

# Solid-State Memory Camcorder

## Operating Instructions

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

**PXW-FS7**

Software Version 4.0

**XDCAM**

**XQD™**

**HDMI**

**MPEG HD422**

**Exmor**  
Super 35 CMOS

**XAVC**

# Table of Contents

---

## Overview

<b>System Configuration .....</b>	<b>6</b>
<b>Location and Function of Parts .....</b>	<b>7</b>
Viewfinder .....	11
Eyepiece .....	11
Lens (PXW-FS7K only) .....	11
Grip Remote Control .....	11
Infrared Remote Control .....	12
Extension Unit (Option) .....	12
<b>Screen Display .....</b>	<b>13</b>
Viewfinder Screen .....	13
Status Screen .....	15

---

## Preparation

<b>Power Supply .....</b>	<b>18</b>
Using a Battery Pack .....	18
Using AC Power .....	19
<b>Attaching Devices .....</b>	<b>20</b>
Attaching the Microphone Holder .....	20
Attaching the Viewfinder .....	21
Attaching the Eyepiece .....	22
Attaching a Lens .....	23
Attaching the Grip Remote Control .....	24
<b>Setting the Clock .....</b>	<b>25</b>
<b>Configuring Basic Camcorder Operation .....</b>	<b>26</b>
Shooting Mode .....	26
Color Space .....	26
Image Sensor Scan Mode .....	26
<b>Using XQD Memory Cards .....</b>	<b>27</b>
About XQD Memory Cards .....	27
Recommended Media .....	28
Inserting an XQD Memory Card .....	30
Ejecting XQD Memory Cards .....	30
Switching Between XQD Memory Cards .....	30
Formatting (Initializing) XQD Memory Cards .....	30
Checking the Remaining Recording Time .....	31

<b>Using a UTILITY SD Card .....</b>	<b>31</b>
Supported SD Cards .....	31
Inserting an SD Card .....	31
Ejecting the SD Card .....	31
Formatting (Initializing) SD Cards .....	32
Checking the Remaining Capacity .....	32
<b>Using the XDCA-FS7 .....</b>	<b>32</b>
Attaching the XDCA-FS7 .....	32
Removing the XDCA-FS7 .....	33
Attaching the Battery Pack .....	33
Removing the Battery Pack .....	33
Switching the Timecode Input/Output .....	33
<b>Using an HXR-IFR5 and AXS-R5 .....</b>	<b>34</b>
Connecting the HXR-IFR5 to the Camcorder .....	34
Removing the HXR-IFR5 .....	34
<b>Using the Infrared Remote Control .....</b>	<b>34</b>
<b>Using Wi-Fi Remote Control .....</b>	<b>35</b>

---

## Shooting

<b>Basic Operation Procedure .....</b>	<b>38</b>
Adjusting the Focus Automatically .....	40
Adjusting the Focus Manually .....	40
Monitoring Audio .....	41
Switching Between XQD Memory Cards .....	41
<b>Changing Basic Settings .....</b>	<b>42</b>
Selecting the Recording Format .....	42
Adjusting the Brightness .....	42
Adjusting for Natural Colors (White Balance) .....	43
Setting the Audio to Record .....	44
Specifying Time Data .....	45
<b>Useful Functions .....</b>	<b>46</b>
Assignable Buttons/Dials .....	46
Slow & Quick Motion .....	47
Recording Video Intermittently (Interval Rec) .....	47
Picture Cache Recording (Picture Cache Rec) .....	49
Reviewing a Recording (Rec Review) .....	49
Self Portrait Mode .....	50
Displaying Peaking .....	51
Displaying Zebra .....	51
Video Signal Monitor .....	51
Obtaining Location Information (GPS) .....	51
Shooting in Cine EI Mode .....	52
Recording RAW Video .....	52

Adding Audio Input Connectors .....	53
<b>Connecting Devices using Wireless LAN .....</b>	<b>54</b>
Attaching the IFU-WLM3 .....	54
Attaching the CBK-WA100 .....	54
One-touch Connection of NFC-enabled Devices (Using IFU-WLM3 Only) .....	55
<b>Displaying the Wi-Fi Remote Control .....</b>	<b>56</b>

---

## Thumbnail Screen

<b>Thumbnail Screen .....</b>	<b>57</b>
Screen Layout .....	57
<b>Playing Clips .....</b>	<b>58</b>
Playing Recorded Clips .....	58
<b>Clip Operations .....</b>	<b>59</b>
Thumbnail Menu Operations .....	59
Thumbnail Menu Items .....	59

---

## Menu Display and Settings

<b>Setup Menu Configuration and Hierarchy .....</b>	<b>60</b>
Setup Menu Organization .....	60
<b>Setup Menu Operations .....</b>	<b>62</b>
<b>Setup Menu List .....</b>	<b>63</b>
User Menu .....	63
Edit User Menu .....	64
Camera Menu .....	64
Paint Menu .....	70
Audio Menu .....	76
Video Menu .....	79
VF Menu .....	81
TC/UB Menu .....	85
Recording Menu .....	86
Thumbnail Menu .....	88
Media Menu .....	89
File Menu .....	90
System Menu .....	92

---

## External Device Connection

<b>Connecting External Monitors and Recording Devices ...</b>	<b>100</b>
<b>External Synchronization .....</b>	<b>101</b>

---

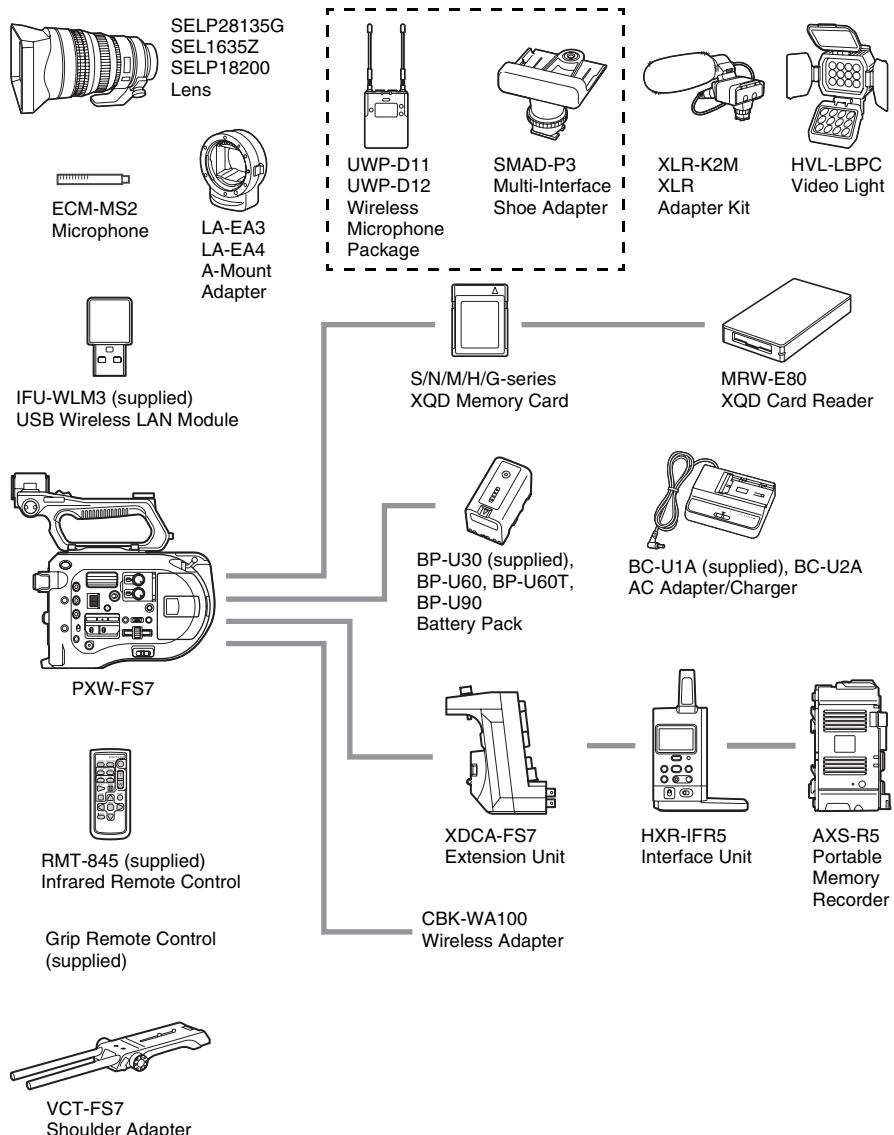
## Appendix

<b>Managing/Editing Clips using a Computer .....</b>	<b>102</b>
Connecting using a USB Cable .....	102
<b>Usage Precautions .....</b>	<b>104</b>
<b>Output Formats and Limitations .....</b>	<b>105</b>
Video Formats and Output Signals .....	105
<b>Error/Warning Messages .....</b>	<b>118</b>
Error Messages .....	118
Warning Messages .....	118
Caution and Operation Messages .....	119
<b>Items Saved in Files .....</b>	<b>120</b>
<b>Block Diagrams .....</b>	<b>130</b>
Audio Input (CH1&CH2) .....	130
Audio Input (CH3&CH4) .....	131
Audio Output .....	132
<b>Licenses .....</b>	<b>133</b>
MPEG-4 Visual Patent Portfolio License .....	133
Obtaining Software Under the GPL/LGPL	
License .....	133
END USER LICENSE AGREEMENT .....	134
Open Software Licenses .....	138
<b>Specifications .....</b>	<b>139</b>
General .....	139
Camera Section .....	141
Audio Section .....	141
Input/Output Section .....	142
Display Section .....	142
Media Slot Section .....	142
Supplied Accessories .....	142
Software Downloads .....	143
Trademarks .....	144

## Overview

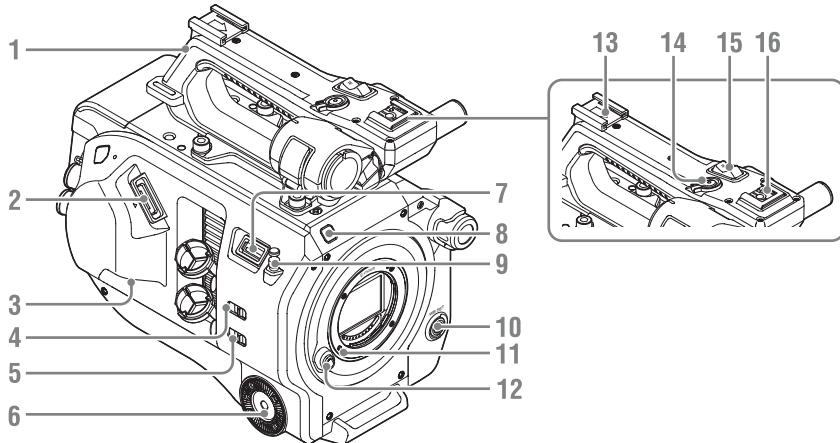
# System Configuration

This section shows an example of a camera system configuration.



# Location and Function of Parts

For details about the usage and function of each part, see the referenced page.



## 1. Handle (page 8)

## 2. Viewfinder connector (page 21)

## 3. REMOTE connector (page 24)

## 4. INPUT1 (LINE/MIC/MIC+48V) switch (page 44)

## 5. INPUT2 (LINE/MIC/MIC+48V) switch (page 44)

## 6. Grip attachment (page 24)

## 7. USB wireless LAN module connector

## 8. Recording indicator (page 96)

Flashes when the remaining capacity on the recording media or battery is low.

## 9. Tape measure hook

The tape measure hook is on the same plane as the image sensor. To measure the distance between the camcorder and the subject accurately, use this hook as a reference point. You can attach the end of a tape measure to the hook to measure the distance from the subject.

## 10. WB SET (white balance set) button (page 44)

## 11. Lens lock pin (page 23)

## 12. Lens release button (page 23)

## 13. Accessory shoe

## 14. Handle record START/STOP button

The record button cannot be operated when the lock lever is in the lock position.

## 15. Handle zoom lever (page 68)

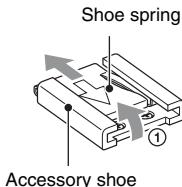
## 16. Multi-interface shoe

### Multi Interface Shoe

For details about accessories supported by the multi-interface shoe, contact your sales representative.

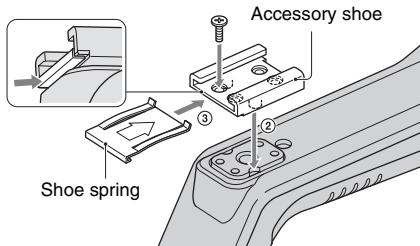
## Attaching the accessory shoe

- 1 Lift the front edge of the shoe spring, and pull the spring in the opposite direction to the arrow engraved on the spring.



- 2 Position the accessory shoe on the accessory shoe mount, aligning the protrusions on the shoe with the corresponding points on the mount, and tighten the four screws.

- 3 Insert the shoe spring in the direction of the arrow so that the U-shaped portion fits onto the end of the accessory shoe.

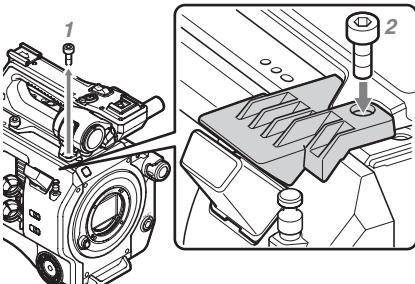


## Removing the accessory shoe

Remove the shoe spring as described in step 1 in “Attaching the Accessory Shoe,” unscrew the four screws, and remove the accessory shoe.

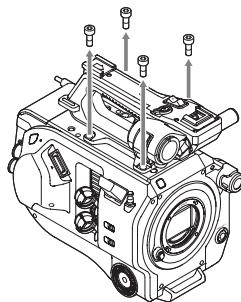
## Attaching the USB wireless LAN module guard plate

- 1 Remove the handle attachment screw.  
2 Attach the guard plate, and tighten the screw.



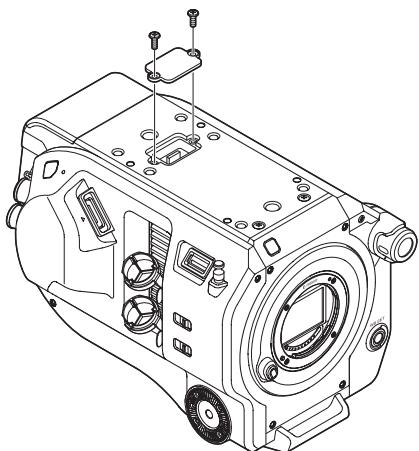
## Removing the handle

Remove the four handle attachment screws, and remove the handle from the camcorder.



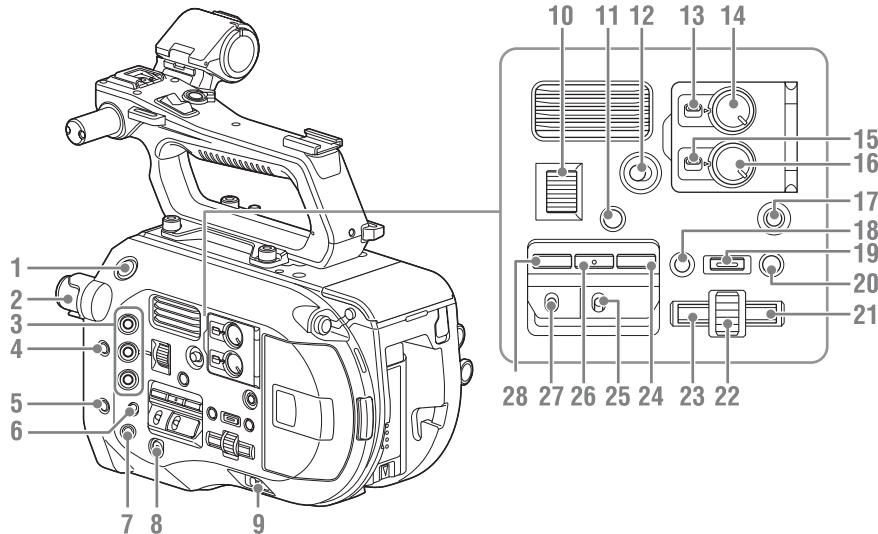
## Attaching the handle connector protective cap (supplied)

When using the camcorder with the handle removed, protect the connector using the supplied protective cap.



## Protecting the connector terminals

Attach the cover to unused connectors to protect the connector terminals.



- 1. Record START/STOP button**
- 2. ND FILTER dial (page 43)**
- 3. ASSIGN (assignable) 1 to 3 buttons (page 46)**
- 4. PUSH AUTO IRIS button (page 42)**
- 5. PUSH AUTO FOCUS button (page 40)**
- 6. FOCUS switch (page 40)**
- 7. DISPLAY button (page 13)**
- 8. FULL AUTO button (page 38)**
- 9. POWER switch (page 18)**
- 10. IRIS dial (page 46)**
- 11. STATUS CHECK button (page 15)**
- 12. HOLD switch (page 96)**
- 13. CH1 LEVEL CONTROL switch (page 44)**
- 14. CH1 INPUT LEVEL dial (page 44)**
- 15. CH2 LEVEL CONTROL switch (page 44)**
- 16. CH2 INPUT LEVEL dial (page 44)**
- 17. SLOT SELECT (XQD memory card select) button (page 30)**
- 18. CANCEL/BACK button (page 58)**
- 19. MENU button (page 60)**
- 20. THUMBNAIL button (page 57)**

#### **21. Right button**

Used to set numeric values and to move the cursor to the right on thumbnail screens and menus.

#### **22. SEL/SET (select/set) dial**

Turn the dial to move the cursor up/down to select menu items or settings. Press to apply the selected item.

#### **23. Left button**

Used to set numeric values and to move the cursor to the left on thumbnail screens and menus.

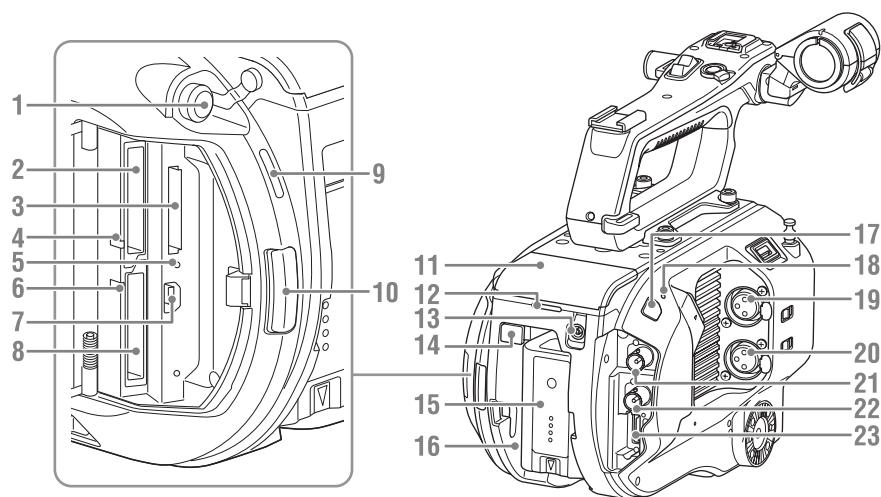
#### **24. SHUTTER button (page 43)**

#### **25. WHT BAL (white balance memory select) switch (page 43)**

#### **26. WHT BAL (white balance) button (page 43)**

#### **27. GAIN (gain select) switch (page 42)**

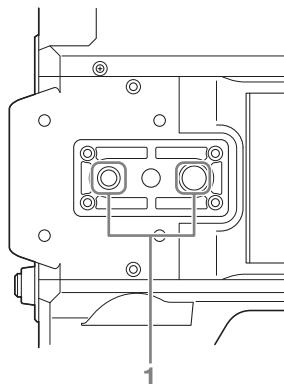
#### **28. ISO/Gain button (page 42)**



- 1. Headphone connector (page 41)**
- 2. XQD card slot A (page 30)**
- 3. UTILITY SD card slot (page 31)**
- 4. XQD (A) access indicator (page 30)**
- 5. SD card access indicator (page 31)**
- 6. XQD (B) access indicator (page 30)**
- 7. USB connector**  
Connect to a computer using a USB cable to access recording media in an XQD card slot on the camcorder.
- 8. XQD card slot B (page 30)**
- 9. Built-in speaker (page 41)**
- 10. Media cover release button (page 30)**
- 11. Extension unit connector (page 32)**
- 12. Rear recording indicator (page 38)**
- 13. DC IN connector (page 19)**
- 14. BATT RELEASE (battery release) button (page 18)**
- 15. Battery (page 18)**
- 16. Battery pack attachment (page 18)**
- 17. Infrared remote control receiver sensor (page 34)**
- 18. Internal microphone (page 44)**  
Narration microphone for recording ambient sound.

- 19. INPUT1 (audio input 1) connector (page 44)**
- 20. INPUT2 (audio input 2) connector (page 44)**
- 21. SDI OUT 1 connector (page 100)**
- 22. SDI OUT 2 connector (page 100)**
- 23. HDMI OUT connector (page 100)**

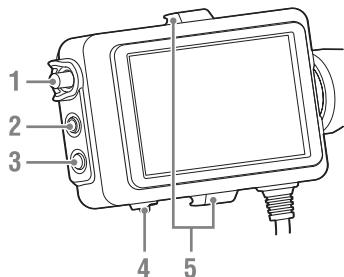
## Underside



- 1. Tripod screw hole (1/4 inch, 3/8 inch)**  
Compatible with 1/4-20UNC screws and 3/8-16UNC screws.  
Attach to a tripod (option, screw length of 5.5 mm or less).

## Viewfinder

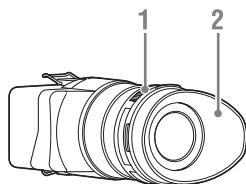
For details about attaching the viewfinder (supplied) and eyepiece, see *page 21*.



- 1. CONTRAST knob**
- 2. PEAKING button**
- 3. ZEBRA button**
- 4. MIRROR switch**
- 5. Eyepiece attachment hooks**

## Eyepiece

For details about attaching the eyepiece (supplied), see *page 22*.



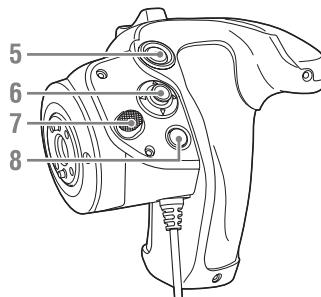
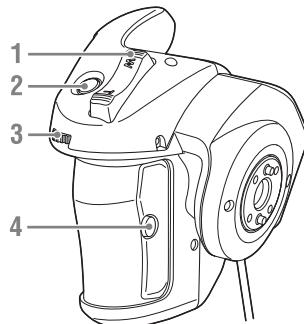
- 1. Diopter adjustment knob**
- 2. Eyecup**

## Lens (PXW-FS7K only)

For details, refer to the operation manual for the lens.

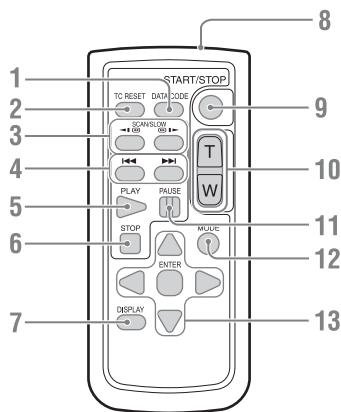
## Grip Remote Control

For details about attaching the grip remote control (supplied), see *page 24*.



- 1. Zoom lever**
- 2. ASSIGN (assignable) 4 button**
- 3. Assignable dial**
- 4. ASSIGN (assignable) 6 button**
- 5. Record START/STOP button**
- 6. Multi selector**
- 7. Grip rotation button**
- 8. ASSIGN (assignable) 5 button**

## Infrared Remote Control



### 1. DATA CODE button

Not used on this version.

### 2. TC RESET button

### 3. SCAN/SLOW button

### 4. ▶◀/▶▶ (PREV/NEXT) buttons

### 5. PLAY button

### 6. STOP button

### 7. DISPLAY button

### 8. Remote control transmitter

### 9. START/STOP button

### 10. Zoom lever

### 11. PAUSE button

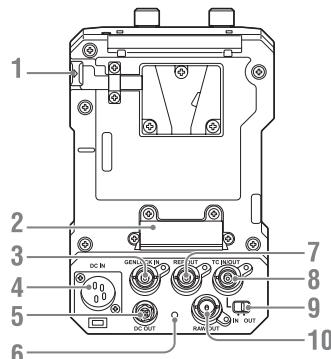
### 12. MODE button

Not used on this version.

### 13. ▲/▼/◀/▶/ENTER buttons

## Extension Unit (Option)

For details about attaching an extension unit (option), see page 32.



### 1. BATT RELEASE button

### 2. Battery connector

### 3. GENLOCK IN connector

### 4. DC IN connector

### 5. DC OUT connector

### 6. Recording indicator

### 7. REF OUT connector

### 8. TC IN/OUT connector

### 9. TC IN/OUT switch

### 10. RAW OUT connector

# Screen Display

## Viewfinder Screen

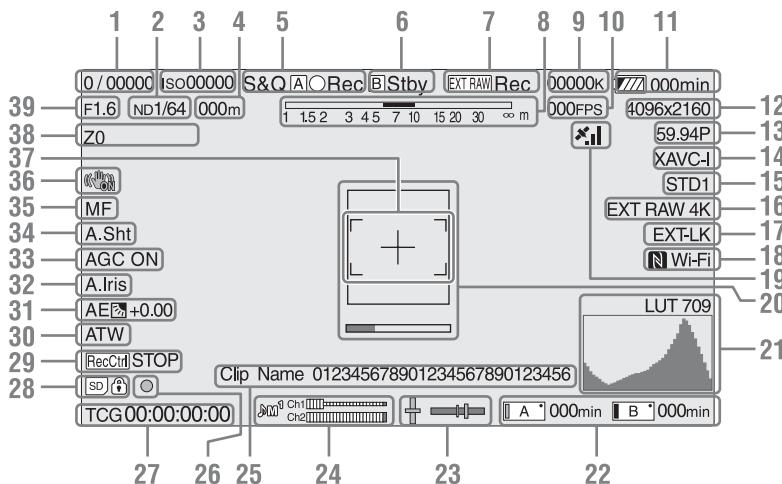
During shooting (recording/standby) and playback, the camcorder status and settings are superimposed on the image displayed in the viewfinder.

You can show/hide the information using the DISPLAY button.

You can also select to show/hide each item independently (*page 81*).

The 17:9 aspect ratio picture captured by the image sensor is displayed in the viewfinder. In 16:9 recording formats, the dark portions on the left and right edges are not recorded.

### Information displayed on the screen while shooting



- 1. Shutter mode/shutter speed indicator**  
(*page 43*)

- 2. ND filter indicator** (*page 43*)

- 3. Gain indicator** (*page 42*)

Displayed as an EI value when Base Setting (*page 92*) >Shooting Mode in the System menu is set to "Cine EI."

- 4. Focus position indicator**

Displays the focus position (if a lens that supports focus setting display is attached).

- 5. Recording mode, slot A/B icon, and status indicators**

**[A]/[B]●Rec**

Recording

**[A]/[B]Stby**

Standby

**S&Q [A]/[B]●Rec** Slow & Quick Motion, High Frame Rate mode recording

**S&Q [A]/[B] Stby** Slow & Quick Motion, High Frame Rate mode standby

**Int [A]●Rec** Interval Rec recording

**Int [A]●Stby** Interval Rec image loading standby

**Int [A]/[B] Stby** Interval Rec recording standby

**[A]/[B]●**

Picture cache recording

**[A]/[B]●Cache**

Picture cache standby

## **6. Slot B icon and status indicators**

 Rec	Recording
 Stby	Standby

## **7. External RAW recording indicator (page 52)**

### **8. Depth-of-field indicator**

### **9. Color temperature indicator (page 43)**

## **10. S&Q Motion frame rate indicator (page 86)/Interval Rec recording interval display (page 47)**

## **11. Remaining battery capacity/DC IN voltage indicator (page 19)**

## **12. Recording format (picture size) indicator (page 26, 93)**

Displays the picture size for recording on XQD memory cards.

The image sensor scan mode (F: 2K Full, C: 2K Center) is displayed on the left of the picture size. Only the scan mode is displayed if Codec is set to “RAW” (2KF: 2K Full, 2KC: 2K Center).

## **13. Recording format (frame rate and scan method) indicator**

## **14. Recording format (codec) indicator (page 42)**

Displays the name of the format for recording on XQD memory cards.

## **15. Gamma/monitor LUT indicator (page 71, 79)**

Displays the gamma setting. When Shooting Mode (page 92) is set to “Cine EI,” it displays the gamma or monitor LUT setting for recording video on XQD memory cards.

## **16. External output format indicator (page 79)**

## **17. Timecode external lock indicator**

Displays “EXT-LK” when locked to the timecode of an external device.

## **18. Wi-Fi connection status indicator (page 54)**

Displayed when the Wi-Fi function is set to “Enable.” When the IFU-WLM3 is not attached to the camcorder,  is not displayed.

## **19. GPS status indicator (page 51)**

Displays the GPS status.

## **20. Focus assist indicator (page 41)**

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

## **21. Video signal monitor (page 51)**

Displays a waveform, vectorscope, and histogram.

When Shooting Mode (page 92) is set to Cine EI, monitor LUT information for the monitor is also displayed (page 51).

