. 1600K to 3200K to 16000K) -99 to ±0 to +99	When Electrical CC is not assigned to an assignable switch, this sets white balance memory areas for each FILTER knob position number. Description Selects whether to add (On) or not to add (Off) an offset value to the white balance in memory A. When Offset White <a> is set to On, this specifies the offset (as a color temperature) to add to the white balance in memory A. (Note that the error increases for higher offset color temperatures. Adjust while viewing the actual image.) Specifies a more precise color temperature, for use when a satisfactory image cannot be obtained with the Warm Cool <a> setting.

Operation > Offset White Makes settings related	ration >Offset White Makes settings related to white balance offset values.	
Item	Setting	Description
Warm Cool 	Approximate color temperature display (Approx. 1600K to 3200K to 16000K)	When Offset White is set to On, this specifies the offset (as a color temperature) to add to the white balance in memory A. (Note that the error increases for higher offset color temperatures. Adjust while viewing the actual image.)
Warm Cool Balance 	-99 to ±0 to +99	Specifies a more precise color temperature, for use when a satisfactory image cannot be obtained with the Warm Cool setting.
Operation > Shutter Sets the shutter operating mode	verating mode.	
Item	Setting	Description
Mode	Speed/Angle	Selects the operating mode of the electronic shutter. Speed: Sets the shutter speed as a time (units: seconds). Angle: Sets the shutter speed as an angle (units: degrees).
Operation >Slow Shutter. Sets the slow shutter.	:ter :er.	
Item	Setting	Description
Setting	On/Off	Turns the slow shutter function on/off.
Number of Frames	2/3/4/5/6/7/8/16	Sets the number of accumulated frames for the slow shutter function.
Operation >Time Zone Sets the time zone.	. ф	
Item	Setting	Description
Time Zone	UTC +14:00 to UTC Greenwich to UTC -12:00 Kwajalein	Selects the difference in time from UTC (Greenwich Mean Time) in units of 30 minutes.

[Note] Do not assign clip cannot be viewed	[Note] Do not assign clip names that begin with the "." (period) symbol cannot be viewed in the application software on a computer.	[Note] Do not assign clip names that begin with the "." (period) symbol. Clips with names in which the first character is "." cannot be viewed in the application software on a computer.
Item	Setting	Description
Clip Naming	Title/Plan	Selects the clip naming format. Title: Name specified by Title Prefix. Plan: Name specified in planning metadata (if no name is specified in planning metadata, the name specified by Title Prefix is used.)
Title Prefix	Text input	Sets the title part (4 to 46 alphanumeric characters) of clip titles using a character string entry screen (page 86).
Number Set	Settings vary according to the Clip Naming setting.	Sets the numeric portion of the clip name. When Clip Naming is set to Title: 0001 to 9999 When Clip Naming is set to Plan and a planning metadata file is loaded: 00001 to 99999
Operation > Update Media Updates the media's m	ration > Update Media	
Item	Setting	Description
Media (A)	Execute/Cancel	Updates the management information of the SxS memory card in slot A (execute by selecting Execute).
Media (B)	Execute/Cancel	Updates the management information of the SxS memory card in slot B (execute by selecting Execute).
Operation >GPS Turns location ir	eration > GPS Turns location information (GPS) on/off.	
ltem	Setting	Description
GPS	On/Off	Turns the GPS function on/off.
Operation > Planning Metadata Makes settings relating to pl	eration >Planning Metadata Makes settings relating to planning metadata operations	ions.
ltem	Setting	Description
Load Media (A)	Execute/Cancel	Loads planning metadata from the SxS memory card in slot A. Execute to display a list of planning metadata files stored on the SxS memory card in slot A. Select a

Makes settings relating to pl	Planning metadata Makes settings relating to planning metadata operations	าร.
Item	Setting	Description
Load Media (B)	Execute/Cancel	Loads planning metadata from the SxS memory card in slot B.
		execute to display a list of plaining metadata lifes stored on the SxS memory card in slot B. Select a file to display the properties screen.
Properties	Execute/Cancel	Displays the planning metadata content loaded in
	5	the camcorder (execute by selecting Execute).
Clear Memory	Execute/Cancel	Clears the planning metadata loaded in the camcorder (execute by selecting Execute).
Clip Name Disp	Title1(ASCII)/Title2(UTF-8)	Selects the display format if the clip name is specified in planning metadata (page 55).
Operation > USB Makes settings relate media.	d to copying clips from the recording me	ration > USB Makes settings related to copying clips from the recording media inserted in an SxS card slot of the camcorder to USB media.
Item	Setting	Description
Select Folder		Selects a folder on the USB media. Creates a new folder on the USB media.
View Clip List		Displays a list of clips on the USB media.
Rename Folder		Renames a folder on the USB media.
Error Check	On/Off	Selects whether to perform error checking when copying clips from the recording media inserted in an SxS card slot of the camcorder to USB media.
Format USB	Execute/Cancel	Formats the USB media (execute by selecting Execute).
Copy to USB	Media(A) to USB/ Media(B) to USB/	Selects the target slot when copying all clips from an SxS card slot.
	Media(A)(B) to USB	Media(A) to USB: Copies all clips from the recording media inserted in slot A.
		Media(B) to USB: Copies all clips from the recording media inserted in slot B. Media(A)(B) to USB: Copies all clips from the
		recording media inserted in slot A and slot B.
Media Remain	(Free space: numeric display and bar display)	Displays the remaining free space on the USB media.

Operation >Flash Band Reduce

Corrects the flashband phenomena.

This item is d	isabled (grayed out) during record	This item is disabled (grayed out) during recording and when Slow&Quick is set to On.
Item	Setting	Description
Setting	On/Off	Turns the flashband reduction function on/off.

- [Notes]
 Momentary noise may occur due to discontinuous video and audio when switching Flash Band Reduce on/off.
 The setting returns to the default value when power is switched off.

Paint Menu

Default values are shown in bold.

I UITIS Vallous coll	Turns various correction inductions and the test signal on on	
Item	Setting	Description
Gamma	On/Off	Turns the gamma function on/off.
Black Gamma	On/Off	Turns the black gamma function on/off.
Matrix	On/Off	Turns the matrix function on/off.
Knee	On/Off	Turns the knee function on/off.
White Clip	On/Off	Turns the white clip function on/off.
		[Note] If set to Off, it is reset to On when power is next turned on.
Detail	On/Off	Turns the detail function on/off.
Aperture	On/Off	Turns the aperture function on/off.
Flare	On/Off	Turns the flare correction function on/off.
Test Saw	On/Off	Turns the test signal on/off.
Paint >White Sets the color tem	nt >White Sets the color temperature, and adjusts white balance manually	e manually.
Item	Setting	Description
Color Temp <a>	1500K to 3200K to 50000K	Displays the white balance color temperature saved in memory A.
Color Temp Balance <a>	-99 to ±0 to +99	Sets the white balance gain value saved in memory A (linked to R gain and B gain).
R Gain <a>	-99 to ±0 to +99	Sets the white balance R gain value saved in memory A.
B Gain <a>	-99 to ±0 to +99	Sets the white balance B gain value saved in memory A.
Color Temp 	1500K to 3200K to 50000K	Displays the white balance color temperature saved in memory B.
Color Temp Balance 	-99 to ±0 to +99	Sets the white balance gain values saved in memory B (linked R gain and B gain).
R Gain 	$-99 \text{ to } \pm 0 \text{ to } +99$	Sets the white balance R gain value saved in memory B.
B Gain 	$-99 \text{ to } \pm 0 \text{ to } +99$	Sets the white balance B gain value saved in

Paint >Black Sets the black leve You can achieve a	nt >Black Sets the black level (image level without lighting). You can achieve a desired look by adjusting the bla	rt >Black Sets the black level (image level without lighting). You can achieve a desired look by adjusting the black level for deeper or shallower blacks.
Item	Setting	Description
Master Black	-99 to ±0 to +99	Sets the master black level.
R Black	$-99 \text{ to } \pm 0 \text{ to } +99$	Sets the R black level.
B Black	-99 to ±0 to +99	Sets the B black level.
Paint >Flare Makes settings related to flare Flare is a phenomenon where regions in the image, increasi	It >Flare Makes settings related to flare correction. Flare is a phenomenon where the video level incre regions in the image, increasing the brightness of a control light incide the length.	t >Flare Makes settings related to flare correction. Flare is a phenomenon where the video level increases across the entire image due to the effects of bright regions in the image, increasing the brightness of darker regions and reducing contrast. It is caused by the least of the least contract lightness.
Item	Setting	Description
Setting	On/Off	Turns the flare correction function on/off.
Master Flare	$-99 \text{ to } \pm 0 \text{ to } +99$	Sets the master flare correction level.
R Flare	-99 to ±0 to +99	Sets the R flare correction level.
G Flare	$-99 \text{ to } \pm 0 \text{ to } +99$	Sets the G flare correction level.
B Flare	-99 to ±0 to +99	Sets the B flare correction level.
Paint >Gamma Makes settings rel Gamma correctio image.	nt >Gamma Makes settings related to gamma correction. Gamma correction allows you to adjust the contrainage.	rt >Gamma Makes settings related to gamma correction. Gamma correction allows you to adjust the contrast of the image to significantly alter the impression of an image.
Item	Setting	Description
Setting	On/Off	Turns the gamma correction function on/off.
Step Gamma	0.35 to 0.45 to 0.90 (0.05 steps)	Sets a gamma correction value in 0.05 steps.
Master Gamma	$-99 \text{ to } \pm 0 \text{ to } +99$	Sets the master gamma level.
R Gamma	$-99 \text{ to } \pm 0 \text{ to } +99$	Sets the R gamma level.
G Gamma	$-99 \text{ to } \pm 0 \text{ to } +99$	Sets the G gamma level.
B Gamma	$-99 \text{ to } \pm 0 \text{ to } +99$	Sets the B gamma level.
Gamma Category	STD/HG/User	Selects the gamma category. STD: Standard gamma curve for video signals HG: Gamma curve that imitates gradation and color reproduction of shooting with film User: User-defined gamma curve created using
		CvpFileEditorTM V4.2

Paint >Gamma

Makes settings related to gamma correction.

Gamma correction allows you to adjust the contrast of the image to significantly alter the impression of an

	Item	Setting	Description
- 1	Gamma Select	Settings vary according to the	Selects the gamma table used for gamma
1		Gamma Category setting.	correction.

When Gamma Category is STD

STD1 DVW: DVW camcorder equivalent

STD2 x4.5: x4.5 gain

STD3 x3.5: x3.5 gain

STD4 240M: SMPTE-240M equivalent

STD5 R709: ITU-R709 equivalent (default setting) STD6 x5.0: x5.0 gain

When Gamma Category is HG

HG1 3250G36: Compresses 325% video input to 100% video output.

HG2 4600G30: Compresses 460% video input to 100% video output.

HG3 3259G40: Compresses 325% video input to 109% video output.

HG4 4609G33: Compresses 460% video input to 109% video output (default setting).

When Gamma Category is User

User 1: Gamma table registered in User1 (default setting)

User 5: Gamma table registered in User5 User 4: Gamma table registered in User4 User 3: Gamma table registered in User3 User 2: Gamma table registered in User2

Paint >Black Gamma

Makes settings related to black gamma correction.

of the picture. Black gamma correction allows you to reproduce gradations and colors in black or near-black (dark) parts

Item	Setting	Description
Setting	On/Off	Turns the black gamma correction function on/off.
		[Note] To enable the black gamma function, set Saturation

Mode to Low Key.

of the picture.
Black gamma correction allows you to reproduce gradations and colors in black or near-black (dark) parts
Makes settings related to black gamma correction.
Paint >Black Gamma

The second secon		
Item	Setting	Description
Range	Low/L.Mid/H.Mid	Selects the effective range of the black gamma
		correction.
		Low: 0 to 3.6%
		L.Mid: 0 to 7.2%
		H.Mid: 0 to 14.4%
Master Black Gamma -99 to ± 0 to $+99$	$-99 \text{ to } \pm 0 \text{ to } +99$	Sets the master black gamma level.

Paint >Knee

Makes settings related to knee correction.

"knee slope." where knee processing begins is called the "knee point," and the slope of knee compression is called the image in response to the upper limit for the dynamic range of the recorded/output image. The signal level Knee correction is processing that prevents blown out highlights by compressing the bright parts of the

Sets the knee saturation level.	$-99 \text{ to } \pm 0 \text{ to } +99$	Knee Saturation Level
[Note] To enable the knee saturation function, set Saturation Mode to Knee.		
Turns the knee saturation function on/off.	On/Off	Knee Saturation
Sets the knee slope when the DCC function is off.	-99 to ±0 to +99	Slope
Sets the knee point when the DCC function is off.	75% to 95% to 109%	Point
Turns the knee correction function on/off.	On/Off	Setting
Description	Setting	Item

Paint >White Clip

Makes settings related to white clip adjustment.

value is ca	value is called the "white clip level."	
Item	Setting	Description
Setting	On/Off	Turns the white clip adjustment function on/off.
Level	90.0% to 109.0%	Sets the white clip level.
	The default setting varies	The default setting is 108.0% when the system
	according to the system	frequency is 59.94, 29.97, 24, or 23.98. The setting
	frequency setting.	is 105.0% when the system frequency is 50.25.

Paint >Detail(HD)/Detail(SD)

Makes settings related to detail adjustments in HD mode and SD mode.

Detail adjustment processing improves the clarity of images by adding a detail signal to the outline of the

subject.		
Item	Setting	Description
Setting	On/Off	Turns the detail adjustment function on/off.
Level	-99 to ±0 to +99	Sets the detail level.
H/V Ratio	-99 to ±0 to +99	Sets the mix ratio between the H detail level and the V detail level.
Crispening	$-99 \text{ to } \pm 0 \text{ to } +99$	Sets the crispening level.
Level Depend	On/Off	Turns the level dependence adjustment function on/off.
Level Depend Level	$-99 \text{ to } \pm 0 \text{ to } +99$	Sets the level dependence level.
Frequency	-99 to ±0 to +99	Sets the center frequency of the H detail signal (larger values give finer detail).
Knee Aperture	On/Off	Turns the knee aperture correction function on/ off.
Knee Aperture Level	$-99 \text{ to } \pm 0 \text{ to } +99$	Sets the knee aperture level.
Limit	-99 to ±0 to +99	Sets the detail limiter for both the white-side and black-side directions.
White Limit	$-99 \text{ to } \pm 0 \text{ to } +99$	Sets the white-side detail limiter.
Black Limit	$-99 \text{ to } \pm 0 \text{ to } +99$	Sets the black-side detail limiter.
V Black Limit	-99 to ±0 to +99	Sets the black-side V detail limiter.
V Detail Creation	NAM/Y/G/G+R	Selects the source signal used to generate the V detail signal. NAM: V detail signal created from the R signal, V detail signal created from the G signal, or V detail signal created from the B signal, whichever signal has the highest level Y: Y signal G: G signal G+R: Mixed signal comprising the G signal and R signal in a 1:1 ratio
Cross Color Suppress (SD mode)	-99 to ±0 to +99	Sets the cross color suppression level of the detail. [Note] This setting is disabled if the detail adjustment function is Off, and when Operation Format Frequency in the setup menu is set to 50 or 25.

Paint >Aperture Makes settings rel	nt > Aperture Makes settings related to aperture correction.	
Aperture correctic video signal, whic	Aperture correction processing improves resolution by adding high-frequency a video signal, which corrects deterioration due to high-frequency characteristics.	Aperture correction processing improves resolution by adding high-frequency aperture signals to the video signal, which corrects deterioration due to high-frequency characteristics.
Item	Setting	Description
Setting	On/Off	Turns the aperture correction function on/off.
Level	-99 to ±0 to +99	Sets the aperture level.
Paint >Skin Detail Makes settings rel	nt >Skin Detail Makes settings related to skin detail correction.	
Skin detail correct purpose of obtain	Skin detail correction processing increases or decreases the purpose of obtaining attractive reproduction of skin tones.	Skin detail correction processing increases or decreases the detail level of a specified color range, for the purpose of obtaining attractive reproduction of skin tones.
Item	Setting	Description
Setting	On/Off	Turns the skin detail correction function on/off.
Area Detection	Execute/Cancel	Displays a color detection screen for detecting colors for skin detail correction (execute by selecting Execute).
Area Indication	On/Off	Turns the display of a zebra pattern in areas targeted for skin detail correction on/off.
Level	$-99 \text{ to } \pm 0 \text{ to } +99$	Sets the skin detail level.
Saturation	-99 to ±0 to +99	Sets the saturation of the color targeted for skin detail correction.
Hue	0 to 359	Sets the hue of the color targeted for skin detail correction.
Width	0 to 40 to 90	Sets the range for the hue of the color targeted for skin detail correction.
Paint >Matrix Makes settings rel Adjusts the hue ar You can select a n linear matrix or "P a "User Matrix."	It >Matrix Makes settings related to matrix correction. Adjusts the hue and vividness of the image using matrix correction. You can select a matrix to achieve a specific purpose using "Adaptiv linear matrix or "Preset Matrix" for a predefined parameter set. You can "User Matrix."	It >Matrix Makes settings related to matrix correction. Makes settings related to matrix correction. Adjusts the hue and vividness of the image using matrix correction. You can select a matrix to achieve a specific purpose using "Adaptive Matrix" to control the effect of a linear matrix or "Preset Matrix" for a predefined parameter set. You can also set user-defined parameters as a "User Matrix."
Item	Setting	Description
Setting	On/Off	Turns the matrix correction function on/off.
Adaptive Matrix	On/Off	Turns the adaptive matrix function on/off.
Preset Matrix	On/Off	Turns the preset matrix function on/off.

Paint >Matrix Makes settings re Adjusts the hue a You can select a r linear matrix or "F a "User Matrix."	It >Matrix Makes settings related to matrix correction. Adjusts the hue and vividness of the image using matrix correction. You can select a matrix to achieve a specific purpose using "Adaptiv linear matrix or "Preset Matrix" for a predefined parameter set. You ca "User Matrix."	It >Matrix Makes settings related to matrix correction. Adjusts the hue and vividness of the image using matrix correction. You can select a matrix to achieve a specific purpose using "Adaptive Matrix" to control the effect of a linear matrix or "Preset Matrix" for a predefined parameter set. You can also set user-defined parameters as a "User Matrix."
Item	Setting	Description
Preset Select	1: SMPTE240M 2: ITLL-709	Selects a preset matrix. 1. SMPTE240M: SMPTE-240M equivalent
	3: SMPTE Wide	2: ITU-709: ITU-709 equivalent
	5: EBU	4: NTSC: NTSC equivalent
	6: PAL	5: EBU: EBU equivalent 6: PAL: PAL equivalent
User Matrix	On/Off	Turns the user matrix correction function on/off.
Level	$-99 \text{ to } \pm 0 \text{ to } +99$	Sets the saturation of the color of the entire image.
Phase	-99 to ±0 to +99	Sets the color tone (phase) of the entire image.
User Matrix R-G	-99 to ±0 to +99	Sets a user-defined R-G user matrix.
User Matrix R-B	-99 to ±0 to +99	Sets a user-defined R-B user matrix.
User Matrix G-R	-99 to ±0 to +99	Sets a user-defined G-R user matrix.
User Matrix G-B	-99 to <u>+0</u> to +99	Sets a user-defined G-B user matrix.
User Matrix B-R	$-99 \text{ to } \pm 0 \text{ to } +99$	Sets a user-defined B-R user matrix.
User Matrix B-G	-99 to ±0 to +99	Sets a user-defined B-G user matrix.
Paint >Multi Matrix Makes settings re Multi-matrix corre	nt >Multi Matrix Makes settings related to multi matrix correction. Multi-matrix correction sets the saturation using a 16-axis hue space	axis hue space.
Item	Setting	Description
Setting	On/Off	Turns the multi matrix correction function on/off.
Area Indication	On/Off	Turns the display of a zebra pattern in the color area targeted for multi matrix correction on/off.
Color Detection	Execute/Cancel	Displays a color detection screen for detecting colors for multi matrix correction (execute by selecting Execute).
Reset	Execute/Cancel	Sets all hue and saturation on each axis to default values (execute by selecting Execute).
Axis	B/B+/MG-/MG/MG+/R/R+/YL-/ YI_/YI +/G-/G/G+/CY/CY+/R-	Sets the color targeted for multi matrix correction (16-axis mode)
Hue	-99 to +0 to +99	Sets the hue of the color targeted for multi matrix

Hue

 $-99 \text{ to } \pm 0 \text{ to } +99$

Sets the hue of the color targeted for multi matrix correction for each 16-axis mode.

Makes settings rela	n Smulti Matrix Makes settings related to multi matrix correction. Multi-matrix correction sets the saturation using a 16-axis hue space	axis hue space.
Item	Setting	Description
Saturation	-99 to ±0 to +99	Sets the saturation of the color targeted for multi matrix correction for each 16-axis mode.
Paint >V Modulation Makes settings rela V modulation shad	t >V Modulation Makes settings related to V modulation shading correction. V modulation shading corrects the vertical slope of the sen	it >V Modulation Makes settings related to V modulation shading correction. V modulation shading corrects the vertical slope of the sensitivity arising from the relationship between
the lens and prism.		
Item	Setting	Description
Setting	On/Off	Turns the V modulation shading correction function on/off.
Master V Modulation	$-99 \text{ to } \pm 0 \text{ to } +99$	Sets the master V modulation level.
R V Modulation	-99 to ±0 to +99	Sets the V modulation level of the R signal.
G V Modulation	-99 to ±0 to +99	Sets the V modulation level of the G signal.
B V Modulation	$-99 \text{ to } \pm 0 \text{ to } +99$	Sets the V modulation level of the B signal.
Paint >Low Key Saturation Makes settings related t Corrects the saturation	nt >Low Key Saturation Makes settings related to low key saturation correction. Corrects the saturation of colors in dark parts of the image.	n. Nage:
Item	Setting	Description
Setting	On/Off	Turns the low key saturation correction function on/off.
		[Note] To enable the low key saturation function, set Saturation Mode to Low Key.
Level	-99 to ±0 to +99	Sets the saturation of colors in low luminance areas.
Range	Low/LMid/H.Mid	Selects the luminance level for which low key saturation is enabled.
Paint >Saturation Mode Makes settings relate	nt >Saturation Mode Makes settings related to saturation correction.	
Item	Setting	Description
Saturation Mode	Knee/Low Key	Selects whether the saturation function operates at high levels (Knee) or low levels (Low Key).
Knee Saturation	On/Off	Turns the knee saturation function on/off.
Black Gamma	On/Off	Turns the black gamma correction function on/off.
Low Key Saturation	On/Off	Turns the low knee saturation function on/off.

Paint >Noise Suppression

Makes settings related to noise suppression (noise compression).

This allows you to effectively suppress noise components while preserving fine edge components of the

subject.		
Item	Setting	Description
Setting	On/Off	Turns the noise suppression function on/off.
Level	Low/Mid/High	Selects the noise suppression level.

Maintenance Menu

Default values are shown in bold.

לים מות אור מות מות אור ווון מסומות אור מות		
Maintenance > White Shading Makes settings related to w White shading is required f areas arising from lens chal	ntenance > White Shading Makes settings related to white shading correction. White shading is required for each different lens to corareas arising from lens characteristics.	ntenance > White Shading Makes settings related to white shading correction. White shading is required for each different lens to correct luminance and color irregularities in bright areas arising from lens characteristics.
Item	Setting	Description
Channel Select	Red/Green/Blue	Selects the target for white shading correction.
White H Saw	-99 to ±0 to +99	Sets the SAW white shading correction value for the horizontal direction.
White H Para	-99 to ±0 to +99	Sets the parabola white shading correction value for the horizontal direction.
White V Saw	$-99 \text{ to } \pm 0 \text{ to } +99$	Sets the SAW white shading correction value for the vertical direction.
White V Para	-99 to ±0 to +99	Sets the parabola white shading correction value for the vertical direction.
White Saw/Para	On/Off	Turns the white shading SAW/parabola correction function on/off.
Maintenance >Black Shading Makes settings related to b	ntenance >Black Shading Makes settings related to black shading correction.	
Item	Setting	Description
Channel Select	Red/Green/Blue	Selects the target for black shading correction.
Black H Saw	-99 to ±0 to +99	Sets the SAW black shading correction value for the horizontal direction.
Black H Para	-99 to ±0 to +99	Sets the parabola black shading correction value for the horizontal direction.
Black V Saw	-99 to ±0 to +99	Sets the SAW black shading correction value for the vertical direction.
Black V Para	-99 to ±0 to +99	Sets the parabola black shading correction value for the vertical direction.
Black Saw/Para	On/Off	Turns the black shading SAW/parabola correction function on/off.
Master Black	-99 to ±0 to +99	Sets the master black level.
Master Gain (TMP)	-3dB/0dB/3dB/6dB/9dB/12dB/ 18dB/24dB/30dB/36dB/42dB	Sets a temporary master gain value.

Front MIC CH1 Ref

-70dB/-60dB/-50dB/-40dB/ -30dB

CH-1/CH-2 connectors on the rear panel. Selects the reference level of the front microphone for channel 1.

Item	Setting	Description
Near End: Info Battery	5%/10%/15%95%/100%	Sets the threshold value for displaying the "Battery Near End" warning when using a BP-FLX75/
End: Info Battery	0%/1%/2%/3%/4%/5%	Sets the threshold value for displaying the "Battery End" warning when using a BP-FLX75/GL65A/GL95A battery pack.
Near End: Sony Battery	11.5V to 17V (0.1V steps)	Sets the threshold value for displaying the "Battery Near End" warning when using a BP-L60S/L80S battery pack.
End: Sony Battery	11.0V to 11.5V (0.1V steps)	Sets the threshold value for displaying the "Battery End" warning when using a BP-L60S/L80S battery pack.
Near End: Other Battery	11.5V to 11.8V to 17.0V (0.1V steps)	Sets the threshold value for displaying the "Battery Near End" warning when using a non-Sony battery pack.
End: Other Battery	11.0V to 14.0V (0.1V steps)	Sets the threshold value for displaying the "Battery End" warning when using a non-Sony battery pack.
Detected Battery	Sony Info Battery/Sony Battery/ Other Battery/DC IN	Displays the result of automatic battery pack type detection.
Maintenance > DC Voltage Alarm Sets alarms relating to externa	ntenance >DC Voltage Alarm Sets alarms relating to external DC supply voltage.	
Item	Setting	Description
DC Low Voltage1	11.5V to 17V (0.1V steps)	Sets the threshold value for displaying the "Battery Near End" warning when using an external power source connected to the DC IN connector.
DC Low Voltage2	11.0V to 14.0V (0.1V steps)	Sets the threshold value for displaying the "Battery End" warning when using an external power source connected to the DC IN connector.
Maintenance >Audio Makes settings related to audio	ed to audio.	
Item	Setting	Description
Front MIC Select	Mono/Stereo	Selects whether the front microphone is monaural (Mono) or stereo (Stereo).
Rear XLR Auto	On/Off	Turns the automatic detection function on/off for

Makes settings related to audio.	ted to audio.	
ltem	Setting	Description
Front MIC CH2 Ref	-70dB/-60dB/-50dB/-40dB/ -30dB	Selects the reference level of the front microphone for channel 2.
Rear MIC CH1 Ref	-70dB/- <mark>60dB</mark> /-50dB/-40dB/ -30dB	Selects the reference input level when the AUDIO IN CH1 switch is set to MIC.
Rear MIC CH2 Ref	-70dB/- 60dB /-50dB/-40dB/ -30dB	Selects the reference input level when the AUDIO IN CH2 switch is set to MIC.
Line Input Ref	+4dB/0dB/-3dB/EBUL	Selects the reference input level when the AUDIO IN CH1 and AUDIO IN CH2 switches are set to LINE.
Min Alarm Volume	Off/Set	Selects the volume when the ALARM knob is turned all the way down. Off: Inaudible Set: Audible
Speaker Attenuate	Off/3dB/6dB/9dB/12dB	Selects the volume from the monitor speakers (does not affect earphone volume).
Headphone Out	Mono/Stereo	Selects whether the earphones are monaural (Mono) or stereo (Stereo).
Reference Level	-20dB/-18dB/-16dB/-12dB/ EBUL	Sets the output level of the 1 kHz test signal.
Reference Out	+4dB/ <mark>0dB</mark> /-3dB/EBUL	Sets the output level relative to the reference input level.
CH182 AGC Mode	Mono/Stereo	Automatically adjusts the input level of analog audio signals recorded on channels 1 and 2, and selects whether to make the adjustments separately for each channel (Mono) or in stereo mode (Stereo).
CH3&4 AGC Mode	Mono/Stereo	Automatically adjusts the input level of analog audio signals recorded on channels 3 and 4, and selects whether to make the adjustments separately for each channel (Mono) or in stereo mode (Stereo).
AGC Spec	-6dB/-9dB/-12dB/-15dB/-17dB	Selects the AGC characteristic (saturation level).
Limiter Mode	Off/-6dB/-9dB/-12dB/-15dB/ -17dB	Selects the limiter characteristic (saturation level) for large input signals when adjusting the audio input level manually. Select Off if not using the limiter.
Output Limiter	On/Off	Turns the audio output limiter on/off.
CH1 Wind Filter	On/Off	Turns the channel 1 wind noise reduction filter on/off.

Makes settings related to audio.	ited to audio.	
Item	Setting	Description
CH2 Wind Filter	On/Off	Turns the channel 2 wind noise reduction filter on/off.
CH2 Wind Filter	On/Off	Turns the channel 3 wind noise reduction filter on/off.
CH4 Wind Filter	On/Off	Turns the channel 4 wind noise reduction filter on/off.
1 kHz Tone on Color Bars	On/Off/Auto	Sets whether to output (On) or not output (Off) a 1 kHz test signal in color bar mode. Auto: Outputs a test signal only when the AUDIO SELECT CH1 switch is set to AUTO.
MIC CH1 Level	Side1/Front/Front+Side1	Selects the knob for adjusting the audio level when recording input audio from the front microphone on channel 1. Side1: LEVEL knob (left) on the side panel Front: MIC LEVEL knob on the front panel Front+Side1: LEVEL knob (left) and MIC LEVEL knob (linked control)
MIC CH2 Level	Side2/Front/Front+Side2	Selects the knob for adjusting the audio level when recording input audio from the front microphone on channel 2. Side2: LEVEL knob (right) on the side panel Front: MIC LEVEL knob on the front panel Front+Side2: LEVEL knob (right) and MIC LEVEL knob (linked control)
Rear1/WRR Level	Side1/Front/Front+Side1	Selects the knob for adjusting the audio level of a wireless microphone or a device connected to the AUDIO IN CH-1 connector on the rear panel. Side1: LEVEL knob (left) on the side panel Front: MIC LEVEL knob on the front panel Front+Side1: LEVEL knob (left) and MIC LEVEL knob (linked control)
Rear2/WRR Level	Side2/Front/Front+Side2	Selects the knob for adjusting the audio level of a wireless microphone or a device connected to the AUDIO IN CH-2 connector on the rear panel. Side2: LEVEL knob (right) on the side panel Front: MIC LEVEL knob on the front panel

Makes settings related to audio	ited to audio.	
Item	Setting	Description
Audio CH3 Level	Side3/Front/Front+Side3	Selects the knob for adjusting the audio level recorded on channel 3. Side3: LEVEL knob on the side panel Front: MIC LEVEL knob on the front panel Front+Side3: LEVEL knob and MIC LEVEL knob
Audio CH4 Level	Side4/Front/Front+Side4	Selects the knob for adjusting the audio level recorded on channel 4. Side4: LEVEL knob on the side panel Front: MIC LEVEL knob on the front panel Front+Side4: LEVEL knob and MIC LEVEL knob (linked control)
Maintenance >WRR Setting Makes settings related to	ntenance > WRR Setting Makes settings related to the wireless tuner.	
Item	Setting	Description
WRR Valid CH Sel	All/CH1	Selects whether to enable channels 1 and 2 of the wireless tuner (All) or channel 1 only (CH1).
WRR CH Select	TX1/TX2	Selects the reception channel for display in the menu. TX1: Displays channel 1. TX2: Displays channel 2.
WRR Delay Comp	On/Off	Selects whether to enable (On) or disable (Off) the delay compensation function for wireless input audio. (When On is selected, all E-E output audio is delayed by about 8 ms.)
TX		Displays the name of the transmitter whose signals are being received on the channel selected by WRR CH Select.
TX Audio Peak	/Peak	Displays whether the AF level of the transmitter whose signals are being received on the channel selected by WRR CH Select are over peak.
TX Input Level	/Mic/Line	Displays whether the input level of the transmitter whose signals are being received on the channel selected by WRR CH Select is set to microphone (Mic) or line (Line).
TX ATT Level		Sets the ATT level of the transmitter whose signals are being received on the channel selected by WRR CH Select. (The setting range varies

ltem	Setting	Description
TX LCF Frequency	1	Sets the low cut filter frequency of the transmitter whose signals are being received on the channel selected by WRR CH Select. (The setting range varies depending on the transmitter.)
TX System Delay	Auto/0.0ms to 8.0ms	Sets the amount of audio delay. Auto: Automatically corrects for the amount of delay so that the delay in the audio from the wireless tuner is zero. O.0ms to 8.0ms: Sets the amount of estimated wireless system delay, for cases in which several wireless systems are being used via a device such as an audio mixer.
TX RF Power	High (Power value) mW/Mid (Power value) mW/Low (Power value) mW	Sets the RF power level of the transmitter communicating on the channel selected by WRR CH Select. (The setting range varies depending on the transmitter.)
TX Power Save	Active/Sleep	Sets the power saving mode of the transmitter whose signals are being received on the channel selected by WRR CH Select. Active: Set the transmitter to startup mode. Sleep: Set the transmitter to power saving mode.
Maintenance >Time Code Makes settings related	ntenance >Time Code Makes settings related to timecode.	
Item	Setting	Description
TCOut	Auto/Generator	Selects the timecode output. Auto: Outputs the timecode generator value during recording, and the timecode reader value during playback. Generator: Outputs the timecode generator value during and playback.
DF/NDF	DF/NDF	Selects drop-frame mode (DF) or non-drop-frame mode (NDF).
	Fix/Time	Sets the data recorded in LTC user bits.

Makes settings re	Makes settings related to timecode.	
ltem	Setting	Description
Counter Display	Counter/Duration	Select the method used to reset the counter value displayed on the viewfinder screen. Counter: Continue to increment until the RESET button is pressed. Duration: Reset each time that recording is started.
Maintenance >Essence Mark Makes settings related to	ntenance >Essence Mark Makes settings related to essence marks.	
ltem	Setting	Description
Maintenance >Camera Config Makes settings related to v. Item Settin HD SDI Remote I/F Off/Cl Green	ntenance >Camera Config Makes settings related to various camcorder operations Setting Setting Green Tally/Red Tally	Sets the operation when the NEXT/PREV button is pressed. Rec Start: Moves to the next or the previous recording start mark, respectively. Clip: Moves to the start of the next clip when the NEXT button is pressed. Moves to the start of the current clip when the PREV button is pressed (or moves to the start of the previous clip if the PREV button is pressed at the start of the clip). Description Sets whether to enable the recording control function for an external device connected to the SDI OUT 1/2 connector (HD SDI output) of the camcorder. If enabled, it selects the indicator used to display the recording state of the external
Item	Setting	
HD SDI Remote I/F	Off/Characters/ Green Tally/Red Tally	Sets whether to enable the recording control function for an external device connected to the SDI OUT 1/2 connector (HD SDI output) of the camcorder. If enabled, it selects the indicator used to display the recording state of the external device. Off. Recording control function is disabled. Chara: Displayed using the external device control indicator on the status display in the viewfinder. G-Tally: Displayed using the TALLY indicator (green tally) in the viewfinder. R-Tally: Displayed using the REC indicator (recording red tally) in the viewfinder.
Color Bars Select	ARIB/100%/75%/SMPTE	Selects the color bar type.
User Menu Only	On/Off	Selects whether to display the User menu only (On) or display the menu list (Off) when the

RM Rec Start RM Common Memory On/Off SET Key on Thumbnail Pause/Play User Menu with Lock Maintenance > Camera Config Makes settings related to various camcorder operations. On/Off Setting RM/Camera/PARA RM: Remote control unit showing the User menu only. Selects the operation when the MENU knob is PARA: Both connected, are enabled when a remote control unit is Selects which of the recording start/stop buttons unit connection and when the camcorder is settings between when using a remote control Selects whether to share (On) or not share (Off) For details about menu display operation, see In normal menu display operation, this item is not displayed. Off: Enter the passcode number entered when On: Enter an arbitrary passcode number to lock pressed with only one thumbnail selected. Camera: Camcorder operated locally. [Note] Selects whether to lock the menu display, Description the menu display. (Only the User menu is list is displayed.) display. (When unlocked, the normal menu "On" was selected to unlock the menu displayed.)

ואומאכט טכננויישט יי	ואומוצבי זכרנוווקט וכומנכמ נס אמווסמז כמוווכסומכו סףכומנוסוום	
Item	Setting	Description
ALAC	Auto/Off	Sets whether to execute ALAC (Auto Lens Aberration Correction) automatically. Auto: Execute ALAC automatically when an ALAC-compatible lens is attached and ALAC is enabled. Off: Do not execute.
		[Note] Depending on the aberration correction lens, the aberration correction function may not be activated immediately ("ALAC" does not appear on the viewfinder screen) after turning the power on, even when this setting is set to Auto. If this occurs, turn the lens zoom ring and focus ring to the end stop and back, and check whether the "ALAC" indicator appears on the viewfinder screen.
Maintenance >Preset White Makes settings related to	ntenance >Preset White Makes settings related to white balance preset values.	Contact a Sony service representative for information about aberration correction lenses.
ltem	Setting	Description
Color Temp <p></p>	1500K to 3200K to 50000K	Sets the white balance preset value.
C.Temp BAL <p></p>	-99 to ±0 to +99	Sets the fine color temperature settings, for use when a satisfactory image cannot be obtained using Color Temp <p>.</p>
R Gain <p></p>	$-99 \text{ to } \pm 0 \text{ to } +99$	Sets the R gain preset value.
B Gain <p></p>	-99 to ±0 to +99	Sets the B gain preset value.
AWB Enable <p></p>	On/Off	Turns execution of the AWB (auto white balance) function on/off when the WHITE BAL switch is set to PRST.
Color Temp <p></p>	1500K to 3200K to 50000K	Sets the white balance preset value.
C.Temp BAL <p></p>	-99 to ±0 to +99	Sets the fine color temperature settings, for use when a satisfactory image cannot be obtained using Color Temp <p>.</p>
R Gain <p></p>	-99 to ±0 to +99	Sets the R gain preset value.
B Gain <p></p>	-99 to ±0 to +99	Sets the B gain preset value.
AWB Enable <p></p>	On/Off	Turns execution of the AWB (auto white balance) function on/off when the WHITE BAL switch is set

Makes settings related to filters.	i lter ted to filters.	
Item	Setting	Description
ND Filter C.Temp	On/Off	Turns the function that assigns electrical CC filters to ND filters on/off.
ND FLT C.Temp<1>	3200K/4300K/5600K/6300K	Selects the color temperature when electrical CC filters are assigned to ND filters (filter 1).
ND FLT C.Temp<2-4>	3200K/4300K/5600K/6300K	Selects the color temperature when electrical CC filters are assigned to ND filters (filters 2 to 4).
Electrical CC <a>	3200K/4300K/5600K/6300K	Selects the color temperature when the electrical CC filter switching function is assigned to an assignable switch.
Electrical CC 	3200K/4300K/5600K/6300K	Selects the color temperature when the electrical CC filter switching function is assigned to an assignable switch.
Electrical CC <c></c>	3200K/4300K/5600K/6300K/ 	Selects the color temperature when the electrical CC filter switching function is assigned to an assignable switch. Select "" if not using C.
Electrical CC <d></d>	3200K/4300K/5600K/6300K/ 	Selects the color temperature when the electrical CC filter switching function is assigned to an assignable switch. Select "" if not using D.
Maintenance > DCC Adjust Makes settings related t	ntenance >DCC Adjust Makes settings related to DCC (dynamic contrast control).	ol).
Item	Setting	Description
DCC Function Select	DCC/Fix	Selects the setting method for the knee point when the OUTPUT/DCC switch is set to CAM with DCC on. DCC: Automatically adjusts the knee point to match the luminance of the subject. Fix: Sets the knee point to a fixed value.
DCC D Range	400%/450%/500%/550%/600%	Sets the dynamic range when the OUTPUT/DCC switch is set to CAM with DCC on.
DCC Point	$-99 \text{ to } \pm 0 \text{ to } +99$	Sets the DCC minimum knee point.
DCC Gain	$-99 \text{ to } \pm 0 \text{ to } +99$	Sets the gain relative to the DCC detected value.
DCC Delay Time	$-99 \text{ to } \pm 0 \text{ to } +99$	Sets the DCC control speed (speed of response to changes in the video).
DCC Peak Filter	-99 to ±0 to +99	Adjusts the response sensitivity relative to the peaks in DCC detected values.

frame rate.		
Item	Setting	Description
Mode	Auto/On/Off	Sets the operation of the flicker correction function.
		On: Always operating. Auto: Operates when flicker is detected. Off: Does not operate.
Frequency	60Hz/50Hz	The factory setting is 60Hz when System Frequency is set to 59.94, 29.97, or 23.98. The factory setting is 50Hz when System Frequency is set to 50 or 25.
Maintenance > Genlock Makes settings related to genlock	ck ated to genlock.	
Item	Setting	Description
Genlock	On/Off	Turns the genlock function on/off.
Reference	Internal/External(HD)/ External(SD)/SDI IN/CA	Displays the type of reference signal used by the camcorder.
Maintenance >Auto Shading Executes auto black shadi	ntenance >Auto Shading Executes auto black shading correction.	
Item	Setting	Description
Auto Black Shading	Execute/Cancel	Executes auto black shading correction (execute by selecting Execute).
Reset Black Shading	Execute/Cancel	Clears the black shading correction value (execute by selecting Execute).
Master Gain (TMP)	-3dB/0dB/3dB/6dB/9dB/12dB/ 18dB/24dB/30dB/36dB/42dB	Sets a temporary master gain value. (The value is the same as the value selected with the GAIN switch.)
Maintenance >APR Makes settings rel	ntenance >APR Makes settings related to automatic pixel noise reduction	ion.
Item	Setting	Description
APR	Execute/Cancel	Executes the automatic pixel noise reduction function to suppress white flecks in SLS mode (execute by selecting Execute).
Reset	Execute/Cancel	Deletes white flecks data that were added by execution of the APR and automatic black balance

Item	n Setting	Description
User Name	(Displays the current user name.)	Sets the user name (arbitrary name for basic authentication). Set to "admin" by factory default.
Password	******	Sets the password (for basic authentication). Set to "pxw-x400" by factory default.
Maintenance >Network	^	
Makes settings relat	Makes settings related to network connections.	
Item	Setting	Description
Setting	On/Off	Turns the network function on/off.
Wireless Network	Wi-Fi Access Point/Wi-Fi Station/ Modem/Off	Sets the operating mode for wireless LAN connections.
NFC	Execute/Cancel	Initiates a one-touch connection using NFC (execute by selecting Execute).
WPS	Execute/Cancel	Starts Wi-Fi Protected Setup (WPS) (execute by selecting Execute).
Channel	Auto(SGHz)/Auto/CH1/CH2/ CH3/CH4/CH5/CH6/CH7/CH8/ CH9/CH10/CH11	Sets the wireless LAN channel. [Note] "Auto(5GHz)" may not be displayed, depending on the wireless I AN module used
SSID & Password	(SSID display) (Password display)	Displays the SSID and password.
Device Name (Wireless)		Displays the name of network device attached to the USB wireless LAN module connector
IP Address (Wireless)		Displays the IP address when connected to a wireless LAN.
Subnet Mask (Wireless)		Displays the subnet mask when connected to a wireless LAN.
MAC Address (Wireless)		Displays the MAC address of the USB Wireless LAN Module attached to the camcorder.
Regenerate Password	Execute/Cancel	Regenerates a password (execute by selecting Execute).
Wired LAN	Enable/Disable	Enables/disables wired LAN connection.
Wired LAN Remote	On/Off	If connected to a network using a LAN cable, operation from a Wi-Fi remote control, web

ltem	Setting	Description
Wired LAN Detail Settings	DHCP (On/Off)	Enables/disables DHCP. When set to On, an IP address is automatically
,		assigned to the camcorder. To enter the camcorder IP address manually, set to Off.
	IP Address (DHCP/On: obtain automatically, DHCP/Off:	Enter the IP address of the camcorder. Enabled only when DHCP is Off.
	Subnet Mask (DHCP/On: obtain automatically, DHCP/Off: 255.255.255.0)	Enter the subnet mask of the camcorder. Enabled only when DHCP is Off.
	Gateway (DHCP/On: obtain automatically, DHCP/Off: 0.0.0.0)	Enter the gateway for the access point. Enabled only when DHCP is Off.
	DNS Auto (On/Off)	Enables/disables automatic DNS. When set to On, the address of the DNS server is obtained automatically.
	Primary DNS Server (DNS Auto/ On: obtain automatically, DNS Auto/Off: 0.0.0.0)	Enter the primary DNS server for the router. Enabled only when DNS Auto is Off.
	Secondary DNS Server (DNS Auto/On: obtain automatically, DNS Auto/Off: 0.0.0.0)	Enter the secondary DNS server for the router. Enabled only when DNS Auto is Off.
Maintenance >Network Client Mode Makes settings related to network	ntenance >Network Client Mode Makes settings related to network client mode.	
[Note] Network client moc	[Note] Network client mode cannot be set if values are not entered for all items	or all items.
	Setting	Description
Item	occining.	7

Mai Item **Detail Settings** Maintenance > Network Client Mode Network client mode cannot be set if values are not entered for all items. Makes settings related to network client mode. [Note] NCM with Proxy (Enable/Disable) Enable: Enable proxy recording when connected Password **CCM Address** Setting User Name CCM Port (1 to 65535 (8443)) Sets the port number of the CCM to connect Description Disable: Disable proxy recording when connected with a CCM. Sets the password of the CCM to connect. to connect. Host name or IP address Sets the address of the CCM to connect. Sets the user name for authentication of the CCM with a CCM.