## **22. Slot A/B media status/remaining capacity indicator (page 31)**

Recording media when the left side of the icon is orange.

Playback media when the green indicator on the top right of the icon is on.

## **23. Spirit level indicator**

Displays the horizontal level and the front-to-rear slope in  $\pm 1^\circ$  increments up to  $\pm 20^\circ$ .

## **24. Audio level meter**

CH3 and CH4 can be monitored on the status screen.

## **25. Clip name indicator (page 57)**

## **26. Focus indicator (page 40)**

## **27. Time data display (page 45)**

## **28. SD card indicator**

## **29. SDI output control status indicator (page 100)**

## **30. White balance mode indicator (page 43)**

W:P	Preset mode
W:A	Memory mode A
W:B	Memory mode B

## **31. AE mode indicator (page 42)**

## **32. Auto iris indicator (page 42)**

## **33. AGC indicator (page 42)**

## **34. Auto shutter indicator (page 43)**

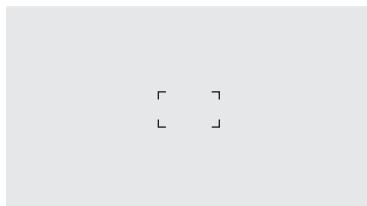
## **35. Focus mode indicator**

## **36. Image stabilization mode indicator**

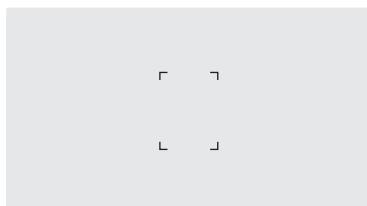
### 37. Focus area indicator

Displays the focus area for auto focus.

When push auto focus is available



During auto focus



Not displayed when Focus Area (*page 66*) is set to Wide.

### 38. Zoom position indicator

Displays the zoom position in the range 0 (wide angle) to 99 (telephoto) (if a lens that supports zoom setting display is attached).

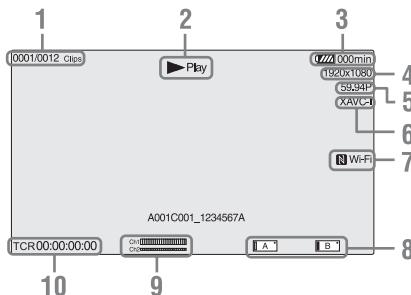
It can also be displayed as a bar graph (*page 83*).

### 39. Iris position indicator

Displays the iris position (if a lens that supports iris setting display is attached).

## Information displayed on the screen during playback

The following information is superimposed on the playback picture.



1. Clip number / total number of clips

2. Playback mode

### 3. Remaining battery capacity indicator

### 4. Playback format (picture size) indicator

### 5. Playback format (frame rate) indicator

### 6. Playback format (codec) indicator

### 7. Wi-Fi connection status indicator

(*page 54*)

Displayed when the Wi-Fi function is set to “Enable.” When the IFU-WLM3 is not attached to the camcorder, is not displayed.

### 8. Media indicator

### 9. Audio level indicator

Displays the audio level when recording.

### 10. Time data display

When Display On/Off >Timecode in the VF menu is set to “On,” it displays the time data when the DISPLAY button is pressed.

## Status Screen

To display the status screen:

- Push the STATUS CHECK button.

To switch to the status screen:

- Turn the SEL/SET dial.
- Move the multi selector up/down.

To hide the status screen:

- Push the STATUS CHECK button.

## Camera Status screen

Displays the electronic shutter setting of the camera and the lens status.

ISO/Gain/EI<H>	ISO/Gain/EI<H> setting
ISO/Gain/EI<M>	ISO/Gain/EI<M> setting
ISO/Gain/EI<L>	ISO/Gain/EI<L> setting
Shutter	Shutter setting (Speed/Angle/ECS/Off)
Iris	F-stop value obtained from the lens
Zebra1	Zebra1 On/Off setting and level
Zebra2	Zebra2 On/Off setting and level
Gamma	Gamma Select setting
White	White balance mode and settings
Focal Length	Focal length value obtained from the lens
AE Level	AE level setting
AE Speed	AE control speed setting
AGC Limit	Maximum gain setting of the AGC function

A.SHT Limit	Fastest shutter speed of the auto shutter function
AE Mode	AE mode setting (Backlight/ Standard/Spotlight)

### Audio Status screen

Displays the input setting, audio level meter, and wind noise reduction filter setting for each channel.

CH1 level meter	Channel 1 audio level meter
CH1 Source	Channel 1 input source
CH1 Ref./Sens.	Channel 1 input reference level
CH1 Wind Filter	Channel 1 microphone wind reduction filter setting
CH2 level meter	Channel 2 audio level meter
CH2 Source	Channel 2 input source
CH2 Ref./Sens.	Channel 2 input reference level
CH2 Wind Filter	Channel 2 microphone wind reduction filter setting
CH3 level meter	Channel 3 audio level meter
CH3 Source	Channel 3 input source
CH3 Wind Filter	Channel 3 microphone wind reduction filter setting
CH4 level meter	Channel 4 audio level meter
CH4 Source	Channel 4 input source
CH4 Wind Filter	Channel 4 microphone wind reduction filter setting
Audio Input Level	Audio input level setting
Monitor CH	Monitor channel setting
HDMI Output CH	HDMI output audio channel combination setting
Headphone Out	Headphone output type setting

### System Status screen

Displays the video signal settings.

Country	NTSC or PAL region setting
Rec Format	Format for recording to XQD memory cards
Picture Size	Picture size for recording to XQD memory cards
Frame Rate	Frame rate for recording to XQD memory cards
Rec Function	Enabled special recording format and settings
Simul Rec	Simul Rec On/Off status
Picture Cache Rec	Picture Cache Rec On/Off status
Video Light Set	HVL-LBPC Video Light (option) on/off indicator
Imager Scan	Scan mode of the image sensor

### Video Output Status screen

Displays the SDI, HDMI, and video output settings.

SDII	Output picture size Color space Screen display output Gamma
SDI2	Output picture size Color space Screen display output Gamma
HDMI	Output picture size Color space Screen display output Gamma
REF	Output picture size
RAW	Output picture size

### Assignable Button Status screen

Displays the functions assigned to each of the assignable buttons.

1	Function assigned to the ASSIGN 1 button
2	Function assigned to the ASSIGN 2 button
3	Function assigned to the ASSIGN 3 button
4	Function assigned to the ASSIGN 4 button
5	Function assigned to the ASSIGN 5 button
6	Function assigned to the ASSIGN 6 button
IRIS Dial	Function assigned to the IRIS dial
Assignable Dial	Function assigned to the assignable dial

### Battery Status screen

Displays information about the battery and DC IN source.

Detected Battery	Type of battery
Remaining	Remaining capacity (%)
Charge Count	Number of recharges
Capacity	Remaining capacity (Ah)
Voltage	Voltage (V)
Manufacture Date	Date of battery manufacture
Video Light	Displays the remaining capacity of the video light battery.
Power Source	Power supply source
Supplied Voltage	Supplied power source voltage

## Media Status screen

Displays the remaining capacity and remaining recording time of recording media (XQD memory cards A and B).

Media A information	Displays the media icon when recording media is inserted in slot A.
Media A protection	Displays the lock icon when the recording media inserted in slot A is protected (locked).
<b>Note</b>	
	XQD memory cards cannot be protected using the camcorder.
Media A remaining capacity meter	Displays the remaining capacity of recording media inserted in slot A expressed as a percentage on a bar graph.
Media A remaining recording time	Displays an estimate of the remaining recording time of the recording media inserted in slot A in units of minutes under the current recording conditions.
Media B information	Displays the media icon when recording media is inserted in slot B.
Media B protection	Displays the lock icon when the recording media inserted in slot B is protected (locked).
<b>Note</b>	
	XQD memory cards cannot be protected using the camcorder.
Media B remaining capacity meter	Displays the remaining capacity of recording media inserted in slot B expressed as a percentage on a bar graph.
Media B remaining recording time	Displays an estimate of the remaining recording time of the recording media inserted in slot B in units of minutes under the current recording conditions.
SD card information	Displays the media icon when media is inserted in the UTILITY SD card slot.
SD card protection	Displays the lock icon when the media inserted in the UTILITY SD card slot is protected (locked).
SD card remaining capacity meter	Displays the remaining capacity of media inserted in the UTILITY SD card slot expressed as a percentage on a bar graph.

SD card remaining capacity	Displays the remaining capacity of media inserted in the UTILITY SD card slot expressed in units of GB.
SD card life	Displays the operating life of media in the UTILITY SD card slot as a percentage.

## Rec Button Settings Screen

Displays the settings of the record START/STOP buttons on the camcorder and handle (page 39).

Rec Button	Displays the slots for recording controlled by the recording START/STOP button.
Handle Rec Button	Displays the slots for recording controlled by the recording START/STOP button on the handle.

## Preparation

# Power Supply

You can use a battery pack or AC power supply from an AC adapter.

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

### Lithium ion battery packs

BP-U30 (supplied)

BP-U60

BP-U60T

BP-U90

### AC adapter/chargers

BC-U1A (supplied)

BC-U2A

### Caution

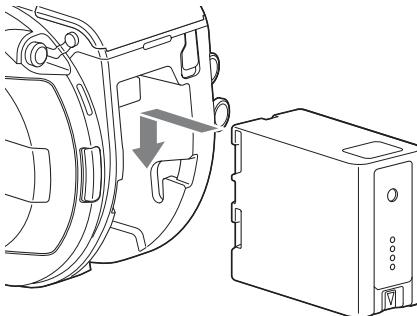
Do not store battery packs in locations exposed to direct sunlight, flame, or high temperature.

### Notes

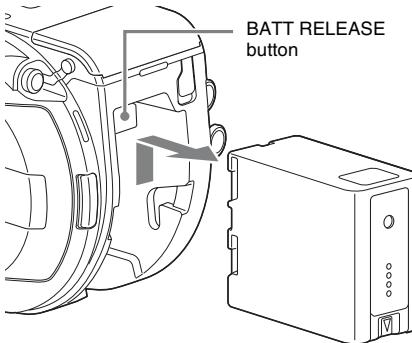
- When operating from a power outlet, use the supplied AC adapter.
- Always set the POWER switch to the Off position before connecting a battery or AC adapter. If it is connected with the POWER switch in the On position, the camcorder may be unable to start in some cases. If the unit cannot be started, set the POWER switch to the Off position and disconnect the battery pack or AC adapter temporarily, then wait about 30 seconds before attempting to connect again. (If the AC adapter is connected while the camcorder is operating from the battery pack, it can be connected with the POWER switch in the On position without problem.)

## Using a Battery Pack

To attach a battery pack, plug the battery pack into the attachment (*page 10*) as far as it will go, and then slide it down to lock it into position.



To remove a battery pack, press and hold the BATT RELEASE button (*page 10*), slide the battery pack up and then pull it out of the attachment.



### Notes

- Before attaching a battery pack, charge the battery using the dedicated BC-U1A or BC-U2A AC adapter/charger.
- Charging a battery immediately after use while it is still warm may not fully recharge the battery.

## Checking the remaining capacity

When shooting/playing using a battery pack, the remaining battery capacity is displayed in the viewfinder (*page 13*).

Icon	Remaining capacity
	91% to 100%
	71% to 90%
	51% to 70%
	31% to 50%
	11% to 30%
	0% to 10%

The camcorder indicates the remaining capacity by calculating the available time with the battery pack if operation is continued at the current rate of power consumption.

## When using an extension unit

When using the XDCA-FS7 Extension Unit, the battery voltage or the remaining battery capacity is displayed, depending on the battery used.

### Note

The camcorder battery pack cannot be used when an XDCA-FS7 unit is attached to the camcorder. You must attach a battery pack to the XDCA-FS7 or connect an external power supply.

## If the battery pack charge becomes low

If the remaining battery charge falls below a certain level during operation (Low BATT state), a low-battery message appears, the recording indicator starts flashing, and a beep sound will warn you.

If the remaining battery charge falls below the level at which operation cannot continue (BATT Empty state), a battery-empty message appears. Replace with a charged battery pack.

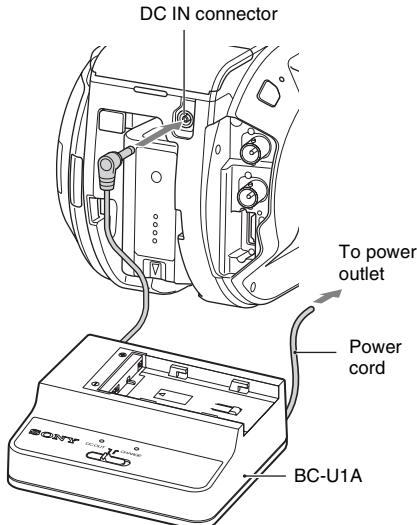
## Changing the warning levels

The Low BATT level is set to 10% of full battery charge and the BATT Empty level is set to 3% by factory default. You can change the warning level settings using Camera Battery Alarm (*page 98*) in the System menu.

## Using AC Power

Connecting the camcorder to a power outlet allows use without worrying about the need to recharge the battery pack.

### Connection example: when connecting BC-U1A



Connect the AC adapter to the DC IN connector on the camcorder, and connect the power cord (supplied) to a power outlet. Set the mode select switch on the BC-U1A to the DC OUT position.

## If the output voltage from the AC adapter becomes low

If the output voltage from the AC adapter falls below a certain level during operation (DC Low Voltage1 state), a message appears informing you that the AC adapter output voltage has dropped, the recording indicator starts flashing, and a beep sound is emitted.

If the output voltage from the AC adapter falls below the level at which operation cannot continue (DC Low Voltage2 state), a message appears informing you that the AC adapter output voltage is too low.

If this occurs, the AC adapter may be faulty. Check the AC adapter, as required.

## Changing the warning levels

The DC Low Voltage1 level is set to 11.5 V and the DC Low Voltage2 level is set to 11.0 V by

factory default. You can change the warning level settings using Camera DC IN Alarm (*page* 98) in the System menu.

## AC adapters

- Do not connect and use an AC adapter in a confined space, such as between a wall and furniture.
- Connect the AC adapter to the nearest power outlet. If a problem occurs during operation, immediately disconnect the power cord from the outlet.
- Do not short-circuit the metal parts of the plug of the AC adapter. Doing so will cause a malfunction.
- The battery cannot be charged while attached to the camcorder, even if the AC adapter is connected.

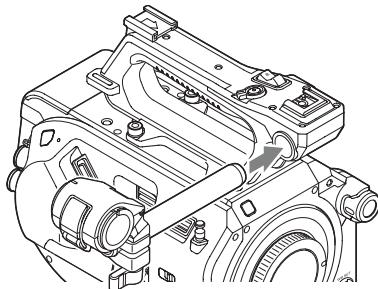
# Attaching Devices

## Attaching the Microphone Holder

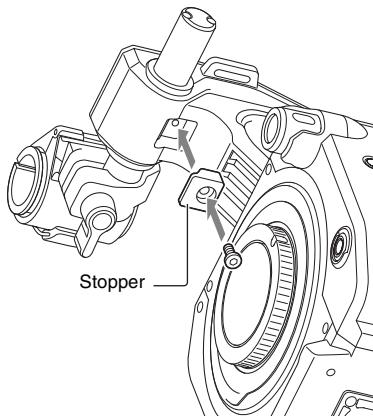
### Notes

- The microphone holder is attached when shipped from the factory.
- Attach/remove the microphone holder while the camcorder is turned off.
- Attach/remove the microphone holder with the mount cap attached so as not to damage the image sensor.

### 1 Insert the microphone holder into the handle.



### 2 Insert the stopper into the recess, and tighten the screw to secure the holder.



## Removing the microphone holder

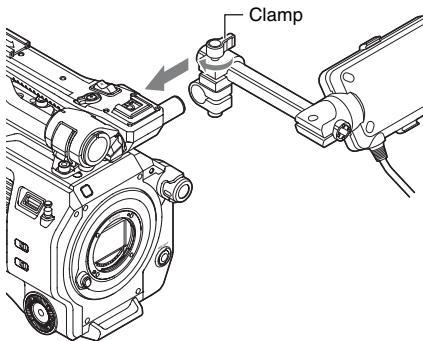
Remove the stopper, and use the reverse procedure of attaching the microphone holder.

## Attaching the Viewfinder

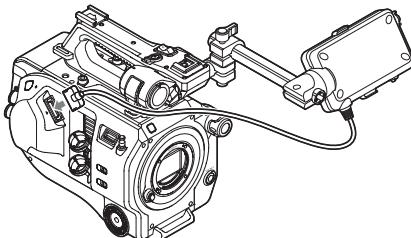
### Note

Attach/remove the viewfinder while the camcorder is turned off.

- 1 Loosen the viewfinder clamp and insert the viewfinder onto the protrusion on the front of the handle.



- 2 Adjust the left/right positioning of the viewfinder, tighten the clamp, and then connect the viewfinder cable to the viewfinder connector of the camcorder.

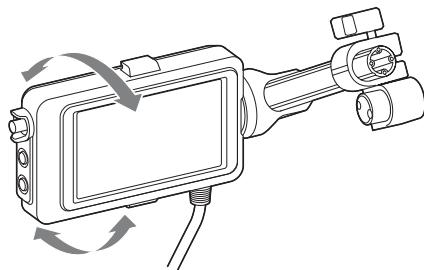


### Note

Check that the viewfinder is securely attached. The viewfinder may fall off during shooting if the clamp is loose.

## Adjusting the angle of the viewfinder

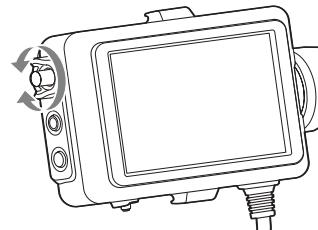
Tilt the viewfinder up/down to adjust the angle of the viewfinder.



You can adjust the angle so that the viewfinder is facing the subject. Setting the MIRROR switch (*page 50*) to the B/T position flips the left and right sides of the image on the LCD screen, but the image is recorded in the correct orientation.

## Adjusting the viewfinder contrast

Turn the CONTRAST knob to adjust the contrast.



You can adjust the brightness in the viewfinder using VF Setting > Brightness (*page 81*) in the VF menu.

## Removing the viewfinder

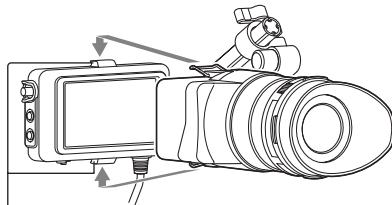
Loosen the viewfinder clamp, and use the reverse procedure of attaching the viewfinder.

## Attaching the Eyepiece

### Note

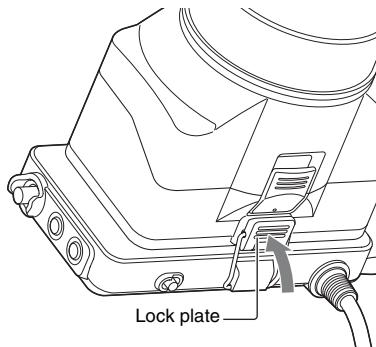
Attach/remove the eyepiece while the camcorder is turned off.

- 1 Attach the metal clips of the eyepiece to the eyepiece attachment hooks on the viewfinder.



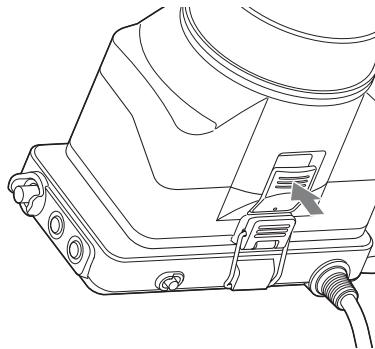
Eyepiece attachment hooks

- 2 Push the lock plate on the bottom of the eyepiece in the direction of the arrow to lock the eyepiece into position.

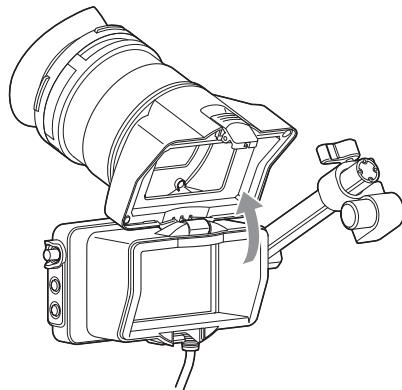


## Opening the eyepiece

- Press the button indicated by the arrow.



Open the eyepiece upwards when the lock disengages. The viewfinder is directly visible when the eyepiece is opened.



## Removing the eyepiece

Unclip the eyepiece lock, and remove the eyepiece from the viewfinder.

## Attaching a Lens

### Recommended lenses

SEL28135G

SEL1635Z

SEL18200

For details about lenses supported by the camcorder, contact your Sony service representative.

### Caution

Do not leave the lens facing the sun. Direct sunlight can enter through the lens, be focused in the camcorder, and may cause a fire.

### Notes

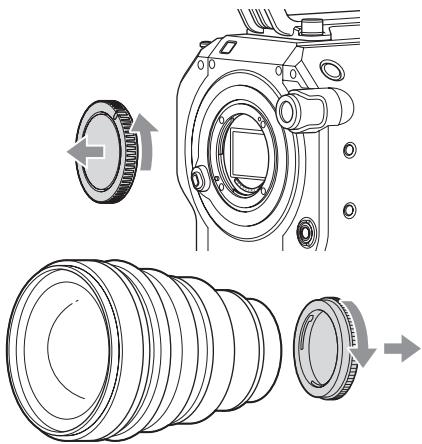
- Attach/remove a lens while the camcorder is turned off.
- A lens is a precision component. Do not place the lens on a surface with the lens mount face down. Attach the supplied lens mount cap.

### Attaching to a tripod

Use the tripod screw holes on the camcorder when attaching to a tripod. Using the tripod mount on the lens may cause damage.

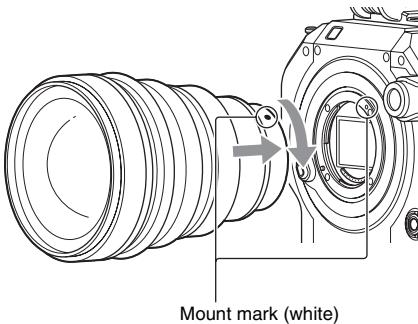
### Attaching an E-mount lens

#### 1 Remove the lens cap and cover from the camcorder and the lens.



#### 2 Align the lens mount mark (white) with the camcorder, carefully insert the lens, and then turn the lens clockwise.

The lens makes a click sound when it locks into position.



### Attaching an A-mount lens

To use an A-mount lens, attach a lens mount adapter (option) and then attach the A-mount lens.

### Notes

- When using an A-mount lens, Iris is set to manual.
- When focus is set to AF with an LA-EA2 or LA-EA4 attached, Iris is set to F3.5 or fully open.

### Removing a lens

Remove a lens using the following procedure.

#### 1 Press and hold the lens release button and turn the lens counterclockwise.

#### 2 Pull the lens out in the forward direction.

### Note

If another lens will not be attached immediately, fit the lens mount into the recess part of the lens mount cap and turn clockwise.

### Iris adjustments for lenses with Auto Iris switch

- When the lens Auto Iris is set to AUTO, the iris is adjusted automatically and can also be adjusted manually from the camcorder.
- When the lens Auto Iris is set to MANUAL, the iris can only be adjusted using the lens ring. Iris operation from the camcorder has no effect.

## Focus adjustments for lenses with focus switch

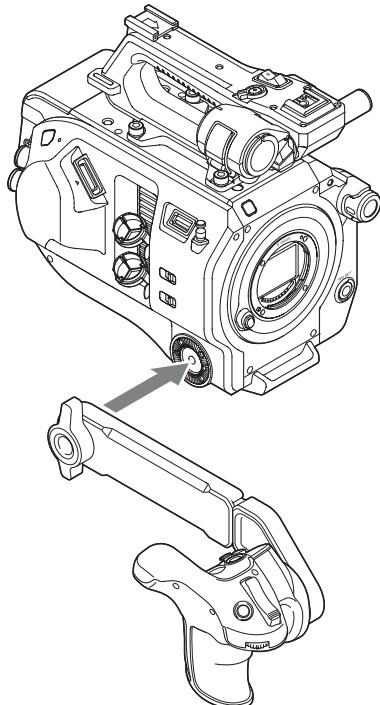
- When the lens focus switch is set to AF/MF or AF, the focus is adjusted automatically and can also be adjusted manually from the camcorder.
- When the lens focus switch is set to Full MF or MF, the focus can only be adjusted using the lens ring. Focus operation from the camcorder has no effect.

## Attaching the Grip Remote Control

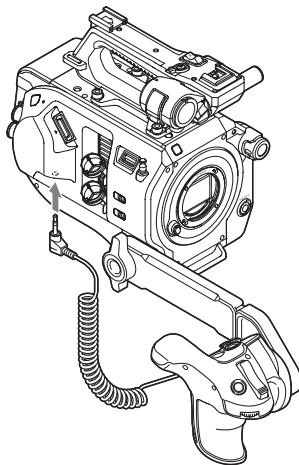
### Note

Attach/remove the grip remote control while the camcorder is turned off.

- 1 Attach the arm to the grip attachment, and tighten the screw.



- 2 Connect the grip remote control cable to the REMOTE connector on the camcorder.



### Notes

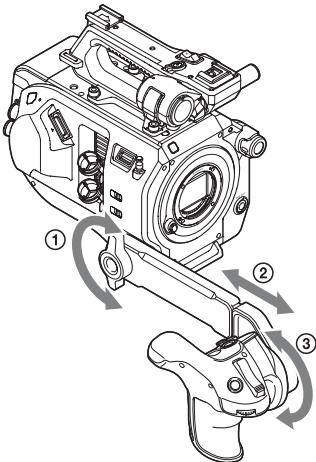
- Check that the arm and grip remote control are securely attached. They may fall off during shooting if the screws are loose.
- Do not support the weight of the camcorder by holding just the grip remote control.

## Adjusting the position of the grip remote control

Adjust the arm angle (①).

Loosen the two screws on the rear side of the arm using a coin or similar object, adjust the arm length (②), and then tighten the two screws.

Press the grip rotation button (*page 11*) to adjust the angle of the grip remote control (③).



## Removing the grip remote control

- 1 Disconnect the grip remote control cable from the REMOTE connector on the camcorder.**
- 2 Remove the arm from the camcorder.**

## Setting the Clock

The initial settings screen appears in the viewfinder the first time the camcorder is turned on or after the backup battery has become completely discharged.

Set the date and time of the internal clock using this screen.

### Time Zone

Time Zone sets the time difference from UTC (Coordinated Universal Time). Change the setting as required.

### Setting the date and time

Turn the SEL/SET dial (*page 9*) to select items and settings, then press the SEL/SET dial to apply the settings and start the clock running.

Once the settings screen is closed, you can change the date, time, and time zone settings using Clock Set (*page 97*) in the System menu.

### Notes

- If the clock setting is lost because the backup battery becomes fully discharged due to power being disconnected for an extended period (no battery pack and no DC IN power source), the initial settings screen will be displayed when you next turn the camcorder on.
- While the initial settings screen is displayed, no other operation, except turning the power off, is permitted until you finish the settings on this screen.
- The camcorder has a built-in rechargeable battery for storing the date, time, and other settings even when the camcorder is turned off. For details about the built-in rechargeable battery, see *page 104*.

# Configuring Basic Camcorder Operation

Before shooting, configure the basic operation of the camcorder to suit the application.

## Shooting Mode

You can switch the shooting mode between “Custom” mode to create images flexibly on-site, and “Cine EI” mode (where the camcorder is operated similarly to a film camera, with footage developed in post production).

You can select the mode using Base Setting (page 92) >Shooting Mode in the System menu.

## Color Space

Color Space selects the base color gamut for recorded signals and output signals.

When the shooting mode is set to Custom mode, Color Space is set to “Matrix.”

Matrix: Selects the color gamut using the Matrix setting, similar to conventional video cameras.

When the shooting mode is set to Cine EI mode, Color Space selects the color gamut of the video output with MLUT set to Off.

S-Gamut/SLog2: Wide color gamut comparable to film cameras.

S-Gamut3.Cine/SLog3: Easy to adjust color gamut for digital cinema (DCIP3).

S-Gamut3/SLog3: Wide color gamut, for compatibility with future standard gamuts, optimized using Sony image distortion correction technology.

You can select the color gamut using Base Setting (page 92) >Color Space in the System menu.

## Image Sensor Scan Mode

You can set the scan mode of the image sensor. You can select the mode using Base Setting (page 92) >Imager Scan Mode in the System menu.

Normal: When not using Slow & Quick Motion high-frame rate mode, this scans the full angle-of-view of Super 35mm size.

When S&Q Motion (page 86) >High Frame Rate Mode in the Recording menu is set to “Full Scan,” this scans the full angle-of-view of Super 35mm size and converts the signal to 2K data. When set to “Center Scan,” this scans a 2K angle-of-view of half Super 35mm size at the center of the image.

2K Full: Scans the full angle-of-view of Super 35mm size and converts the signal to 2K.

2K Center: Scans a 2K angle-of-view of half Super 35mm size at the center of the image.

### Note

The recording format resolution is restricted to 2K or lower when Imager Scan mode (page 93) is set to 2K Full or 2K Center.