		With a CCM.
Maintenance >File Transfer Makes settings related to	ansfer ated to network transfer of data c	ntenance >File Transfer Makes settings related to network transfer of data on SxS memory cards in the camcorder.
Item	Setting	Description
File Transfer	Execute/Cancel	Switches to transfer mode (execute by selecting Execute).
Remote File Transfer	Enable/Disable	Sets whether to enable/disable switching to transfer mode to transfer original files recorded on the camcorder by remote operation over a network.
		remote operation over a network. It is not necessary to execute a transfer using
		Maintenance > File Transfer. Disable: Disable switching to transfer mode by
		remote operation over a network.
		It is necessary to execute a transfer using Maintenance >File Transfer.
Auto Upload (Proxy)	Off/On	Turns proxy file auto transfer on/off.
Maintenance > Streaming Makes settings related to streaming	ning ated to streaming.	
ltem	Setting	Description
Setting	On/Off	Turns streaming transmission on/off.

When set to On, the firmware version cannot be updated.

[Notes]
This setting is set to Off when you turn the power on again.
When set to On, the monitoring function is not

Makes settings related to streaming.	ited to streaming.	
Item	Setting	Description
Preset Select	Preset 1/Preset 2/Preset 3	Selects a streaming preset. The settings are common to Preset 1/Preset 2/ Preset 3. See below for descriptions for the settings in a preset.
Size	HD Auto/1280×720/640×360/ 480×270/320×180	Sets the size of video for streaming. When "HD Auto" is selected, the size is set to 1920×1080 or 1280×720, according to the setting of the recording format recorded on the SxS memory card or the format of the clip to be played back.
Bit Rate Type Destination Address Destination Port	9Mbps/6Mbps/3Mbps/ 2Mbps/1Mbps/0.5Mbps/ 0.3Mbps(Mono L)/ 0.3Mbps(Mono R)/ 0.2Mbps(Mono R) 0.2Mbps(Mono R) 0.2Mbps(Mono R) The Character string (0.0.0.0)	Sets the bit rate of video for streaming. The selectable bit rate varies depending on the Size setting. [Notes] Audio/video data is transmitted as-is via the Internet. Accordingly, the data may potentially be exposed to other parties. Always check that the transmission destination can receive the streaming data. The data may be sent to an unintended party if the address or other settings are configured incorrectly. Not all frames may be played, depending on the status of the network The picture quality may deteriorate in scenes with excessive motion. Not all frames may be played when the stream is set to a large size with a small bit rate. To reduce this, select a smaller size for the Size setting. Selects the type of video for streaming. Enter the address of the transmission destination server for streaming data. Enter the port number of the transmission destination server used for streaming.
Туре	MPEG-2 TS/UDP/MPEG-2 TS/	Selects the type of video for streaming.
Destination Address	Character string (0.0.0.0)	Enter the address of the transmission destination server for streaming data.
Destination Port	1 to 65545 (1234)	Enter the port number of the transmission destination server used for streaming.
Audio Channel	CH1/CH2/CH3/CH4	Selects the audio channel for the streaming output.
Maintenance >Clock Set Sets the internal clock	ock.	
Item	Setting	Description
Date Mode	YYMMDD/MMDDYY/DDMMYY	Selects the display format for dates.
12H/24H	12H/24H	Selects the clock display format.
Date		Displays the date setting screen

Sets the Internal Clock	CIOCK.	
Item	Setting	Description
Time		Displays the time setting screen.
Maintenance >Language Selects the display lan	ntenance >Language Selects the display language for messages.	
Item	Setting	Description
Select	English/中文(简)/日本語/ Espanol/ Русский	Selects the display language for messages.
Maintenance >Hours Meter Makes settings related to	ntenance >Hours Meter Makes settings related to the digital hours meter.	
Item	Setting	Description
Hours (System)	xxxxH (xxxx hours)	Displays the cumulative hours of use (cannot be reset).
Hours (Reset)	xxxxH (xxxx hours)	Displays the cumulative hours of use (can be reset).
Reset	Execute/Cancel	Resets the Hours (Reset) display to 0 (execute by selecting Execute).
Maintenance > Network Reset Returns network-related se	ntenance >Network Reset Returns network-related settings to their factory default state	ult state.
Item	Setting	Description
Reset	Execute/Cancel	Resets network related settings (execute by selecting Execute).
Maintenance >Fan Control Sets the fan control mode	.ontrol rol mode.	
Item	Setting	Description
Setting	Auto/Minimum/Off in Rec	Selects the fan control mode.
Maintenance > VF Display Setting Makes settings related to the v	ntenance >VF Display Setting Makes settings related to the viewfinder display.	
Item	Setting	Description
Chara/Marker Brightness	5/4/3/2/1	Sets the brightness of character strings, icons, and markers superimposed in the viewfinder image.

Maintenance >Version Displays the versior	ntenance >Version Displays the version of the camcorder, and updates the camcorder.	s the camcorder.
Item	Setting	Description
Number	Version Up Execute/Cancel	Displays the software version of the camcorder (Vx.xx). Updates the camcorder (execute by selecting Execute).
		[Note] Cannot be selected when the version updater SD card is not inserted.
Net-Func Version Number		Displays the firmware version of the wireless LAN connection function of the camcorder (Vx.xx)
Net-Func Ver.Up	Execute/Cancel	Updates the firmware of the wireless LAN connection function (execute by selecting
		Execute).

File Menu

Default values are shown in bold.

Item	Setting	Description
Load SD Card		Displays a screen for loading user file settings from an SD card.
Save SD Card		Displays a screen for saving user file settings onto an SD card.
File ID		Displays a screen for displaying/editing the file ID of user files.
Recall User Preset	Execute/Cancel	Returns the value of menu items registered in the User menu to the preset values (execute by selecting [Execute]).
Store User Preset	Execute/Cancel	Stores the value of menu items registered in the User menu items as the preset values (execute by selecting [Execute]).
Clear User Preset	Execute/Cancel	Returns the current settings and preset values of menu items registered in the User menu to the factory default values (execute by selecting [Execute]).
Load Customize Data	On/Off	Sets whether to load User menu customized information when [Load SD Card] is executed.
Load White Data	On/Off	Sets whether to load white balance information when [Load SD Card] is executed.
File >All File Makes settings relat	>All File Makes settings related to ALL file operations.	
Item	Setting	Description
Load SD Card		Displays a screen for loading All File settings from an SD card.
Save SD Card		Displays a screen for saving All File settings onto an SD card.
File ID		Displays a screen for displaying/editing the file ID of All Files.
All Preset	Execute/Cancel	Returns all items to their preset values (execute by selecting Execute).
Store All Preset	Execute/Cancel	Stores the current settings of all items as the preset values (execute by selecting [Execute]).

Clear All Preset	Execute/Cancel	Returns the current settings and presents of All File
Clear All Preset	Execute/Cancel	Raturns the current settings and presets of All File
		menu items to their factory default values (execute by selecting Execute).
3Sec Clear Preset	On/Off	Turns the function that clears the currents settings and presets of each item on/off, when the MENU CANCEL/PRST/ESCAPE switch is pushed up and held for three seconds in the CANCEL/PRST position.
File >Scene File		
Makes settings relate	Makes settings related to scene file operations.	
Item	Setting	Description
Recall Internal Memory		Displays a screen for recalling scene files from internal memory.
Store Internal Memory		Displays a screen for storing scene files in internal memory.
Load SD Card		Displays a screen for loading scene files from an SD card.
Save SD Card		Displays a screen for saving scene files onto an SD card.
File ID		Displays a screen for displaying/editing the file ID of scene files.
Scene White Data	On/Off	Sets whether to reflect the while balance data of scene files when recalling scene files.
File >Reference File Makes settings relate	>Reference File Makes settings related to reference file operations.	
Item	Setting	Description
Store Reference	Execute/Cancel	Stores the current settings of reference file target menu items as the preset values (execute by selecting [Execute]).
Clear Reference	Execute/Cancel	Returns the current settings and preset values of reference file target menu items to the factory default values (execute by selecting [Execute]).
Load Reference(SD Card)	Execute/Cancel	Loads reference file settings from and SD card and sets the preset values (execute by selecting [Execute]).
Save Reference(SD Card)	Execute/Cancel	Stores the preset values of reference file target menu items to an SD card (execute by selecting [Execute]).

are -99 to ±0 to +99	
	G Flare
are −99 to ±0 to +99	R Flare
	Len
	Len.
l .	Mas
s Manufacturer	Len
s Name	Len
s Serial Number	Len
	Len
	Clea
Source	File
D	File ID
SD Card	Save
d SD Card	Loa
e Internal Memory	Stor
all Internal Memory	Rec
	Disp
	Item
>Lens File Makes settings related to	File
D	File ID
	Item
	Item Settings File D File Lens File Makes settings related to lens file operations. Item Setting Setting Display Mode Model Name/Lens ID Recall Internal Memory Store Internal Memory Load SD Card Save SD Card File ID File Source Clear Lens Offset Clear Lens Offset Execute/Cancel Lens Auto Recall Off/On(Lens Name)/ On(Serial Number) Lens Serial Number Lens Manufacturer Lens Manufacturer Lens Center H -40 to ±0 to +99 Lens Center V -40 to ±0 to +40

Item Setting Description White Offset R −99 to ±0 to +99 Sets the white balance offset R channe value for the lens in the lens file. White Offset B −99 to ±0 to +99 Sets the white balance offset B channe value for the lens in the lens file. Shading Ch Select Red/Green/Blue Selects the target for white shading correction white shading correction in the lens file. Shading H PARA −99 to ±0 to +99 Sets the parabola white shading correction in the lens file. Shading V SAW −99 to ±0 to +99 Sets the parabola white shading correction in the lens file. Shading V PARA −99 to ±0 to +99 Sets the parabola white shading correction in the lens file. Shading V PARA −99 to ±0 to +99 Sets the parabola white shading correction in the lens file. Shading V PARA −99 to ±0 to +99 Sets the parabola white shading correction in the lens file. Shading V PARA −99 to ±0 to +99 Sets the parabola white shading correction in the lens file. Shading V PARA −99 to ±0 to +99 Sets the parabola white shading correction in the lens file. Shading V PARA −99 to ±0 to +99 Sets the parabola white shading correction in the lens file. Displays a sit storeen of the current use file settings from an SD card. </th <th>File >Lens File Makes settings rel</th> <th>>Lens File Makes settings related to lens file operations.</th> <th></th>	File >Lens File Makes settings rel	> Lens File Makes settings related to lens file operations.	
• Offset R	Item	Setting	Description
• Offset B	White Offset R	-99 to ±0 to +99	Sets the white balance offset R channel correction value for the lens in the lens file.
ng Ch Select Red/Green/Blue ng H SAW -99 to ±0 to +99 ng H PARA -99 to ±0 to +99 ng V SAW -99 to ±0 to +99 ng V PARA -99 to ±0 to +99 User Gamma lakes settings related to user gamma. Setting SD Card 1/2/3/4/5/All	White Offset B	-99 to ±0 to +99	Sets the white balance offset B channel correction value for the lens in the lens file.
ng H SAW	Shading Ch Select	Red/Green/Blue	Selects the target for white shading correction.
ng H PARA -99 to ±0 to +99 ng V SAW -99 to ±0 to +99 ng V PARA -99 to ±0 to +99 User Gamma lakes settings related to user gamma. Setting String SD Card 1/2/3/4/5/All	Shading H SAW	$-99 \text{ to } \pm 0 \text{ to } +99$	Sets the SAW white shading correction value in the horizontal direction in the lens file.
ng V SAW -99 to ±0 to +99 ng V PARA -99 to ±0 to +99 User Gamma lakes settings related to user gamma. Setting nt Settings SD Card 1/2/3/4/5/All	Shading H PARA	$-99 \text{ to } \pm 0 \text{ to } +99$	Sets the parabola white shading correction value in the horizontal direction in the lens file.
ng V PARA −99 to ±0 to +99 User Gamma lakes settings related to user gamma. Setting Setting nt Settings SD Card 1/2/3/4/5/All	Shading V SAW	$-99 \text{ to } \pm 0 \text{ to } +99$	Sets the SAW white shading correction value in the vertical direction in the lens file.
User Gamma lakes settings related to user gamma. Setting nt Settings SD Card 1/2/3/4/5/All	Shading V PARA	-99 to ±0 to +99	Sets the parabola white shading correction value in the vertical direction in the lens file.
lakes settings related to user gamma. Setting nt Settings SD Card 1/2/3/4/5/All	File >User Gamma		
settings SD Card 1/2/3/4/5/All	Makes settings rel	ated to user gamma.	
nt Settings SD Card 1/2/3/4/5/All	Item	Setting	Description
SD Card 1/2/3/4/5/All	Current Settings		Displays a list screen of the current user gamma file settings (file names).
1/2/3/4/5/All	Load SD Card		Displays a screen for loading User Gamma settings from an SD card.
	Reset	1/2/3/4/5/All	Resets the settings in the selected user gamma file (execute by selecting Execute).

Assigning Functions to Assignable Switches

Using the Assignable Switch item of the Operation menu, you can assign user-specified functions to the ASSIGN. 0 to 3 switches, the ASSIGNABLE 4 and 5 switches, the ONLINE button, and the RET button on the

The following tables lists the functions that are assigned when the camcorder is shipped from the factory.

Switch or button	Function	Assignable Switch setting
ASSIGN. 0 switch	No assignment	Off
ASSIGN. 1 switch	No assignment	Off
ASSIGN. 2 switch	No assignment	Off
ASSIGN. 3 switch	No assignment	Off
ASSIGNABLE 4 switch	No assignment	Off
ASSIGNABLE 5 switch	No assignment	Off
RET button	Rec Review (if playback is allowed)	Lens RET
ONLINE button	Auto transfer proxy clip	Network Client Mode

Functions That Can Be Assigned to the ASSIGN. 0 Switch

Assignable Switch setting Function	Function	State when camcorder is next powered on
Off	No assignment	
Marker	Turns the display of all markers on/off.	Setting retained
ATW Hold	Holds the white balance setting in the ATW	
	(auto-tracking white balance) mode	
Picture Cache Rec	Turns picture cache recording mode on/off.	Setting retained
Focus Magnifier	Turns the focus magnification function on/off.	Setting not retained
Zebra	Turns zebra display on/off.	Setting not retained
Shot Mark1	Writes Shot Mark1.	
Shot Mark2	Writes Shot Mark2.	
Clip Flag OK	Adds/Clears an OK mark to/from the clip being	Setting not retained
	recorded or played.	
Clip Flag NG	Adds/Clears an NG mark to/from the clip being	Setting not retained
	recorded or played.	
Clip Flag Keep	Adds/Clears a KP (Keep) mark to/from the clip	Setting not retained
	being recorded or played.	
Flash Band Reduce	Turns the flashband correction function on/off.	Setting not retained

Functions That Can Be Assigned to the ASSIGN. 2 Switch

[Note] [Note] Immediately after you assign a function to the ASSIGN. 2 switch or you switch the recording format, the setting of the switch at camcorder off and on again. that point may not match the camcorder's internal state. After assigning a function, switch the ASSIGN. 2 switch or power the

Assignable Switch setting Function	Function
Off	No assignment
Front Mic	Switches between stereo and monaural when a stereo microphone is connected.
Marker	Turns the display of all markers on/off.
Picture Cache Rec 1)	Turns picture cache recording mode on/off.
Zebra	Turns zebra display on/off.
Clip Continuous Rec	Turns Clip Continuous Rec mode on/off.
Rec Source	Switches the signals to be recorded between the camera picture and external
	input. (If the camcorder is currently recording or playing, the switch takes effect
	after recording or playback ends.)
Digital Extender ×2	Turns the screen magnification (x2) function on/off.
Digital Extender ×3	Turns the screen magnification (x3) function on/off.
Digital Extender ×4	Turns the screen magnification (x4) function on/off.

¹⁾ When Picture Cache Rec is assigned, Operation >Rec Function is disabled (grayed out) and cannot be set.

Functions That Can Be Assigned to the ASSIGN. 1 and 3 Switches, the ASSIGNABLE 4 and 5 Switches, and the ONLINE Button

Assignable Switch setting	Function	State when camcorder is next powered on
Off	No assignment	
Front Mic	Switches between stereo (On) and monaural (Off) when a stereo microphone is connected.	Setting retained
Marker	Turns the display of all markers on/off.	Setting retained
ATW	Turns ATW (auto tracing white balance) mode on/off.	Setting not retained
ATW Hold	Hold the white balance setting in the ATW mode.	
Turbo Gain	Executes Turbo Gain according to the setting of Operation >Gain Switch >Gain Turbo.	Setting not retained
Rec Review	Executes recording review.	
Rec	Starts or stops recording.	
NFC	Executes the NFC function.	
Network Client Mode	Turns network client mode on/off.	Setting retained
Streaming	Turns streaming transmission on/off.	Setting not retained
Auto Upload(Proxy)	Turns proxy file auto transfer on/off.	Setting retained
Picture Cache Rec	Turns picture cache recording mode on/off.	Setting retained
Spotlight	Turns the spotlight function in auto iris mode on/off.	Setting retained
Backlight	Turns the backlight function in auto iris mode on/off.	Setting retained
VF Mode	Switches the viewfinder screen between B&W (On) and color (Off).	Setting retained
Video Signal Monitor	Switches the video signal monitor display function.	Setting retained
Lens Info	Switches the depth of field indication between off, displayed in meters, and displayed in feet.	Setting retained
Zoom Tele/Wide	When a lens that supports serial communication is installed, assigns the Zoom Tele function to ASSIGNABLE 4, and assigns the Zoom Wide function to ASSIGNABLE 5 (displayed only when <4> and <5> are set).	
Zoom Wide/Tele	When a lens that supports serial communication is installed, assigns the Zoom Wide function to ASSIGNABLE 4, and assigns the Zoom Tele function to ASSIGNABLE 5 (displayed only when <4> and <5> are set).	

Assignable Switch setting Function State when amcorder is manual Focus Assist Turns the manual focus assist function on/off. Setting retained focus Magnifier Turns the focus magnification function on/off. Setting retained Focus Magnifier Turns the focus magnification function on/off. Setting retained Focus Magnifier Turns the focus magnification function on/off. Setting retained Focus Magnifier Turns the focus magnification function on/off. Setting not retained Lens RET Displays return video signal. ————————————————————————————————————			
Turns the manual focus assist function on/off. Turns the focus magnification function on/off. Turns zebra display on/off. Displays return video signal. When a camera extension unit is not connected: Rec Review (if playback is allowed) leo Displays the return 1 video signal. leo2 Displays the return 2 video signal. leo3 Displays the return 3 video signal. leo4 Displays the return 4 video signal. leo4 Displays the return 4 video signal. leo4 Displays the return 4 video signal. leo4 Displays the return 6 video signal. leo4 Displays the return 7 video signal. leo4 Displays the return 8 video signal. leo4 Displays the return 9 video signal. leo4 Displays the return 9 video signal. leo4 Displays the return 9 video signal. leo5 Writes Shot Mark 1. Writes Shot Mark 2. Adds/Clears an NG mark to/from the clip being recorded or played. Adds/Clears an NG mark to/from the clip being recorded or played. Adds/Clears an NG mark to/from the clip being recorded or played. Adds/Clears an NG mark to/from the clip being recorded or played. Adds/Clears an NG mark to/from the clip being recorded or played. Adds/Clears an NG mark to/from the clip being recorded or played. Adds/Clears an NG mark to/from the clip being recorded or played. Adds/Clears an NG mark to/from the clip being recorded or played. Adds/Clears an NG mark to/from the clip being recorded or played. Adds/Clears an NG mark to/from the clip being recorded or played. Adds/Clears an NG mark to/from the clip being recorded or played. C C (C C C C C C C C C C C C C C C C C	Assignable Switch setting	Function	State when camcorder is next powered on
Turns the focus magnification function on/off. Turns zebra display on/off. Displays return video signal. When a camera extension unit is not connected: Rec Review (if playback is allowed) leo Displays the return 1 video signal. leo2 Displays the return 2 video signal. leo3 Displays the return 3 video signal. leo4 Displays the return 1 video signal. leo4 Displays the return 4 video signal. leo4 Displays the return 4 video signal. leo4 Displays the return 4 video signal. leo5 Writes Shot Mark1. Adds/Clears an OK mark to/from the clip being recorded or played. Adds/Clears an NG mark to/from the clip being recorded or played. Adds/Clears an NG mark to/from the clip being recorded or played. Adjusts white balance using 3200K preset value. Adjusts white balance using 3200K preset value. Adjusts white balance using 3600K preset value. Ps W 4300K Adjusts white balance using 3600K preset value. Adjusts white balance using 5600K preset value. Ps W 4300K Adjusts white balance using 5600K preset value. Ps W 4300K Adjusts white balance using 5600K preset value. Ps W 6300K Adjusts white balance using 6300K preset value. Ps W 6300K Adjusts white balance using 6300K preset value. Ps W 6300K Adjusts white balance using 6300K preset value. Ps W 6300K Adjusts white balance using 6300K preset value. Ps W 6300K Adjusts white balance using 6300K preset value. Ps W 6300K Adjusts white balance using 6300K preset value. Ps W 6300K Adjusts white balance using 6300K preset value. Ps W 6300K Adjusts white balance using 6300K preset value. Ps W 6300K Adjusts white balance using 6300K preset value. Ps W 6300K Adjusts white balance using 6300K preset value. Ps W 6300K Adjusts white balance using 6300K preset value. Ps W 6300K Adjusts white balance using 6300K preset value. Ps W 6300K Adjusts white balance using 6300K preset value. Ps W 6300K Adjusts white balance using 6300K preset value. Ps W 6300K Adjusts white balance using 6300K preset value. Ps W 6300K Adjusts white balance using 6400K preset value. Ps	Manual Focus Assist	Turns the manual focus assist function on/off.	Setting retained
Displays return video signal. When a camera extension unit is not connected: Rec Review (if playback is allowed) leo Displays the return 1 video signal. leo2 Displays the return 2 video signal. leo3 Displays the return 2 video signal. leo4 Displays the return 3 video signal. Writes Shot Mark1. Writes Shot Mark1. Writes Shot Mark2. Adds/Clears an OK mark to/from the clip being recorded or played. Adds/Clears an NG mark to/from the clip being recorded or played. Adds/Clears an NG mark to/from the clip being recorded or played. Adds/Clears a KP (Keep) mark to/from the clip being recorded or played. Adjusts white balance using 3200K preset value. P SW 3200K Adjusts white balance using 4300K preset value. P SW 4300K Adjusts white balance using 5600K preset value. P SW 5600K Adjusts white balance using 5600K preset value. P SW 6300K Adjusts white balance using 5600K preset value. P SW 6300K Adjusts white balance using 5600K preset value. P SW 6300K Adjusts white balance using 5600K preset value. P SW 6300K Adjusts white balance using 5600K preset value. P SW 6300K Adjusts white balance using 5600K preset value. P SW 6300K Adjusts white balance using 5600K preset value. P SW 6300K Adjusts white balance using 5600K preset value. P SW 6300K Adjusts white balance using 5600K preset value. P SW 6300K Adjusts white balance using 5600K preset value. P SW 6300K Adjusts white balance using 5600K preset value. P SW 6300K Adjusts white balance using 5600K preset value. P SW 6300K Adjusts white balance using 5600K preset value. P SW 6300K Adjusts white balance using 5600K preset value. P SW 6300K Adjusts white balance using 6300K preset value. P SW 6300K Adjusts white balance using 6300K preset value. P SW 6300K Adjusts white balance using 6300K preset value. P SW 6300K Adjusts white balance using 6300K preset value. P SW 6300K Adjusts white balance using 6300K preset value. P SW 6300K Adjusts white balance using 6300K preset value. P SW 6300K Adjusts white balance using 6300K preset value. P SW 6300K Adjusts white bala	Focus Magnifier	Turns the focus magnification function on/off.	Setting not retained
Displays return video signal. When a camera extension unit is not connected: Rec Review (if playback is allowed) eo Displays the return 1 video signal. eo2 Displays the return 2 video signal. eo3 Displays the return 3 video signal. eo4 Displays the return 4 video signal. eo4 Displays the return 4 video signal. eo4 Displays the return 4 video signal. eo5 Writes Shot Mark 1. Writes Shot Mark 1. Writes Shot Mark 1. Adds/Clears an NG mark to/from the clip being recorded or played. Adds/Clears an KP (keep) mark to/from the clip being recorded or played. Adds/Clears a KP (keep) mark to/from the clip being recorded or played. Adds/Clears a kP (keep) mark to/from the clip being recorded or played. Adds/Clears a kP (keep) mark to/from the clip being recorded or played. Adds/Clears a kP (keep) mark to/from the clip being recorded or played. Adds/Clears a kP (keep) mark to/from the clip being recorded or played. Adjusts white balance using 3200K preset value. Adjusts white balance using 4300K preset value. P SW 4300K Adjusts white balance using 5600K preset value. Function that switches the electrical CC filter (3200K/4300K/5600K/6300K) applied to white balance adjustment values. Sequence with each press of the switch/button: 3200K → 4300K → 5600K → 6300K Can be changed using menu settings (Electrical CC A> <c> <d>). Note This function is not available when Maintenance >White filter >ND Filter C.Temp in the setup menu is set to On. If you set ND Filter C.Temp to On after assigning the function, the assignable switch ceases to function. Applies a 5600K electrical CC filter to white balance adjustment values. Turns Clip Continuous Rec mode on/off. When recording media is loaded in both card slots A and B, selects the card you want to use. Turns the screen magnification (×2) function on/off.</d></c>	Zebra	Turns zebra display on/off.	Setting not retained
when a camera extension unit is not connected: Rec Review (if playback is allowed) eo	Lens RET	Displays return video signal.	1
leo Displays the return 1 video signal. leo2 Displays the return 2 video signal. leo3 Displays the return 3 video signal. leo4 Displays the return 4 video signal. leo4 Displays the return 4 video signal. leo4 Displays the return 4 video signal. losplays the return 4 video signal. leo4 Displays the return 4 video signal. leo5 With the signal to the clip being recorded or played. Adds/Clears an NG mark to/from the clip being recorded or played. Adds/Clears an NG mark to/from the clip being recorded or played. Adds/Clears an NG mark to/from the clip being recorded or played. Adds/Clears an NG mark to/from the clip being recorded or played. Adds/Clears an NG mark to/from the clip being recorded or played. Adjusts white balance using 3500K preset value. p SW 3200K Adjusts white balance using 4300K preset value. p SW 6300K Enunction that switches the electrical CC filter (3200K/4300K)5600K/5600K/6300K) applied to white balance adjustment values. Sequence with each press of the switch/button: 3200K → 4300K → 5600K → 6300K Can be changed using menu settings (Electrical CC - A> < B> < C> < A> < B> < C> < A> < B> < C> < A> < AB> < C> < AB> < C> < AB < A		When a camera extension unit is not connected:	
leo2 Displays the return 2 video signal. leo3 Displays the return 3 video signal. leo4 Displays the return 4 video signal. Writes Shot Mark 1. Writes Shot Mark 1. Writes Shot Mark 2. Adds/Clears an OK mark to/from the clip being recorded or played. Adds/Clears an NG mark to/from the clip being recorded or played. Adds/Clears an NG mark to/from the clip being recorded or played. Adds/Clears an NG mark to/from the clip being recorded or played. Adds/Clears an NG mark to/from the clip being recorded or played. Adds/Clears an NG mark to/from the clip being recorded or played. Adds/Clears an NG mark to/from the clip being recorded or played. Adds/Clears an NG mark to/from the clip being recorded or played. Adjusts white balance using 3200K preset value. PSW 3300K Adjusts white balance using 4300K preset value. Adjusts white balance using 5600K preset value. PSW 4300K Adjusts white balance using 6300K preset value. Function that switches the electrical CC filter (3200K/4300K/5600K/6300K) applied to white balance adjustment values. Sequence with each press of the switch/button: 3200K → 4300K → 5600K → 6300K Can be changed using menu settings (Electrical CC <a> <c> <d>). Note! This function is not available when Maintenance >White Filter >ND Filter C.Temp to On after assigning the function, the assignable switch ceases to function. Applies a 5600K electrical CC filter to white balance adjustment values. Turns Clip Continuous Rec mode on/off. When recording media is loaded in both card slots A and B, selects the card you want to use. Turns the screen magnification (x2) function on/off.</d></c>		nec neview (ii playback is allowed)	
leo3 Displays the return 3 video signal. leo4 Displays the return 4 video signal. Writes Shot Mark1. Writes Shot Mark2. Adds/Clears an OK mark to/from the clip being recorded or played. Adds/Clears an NG mark to/from the clip being recorded or played. Adds/Clears an NG mark to/from the clip being recorded or played. Adds/Clears a RP (Keep) mark to/from the clip being recorded or played. Adds/Clears a RP (Keep) mark to/from the clip being recorded or played. Adjusts white balance using 3200K preset value. PsW 3200K Adjusts white balance using 4300K preset value. PsW 4300K Adjusts white balance using 4300K preset value. PsW 4300K Adjusts white balance using 6300K preset value. Function that switches the electrical CC filter (3200K/4300K/5600K/6300K) applied to white balance adjustment values. Sequence with each press of the switch/button: 3200K → 4300K → 5600K → 6300K Can be changed using menu settings (Electrical CC <a> <c> <d>). Note! This function is not available when Maintenance >White balance adjustment values. Note of the assignable switch ceases to function. Applies a 5600K electrical CC filter to white balance adjustment values. Turns Clip Continuous Rec mode on/off. When recording media is loaded in both card slots A and B, selects the card you want to use. Turns the screen magnification (x2) function on/ off.</d></c>	Return Video	Displays the return 1 video signal.	
leo3 Displays the return 3 video signal. 1 Writes Shot Mark1. 2 Writes Shot Mark2. Adds/Clears an OK mark to/from the clip being recorded or played. Adds/Clears an NG mark to/from the clip being recorded or played. Adds/Clears a KP (Keep) mark to/from the clip being recorded or played. Adds/Clears a KP (Keep) mark to/from the clip being recorded or played. Adjusts white balance using 3200K preset value. PSW 3200K Adjusts white balance using 4300K preset value. Adjusts white balance using 4300K preset value. PSW 4300K Adjusts white balance using 6300K preset value. Function that switches the electrical CC filter (3200K/4300K/5600K/6300K) applied to white balance adjustment values. Sequence with each press of the switch/button: 3200K → 4300K → 5600K → 6300K Can be changed using menu settings (Electrical CC <a> <c> <d>). [Note] This function is not available when Maintenance > White balance adjustment values. Note Filter > ND Filter C. Temp to On after assigning the function, the assignable switch ceases to function. Applies a 5600K electrical CC filter to white balance adjustment values. Turns Clip Continuous Rec mode on/off. When recording media is loaded in both card slots A and B, selects the card you want to use. Turns the screen magnification (x2) function on/off.</d></c>	Return Video2	Displays the return 2 video signal.	
1 Writes Shot Mark1. 2 Writes Shot Mark2. 2 Writes Shot Mark2. 3 Adds/Clears an OK mark to/from the clip being recorded or played. 4 Adds/Clears an NG mark to/from the clip being recorded or played. 4 Adds/Clears an NG mark to/from the clip being recorded or played. 5 Adds/Clears a KP (Keep) mark to/from the clip being recorded or played. 6 Adjusts white balance using 3200K preset value. 7 SW 4300K Adjusts white balance using 4300K preset value. 8 PSW 5600K Adjusts white balance using 5600K preset value. 9 SW 6300K Adjusts white balance using 6300K preset value. 9 SW 6300K Adjusts white balance using 6300K preset value. 10 SW 6300K Adjusts white balance using 5600K preset value. 11 Sequence with each press of the switch/button: 3200K → 4300K → 5600K fress of the switch/button: 3200K → 4300K → 5600K → 6300K 12 C <a> <c> <a> <a <b=""> <a <a="" <b="">A <a <a="" <b="">A <a <a="" <b="">A <a <a="" <b="" <b<="" td=""><td>Return Video3</td><td>Displays the return 3 video signal.</td><td></td></c></c></c></c></c>	Return Video3	Displays the return 3 video signal.	
Writes Shot Mark1. Writes Shot Mark2. Writes Shot Mark2. Adds/Clears an OK mark to/from the clip being recorded or played. Adds/Clears an NG mark to/from the clip being recorded or played. Adds/Clears a KP (Keep) mark to/from the clip being recorded or played. Adds/Clears a KP (Keep) mark to/from the clip being recorded or played. Adjusts white balance using 3200K preset value. Adjusts white balance using 4300K preset value. P SW 4300K Adjusts white balance using 5600K preset value. P SW 4300K Adjusts white balance using 6300K preset value. P Inction that switches the electrical CC filter (3200K/4300K/5600K/6300K) applied to white balance adjustment values. Sequence with each press of the switch/button: 3200K → 4300K → 5600K → 6300K Can be changed using menu settings (Electrical CC <a> B> <c> <d>). [Note] This function is not available when Maintenance >White Filter >ND Filter C.Temp to On after assigning the function, the assignable switch ceases to function. Applies a 5600K electrical CC filter to white balance adjustment values. Turns Clip Continuous Rec mode on/off. When recording media is loaded in both card slots A and B, selects the card you want to use. Turns the screen magnification (x2) function on/off.</d></c>	Return Video4	Displays the return 4 video signal.	
2 Writes Shot Mark2. Adds/Clears an OK mark to/from the clip being recorded or played. Adds/Clears an NG mark to/from the clip being recorded or played. Adds/Clears an NG mark to/from the clip being recorded or played. Adds/Clears a KP (Keep) mark to/from the clip being recorded or played. Adjusts white balance using 3200K preset value. Adjusts white balance using 4300K preset value. PSW 4300K Adjusts white balance using 4300K preset value. Function that switches the electrical CC filter (3200K/4300K/5600K/6300K) applied to white balance adjustment values. Sequence with each press of the switch/button: 3200K → 4300K → 5600K → 6300K Can be changed using menu settings (Electrical CC <a> <c> <a> >B> <c> <d>). [Note] This function is not available when Maintenance >White Filter >ND Filter C.Temp to to after assigning the function, the assignable switch ceases to function. Applies a 5600K electrical CC filter to white balance adjustment values. Tums Clip Continuous Rec mode on/off. When recording media is loaded in both card slots A and B, selects the card you want to use. Turns the screen magnification (x2) function on/off.</d></c></c>	Shot Mark1	Writes Shot Mark1.	
Adds/Clears an OK mark to/from the clip being recorded or played. Adds/Clears an NG mark to/from the clip being recorded or played. Adds/Clears a NF (Keep) mark to/from the clip being recorded or played. Adjusts white balance using 3200K preset value. By SW 3200K Adjusts white balance using 4300K preset value. Adjusts white balance using 5600K preset value. Function that switches the electrical CC filter (3200K/4300K/5600K/6300K) applied to white balance adjustment values. Sequence with each press of the switch/button: 3200K → 4300K → 5600K Can be changed using menu settings (Electrical CC <a> <cc>A> >B> <cd>). Note! This function is not available when Maintenance >White Filter >ND Filter C.Temp to oh after assigning the function, the assignable switch ceases to function. Applies a 5600K electrical CC filter to white balance adjustment values. Turns Clip Continuous Rec mode on/off. When recording media is loaded in both card slots A and B, selects the card you want to use. Turns the screen magnification (x2) function on/off.</cd></cc>	Shot Mark2	Writes Shot Mark2.	
Adds/Clears an NG mark to/from the clip being recorded or played. Adds/Clears an NG mark to/from the clip being recorded or played. Adds/Clears a KP (Keep) mark to/from the clip being recorded or played. PSW 3200K Adjusts white balance using 3200K preset value. Adjusts white balance using 4300K preset value. Adjusts white balance using 5600K preset value. Function that switches the electrical CC filter (3200K/4300K/5600K/6300K) applied to white balance adjustment values. Sequence with each press of the switch/button: 3200K → 4300K → 5600K → 6300K Can be changed using menu settings (Electrical CC <a> <c> <d>). Note This function is not available when Maintenance >White Filter >ND Filter C.Temp in the setup menu is set to On. If you set ND Filter C.Temp to On after assigning the function, the assignable switch ceases to function. Applies a 5600K electrical CC filter to white balance adjustment values. Turns Clip Continuous Rec mode on/off. When recording media is loaded in both card slots A and B, selects the card you want to use. Turns the screen magnification (×2) function on/off.</d></c>	Clip Flag OK	Adds/Clears an OK mark to/from the clip being	Setting not retained
recorded or played. Adds/Clears a KP (Keep) mark to/from the clip being recorded or played. Adds/Clears a KP (Keep) mark to/from the clip being recorded or played. Adjusts white balance using 3200K preset value. By SW 4300K Adjusts white balance using 5600K preset value. Adjusts white balance using 5600K preset value. Function that switches the electrical CC filter (3200K/4300K/5600K/6300K) applied to white balance adjustment values. Sequence with each press of the switch/button: 3200K → 4300K → 5600K → 6300K Can be changed using menu settings (Electrical CC <a> <c> <d>). [Note] This function is not available when Maintenance >White Filter >ND Filter C.Temp in the setup menu is set to On. If you set ND Filter C.Temp to On after assigning the function, the assignable switch ceases to function. Applies a 5600K electrical CC filter to white balance adjustment values. Turns Clip Continuous Rec mode on/off. When recording media is loaded in both card slots A and B, selects the card you want to use. Turns the screen magnification (×2) function on/off.</d></c>		Add /Glass as NG made to /Grow the distriction	
Adds/Clears a KP (Keep) mark to/from the clip being recorded or played. PSW 3200K Adjusts white balance using 3200K preset value. Adjusts white balance using 4300K preset value. Adjusts white balance using 5600K preset value. Adjusts white balance using 5600K preset value. Adjusts white balance using 6300K preset value. Function that switches the electrical CC filter (3200K/4300K/5600K/6300K) applied to white balance adjustment values. Sequence with each press of the switch/button: 3200K → 4300K → 5600K → 6300K Can be changed using menu settings (Electrical CC <a> <c> <d>). Note! This function is not available when Maintenance >White Filter >ND Filter C.Temp in the setup menu is set to On. If you set ND Filter C.Temp to On after assigning the function, the assignable switch ceases to function. Applies a 5600K electrical CC filter to white balance adjustment values. Turns Clip Continuous Rec mode on/off. When recording media is loaded in both card slots A and B, selects the card you want to use. Turns the screen magnification (×2) function on/off.</d></c>	CID Flag ING	recorded or played.	Setting not retained
p SW 3200K Adjusts white balance using 3200K preset value. p SW 4300K Adjusts white balance using 4300K preset value. p SW 5600K Adjusts white balance using 5600K preset value. p SW 6300K Adjusts white balance using 6300K preset value. C Function that switches the electrical CC filter (3200K/4300K/5600K/6300K) applied to white balance adjustment values. Sequence with each press of the switch/button: 3200K → 4300K → 5600K → 6300K Can be changed using menu settings (Electrical CC <a> <c> <d>). [Note] This function is not available when Maintenance >White Filter >ND Filter C.Temp in the setup menu is set to On. If you set ND Filter C.Temp to On after assigning the function, the assignable switch ceases to function. Applies a 5600K electrical CC filter to white balance adjustment values. Turns Clip Continuous Rec mode on/off. When recording media is loaded in both card slots A and B, selects the card you want to use. Turns the screen magnification (×2) function on/off.</d></c>	Clip Flag Keep	Adds/Clears a KP (Keep) mark to/from the clip heing recorded or played	Setting not retained
p SW 4300K Adjusts white balance using 4300K preset value. p SW 5600K Adjusts white balance using 5600K preset value. C Function that switches the electrical CC filter (3200K/4300K/5600K/6300K) applied to white balance adjustment values. Sequence with each press of the switch/button: 3200K → 4300K → 5600K → 6300K Can be changed using menu settings (Electrical CC <a> <c> <d>). Note This function is not available when Maintenance >White Filter >ND Filter C.Temp in the setup menu is set to On. If you set ND Filter C.Temp to On after assigning the function, the assignable switch ceases to function. Applies a 5600K electrical CC filter to white balance adjustment values. Turns Clip Continuous Rec mode on/off. When recording media is loaded in both card slots A and B, selects the card you want to use. Turns the screen magnification (×2) function on/ off.</d></c>	Color Temp SW 3200K	Adjusts white balance using 3200K preset value.	Setting retained
p SW 5600K Adjusts white balance using 5600K preset value. p SW 6300K Adjusts white balance using 6300K preset value. CC Function that switches the electrical CC filter (3200K/4300K/5600K/6300K) applied to white balance adjustment values. Sequence with each press of the switch/button: 3200K → 4300K → 5600K → 6300K Can be changed using menu settings (Electrical CC <a> <c> <d>). [Note] This function is not available when Maintenance >White Filter >ND Filter C.Temp in the setup menu is set to On. If you set ND Filter C.Temp to On after assigning the function, the assignable switch ceases to function. Applies a 5600K electrical CC filter to white balance adjustment values. Turns Clip Continuous Rec mode on/off. When recording media is loaded in both card slots A and B, selects the card you want to use. Turns the screen magnification (×2) function on/off.</d></c>	Color Temp SW 4300K	Adjusts white balance using 4300K preset value.	Setting retained
Adjusts white balance using 6300K preset value. Function that switches the electrical CC filter (3200K/4300K/5600K/6300K) applied to white balance adjustment values. Sequence with each press of the switch/button: 3200K → 4300K → 5600K → 6300K Can be changed using menu settings (Electrical CC <a> <c> <d>). [Note] This function is not available when Maintenance >White Filter >ND Filter C.Temp in the setup menu is set to On. If you set ND Filter C.Temp to On after assigning the function, the assignable switch ceases to function. Applies a 5600K electrical CC filter to white balance adjustment values. Turns Clip Continuous Rec mode on/off. When recording media is loaded in both card slots A and B, selects the card you want to use. Turns the screen magnification (×2) function on/off.</d></c>	Color Temp SW 5600K	Adjusts white balance using 5600K preset value.	Setting retained
CC Function that switches the electrical CC filter (3200K/4300K/5600K/6300K) applied to white balance adjustment values. Sequence with each press of the switch/button: 3200K → 4300K → 5600K → 6300K Can be changed using menu settings (Electrical CC <a> <c> <d>). [Note] This function is not available when Maintenance >White Filter >ND Filter C.Temp in the setup menu is set to On. If you set ND Filter C.Temp to On after assigning the function, the assignable switch ceases to function. Applies a 5600K electrical CC filter to white balance adjustment values. Applies a 5600K electrical CC filter to white balance adjustment values. Turns Clip Continuous Rec mode on/off. When recording media is loaded in both card slots A and B, selects the card you want to use. Turns the screen magnification (×2) function on/off.</d></c>	Color Temp SW 6300K	Adjusts white balance using 6300K preset value.	Setting retained
balance adjustment values. Sequence with each press of the switch/button: 3200K → 4300K → 5600K → 6300K Can be changed using menu settings (Electrical CC <a> <c> <d>). [Note] This function is not available when Maintenance >White Filter >ND Filter C.Temp in the setup menu is set to On. If you set ND Filter C.Temp to On after assigning the function, the assignable switch ceases to function. Applies a 5600K electrical CC filter to white balance adjustment values. Applies a 5600K electrical CC filter to white balance adjustment values. Turns Clip Continuous Rec mode on/off. When recording media is loaded in both card slots A and B, selects the card you want to use. Turns the screen magnification (×2) function on/off.</d></c>	Electrical CC	Function that switches the electrical CC filter (3200K/4300K/5600K/6300K) applied to white	Setting retained
3200K → 4300K → 6300K Can be changed using menu settings (Electrical CC <a> <c> <d>). [Note] This function is not available when Maintenance >White Filter >ND Filter C.Temp in the setup menu is set to On. If you set ND Filter C.Temp to On after assigning the function, the assignable switch ceases to function. Applies a 5600K electrical CC filter to white balance adjustment values. Turns Clip Continuous Rec mode on/off. When recording media is loaded in both card slots A and B, selects the card you want to use. ender ×2 Turns the screen magnification (×2) function on/off.</d></c>		balance adjustment values. Sequence with each press of the switch/button:	
Can be chariged using menu settings (Electrical CC <a> <c> <d>). [Note] This function is not available when Maintenance >White Filter >ND Filter C.Temp in the setup menu is set to On. If you set ND Filter C.Temp to On after assigning the function, the assignable switch ceases to function. Applies a 5600K electrical CC filter to white balance adjustment values. Applies a 5600K electrical CC filter to white balance adjustment values. Turns Clip Continuous Rec mode on/off. When recording media is loaded in both card slots A and B, selects the card you want to use. Turns the screen magnification (×2) function on/off.</d></c>		3200K — 4300K — 5600K — 6300K	
[Note] This function is not available when Maintenance >White Filter >ND Filter C.Temp in the setup menu is set to On. If you set ND Filter C.Temp to On after assigning the function, the assignable switch ceases to function. Applies a 5600K electrical CC filter to white balance adjustment values. Applies a 5600K electrical CC filter to white balance adjustment values. Turns Clip Continuous Rec mode on/off. When recording media is loaded in both card slots A and B, selects the card you want to use. Turns the screen magnification (x2) function on/off.		CC $<$ A $>$ $<$ B $>$ $<$ C $>$ $<$ D $>$).	
Filter >ND Filter C.Temp in the setup menu is set to On. If you set ND Filter C.Temp to On after assigning the function, the assignable switch ceases to function. Applies a 5600K electrical CC filter to white balance adjustment values. Tums Clip Continuous Rec mode on/off. When recording media is loaded in both card slots A and B, selects the card you want to use. Tums the screen magnification (x2) function on/ off.		[Note] This function is not available when Maintenance > White	
Applies a 5600K electrical CC filter to white balance adjustment values. nuous Rec Tums Clip Continuous Rec mode on/off. When recording media is loaded in both card slots A and B, selects the card you want to use. ender ×2 Tums the screen magnification (×2) function on/off.		Filter > ND Filter C.Temp in the setup menu is set to On. If you set ND Filter C.Temp to On after assigning the function, the assignable switch ceases to function.	
Turns Clip Continuous Rec mode on/off. When recording media is loaded in both card slots A and B, selects the card you want to use. ender ×2 Turns the screen magnification (×2) function on/off.	CC5600K	Applies a 5600K electrical CC filter to white	Setting retained
When recording media is loaded in both card slots A and B, selects the card you want to use. ender ×2 Turns the screen magnification (×2) function on/ off.	Clip Continuous Rec	Turns Clip Continuous Rec mode on/off.	Setting not retained
Turns the screen magnification (x2) function on/off.	Slot Select	When recording media is loaded in both card slots A and B, selects the card you want to use.	
	Digital Extender ×2	Turns the screen magnification (×2) function on/off.	Setting not retained