# Using XQD Memory Cards

The camcorder records audio and video on XQD memory cards (available separately) inserted in the card slots.

## About XQD Memory Cards

Use the following Sony XQD memory cards in the camcorder.

For details on operations with media from other manufacturers, refer to the operating instructions for the media or consult the manufacturer's information.

**S-series XQD memory cards**

**H-series XQD memory cards**

**N-series XQD memory cards**

**M-series XQD memory cards**

**G-series XQD memory cards**

The use of memory cards other than Sony XQD memory cards is not guaranteed.

*For details about using XQD memory cards and usage precautions, refer to the operating instructions for the XQD memory card.*

## Recommended Media

The guaranteed operating conditions will vary depending on the Rec Format and Recording settings.

Yes: Operation supported

No: Normal operation not guaranteed

Format		XQD G	XQD N	Discontinued
		XQD S (EB Stream)	XQD M	XQD H XQD S (non EB Stream)
			32/64/128 GB	32/64/128 * <sup>1</sup> GB
				16/32/64 GB
<b>XAVC-I</b>	4096×2160P –	59.94P	Yes	No
		50P	Yes	No
		29.97P	Yes	No
		25P	Yes	No
		24P	Yes	No
		23.98P	Yes	No
	3840×2160 –	59.94P	Yes	No
		50P	Yes	No
		29.97P	Yes	No
		25P	Yes	No
1920×1080	Normal mode or S&Q (excluding HFR * <sup>2</sup> )	59.94P	Yes	No
		59.94i	Yes	Yes
		50P	Yes	No
		50i	Yes	Yes
		29.97P	Yes	Yes
		25P	Yes	Yes
		23.98P	Yes	Yes
	S&Q (HFR mode)	59.94P	Yes	No
		50P	Yes	No
		29.97P	Yes	No
		25P	Yes	No
		23.98P	Yes	No

Format		XQD G XQD S (EB Stream)	XQD N XQD M	Discontinued		
			32/64/128 GB	32/64/128 *1 GB	16/32/64 GB	
<b>XAVC-L</b>	3840×2160	–	59.94P 50P 29.97P 25P 23.98P	Yes Yes Yes Yes Yes	No No No No No	
		Normal mode or S&Q (excluding HFR)	59.94P 50P 59.94i 50i 29.97P 25P 23.98P	Yes Yes Yes Yes Yes Yes Yes	Yes Yes Yes Yes Yes Yes Yes	
		1920×1080	S&Q (HFR mode)	59.94P 50P 29.97P 25P 23.98P	Yes Yes Yes Yes Yes	No No 50 Mbps: No 35 Mbps: Yes No
		1920×1080	–	59.94i 50i 29.97P 25P 23.98P	Yes Yes Yes Yes Yes	Yes Yes Yes Yes Yes
		1280×720	–	59.94P 50P 29.97P 25P 23.98P	Yes Yes Yes Yes Yes	Yes Yes Yes Yes Yes
<b>MPEG HD 422</b>	1920×1080	–	59.94i 50i 29.97P 25P 23.98P	Yes Yes Yes Yes Yes	Yes Yes Yes Yes Yes	
		1280×720	–	59.94P 50P 29.97P 25P 23.98P	Yes Yes Yes Yes Yes	Yes Yes Yes Yes Yes
		1920×1080	–	59.94i 50i 29.97P 25P 23.98P	Yes Yes Yes Yes Yes	No No No No No
		HQ	–	59.94i 50i 29.97P 25P 23.98P	Yes Yes Yes Yes Yes	No No No No No
		1920×1080	–	59.94i 50i 29.97P 25P 23.98P	Yes Yes Yes Yes Yes	No No No No No

\*1 M-series only

\*2 HFR: High Frame Rate

## Inserting an XQD Memory Card

- 1 Press the media cover release button (*page 10*) to open the media cover of the card slot section.**
- 2 Insert an XQD memory card with the XQD label facing to the left.**  
The access indicator (*page 10*) is lit red, then changes to green if the card is usable.
- 3 Close the media cover.**

### Notes

- The memory card, memory card slot, and image data on the memory card may be damaged if the card is forced into the slot in the incorrect orientation.
- When recording to media inserted in both XQD card slots A and B, insert media in both slots that is recommended for operation with the format of the recording.

## Ejecting XQD Memory Cards

Press the media cover release button (*page 10*) to open the media cover of the card slot section, and lightly press the memory card in to eject the card.

### Notes

- If the camcorder is turned off or the memory card is removed while the memory card 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 lit green or not lit before turning off the camcorder or removing the memory card.
- When removing an XQD memory card immediately after recording is finished, the XQD memory card may be hot, but this does not indicate a problem.

## Switching Between XQD Memory Cards

When XQD memory cards are loaded in both card slots A and B, you can switch the card used for recording by pressing the SLOT SELECT button (*page 9*).

If a card becomes full during recording, the camcorder automatically switches to the other card.

### Note

The SLOT SELECT button is disabled during playback. The memory cards are not switched even if you press the button. The button is enabled while the thumbnail screen (*page 57*) is displayed.

## Formatting (Initializing) XQD Memory Cards

If an unformatted XQD memory card or an XQD memory card that was formatted in a different specification is inserted, the message “Media Needs to be Formatted” is displayed in the viewfinder.

Format the card using the following procedure.

**Select Format Media (*page 89*) >Media(A) or Media(B) in the Media menu, then select Execute. When a confirmation message appears, select Execute again.**

A message is displayed while formatting is in progress, and the access indicator is lit red.

When formatting is completed, a completion message is displayed. Press the SEL/SET dial to dismiss the message.

### If formatting fails

Protected XQD memory cards and memory cards not supported by the camcorder cannot be formatted.

A warning message is displayed. Follow the instructions to replace the card with a supported XQD memory card.

### Note

Formatting a memory card erases all data, including recorded video data and setup files.

## Checking the Remaining Recording Time

When shooting (recording/standby), you can monitor the remaining capacity of the XQD memory card in each slot using the slot A/B media capacity indicators in the viewfinder (*page 13*).

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

### Note

A  mark is displayed if the media is protected.

### XQD memory card replacement timing

- When the total remaining recording time on the two memory cards becomes less than 5 minutes, the message “Media Near Full” appears, the recording indicator starts flashing, and a beep sound (headphone output) will warn you. Replace with media that has free space.
- If you continue recording until the total remaining recording time reaches zero, the message changes to “Media Full” and recording stops.

### Note

Up to approximately 600 clips can be recorded on one XQD memory card.

If the number of recorded clips reaches the limit, the remaining recording time indicator becomes “0” and the message “Media Full” is displayed.

## Using a UTILITY SD Card

You can save camera configuration data for the camcorder on an SD card (available separately). Saved data files can be imported from the SD card.

### Supported SD Cards

**SDHC memory cards\***

**SD memory cards\***

\* Referred to collectively as “SD cards” in this manual.

### Inserting an SD Card

- 1 Press the media cover release button (*page 10*) to open the media cover of the card slot section.
- 2 Insert the SD memory card with the SD card label facing to the left.  
The access indicator (*page 10*) is lit red, then goes off if the card is usable.
- 3 Close the media cover.

### Ejecting the SD Card

Press the media cover release button (*page 10*) to open the media cover of the card slot section, and lightly press the SD card in to eject the card.

### Notes

- If the camcorder is turned off or the SD card is removed while the SD card 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 not lit 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.

## Formatting (Initializing) SD Cards

SD cards must be formatted the first time they are used in the camcorder.

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

**Select Format Media (page 89) >SD Card in the Media menu, then select Execute. When a confirmation message appears, select Execute again.**

A message and progress status are displayed while formatting is in progress, and the access indicator is lit red.

When formatting is completed, a completion message is displayed. Press the SEL/SET dial to dismiss the message.

### Note

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

## Checking the Remaining Capacity

You can check the remaining capacity on an SD card on the Media Status screen (page 17).

### Note

A  mark is displayed if the SD card is protected.

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

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

## Using the XDCA-FS7

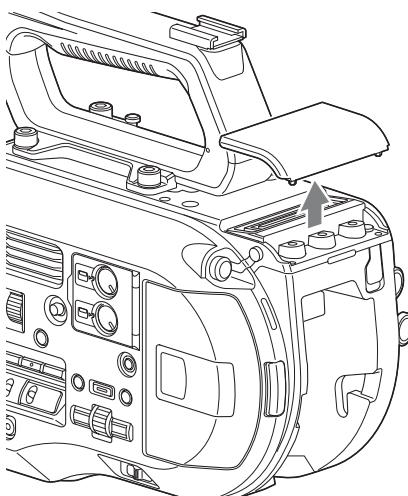
You can add functions to the camcorder, such as a V-shoe battery or external sync signal, by attaching an XDCA-FS7 Extension Unit (option) to the camcorder.

## Attaching the XDCA-FS7

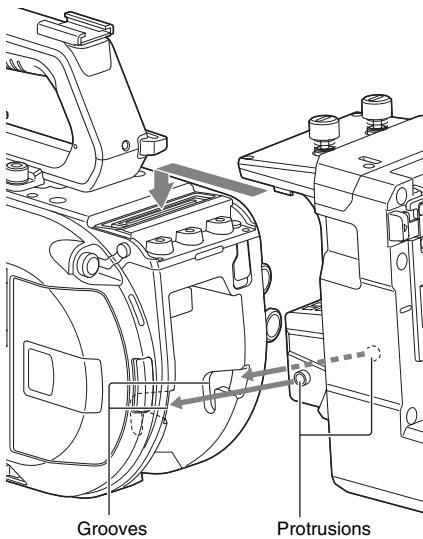
### Notes

- The camcorder battery pack cannot be used when an XDCA-FS7 unit is attached to the camcorder. You must attach a battery pack to the XDCA-FS7 or connect an external power supply.
- Attach/remove the XDCA-FS7 while the camcorder is turned off.

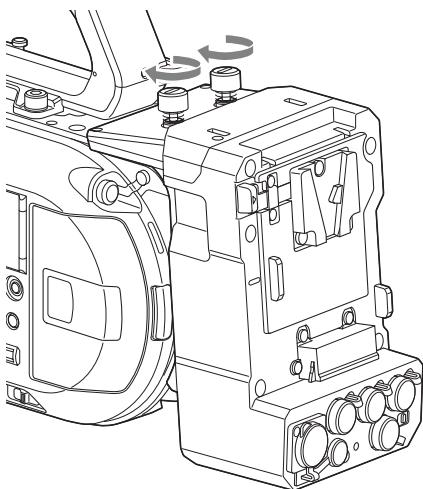
- 1 Remove the battery pack (page 18) attached to the camcorder.
- 2 Remove the cover of the extension unit connector section.



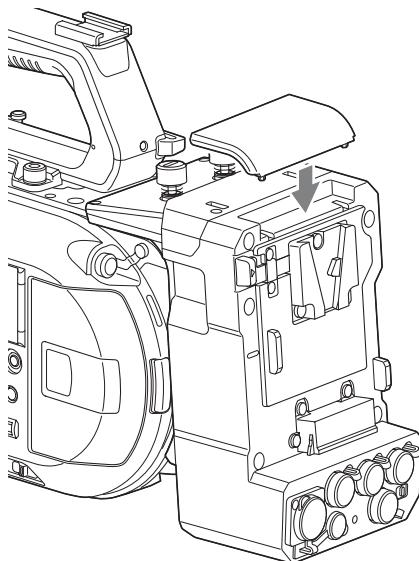
- 3 Align the protrusions of the XDCA-FS7 with the left and right grooves of the camcorder and slide all the way in, then slide the XDCA-FS7 down into the connector section.**



- 4 Tighten the two screws on the top of the XDCA-FS7 to secure the XDCA-FS7.**



The cover of the extension unit connector section can be inserted into the top of the extension unit.



## Removing the XDCA-FS7

Loosen the two screws on the top of the XDCA-FS7, and remove the XDCA-FS7 from the camcorder.

## Attaching the Battery Pack

Insert the battery pack into the battery pack attachment on the XDCA-FS7.

## Removing the Battery Pack

Pull the battery pack out from the battery pack attachment on the XDCA-FS7 while holding down the BATT RELEASE button.

## Switching the Timecode Input/Output

You can switch the timecode input/output using the TC IN/OUT switch (page 12).

*For details, see page 102.*

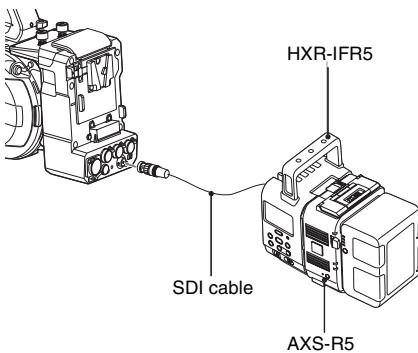
## Using an HXR-IFR5 and AXS-R5

You can record RAW video (*page 52*) to an AXS-R5 RAW Recorder (option) using an HXR-IFR5 Interface Unit (option) and an XDCA-FS7 (option).

For details about setting up the HXR-IFR5 and AXS-R5, refer to the HXR-IFR5 operation manual.

### Connecting the HXR-IFR5 to the Camcorder

- 1 Attach the XDCA-FS7 to the camcorder (*page 32*).
- 2 Connect the RAW OUT connector of the XDCA-FS7 to the SDI IN (RAW) connector of the HXR-IFR5 using an SDI cable.



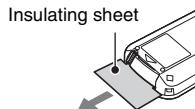
### Removing the HXR-IFR5

Disconnect the SDI cable from the RAW OUT connector of the XDCA-FS7.

## Using the Infrared Remote Control

### When using for the first time

Pull out the insulating sheet from the battery holder when using the supplied infrared remote control for the first time.



A CR2025 lithium-ion battery is installed in the battery holder at the factory.

### Controlling the camcorder using the remote control

To use remote control, first turn on the camcorder and then enable remote control operation.

Use the setup menu to enable/disable the remote control function.

#### To enable using the menu

Press the MENU button to switch the camcorder to menu mode, then set IR Remote (*page 98*) in the System menu to On.

#### Notes

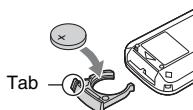
- Point the remote control at the remote control receiver sensor on the camcorder.
- Set up the camcorder so that the remote control receiver sensor is not exposed to direct sunlight or strong light from other sources. Strong light can prevent proper remote control operation.
- Other video decks may operate by mistake when using the supplied remote control to operate the camcorder. In this case, switch the remote control mode switch on the video deck to DVD2, or shield the remote control receiver sensor using black paper.

## Changing the battery of the remote control

The remote control uses a standard CR2025 battery.

Do not use a battery other than the CR2025.

- 1 Push the tab in, and remove the battery holder by placing a fingernail in the groove.**
- 2 Insert a new battery with the + terminal facing up.**
- 3 Insert the battery holder until it clicks into place.**



### Caution

Do not store battery packs in locations exposed to direct sunlight, flame, or high temperature.

### Note

Replacing the battery with a non-specified battery may cause device failure. Always replace with the specified battery.

Dispose of used batteries in accordance with federal and local laws.

## Using Wi-Fi Remote Control

You can operate the camcorder from a web browser by connecting a smartphone, tablet, or other device that supports a web browser to the camcorder using a wireless LAN connection. This function is called Wi-Fi remote control. This function is useful when operating the camcorder from a remote location, for example, when the camcorder is mounted on a crane. For details of the Wi-Fi remote control setup procedure, see *page 56*.

### Wi-Fi Remote screen (smartphone)

#### Main screen



- Shooting settings  
S&Q FPS, Shutter, White, Sensitivity/Gain/Exposure Index, Gamma, MLUT, Color Bars, Auto Black, Auto White, Rec Start/Stop, Lock, Iris, Focus, Zoom, Auto Iris, Auto Shutter, AGC, ATW

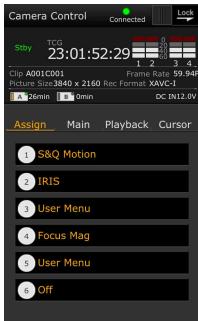
## Playback screen



## Cursor screen



## Assign screen



- Status display
- Playback buttons

Play/Pause, Stop, F Fwd, F Rev, Next, Prev

## Wi-Fi Remote screen (tablet)

### Main screen



- Status display
- Cursor buttons

Up, Down, Left, Right, Set, Cancel/Back, Menu, Status, Thumbnail, User Menu

- Shooting settings

S&Q FPS, Shutter, White, Sensitivity/Gain/Exposure Index, Gamma, MLUT, Color Bars, Auto Black, Auto White, Rec Start/Stop, Lock, Iris, Focus, Zoom, Auto Iris, Auto Shutter, AGC, ATW

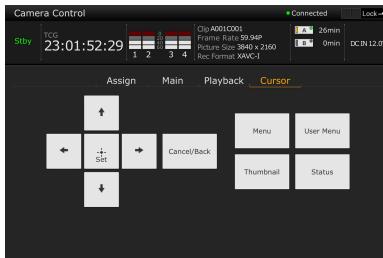
### Playback screen



- Status display
- Playback buttons

Play/Pause, Stop, F Fwd, F Rev, Next, Prev

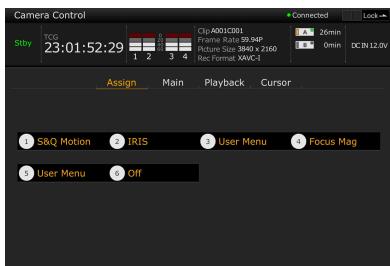
### Cursor screen



- Status display
- Cursor buttons

Up, Down, Left, Right, Set, Cancel/Back, Menu, Status, Thumbnail, User Menu

## Assign screen



- Status display
  - Assignable buttons
- Assignable buttons 1 to 6

## Shooting

# Basic Operation Procedure

Basic shooting is conducted using the following procedure.

**1 Attach the necessary devices, and check that power is being supplied.**

**2 Insert the memory card(s).**

**3 Set the POWER switch to the ON position.**

The camera image appears in the viewfinder.

**4 Press the record button (*page 7*).**

The recording indicator lights up, and the camcorder starts recording.

**5 To stop recording, press the record button again.**

Recording stops, and the camcorder switches to STBY (standby) mode.

**Note**

If the record button is pressed within a few seconds after turning the camcorder on, the recording indicator lights up to indicate the unit is in the recording state, but recording to media may not occur for the first few seconds, depending on the selected recording format.

## Shooting (Full Auto mode)

Press the FULL AUTO button, turning the button indicator on.

The auto iris (compatible lenses only), AGC, auto shutter, ATW (auto tracing white balance) functions are enabled to control the brightness and white balance automatically (full auto mode). To control each function manually, turn Full Auto mode off.

## Recording continuously when changing memory cards (Relay Rec)

When memory cards are inserted in both slots A and B, recording automatically switches to the second memory card just before the remaining capacity on the first card is reduced to zero.

**Notes**

- Do not eject a memory card while recording to it is in progress. When recording, only change memory cards in slots for which the slot access indicator is not lit.
- When the remaining capacity on the memory card being recorded becomes less than one minute and a recordable memory card is inserted in the other slot, a “Will Switch Slots Soon” message appears. The message disappears after switching memory card slots.
- Relay recording may not operate if recording is started when the remaining memory card capacity is less than one minute. For correct relay recording, check that the remaining memory card capacity is more than one minute before starting recording.
- Video created using the camcorder relay recording function cannot be played back seamlessly on the camcorder.
- To combine video created using the camcorder relay recording function, use Catalyst Browse software.

## Recording to memory cards A and B simultaneously (Simul Rec)

You can simultaneously record using both memory cards A and B.

**Set Simul Rec >Setting in the Recording menu to “On.”**

### Note

Simultaneous recording is not supported in Slow & Quick Motion mode (*page 86*) or Picture Cache recording mode (*page 86*).

Also, simultaneous recording is not supported for the following recording formats (*page 93*).

### NTSC Area

#### XAVC-I

4096x2160 59.94P, 4096x2160 29.97P,  
4096x2160 24.00P, 4096x2160 23.98P,  
3840x2160 59.94P, 3840x2160 29.97P,  
3840x2160 23.98P, 1920x1080 59.94P

#### XAVC-L

3840x2160 59.94P, 3840x2160 29.97P,  
3840x2160 23.98P

#### RAW (with XDCA-FS7, HXR-IFR5, and AXS-R5 connected)

4096x2160 59.94P, 4096x2160 29.97P,  
4096x2160 23.98P, 2048x1080 59.94P,  
2048x1080 29.97P, 2048x1080 23.98P

#### RAW & XAVC-I (with XDCA-FS7, HXR-IFR5, and AXS-R5 connected)

4096x2160 59.94P, 2048x1080 59.94P  
**ProRes 422 HQ, ProRes 422 (with XDCA-FS7 connected)**  
1920x1080 59.94i, 1920x1080 29.97P,  
1920x1080 23.98P

### PAL Area

#### XAVC-I

4096x2160 50P, 4096x2160 25P, 3840x2160 50P,  
3840x2160 25P, 1920x1080 50P

#### XAVC-L

3840x2160 50P, 3840x2160 25P

#### RAW (with XDCA-FS7, HXR-IFR5, and AXS-R5 connected)

4096x2160 50P, 4096x2160 25P,  
2048x1080 50P, 2048x1080 25P

#### RAW & XAVC-I (with XDCA-FS7, HXR-IFR5, and AXS-R5 connected)

4096x2160 50P, 2048x1080 50P  
**ProRes 422 HQ, ProRes 422 (with XDCA-FS7 connected)**

1920x1080 50i, 1920x1080 25P

## Changing the settings of the record START/STOP buttons on the camcorder and handle

When the simultaneous recording (Simul Rec) is enabled, you can start/stop recording to each memory card independently using the record START/STOP buttons on the camcorder and the handle.

By factory default, both buttons are set to start/stop simultaneous recording to both memory cards A and B.

- “Rec Button [SlotA SlotB] Handle Rec Button [SlotA SlotB]”

When the buttons are set to control recording for different memory cards, SDI/HDMI Rec Control and RAW Rec Control follow the recording state of slot A.

### To change the setting

**Select Simul Rec >Rec Button Set in the Recording menu.**

Rec Button Set	Buttons and memory cards
“Rec Button [SlotA SlotB] Handle Rec Button [SlotA SlotB]”	Starts/stops simultaneously recording to memory cards A and B using either button.
“Rec Button [SlotA] Handle Rec Button [SlotB]”	The record START/STOP button starts/stops recording to memory card A, and the record START/STOP button on the handle starts/stops recording to memory card B.
“Rec Button [SlotB] Handle Rec Button [SlotA]”	The record START/STOP button starts/stops recording to memory card B, and the record START/STOP button on the handle starts/stops recording to memory card A.

## Adjusting the Focus Automatically

A lens that supports auto focus is required. Set the FOCUS switch (*page 9*) on the camcorder to the “AUTO” position. If the lens is fitted with a focus selector switch, set the switch to the “AF/MF” or “AF” position. If the switch is set to the “Full MF” or “MF” position, lens focusing cannot be operated from the camcorder (*page 24*).

### Note

The LA-EA1/3 (option) supports push auto focus only.

## Setting the auto focus area (Focus Area)

You can set the target area for auto focus using Focus >Focus Area (*page 66*) in the Camera menu.

### Note

On the LA-EA2/4 (option), the position cannot be set.

## Temporarily stopping auto focus (Focus Hold)

Press the PUSH AUTO FOCUS button (*page 9*) when in auto focus mode to override auto focus. This is useful, for example, when something crosses in front of the subject that you do not want to focus on, or when auto focus is lost.

## Adjusting the Focus Manually

To adjust the focus manually, set the FOCUS switch (*page 9*) to “MAN.”

This allows you to adjust the focus manually according to the shooting conditions.

Manual focusing is useful for the following types of subjects.

- Subjects on the far side of a window covered in water droplets
- Subjects with low contrast against the background
- Subjects further away than nearby subjects

## Adjusting focus rapidly using manual focus (Push Auto Focus)

Position the subject that you want to adjust focus for in the center of the image, then press the PUSH AUTO FOCUS button (*page 9*).

The focus returns to the previous setting when you release the button.

This is useful when you want to quickly focus on a subject before starting to shoot.

You can set the position for focusing using Focus >Focus Area (Push AF) (*page 67*) in the Camera menu.

### Notes

- The Push Auto Focus function does not operate if the lens is set for manual focusing.
- During Push Auto Focus operation when using an LA-EA2/4, Full Auto mode is On.
- During focus magnification, the focus adjusts to fit the magnified display position.

### Focus indicator

Indicates the focus state.

- (Lit): Subject is in focus.
- (Flashing): Subject is out of focus. Since focusing is not automatic, change the composition and focus settings to achieve focus.

## Focusing using magnified view (Focus Magnifier)

By factory default, the Focus Magnifier x4/x8 function is assigned to the ASSIGN4 button on the grip remote control (*page 46*).

### Press the ASSIGN4 button.

The focus magnifier screen appears with the center magnified by approximately four times.

Press the button again to increase the magnification to approximately eight times. This function is useful for checking the focus.

Press the button again to return to the normal screen.

You can move the position to be magnified during focus magnification using the multi selector.

Pressing the multi selector returns to the center of the image. You can also control the position using the left/right buttons and SEL/SET dial on the camcorder, infrared remote controller, or Wi-Fi remote controller.

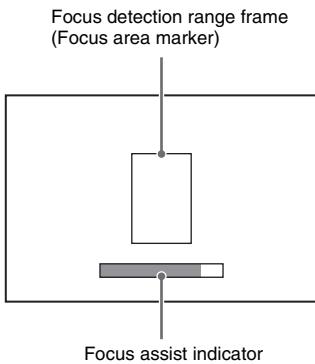
If push auto focus is used during focus magnification, the focus adjusts to fit the magnified display position.

### Notes

- The recorded image or SDI/HDMI output image is not magnified when the focus is magnified.
- During focus magnification, the STATUS CHECK button and menu buttons have no effect.

- The focus position is cleared when the camcorder is turned off. When the camcorder is turned on again, the focus magnification position returns to the center of the image when switching to the focus magnifier screen.

## Adjusting focus using the focus assist indicator



The focus position is indicated by the maximum reach of the bar. Adjust the focus to maximize the length of the bar.

## Switching Between XQD Memory Cards

When two XQD memory cards are inserted, press the SLOT SELECT button (*page 9*) to switch cards.

### Note

You cannot switch between memory cards during playback mode. Also, continuous playback of a clip spanning media in slot A and slot B is not supported.

### Clips (recorded data)

When you stop recording, the video, audio, and accompanying data from the start to the end of the recording are saved as a single “clip” on an XQD memory card.

### Clip names

Each clip recorded by the camcorder is automatically assigned a clip name comprising the word “Clip” and a 4-digit number. The 4-digit number automatically increments with each recording.

You can change the “Clip” prefix using Clip in the Media menu.

### Maximum clip duration

Up to 6 hours per clip.

Multiple clips are recorded in succession during relay recording, but recording will stop automatically after approximately 13 hours.

### Notes

- The focus indicator may show little or no variation when you are shooting subjects with little surface variation or dark scenes.
- The detection range cannot be set.

## Monitoring Audio

You can monitor the audio that is being recorded using headphones.

Connecting a set of headphones to the headphone connector (*page 10*) enables you to monitor the audio being recorded. You can also monitor the playback audio (*page 58*) using the built-in speaker (*page 10*) or headphones.

You can select the audio channel to monitor and adjust the volume using Audio Output (*page 78*) in the Audio menu.

# Changing Basic Settings

You can change the settings based on the video application or recording conditions.

## Selecting the Recording Format

The formats available for selection vary depending on the Country (region of use) and Codec settings.

Select a format using Rec Format >Video Format in the System menu.

## Adjusting the Brightness

You can adjust the brightness by adjusting the iris, gain, shutter speed, and by adjusting the light level using ND filters.

When adjusting the brightness without using ND filters, turn Full Auto mode (*page 38*) off.

You can adjust the brightness control target level in the setup menu.

### Adjusting the control target level

Set the level using Auto Exposure (*page 66*) >Level in the Camera menu.

#### Note

The brightness cannot be adjusted automatically in Cine EI mode.

### Adjusting the iris automatically

This function adjusts the brightness according to the subject. A lens that supports auto iris is required.

- 1 If a lens with Auto Iris switch is attached, set the switch to AUTO.
- 2 Press the IRIS button (*page 46*) to turn Auto Iris on.

The setting toggles between on and off each time the IRIS button is pressed.

#### Note

The iris cannot be adjusted automatically on an A-mount lens.

### Adjusting the iris manually

Press the IRIS button to turn Auto Iris off, then adjust using the IRIS dial.

You can also assign the IRIS function to an assignable dial (*page 46*).

### Temporarily adjusting the iris automatically

Press and hold the PUSH AUTO IRIS button to turn auto iris on temporarily.

The iris returns to the previous setting when you release the button.

#### Note

When the Auto Iris switch of the lens is set to "MANUAL," the Auto Iris and Push Auto Iris functions on the camcorder have no effect. Manual iris adjustments on the camcorder also have no effect.

### Adjusting the gain automatically

Press the ISO/Gain button (*page 9*) to turn AGC on.

Or select Auto Exposure (*page 66*) >AGC in the Camera menu and set to "On."

### Adjusting the gain manually

You can control the gain when you want to adjust the exposure while using a fixed iris setting or when you want to prevent the gain increasing due to AGC.

- 1 Press the ISO/Gain button (*page 9*) to turn AGC off.
- 2 Set the GAIN switch (*page 9*) to H, M, or L.

### Controlling the gain (fine adjustment)

Turn the IRIS dial, or the assignable dial assigned with the ISO/Gain/EI function, to adjust the gain value set by the GAIN switch.

This is useful when you want to adjust the exposure by one step without changing the depth of field.

The adjusted gain value is canceled by switching the GAIN switch or by turning AGC on.

## Shooting using auto shutter

This function adjusts the shutter speed automatically in response to the image brightness.

### Press the SHUTTER button (*page 9*).

If the settings screen was displayed, press the button again.

Or set Auto Exposure (*page 66*)>Auto Shutter in the Camera menu to On.

## Shooting with a fixed shutter

You can shoot with a set shutter speed.

Press the SHUTTER button to display a screen with the supported shutter values, and select and set a value using the SEL/SET dial. If you press the SHUTTER button again instead of the SEL/SET dial, auto shutter is enabled.

### Setting in the Camera menu

Select Shutter (*page 67*) in the Camera menu and set the shutter mode and speed.

## Adjusting the light level (ND filter)

In conditions where the lighting is too bright, you can set the appropriate brightness by changing the ND filter.

Turn the ND FILTER dial (*page 9*) to select Clear → 1/4 → 1/16 → 1/64 → Clear in sequence.

## Adjusting for Natural Colors (White Balance)

You can select the adjustment mode to suit the shooting conditions.

### ATW (auto tracing white balance)

This function adjusts the white balance automatically to an appropriate level.

The white balance is automatically adjusted when the color temperature of the light source changes. Pressing the WHT BAL button (*page 9*) switches ATW on/off.

You can select the speed of adjustment (five steps) using White (*page 70*)>ATW Speed in the Paint menu.

You can freeze the current white balance setting by assigning the ATW Hold function to an assignable button (*page 46*), and pressing the assignable button to temporarily pause ATW mode.

### Notes

- ATW cannot be used in Cine EI mode.
- 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 color temperature is extremely high or extremely low.  
If the appropriate effect cannot be obtained because the ATW auto tracking speed is slow or for other reasons, run auto white balance.

## Adjusting the white balance manually

- 1 Turn Full Auto mode (*page 38*) off.
- 2 When white balance is set to ATW mode, press the WHT BAL button (*page 9*) to set manual mode.
- 3 Select B, A, or PRESET using the WHT BAL switch (*page 9*).

B: Memory B mode\*

A: Memory A mode

PRESET: Preset mode

\* B can be assigned to ATW ON.

## Preset mode

This mode adjusts the color temperature to a preset value (factory default is 3200K).

## Memory A/Memory B mode

This mode adjusts the white balance to the setting saved in memory A or B, respectively.

### Note

The settings of the WHT BAL switch in Cine EI mode are fixed as follows.

B: 5500K  
A: 4300K  
PRESET: 3200K

## Running auto white balance

### 1 Press the ISO/Gain button (page 9) to turn AGC on.

Or select Auto Exposure (page 66) >AGC in the Camera menu and set to "On."

### 2 To save an adjustment value in memory, select memory A mode or memory B mode.

### 3 Place white paper (or other object) in a location with the same lighting source and conditions as the subject, then zoom in on the paper to show white on the screen.

### 4 Adjust the brightness.

Adjust the iris using the procedure in "Adjusting the iris manually" (page 42).

### 5 Press the WB SET button (page 7).

If auto white balance is set in memory mode, the adjustment value is saved in the memory (A or B) selected in step 2.

If auto white balance is set in ATW mode, the white balance adjustment returns to the ATW mode white balance when adjustment ends.

### Notes

- Auto white balance cannot be performed in Cine EI mode.
- If the adjustment is not successful, an error message is displayed on the screen for about three seconds. If the error message persists after repeated attempts to set white balance, contact your Sony service representative.

## Setting the Audio to Record

You can specify the audio to be recorded using the input connectors, switches, and dials of the camcorder.

### External audio input connectors and selector switches

INPUT1 connector (page 10)

INPUT2 connector (page 10)

INPUT1 (LINE/MIC/MIC+48V) switch (page 7)

INPUT2 (LINE/MIC/MIC+48V) switch (page 7)

### Switches for setting the audio level

CH1 LEVEL CONTROL switch (page 9)

CH2 LEVEL CONTROL switch (page 9)

CH1 INPUT LEVEL dial (page 9)

CH2 INPUT LEVEL dial (page 9)

## Selecting the audio input device

### 1 Select the audio input connector.

Select the audio input using Audio Input >CH1 Input Select or CH2 Input Select in the Audio menu.

Set to INPUT1 or INPUT2 to correspond to the connector for the connected device. If using a shoe microphone or XLR adapter, specify Shoe 1 or Shoe 2 in the same way. For details about the XLR adapter, see "Adding Audio Input Connectors" (page 53).

### Note

The camcorder is equipped with an internal microphone. Although it is not suitable for final audio, it can be used for syncing with other equipment. In such cases, specify Internal MIC.

## 2 Select the input audio source.

Set the INPUT1/INPUT2 (LINE/MIC/MIC+48V) switches to the devices connected to the INPUT1/INPUT2 connectors, respectively.

Connected device	Switch position
External audio source (e.g. LINE mixer)	
Dynamic microphone, battery-operated microphone	MIC
+48 V phantom power feed microphone	MIC+48V

- Selecting “MIC+48V” and connecting a microphone that is not compatible with a +48V source may damage the connected device. Check the setting before connecting the device.
- If noise is a concern on connectors with no device connected, set the corresponding INPUT1/INPUT2 (LINE/MIC/MIC+48V) switches to “LINE.”

## Adjusting the audio recording level automatically

Set the CH1/CH2 LEVEL CONTROL switches for the channels to adjust automatically to “AUTO.”

For CH3/CH4, set Audio Input >CH3 Level Control and CH4 Level Control in the Audio menu to “Auto” (page 76).

## Adjusting the audio recording level manually

Use the following procedure to adjust the audio recording level for CH1/CH2.

### 1 Set the CH1/CH2 LEVEL CONTROL switches for the channels to adjust manually to “MAN.”

### 2 During shooting or standby, turn the INPUT LEVEL (CH1)/(CH2) dials of the corresponding channels to adjust the audio level.

You can also adjust the recording level using the assignable dial (page 46), if assigned with the Audio Input Level function, or from the setup menu.

For CH3/CH4, set Audio Input >CH3 Level Control and CH4 Level Control in the Audio menu to “Manual,” and then set the audio recording level in CH3 Input Level and CH4 Input Level (page 76).

### Notes

- The Audio Input Level settings may be disabled, depending on the combination of settings in the Audio menu. For details, see the diagram on page 130.
- If either Audio Input >CH1 Input Select or CH2 Input Select in the Audio menu is set to “Internal MIC,” CH2 is switched to automatic/manual in conjunction with the CH1 LEVEL CONTROL switch. Also, the CH2 audio recording level is set in conjunction with the CH1 INPUT LEVEL dial (page 76).
- The camcorder supports combinations of various settings. For details, see the diagram on page 130.

## Specifying Time Data

### Setting the timecode

Set the timecode to record using Timecode (page 85) in the TC/UB menu.

### Displaying time data

Press the DISPLAY button to display time data on the screen (page 14).

Set the timecode to display using TC Display (page 85) >Display Select in the TC/UB menu. Pressing an assignable button (page 46) with DURATION/TC/U-BIT assigned will switch the display between the timecode, user bits, and duration in sequence.

# Useful Functions

## Assignable Buttons/Dials

There are six assignable buttons (*page 9, page 11*) on the camcorder to which you can assign functions.

You can also assign functions to the IRIS dial (*page 9*) on the camcorder and the assignable dial (*page 11*) on the grip remote control.

### Changing the button function

Use Assignable Button (*page 94*) in the System menu.

You can view the assigned functions on the Assignable Button Status screen (*page 16*).

### Functions assigned to each assignable button by factory default

Button 1	S&Q Motion
Button 2	IRIS
Button 3	User Menu
Button 4	Focus Magnifier x4/x8
Button 5	User Menu
Button 6	Off

### Assignable functions

- Off
- Marker
- Zebra
- Peaking
- Video Signal Monitor
- DURATION/TC/U-BIT
- Focus Magnifier x4/x8
- Focus Magnifier x4
- Focus Magnifier x8
- Push AF/Focus Hold
- Focus Area
- Focus Area (Push AF)
- VF Mode
- IRIS
- AGC
- SHUTTER
- Auto Exposure Level
- Push Auto Iris
- Push AGC
- Spotlight
- Backlight
- ATW

- ATW Hold
- SteadyShot
- Color Bars
- User Menu
- Rec Lamp
- S&Q Motion
- Picture Cache Rec
- Rec Review
- Thumbnail
- Shot Mark1
- Shot Mark2
- Clip Flag OK
- Clip Flag NG
- Clip Flag Keep
- High/Low Key

### Changing the dial function

Use Assignable Dial (*page 96*) in the System menu.

You can view the assigned functions on the Assignable Button Status screen (*page 16*). IRIS is assigned by factory default.

### Assignable functions

- Off
- IRIS
- ISO/GAIN/EI
- Focus
- Audio Input Level

## Slow & Quick Motion

When the video format (*page 92*) is set to one of the following values, you can specify a different value for the recording frame rate and playback frame rate.

### NTSC Area

#### XAVC-I

4096×2160 59.94P, 4096×2160 29.97P,  
4096×2160 24.00P, 4096×2160 23.98P,  
3840×2160 59.94P, 3840×2160 29.97P,  
3840×2160 23.98P, 1920×1080  
59.94P, 1920×1080 29.97P, 1920×1080  
23.98P  
**XAVC-L**  
3840×2160 59.94P, 3840×2160 29.97P,  
3840×2160 23.98P, 1920×1080 59.94P 50,  
1920×1080 59.94P 35, 1920×1080 29.97P  
50, 1920×1080 29.97P 35, 1920×1080  
23.98P 50, 1920×1080 23.98P 35

### PAL Area

#### XAVC-I

4096×2160 50P, 4096×2160 25P,  
3840×2160 50P, 3840×2160 25P,  
1920×1080 50P, 1920×1080 25P  
**XAVC-L**  
3840×2160 50P, 3840×2160 25P,  
1920×1080 50P 50, 1920×1080 50P 35,  
1920×1080 25P 50, 1920×1080 25P 35

You can set the frame rate for recording by pressing and holding an assignable button to which S&Q Motion has been assigned.

#### Notes

- Slow & Quick Motion cannot be set during recording, playback, or while the thumbnail screen is displayed.
- Audio recording is not supported in Slow & Quick Motion mode.
- The auto focus function is disabled in Slow & Quick Motion mode.
- The following conditions apply when shooting at frame rates higher than 60 fps.
  - The focus assist indicator, depth of field indicator, focus position indicator, iris position indicator, and zoom position indicator are all turned off.

### NTSC Area

Format	Resolution	Frame rate	High frame rate
XAVC-I	2160	1 to 60 fps (59.94P, 29.97P, 24.00P, 23.98P)	Not supported (59.94P, 29.97P, 24.00P, 23.98P)
	1080	1 to 60 fps 100/110/120/ 125/135/144/ 150/160/168/ 175/180 fps (59.94P, 29.97P, 23.98P)	72/75/80/90/96/ 100/110/120/ 125/135/144/ 150/160/168/ 175/180 fps (59.94P, 29.97P, 23.98P)
XAVC-L	2160	1 to 60 fps (59.94P, 29.97P, 23.98P)	Not supported (59.94P, 29.97P, 23.98P)
	1080	1 to 60 fps 100/110/120 fps (59.94P 50, 59.94P 35, 29.97P 50, 29.97P 35, 23.98P 50, 23.98P 35)	72/75/80/90/96/ 100/110/120 fps (59.94P 50, 59.94P 35, 29.97P 50, 29.97P 35, 23.98P 50, 23.98P 35)

### PAL Area

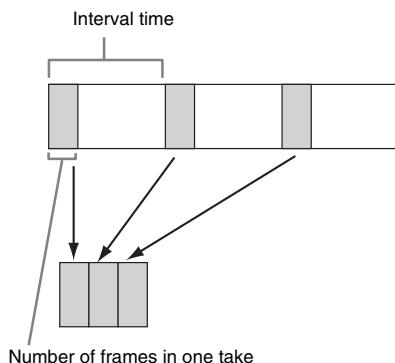
Format	Resolution	Frame rate	High frame rate
XAVC-I	2160	1 to 60 fps (59P, 25P)	Not supported (59P, 25P)
	1080	1 to 60 fps 100/110/120/ 125/135/144/ 150 fps (59P, 25P)	72/75/80/90/96/ 100/110/120/ 125/135/144/ 150 fps (59P, 25P)
XAVC-L	2160	1 to 60 fps (59P, 25P)	Not supported (59P, 25P)
	1080	1 to 60 fps 100/110/120 fps (50P 50, 50P 35, 25P 50, 25P 35)	72/75/80/90/96/ 100/110/120 fps (50P 50, 50P 35, 25P 50, 25P 35)

## Recording Video Intermittently (Interval Rec)

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. This function is enabled when the camcorder is set to any of the following video formats (*page 92*).

XAVC-I  
XAVC-L\*  
MPEG HD 422\*

\* 59.94i and 50i are not supported.



When Interval Rec is enabled, the HVL-LBPC (option) video light automatically turns on before recording starts, which allows you to record pictures under stable light and color temperature conditions (pre-lighting function).

## Interval Rec settings and shooting

### 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, Interval Rec is automatically released.
- Interval Rec mode is automatically released after changing system settings, such as the video format.
- Interval Rec settings cannot be changed during recording or playback, or when the thumbnail screen is displayed.

### To set Interval Rec

Set Interval Rec (*page 86*) >Setting in the Recording menu to On, and set Number of Frames and Interval Time.

If using the HVL-LBPC video light (option), set the time interval for turning on the video light before recording starts in Pre-Lighting in the Interval Rec menu, as required.

### Notes

- If you want to turn the video light on before the start of recording, set the video light switch to AUTO. The video light turns on and off automatically according to the setting of Video Light Set (*page 69*) in the Camera menu.
- If you turn the video light switch on, the video light is always lit (video light does not turn on/off automatically).
- If the video light is configured so that it would turn off for a duration of 5 seconds or less, the video light does not turn off.

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.

### To shoot using Interval Rec

Press the record button to start recording. “Int [A]/[B] ●Rec” and “Int [A]/[B] ●Stby” appears alternately in the viewfinder.

If you are using the pre-lighting function, the video light turns on before recording starts.

### To stop shooting

Stop the recording.

When shooting ends, the video data stored in memory up to that point is written to the media.

### To exit Interval Rec mode

Do one of the following.

- Set the POWER switch to Off.
- In recording standby mode, set Interval Rec >Setting in the Recording menu to Off.

Also, Interval Rec mode is automatically released when the camcorder is restarted.

### Limitations during recording

- Audio is not recorded.
- Reviewing the recording (Rec Review) is not possible.
- Genlock is not applied.

### 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 from the AC adapter, 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.

## Picture Cache Recording (Picture Cache Rec)

The picture cache recording function allows you to capture video retroactively when you start recording and then record it to XQD memory cards by maintaining an internal cache memory of a specified duration when shooting. The picture cache recording time is set using Picture Cache Rec >Cache Rec Time (*page 86*) in the Recording menu.

### Supported recording formats

Recording format	Resolution	Cache time [sec.]
RAW	4096x2160 2048x1080	Not supported
XAVC *1	4096x2160	0 to 2
	3840x2160	
	1920x1080	0 to 2/2 to 4/4 to 6/6 to 8
MPEG-2	1920x1080	0 to 2/2 to 4/4 to 6/6 to 8/8 to 10/13 to 15
ProRes422	1920x1080	Not supported

\*1: XAVC-I 59.94P and 50P are not supported.

### Notes

- Picture Cache Rec cannot be on at the same time as Interval Rec or Slow & Quick Motion. When Picture Cache Rec is turned on, these other recording modes are forcibly turned off.
- Picture Cache Rec mode cannot be selected while recording or Rec Review is in progress.
- When Picture Cache Rec is on, the timecode is recorded in Free Run mode regardless of the setting in the TC/UB menu (*page 85*).
- The Output Format setting may not be configurable in Picture Cache Rec mode. If this occurs, temporarily set Picture Cache Rec to Off, and then change the setting.

### Configuring before shooting

Configure Picture Cache Rec (*page 86*) in the Recording menu before shooting.

You can also assign the Picture Cache Rec function to an assignable button (*page 46*) and switch Picture Cache Rec >Setting on/off using the button.

When configured, the ● (green) indicator appears in the viewfinder (*page 13*).

## Picture cache recording

When you press the record button, recording starts and video is written to XQD memory cards starting from the video stored in the cache memory.

### To cancel Picture Cache Rec

Turn off Picture Cache Rec >Setting in the Recording menu or press an assignable button assigned with the Picture Cache Rec function.

### Notes

- Changing the recording format clears the video in cache memory stored up to that point, and starts caching new video. Consequently, picture cache recording of pictures before changing format is not possible, even if you start recording immediately after changing format.
- If Picture Cache Rec is turned on/off immediately after inserting an XQD memory card, cache data may not be recorded on the card.
- Video is stored in cache memory when the cache recording function is turned on. Video prior to the function being turned on is not cached.
- Video is not stored in cache memory while an XQD memory card is being accessed, such as during playback, Rec Review, or thumbnail screen display. Picture cache recording of video during that interval is not possible.
- You can change the cache recording time setting using the menu while recording is in progress, but the new value does not come into effect until after recording ends.

## Reviewing a Recording (Rec Review)

You can check the video of the most recently recorded clip on the screen.

### When recording is stopped, press the assignable button (*page 46*) with Rec Review assigned.

The clip is played to the end, Rec Review ends, and the camcorder returns to STBY (standby) mode.

Press and hold the button to start playback in the reverse direction. When the button is released, the clip is played to the end.

### To stop Rec Review

Press the assignable button with Rec Review assigned.

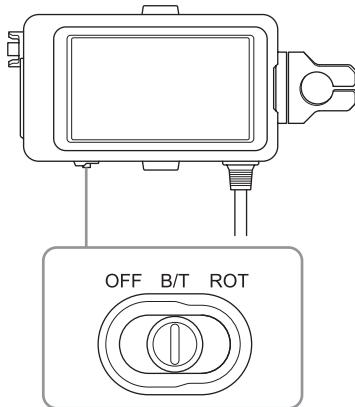
### Note

Rec Review is not supported if the video format is changed after recording a clip.

## Self Portrait Mode

You can flip the image in the viewfinder (page 11) vertically or horizontally/vertically using the MIRROR switch.

This allows you to turn the viewfinder 180° toward the lens.



### OFF

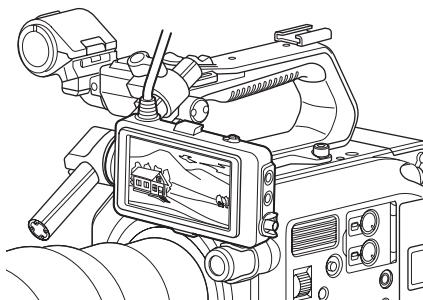
The image is not inverted.



### B/T

The image is flipped vertically.

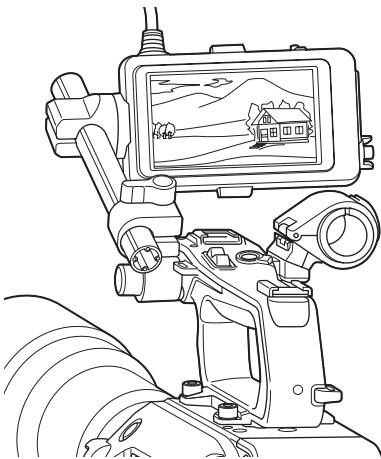
The information display is flipped vertically and horizontally.

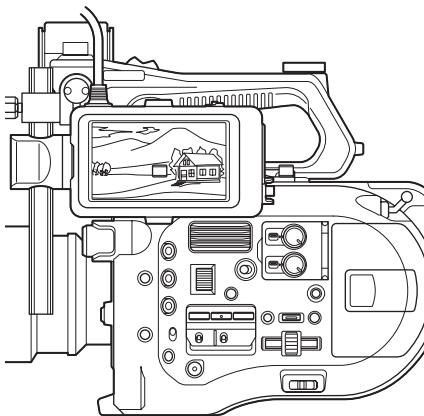


### ROT

The image is flipped vertically and horizontally.

The information display is also flipped vertically and horizontally.





#### Note

The B/T and ROT view are displayed in the viewfinder only. The output video and recorded video remain unaffected.

## Displaying Peaking

You can turn peaking on/off by pressing the PEAKING button on the viewfinder (page 11). You can turn peaking on/off and set the peaking type and peaking frequency using Peaking (page 81) in the VF menu.

## Displaying Zebra

You can turn zebra pattern display on/off by pressing the ZEBRA button on the viewfinder (page 11).

You can turn zebra pattern display on/off, and set the zebra pattern type and display level using Zebra (page 81) in the VF menu.

#### Note

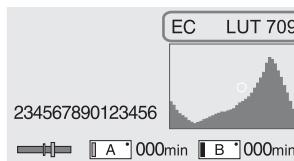
The camcorder measures the image in the viewfinder. In Cine EI mode, adjust the display level and other parameters in accordance with the viewfinder monitor LUT (page 79) setting.

## Video Signal Monitor

You can set the type of video signal to display on the viewfinder screen to waveform, vectorscope, or histogram using Video Signal Monitor >Setting (page 84) in the VF menu.

The video signal monitor of the camcorder measures the video signal in the video output stage. Accordingly, if the output video is edge cropped with respect to the recorded video, the cropped signal component will not be measured. When this occurs, “EC” is displayed at the top left of the video signal monitor.

When the video output is set to 2K or lower in Cine EI mode, you can measure the video signal from either the SDI1 system or SDI2 system using Video Signal Monitor >Source (page 84) in the VF menu. The monitor LUT setting (page 79) of the specified SDI system is displayed at the top right of the video signal monitor.



#### Notes

- When Display On/Off >Setting (page 83) is set to Off in the VF menu, the video signal monitor is not displayed.
- When the specified SDI system monitor LUT setting is set to Off, the Color Space setting (page 92) is displayed at the top right of the video signal monitor.

## Obtaining Location Information (GPS)

### Set GPS to “On” in the System menu.

❖ is displayed when the camcorder is seeking GPS satellites. When positioning is established, location information is recorded when shooting video.

#### Notes

- The GPS setting in the System menu cannot be set to “On” when the handle is not attached, as the GPS receiver is built into the handle.
- The icon displayed 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 not available		Location information could not be obtained because GPS signal could not be received. Move to a location with a clear view of the sky.
Searching for satellites		Searching for GPS satellites. Several minutes may be required to acquire satellites.
Positioning		A weak GPS signal is being received.
		A GPS signal is being received. Location information can be acquired.
		A strong GPS signal is being received. Location information can be acquired.

- GPS is set to “On” by factory default. Location and time information of video shot when positioning is enabled is recorded by 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.

## Shooting in Cine EI Mode

This mode mimics the way a film camera works, and assumes “developing” occurs in post-production.

### Cine EI mode constraints

- Functions that cannot be adjusted automatically (tracking)
  - White balance
  - Gain
  - Shutter
  - Iris
  - Auto Exposure

- Functions that cannot be configured
  - Gain
  - Paint menu settings
  - Scene File
  - Lens File

### Functions available in Cine EI mode only

- Exposure Index
- Monitor LUT
- High/Low Key
- RAW video recording

## Recording RAW Video

You can record RAW video to an AXS-R5 (option) by converting the signal output from the RAW OUT connector of an XDCA-FS7 (option) attached to the camcorder using an HXR-IFR5 (option) (*page 34*).

- 1 **Set up the external RAW recorder unit (*page 34*).**
- 2 **Set Base Setting >Shooting Mode in the System menu to Cine EI.**
- 3 **Set Codec >Select in the System menu to RAW.**  
Selecting RAW & XAVC-I will simultaneously record RAW video to the external RAW recorder and HD video to the XQD memory cards in the camcorder.
- 4 **Set the resolution using Imager Scan Mode in the System menu.**  
When set to Normal, the RAW resolution is 4096x2160.
- 5 **Set the frame rate in Rec Format >RAW Output Format in the System menu.**
- 6 **Check that the external recorder is turned on, then press the record button on the camcorder.**

The supported RAW output formats are shown below.

## NTSC Area

Codec >Select setting	RAW output formats
RAW / RAW & XAVC-I / RAW &XAVC-L / RAW &MPEG HD422	4096×2160 59.94P 4096×2160 29.97P 4096×2160 23.98P 2048×1080 59.94P 2048×1080 29.97P 2048×1080 23.98P

## PAL Area

Codec >Select setting	RAW output formats
RAW / RAW & XAVC-I / RAW &XAVC-L / RAW &MPEG HD422	4096×2160 50P 4096×2160 25P 2048×1080 50P 2048×1080 25P

### Recording status indicator

If Display On/Off (page 83) >HXR-IFR5 Rec Control in the VF menu is set to “On,” the RAW recording status is displayed in the viewfinder using an icon.

### Slow & Quick Motion Recording

If S&Q Motion >Setting in the Recording menu is set to “On,” RAW video is recorded in Slow & Quick Motion mode.

RAW output Slow & Quick Motion is supported only for 2K resolution at 120/240 fps (NTSC) and 100/200 fps (PAL).

### Notes

- The RAW OUT connector of the camcorder only controls recording by transmitting a Rec Control signal to the external recorder, hence the camcorder may indicate RAW video recording is in progress when the external recorder is not actually recording. Check the indicator on the external recorder to obtain the correct operating status.
- When recording is started on an external recorder, without using the record button on the camcorder, clips may not be recorded properly.

## Adding Audio Input Connectors

You can connect up to four channels of XLR audio devices to the camcorder at the same time by using an XLR-K2M XLR adapter (not supplied).

Attach the XLR adapter to the MI shoe, and set Audio Input >CH3 Input Select to “Shoe 1” and CH4 Input Select to “Shoe 2” in the Audio menu. Camcorder functions that overlap will be disabled for channels on which the XLR adapter is selected as the input. Use the switches and dials on the XLR adapter to perform adjustments.

### Notes

- If Audio Input >CH3 Level and CH4 Level in the Audio menu are set to “Audio Input Level,” Audio Input Level of the camcorder will be set to match the level adjusted on the XLR adapter. Audio Input Level is also enabled when the XLR adapter switch is set to AUTO. When “Through” is specified, audio will be recorded at the level adjusted with the XLR adapter (page 131).
- You can also assign to CH1 and CH2 by attaching an XLR adapter and setting Audio Input >CH1 Input Select and CH2 Input Select in the Audio menu to “Shoe 1” and “Shoe 2,” respectively. However, if input from an XLR adapter is assigned to both CH1 and CH2, input from the INPUT1/INPUT2 connectors on the camcorder can no longer be assigned to the channels.

# Connecting Devices using Wireless LAN

The camcorder can connect to smartphones, tablets, and other devices using wireless LAN connection by attaching the IFU-WLM3 USB Wireless LAN Module (supplied) or a CBK-WA100 Wireless Adapter (option).

## Note

USB wireless modules other than the IFU-WLM3 are not supported.

The following are supported from devices connected by wireless LAN.

- Remote control  
Enables remote control of the camcorder.
- Video monitoring (CBK-WA100 only)  
Enables monitoring of the video from the camcorder.  
CBK-WA100 (option) and the Content Browser Mobile application are required.

For details about the Content Browser Mobile application, contact your Sony sales or service representative.

## Compatible devices

You can use a smartphone, tablet, or computer to configure and operate the camcorder. The supported devices, OS, and browsers are shown in the following table.

Device	OS	Browser
Smartphone	Android 5.1	Chrome
	iOS 9	Safari
Tablet	Android 5.1	Chrome
	iOS 9	Safari
Computer	Microsoft Windows 7/ Microsoft Windows 8.1/ Microsoft Windows 10	Chrome
	Mac OS 10.10/10.11	Safari

## Attaching the IFU-WLM3

Plug the IFU-WLM3 into the USB wireless LAN module connector (*page 7*).

After attaching the unit, set Wi-Fi >Wi-Fi (*page 97*) in the System menu to “Enable” to enable wireless LAN.

## Note

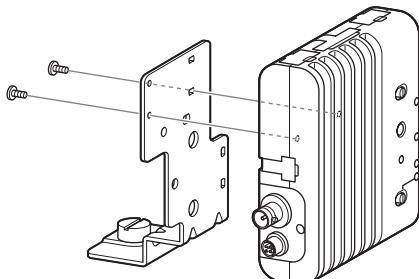
Attach/remove the IFU-WLM3 while the camcorder is turned off.