Assignable Switch setting Function	Function	State when camcorder is next powered on
Digital Extender ×3	Turns the screen magnification (\times 3) function on/ Setting not retained off.	Setting not retained
Digital Extender ×4	Turns the screen magnification (x4) function on/ $\;\;$ Setting not retained off.	Setting not retained
Digital Extender ×2×3×4	Switches the magnification of the screen magnification function. Each press of the switch or button switches in the	Setting not retained
Flash Band Reduce	Turns the flashband correction function on/off.	Setting not retained
Proxv Rec Start/Stop	Starts/stops proxy recording.	Setting not retained

Functions That Can Be Assigned to the RET Button on the Lens

Assignable Switch setting	Function	State when camcorder is
		next powered on
Off	No assignment	
Lens RET	Displays return video signal.	
	When a camera extension unit is not connected:	
	Rec Review (if playback is allowed)	
Return Video	Displays return video signal.	
Rec Review	Executes recording review.	
Shot Mark1	Writes Shot Mark1.	
Shot Mark2	Writes Shot Mark2.	
Clip Flag OK	Adds/Clears an OK mark to/from the clip being	Setting not retained
	recorded or played.	
Clip Flag NG	Adds/Clears an NG mark to/from the clip being	Setting not retained
	recorded or played.	
Clip Flag Keep	Adds/Clears a KP (Keep) mark to/from the clip	Setting not retained
	being recorded or played.	
Focus Magnifier	Turns the focus magnification function on/off.	Setting not retained
Digital Extender ×2	Turns the screen magnification (x2) function on/off.	Setting not retained
Digital Extender ×3	Turns the screen magnification (\times 3) function on/off.	Setting not retained
Digital Extender ×4	Turns the screen magnification (x4) function on/off.	Setting not retained
Digital Extender x2x3x4	Switches the magnification of the screen magnification function.	Setting not retained
	Each press of the switch or button switches in the order Off \rightarrow $\times 2 \rightarrow \times 3 \rightarrow \times 4 \rightarrow$ Off.	
Proxy Rec Start/Stop	Starts/stops proxy recording.	Setting not retained

User Configuration Data

You can save setup menu settings in the camcorder's internal memory and on SD cards. This allows you to quickly recall an appropriate set of menu settings for the current situation. To save setup data on an SD card, insert a writable SD card (page 32) into the UTILITY SD card slot before proceeding.

Inserting an SD card (for saving configuration data)

- Open the switch cover.
- 2 Insert the SD card (for saving configuration data) in the UTILITY SD card slot.
- Close the switch cover.

Ejecting an SD card (for saving configuration data)

- Open the switch cover.
- Press the SD card in slightly, then remove the card.

Notes

- If the camcorder is turned off or the SD card is removed while the SD is being accessed, the integrity of data on the card cannot be guaranteed. All data recorded on the card may be discarded. Always make sure the ACCESS indicator is off before turning off the camcorder or removing the SD card.
- Take caution to prevent the SD card from flying out when inserting/ejecting the card.

The following user data is supported.

User Files

User files save the setting items and data of the customizable User menu. You can save up to 64 files on an SD card. By loading this file into the camcorder memory, you can customize the setup of the User menu.

ALL Files

ALL files save the configuration data of all menus. You can save up to 64 files on an SD card.

[Note

Device specific data (shading, output levels, and other data that requires adjustment for the specific device) is not saved.

Scene Files

Scene files save adjustments to Paint menu items for the purpose of shooting a particular scene. You can save up to five files in the camcorder's internal memory and up to 64 files on an SD card.

Scene files allow you to save the following types of data

- Values set in the Paint menu
- Shutter speeds set in standard mode or ECS mode
- White balance data

The data that is saved and loaded depends on the setting of File >Scene File >Scene White Data in the setup menu.

Scene files can be stored in internal memory on the camcorder or on an SD card.

Scene files can also be loaded into the camcorder.

Reference Files

Reference files save the scene file standard settings (when File ID is Standard). You can save one file in the camcorder's internal memory and one file on an SD card.

Lens Files

You can set the following data for correcting for the lens characteristics, and save the data as a lens file. You can save up to 32 lens files in the camcorder's internal memory and up to 64 lens files on an SD card.

Configuration data	Sub-items
V modulation shading	M V Modulation
correction values	
Center marker position	Lens Center H
	Lens Center V
Flare level	R Flare
	G Flare
	B Flare
White balance correction	White Offset R
value	White Offset B
White shading correction	Shading Ch Select
value	Shading H SAW
	Shading H PARA
	Shading V SAW
	Shading V PARA

Gamma Files

You can save up to five user-defined gamma table data files (User Gamma Data File) in internal memory.

User Files

Saving a User File

- I Select File > User File > Save SD Card in the setup menu.
 A screen for selecting a user file save destination appears.
- 2 Turn the MENU knob to select a destination, then press the knob.
 You can save files in rows with a File ID of "No File." Selecting a row with a specified File ID name will overwrite the selected file.
 The File ID is generated automatically, but you can modify it.
- 3 Turn the MENU knob to select [Execute] on the confirmation message screen, then press the knob.

Loading a User File

- Select File >User File >Load SD Card in the setup menu.
 A user file list screen appears.
- Turn the MENU knob to select a file to load, then press the knob.
 A confirmation screen appears.
- Turn the MENU knob to select [Execute], then press the knob.

[Note]

The camcorder will reboot automatically after loading configuration data.

Changing the File ID

- Select File > User File > File ID in the setup menu.

 A screen for editing the File ID appears.
- Select characters and enter the File ID.
- 3 Turn the MENU knob to select [Done], then press the knob.
 The File ID is updated.

ALL FILES

Saving Configuration Data as an ALL File

- Select File > All File > Save SD Card in the setup menu.
 A screen for selecting an ALL file save destination appears.
- ✓ Turn the MENU knob to select a destination, then press the knob.

 You can save files in rows with a File ID of "No File." Selecting a row with a specified File ID name will overwrite the selected file.

 The File ID is generated automatically, but you can modify it.
- 3 Turn the MENU knob to select [Execute] on the confirmation message screen, then press the knob.

If an error message appears

One of the following error messages may appear during execution of the save, or as soon as you select [Execute]. In this case, the file is not saved.

_		l -	_
NO NO	File Access	message	Error
media is inserted. media.	No recordable		Problem
media.	Insert recordable		Solution

Changing the File ID

- Select File > All File > File ID in the setup menu.
 A screen for editing the File ID appears.
- 2 Select characters and enter the File ID.

3 Turn the MENU knob to select [Done], then press the knob.
The File ID is updated.

Loading Configuration Data

- 1 Select File > All File > Load SD Card in the setup menu.
- An ALL file list screen appears.
- 2 Turn the MENU knob to select a file to load then press the knob. A confirmation screen appears.
- Turn the MENU knob to select [Execute], then press the knob.

Notes

- When you load a file from an SD card, the data saved in the camcorder's internal memory is overwritten.
- When loading files from one device to another, if the firmware versions on the two devices do not match, the setting values for functions that are not supported on the destination device are not loaded.
- The camcorder will reboot automatically after loading configuration data.

If an error message appears

One of the following error messages may appear during execution of the load, or as soon as you select [Execute]. In this case, the file is not loaded.

Error	Problem	Solution
message		
File Access	There is no	Insert the media
NG	readable media	that contains the
	The specified file	file you want.
	does not exist on	
	the media	

Restoring All Current Settings to Preset Values

In this document, initial setup menu settings configured/saved by the user are referred to as "preset values."

Even after loading files to set up the camcorder, and overwriting original files with new settings,

Select File > All File > All Preset in the setup menu.

you can reset the contents of the files by

recovering the preset values.

- A confirmation screen appears.
- Turn the MENU knob to select [Execute], then press the knob.

Saving All Current Settings as Preset Values

- Select File > All File > Store All Preset in the setup menu.
 A confirmation screen appears.
- Turn the MENU knob to select [Execute], ther press the knob.

[Note]

The camcorder will reboot automatically after executing.

Resetting Current Settings and Preset Values to Factory Default Settings

- Select File > All File > Clear All Preset in the setup menu.
 A confirmation screen appears.
- . Turn the MENU knob to select [Execute], then press the knob.

[Note]

The camcorder will reboot automatically after executing.

Scene Files

Saving a Scene File in Internal Memory

- I Select File >Scene File >Store Internal Memory in the setup menu.
 A scene file list screen appears.
 If the File ID is set to "Standard" destination, preconfigured standard settings are saved.
- Turn the MENU knob to select a destination, then press the knob.
 The scene file is saved, overwriting any existing file, in the selected destination.
- 3 Turn the MENU knob to select [Execute] on the confirmation message screen, then press the knob.

Saving a Scene File on an SD Card

- Select File >Scene File >Save SD Card in the setup menu.
 A scene file save destination screen appears.
- Turn the MENU knob to select a destination, then press the knob.
 You can save files in rows with a File ID of "No File." Selecting a row with a specified File ID name will overwrite the selected file.
 The File ID is generated automatically, but you can modify it.
- 3 Turn the MENU knob to select [Execute] on the confirmation message screen, then press the knob.

Changing the File ID

- Select File >Scene File >File ID in the setup menu.
 A screen for editing the File ID appears.
- 2 Select characters and enter the File ID.
- 3 Turn the MENU knob to select [Done], then press the knob.
 The File ID is updated.

Loading a Scene File from Internal Memory

- Select File >Scene File >Recall Internal Memory in the setup menu.
 A scene file list screen appears.
- Turn the MENU knob to select a file to load, then press the knob.
 A confirmation screen appears.
- 3 Turn the MENU knob to select [Execute], then press the knob.

Load a Scene File from an SD Card

Select File >Scene File >Load SD Card in the setup menu.
A scene file list screen appears.

- 2 Turn the MENU knob to select a file to load, then press the knob.
 A confirmation screen appears.
- 3 Turn the MENU knob to select [Execute], then press the knob.

Reference Files

Saving Current Settings as Preset Values

- Select File >Reference File >Store Reference in the setup menu.
 A confirmation screen appears.
- Turn the MENU knob to select [Execute], then press the knob.

Loading a Reference File from an SD Card

- Select File >Reference File >Load Reference(SD Card) in the setup menu.
 A confirmation screen appears.
- Turn the MENU knob to select [Execute], then press the knob.

2

Saving Current Settings as Preset Values on an SD Card

- Select File >Reference File >Save Reference(SD Card) in the setup menu.
 A confirmation screen appears.
- 2 Turn the MENU knob to select [Execute], then press the knob.

Resetting Current Settings and Preset Values to Factory Default Settings

- Select File >Reference File >Clear Reference in the setup menu.

 A confirmation screen appears.
- Turn the MENU knob to select [Execute], then press the knob.

N

Changing the File ID

- Select File >Reference File >File ID in the setup menu.
 A screen for editing the File ID appears.
- Select characters and enter the File ID.
- 3 Turn the MENU knob to select [Done], then press the knob.
 The File ID is updated.

ens Files

Saving a Lens File in Internal Memory

- Select File >Lens File >Store Internal Memory A lens file list screen appears in the setup menu.
- Turn the MENU knob to select a destination, name will overwrite the selected file. offset." Selecting a row with a specified File ID then press the knob. can modify it. The File ID is generated automatically, but you You can save files in rows with File ID of "No
- \mathcal{C} Turn the MENU knob to select [Execute] on the confirmation message screen, then press the Knob

Saving a Lens File on an SD Card

- Select File >Lens File >Save SD Card in the A lens file save destination screen appears.
- Turn the MENU knob to select a destination, can modify it. The File ID is generated automatically, but you name will overwrite the selected file File." Selecting a row with a specified File ID You can save files in rows with a File ID of "No then press the knob.
- W knob. Turn the MENU knob to select [Execute] on the confirmation message screen, then press the

Changing the File ID

- Select File >Lens File >File ID in the setup A screen for editing the File ID appears.
- **N** Select characters and enter the File ID.
- \mathcal{C} Turn the MENU knob to select [Done], then The File ID is updated press the knob.

Memory Loading a Lens File from Internal

- Select File >Lens File >Recall Internal Memory A lens file list screen appears. in the setup menu.
- N Turn the MENU knob to select a file to load, A confirmation screen appears then press the knob.
- ω Turn the MENU knob to select [Execute], then press the knob

Loading a Lens File from an SD Card

Select File >Lens File >Load SD Card in the A lens file list screen appears. setup menu.

- Turn the MENU knob to select a file to load, A confirmation screen appears. then press the knob.
- Turn the MENU knob to select [Execute], then press the knob.

 ω

corresponds to the lens settings (Lens Auto Recall by automatically loading the lens file that communication, you can set up the camcorder function). When you are using a lens that supports serial

File >Lens Auto Recall in the setup menu to one of Off: Do not use the Lens Auto Recall function the following.

On (Lens Name): Load the lens file that If the lens does not support communication of On (Serial Number): Load the lens file that the serial number, even when set to On (Serial communication of the serial number). corresponds to the lens model name. serial number (when the lens supports corresponds to the lens model name and

Loading a Lens File Automatically

Number), load the lens file that corresponds to the lens model name. To use the Lens Auto Recall function, set File >Lens

Gamma Files

Checking the Current Gamma File Settings (File Names)

Select File >User Gamma >Current Settings in the setup menu to display a list of the currently configured user gamma files.

Using User Gamma Files Created Using CvpFileEditorTM V4.3

Save created user gamma files to be loaded in the "PRIVATE/SONY/PRO/CAMERA/HD_CAM" directory of the SD card.

Loading a User Gamma File from an SD Card

- Select File >User Gamma >Load SD Card in the setup menu.

 A user gamma file list screen appears.
- Turn the MENU knob to select a file to load, then press the knob.
 A confirmation screen appears.
- 3 Turn the MENU knob to select [Execute], then press the knob.

Resetting a User Gamma File to Initial

- Select File >User Gamma >Reset in the setup menu.
 A gamma file number reset screen appears.
- Turn the MENU knob to select the number of the gamma file to reset (1 to 5).
 To reset all gamma files, select [All].
 A confirmation screen appears.
- 3 Turn the MENU knob to select [Execute], then press the knob.

Connecting a Remote Control Unit

monitor connected to the MONITOR connector You can use the display on the RM-B170 or a videc functions can be controlled from that unit. When an RM-B170 Remote Control Unit, menu operations and monitor the camcorder of the remote control unit to perform camcorder control unit is connected, some camcorder RCP1001/1501 Remote Control Panel, or other

Connecting a Remote Control Unit

and the camera connector of the remote control the REMOTE connector (8-pin) of the camcorder Using the remote control cable, connect between

mode, enabling menu operations and shooting When you turn on the camcorder after making the operations connection, the camcorder enters remote control

[Notes]

- Remote control operation is not supported if USB connection to the camcorder is enabled
- If a USB connection to the camcorder is enabled during remote control, remote control mode is released
- Do not connect or disconnect the remote control unit when the camcorder is on
- A remote control cable is not supplied with the RCP 1001/1501 Remote Control Unit

The following switches of the camcorder are disabled when a remote control unit is connected

- GAIN switch
- WHITE BAL switch
- AUTO W/B BAL switch
- SHUTTER switch
- OUTPUT/DCC switch
- ASSIGN. 1/3 switches, ASSIGNABLE 4/5 switches, or ATW function has been assigned and the ONLINE button to which the Turbo Gain

Releasing Remote Control Mode

Buti

control unit. Turn off the camcorder and disconnect the remote

The switch settings on the camcorder become

Connecting a Monitor to an RM-B170

ON I swit swit ASS

The MONITOR connector (BNC type) of the RMthe VIDEO OUT connector. B170 outputs the same signal as the output from

stop

recc assic

the RM-B170. on the RM-B170, use the black cable supplied with To connect a monitor to the MONITOR connector

Image Quality Adjustment when an RM-B1/0 is Connected

the last time that the RM-B170 was connected. data) are set to the parameters that were specified When the RM-B170 is connected, the parameters for camera image quality adjustment items (paint

Buttons when an RM-B170 is Function of Recording Start/Stop Connected

Set the function of the buttons using Maintenance >Camera Config >RM Rec Start in the setup menu.

settings are given below The functions of the buttons for the RM Rec Start

ton	RM Rec St	RM Rec Start setting	
	RM	Camera	PARA
ncorder REC .RT button	Disabled	Enabled	Enabled
s VTR button	Disabled	Enabled	Enabled
IGN. 1/3	Disabled	Enabled	Enabled
tches, IGNABLE 4/5			
tches, and			
_INE button			
gned with			
ording start/			
function			
-B170 VTR	Enabled	Disabled	Enabled
ton			

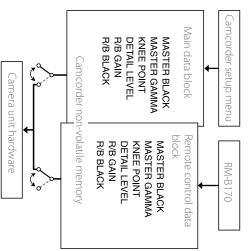
ASS

Len

Can

Adjustment Data Data Structure of Image Quality

a remote control unit, such as the RM-B170, is camera section depending on whether or not a remote control unit is not connected, and a data is automatically selected and output to the remote control unit is connected. Paint adjustment "remote control data block" that is used when a (paint data) consists of the two regions shown The non-volatile memory of the camcorder used below: a "main data block" that is used when for storing camera image quality adjustment data



- RM-B170 connected

remote control unit override the settings on the on the remote control unit, the settings on the controls 1) and absolute value switches 2) are set However, when the settings of absolute value parameters that were in effect the last time the current paint data block, and the paint adjustment remote control unit was used are loaded "remote control data block" is selected as the When a remote control unit is connected, the

from the camcorder, the "main data block" is rewas connected. enabled, and the camcorder returns to the settings When the remote control unit is disconnected that were in effect before the remote control unit

- 1) Absolute value controls: Data corresponding to the angular position of the control is output. Controls for which data corresponding to the amount of rotation is output are called relative value controls.
- Absolute value switches: Switches (or knobs), such as toggle switches or slide switches (except most momentary switches) whose positions must coincide with their functions are called absolute value switches

Common Memory in the setup menu is set to When Maintenance >Camera Config >RM [On], you can use settings of the paint adjustment

data stored in the main data block even if a remote control unit is connected. In this case, the settings stored in the main data block will be updated when you change the settings on the remote control unit. Thus, the settings of the paint data made with the remote control unit will be retained even after the remote control unit is removed. However, if the switch position on the camcorder, the switch position on the camcorder, the switch position on the camcorder, the switch position on the camcorder.

Also, it is possible to keep the settings that are in effect before you connect the remote control unit. In this case, you must set the control knobs to relative value mode on the remote control unit.

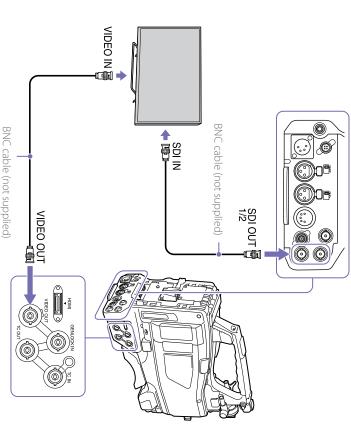
For details, refer to the operation manual supplied with the remote control unit.

Operating the Menu from the RM-B170

- Set the DISPLAY switch to the MENU position. The menu is displayed on the monitor connected to the MONITOR connector of the RM-B170.
- Select and set menu items using the MENU SELECT knob and CANCEL/ENTER switch.
- 3 When finished, set the DISPLAY switch to the ON or OFF position to exit the menu.
- For details about RMB170 operation, refer to the operation manual of the RM-B170.

Jonnecting an External Monitor

Select the output signal and use an appropriate cable for the monitor to be connected.



displayed on the external monitor as those on the the same status information and menus can be Regardless of whether the signal is HD or SD, viewfinder screen.

menu is set to 720×486i or 720×576i. The SD signal down-converted output is enabled when Operation >Input/Output >Output Format in the setup

SDI OUT Connector (BNC

turned on and off using Operation >Input/Output The output signal from this connector can be monitor, switcher, VTR, or other recording device. device that supports SDI. The device type can be a The SDI OUT connector can be used to connect a

> menu (page 91) For connection, use a BNC cable (not supplied) >SDI Out1 Output/SDI Out2 Output in the setup

VIDEO OUT Connector

a device that supports analog composite signals The VIDEO OUT connector can be used to connect recording device. The device type can be a monitor, VTR, or other

Format in the setup menu. the setting of Operation >Input/Output >Output The output signal changes in conjunction with

be necessary to change the input signal setting to an external analog composite device, it may To input the VIDEO OUT connector output signal

> composite signal setting for the VIDEO OUT of that external device to match the analog connector.

device, connect the audio output of the AUDIO device such as a monitor, VTR, or other recording OUT connector to the audio input of that external To input camcorder output audio to an external

For connection, use a BNC cable (not supplied)

HDMI OUT Connector (Type A Connector)

camcorder on/off using Operation >Input/Output >HDMI Output in the setup menu. You can turn the output signal from the

menu. >Input/Output >Output Format in the setup The output signal format is set using Operation

Use a commercially available HDMI cable for

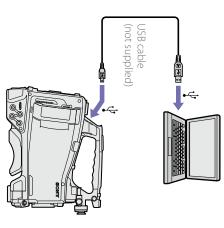
Managing/Editing Clips with a Computer

The clips recorded on SxS memory cards with this camcorder can be controlled on a computer or edited using optional nonlinear editing software. You can copy clips on SxS memory cards to portable storage or other USB media if portable media/USB media is connected to the external device connection connector.

USB Connection with a Computer

When you connect the camcorder to a computer using a USB cable (not supplied), the memory card in the slot is recognized as an extended drive by the computer.

When two memory cards are mounted in the camcorder, they are recognized as two independent extended drives by the computer.



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- Turn the camcorder on and wait until the image and information are displayed on the screen, then connect the USB cable to the camcorder.
- When connecting the USB cable to the computer, be careful to check the form and direction of the USB connector.
- The camcorder does not work on the bus power from the computer.

To start USB connection

When you connect a computer to the PC connector with a USB cable (not supplied), the message "Connect USB Now?" is displayed to prompt you to confirm that you wish to enable the USB connection.

If you select "Cancel" or push the MENU CANCEL/ PRST/ESCAPE switch down to the ESCAPE position, or if you disconnect the USB cable, the message "Connect USB Now?" disappears.

If you select "Execute" and press the MENU knob, the USB connection is enabled and the camcorder is recognized as an extension drive.

If the USB connection is enabled during recording/ playback operation, the operation is stopped and the message "USB Connecting" appears on the

At this time, the output signal from the VIDEO OUT connector and SDI OUT 1/2 connectors changes to a black signal.

Notes]

- The camcorder cannot be operated for recording, playback, and so on while the message "USB Connecting' is displayed.
- When the computer accesses the media loaded in the camcorder, do not try to carry out the following operations.
- Operating the camcorder (turning the power on/off, switching the operating mode, etc.)
- Removing or loading a media from an active slot (being accessed from the computer)
- Removing or connecting the USB cable

Releasing the USB connection

To release the USB connection, follow the same procedure as that for removing a device from the computer.

To enable the USB connection again, first disconnect the USB cable and then reconnect it. The message "Connect USB Now?" appears again.

To remove an SxS memory card

On Windows

- Click on the "Safely Remove Hardware" icon on the task bar of the computer.
- Select "Safely remove SxS Memory Card Drive(X:)" from the displayed menu.
- Check that the "Safe To Remove Hardware" message appears, then remove the card.

n Macintosh

Drag the SxS memory card icon on the desktop to the Trash.

If the SxS memory card icon is displayed in the Finder, click on the eject icon.

lo use the application software

To copy clips to the local disk of your computer, the dedicated application software must be downloaded and installed on your computer. For details about downloading software, see "Software Downloads" (page 147).

Although the data regarding recorded materials are stored over multiple files and folders, you can easily handle the clips without considering such data and directory structure by using the dedicated application software.

Note

If you perform operations on clips, such as copying the clips on the SxS memory card using Explorer (Windows) or Finder (Macintosh), the subsidiary data contained by the clips may not be maintained.

To use a nonlinear editing system

In a nonlinear editing system, editing software (option) that supports the formats recorded by the camcorder is required.

application software.

Some editing software may not operate properly Be sure to confirm before use that it conforms to the recording formats used with this camcorder.

Store the clips to be edited on the HDD of your computer in advance, using the supplied

Connecting Portable Storage/USB Madia

When portable storage, USB HDD, or similar media is connected to the external device connection connector, you can copy clips from the recording media inserted in an SxS card slot of the camcorder to USB media.

- Specify the destination folder for copying clips in Operation >USB >Select Folder in the setup menu.
- You can also select [New] on the screen to create a new folder.

[Note]

If a folder is not specified, a folder is automatically created with a folder name the same as the creation date of the first clip to be copied, and clips are copied to that folder.

- Select Operation >USB >Copy to USB in the setup menu.
- Select the slot in which the target recording media is inserted.

Media(A) to USB: Copy all clips from the recording media inserted in slot A. Media(B) to USB: Copy all clips from the recording media inserted in slot B.

Media(A)(B) to USB: Copy all clips from the

recording media inserted in slot A and slot

7

When a copy destination folder is specified in step 1 and Media(A)(B) to USB is selected, slot A clips are copied to the specified destination folder. Slot B clips are copied to a folder that is automatically created with a folder name the same as the creation date of the first clip.

4 Turn the MENU knob to select [Execute], then press the knob.

All clips on the target recording media are copied to the USB media.

Note

If a clip with the same file name as the clip to copy already exists in the destination folder, the clip is not copied.

Displaying a list of clips on portable storage/USB media

You can display a list of the clips on portable storage/USB media using Operation >USB >View Clip List in the setup menu.

Renaming a folder on portable storage/USB media

You can rename a folder using Operation >USB >Rename Folder in the setup menu.

- Select Operation >USB >Rename Folder in the setup menu.
- Select the folder to rename, and press the SET button.
 A file name input screen appears.
- 3 Enter a folder name, and select [Done] on the screen.
 The folder is renamed.

Checking for copy read errors

You can check for read errors after writing clips by setting Operation > USB > Error Check in the setup menu to On.

Formatting portable storage/USB media

You can format portable storage/USB media in exFAT format using Operation > USB > Format USB in the setup menu.

- Select Operation >USB >Format USB in the setup menu.
- Turn the MENU knob to select [Execute], then press the knob. Initialization (formatting) begins.
- When the formatting is completed, a message appears on the screen. Select [OK].

Checking free space on portable storage/USB media

The free space on portable storage/USB media is displayed in the Media Remain row on the screen displayed when Operation >USB in the setup menu is selected.

About power supply to portable storage/USB media

Power is supplied to portable storage/USB media from the external device connector automatically when performing an operation in Operation >USB in the setup menu.

However, power supply is not started under the following conditions, even when performing an operation in Operation >USB in the setup menu. To start the supply of power, perform the solution shown in the table.

State	Solution
During clip recording,	Terminate the previous
playback, thumbnail	operation.
display, proxy recording,	
streaming, proxy transfer,	
or live transfer mode	
Network Client Mode is	Set Network Client Mode
On	to Off.
Media adaptor is	Unmount the media
connected	adaptor connection.

Notes

- Clips on portable storage or other USB media cannot be copied to recording media inserted in an SxS card slot.
- Clips cannot be recorded while power is supplied to the external device connector. To start recording clips, terminate the Operation > USB operation in the setup

Configuring a Shooting and Recording System

You can mount a CA-FB70/TX70 HD Camera Adaptor to the camcorder and connect a Camera Control Unit (CCU).

This allows you to configure a shooting and recording system consisting of multiple camcorders with camera extension units connected to a remote control unit.

For more information about the CA-FB70 and CA-TX70, refer to their respective operation manuals

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- When using the camcorder in this system, do not connect a video light to the camcorder
- Supported only for XAVC and MPEG HD recording.
- Not supported for proxy recording and wireless LAN connection function.

Tally and Call Indicators

The tally and call indicators for a system are as follows.

Data rec	Data received from system	ystem		HDVF LEE	HDVF LED indicators	Text displa	Text display on viewfinder screen	der screen
Tally	Green Tally	CA call	Non-CA call	REC/ TALLY LED	GREEN TALLY LED	•	•	CALL
OFF	OFF	OFF	OFF	Not lit	Not lit	No display	No display	No display
OFF	OFF	OFF	ON	Lit	Not lit		No display	CALL
OFF	OFF	ON	OFF	Not lit	Not lit	No display	No display	CALL
OFF	OFF	ON	ON	Lit	Not lit	•	No display	CALL
OFF	ON	OFF	OFF	Not lit	Lit	No display	•	No display
OFF	ON	OFF	NO	Lit	Lit	•		CALL
OFF	ON	ON	OFF	Not lit	Lit	No display	•	CALL
OFF	9	9	ON.	Ę	Liŧ	•	•	CALL
9	OFF	OFF	OFF	Ę	Not lit	•	No display	No display
ON N	OFF	OFF	ON	Not lit	Not lit	No display	No display	CALL
9	OFF	9	OFF	듥	Not lit	•	No display	CALL
NO	OFF	ON	ON	Not lit	Not lit	No display	No display	CALL
9	ON	OFF	OFF	듥	Lit	•	•	No display
9	ON	OFF	ON.	Not lit	Lit	No display	•	CALL
9	ON	9	OFF	듥	Lit	•	•	CALL
8	ON	ON	ON	Not lit	Lit	No display		CALL

[Note]

Alarm indications using the tally indicator in the warning display are not displayed while a CA-FB70/TX70 Camera Adaptor is connected.

Supported Formats and Limitations of Shooting/Recording Systems

The supported formats and operation limitations of a shooting/recording system comprising the camcorder, camera adaptor, and camera control unit are shown in the following table.

		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		
Operation menu	nenu		System format of camera adaptor /	Camcorder limitation
Format		Input/Output	camera control unit	Return video
Frequency	Rec Format	Output Format		display
		SDI		
59.94	XAVC-I 1920×1080P	1920×1080i	1920×1080 59.94i	N _o
	XAVC-L 50 1920×1080P	•		
	XAVC-L 35 1080P			
	XAVC-I 1920×1080i	1920×1080i	1920×1080 59.94i	Yes
	XAVC-L 50 1920×1080i	•		
	XAVC-L 35 1080i	•		
	XAVC-L 25 1080i			
	HD422 50 1080i	•		
	HQ 1920×1080i	•		
	HQ 1440×1080i			
	XAVC-I 1280×720P	1280×720P	1280×720 59.94P	Yes
	XAVC-L 50 1280×720P			
	HD422 50 720P			
	HQ 1280×720P			
29.97	XAVC-I 1920×1080P	1920×1080PsF	1920×1080 29.97PsF a)	Yes
	XAVC-L 50 1920×1080P		1920×1080 59.94i	
	XAVC-L 35 1080P			
	HD422 50 1080P	•		
	HQ 1920×1080P			
	HD422 50 720P	1280×720P	1280×720 59.94P	No
23.98	XAVC-I 1920×1080P	1920×1080i	1920×1080 59.94i	No
	XAVC-L 50 1920×1080P	(2-3PD)		
	XAVC-L 35 1080P	•		
	HD422 50 1080P			
	HQ 1920×1080P			
	HD422 50 720P	1280×720P (7_3PD)	1280×720 59.94P	No

nit	Operation menu	nenu		System format of camera adaptor /	Camcorder limitation
Equency Rec Format Output Format XAVC-I 1920x1080P XAVC-L 50 1920x1080P XAVC-L 35 1080P XAVC-L 35 1080P XAVC-L 35 1080i XAVC-L 35 1080i XAVC-L 25 1080i HQ 1920x1080i HQ 1920x1080i HQ 1920x1080i HQ 1920x1080i HQ 1280x720P HD422 50 1280x720P XAVC-L 35 1080P HQ 1920x1080P HD422 50 1080P HQ 1920x1080P HQ 1920x1080P HQ 1920x1080P HQ 1920x1080P HQ 1920x1080P HQ 1920x1080P HQ 1920x1080P HD422 50 720P 1280x720P 1920x1080PsF 1920x1080PsF 1920x1080 50i 1920x1080 50i	Format		Input/Output	camera control unit	Return video
XAVC-I 1920×1080P 1920×1080i 1920×1080 50i	Frequency	Rec Format	Output Format		display
XAVC-I 1920×1080P 1920×1080i 1920×1080 50i XAVC-L 50 1920×1080P			SDI		
XAVC-L 50 1920×1080P XAVC-I 35 1080P XAVC-I 35 1080i XAVC-I 1920×1080i 1920×1080i 1920×1080i XAVC-L 25 1080i HQ 1920×1080i HQ 1920×1080i HQ 1140×1080i XAVC-L 50 1280×720P XAVC-L 50 1280×720P HQ 1280×720P HQ 1280×720P XAVC-I 1920×1080P XAVC-I 35 1080P XAVC-L 35 1080P HQ 1920×1080P 1280×720P 1280×720P 1280×720P	50	XAVC-I 1920×1080P	1920×1080i	1920×1080 50i	No
XAVC-L 35 1080P XAVC-L 1920×1080i 1920×1080i 1920×1080 50i XAVC-L 50 1920×1080i XAVC-L 25 1080i XAVC-L 25 1080i HD422 50 1080i HQ 1440×1080i HQ 1440×1080i XAVC-L 50 1280×720P XAVC-L 50 1280×720P HD422 50 720P HQ 1280×720P XAVC-L 1920×1080P XAVC-L 35 1080P HD422 50 1080P HD422 50 1080P HD422 50 720P 1280×720P 1280×720P 1920×1080 50i		XAVC-L 50 1920×1080P			
XAVC-I 1920×1080i 1920×1080i 1920×1080 50i XAVC-L 50 1920×1080i		XAVC-L 35 1080P			
XAVC-L 50 1920×1080i XAVC-L 35 1080i XAVC-L 25 1080i HD422 50 1080i HQ 1920×1080i HQ 1920×1080i XAVC-I 1280×720P XAVC-L 50 1280×720P HD422 50 720P HQ 1280×720P XAVC-I 1920×1080P XAVC-L 50 1920×1080P XAVC-L 50 1920×1080P HD422 50 1080P HD422 50 720P 1280×720P 1280×720P 1280×720 50P		XAVC-I 1920×1080i	1920×1080i	1920×1080 50i	Yes
XAVC-L 35 1080i XAVC-L 25 1080i HD422 50 1080i HQ 1920×1080i HQ 1920×1080i XAVC-L 1280×720P XAVC-L 50 1280×720P HD422 50 720P HQ 1280×720P XAVC-L 1920×1080P XAVC-L 50 1920×1080P XAVC-L 35 1080P HD422 50 1080P HD422 50 720P 1280×720P 1280×720P 1280×720 50P		XAVC-L 50 1920×1080i			
XAVC-L 25 1080i HD422 50 1080i HQ 1920×1080i HQ 1920×1080i XAVC-L 1280×720P XAVC-L 50 1280×720P HD422 50 720P HQ 1280×720P XAVC-L 1920×1080P HQ 1280×720P XAVC-L 50 1920×1080P XAVC-L 50 1920×1080P HD422 50 1080P HD422 50 1080P HD422 50 720P HD422 50 720P HD422 50 720P 1280×720P 1280×720 50P		XAVC-L 35 1080i	•		
HD422 50 1080i HQ 1920×1080i HQ 1920×1080i HQ 1440×1080i XAVC-I 1280×720P XAVC-L 50 1280×720P HD422 50 720P HQ 1280×720P XAVC-I 1920×1080P XAVC-L 50 1920×1080P XAVC-L 50 1920×1080P XAVC-L 50 1920×1080P HD422 50 1080P HD422 50 720P HD422 50 720P HD422 50 720P 1280×720P 1280×720 50P		XAVC-L 25 1080i			
HQ 1920×1080i HQ 1440×1080i XAVC-I 1280×720P XAVC-L 50 1280×720P HD422 50 720P HQ 1280×720P XAVC-I 1920×1080P HQ 1280×720P XAVC-L 50 1920×1080P XAVC-L 50 1920×1080P HD422 50 1080P HD422 50 1080P HD422 50 720P HD422 50 720P HD422 50 720P 1280×720P 1280×720P 1280×720 50P		HD422 50 1080i	•		
HQ 1440×1080i XAVC-I 1280×720P XAVC-L 50 1280×720P HD422 50 720P HQ 1280×720P XAVC-I 1920×1080P XAVC-L 50 1920×1080P XAVC-L 50 1920×1080P HD422 50 1080P HD422 50 720P HD422 50 720P HD422 50 720P HD422 50 720P 1280×720P 1280×720P 1280×720 50P		HQ 1920×1080i	•		
XAVC-I 1280×720P 1280×720P 1280×720 50P XAVC-L 50 1280×720P HD422 50 720P HQ 1280×720P XAVC-I 1920×1080P XAVC-L 50 1920×1080P XAVC-L 50 1920×1080P HD422 50 1080P HD422 50 720P HD422 50 720P 1280×720P 1280×720 50P		HQ 1440×1080i			
XAVC-L 50 1280×720P HD422 50 720P HQ 1280×720P XAVC-I 1920×1080P XAVC-L 50 1920×1080P XAVC-L 50 1920×1080P HD422 50 1080P HD422 50 1080P HQ 1920×1080P HQ 1920×1080P 1280×720P 1280×720 50P		XAVC-I 1280×720P	1280×720P	1280×720 50P	Yes
HD422 50 720P HQ 1280×720P XAVC-I 1920×1080P XAVC-L50 1920×1080P XAVC-L50 1920×1080P HD422 50 1080P HD422 50 720P HD422 50 720P 1280×720P 1280×720 50P		XAVC-L 50 1280×720P	•		
HQ 1280×720P XAVC-I 1920×1080P XAVC-L 50 1920×1080P XAVC-L 35 1080P HD422 50 1080P HQ 1920×1080P HQ 1920×1080P HD422 50 720P 1280×720P 1280×720 50P		HD422 50 720P	•		
XAVC-I 1920×1080P 1920×1080PsF 1920×1080 25PsF a) XAVC-L 50 1920×1080P 1920×1080 50i XAVC-L 35 1080P 1920×1080P HD422 50 1080P HQ 1920×1080P 1280×720P 1280×720 50P		HQ 1280×720P			
1920×1080 50i	25	XAVC-I 1920×1080P	1920×1080PsF	1920×1080 25PsF a)	Yes
1280×720P 1280×720 50P		XAVC-L 50 1920×1080P		1920×1080 50i	
1280×720P 1280×720 50P		XAVC-L 35 1080P	•		
P 1280×720P 1280×720 50P		HD422 50 1080P	•		
1280×720P 1280×720 50P		HQ 1920×1080P			
		HD422 50 720P	1280×720P	1280×720 50P	No

a) A PsF setting is recommended when a CA-TX70 Camera Adaptor is connected.

Jej

In a shooting/recording system, special recording functions, such as wireless LAN connection function or Slow & Quick Motion, cannot be used simultaneously.

Recording External Input Signals

You can record SDI signals from devices connected to the SDI IN connector of the camcorder.

To output and record input signals instead of the camera picture, set Operation >Input/Output >Source Select in the setup menu to [External].