## Attaching the CBK-WA100

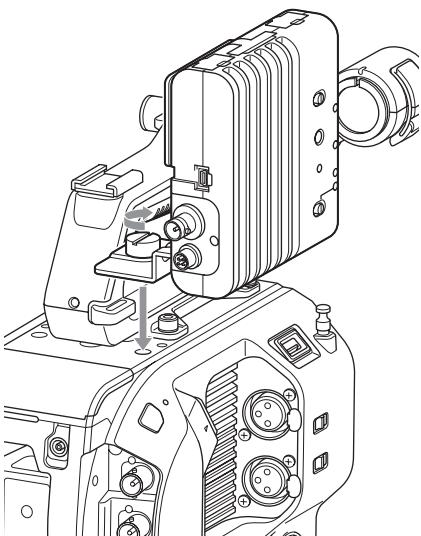
## Note

Attach/remove the CBK-WA100 while the camcorder is turned off.

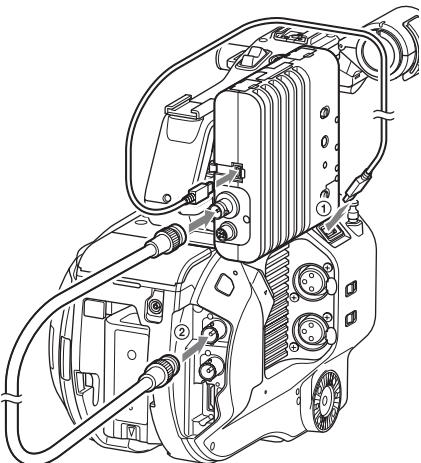
- 1 Attach the CBK-WA100 to the mounting bracket, and tighten the two screws.



- 2** Attach the CBK-WA100 mounting bracket on the camcorder, and tighten the screws.



- 3** Connect the CBK-WA100 USB cable to the USB wireless LAN module connector (①), and the SDI cable to the SDI OUT connector (②).



- 4** Turn the CBK-WA100 on, and then turn the camcorder on.

- 5** When connection is completed, the wireless LAN must be enabled by setting Wi-Fi >Wi-Fi (page 97) in the System menu to Enable.

**Note**

The SDI OUT output setting must be configured to use the CBK-WA100 with the camcorder. However, the camcorder cannot output a signal compatible with the CBK-WA100 when using XAVC-I 24.0P or ProRes 23.98P (page 79).

### About the CBK-WA100

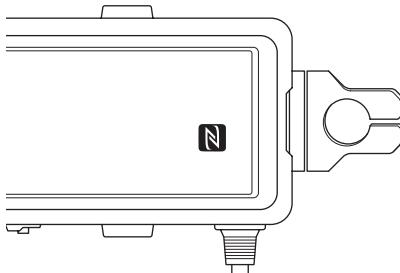
The CBK-WA100 has functions for recording low-resolution proxy files on an SD card, and for transferring the files to a server via a wireless LAN. For details, refer to the operation manual for the CBK-WA100.

### One-touch Connection of NFC-enabled Devices (Using IFU-WLM3 Only)

Devices that support NFC can be connected (one-touch connection) using NFC.

- 1** Attach an IFU-WLM3 to the camcorder (page 54), and set Wi-Fi >Wi-Fi (page 97) in the System menu to “Enable” to enable wireless LAN.

N appears on the screen.

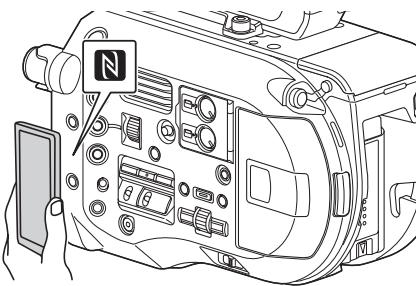


- 2** Open “Settings” on the device, select “More,” and place a check mark in the NFC checkbox.

The various settings will vary depending on the device. For details, refer to the instruction manual for the device.

### 3 Touch the camcorder using the device.

The device connects to the camcorder, launches a web browser, and displays the Wi-Fi remote control. Authentication is required the first time that the device connects.



#### Notes

- Disable sleep mode and screen lock beforehand.
- Touch and hold the device still until the “Content Browser Mobile” application launches (1 to 2 seconds).

## Displaying the Wi-Fi Remote Control

The Wi-Fi Remote screen is automatically resized to match the screen size of the connected device.

### 1 Connect the camcorder and device using a Wireless LAN connection (page 55).

### 2 Launch a browser on the device and enter “[http://IP address of camcorder \(Wi-Fi >IP Address in System menu\)/rm.html](http://IP address of camcorder (Wi-Fi >IP Address in System menu)/rm.html)” in the URL bar.

For example, if the IP address is 192.168.1.1, enter “<http://192.168.1.1/rm.html>” in the URL bar.

### 3 Enter the user name and password (Basic Authentication >User Name and Password in the System menu).

When connection is successful, the Wi-Fi Remote screen appears on the device.

You use the Wi-Fi Remote screen to operate the camcorder.

You can disable the record button operation by sliding the Lock knob to the right.

#### Notes

- To display the page for a smartphone, change “rm.html” to “rms.html” in the URL. To display the page for a tablet, change “rm.html” to “rmt.html” in the URL. When “rm.html” is entered, the page automatically switches for display on the corresponding device. However, the appropriate page may not be displayed, depending on the device.
- 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
  - If the browser Forward/Back buttons have been used
- The Wi-Fi remote control may not function if the wireless signal strength becomes weak.

## Thumbnail Screen

# Thumbnail Screen

The thumbnail screen appears if you press the THUMBNAIL button (*page 9*). The thumbnail screen displays the clips stored on XQD memory cards as thumbnails (index pictures).

You can select a clip on the thumbnail screen and start playback of that clip. The playback image can be displayed in the viewfinder and on an external monitor.

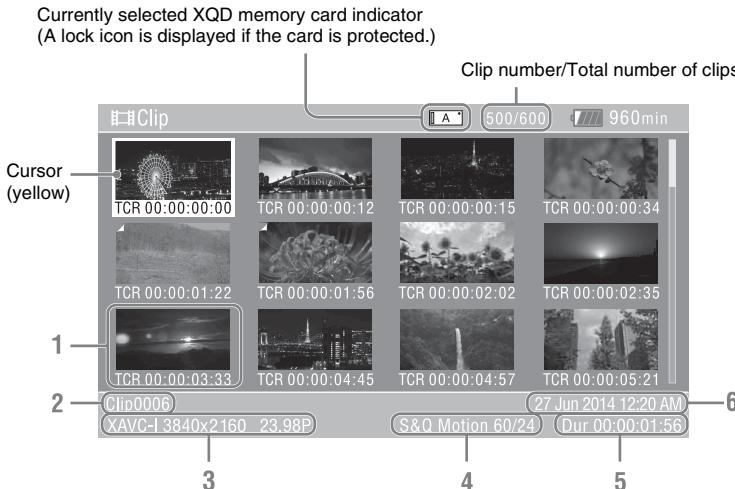
Pressing the THUMBNAIL button again closes the thumbnail screen and returns to the camera image.

### Notes

- Only the clips recorded in the currently selected recording format are displayed on the thumbnail screen. If an expected recorded clip is not displayed, check the recording format. Take special note of this fact before formatting (initializing) media.
- When Codec >Select in the System menu is set to one of the following, recording cannot be started during playback or when the thumbnail screen is displayed.  
RAW & XAVC-I, RAW & XAVC-L, RAW & MPEG HD422

## Screen Layout

Information for the clip at the cursor position is displayed at the bottom of the screen.



### 1. Thumbnail (index picture)

Displays the index picture of a clip. When a clip is recorded, its first frame is automatically set as the index picture.

Clip/frame information is displayed below the thumbnail. You change the information displayed using Customize View (*page 88*)

>Thumbnail Caption in the Thumbnail menu.

### 2. Clip name

Displays the name of the selected clip.

### 3. Recording video format

Displays the file format of the selected clip.

#### **4. Special recording information**

Displays the recording mode only if the clip was recorded using a special recording mode.  
For Slow & Quick Motion clips, the frame rate is displayed on the right.

#### **5. Clip duration**

#### **6. Creation date**

## **Playing Clips**

### **Playing Recorded Clips**

You can play recorded clips when the camcorder is in recording standby (Stby) mode.

- 1 Insert an XQD memory card for playback.**
- 2 Press the THUMBNAIL button.**
- 3 Turn the SEL/SET dial (*page 9*) to move the cursor to the thumbnail for the clip you want to play.**
- 4 Press the SEL/SET dial.**

Playback begins from the start of the selected clip.

You can control playback by pressing the following buttons.

#### **SEL/SET dial:**

Pauses playback.

Press again to return to normal playback.

#### **Press left/right buttons:**

Jumps to start of clip/start of next clip.

#### **Press and hold left/right buttons:**

Fast reverse/forward.

Returns to normal playback when you release the button.

#### **CANCEL/BACK button:**

Stops playback, and returns to recording standby mode.

### **Notes**

- There may be momentary picture breakup or still image display at the boundary between clips. You cannot operate the camcorder during this period.
- When you select a clip in the thumbnail screen and begin playback, there may be momentary picture breakup at the start of the clip. To view the start of the clip without breakup, put the camcorder into playback mode, pause, then use the left button of the SEL/SET dial to return to the start of the clip, and start playback again.
- You can also control playback using the supplied remote control.

# Clip Operations

On the thumbnail screen, you can operate the clips or check clip properties using the thumbnail menu.

The thumbnail menu (*page 88*) appears when you press the MENU button and select a thumbnail.

## Thumbnail Menu Operations

Turn the SEL/SET dial (*page 9*) to select a function, then press the SEL/SET dial.

Press the CANCEL/BACK button (*page 9*) to return to the previous screen.

### Note

Some items cannot be selected, depending on the state when the menu was displayed.

## Thumbnail Menu Items

Display Clip Properties

Set Index Picture

Thumbnail View

Set Shot Mark

Set Clip Flag

Lock/Unlock Clip

Delete Clip

Filter Clips

Customize View

For details about clip operation menus, see “Thumbnail Menu” (*page 88*).

## Displaying clip properties

Select Display Clip Properties (*page 88*) in the Thumbnail menu to display the clip properties screen.

## Displaying the essence mark thumbnail screen

Select Thumbnail View (*page 88*) >Essence Mark Thumbnail in the Thumbnail menu and select the essence mark type to display a thumbnail view of the frames that have the specified essence mark.

## Displaying the filtered clip thumbnail screen

Select Filter Clips (*page 88*) in the Thumbnail menu and select a clip flag type to display only those clips that have the specified flag.

To display all the clips, select Thumbnail View >Essence Mark Thumbnail in the Thumbnail menu to All.

## Deleting clips

You can delete clips from XQD memory cards.

Select Delete Clip >Select Clip or All Clips in the Thumbnail menu.

### Select Clip:

Deletes the selected clip. Multiple clip selection is supported.

### All Clips:

Deletes all of the displayed clips.

## Changing the information displayed on the thumbnail screen

You can change the clip/frame information displayed below the thumbnail.

Select Customize View >Thumbnail Caption in the Thumbnail menu and select the information to display.

### Date Time:

Displays the date and time the clip was created and last modified.

### Time Code:

Displays the timecode.

### Duration:

Displays the duration of the clip.

### Sequential Number:

Displays a sequential number on each thumbnail.

## Menu Display and Settings

# Setup Menu Configuration and Hierarchy

Press the MENU button to display the setup menu in the viewfinder to specify various items for shooting, recording, and playback (menu can also be displayed on an external monitor). The setup menu comprises the following menus.

### User menu:

Contains menu items configured by the user using Edit User Menu.

### Edit User menu:

Contains menu items for editing the User menu.

### Camera menu:

Contains settings related to shooting.

### Paint menu:

Contains settings related to image quality.

### Audio menu:

Contains settings related to audio.

### Video menu:

Contains settings related to video output.

### VF menu:

Contains settings to the viewfinder display.

### TC/UB menu:

Contains settings related to timecode and user bits.

### Recording menu:

Contains settings related to recording.

### Thumbnail menu:

Contains settings related to thumbnail display.

### Media menu:

Contains settings related to media.

### File menu:

Contains settings related to files.

### System menu:

Contains settings related to the system.

## Setup Menu Organization

User (Factory settings)	Country
	Base Setting
	Rec Format
	Codec
	S&Q Motion
	Picture Cache Rec
	Simul Rec
	Output Format
	Monitor LUT
	Clip
	VF Setting
	Assignable Button
	Assignable Dial
	Format Media
	Edit User Menu
Edit User	Add Item
	Customize Reset
Camera	ISO/Gain/EI
	Auto Exposure
	Focus
	Shutter
	Color Bars
	Noise Suppression
	Flicker Reduce
	SteadyShot
	Handle Zoom
	Auto Black Balance
	AF Micro Adjustment
	Video Light Set
Paint	White
	Offset White
	Black
	Gamma
	Black Gamma
	Knee
	White Clip
	Detail(HD Mode)
	Skin Detail
	Aperture
	Matrix
	Multi Matrix
	Maintenance
Audio	Audio Input
	Audio Output

<b>Video</b>	Output On/Off Output Format Output Setting Monitor LUT Output Display	<b>System</b>	Base Setting Codec Rec Format Genlock Assignable Button Assignable Dial Rec Lamp Fan Control HOLD Switch Setting Lens Language Clock Set Country Hours Meter Basic Authentication Wi-Fi GPS IR Remote Camera Battery Alarm Camera DC IN Alarm Ext. Unit Battery Alarm Ext. Unit DC IN Alarm All Reset APR Camera Config Version
<b>VF</b>	VF Setting Peaking Zebra Marker Display On/Off Video Signal Monitor		
<b>TC/UB</b>	Timecode TC Display Users Bit HDMI TC Out		
<b>Recording</b>	S&Q Motion Interval Rec Picture Cache Rec Simul Rec SDI/HDMI Rec Control		
<b>Thumbnail</b>	Display Clip Properties Set Index Picture Thumbnail View Set Shot Mark Set Clip Flag Lock/Unlock Clip Delete Clip Filter Clips Customize View		
<b>Media</b>	Update Media Format Media Clip		
<b>File</b>	All File Scene File User Menu Item User Gamma Monitor LUT Monitor 3D LUT Lens File		

# Setup Menu Operations

Press the MENU button to display the setup menu in the viewfinder to specify various items for shooting, recording, and playback (menu can also be displayed on an external monitor).

## Menu controls

### MENU button (*page 9*)

Turns menu mode for setup menu operations on/off.

### Left button/Right button (*page 9*)

Press the left/right button to move the cursor left/right to select menu items or settings.

Turn the SEL/SET dial to move the cursor up/down to select menu items or settings.

Press the SEL/SET dial to apply the selected item.

### CANCEL/BACK button (*page 9*)

Cancels a setting before it is applied, and moves one level up in the menu hierarchy.

#### Note

The setup menu cannot be operated when in focus magnifier mode (*page 40*).

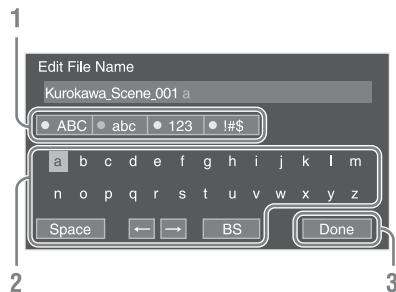
## Setting menu items

Turn the SEL/SET dial to move the cursor to the menu item to set, then press the SET/SEL dial to select the item.

- The menu item selection area displays up to eight lines. If the available options for an item cannot be displayed at the same time, scroll the display by moving the cursor up/down.
- If an item has a large range of available options (for example, -99 to +99), the selection area is not displayed. The current setting is highlighted to indicate that the value can be changed.
- Selecting [Execute] for a function will execute the corresponding function.
- Selecting an item that requires confirmation before execution will temporarily hide the menu and display a confirmation message. Check the message, and then select whether to execute or cancel the function.

## Entering a character string

When you select an item, such as a file name, which requires character entry, the character entry screen appears.



### 1 Turn the SEL/SET dial to select a character type, then press the dial.

ABC: Uppercase alphabetic characters

abc: Lowercase alphabetic characters

123: Numeric characters

!#\$: Special characters

### 2 Select a character from the selected character type, then press the dial.

The cursor moves to the next field.

Space: Enters a space character at the cursor position.

←/→: Moves the position of the cursor.

BS: Deletes the character on the left of the cursor (backspace).

### 3 When finished, select [Done] and press the dial.

The character string is confirmed and the character entry screen disappears.

# Setup Menu List

This section describes the function and settings of the items in each menu.  
Factory default settings are shown in bold (for example, **18dB**).

## User Menu

User	Item	Sub-item setting	Description
	<b>Country</b>	See Country in the System menu.	Region settings
	<b>Base Setting</b>	See Base Setting in the System menu.	Base settings
	<b>Rec Format</b>	See Rec Format in the System menu.	Recording format settings
	<b>Codec</b>	See Codec in the System menu.	Codec settings
	<b>S&amp;Q Motion</b>	See S&Q Motion in the Recording menu.	Slow & Quick Motion mode settings
	<b>Picture Cache Rec</b>	See Picture Cache Rec in the Recording menu.	Picture cache recording mode settings
	<b>Simul Rec</b>	See Simul Rec in the Recording menu.	Simultaneous recording settings
	<b>Output Format</b>	See Output Format in the Video menu.	Output format settings
	<b>Monitor LUT</b>	See Monitor LUT in the Video menu.	Monitor LUT settings
	<b>Clip</b>	See Clip in the Media menu.	Settings related to clip names
	<b>VF Setting</b>	See VF Setting in the VF menu.	Viewfinder settings
	<b>Assignable Button</b>	See Assignable Button in the System menu.	Settings for assigning functions to assignable buttons
	<b>Assignable Dial</b>	See Assignable Dial in the System menu.	Settings for assigning functions to assignable dials
	<b>Format Media</b>	See Format Media in the Media menu.	Format (initializes) memory cards
	<b>Edit User Menu</b>	Edits the items in the User menu. When “Edit User Menu” is selected, the Edit User menu moves to the top level, and the menu items are displayed.	Edit the User menu items

## Edit User Menu

The Edit User menu is displayed at the top level when “Edit User Menu” is selected in the User menu.

Edit User		
Item	Sub-item setting	Description
<b>Add Item</b>		Adds a menu item to the User menu.
Add an item to the User menu		
<b>Customize Reset</b>		Restores the menu items registered in the User menu to the factory default.
Reset the items in the User menu		
Menu item selected during editing	Delete	Deletes the registered menu item from the User menu.
	Move	Rearranges the registered menu items within the User menu.
	Edit Sub Item	Deletes the registered menu sub-item in the User menu.

## Camera Menu

Camera		
Item	Sub-item setting	Description
<b>ISO/Gain/EI</b>	Mode	Selects the gain setting mode.
Gain settings	ISO/dB	
	ISO/Gain<H>	Sets the <H> gain preset value.
	When Mode is set to ISO and dynamic range is 460%:	When Mode is set to ISO and dynamic range is 1300% (Gamma Category is set to S-Log2 or S-Log3):
	ISO 800 / ISO 1000 / ISO 1250 / ISO 1600 / ISO 2000 / ISO 2500 / <b>ISO 3200</b> / ISO 4000 / ISO 5000 / ISO 6400	ISO 2000 / ISO 2500 / ISO 3200 / ISO 4000 / ISO 5000 / ISO 6400 / <b>ISO 8000</b> / ISO 10000 / ISO 12500 / ISO 16000
	When Mode is set to ISO and dynamic range is 800%:	When Mode is set to dB:
	ISO 1600 / ISO 2000 / ISO 2500 / ISO 3200 / ISO 4000 / ISO 5000 / <b>ISO 6400</b> / ISO 8000 / ISO 10000 / ISO 12500	-3dB / 0dB / 3dB / 6dB / 9dB / <b>12dB</b> / 18dB
		The dynamic range is determined by the gamma.
<b>Gamma</b>		<b>Dynamic range</b>
STD / HG1 / HG2 / HG3 / HG4		460%
HG7 / HG8 / User		800%
S-Log2 / S-Log3		1300%

Camera		
Item	Sub-item setting	Description
	ISO/Gain<M> (Same settings as ISO/ Gain<H>)	Sets the <M> gain preset value. The default values are given below. When Mode is set to ISO and dynamic range is 460%: ISO1600 When Mode is set to ISO and dynamic range is 800%: ISO3200 When Mode is set to ISO and dynamic range is 1300% (Gamma Category is set to S-Log2 or S-Log3): ISO4000 When Mode is set to dB: 6dB
	ISO/Gain<L> (Same settings as ISO/ Gain<H>)	Sets the <L> gain preset value. The default values are given below. When Mode is set to ISO and dynamic range is 460%: ISO800 When Mode is set to ISO and dynamic range is 800%: ISO1600 When Mode is set to ISO and dynamic range is 1300% (Gamma Category is set to S-Log2 or S-Log3): ISO2000 When Mode is set to dB: 0dB
	Exposure Index<H>  500EI / 4.0E 640EI / 4.3E 800EI / 4.7E 1000EI / 5.0E 1250EI / 5.3E 1600EI / 5.7E 2000EI / 6.0E 2500EI / 6.3E <b>3200EI / 6.7E</b> 4000EI / 7.0E 5000EI / 7.3E 6400EI / 7.7E 8000EI / 8.0E	Sets the <H> exposure index value. Available in Cine EI mode only.
	Exposure Index<M> (Same settings as Exposure Index<H>)	Sets the <M> exposure index value. The default value is 1600EI / 5.7E
	Exposure Index<L> (Same settings as Exposure Index<H>)	Sets the <L> exposure index value. The default value is 800EI / 4.7E
	Shockless Gain On / Off	Turns the shockless gain function on/off.

Camera		
Item	Sub-item setting	Description
<b>Auto Exposure</b>	Level Automatic exposure adjustment settings -2.0 / -1.75 / -1.5 / -1.25 / -1.0 / -0.75 / -0.5 / -0.25 / <b>0</b> / +0.25 / +0.5 / +0.75 / +1.0 / +1.25 / +1.5 / +1.75 / +2.0	Sets the brightness level for the automatically detected exposure.
Mode	Backlight / <b>Standard</b> / Spotlight	Sets the control mode. Backlight: Backlight mode (mode for reduced darkening of a subject when the subject is backlit) Standard: Standard mode Spotlight: Spotlight mode (mode for reduced clipped whites when subject is lit by spotlighting)
Speed	-99 to +99 ( <b>±0</b> )	Sets the adjustment speed.
AGC	<b>On</b> / Off	Turns the AGC (auto gain control) function on/off.
AGC Limit	Sets the maximum gain of the AGC function.	
When ISO/Gain/EI Mode is set to dB:	When ISO/Gain/EI Mode is set to ISO and dynamic range is 800%: 3dB / 6dB / 9dB / 12dB / <b>15dB</b> / 18dB	ISO2000 / ISO3200 / ISO4000 / ISO6400 / <b>ISO8000</b> / ISO12500
When ISO/Gain/EI Mode is set to ISO and dynamic range is 460%:	When ISO/Gain/EI Mode is set to ISO and dynamic range is 1300%: ISO1000 / ISO1600 / ISO2000 / ISO3200 / <b>ISO4000</b> / ISO6400	ISO2500 / ISO4000 / ISO5000 / ISO8000 / <b>ISO10000</b> / ISO16000
Auto Shutter	<b>On</b> / Off	Turns the auto shutter control function on/off.
A.SHT Limit	1/100 / 1/150 / 1/200 / 1/250 / <b>1/2000</b>	Sets the fastest shutter speed of the auto shutter function.
Clip High light	<b>On</b> / Off	Turns the function that ignores brightest areas to provide a flatter reaction to high luminance on/off.
Detect Window	<b>1</b> / 2 / 3 / 4 / 5 / 6	Sets the light meter range for automatically adjusting the exposure according to the brightness of the subject. (Not available when adjusting exposure manually)
Detect Window Indication	<b>On</b> / Off	Turns the Detect Window function on/off.
<b>Focus</b>	Focus Area	Sets the target area for auto focus (page 40).
Focus settings	<b>Wide</b> / Center / Flexible	Wide: Searches for a subject over a wide angle of the image when focusing. Center: Focuses on a subject in the center of the image. Flexible Spot: Focuses on a specified position in the image.

Camera		
Item	Sub-item setting	Description
	Focus Area (Push AF) <b>Center</b> / Flexible	Sets the target area for push auto focus ( <i>page 40</i> ). Center: Focuses on a subject in the center of the image. Flexible Spot: Focuses on a specified position in the image.
		<b>Note</b> On the LA-EA2/4 (option), the position cannot be set.
	AF Assist <b>On</b> / Off	When set to On, allows you to temporarily override auto focus and set focus manually.
<b>Shutter</b>	Mode <b>Speed</b> / Angle / ECS / Off	Selects the operating mode of the electronic shutter. Speed/Angle (standard mode): Used for shooting fast-moving subjects clearly. Selects the mode for setting the shutter speed in seconds (Speed) or as a shutter angle (Angle). ECS (Extended Clear Scan): Used for shooting without scrolling horizontal bars appearing on the monitor screen.
	Shutter Speed 1/3 to 1/9000	Sets the shutter speed when Mode is set to Speed. The available settings vary depending on the frame frequency of the selected video format. 59.94P/59.94i: 1/4, 1/8, 1/15, 1/30, <b>1/60</b> , 1/90, 1/100, 1/125, 1/180, 1/250, 1/350, 1/500, 1/725, 1/1000, 1/1500, 1/2000, 1/3000, 1/4000, 1/6000, 1/9000 50P/50i: 1/3, 1/6, 1/12, 1/25, <b>1/50</b> , 1/60, 1/100, 1/120, 1/150, 1/215, 1/300, 1/425, 1/600, 1/1000, 1/1250, 1/1750, 1/2500, 1/3500, 1/6000, 1/9000 29.97P: 1/4, 1/8, 1/15, 1/30, <b>1/60</b> , 1/90, 1/100, 1/125, 1/180, 1/250, 1/350, 1/500, 1/725, 1/1000, 1/1500, 1/2000, 1/3000, 1/4000, 1/6000, 1/9000 25P: 1/3, 1/6, 1/12, 1/25, <b>1/50</b> , 1/60, 1/100, 1/120, 1/150, 1/215, 1/300, 1/425, 1/600, 1/1000, 1/1250, 1/1750, 1/2500, 1/3500, 1/6000, 1/9000 24P: 1/3, 1/6, 1/12, 1/24, 1/40, <b>1/48</b> , 1/50, 1/60, 1/96, 1/100, 1/120, 1/144, 1/192, 1/200, 1/288, 1/400, 1/576, 1/1200, 1/2400, 1/4800, 1/9000 23.98P: 1/3, 1/6, 1/12, 1/24, 1/40, <b>1/48</b> , 1/50, 1/60, 1/96, 1/100, 1/120, 1/144, 1/192, 1/200, 1/288, 1/400, 1/576, 1/1200, 1/2400, 1/4800, 1/9000
		<b>Note</b> 1/1 can be set when the S&Q recording frame rate is set to 1fps.
	Shutter Angle 5.625° / 11.25° / 22.5° / 45° / 90° / 120° / 144° / 150° / 172.8° / <b>180°</b> / 216° / 300°	Sets the shutter angle when Mode is set to Angle.

Camera		
Item	Sub-item setting	Description
	ECS Frequency 23.99 to 8000	Sets the ECS frequency when Mode is set to ECS. The available settings vary depending on the frame frequency of the selected video format. The default values are given below. 59.94P: 60.00 59.94i: 60.00 50P: 50.00 50i: 50.00 29.97P: 30.00 24P: 24.02 23.98P: 23.99 25P: 25.02
<b>Color Bars</b> Color bar settings	Setting <b>On / Off</b>	Turns the color bars on/off.  <b>Note</b> Cannot be set to On when configured to record RAW video.
	Type <b>ARIB / SMPTE / 75% / 100%</b>	Selects the color bar type.
<b>Noise Suppression</b> Noise suppression settings	Setting <b>On / Off</b>	Turns the noise suppression function on/off. Default value is Off if Base Setting >Shooting Mode in the System menu is set to Cine EI.
	Level <b>Low / Mid / High</b>	Sets the noise suppression level.
<b>Flicker Reduce</b> Flicker correction settings	Mode <b>Auto / On / Off</b>	Sets the flicker correction mode.
	Frequency <b>50Hz / 60Hz</b>	Sets the frequency of the power source supplying the lighting that is causing the flicker.
<b>SteadyShot</b> Image stabilization settings	Setting <b>Active SteadyShot / SteadyShot / Off</b>	Turns the image stabilization function on/off.  <b>Note</b> Enabled when a compatible lens is attached.
<b>Handle Zoom</b> Handle zoom settings	Zoom Speed Type <b>Fix / Variable / Off</b>	Sets the mode of the zoom lever on the handle.  <b>Note</b> Disabled when the handle is not attached.
	Zoom Speed <b>1 to 8 (3)</b>	Sets the speed of the handle zoom. (Enabled when Zoom Speed Type is set to Fix)  <b>Note</b> Disabled when the handle is not attached.
<b>Auto Black Balance</b> Auto black balance settings	Auto Black Balance <b>Execute / Cancel</b>	Runs the auto black balance function.  <b>Notes</b> <ul style="list-style-type: none"><li>Run the auto black balance function with the lens cap attached.</li><li>Cannot be run during recording or color bar display.</li><li>Cannot be run when in Interval Rec mode or Slow &amp; Quick Motion mode.</li></ul>

Camera		
Item	Sub-item setting	Description
<b>AF Micro Adjustment</b>	Setting On / Off	Turns the auto focus micro adjustment function on/off.
Focus position micro adjustment (Enabled when LA-EA2/4 (option) is used)	Amount -20 to 0 to +20	Sets the auto focus micro adjustment level. Use the following procedure to adjust A-mount lenses. <b>1</b> Attach the lens you want to adjust using an LA-EA2/4 (option). <b>2</b> Set Setting to On, and adjust the Amount value. Positive values move the focus behind the subject, and negative values move the focus in front of the subject. It is recommended that you check the result using one-push AF, for example, while adjusting the focus.
	Clear All Execute / Cancel	Initializes the saved adjustment values.
<b>Video Light Set</b>	Video Light Set <b>Power Link</b> / Rec Link / Rec Link + Stby	Sets the lighting control method for the video light attached to the multi-interface shoe. Power Link: Turns the video light on/off when the camcorder is turned on/off. Rec Link: Turns the video light on/off when the camcorder starts/stops recording. Rec Link + Stby: Turns the video light on/off when the camcorder is recording or in standby mode.