[Notes]

- External input signals cannot be recorded in Slow & Quick Motion mode. When a special recording mode, such as Slow &
 Quick Motion mode, is selected, the recording mode is canceled when you set Operation >Input/Output >Source Select in
 the setup menu to [External].
- Execution of automatic adjustment functions, such as automatic black balance, and operations, such as playback, Rec
 Review, and thumbnail display, will end when Operation >Input/Output >Source Select in the setup menu is set to
 [External]. The camcorder enters stop mode and then the camera picture switches to external input.
- Recording may stop if the input signal is disturbed while recording external input. Recording automatically resumes when
 the input signal returns to normal.
- Not supported for proxy recording and wireless LAN connection function.

Supported External Input Signal Formats and Camcorder Recording Formats

HD/SD	Operation >Format >Rec Format in the setup menu	Operation >Format Support >Frequency in the setup menu formats	Supported external input signal formats
HD	XAVC-I 1920×1080i	59.94	HD 1920×1080 29.97PsF/59.94i HD 1280×720 59.94P
		50	HD 1920×1080 25PsF/50i HD 1280×720 50P
	XAVC-I 1280×720P	59.94	HD 1920×1080 29.97PsF/59.94i HD 1280×720 59.94P
		50	HD 1920×1080 25PsF/50i HD 1280×720 50P
	XAVC-L 50 1920×1080i	59.94	HD 1920×1080 29.97PsF/59.94i HD 1280×720 59.94P
		50	HD 1920×1080 25PsF/50i HD 1280×720 50P
	XAVC-L 50 1280×720P	59.94	HD 1920×1080 29.97PsF/59.94i HD 1280×720 59.94P
		50	HD 1920×1080 25PsF/50i HD 1280×720 50P
	HD422 50 1080i	59.94	HD 1920×1080 29.97PsF/59.94i HD 1280×720 59.94P
		50	HD 1920×1080 25PsF/50i HD 1280×720 50P

HD/SD	Operation >Format >Rec Format in the setup menu	Operation >Format Support >Frequency in the setup menu formats	Supported external input signal formats
HD	HD422 50 720P	59.94	HD 1920×1080 29.97PsF/59.94i HD 1980×790 59 94P
			HD 1280×720 59.94P
		50	HD 1920×1080 25PsF/50i
			HD 1280×720 50P
	HQ 1920×1080i	59.94	HD 1920×1080 29.97PsF/59.94i
			HD 1280×720 59.94P
		50	HD 1920×1080 25PsF/50i
			HD 1280×720 50P
	HQ 1440×1080i	59.94	HD 1920×1080 29.97PsF/59.94i
			HD 1280×720 59.94P
		50	HD 1920×1080 25PsF/50i
			HD 1280×720 50P
	HQ 1280×720P	59.94	HD 1920×1080 29.97PsF/59.94i
			HD 1280×720 59.94P
		50	HD 1920×1080 25PsF/50i
			HD 1280×720 50P
SD	MPEG IMX 50	59.94	SD 486 59.94i
		50	SD 576 50i
	DVCAM	59.94	SD 486 59.94i
		50	SD 576 50;

Maintenance

Cleaning the Viewfinder

Use a dust blower to clean the CRT screen and mirror inside the viewfinder barrel. Clean the lens and protecting filter with a commercially available lens cleaner.

Note

Never use organic solvents such as thinners.

Note about the Battery Terminals

The battery terminal of this unit (the connector for battery packs and AC adaptors) is a consumable part.

Power may not be supplied to the unit properly if the pins of the battery terminal are bent or deformed by shock or vibrations, or if they become corroded due to prolonged outdoor use.

Periodic inspections are recommended to keep the unit working properly and to prolong its usable lifetime.

Contact a Sony service or sales representative for more information about inspections.

Exchanging the Battery of the Internal Clock

The camcorder's internal clock is powered by a lithium battery. If the message "BackUp Battery End" appears in the viewfinder, this battery must be exchanged. Contact a Sony service representative.

Error/Warning System

If a warning, caution, or operating condition that requires confirmation occurs on the camcorder, a message is displayed in the viewfinder, the corresponding indicators start flashing, and a warning sound is emitted. You can adjust the volume of the warning sound using the ALARM knob. If the ALARM knob is set to minimum, the warning sound will not be audible.

Error Display

The camcorder will stop operation when the following kind of display occurs.

11. Call 1. Col act A 11. 2. Col act	The callicol act will stop operation writer the following will of angliay occars.	ay occurs.	
Error message	Warning sound WARNING	Tally/REC indicator Cause and Solution	Cause and Solution
	indicator		
E + error code	Continuous —	High-speed flashing	High-speed flashing Indicates an abnormality in the camcorder.
			Turn off the camcorder, and check for any problem with connected devices, cables, or media.
			(If the camcorder does not turn off when the POWER switch is set to OFF, remove the battery or disconnect the AC supply.)
			If the error persists when the camcorder is turned on again, contact your Sony service representative.

Warning Display

Follow the instructions provided if the following display occurs

Follow the instructions provided if the following display occurs	if the following of	display occurs.		
Warning message	Warning sound WARNING indicator	WARNING indicator	Tally/REC indicator	Cause and Solution
Media Near Full	Intermittent	Flashing	Flashing	The remaining capacity on the SxS memory card is getting low. Replace at the earliest convenience.
Media Full	Continuous	On	High-speed flashing	Clips could not be recorded, copied, or split because there is no remaining capacity on the SxS memory card. Replace immediately.
Battery Near End	Intermittent	Flashing	Flashing	The remaining capacity of the battery pack is getting low. Recharge at the earliest convenience. (The battery indicator flashes in the viewfinder.)
Battery End	Continuous	On	High-speed flashing	The battery pack is dead. Recording is disabled. Connect a power source to DC IN and allow the battery pack to recharge without attempting to operate the camcorder. (The battery indicator flashes in the viewfinder.)
Temperature High	Intermittent	Flashing	Flashing	The internal temperature is high. Turn off the camcorder and allow it to cool down before operating it again.
Voltage Low	Intermittent	Flashing	Flashing	The DC IN voltage is low (level 1). Check the power source.
Insufficient Voltage	Continuous	On	High-speed flashing	The DC IN voltage is too low (level 2). Recording is disabled. Connect a different power source. (The battery indicator flashes in the viewfinder.)

Warning message	Warning sound	WARNING indicator	Tally/REC indicator	Cause and Solution
Clips Full	Continuous	On	High-speed flashing	The maximum number of clips that can be recorded on an SxS memory card has been reached. Recording or copying more clips is not possible. Replace immediately.
Last Clip Recording	Intermittent	Flashing	Flashing	The clip currently recording is the last clip that can be recorded, as the maximum number of clips has been reached. Prepare a new SxS memory card.
Clips Near Full	Intermittent	Flashing	Flashing	The number of additional clips that can be recorded on the SxS memory card is getting low. Replace at the earliest convenience.
Media(Proxy) Full	Continuous	On	High-speed flashing	Proxy data cannot be recorded because there is no remaining free space on the proxy data SD card. Replace immediately.
Clips(Proxy) Full	Continuous	On	High-speed flashing	The maximum number of clips that can be recorded on the proxy data SD card has been reached. Recording more clips is not possible. Replace immediately.
Media(Proxy) Near Full	Intermittent	Flashing	Flashing	The remaining free space on the proxy data SD card is getting low. Replace at the earliest convenience.
Last Clip(Proxy) Rec	Intermittent	Flashing	Flashing	The proxy data currently recording is the last clip that can be recorded, as the maximum number of clips has been reached. Prepare a new proxy data SD card.
Clips(Proxy) Near Full	Intermittent	Flashing	Flashing	The number of additional clips that can be recorded on the proxy data SD card is getting low. Replace at the earliest convenience.
Media(A) 1) Full	Continuous	On	High-speed flashing	When using the simultaneous recording function
Media(A) ¹⁾ Clips Full	Continuous	On	High-speed flashing	When using the simultaneous recording function
Media(A) 1) Near Full	Intermittent	Flashing	Flashing	When using the simultaneous recording function
Media(A) 1) Last Clip Rec	Intermittent	Flashing	Flashing	When using the simultaneous recording function

1) "(B)" is displayed for cards in slot B.

Caution and Operation Confirmation Display

The following caution and operation messages may appear in the center of the screen. Follow the instructions provided to resolve the issue.

ווושנו מכנוסווש מוסיומכם נסוכשסויים נוזכ וששני.	
Display indication	Cause and Solution
Battery Error Please Change Battery	An error was detected in the battery pack. Replace with a normal battery pack.
Backup Battery End Please Change	The remaining capacity of the backup battery is insufficient. Replace the backup battery.
Unknown Media(A) 1) Please Change	A memory card that has been partitioned or a memory card containing more clips that can be handled by the camcorder was inserted. The card cannot be used in the camcorder, and must be replaced.
Media Error Media(A) ¹⁾ Needs to be Restored	An error occurred on the memory card, and the card must be restored. Eject and then re-insert the card, then repair the card.
Media Error Cannot Record to Media(A) ¹⁾	The memory card may be damaged, and can no longer be used for recording. Playback may be possible, so making a copy and replacing the memory card is recommended.
Media Error Cannot Use Media(A) ¹⁾	The memory card may be damaged, and can no longer be used for recording or playback. The card cannot be used in the camcorder, and must be replaced.
Cannot Use Media(A) " Unsupported File System	A card using a different file system or an unformatted card was inserted. The card cannot be used in the camcorder, and must be replaced or formatted using the camcorder.
Media(A) ¹⁾ Error Playback Halted	Cannot continue playback because an error occurred while reading from the memory card. If the problem persists, make a copy and replace the memory card.
Media(A) ¹⁾ Error	Recording is stopped because an error occurred on the memory card. If the problem persists, replace the memory card.
Different Media is Inserted Cannot Use Media(A) ")	Different media was inserted. Eject the inserted card, and insert a card of the same type as the previously inserted card.

^{1) &}quot;(B)" is displayed for cards in slot B.

Messages Displayed During Operation

This section describes the meaning of messages that may be displayed in response to button, switch, or knob operation.

- [Notes]
 Covers only the messages displayed about possible causes in response to an operation.
 Messages displayed when an operation is attempted while a menu item cannot be selected (grayed out) are not described.

Media not exist	Cannot record because there is no recording media in an SxS card slot
ואוכמומ ווטר באוזר	במוחוסי ובניסומ הנוביב וזיוס ובניסומווין וויביסומ ווי מוד מוס כמומ זיסיי
Media(Proxy)	Proxy data recording mode is set to On, but cannot record proxy data because the proxy SD card is not inserted.
Cannot Record	
No Media in Slot(Proxy)	
Media(Proxy)	Cannot record proxy data because cannot write to the proxy SD card due to a media error.
Cannot Record	
Media(Proxy) Error	
Media(Proxy)	Cannot record proxy data because the proxy SD card is write-protected.
Cannot Record	
Media(Proxy): Write Protected	
Media(Proxy)	Cannot record proxy data because the proxy data recording circuitry initialization is not completed.
Cannot Record	
NG: Preparing	
Media(Proxy) Cannot Record	Cannot record proxy data because the proxy SD card is not inserted.
No Media in Slot(Proxy)	
Media(Proxy)	Cannot record proxy data because cannot write to the proxy SD card due to a media error.
Cannot Record	
Media(Proxy) Error	
Media(Proxy)	Cannot record proxy data because the proxy SD card is write-protected.
Media(Proxy): Write Protected	
Media(Proxy)	Cannot record proxy data because the proxy data recording circuitry initialization is not completed.
Cannot Record	
NG: Preparing	
First Clip Top!	Cannot execute because the playback position is at the first frame of the first clip.
First Clip Top!	Cannot execute because the playback position is at the first frame of the first clip.
First Clip Top!	Cannot execute because the playback position is at the first frame of the first clip.
Last Clip End!	Cannot execute because the playback position is at the last frame of the last clip.
Last Clip End!	Cannot execute because the playback position is at the last frame of the last clip.
Last Clip End!	Cannot execute because the playback position is at the last frame of the last clip.
Last Clip End!	Cannot execute because the playback position is at the last frame of the last clip.
Cannot Switch Slots	Cannot change slots during playback.
Media removed	Media was removing while reading from recording media or while writing to recording media (ACCESS indicator is lit).
	Media(Proxy) Cannot Record No Media in Slot(Proxy) Media(Proxy) Cannot Record Media(Proxy) Cannot Record Media(Proxy): Write Protected Media(Proxy) Cannot Record NG: Preparing Media(Proxy) Cannot Record No Media(Proxy) Cannot Record Media(Proxy) Cannot Swrite Protected Media(Proxy) Cannot Swrite Protected Media Clip End! Last Clip End! Last Clip End! Cannot Swritch Slots Media removed

Operation	Message	Meaning and possible cause
GAIN switch was operated	Gain: xxxxdB (where "xxxx" is the gain value)	Gain setting was changed.
DCC switch was operated	DCC: On	DCC was set to On.
	DCC: Off	DCC was set to Off.
	Fixed By Hyper Gamma!	Cannot set DCC to On because Gamma Category is set to HG or User.
White balance switch was operated	White: Preset xxxxK (where "xxxx" is the color temperature	White balance was changed to the preset value.
	White: A xxxxK (where "xxxx" is the color temperature value)	White balance was changed to the memory A value.
	White: B xxxxK (where "xxxx" is the color temperature value)	White balance was changed to the memory B value.
	White: ATW xxxxK (where "xxxx" is the color temperature value)	White balance mode was changed to ATW.
SHUTTER switch was operated	Shutter: 1/xxxx (where "xxxx" is the shutter value)	Shutter speed was changed (standard, Speed mode settings).
	Shutter: xxxx (where "xxxxx" is the shutter value)	Shutter speed was changed (standard, Angle mode settings).
	ECS: xxxxHz (where "xxxx" is the frequency value)	Shutter speed was changed (ECS mode).
Menu knob was turned	ECS: xxxxHz (where "xxxx" is the frequency value)	Shutter speed was changed (ECS mode).
	Iris Override: +x.xx (where "x.xx" is a numeric value)	Iris override level was changed.
Auto black switch was operated	Color Bars Cannot Proceed	Cannot execute because a color bar signal is being output.
	Test Saw Cannot Proceed	Cannot execute because a test signal is being output.
	Not Available Recording	Cannot execute because recording is in progress.
	Not Available Playing back	Cannot execute because playback is in progress.
	Not Available Displaying Thumbnails	Cannot execute because the thumbnail screen is displayed.

Operation	Message	Meaning and possible cause
Auto white switch was operated	Color Bars Cannot Proceed	Cannot execute because a color bar signal is being output.
	Not Available	Cannot execute because playback is in progress.
	Playing back	
	Not Available	Cannot execute because the thumbnail screen is displayed.
	Displaying Thumbnails	
	White Balance Preset	Cannot execute because the white balance is set to the preset value.
Assignable switch assigned with ATW Hold	ATW Hold	ATW Hold function was enabled.
function was operated	ATW Hold Off	ATW Hold function was disabled.
Assignable switch assigned with Clip	Cannot Proceed	Cannot execute because recording is in progress.
	Cannot Droceed	Cannot execute herause a CA-ER70/TY70 Camera Adaptor is connected to the CCII
Assignable switch assigned with Picture Cache Rec was operated	Cannot Proceed Recording	Cannot execute because recording is in progress.
	Cannot Proceed	Cannot execute because of the following conditions. • Playback is in progress
		 Thumbnail screen is displayed CA-FB70/TX70 Camera Adaptor is connected to the CCU.
Assignable switch assigned with Streaming was operated	Cannot Proceed Network Client Mode Setting is "On"	Cannot execute because network client mode is enabled.
	Cannot Proceed Network Function is Disabled	Cannot execute because network connection setting is set to Off.
	Cannot Proceed Network Client Mode Setting is "On" Network Function is Disabled	Network client mode is set to On, but cannot execute because network connection is unavailable.
	Cannot Start Streaming Streaming Disabled Temporarily	Cannot execute because of the following conditions. • Proxy data playback is in progress • 1280×720 clip playback is in progress with recording format set to 1920×1080 • 1920×1080 clip playback is in progress with recording format set to 1280×720
	Cannot Start Streaming Please stop Recording or Playback	Cannot execute because recording/playback was started while wireless function circuitry was initializing (including thumbnail display). Stop recording/playback (including thumbnail display) to enable execution.

Assignable switch assigned with Streaming	Cannot Proceed	Cannot configure because streaming is in progress.
was operated while network client mode is	Streaming Setting is "On"	
enabled	Cannot Connect to CCM Network Function is Disabled	Cannot connect to Connection Control Manager because network connection is unavailable.
	Cannot Record Proxy	Cannot record proxy data, when proxy data recording is started, because Maintenance >Network Client Mode >Detail Settings >NCM with Proxy in the setup menu is set to Disable.
	Proxy Recoding will be Stopped	Proxy data recording will stop because Maintenance > Network Client Mode > Detail Settings > NCM with Proxy in the setup menu is set to Disable.
	Cannot Connect to CCM Cannot Record Proxy	 Cannot connect to Connection Control Manager because network connection is unavailable. Cannot record proxy data, when proxy data recording is started, because Maintenance >Network Client Mode >Detail Settings >NCM with Proxy in the setup menu is set to Disable.
	Cannot Connect to CCM Proxy Recoding will be Stopped	 Cannot connect to Connection Control Manager because network connection is unavailable. Proxy data recording will stop because Maintenance >Network Client Mode >Detail Settings >NCM with Proxy in the setup menu is set to Disable.
	Cannot Connect to CCM Invalid User Name or Password	Connection Control Manager authentication error occurred.
	Cannot Connect to CCM Invalid Address or Port Number	Cannot connect to Connection Control Manager because the Connection Control Manager address or port number settings is incorrect.
Assignable switch assigned with Auto Upload(Proxy) was operated	Cannot Proceed Network Function is Disabled	Cannot execute because proxy data recording circuitry and wireless function circuitry initialization are not completed.
ONLINE button was pressed and held	Cannot Proceed	Cannot execute because wireless function circuitry is switching mode or power supply is switching off.
Assignable switch assigned with Zebra was	Zebra: On	Zebra was set to On.
operated or ZEBRA switch on viewfinder was changed	Zebra: Off	Zebra was set to Off.
ZEBRA switch on viewfinder was operated	Zebra: On	Zebra was set to On.
	Zebra: Off	Zebra was set to Off.
Assignable switch assigned with Master was	Marker: On	Marker was set to On.
operated	Marker: Off	Marker was set to Off.
Assignable switch assigned with Peaking	Peaking: On	Peaking was set to On.
was operated	Peaking: Off	Peaking was set to Off.
Assignable switch assigned with Video Signal Monitor was operated	Cannot Proceed	Cannot execute because of the following conditions. Operation >Input/Output >SDI Out1 Select and SDI Out2 Select in the setup menu are both set to Off Operation >Input/Output >Output Format in the setup menu is set to 720×480P or 720×576P
OUTPUT switch was moved to the BARS position (color bar display)	Not Available S&Q Motion: On	Cannot execute because S&Q motion recording mode is enabled.
Assignable switch assigned with digital extender was operated	Cannot Proceed	Cannot execute because of the following conditions. • Playback is in progress
		Thumbnail screen is displayed
		 Color bars or test signal output is in progress

Operation	Message	Meaning and possible cause
ND filter was changed	2: 1/4ND xxxxK (where "2: 1/4ND" is the ND filter type and "xxxx" is the color temperature value)	ND filter was changed.
	ND:3 CC: x xxxxK (where "ND: 3" is the selected ND filter type and "CC: x xxxxx" is the selected CC filter and color temperature value after electrical color.	ND filter was changed with ND Filter C.Temp set to Off and Electrical CC assigned to an assignable switch.
	remperature conversion)	
Assignable switch assigned with Color Temp SW 3200K was operated	Color Temp SW 3200K Cannot Proceed ND Filter C.Temp: On	Color Temp SW 3200K was enabled. Cannot change because ND Filter C.Temp is set to On.
Assignable switch assigned with Color	Color Temp SW 4300K	Color Temp SW 4300K was enabled.
Temp SW 4300K was operated	Cannot Proceed ND Filter C.Temp: On	Cannot change because ND Filter C.Temp is set to On.
Assignable switch assigned with Color	Color Temp SW 5600K	Color Temp SW 5600K was enabled.
Temp SW 5600K was operated	Cannot Proceed ND Filter C.Temp: On	Cannot change because ND Filter C.Temp is set to On.
Assignable switch assigned with Color	Color Temp SW 6300K	Color Temp SW 6300K was enabled.
Temp SW 6300K was operated	Cannot Proceed ND Filter C.Temp: On	Cannot change because ND Filter C.Temp is set to On.
Assignable switch assigned with Electrical CC was operated	ND:3 CC: x xxxxK (where "ND: 3" is the selected ND filter type	Electrical CC filter was changed.
	color temperature value after electrical color temperature conversion)	
	Cannot Proceed	Cannot change because ND Filter C.Temp is set to On.
Assignable switch assigned with CC5600K	CC 5600K	5600K setting was selected.
was operated	Cannot Proceed	Cannot execute because of the following conditions. ND Filter C.Temp is set to On Electrical CC is assigned to an assignable switch, but 5600K is not assigned to Electrical CC.
Assignable switch assigned with Shot Mark1 was operated	Shot Mark1 (arbitrary character string when defining planning metadata)	Shot mark 1 was added.
	Cannot Record Essence Mark Reached Essence Mark Limit	Cannot add because the maximum number of essence marks has been reached.
	Cannot Proceed	Cannot add because of the following conditions. Cannot write because the media on which to record clips is write-protected Picture Cache Rec function is set to On Interval Rec recording is in progress Media is write-protected Target clip is recorded on an SDXC card

Assignable switch assigned with Shot Mark2	- 1	
was operated	(arbitrary character string when defining planning metadata)	Shot mark 2 was added.
	Cannot Record Essence Mark Reached Essence Mark Limit	Cannot add because the maximum number of essence marks has been reached.
	Cannot Proceed	Cannot add because of the following conditions. Cannot write because the media on which to record clips is write-protected
		 Picture Cache Rec function is set to On Interval Rec recording is in progress
		 Media is write-protected Target clip is recorded on an SDXC card
Assignable switch assigned with Clip Flag	OK Clip Flag	Clip flag (OK mark) was added.
OK was operated	Delete Clip Flag	Clip flag (OK mark) was deleted (by pressing the switch twice).
	Cannot Proceed	Cannot execute because of the following conditions.
		Target clip is recorded on an SDXC card
Assignable switch assigned with Clip Flag	NG Clip Flag	Clip flag (NG mark) was added.
NG was operated	Delete Clip Flag	Clip flag (NG mark) was deleted (by pressing the switch twice).
	Cannot Proceed	Cannot execute because of the following conditions.
		Media is write-protected
	, , , , , , , , , , , , , , , , , , ,	larget clip is recorded on an SDXC card City of the second control of the second c
Assignable switch assigned with clip hag	Neter Clip Flag	Clip flag (KEEP mark) was delated (by procesing the switch twice)
	Cannot Proceed	Cannot execute because of the following conditions.
		Media is write-protected
		• Target clip is recorded on an SDXC card
Assignable switch assigned with Flash Band	Flash Band Reduce: On	Flash Band Reduce was set to On.
Reduce was operated	Flash Band Reduce: Off	Flash Band Reduce was set to Off.
SLOT SELECT button was operated	Switched Slot	Recording media to use was changed.