## Paint Menu

Paint		
Item	Sub-item setting	Description
<b>White</b>	Preset White	Sets the white balance preset value.
White balance settings	2100K to 10000K ( <b>3200K</b> )	
	Color Temp <A> 1500K to 50000K ( <b>3200K</b> )	Displays the white balance color temperature saved in memory A.
	Color Temp. Balance <A> -99 to +99 ( <b>±0</b> )	Sets the white balance gain value saved in memory A (linked to R gain and B gain).
	R Gain <A> -99 to +99 ( <b>±0</b> )	Sets the white balance R gain value saved in memory A.
	B Gain <A> -99 to +99 ( <b>±0</b> )	Sets the white balance B gain value saved in memory A.
	Color Temp <B> 1500K to 50000K ( <b>3200K</b> )	Displays the white balance color temperature saved in memory B.
	Color Temp. Balance <B> -99 to +99 ( <b>±0</b> )	Sets the white balance gain values saved in memory B (linked R gain and B gain).
	R Gain <B> -99 to +99 ( <b>±0</b> )	Sets the white balance R gain value saved in memory B.
	B Gain <B> -99 to +99 ( <b>±0</b> )	Sets the white balance B gain value saved in memory B.
Filter White Memory <b>On / Off</b>		Turns the function that sets the white balance memory area for each ND filter on/off. On: Sets the white balance memory for each ND filter. Off: Sets white balance memory common to all ND filters.
Shockless White <b>Off / 1 / 2 / 3</b>		Sets the white balance response speed when switching white balance mode. Off: Switches instantaneously. 1 to 3: Switches more slowly the higher the number.
White Switch<B> <b>Memory / ATW</b>		Selects the white balance adjustment mode that is selected when the WHT BAL switch is set to B.
ATW Speed <b>1 / 2 / 3 / 4 / 5</b>		Sets the response speed in ATW mode. 1: Fastest response speed

Paint		
Item	Sub-item setting	Description
<b>Offset White</b>	Offset White <A> <b>On / Off</b>	Selects whether to add (On) or not to add (Off) an offset value to the white balance in memory A.
White balance offset settings	Warm Cool <A> -99 to +99 ( <b>±0</b> )	Sets the offset added to the white balance in memory A as a color temperature when Offset White <A> is set to "On."
	Warm Cool Balance <A> -99 to +99 ( <b>±0</b> )	Sets a more precise color temperature, for use when a satisfactory image cannot be obtained using Warm Cool <A>.
	Offset White <B> <b>On / Off</b>	Selects whether to add (On) or not to add (Off) an offset value to the white balance in memory B.
	Warm Cool <B> -99 to +99 ( <b>±0</b> )	Sets the offset added to the white balance in memory B as a color temperature when Offset White <B> is set to "On."
	Warm Cool Balance <B> -99 to +99 ( <b>±0</b> )	Sets a more precise color temperature, for use when a satisfactory image cannot be obtained using Warm Cool <B>.
	Offset White<ATW> <b>On / Off</b>	Selects whether to add (On) or not to add (Off) an offset value to the ATW white balance.
	Warm Cool<ATW> -99 to +99 ( <b>±0</b> )	Sets the offset added to the ATW white balance as a color temperature when Offset White<ATW> is set to "On."
	Warm Cool Balance<ATW> -99 to +99 ( <b>±0</b> )	Sets a more precise color temperature, for use when a satisfactory image cannot be obtained using Warm Cool<ATW>.
<b>Black</b>	Setting <b>On / Off</b>	Turns black correction on/off.
Black settings	Master Black -99 to +99 ( <b>±0</b> )	Sets the master black level. <b>Note</b> Fine adjustment is supported by turning the SEL/SET dial slowly. In this case, the displayed value may not change.
	R Black -99 to +99 ( <b>±0</b> )	Sets the R black level.
	B Black -99 to +99 ( <b>±0</b> )	Sets the B black level.
<b>Gamma</b>	Setting <b>On / Off</b>	Turns the gamma correction function on/off.
Gamma correction settings	Step Gamma 0.35 to <b>0.45</b> to 0.90	Sets a gamma correction value in 0.05 steps.
	Master Gamma -99 to +99 ( <b>±0</b> )	Sets the master gamma level.
	R Gamma -99 to +99 ( <b>±0</b> )	Sets the R gamma level.
	G Gamma -99 to +99 ( <b>±0</b> )	Sets the G gamma level.
	B Gamma -99 to +99 ( <b>±0</b> )	Sets the B gamma level.
	Gamma Category <b>STD / HG / User / S-Log2 / S-Log3</b>	Selects use of standard gamma (STD), HyperGamma (HG), user gamma (User), S-Log2, or S-Log3.

Paint																																						
Item	Sub-item setting	Description																																				
	Gamma Select When Gamma Category is set to STD: STD1 DVW / STD2 x 4.5 / STD3 x 3.5 / STD4 240M / <b>STD5 R709</b> / STD6 x 5.0 When Gamma Category is set to HG: HG1 3250G36 / HG2 4600G30 / HG3 3259G40 / HG4 4609G33 / HG7 8009G40 / HG8 8009G33 When Gamma Category is set to User: User 1 / User 2 / User 3 / User 4 / User 5 When Gamma Category is set to SLog2: S-Log2 When Gamma Category is set to SLog3: S-Log3	Selects the gamma table used for gamma correction. See the table below for details about hypergamma and S-Log2/S-Log3.																																				
		<table border="1"> <thead> <tr> <th>Name</th> <th>Dynamic range</th> <th>White limit</th> <th>18% gray card video output (20% video input)</th> </tr> </thead> <tbody> <tr> <td>HG1 3250G36</td> <td>325%</td> <td>100%</td> <td>36%</td> </tr> <tr> <td>HG2 4600G30</td> <td>460%</td> <td>100%</td> <td>30%</td> </tr> <tr> <td>HG3 3259G40</td> <td>325%</td> <td>109%</td> <td>40%</td> </tr> <tr> <td>HG4 4609G33</td> <td>460%</td> <td>109%</td> <td>33%</td> </tr> <tr> <td>HG7 8009G40</td> <td>800%</td> <td>109%</td> <td>40%</td> </tr> <tr> <td>HG8 8009G33</td> <td>800%</td> <td>109%</td> <td>33%</td> </tr> <tr> <td>S-Log2</td> <td>1300%</td> <td>—</td> <td>32%</td> </tr> <tr> <td>S-Log3</td> <td>1300%</td> <td>—</td> <td>41%</td> </tr> </tbody> </table>	Name	Dynamic range	White limit	18% gray card video output (20% video input)	HG1 3250G36	325%	100%	36%	HG2 4600G30	460%	100%	30%	HG3 3259G40	325%	109%	40%	HG4 4609G33	460%	109%	33%	HG7 8009G40	800%	109%	40%	HG8 8009G33	800%	109%	33%	S-Log2	1300%	—	32%	S-Log3	1300%	—	41%
Name	Dynamic range	White limit	18% gray card video output (20% video input)																																			
HG1 3250G36	325%	100%	36%																																			
HG2 4600G30	460%	100%	30%																																			
HG3 3259G40	325%	109%	40%																																			
HG4 4609G33	460%	109%	33%																																			
HG7 8009G40	800%	109%	40%																																			
HG8 8009G33	800%	109%	33%																																			
S-Log2	1300%	—	32%																																			
S-Log3	1300%	—	41%																																			
<b>Black Gamma</b>	Setting <b>On / Off</b>	Turns the black gamma correction function on/off. (Enabled when Gamma >Gamma Category is set to STD)																																				
		<b>Note</b> The Black Gamma and Knee >Knee Saturation functions cannot be used at the same time.																																				
	Range <b>Low / Mid / High</b>	Selects the effective range of the black gamma correction.																																				
	Master Black Gamma -99 to +99 ( <b>±0</b> )	Sets the master black gamma level.																																				
<b>Knee</b>	Setting <b>On / Off</b>	Turns the knee correction function on/off. (Enabled when Gamma >Gamma Category is set to STD)																																				
	Auto Knee <b>On / Off</b>	Turns the auto knee correction function on/off.																																				
	Point 75% to 109% ( <b>90%</b> )	Sets the knee point.																																				
	Slope -99 to +99 ( <b>±0</b> )	Sets the knee slope.																																				
	Knee Saturation <b>On / Off</b>	Enables/disables knee saturation adjustment (adjusts coloring above the knee point).																																				
		<b>Note</b> The Black Gamma and Knee >Knee Saturation functions cannot be used at the same time.																																				
	Knee Saturation Level -99 to +99 ( <b>±0</b> )	Sets the level for adjusting the coloring above the knee point (knee saturation).																																				

Paint		
Item	Sub-item setting	Description
<b>White Clip</b>	Setting <b>On / Off</b>	Turns the white clip adjustment function on/off.
White clip adjustment settings		<p><b>Notes</b></p> <ul style="list-style-type: none"> <li>The setting is reset to On when the camcorder is turned off. To set to Off permanently, set Level to 109%.</li> <li>Cannot be set when Gamma &gt;Gamma Category is set to S-Log2 or S-Log3.</li> </ul>
	Level 90.0% to 109.0%	Sets the white clip level.
	The default setting varies depending on the country of purchase. NTSC Area: 108.0% PAL Area: 105.0%	
<b>Detail</b>	Setting <b>On / Off</b>	Turns the detail adjustment function on/off.
Detail adjustment settings	<p>Level –99 to +99 (<b>±0</b>)</p> <p>H/V Ratio –99 to +99 (<b>±0</b>)</p> <p>Crispening –99 to +99 (<b>±0</b>)</p> <p>Level Depend <b>On / Off</b></p> <p>Level Depend Level –99 to +99 (<b>±0</b>)</p> <p>Frequency –99 to +99 (<b>±0</b>)</p> <p>Knee Aperture <b>On / Off</b></p> <p>Knee Aperture Level –99 to +99 (<b>±0</b>)</p> <p>Limit –99 to +99 (<b>±0</b>)</p> <p>White Limit –99 to +99 (<b>±0</b>)</p> <p>Black Limit –99 to +99 (<b>±0</b>)</p> <p>V Black Limit –99 to +99 (<b>±0</b>)</p> <p>V Detail Creation NAM / <b>Y</b> / G / G+R</p>	<p>Sets the detail level.</p> <p>Sets the mix ratio between the H detail level and the V detail level.</p> <p>Sets the crispening level.</p> <p>Turns the level dependence adjustment function on/off.</p> <p>Sets the level dependence level.</p> <p>Sets the center frequency of the detail (detail thickness). The detail is thinner the higher the center frequency, and thicker the lower the center frequency.</p> <p>Turns the knee aperture correction function on/off.</p> <p>Sets the knee aperture level.</p> <p>Sets the detail limiter for both the white-side and black-side directions.</p> <p>Sets the white-side detail limiter.</p> <p>Sets the black-side detail limiter.</p> <p>Sets the black-side V detail limiter.</p> <p>Sets the signal source for creating the V detail to NAM (G or R, whichever is higher), Y, G, or G+R.</p>

Paint		
Item	Sub-item setting	Description
<b>Skin Detail</b>	Setting <b>On / Off</b>	Turns the skin detail correction function on/off.
Skin detail correction settings	Area Detection Execute / Cancel	Detects the color used for skin detail correction. Execute: Run detection
	Area Indication <b>On / Off</b>	Turns the function that displays zebra in areas of the color used for skin detail correction on/off.
	Level -99 to +99 ( <b>±0</b> )	Sets the skin detail level.
	Saturation -99 to +99 ( <b>±0</b> )	Sets the saturation of the color targeted for skin detail correction.
	Hue <b>0 to 359</b>	Sets the hue of the color targeted for skin detail correction.
	Width 0 to 90 ( <b>40</b> )	Sets the range for the hue of the color targeted for skin detail correction.
<b>Aperture</b>	Setting <b>On / Off</b>	Enables/disables aperture correction (processing that improves resolution by adding a high-frequency aperture signal to the video signal to correct deterioration due to high-frequency characteristics).
Aperture correction settings	Level -99 to +99 ( <b>±0</b> )	Sets the aperture correction level.

Paint		
Item	Sub-item setting	Description
<b>Matrix</b>	Setting <b>On / Off</b>	Turns the matrix correction function on/off.
Matrix correction settings	Adaptive Matrix <b>On / Off</b>	Turns the adaptive matrix function on/off.
	Preset Matrix <b>On / Off</b>	Turns the preset matrix function on/off.
	Preset Select <b>Standard</b> High Saturation FL Light Cinema F55 709 Like	Selects a preset matrix.
	User Matrix <b>On / Off</b>	Turns the user matrix correction function on/off.
	Level -99 to +99 ( <b>±0</b> )	Adjusts the color saturation of the entire image.
	Phase -99 to +99 ( <b>±0</b> )	Adjusts the color tone (phase) of the entire image.
	User Matrix R-G -99 to +99 ( <b>±0</b> )	Sets a user-defined R-G user matrix.
	User Matrix R-B -99 to +99 ( <b>±0</b> )	Sets a user-defined R-B user matrix.
	User Matrix G-R -99 to +99 ( <b>±0</b> )	Sets a user-defined G-R user matrix.
	User Matrix G-B -99 to +99 ( <b>±0</b> )	Sets a user-defined G-B user matrix.
	User Matrix B-R -99 to +99 ( <b>±0</b> )	Sets a user-defined B-R user matrix.
	User Matrix B-G -99 to +99 ( <b>±0</b> )	Sets a user-defined B-G user matrix.
<b>Multi Matrix</b>	Setting <b>On / Off</b>	Turns the multi matrix correction function on/off.
Multi matrix correction settings	Area Indication <b>On / Off</b>	Turns the area indication function on/off.
	Color Detection Execute / Cancel	Detects the color used for multi matrix correction.
	Axis <b>B / B+ / MG- / MG+ /</b> <b>R / R+ / YL- / YL+ / G- /</b> <b>G / G+ / CY / CY+ / B-</b>	Selects the axis.
	Hue -99 to +99 ( <b>±0</b> )	Sets the hue of the color used for multi matrix correction.
	Saturation -99 to +99 ( <b>±0</b> )	Sets the saturation of the color used for multi matrix correction.
<b>Maintenance</b>	Test Saw <b>On / Off</b>	Turns the test signal on/off.
Maintenance settings		

## Audio Menu

Item	Sub-item setting	Description
<b>Audio Input</b>	CH1 Input Select <b>INPUT1 / Internal MIC / Shoe 1</b>	Switches the input source for recording on channel 1.
Audio input settings	CH2 Input Select INPUT1 / <b>INPUT2 / Internal MIC / Shoe 2</b>	Switches the input source for recording on channel 2.
	CH3 Input Select <b>Off / Internal MIC / Shoe 1</b>	Switches the input source for recording on channel 3.
	CH4 Input Select <b>Off / Internal MIC / Shoe 2</b>	Switches the input source for recording on channel 4.
	INPUT1 MIC Reference -60dB / <b>-50dB / -40dB</b>	Sets the reference recording level for XLR microphone input from INPUT1.
	INPUT2 MIC Reference -60dB / <b>-50dB / -40dB</b>	Sets the reference recording level for XLR microphone input from INPUT2.
	CH1 Wind Filter <b>On / Off</b>	Enables/disables the wind reduction filter for channel 1 recording.
	CH2 Wind Filter <b>On / Off</b>	Enables/disables the wind reduction filter for channel 2 recording.
	CH3 Wind Filter <b>On / Off</b>	Enables/disables the wind reduction filter for channel 3 recording.
	CH4 Wind Filter <b>On / Off</b>	Enables/disables the wind reduction filter for channel 4 recording.
	CH3 Level Control <b>Auto / Manual</b>	Selects automatic audio input level adjustment or manual adjustment for recording channel 3.
	CH4 Level Control <b>Auto / Manual</b>	Selects automatic audio input level adjustment or manual adjustment for recording channel 4.
	CH3 Input Level 0 to 99 ( <b>49</b> )	Sets the audio input level for recording channel 3.

### Note

If either CH3 Input Select or CH4 Input Select is set to “Internal MIC,” CH4 is switched to automatic/manual in conjunction with this setting.

### Note

If either CH3 Input Select or CH4 Input Select is set to “Internal MIC,” CH4 is switched to automatic/manual in conjunction with the CH3 Level Control setting.

### Note

If either CH3 Input Select or CH4 Input Select is set to “Internal MIC,” the CH4 Input Level is switched in conjunction with this setting.

Audio		
Item	Sub-item setting	Description
CH4 Input Level 0 to 99 (49)	Sets the audio input level for recording channel 4.  <b>Note</b> If either CH3 Input Select or CH4 Input Select is set to “Internal MIC,” the CH4 Input Level is switched in conjunction with the CH3 Input Level setting.	
Audio Input Level 0 to 99	Sets the audio input level. Can be used as the master volume, according to the settings of CH1 Level to CH4 Level.	
Limiter Mode <b>Off</b> / -6dB / -9dB / -12dB / -15dB / -17dB	Selects the limiter characteristic for large input signals when adjusting the audio input level manually.	
CH1&2 AGC Mode <b>Mono</b> / Stereo	Sets the auto level adjustment mode for recording channel 1 and channel 2.	
CH3&4 AGC Mode <b>Mono</b> / Stereo	Sets the auto level adjustment mode for recording channel 3 and channel 4.	
AGC Spec <b>-6dB</b> / -9dB / -12dB / -15dB / -17dB	Selects the AGC characteristic.	
1kHz Tone on Color Bars On / <b>Off</b>	Turns the 1 kHz reference tone signal on/off when displaying color bars.  <b>Note</b> When set to On, the 1 kHz reference tone signal is set for recording on channel 3 and channel 4, even if CH3 Input Select and CH4 Input Select are set to Off.	
CH1 Level Input without XLR adapter Audio Input Level / Side / <b>Level+Side</b>	Sets the combination of audio input level adjustments enabled for recording channel 1.  <b>Note</b> “Side” refers to the CH1 INPUT LEVEL dial on the side of the camcorder. When Level+Side is selected, the audio recording level is determined by the combination of the Audio Input Level and dial settings (page 130).	
Input with XLR adapter (page 53) <b>Audio Input Level</b> / Through	Sets the combination of audio input level adjustments enabled for recording channel 1.  <b>Note</b> “Side” refers to the CH1 INPUT LEVEL dial on the side of the camcorder. When Level+Side is selected, the audio recording level is determined by the combination of the Audio Input Level and dial settings (page 130).	
CH2 Level Input without XLR adapter Audio Input Level / Side / <b>Level+Side</b>	Sets the combination of audio input level adjustments enabled for recording channel 2.  <b>Note</b> “Side” refers to the CH2 INPUT LEVEL dial on the side of the camcorder. When Level+Side is selected, the audio recording level is determined by the combination of the Audio Input Level and dial settings (page 130).	
Input with XLR adapter (page 53) <b>Audio Input Level</b> / Through	Sets the combination of audio input level adjustments enabled for recording channel 2.  <b>Note</b> “Side” refers to the CH2 INPUT LEVEL dial on the side of the camcorder. When Level+Side is selected, the audio recording level is determined by the combination of the Audio Input Level and dial settings (page 130).	
CH3 Level Input without XLR adapter Audio Input Level / CH3 Input Level / <b>Level+CH3 Input Level</b>	Sets the combination of audio input level adjustments enabled for recording channel 3.  <b>Note</b> When Level+CH3 Input Level is selected, the audio recording level is determined by the combination of the Audio Input Level and CH3 Input Level settings (page 131).	
Input with XLR adapter (page 53) <b>Audio Input Level</b> / Through	Sets the combination of audio input level adjustments enabled for recording channel 3.  <b>Note</b> When Level+CH3 Input Level is selected, the audio recording level is determined by the combination of the Audio Input Level and CH3 Input Level settings (page 131).	

Audio		
Item	Sub-item setting	Description
	CH4 Level Input without XLR adapter Audio Input Level / CH4 Input Level / <b>Level+CH4 Input</b> <b>Level</b> Input with XLR adapter (page 53) <b>Audio Input Level</b> / Through	Sets the combination of audio input level adjustments enabled for recording channel 4.  <b>Note</b> When Level+CH4 Input is selected, the audio recording level is determined by the combination of the Audio Input Level and CH4 Input Level settings (page 131).
<b>Audio Output</b>	Monitor CH <b>CH1/CH2</b> / CH3/CH4 / MIX ALL / CH1 / CH2 / CH3 / CH4	Selects the audio channel output to the headphone connector and built-in speaker.
		<b>Note</b> If audio for multiple channels is set for simultaneous output, the output level for each channel is reduced for output to prevent clipping.
	Monitor Volume 0 to 15 ( <b>7</b> )	Adjusts the monitor audio level output to the headphone connector and built-in speaker.
	Headphone Out <b>Mono</b> / Stereo	Selects whether the headphone connector output is monaural (Mono) or stereo (Stereo).
	Alarm Volume 0 to 7 ( <b>4</b> )	Adjusts the volume of the alarm.
	Output Limiter <b>On</b> / <b>Off</b>	Turns the audio output limiter on/off.
	HDMI Output CH <b>CH1/CH2</b> / CH3/CH4	Sets the combination of audio channels on the HDMI output.

## Video Menu

Video		
Item	Sub-item setting	Description
<b>Output On/Off</b>	SDI <b>On / Off</b>	Turns SDI output on/off.
Video output settings	HDMI <b>On / Off</b>	Turns HDMI output on/off.
<b>Output Format</b>	SDI	Sets the SDI and HDMI output resolution.
Output format settings	HDMI	For details about settings, see “ <i>Video Formats and Output Signals</i> ” (page 105).
	REF	
<b>Note</b>		
The Output Format setting may not be configurable in Picture Cache Rec mode. If this occurs, temporarily set Picture Cache Rec to Off, and then change the setting.		
<b>Output Setting</b>	HDMI Target Device	Sets the type of HDMI input device connected to the HDMI output.
Output conversion mode settings	<b>Recorder</b> / Monitor	Recorder: Outputs the same video as SDI1 to HDMI when in Cine EI mode. Monitor: Outputs the same video as SDI2 to HDMI when in Cine EI mode.
	4K/2K to HD Conv. Edge Crop / <b>Letter Box</b>	Sets the conversion mode for HD video output of 17:9 video.
<b>Monitor LUT</b>	Category	Sets the type of Look applied as a monitor LUT.
Monitor LUT settings	<b>LUT</b> / Look Profile / User 3D LUT	LUT: Outputs video with applied preset LUT or user LUT. Look Profile: Outputs video close to print film or video which is suitable as the start point of color grading, by selecting a Look number. User 3D LUT: Outputs video with applied user 3D LUT.
<b>Note</b>		
Monitor LUT may not be able to be set independently for each system (page 117).		
<b>Note</b>		
User 3D LUT cannot be selected if Base Setting >Color Space is set to S-Gamut/S-Log2 in the System menu.		

Video		
Item	Sub-item setting	Description
LUT Select		Selects the LUT type, when Monitor LUT >Category is set to LUT.
<b>P1: 709 (800%)</b>		709(800%): Signal with ITU-R709 base curve with extended dynamic range up to 800%.
P2: HG8009G40		HG8009G40: Signal using HyperGamma with 800% dynamic range, 109% white limit, and 18% gray card video output of 40%.
P3: HG8009G33		HG8009G33: Signal using HyperGamma with 800% dynamic range, 109% white limit, and 18% gray card video output of 33%.
P4: S-Log2		
P5: S-Log3		
U1		S-Log2:
U2		Log signal with 1300% dynamic range that takes visibility on a video monitor into account, with footage developed in post production.
U3		(Enabled when Base Setting >Color Space in the System menu is set to S-Gamut/SLog2)
U4		
U5		S-Log3:
U6		Log signal with 1300% dynamic range that mimics film characteristics, close to Cineon Log curve.
		(Enabled when Base Setting >Color Space in the System menu is set to S-Gamut3.Cine/SLog3 or S-Gamut3/SLog3)
U1 to U6:		User LUT signals imported from an SD card.
<b>Note</b>		
When creating a LUT using RAW Viewer, select F55/F5 as the output format.		
Create the following folder on the SD card and store LUT files in the folder. \\PRIVATE\\SONY\\PROCAMERA\\PMWF55_F5		
Look Profile Select		Selects the type of Look profile, when Monitor LUT >Category is set to Look Profile.
<b>1: LC-709</b>		
2: LC-709typeA		
3: SLog2-709		
4: Cine+709		
User 3D LUT Select		Selects the type of user 3D LUT.
<b>User 3D-1</b>		
User 3D-2		
User 3D-3		
User 3D-4		
SDII & Internal Rec		Selects whether to apply monitor LUT to the SDI OUT1 output video and the video recorded on XQD memory cards.
<b>MLUT On / MLUT Off</b>		
SDI2		Selects whether to apply monitor LUT to the SDI OUT2 output video.
<b>MLUT On / MLUT Off</b>		
HDMI		Displays whether monitor LUT is applied to the HDMI output video ( <i>page 117</i> ).
<b>MLUT On / MLUT Off</b>		
Viewfinder		Selects whether to apply monitor LUT to the viewfinder output video.
<b>MLUT On / MLUT Off</b>		
<b>Output Display</b>	SDI2	Selects whether to superimpose menus and status on the SDI output signal and HDMI output signal.
Output signal settings	<b>On / Off</b>	
HDMI		
<b>On / Off</b>		

## VF Menu

VF		
Item	Sub-item setting	Description
<b>VF Setting</b>	Brightness -99 to +99 ( <b>±0</b> )	Adjusts the brightness of the viewfinder image.
Viewfinder settings	Color Mode <b>Color</b> / B&W	Selects the display mode of the viewfinder in E-E/recording mode.
<b>Peaking</b>	Setting <b>On</b> / Off	Turns the peaking function on/off.
Peaking settings	Peaking Type <b>Normal</b> / Color	Selects the peaking type. Normal: Normal peaking Color: Color peaking
	Frequency <b>Normal</b> / High	Selects the peaking frequency.
	Normal Peaking Level 0 to 99 ( <b>50</b> )	Sets the normal peaking level.
	Color <b>B&amp;W</b> / Red / Yellow / Blue	Selects the color of the color peaking signal.
	Color Peaking Level 0 to 99 ( <b>50</b> )	Sets the color peaking level.
<b>Zebra</b>	Setting <b>On</b> / Off	Turns the Zebra function on/off.
Zebra pattern settings	Zebra Select <b>1</b> / 2 / Both	Selects the zebra pattern type (Zebra 1, Zebra 2, Both).
	Zebra1 Level 0% to 107% ( <b>70%</b> )	Sets the Zebra 1 display level.
	Zebra1 Aperture Level 1% to 20% ( <b>10%</b> )	Sets the Zebra 1 aperture level.
	Zebra2 Level 0% to 109% ( <b>100%</b> )	Sets the Zebra 2 display level.

VF		
Item	Sub-item setting	Description
<b>Marker</b>	Setting <b>On / Off</b>	Turns the display of all markers on/off.
Marker display settings	Color <b>White / Yellow / Cyan / Green / Magenta / Red / Blue</b>	Selects the marker signal color.
Center Marker 1 / 2 / 3 / 4 / <b>Off</b>		Turns the center marker on/off.
Safety Zone <b>On / Off</b>		Turns the safety zone marker on/off.
Safety Area <b>80% / 90% / 92.5% / 95%</b>		Selects the size of the safety zone marker (as a percentage of total screen size).
Aspect Marker <b>Line / Mask / Off</b>		Selects the type of aspect marker.
Aspect Mask 0 to 15 ( <b>12</b> )		Sets the level of the video signal outside the marker relative to the signal inside the marker as a percentage.
Aspect Safety Zone <b>On / Off</b>		Turns the aspect safety zone marker on/off.
Aspect Safety Area <b>80% / 90% / 92.5% / 95%</b>		Selects the size of the aspect safety zone marker (as a percentage of total screen size).
Aspect Select <b>4:3 / 1.66:1 / 1.85:1 / 2.35:1 / 2.4:1</b>		Sets the mode when displaying the aspect marker.
User Box <b>On / Off</b>		Turns the box cursor display on/off.
User Box Width 3 to 479 ( <b>240</b> )		Sets the box cursor width (distance from the center to the left and right edges).
User Box Height 3 to 269 ( <b>135</b> )		Sets the box cursor height (distance from the center to the top and bottom edges).
User Box H Position -476 to +476 ( <b>0</b> )		Sets the horizontal position of the box cursor center.
User Box V Position -266 to +266 ( <b>0</b> )		Sets the vertical position of the box cursor center.
100% Marker <b>On / Off</b>		Turns the 100% marker on/off.
Guide Frame <b>On / Off</b>		Turns the guide frame display on/off.

Item	Sub-item setting	Description
<b>Display On/Off</b>	Setting <b>On / Off</b>	Selects the items to display in the viewfinder.
Display item settings	Shutter Setting <b>On / Off</b>	
	ND Filter Position <b>On / Off</b>	
	Gain Setting <b>On / Off</b>	
	Rec/Play Status <b>On / Off</b>	
	HXR-IFRS Rec Control <b>On / Off</b>	
	Color Temp. <b>On / Off</b>	
	Frame Rate / Interval <b>On / Off</b>	
	Battery Remain <b>On / Off</b>	
	Timecode <b>On / Off</b>	
	Audio Manual <b>On / Off</b>	
	Audio Level Meter <b>On / Off</b>	
	Media Status <b>On / Off</b>	
	Focus Position <b>Meter / Feet / Off</b>	
	Iris Position <b>On / Off</b>	
	Zoom Position <b>Number / Bar / Off</b>	
	SteadyShot <b>On / Off</b>	
	Focus Mode <b>On / Off</b>	
	Focus Area Indicator <b>On / Off</b>	
	Focus Area Ind. (Push AF) <b>On / Off</b>	
	Focus Indicator <b>On / Off</b>	
	Auto Shutter <b>On / Off</b>	
	AGC <b>On / Off</b>	
	Auto Iris <b>On / Off</b>	

Item	Sub-item setting	Description
	AE Mode <b>On / Off</b>	
	Auto Exposure Level <b>On / Off</b>	
	White Balance Mode <b>On / Off</b>	
	SDI/HDMI Rec Control <b>On / Off</b>	
	Rec Format <b>On / Off</b>	
	Gamma <b>On / Off</b>	
	Timecode Lock <b>On / Off</b>	
	Wi-Fi Condition <b>On / Off</b>	
	Clip Name <b>On / Off</b>	
	Focus Assist Indicator <b>On / Off</b>	
	Focus Area Marker <b>On / Off</b>	
	Video Level Warning <b>On / Off</b>	
	Clip Number <b>On / Off</b>	
	GPS <b>On / Off</b>	
	Level Gauge <b>On / Off</b>	
	Lens Info Meter / Feet / <b>Off</b>	
	Notice Message <b>On / Off</b>	
<b>Video Signal Monitor</b>	Setting <b>Off</b> / Waveform / Vector / Histogram	Sets the type of video signal monitor.  <b>Note</b> Not displayed when Display On/Off >Setting is set to Off.
Video signal monitor settings (page 51)	Source In Cine EI mode with video output resolution 2K or lower: SDI1 & Internal Rec / <b>SDI2</b> In Custom mode, or in Cine EI mode with video output resolution higher than 2K: Internal Rec	Sets the measurement source of the video signal monitor.

## TC/UB Menu

TC/UB		
Item	Sub-item setting	Description
<b>Timecode</b>	Mode Timecode settings <b>Preset</b> / Regen / Clock	Sets the timecode running mode. Preset: Starts running from a preset value. Regen: Starts running from the timecode of the end of the previous clip. Clock: Uses the internal clock as the timecode.
	Run <b>Rec Run</b> / Free Run	Rec Run: Runs only when recording. Free Run: Always running, regardless of camcorder operation.
	Setting	Sets the timecode to an arbitrary value. SET: Set the value.
	Reset Execute / Cancel	Resets the timecode to 00:00:00:00. Execute: Reset timecode
	TC Format <b>DF</b> / NDF	Sets the timecode format. DF: Drop Frame NDF: Non-Drop Frame
<b>TC Display</b>	Display Select Time data display settings <b>Timecode</b> / Users Bit / Duration	Switches the time data display.
<b>Users Bit</b>	Mode Settings related to user bits. <b>Fix</b> / Time	Sets the user bit mode. Fix: Uses an arbitrary fixed value in user bits. Time: Uses the current time in user bits.
	Setting	Sets the user bits to an arbitrary value.
<b>HDMI TC Out</b>	Setting On / Off	Sets whether to output the timecode to devices for other purposes, using HDMI.

## Recording Menu

Recording		
Item	Sub-item setting	Description
<b>S&amp;Q Motion</b>	Setting On / Off	Turns Slow & Quick Motion on/off. When set to On, the following functions are disabled. <ul style="list-style-type: none"><li>• Auto iris</li><li>• Auto focus</li></ul>
Slow & Quick Motion mode settings (page 47)	High Frame Rate Mode <b>Off</b> / Full Scan / Center Scan	Enables higher speed imaging than 60P. Off: Higher speed imaging than 60P is disabled. Full Scan: High-speed imaging of Super 35mm size angle-of-view. Center Scan: High-speed imaging of half the Super 35mm size angle-of-view at the center of the image.
		<b>Note</b> This setting cannot be set to conform with Imager Scan Mode when Imager Scan Mode is set to 2K Full or 2K Center.
Frame Rate	Up to 240fps	Sets the frame rate for Slow & Quick Motion shooting.
		<b>Note</b> The initial value varies depending on the Codec, Country, Video Format, and RAW Output Format settings.
<b>Interval Rec</b>	Setting On / Off	Turns the interval recording mode on/off. (Setting this mode to On will set all other special modes to Off.)
Interval Rec settings (page 47)	Interval Time <b>1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 /</b> 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)	Sets the interval between recordings in Interval Rec recording mode (when Interval Rec is set to On).
	Number of Frames 1frame / 2frames / 3frames / 6frames / 9frames / 12frames	Sets the number of frames to record per take in Interval Rec recording mode (when Interval Rec is set to On). The available settings vary depending on the frame frequency of the selected video format. 50P/59.94P: <b>2frames</b> / 6frames / 12frames 23.98P / 25P / 29.97P / 50i / 59.94i: <b>1frame</b> / 3frames / 6frames / 9frames
	Pre-Lighting Available only when using the HVL-LBPC (option). <b>Off</b> / 2sec / 5sec / 10sec	Sets the number of seconds that the video light turns on before recording starts in Interval Rec recording mode.
<b>Picture Cache Rec</b>	Setting On / Off	Turns the picture cache recording function on/off.
Picture cache recording mode settings (page 49)	Cache Rec Time <b>0-2sec</b> / 2-4sec / 4-6sec / 6-8sec / 8-10sec / 10-12sec / 12-14sec / 13-15sec	Sets the picture cache recording time, when Picture Cache Rec is set to On.

Recording		
Item	Sub-item setting	Description
<b>Simul Rec</b> Simultaneous recording settings (page 39)	Setting <b>On / Off</b>	Turns the simultaneous recording function on/off and sets the recording destination media.
SDI/HDMI Rec Control SDI/HDMI recording control settings	Setting <b>On / Off</b>	<p>Assigns the record buttons used to control each recording media.</p> <p>When different buttons are assigned using Rec Button Set, the recording control signal follows the recording state of slot A.</p> <p><b>Note</b> When set to On, this starts/stops recording on an external connected device, even if no XQD card is currently inserted.</p>

## Thumbnail Menu

Thumbnail	Item	Sub-item setting	Description
<b>Display Clip Properties</b>	Display clip properties screen		Displays the clip properties screen.
<b>Set Index Picture</b>	Clip index picture settings		Sets the index picture of a clip.
<b>Thumbnail View</b>	Essence Mark Thumbnail All / Rec Start / Shot Mark1 / Shot Mark2 / Shot Mark3 / Shot Mark4 / Shot Mark5 / Shot Mark6 / Shot Mark7 / Shot Mark8 / Shot Mark9 / Shot Mark0		Displays thumbnails of frames with essence marks.
	Clip Thumbnail		Displays thumbnails of recorded clips.
<b>Set Shot Mark</b>	Add Shot Mark1 Delete Shot Mark1 Add Shot Mark2 Delete Shot Mark2		Adds Shot Mark1. Deletes Shot Mark1. Adds Shot Mark2. Deletes Shot Mark2.
<b>Set Clip Flag</b>	Add OK Add NG Add KEEP Delete Clip Flag		Adds an OK flag. Adds an NG flag. Adds a Keep flag. Deletes all flags.
<b>Lock/Unlock Clip</b>	Select Clip Lock All Clips Unlock All Clips		Selects and locks/unlocks a clip. Locks all clips. Unlocks all clips.
<b>Delete Clip</b>	Select Clip Delete clips	All Clips	Deletes the selected clip. Deletes all of the displayed clips.
<b>Filter Clips</b>	OK NG KEEP None		Display only clips that have an OK flag. Display only clips that have an NG flag. Display only clips that have a Keep flag. Display only clips that have no flag.
<b>Customize View</b>	Thumbnail Caption Date Time / <b>Time Code</b> / Duration / Sequential Number		Switches the information displayed below thumbnails.

## Media Menu

Media		
Item	Sub-item setting	Description
<b>Update Media</b>	Media (A) Execute / Cancel	Updates the management file on the XQD memory card in slot A. Execute: Update card
Update memory cards	Media (B) Execute / Cancel	Updates the management file on the XQD memory card in slot B. Execute: Update card
<b>Format Media</b>	Media (A) Execute / Cancel	Initializes the XQD memory card in slot A. Execute: Initialize card
Format (initializes) memory cards	Media (B) Execute / Cancel	Initializes the XQD memory card in slot B. Execute: Initialize card
	SD Card Execute / Cancel	Initializes the UTILITY SD card. Execute: Initialize card
<b>Clip</b>	Auto Naming Clip name settings	Sets the method for naming clips. Cam ID + Reel#: Camera ID + Reel Number + Shot Number + Date + random string Title: String set using Title Prefix + Clip Number
<b>Note</b>		
When Simul Rec is set to On, Cam ID + Reel# cannot be configured.		
Camera ID <b>A to Z</b>		Sets the camera ID when Auto Naming is set to Cam ID + Reel#.
Reel Number 001 to 999		Sets the numeric part of Reel Number when Auto Naming is set to Cam ID + Reel#.
Camera Position <b>C / L / R</b>		Sets the Shot Number prefix when Auto Naming is set to Cam ID + Reel#.
Title Prefix		Sets the title portion of the clip name when Auto Naming is set to Title. (Initial value is a model-specific ID, comprising the last three digits of the serial number.) (The value is entered using the character entry screen (page 62).)
Number Set <b>0001</b> to 9999		Sets the numeric portion of the clip name when Auto Naming is set to Title.

## File Menu

File		
Item	Sub-item setting	Description
<b>All File</b> Settings related to ALL files.	Load SD Card	Loads an ALL file.
	Execute / Cancel	Execute: Load file
	Save SD Card	Saves an ALL file.
	Execute / Cancel	Execute: Save file
	File ID	Assigns a name to the file.
<b>Scene File</b> Scene file settings	Recall Internal Memory	Loads a scene file from internal memory.
	Execute / Cancel	Execute: Load file
	Store Internal Memory	Saves a scene file in internal memory.
	Execute / Cancel	Execute: Save file
	Load SD Card	Loads a scene file from an SD card.
	Execute / Cancel	Execute: Load file
	Save SD Card	Saves a scene file to an SD card.
	Execute / Cancel	Execute: Save file
	File ID	Assigns a name to the file.
	Scene White Data <b>On / Off</b>	Sets whether to apply the white balance data when loading scene files.
<b>User Menu Item</b> User menu item settings	Load SD Card	Loads User menu settings on an SD card into internal memory.
	Execute / Cancel	Execute: Load settings
	Save SD Card	Saves User menu settings on an SD card.
	Execute / Cancel	Execute: Save settings
	File ID	Displays the File ID specified for the file loaded using Load SD Card. Also sets (edits) the File ID when saving a file using this menu.
<b>User Gamma</b> User gamma file settings	Current Settings	Displays a list of the current user gamma file settings (file names).
	Load SD Card	Loads user gamma settings on an SD card into internal memory.
	Execute / Cancel	Execute: Load gamma To use user gamma files created using CvpFileEditor™ V4.2 with the camcorder, save files in the following folder on the SD card. PRIVATE\SONY\PRO\CAMERA\HD_CAM
	Reset <b>1 / 2 / 3 / 4 / 5 / All</b> Initial value: 709(800%)	Resets the user gamma files in internal memory to default values. 1 to 5: Reset individual user gamma All: Reset all user gammas

File		
Item	Sub-item setting	Description
<b>Monitor LUT</b>	Current Settings	Displays a list of the current monitor LUT file settings (file names).
Monitor LUT file settings	Load SD Card Execute / Cancel	Loads monitor LUT settings on an SD card into internal memory. Execute: Load LUT settings Save user LUT files generated using RAW Viewer in the following folder on the SD card. PRIVATE\SONY\PRO\CAMERA\PMWF55_F5
	Reset <b>1 / 2 / 3 / 4 / 5 / 6 / All</b>	Resets the monitor LUT data in internal memory to default values. 1 to 6: Reset individual monitor LUT All: Reset all monitor LUTs
<b>Monitor 3D LUT</b>	Current Settings	Displays a list of the current monitor 3D LUT file settings (file names).
Monitor 3D LUT file settings	Load SD Card Execute / Cancel	Loads monitor 3D LUT settings on an SD card into internal memory. Execute: Load 3D LUT settings You can import CUBE files (*.cube) with lattice resolution of 17 or 33 created using Catalyst Browse, RAW Viewer, or BMD Da Vinci Resolve*. * Verified with Resolve V9.0, V10.0, and V11.0. If creating a CUBE file using Catalyst Browse or RAW Viewer, set the Source setting in Catalyst Browse or the Input setting in RAW Viewer to S-Gamut3.Cine/S-Log3. Set Format to Resolve when exporting the CUBE file. Save the created 3D LUT data (user 3D LUT file) in the following folder on the SD card. PRIVATE\SONY\PRO\CAMERA\PMWF55_F5
	Reset <b>1 / 2 / 3 / 4 / All</b>	Resets the monitor 3D LUT data in internal memory to default values. 1 to 4: Reset individual monitor 3D LUT All: Reset all monitor 3D LUTs
<b>Lens File</b>	White Offset R <b>-99 to +99 (<math>\pm 0</math>)</b>	Sets the white balance offset R channel correction value for the lens in the lens file.
Lens file settings	White Offset B <b>-99 to +99 (<math>\pm 0</math>)</b>	Sets the white balance offset B channel correction value for the lens in the lens file.

### Note

Place files in the following folders on the SD card.

ALL files, Scene files, User Menu Item:

PRIVATE\Sony\PRO\CAMERA\PXW-FS7

User gamma files:

PRIVATE\Sony\PRO\CAMERA\HD\_CAM

Monitor LUT files, monitor 3D LUT files:

PRIVATE\Sony\PRO\CAMERA\PMWF55\_F5

## System Menu

System		
Item	Sub-item setting	Description
<b>Base Setting</b>		
Base settings	Shooting Mode <b>Custom</b> / Cine EI	Sets the shooting mode.
	Color Space S-Gamut/SLog2 / S-Gamut3.Cine/SLog3 / S-Gamut3/SLog3 / <b>Matrix</b>	Sets the color space.
	Imager Scan Mode <b>Normal</b> / 2K Full / 2K Center	Sets the scan mode for capturing information by the image sensor ( <i>page 26</i> ).
<b>Codec</b>	Select RAW / RAW & XAVC-I / RAW & XAVC-L / RAW & MPEG HD 422 / <b>XAVC-I</b> / XAVC-L / MPEG HD 422 / ProRes 422 HQ / ProRes 422	Sets the recording/playback mode.  <b>Notes</b> <ul style="list-style-type: none"><li>• RAW / RAW &amp; XAVC-I / RAW &amp; XAVC-L / RAW &amp; MPEG HD 422 are available when an XDCA-FS7 is connected and Base Setting &gt;Shooting Mode is set to Cine EI.</li><li>• ProRes 422 HQ / ProRes 422 are available only when an XDCA-FS7 is connected.</li></ul>

System		
Item	Sub-item setting	Description
<b>Rec Format</b>	Video Format	Sets the recording format.
Recording format settings	<ul style="list-style-type: none"> <li>For NTSC systems:</li> </ul> <p>When Codec &gt;Select is set to XAVC-I:</p> <p>4096×2160 59.94P 4096×2160 29.97P 4096×2160 24.00P 4096×2160 23.98P <b>3840×2160 59.94P</b> 3840×2160 29.97P 3840×2160 23.98P 1920×1080 59.94P 1920×1080 59.94i 1920×1080 29.97P 1920×1080 23.98P</p>	<ul style="list-style-type: none"> <li>For PAL systems:</li> </ul> <p>When Codec &gt;Select is set to XAVC-I:</p> <p>4096×2160 50P 4096×2160 25P <b>3840×2160 50P</b> 3840×2160 25P 1920×1080 50P 1920×1080 50i 1920×1080 25P</p>
	<p>When Codec &gt;Select is set to XAVC-L:</p> <p><b>3840×2160 59.94P</b> 3840×2160 29.97P 3840×2160 23.98P 1920×1080 59.94P 50 1920×1080 59.94P 35 1920×1080 59.94i 50 1920×1080 59.94i 35 1920×1080 59.94i 25 1920×1080 29.97P 50 1920×1080 29.97P 35 1920×1080 23.98P 50 1920×1080 23.98P 35</p>	<p>When Codec &gt;Select is set to XAVC-L:</p> <p><b>3840×2160 50P</b> 3840×2160 25P 1920×1080 50P 50 1920×1080 50P 35 1920×1080 50i 50 1920×1080 50i 35 1920×1080 50i 25 1920×1080 25P 50 1920×1080 25P 35</p>
	<p>When Codec &gt;Select is set to MPEG HD422:</p> <p><b>1920×1080 50i 50</b> 1920×1080 25P 50 1280×720 50P 50 1280×720 25P 50</p>	<p>When Codec &gt;Select is set to MPEG HD422:</p> <p><b>1920×1080 50i 50</b> 1920×1080 50i 35 1920×1080 50i 25 1920×1080 25P 50 1920×1080 25P 35</p>
	<p>When Codec &gt;Select is set to ProRes 422 HQ or ProRes 422:</p> <p><b>1920×1080 50i</b> <b>1920×1080 25P</b></p>	<p>When Codec &gt;Select is set to ProRes 422 HQ or ProRes 422:</p> <p><b>1920×1080 50i</b> <b>1920×1080 25P</b></p>
		<p><b>Notes</b></p> <ul style="list-style-type: none"> <li>“---” is grayed out when Codec &gt;Select is set to RAW.</li> <li>The fixed values are grayed out when Codec &gt;Select is set to RAW &amp; XAVC-I, RAW &amp; XAVC-L, or RAW &amp; MPEG HD 422.</li> <li>The recording format cannot be set to 4096×2160 or 3840×2160 when Imager Scan Mode is set to 2K Full or 2K Center.</li> </ul>

System		
Item	Sub-item setting	Description
	RAW Output Format	Sets the recording format for an external RAW recorder.
	<ul style="list-style-type: none"> <li>For NTSC systems: When Codec &gt;Select is set to an item that includes RAW, and Imager Scan Mode is set to Normal: <b>4096x2160 59.94P</b> 4096x2160 29.97P 4096x2160 23.98P</li> <li>For PAL systems: When Codec &gt;Select is set to an item that includes RAW, and Imager Scan Mode is set to Normal: <b>4096x2160 50P</b> 4096x2160 25P</li> </ul>	<p>When Codec &gt;Select is set to an item that includes RAW, and Imager Scan Mode is set to Normal:</p> <p><b>4096x2160 50P</b> 4096x2160 25P</p> <p>When Codec &gt;Select is set to an item that includes RAW, and Imager Scan Mode is set to 2K Full or 2K Center:</p> <p><b>2048x1080 50P</b> 2048x1080 25P</p>
	<p>When Codec &gt;Select is set to an item that includes RAW, and Imager Scan Mode is set to 2K Full or 2K Center:</p> <p><b>2048x1080 59.94P</b> 2048x1080 29.97P 2048x1080 23.98P</p>	
<b>Genlock</b>	Reference	Displays the genlock state. It displays the signal type if genlock is applied.
Genlock settings	<b>Internal</b> / External (HD) / External (SD)	<p>Internal: External genlock not applied.</p> <p>External (HD): Genlock to HD signal.</p> <p>External (SD): Genlock to SD signal.</p>
<b>Assignable</b>	<1> to <6>	Assigns functions to assignable buttons.
<b>Button</b>	Off / Marker / Zebra / Peaking / Video Signal Monitor / Focus Magnifier x4/x8 / Focus Magnifier x4 / Focus Magnifier x8 / Focus Area / Focus Area (Push AF) / VF Mode / IRIS / Push Auto Iris / AGC / Push AGC / SHUTTER / Auto Exposure Level / Spotlight / Backlight / ATW / ATW Hold / Push AF/Focus Hold / SteadyShot / Color Bars / User Menu / Rec Lamp / S&Q Motion / Picture Cache Rec / Rec Review / Thumbnail / Shot Mark1 / Shot Mark2 / Clip Flag OK / Clip Flag NG / Clip Flag Keep / DURATION/TC/U-BIT / High/Low Key	<p>Marker: Turns the marker function on/off.</p> <p>Zebra: Turns the Zebra function on/off.</p> <p>Peaking: Turns the peaking function on/off.</p> <p>Video Signal Monitor: Switches the video signal monitor (such as a waveform monitor).</p> <p>Focus Magnifier x4/x8: Focus Magnifier x4: Focus Magnifier x8: Turns the focus magnifier function on/off.</p> <p>Focus Area: Focus Area (Push AF): Opens the Focus Area setup screen.</p> <p>VF Mode: Switches the viewfinder display between color and B&amp;W.</p> <p>IRIS: Switches the iris function between Auto and Manual.</p> <p>Push Auto Iris: Enables the auto iris function while the button is pressed.</p> <p>AGC: Turns the AGC function on/off.</p>

System		
Item	Sub-item setting	Description
	Push AGC:	Enables the AGC function while the button is pressed.
	SHUTTER:	Switches the shutter between Auto and Manual.
	Auto Exposure Level:	Opens the Auto Exposure Level screen.
	Spotlight:	Switches between Spotlight and Standard.
	Backlight:	Switches between Backlight and Standard.
	ATW:	Turns the ATW function on/off.
	ATW Hold:	Pauses ATW function operation.
	Push AF/Focus Hold:	Runs the push auto focus function or focus hold function.
	SteadyShot:	Switches between Active SteadyShot, SteadyShot, and Off.
	Color Bars:	Turns the color bars on/off.
	User Menu:	Opens/closes the User menu.
	Rec Lamp:	Turns the recording indicator light on/off.
	S&Q Motion:	Turns Slow & Quick Motion on/off.
		Sets the recording frame rate if pressed and held.
	Picture Cache Rec:	Turns picture cache recording mode on/off.
	Rec Review:	Turns the Rec Review function on/off.
	Thumbnail:	Opens/closes the thumbnail screen.
	Shot Mark1:	Runs the Add Shot Mark1 function.
	Shot Mark2:	Runs the Add Shot Mark2 function.
	Clip Flag OK:	Runs the Add OK function.
		Press twice to execute Delete Clip Flag.
	Clip Flag NG:	Runs the Add NG function.
		Press twice to execute Delete Clip Flag.
	Clip Flag Keep:	Runs the Add Keep function.
		Press twice to execute Delete Clip Flag.
	DURATION/TC/USER BIT:	Switches between Time Code, Users Bit, and Duration.
	High/Low Key:	Switches between High Key (display for checking for blown-out whites), Low Key (display for checking for underexposed areas), and Off (normal display) in that order.
		Applicable for systems where Monitor LUT is set to On.

System		
Item	Sub-item setting	Description
<b>Assignable Dial</b> Assignable dial settings	Assignable Dial Off / ISO/Gain/EI / <b>IRIS</b> / Focus / Audio Input Level	Assigns functions to the assignable dial on the grip remote control. ISO/Gain/EI: Adjusts the gain or EI. IRIS: Adjusts the iris. Focus: Adjusts the focus. Audio Input Level: Adjusts the audio level.
	IRIS Dial (Same settings as Assignable Dial)	Assigns functions to the IRIS dial.
	Assignable Dial Direction <b>Normal</b> / Opposite	Sets the direction of rotation of the assignable dial on the grip remote control. Normal: Turn in forward direction. Opposite: Turn in opposite direction.
	IRIS Dial Direction <b>Normal</b> / Opposite	Sets the direction of rotation of the IRIS dial. Normal: Turn in forward direction. Opposite: Turn in opposite direction.
<b>Rec Lamp</b> Recording indicator settings	Rec Lamp <b>On</b> / Off	Turns the recording indicator light on/off.
<b>Fan Control</b> Fan control mode settings	Setting <b>Auto</b> / Minimum / Off in Rec	Sets the control mode of the camcorder fan.  <b>Note</b> Even when “Off in Rec” is selected, the fan will operate if the internal temperature of the camcorder rises above a certain value.
<b>HOLD Switch Setting</b> Hold switch settings	with Rec Button <b>On</b> / Off	Sets whether or not to lock the recording button.
	with Hand Grip Remote <b>On</b> / Off	Sets whether to lock operation of the grip remote control.
<b>Lens</b> Lens settings	Zoom Ring Direction <b>Left (W)/Right (T)</b> / Right (W)/Left (T)	Sets the direction of zoom ring operation.  <b>Note</b> Enabled only when using an E-mount lens that supports zoom ring direction switching.
	Distortion Comp. <b>Auto</b> / <b>Off</b>	Turns automatic distortion compensation on/off.  <b>Notes</b> <ul style="list-style-type: none"><li>• Not available in picture cache recording mode or when recording.</li><li>• Distortion compensation is not applied during 4K or QFHD recording.</li><li>• When “Auto” is selected, there are some restrictions to Monitor LUT (page 117).</li></ul>
<b>Language</b> Language settings	Select	Sets the display language. SET: Set language.

System		
Item	Sub-item setting	Description
<b>Clock Set</b>	Time Zone UTC 12:00 Kwajalein to UTC +14:00	Sets the time difference from UTC in 30-minute units.
Internal clock settings	Date Mode <b>YYMMDD / MMDDYY / DDMMYY</b> 12H/24H <b>12H / 24H</b> Date Time	Selects the display format for dates. YYMMDD: Year, month, day MMDDYY: Month, day, year DDMMYY: Day, month, year Selects the clock display format. 12H: 12-hour mode 24H: 24-hour mode Sets the current date. SET: Set the value. Sets the current time. SET: Set the value.
<b>Country</b> Region settings	NTSC/PAL Area NTSC Area / PAL Area The default setting varies depending on the country of purchase.	Sets the region of use.
<b>Hours Meter</b> Hours meter settings	Hours (System) Hours (Reset) Reset Execute / Cancel	Displays the accumulated hours of use (cannot be reset). Displays the accumulated hours of use (can be reset). Resets the Hours (Reset) display to 0. Execute: Reset
<b>Basic Authentication</b> Basic network authentication settings	User Name <b>(admin)</b> Password <b>(pxw-fs7)</b>	Sets a desired user name (1 to 16 alphanumeric characters). SET: Set the value. Sets a password (1 to 16 alphanumeric characters). SET: Set the value.
<b>Wi-Fi</b> Wireless LAN connection settings	Wi-Fi Enable / <b>Disable</b> SSID & Password Wi-Fi Direct Connection Execute / Cancel Client IP Address 192.168.1.1 Subnet Mask 255.255.0.0 MAC Address Regenerate Password Execute / Cancel	Selects whether to enable or disable Wi-Fi connection. Displays the SSID and password. Starts a "Wi-Fi Direct" network connection. Execute: Connect Displays information about the connected client device (model name and MAC address). Displays the IP address of the camcorder. <b>Note</b> Not displayed when using the CBK-WA100. Displays the subnet mask. <b>Note</b> Not displayed when using the CBK-WA100. Displays the MAC address of the Wi-Fi module attached to the camcorder. Creates a new password. Execute: Regenerate
<b>GPS</b> GPS settings	GPS <b>On / Off</b>	Turns the GPS function on/off. <b>Note</b> The GPS module is built into the handle.