Usage Precautions

a general guideline and does not imply that the However, this replacement cycle represents only replacement cycle will be about 5 years. When operating at room temperature, a normal The fan and battery are consumable parts that will life expectancy of these parts is guaranteed. For need periodic replacement.

details on parts replacement, contact your dealer

exceeds the above normal usage trequency, the (8 hours per day; 25 days per month). If usage normal operating temperatures and normal usage electrolytic capacitor is about 5 years under life expectancy may be reduced correspondingly The life expectancy of the AC adaptor and the

Use and storage

Do not subject the camcorder to severe shocks

- The internal mechanism may be damaged or the body warped.
- If an accessory mounted on the accessory shoe is subjected to severe shock, the accessory shoe may be damaged. In such a case, stop using it and contact your dealer or a Sony service representative.

Do not cover the camcorder while operating

Putting a cloth, for example, over the camcorder can cause excessive internal heat build-up.

After use

Always turn off the POWER switch

Remove the battery pack Before storing the camcorder for a long period

 Remove the media before transporting the camcorder.

> If sending the camcorder by truck, ship, air, shipping carton of the camcorder. or other transportation service, pack it in the

Care of the camcorde

a soft, dry cloth. In extreme cases, use a cloth damage to the finish of the camcorder. dry. Do not use organic solvents such as alcohol or moistened in a little neutral detergent, then wipe If the body of the camcorder is dirty, clean it with enter components may cause a malfunction. using a blower. Any dust particles in the air that Do not attempt to clean the interior of the camera thinners, as these may cause discoloration or other lenses or optical filters using a blower. Remove dust and dirt from the surfaces of the

In the event of operating problems

camcorder, contact a Sony service representative. If you should experience problems with the

Use and storage locations

following places. Avoid using or storing the camcorder in the Store in a level, ventilated place.

- In excessive heat or cold (operating temperature closed can easily exceed 50 °C (122 °F). the temperature inside a car with the windows Remember that in summer in warm climates range: -5 °C to +40 °C (23 °F to 104 °F))
- In damp or dusty locations
- Locations where the camcorder may be
- Locations subject to violent vibration
- Near strong magnetic fields
- strong electromagnetic fields Close to radio or TV transmitters producing
- In direct sunlight or close to heaters for extended periods

To prevent electromagnetic interference from portable

and video signals. result in malfunction and interference with audic communications devices near this camcorder can The use of portable telephones and other

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

Condensation

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

Fitting the zoom lens

It is important to fit the lens correctly, as otherwise damage may result. Be sure to refer to the section "Mounting and Adjusting the Lens" (page 26).

Viewfinder

lens pointing directly at the sun. Do not leave the camcorder with the eyepiece and melt the interior of the viewfinder. The eyepiece lens can concentrate the sun's rays

About the LCD panels

of use, because of the physical characteristics of either always off (black), always on (red, green, or blue), or flashing. In addition, over a long period very small proportion of pixels may be "stuck", functioning pixel ratio of at least 99.99%. Thus a with high precision technology, giving a The LCD panel fitted to this unit is manufactured the liquid crystal display, such "stuck" pixels may

> effect on recorded data malfunction. Note that any such problems have no

appear spontaneously. These problems are not a

Phenomena specific to CMOS image sensors

images are specific to CMOS (Complementary do not indicate malfunctions. Metal Oxide Semiconductor) image sensors. They The following phenomena that may appear in

White flecks

malfunction. principle of CMOS image sensors and is not a caused by cosmic rays, etc. This is related to the may be generated on the screen in rare cases, with high-precision technologies, fine white flecks Although the CMOS image sensors are produced

following cases: The white flecks especially tend to be seen in the

- when operating at a high environmental temperature
- when you have raised the master gain (sensitivity)
- automatic black balance adjustment The problem may be alleviated by executing when operating in Slow-Shutter mode

may appear jagged or flicker. When fine patterns, stripes, or lines are shot, they

by discharge tubes, such as fluorescent, sodium, colors may vary, or horizontal stripes may appea or mercury-vapor lamps, the screen may flicker, If recording is made under lighting produced



In such cases, set the flicker-reduction function to auto mode (page 108).

If the frame rate selected for recording is close to the power-supply frequency, flicker may not be reduced sufficiently even if you activate the Flicker-Reduction function. In such cases, use the electronic shutter.

Focal plan

Owing to the characteristics of the pickup elements (CMOS image sensors) for reading video signals, subjects that quickly move across the screen may appear slightly skewed.

Flashband

The luminance at the top and bottom of the screen may change when shooting a flashlight beam or a light source that quickly flashes. You can use the supplied application software to correct clips that contain frames with flash bands.

Fragmentation

If pictures cannot be recorded/reproduced properly, try formatting the recording media. While repeating picture recording/playback with a certain recording media for an extended period, files in the media may be fragmented, disabling proper recording/storage. In such a case, make a backup of clips in the media then perform formatting of the media using Operation >Format Media (page 91) in the setup menu.

Notes on security

- 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.
- 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.
- Communication content may be unknowingly intercepted by unauthorized third parties in the vicinity of the signals. When using wireless LAN communication, implement security measures properly to protect the communication content.
- 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 (page 72).

Changing the password regularly is also recommended.

 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.

ADOUT GP.

The GPS (Global Positioning System) is a system that calculates geographical location from highly accurate US space satellites. This system allows you to pinpoint your exact location on the earth. The GPS satellites are located in 6 orbits, 20,000 km above the earth. The GPS system consists of 24 or more GPS satellites.

A GPS receiver receives radio signals from the satellites, and calculates the current location of the receiver based on the orbital information (almanac data) and travel time of the signals, etc.

Determining a location is called "triangulating." A GPS receiver can determine the location's latitude and longitude by receiving signals from 3 or more satellites.

- As the positions of GPS satellites vary constantly it may take longer to determine the location or the receiver may not be able to determine the location at all, depending on the location and time you use the camcorder.
- "GPS" is a system for determining geographic location by triangulating radio signals from GPS satellites. Avoid using the camcorder in places where radio signals are blocked or reflected, such as a shadowy place surrounded by buildings or trees, etc. Use the camcorder in open sky environments.
- You may not be able to record location information at locations or in situations where radio signals from the GPS satellites do not reach the camcorder as follows.
- In tunnels, indoors or under the shade of buildings.
- Between tall buildings or at narrow streets surrounded by buildings.
- In underground locations, locations surrounded by dense trees, under an elevated bridge, or in locations where magnetic fields are generated, such as nea high voltage cables.
- Near devices that generate radio signals of the same frequency band as the camcorder near 1.5 GHz band mobile telephones, etc.
- If you upload and share the images which are recorded when the setting "GPS" is "On," the record location may be exposed on the internet even if you do not intend to do so. If you do not want to record location information, select "Off" for "GPS" (page 97).

On triangulating errors

- If you move to another location right after setting "GPS" to "On" in the menu, it may take a longer time for the camcorder to start triangulating, compared to when you stay in the same place.
- Error caused by the position of GPS satellites
 The camcorder automatically triangulates your current location when the camcorder receives radio signals from 3 or more GPS satellites.
 The triangulating error allowed by the GPS satellites is about 10 m (33 feet). Depending on the environment of the location, the triangulating error can be greater. In this case, your actual location may not match the location on the map based on the GPS information.
 Meanwhile, the GPS satellites are controlled by the United States Department of Defense, and the degree of accuracy may be changed intentionally.
- Error during the triangulating process
 The camcorder acquires location information periodically during triangulating.

On the restriction of use of GPS

Use GPS in accordance with the regulations of the situation, the countries/regions of use.

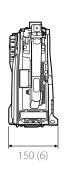
On the geographic coordinate system

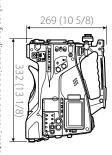
The "WGS-84" geographic coordinate system is used.

Specifications

(Jenera

Dimensions Approx. 3.6 kg (7 lb 15 oz) (body only) (Unit: mm (inch), excluding protrusions, body only) 1)





1) The values for dimensions are approximate

Power requirements

12 V (11 V to 17.0 V) DC

Approx. 22 W (body only, when recording in XAVC, with LCD

Approx. 24 W (CBK-VF02 viewfinder, recording in XAVC, with LCD manual lens, microphone, when monitor on)

monitor on)

- Do not connect video lights with power consumption of
- When using a battery, do not allow the total power consumption of connected peripherals to exceed 40 W
- When using the AC-DN10, do not allow the total power When using the AC-DN2B, do not allow the total power consumption of connected peripherals to exceed 50 W
- Connect only devices with current consumption of 1.8 A or lower to the DC OUT connector consumption of connected peripherals to exceed 85 W.

Operating temperature 0 °C to 40 °C (32 °F to 104 °F)

> File system Storage temperature Recording format (video) Continuous operating time XAVC Long XAVC-I mode: CBG, 223 Mbps (max), Approx. 170 minutes (using BP-FLX75) exFAT, UDF −20 °C to +60 °C (−4 °F to +140 °F) MPEG-4 AVC/H.264

XAVC-L 50 mode: VBR, 50 Mbps (max), MPEG-4 AVC/H.264

XAVC-L 35 mode: VBR, 35 Mbps (max),

MPEG-4 AVC/H.264

XAVC-L 25 mode: VBR, 25 Mbps (max), MPEG-4 AVC/H.264

MPEG-2 Long GOP

MPEG HD422 mode: CBR, 50 Mbps, MPEG-2 422P@HL

MPEG HD420 HQ mode: VBR, 35 Mbps (max), MPEG-2 MP@HL

MPEG IMX

CBR, 50 Mbps

CBR, 25 Mbps

640×360/3 Mbps, AVC/H.264 Main Profile 4:2:0 Long GOP 1280×720/9 Mbps, 6 Mbps

Recording format (audio) 480×270/1 Mbps, 500 Kbps (VBR)

XAVC Intra

LPCM 24-bit, 48 kHz, 4-channel

XAVC Long

MPEG-2 Long GOP LPCM 24-bit, 48 kHz, 4-channel

MPEG HD422 mode: LPCM 24-bit 48 kHz, 4-channel

MPEG HD420 HQ mode: LPCM 16-bit

MPEG IMX LPCM 16/24-bit, 48 kHz, 4-channel 48 kHz, 4-channel

DVCAM

Proxy LPCM 16-bit, 48 kHz, 2-channel

Recording/playback time AAC-LC, 128 Kbps, 2-channel

XAVC Intra

XAVC-I mode

Approx. 30 minutes: Using SBP-64D/ SBS-64G1B (64 GB)

XAVC Long

XAVC-L 50 mode Approx. 120 minutes: Using SBP-64D,

XAVC-L 35 mode

SBS-64G1B (64 GB)

Approx. 170 minutes: Using SBP-64D,

SBS-64G1B (64 GB)

XAVC-L 25 mode

MPEG-2 Long GOP Approx. 220 minutes: Using SBP-64D/ SBS-64G1B (64 GB)

MPEG HD422 mode

Approx. 120 minutes: Using SBP-64D, SBS-64G1B (64 GB)

MPEG HD420 HQ mode

Approx. 180 minutes: Using SBP-64D/ SBS-64G1B (64 GB)

MPEG IMX

Approx. 120 minutes: Using SBP-64D/ SBS-64G1B (64 GB)

Approx. 220 minutes: Using SBP-64D, SBS-64G1B (64 GB)

[Note]

depending on the number of clips recorded recording as a single clip. The actual times may be shorter, The recording and playback times are for a continuous

Recording frame rate XAVC Intra

XAVC-I mode 1280×720/59.94P, 50P 1920×1080/59.94P, 50P, 59.94i, 50i, 29.97P, 23.98P, 25P

XAVC-L 50 mode

1280×720/59.94P, 50P 1920×1080/59.94P, 50P, 59.94i, 50i, 29.97P, 23.98P, 25P

XAVC-L 35 mode 1920×1080/59.94P, 50P, 59.94i, 50i,

29.97P, 23.98P, 25P

XAVC-L 25 mode 1920×1080/59.94i, 50

MPEG-2 Long GOP

MPEG HD422 mode

1920×1080/59.94i, 50i, 29.97P, 23.98P

1280×720/59.94P, 50P, 29.97P, 23.98F

MPEG HD420 HQ mode

1920×1080/59.94i, 50i, 29.97P, 23.98P

1440×1080/59.94i, 50i

MPEG IMX 1280×720/59.94P, 50P

720×486/59.94 720×576/50i

DVCAM

720×480/59.94 720×576/50i

Proxy Main line 1280×720: 59.94P, 50P Main line 1920×1080: 29.97P, 25P, 23.98P

29.97P, 25P, 23.98P

Input/Output Section

GENLOCK IN:

BNC type, 1.0 Vp-p, 75 ohms, unbalanced

TC IN: BNC type, 0.5 V to 18 Vp-p, 10 kilohms

Other DC IN: XLR type, 4-pin, male, 11 V to 17 V DC DC OUT: Round type 4-pin, 11 V to 17 V DC, 1.8 A maximum rated current LENS: 12-pin, lens power source (11 V to 17 V DC, 1.0 A maximum rated current) REMOTE: 8-pin LIGHT: 2-pin	maximum monitor volume, 16-ohm load) HDMI: Type A, 19-pin	AUDIO OUI: XLR type, 5-pin, male, +4/0/-3 dBu (balanced) TC OUT: BNC type, 1.0 Vp-p, 75 ohms EARPHONE (stereo, minijack): -11 dBu (reference level output.	HD/1.5G HD/SD switchable) HD/1.5G HD/SD switchable) SMPTE ST424/425 Level-A/B, ST292-1/259 standard compliant 4-channel audio	switchable SDI OUT 1/2: RNC type 0.8 Vp-p unbalanced (3G	Outputs VIDEO OUT: BNC type, SD analog composite/HD-Y	Analog CHI: -440 dBFS Digital CH1/CH2: -40 dBFS SDI IN: SMPTE ST292-1/259 standard compliant 4-channel audio	MICIN: XLR type, 5-pin, female, –70 dBu to —30 dBu WRR: D-sub 15-pin	switchable LINE: +4, 0, -3 dBu AES/EBU: AES3 compliant	AUDIO IN CH1/CH2: XLR type, 3-pin, female
59.94i/P, 50i/P: 1/60 to 1/2000 sec. 29.97P: 1/40 to 1/2000 sec. 25P: 1/33 to 1/2000 sec. 25P: 1/32 to 1/2000 sec. 23.94P: 1/32 to 1/2000 sec. Slow shutter 2 to 8, 16 frames Dynamic range 600% Smear —135 dB	1000 TVL (TV lines) or higher Black level 3 ±1% (Black set to [±0] in the setup menu) Shuffer speed	0.013 lx (F1.4, +42 dB, 16-frame accumulation) Image S/N ratio 62 dB (Noise Suppression On) (Typical) Horizontal resolution	3: 1/16ND 4: 1/64ND Sensitivity F12 (system frequency: 59.94i) (Typical) (2000 lx, 89.9% reflectance, 3200K) Minimum illumination	1: Clear 2: 1/4ND	Type 3-chip RGB Optical system F1.4 prism system	lmaging element 2/3-inch type, "Exmor" Full HD CMOS image sensor	Camera Section	Network connector: RJ45 type, 100BASE-TX (IEEE 802.3u), 10BASE-T (IEEE 802.3)	USB: 4-pin (type A) (2), 4-pin (type B) VF: Rectangular type 26-pin, round type
SxS card slots Form factor: Express Card/34 Number of slots: 2 Connector: PCMCIA Express Card compliant Write rate: 50 Mbps or higher Read rate: 50 Mbps or higher	Media Section	16:9 Number of pixels 960 (H) × 540 (V)	LCD monitor Screen size 8.8 cm (3.5 inch) diagonal	Display Section	Built-in speaker Monaural, 300 mW output	Frequency response 20 Hz to 20 kHz (±3 dB or less) Dynamic range 90 dB (typical) Distortion 0.08% or lower (–40 dBu input level)	16/24-bit Headroom 20 dB (factory default) (20, 18, 16, 12 dB), EBUL	Sampling frequency 48 kHz Quantization	Audio Section
Focal length 8 mm to 128 mm (35 mm equivalent: 31.5 mm to 503 mm) Zoom Power/Manual switchable Zoom factor 16 Maximum aperture ratio 1:1.9	Lens mount Sony 2/3-inch bayonet mount	Macro ON/OFF selectable Lens Section (PXW–X400KF)	900 mm to ∞ (macro OFF) 10 mm to ∞ (macro ON, wide angle) Filter diameter M82 mm, 0.75 mm pitch	Auto/Manual switchable Range	I:1.9 Auto/Manual switchable F1.9 to F16 and C (Close)	Zoom factor 200 200 200 200 200 200 200 20	Lens mount Sony 2/3-inch bayonet mount Focal length	Lens Section (PXW-X400KC)	SD card slots Proxy (1), Utility (1)

PXW-X400KC/PXW-X400KF) (1) Stereo microphone windscreen (supplied with Viewfinder (supplied with PXW-X400KC/PXW-Stereo microphone (supplied with PXW-X400KC/ Flange focal length (flange back) adjustment chart (1) Autofocus lens (supplied with PXW-X400KF) (1) Lens (supplied with PXW-X400KC) (1) Operating Instructions (CD-ROM) (1) Before Using This Unit (1) Protective cap (1) USB wireless LAN module (IFU-WLM3) Cold shoe kit (1) Shoulder belt (1) Macro Focus range Iris Guard (1) Lens mount cap Filter diameter Supplied Accessories ON/OFF selectable Range M82 mm, 0.75 mm pitch Auto/Manual switchable Auto/Manual switchable F1.9 to F16 and C (Close) angle) $50 \text{ mm to} \sim (\text{macro ON, wide})$ 800 mm to ∞ (macro OFF) telephoto) 732 mm to ∞ (macro ON,

Related Equipment

Power supply and related equipment

AC adaptor

AC-DN10/DN2B

Battery pack Battery charger BP-FLX75

BC-L70/L90/L70A

Lens, viewfinder and related equipment

Lens Viewfinder 2/3-inch bayonet mount lens only

HDVF-20A/L750/EL20/EL30

Viewfinder rotation bracket BKW-401

Equipment for remote control

Remote control unit RCP-1000/1500/1530 RM-B170/B750

Command network unit (CNU) is not supported.

RCP-1001/1501

HD camera adaptor

CA-FB70/TX70

If SDI OUT2 is used when the CA-FB70 is attached, use an L-shaped adaptor.

Media adaptor

MEAD-SD02 (for SDXC cards)

XQD ExpressCard adaptor

QDA-EX1 (for XQD memory cards)

Audio equipment

SxS memory cards

SxS PRO+ series

SxS-1 series SxS PRO series Recording media

Microphone

Microphone holder ECM-678/674/673/680S

CAC-12

Digital wireless receiver DWR-S02D

UHF synthesized tuner unit WRR-855S

URX-S03D

Other peripheral devices

Tripod attachment VCT-14/U14

Video light

UC-D200A (Nippon Video System -NIPROS)

Ultralight (Anton Bauer)

Wireless LAN adaptor CBK-SP01 soft-type shoulder pad

Pad

Network adaptor kit CBK-NA1

CBK-WA02

Products for maintenance, ease of use/handling

Attachment bracket A-2092-367

without notice. Design and specifications are subject to change

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

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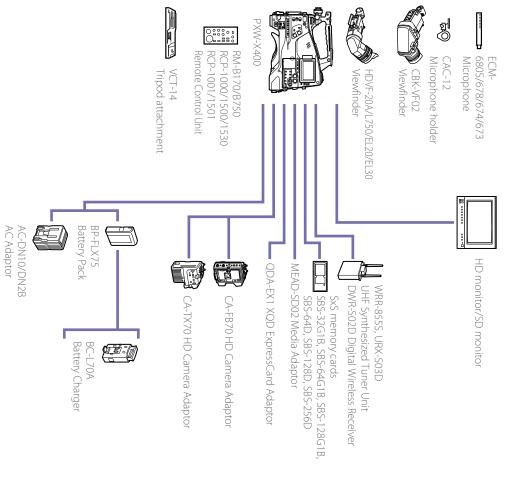
Software Downloads

When the unit is used with a PC connection, download any device drivers, plug-ins, and application software you require from the following websites.

Brazil China Korea Russia Asia Pacific Japan Middle East, Africa Europe New Zealand Australia Sony Professional products website: Latin America Canada http://sony-psmea.com http://pro.sony.co.in http://pro.sony.com.cn http://bp.sony.co.kr http://pro.sony.co.nz http://pro.sony.com.au http://sonypro.com.br http://sony.ru/pro/ http://www.pro.sony.eu/pro http://sonypro-latin.com http://www.sonybiz.ca http://pro.sony.com http://pro.sony-asia.com http://www.sonybsc.com

Sony Creative Software, software download page: http://www.sonycreativesoftware.com/download/ software_for_sony_equipment

Chart of Peripheral Devices and Accessories



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