System		
Item	Sub-item setting	Description
<b>IR Remote</b> Remote control settings	Setting <b>On / Off</b>	Enables/disables control from the supplied infrared remote control.
<b>Camera Battery Alarm</b> Battery low-voltage alarm settings	Low BATT 5% / <b>10%</b> / 15% / ... / 45% / 50%	Sets the remaining battery level to display a battery low-voltage alarm (5% increments).
	BATT Empty <b>3%</b> to 7%	Sets the remaining battery level to display a battery empty alarm.
<b>Camera DC IN Alarm</b> Input voltage alarm settings	DC Low Voltage1 <b>11.5V</b> to 17.0V	Sets the voltage to display a DC IN low input voltage alarm.
	DC Low Voltage2 <b>11.0V</b> to 14.0V	Sets the voltage to display a DC IN insufficient input voltage alarm.
<b>Ext. Unit Battery Alarm</b> XDCA-FS7 battery settings	Near End:Info Battery <b>5%</b> to 100%	Sets the remaining battery level to display a Info-Lithium battery low-voltage alarm (5% increments).
	End:Info Battery <b>0%</b> to 5%	Sets the remaining battery level to display a Info-Lithium battery end alarm and to stop media access.
	Near End:Sony Battery <b>11.5V</b> to 17.0V	Sets the remaining battery level to display a battery low-voltage alarm for a non Info-Lithium battery.
	End:Sony Battery <b>11.0V</b> to 11.5V	Sets the remaining battery level to display a battery end alarm for a non Info-Lithium battery and to stop media access.
	Near End:Other Battery 11.5V to 17.0V ( <b>11.8V</b> )	Sets the remaining battery level to display a battery low-voltage alarm for an Anton/Bauer battery.
	End:Other Battery <b>11.0V</b> to 14.0V	Sets the remaining battery level to display a battery end alarm for an Anton/Bauer battery and to stop media access.
	Detected Battery	Displays the type of battery connected to the XDCA-FS7. If a battery is connected to the XDCA-FS7, "Info Battery," "Sony Battery," or "Other Battery" is displayed. If a DC source is connected, "DC IN" is displayed. If powered by a battery or DC source connected to the camcorder, "---" is displayed.
<b>Ext. Unit DC IN Alarm</b> XDCA-FS7 input voltage alarm settings	DC Low Voltage1 <b>11.5V</b> to 17.0V	Sets the voltage to display a DC IN low input voltage alarm.
	DC Low Voltage2 <b>11.0V</b> to 14.0V	Sets the voltage to display a DC IN insufficient input voltage alarm.
<b>All Reset</b> Reset factory defaults	Reset Execute / Cancel	Resets all settings to their factory defaults. Execute: Reset
<b>APR</b> Run APR	APR Execute / Cancel	Runs APR (Automatic Pixel Restoration) for image sensor auto adjustment. Execute: Run
<b>Note</b>		
Always attach the lens cap before running APR.		
<b>Camera Config</b> Down-converter output settings	HD/2K Modulation <b>High</b> / Low	Sets the down-converter output bandwidth for conversion to HD and 2K.

System		
Item	Sub-item setting	Description
<b>Version</b>	Number x.xx	Displays the software version of the camcorder.
Display version	Version Up Execute / Cancel	Upgrades the camcorder.* Execute: Upgrade * Upgrading updates the camcorder software.
	Ext. Unit Version Number x.xx	Displays the software version of the XDCA-FS7.
	Ext. Unit Version Up Execute / Cancel	Upgrades the XDCA-FS7.* Execute: Upgrade * Upgrading updates the XDCA-FS7 software.

## External Device Connection

# Connecting External Monitors and Recording Devices

To display recorded/playback pictures on an external monitor, select the camcorder output signal and use an appropriate cable for the monitor to be connected.

You can also connect recording devices, such as a VTR, and record the output signal from the camcorder.

You can display the same information that is visible in the viewfinder, such as status information and menus, on an external monitor. Set Output Display (*page 80*) in the Video menu to “On” for the corresponding type of signal to output to the monitor.

## SDI OUT connector (BNC type)

Turn the output on/off and set the output format using the Video menu (*page 79*).

Use a commercially available 75 Ω coaxial cable for connection.

### Note

Check that the connection between the camcorder and the external device is grounded before turning the devices on.

(It is recommended that the camcorder and external device be turned on after connecting the 75 Ω coaxial cable.)

If the external device must be connected to the camcorder while the camcorder is on, connect the 75 Ω coaxial cable to the external device first and then connect it to the camcorder.

## To start recording on the camcorder and external device simultaneously

With SDI signal output enabled, set SDI/HDMI Rec Control (*page 87*) >Setting in the Recording menu to “On” to enable output of a REC trigger signal to the external device connected to the SDI OUT connector. This will synchronize recording on the external device with the camcorder.

### Notes

- If a connected external device does not support a REC trigger signal, the device cannot be operated.
- When the record START/STOP button and the handle record START/STOP are set to control different media, the REC trigger signal is output in accordance with the operation of slot A.
- Only the REC trigger signal is output when there is no media currently inserted.

## HDMI OUT connector (Type A connector)

Turn the output on/off and set the output format using the Video menu (*page 79*).

Use a commercially available high-speed HDMI cable for connection.

Select the type of the connected device using HDMI Target Device (*page 117*) in the Video menu.

## RAW OUT connector (BNC type)

Attaching an XDCA-FS7 Extension Unit to the camcorder provides support for an external RAW recorder, such as the AXS-R5, to be connected to the RAW OUT connector of the XDCA-FS7 (*page 34*).

# External Synchronization

When shooting using multiple camcorder units, the camcorders can be synchronized to a specific reference signal or timecodes synchronized via the Genlock connector of the XDCA-FS7 units (*page 12*) attached to the camcorders.

## Note

The camcorder battery pack cannot be used when an XDCA-FS7 unit is attached to the camcorder. You must attach a battery pack to the XDCA-FS7 or connect an external power supply.

## Synchronizing the phase of the video signals (genlock)

Enable genlock by supplying a reference signal to the Genlock connector (*page 12*) of the XDCA-FS7 units connected to the camcorders. The reference signals that can be used vary depending on the frame rate of the selected recording format.

### For NTSC Area

Frame rate of recording format	Supported input reference signals
59.94P	1920x1080 59.94i 720x486 59.94i 1280x720 59.94P
29.97P	1920x1080 59.94i 720x486 59.94i
24.0P	1920x1080 48i (24PsF)
23.98P	1920x1080 47.95i (23.98PsF)
59.94i	1920x1080 59.94i 720x486 59.94i

### For PAL Area

Frame rate of recording format	Supported input reference signals
50P	1920x1080 50i 720x576 50i 1280x720 50P
25P	1920x1080 50i 720x576 50i
50i	1920x1080 50i 720x576 50i

## Notes

- If the selected recording format is 1280x720 60P, you must supply both a video signal and a time signal.
- If the reference signal is unstable, genlock cannot be achieved.
- The subcarrier is not synchronized.

## Locking the timecode to other devices

Set the unit that supplies the timecode to a mode in which the timecode output keeps running (such as Free Run or Clock).

### 1 Set Timecode in the TC/UB menu as follows.

Mode: Preset

Run: Free Run

### 2 Press the assignable button (*page 46*) assigned with the DURATION/TC/U-BIT function to display the timecode on the screen.

### 3 Check that the TC IN/OUT switch (*page 12*) on the XDCA-FS7 is set to the IN position, and supply an HD or SD reference video signal and a timecode synchronized to the video signal to the Genlock and TC IN/OUT connectors, respectively.

The timecode generator of the camcorder acquires lock with the reference timecode, and “EXT-LK” appears on the screen.

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

## Notes

- Check that the supplied reference timecode and the reference video signal are in a phase relationship that complies with the SMPTE timecode standard.
- When operating with external lock, the timecode instantly acquires lock with the external timecode and the external timecode value appears in the data display area. However, do not start recording immediately. Wait for a few seconds until the timecode generator stabilizes before recording.
- If the frequency of the reference video signal and the frame frequency on the camcorder are not the same, lock cannot be acquired and the camcorder will not operate properly. If this occurs, the timecode will not acquire successful lock with the external timecode.

- If the external timecode source is disconnected, the timecode may shift by one frame per hour with respect to the reference timecode.

### To release external lock

Change the Timecode setting in the TC/UB menu, or turn the camcorder off.

External lock is also released if you start recording in Slow & Quick Motion mode.

### Synchronizing the timecode of another device with the timecode of the camcorder

Set the unit that supplies the timecode to a mode in which the timecode output keeps running (such as Free Run or Clock).

**1 Set the timecode of the camcorder using Timecode (page 85) in the TC/UB menu.**

**2 Check that the TC IN/OUT switch (page 12) is set to the OUT position, and connect the TC IN/OUT connector and Genlock connector (page 12) to the timecode input and reference signal input, respectively, of the device you want to synchronize.**

## Managing/Editing Clips using a Computer

### Connecting using a USB Cable

#### Using an XQD card reader (option)

Connect an MRW-E80 XQD Card Reader (option) using a USB cable, and insert a memory card in the slot. The memory card is recognized as a computer extension drive.

#### Using mass storage mode

Connect the camcorder using a USB cable, and insert a memory card in the slot. The memory card is recognized as a computer extension drive.

**1 Turn the camcorder POWER switch to the ON position.**

A message appears on the screen or viewfinder asking whether to enable USB connection.

#### Note

The USB connection confirmation message is not displayed while another confirmation message or progress message is displayed, for example, when formatting or restoring an XQD memory card. The confirmation message is displayed when the formatting or restoring execution ends. The USB confirmation message is also not displayed when the clip properties screen is displayed. The message is displayed when processing ends or when you return to the thumbnail screen.

**2 Turn the SEL/SET dial and select Execute.**

- 3** On Windows, check that the card is added as a removable disk in the “My Computer” window.  
On Macintosh, check that a folder called “NO NAME” or “Untitled” (editable) is created on the Desktop.

#### Notes

- Do not perform the following operations if the access lamp is lit red.
  - Turning the power off or disconnecting the power cord
  - Removing the XQD memory card
  - Disconnecting the USB cable
- Operation is not guaranteed to work on all computers.

---

### Using nonlinear editing systems

---

In a nonlinear editing system, editing software (option) that supports the formats recorded by the camcorder is required.

Use dedicated application software to save the clips you want to edit on the HDD of the computer beforehand.

## Appendix

# Usage Precautions

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

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

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

The LCD panel fitted to this unit is manufactured with high precision technology, giving a functioning pixel ratio of at least 99.99%. Thus a very small proportion of pixels may be "stuck", either always off (black), always on (red, green, or blue), or flashing. In addition, over a long period of use, because of the physical characteristics of the liquid crystal display, such "stuck" pixels may appear spontaneously. These problems are not a malfunction. Note that any such problems have no effect on recorded data.

The battery terminal of this unit (the connector for battery packs and AC adapters) 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.

## About the built-in rechargeable battery

The camcorder has a built-in rechargeable battery for storing the date, time, and other settings even when the camcorder is turned off. The built-in rechargeable battery will become charged after 24 hours have elapsed if the unit is connected to a power outlet using the AC adapter or if a fully charged battery pack is attached, regardless of whether the camcorder is turned on/off. The rechargeable battery will be fully discharged in about **3 months** if the AC adapter is not connected or the camcorder is used without the battery pack attached. Use your camcorder after charging the battery. However, even if the built-in rechargeable battery is not charged, the camcorder operation will not be affected as long as you are not recording the time and date.

# Output Formats and Limitations

## Video Formats and Output Signals

Factory default settings are shown in bold (for example, **2048×1080P (Level A)**).

### Notes

- The resolution of the recording format is limited by the Base Setting >Imager Scan Mode setting in the System menu (page 92).
- No playback picture is output if the video output resolution is higher than the resolution of the picture.

### SDI OUT connector output formats

When Country >NTSC/PAL Area in the System menu is set to NTSC Area

When using basic configuration (XAVC-I / XAVC-L / MPEG HD)

Recording format settings (Rec Format >Video Format in the System menu)	SDI/HDMI output settings (Output Format >SDI and HDMI in the Video menu)		SDI output signal
	SDI	HDMI	
4096×2160 59.94P	—	4096×2160P	No output
	—	3840×2160P	No output
	<b>1920×1080P (Level A)</b>	<b>1920×1080P</b>	1920×1080 59.94P Level-A
	1920×1080P (Level B)	—	1920×1080 59.94P Level-B
	1920×1080i	1920×1080i	1920×1080 59.94i
4096×2160 29.97P	—	4096×2160P	No output
	—	3840×2160P	No output
	<b>1920×1080PsF</b>	<b>1920×1080i</b>	1920×1080 29.97PsF
4096×2160 24.00P	—	4096×2160P	No output
	—	3840×2160P	No output
	<b>1920×1080PsF</b>	—	1920×1080 24PsF
	—	1920×1080P	No output
4096×2160 23.98P	—	4096×2160P	No output
	—	3840×2160P	No output
	<b>1920×1080PsF</b>	—	1920×1080 23.98PsF
	—	1920×1080P	No output
3840×2160 59.94P	—	4096×2160P	No output
	—	3840×2160P	No output
	<b>1920×1080P (Level A)</b>	<b>1920×1080P</b>	1920×1080 59.94P Level-A
	1920×1080P (Level B)	—	1920×1080 59.94P Level-B
	1920×1080i	1920×1080i	1920×1080 59.94i
3840×2160 29.97P	—	4096×2160P	No output
	—	3840×2160P	No output
	<b>1920×1080PsF</b>	<b>1920×1080i</b>	1920×1080 29.97PsF

Recording format settings (Rec Format >Video Format in the System menu)	SDI/HDMI output settings (Output Format >SDI and HDMI in the Video menu)		SDI output signal
	SDI	HDMI	
3840×2160 23.98P	–	4096×2160P	No output
	–	3840×2160P	No output
	<b>1920×1080PsF</b>	–	1920×1080 23.98PsF
	–	1920×1080P	No output
1920×1080 59.94P	2048×1080P (Level A)	–	2048×1080 59.94P Level-A
	2048×1080P (Level B)	–	2048×1080 59.94P Level-B
	<b>1920×1080P (Level A)</b>	<b>1920×1080P</b>	1920×1080 59.94P Level-A
	1920×1080P (Level B)	–	1920×1080 59.94P Level-B
	1920×1080i	1920×1080i	1920×1080 59.94i
	–	720×480i	No output
	–	720×480P	No output
	<b>1920×1080i</b>	<b>1920×1080i</b>	1920×1080 59.94i
1920×1080 29.97P	2048×1080PsF	–	2048×1080 29.97PsF
	<b>1920×1080PsF</b>	<b>1920×1080i</b>	1920×1080 29.97PsF
	–	720×480i	No output
1920×1080 23.98P	2048×1080PsF	–	2048×1080 23.98PsF
	<b>1920×1080PsF</b>	–	1920×1080 23.98PsF
	–	1920×1080P	No output
	1920×1080i (2-3PD)	1920×1080i (2-3PD)	1920×1080 59.94i (2-3PD)
	–	720×480i (2-3PD)	No output
1280×720 59.94P	<b>1280×720P</b>	<b>1280×720P</b>	1280×720 59.94P
	–	720×480i	No output
	–	720×480P	No output
1280×720 29.97P	<b>1280×720P</b>	<b>1280×720P</b>	1280×720 59.94P (2-2RP)
	–	720×480i	No output
1280×720 23.98P	<b>1280×720P (2-3PD)</b>	<b>1280×720P (2-3PD)</b>	1280×720 59.94P (2-3PD)
	–	720×480i (2-3PD)	No output

## When using extension unit (RAW)

Recording format settings (Rec Format >RAW Output Format and Video Format in the System menu)	SDI/HDMI output settings (Output Format >SDI and HDMI in the Video menu)		SDI output signal
	SDI	HDMI	
<b>RAW Output Format</b> 4096×2160 59.94P	<b>2048x1080P (Level A)</b>	–	2048×1080 59.94P Level-A
<b>Video Format (fixed value)</b> 1920×1080 59.94P	2048×1080P (Level B)	–	2048×1080 59.94P Level-B
	1920×1080P (Level A)	1920×1080P	1920×1080 59.94P Level-A
	1920×1080P (Level B)	–	1920×1080 59.94P Level-B
	1920×1080i	1920×1080i	1920×1080 59.94i
<b>RAW Output Format</b> 4096×2160 59.94P	<b>2048x1080P (Level A)</b>	–	2048×1080 59.94P Level-A
<b>Video Format (fixed value)</b> 1280×720 59.94P	2048×1080P (Level B)	–	2048×1080 59.94P Level-B
	1920×1080P (Level A)	1920×1080P	1920×1080 59.94P Level-A
	1920×1080P (Level B)	–	1920×1080 59.94P Level-B
	1280×720P	1280×720P	1280×720 59.94P
<b>RAW Output Format</b> 2048×1080 59.94P	<b>2048x1080P (Level A)</b>	–	2048×1080 59.94P Level-A
<b>Video Format (fixed value)</b> 1920×1080 59.94P	2048×1080P (Level B)	–	2048×1080 59.94P Level-B
	1920×1080P (Level A)	1920×1080P	1920×1080 59.94P Level-A
	1920×1080P (Level B)	–	1920×1080 59.94P Level-B
	1920×1080i	1920×1080i	1920×1080 59.94i
<b>RAW Output Format</b> 2048×1080 59.94P	<b>2048x1080P (Level A)</b>	–	2048×1080 59.94P Level-A
<b>Video Format (fixed value)</b> 1280×720 59.94P	2048×1080P (Level B)	–	2048×1080 59.94P Level-B
	1920×1080P (Level A)	1920×1080P	1920×1080 59.94P Level-A
	1920×1080P (Level B)	–	1920×1080 59.94P Level-B
	1280×720P	1280×720P	1280×720 59.94P
<b>RAW Output Format</b> 4096×2160 29.97P	<b>2048x1080PsF</b>	–	2048×1080 29.97PsF
<b>Video Format (fixed value)</b> 1920×1080 29.97P	1920×1080PsF	1920×1080i	1920×1080 29.97PsF
<b>RAW Output Format</b> 2048×1080 29.97P	<b>2048x1080PsF</b>	–	2048×1080 29.97PsF
<b>Video Format (fixed value)</b> 1920×1080 29.97P	1920×1080PsF	1920×1080i	1920×1080 29.97PsF

Recording format settings (Rec Format >RAW Output Format and Video Format in the System menu)	SDI/HDMI output settings (Output Format >SDI and HDMI in the Video menu)		SDI output signal
	SDI	HDMI	
<b>RAW Output Format</b> 4096x2160 23.98P	<b>2048x1080PsF</b>	—	2048x1080 23.98PsF
	1920x1080PsF	—	1920x1080 23.98PsF
	—	1920x1080P	No output
<b>Video Format (fixed value)</b> 1920x1080 23.98P	<b>2048x1080PsF</b>	—	2048x1080 23.98PsF
	1920x1080PsF	—	1920x1080 23.98PsF
	—	1920x1080P	No output
<b>RAW Output Format</b> 2048x1080 23.98P	<b>2048x1080PsF</b>	—	2048x1080 23.98PsF
	1920x1080PsF	—	1920x1080 23.98PsF
	—	1920x1080P	No output
<b>Video Format (fixed value)</b> 1920x1080 23.98P	<b>2048x1080PsF</b>	—	2048x1080 23.98PsF
	1920x1080PsF	—	1920x1080 23.98PsF
	—	1920x1080P	No output

#### When using extension unit (ProRes 422)

Recording format settings (Rec Format >Video Format in the System menu)	SDI/HDMI output settings (Output Format >SDI and HDMI in the Video menu)		SDI output signal
	SDI	HDMI	
1920x1080 59.94i	<b>1920x1080i</b>	<b>1920x1080i</b>	1920x1080 59.94i
1920x1080 29.97P	<b>1920x1080PsF</b>	<b>1920x1080i</b>	SDI OUT 1 1920x1080 29.97P SDI OUT 2 1920x1080 29.97PsF
1920x1080 23.98P	<b>1920x1080P</b>	<b>1920x1080P</b>	1920x1080 23.98P *1

\*1 Cannot output a signal compatible with the CBK-WA100.

#### When Country >NTSC/PAL Area in the System menu is set to PAL Area

##### When using basic configuration (XAVC-I / XAVC-L / MPEG HD)

Recording format settings (Rec Format >Video Format in the System menu)	SDI/HDMI output settings (Output Format >SDI and HDMI in the Video menu)		SDI output signal
	SDI	HDMI	
4096x2160 50P	—	4096x2160P	No output
	—	3840x2160P	No output
	<b>1920x1080P (Level A)</b>	<b>1920x1080P</b>	1920x1080 50P Level-A
	1920x1080P (Level B)	—	1920x1080 50P Level-B
	1920x1080i	1920x1080i	1920x1080 50i
4096x2160 25P	—	4096x2160P	No output
	—	3840x2160P	No output
	<b>1920x1080PsF</b>	<b>1920x1080i</b>	1920x1080 25PsF
3840x2160 50P	—	4096x2160P	No output
	—	3840x2160P	No output
	<b>1920x1080P (Level A)</b>	<b>1920x1080P</b>	1920x1080 50P Level-A
	1920x1080P (Level B)	—	1920x1080 50P Level-B
	1920x1080i	1920x1080i	1920x1080 50i

Recording format settings (Rec Format >Video Format in the System menu)	SDI/HDMI output settings (Output Format >SDI and HDMI in the Video menu)		SDI output signal
	SDI	HDMI	
3840x2160 25P	—	4096x2160P	No output
	—	3840x2160P	No output
	<b>1920x1080PsF</b>	<b>1920x1080i</b>	1920x1080 25PsF
1920x1080 50P	2048x1080P (Level A)	—	2048x1080 50P Level-A
	2048x1080P (Level B)	—	2048x1080 50P Level-B
	<b>1920x1080P (Level A)</b>	<b>1920x1080P</b>	1920x1080 50P Level-A
	1920x1080P (Level B)	—	1920x1080 50P Level-B
	1920x1080i	1920x1080i	1920x1080 50i
	—	720x576i	No output
	—	720x576P	No output
1920x1080 50i	<b>1920x1080i</b>	<b>1920x1080i</b>	1920x1080 50i
	—	720x576i	No output
	—	720x576P	No output
1920x1080 25P	2048x1080PsF	—	2048x1080 25PsF
	<b>1920x1080PsF</b>	<b>1920x1080i</b>	1920x1080 25PsF
	—	720x576i	No output
1280x720 50P	<b>1280x720P</b>	<b>1280x720P</b>	1280x720 50P
	—	720x576i	No output
	—	720x576P	No output
1280x720 25P	<b>1280x720P</b>	<b>1280x720P</b>	1280x720 50P (2-2RP)
	—	720x576i	No output

#### When using extension unit (RAW)

Recording format settings (Rec Format >RAW Output Format and Video Format in the System menu)	SDI/HDMI output settings (Output Format >SDI and HDMI in the Video menu)		SDI output signal
	SDI	HDMI	
<b>RAW Output Format</b> 4096x2160 50P	<b>2048x1080P (Level A)</b>	—	2048x1080 50P Level-A
<b>Video Format (fixed value)</b> 1920x1080 50P	2048x1080P (Level B)	—	2048x1080 50P Level-B
	1920x1080P (Level A)	1920x1080P	1920x1080 50P Level-A
	1920x1080P (Level B)	—	1920x1080 50P Level-B
	1920x1080i	1920x1080i	1920x1080 50i

<b>Recording format settings (Rec Format &gt;RAW Output Format and Video Format in the System menu)</b>	<b>SDI/HDMI output settings (Output Format &gt;SDI and HDMI in the Video menu)</b>		<b>SDI output signal</b>
	<b>SDI</b>	<b>HDMI</b>	
<b>RAW Output Format</b> 4096x2160 50P	<b>2048x1080P (Level A)</b>	—	2048x1080 50P Level-A
<b>Video Format (fixed value)</b> 1280x720 50P	2048x1080P (Level B)	—	2048x1080 50P Level-B
	1920x1080P (Level A)	1920x1080P	1920x1080 50P Level-A
	1920x1080P (Level B)	—	1920x1080 50P Level-B
	1280x720P	1280x720P	1280x720 50P
<b>RAW Output Format</b> 2048x1080 50P	<b>2048x1080P (Level A)</b>	—	2048x1080 50P Level-A
<b>Video Format (fixed value)</b> 1920x1080 50P	2048x1080P (Level B)	—	2048x1080 50P Level-B
	1920x1080P (Level A)	1920x1080P	1920x1080 50P Level-A
	1920x1080P (Level B)	—	1920x1080 50P Level-B
	1920x1080i	1920x1080i	1920x1080 50i
<b>RAW Output Format</b> 2048x1080 50P	<b>2048x1080P (Level A)</b>	—	2048x1080 50P Level-A
<b>Video Format (fixed value)</b> 1280x720 50P	2048x1080P (Level B)	—	2048x1080 50P Level-B
	1920x1080P (Level A)	1920x1080P	1920x1080 50P Level-A
	1920x1080P (Level B)	—	1920x1080 50P Level-B
	1280x720P	1280x720P	1280x720 50P
<b>RAW Output Format</b> 4096x2160 25P	<b>2048x1080PsF</b>	—	2048x1080 25PsF
<b>Video Format (fixed value)</b> 1920x1080 25P	1920x1080PsF	1920x1080i	1920x1080 25PsF
<b>RAW Output Format</b> 2048x1080 25P	<b>2048x1080PsF</b>	—	2048x1080 25PsF
<b>Video Format (fixed value)</b> 1920x1080 25P	1920x1080PsF	1920x1080i	1920x1080 25PsF

#### When using extension unit (ProRes 422)

<b>Recording format settings (Rec Format &gt;Video Format in the System menu)</b>	<b>SDI/HDMI output settings (Output Format &gt;SDI and HDMI in the Video menu)</b>		<b>SDI output signal</b>
	<b>SDI</b>	<b>HDMI</b>	
1920x1080 50i	<b>1920x1080i</b>	<b>1920x1080i</b>	1920x1080 50i
1920x1080 25P	<b>1920x1080PsF</b>	<b>1920x1080PsF</b>	SDI OUT 1 1920x1080 25P SDI OUT 2 1920x1080 25PsF

## HDMI OUT connector output formats

When Country >NTSC/PAL Area in the System menu is set to NTSC Area

When using basic configuration (XAVC-I / XAVC-L / MPEG HD)

Recording format settings (Rec Format >Video Format in the System menu)	SDI/HDMI output settings (Output Format >SDI and HDMI in the Video menu)		HDMI output signal
	SDI	HDMI	
4096×2160 59.94P	–	4096×2160P	4096×2160 59.94P
	–	3840×2160P	3840×2160 59.94P
	<b>1920×1080P (Level A)</b>	<b>1920×1080P</b>	1920×1080 59.94P
	1920×1080P (Level B)	–	No output
	1920×1080i	1920×1080i	1920×1080 59.94i
4096×2160 29.97P	–	4096×2160P	4096×2160 29.97P
	–	3840×2160P	3840×2160 29.97P
	<b>1920×1080PsF</b>	<b>1920×1080i</b>	1920×1080 29.97PsF
4096×2160 24.00P	–	4096×2160P	4096×2160 24P
	–	3840×2160P	3840×2160 24P
	<b>1920×1080PsF</b>	–	No output
	–	1920×1080P	1920×1080 24P (Pure)
4096×2160 23.98P	–	4096×2160P	4096×2160 23.98P
	–	3840×2160P	3840×2160 23.98P
	<b>1920×1080PsF</b>	–	No output
	–	1920×1080P	1920×1080 23.98P (Pure)
3840×2160 59.94P	–	4096×2160P	4096×2160 59.94P
	–	3840×2160P	3840×2160 59.94P
	<b>1920×1080P (Level A)</b>	<b>1920×1080P</b>	1920×1080 59.94P
	1920×1080P (Level B)	–	No output
	1920×1080i	1920×1080i	1920×1080 59.94i
3840×2160 29.97P	–	4096×2160P	4096×2160 29.97P
	–	3840×2160P	3840×2160 29.97P
	<b>1920×1080PsF</b>	<b>1920×1080i</b>	1920×1080 29.97PsF
3840×2160 23.98P	–	4096×2160P	4096×2160 23.98P
	–	3840×2160P	3840×2160 23.98P
	<b>1920×1080PsF</b>	–	No output
	–	1920×1080P	1920×1080 23.98P (Pure)

Recording format settings (Rec Format >Video Format in the System menu)	SDI/HDMI output settings (Output Format >SDI and HDMI in the Video menu)		HDMI output signal
	SDI	HDMI	
1920×1080 59.94P	2048×1080P (Level A)	—	No output
	2048×1080P (Level B)	—	No output
	<b>1920×1080P (Level A)</b>	<b>1920×1080P</b>	1920×1080 59.94P
	1920×1080P (Level B)	—	No output
	1920×1080i	1920×1080i	1920×1080 59.94i
	—	720×480i	720×480 59.94i
	—	720×480P	720×480 59.94P
1920×1080 59.94i	<b>1920×1080i</b>	<b>1920×1080i</b>	1920×1080 59.94i
	—	720×480i	720×480 59.94i
	—	720×480P	720×480 59.94P
1920×1080 29.97P	2048×1080PsF	—	No output
	<b>1920×1080PsF</b>	<b>1920×1080i</b>	1920×1080 29.97PsF
	—	720×480i	720×480 59.94i (PsF)
1920×1080 23.98P	2048×1080PsF	—	No output
	<b>1920×1080PsF</b>	—	No output
	—	1920×1080P	1920×1080 23.98P (Pure)
	1920×1080i (2-3PD)	1920×1080i (2-3PD)	1920×1080 59.94i (2-3PD)
	—	720×480i (2-3PD)	720×480 59.94i (2-3PD)
1280×720 59.94P	<b>1280×720P</b>	<b>1280×720P</b>	1280×720 59.94P
	—	720×480i	720×480 59.94i
	—	720×480P	720×480 59.94P
1280×720 29.97P	<b>1280×720P</b>	<b>1280×720P</b>	1280×720 59.94P (2-2RP)
	—	720×480i	720×480 59.94i (PsF)
1280×720 23.98P	<b>1280×720P (2-3PD)</b>	<b>1280×720P (2-3PD)</b>	1280×720 59.94P (2-3PD)
	—	720×480i (2-3PD)	720×480 59.94i

## When using extension unit (RAW)

Recording format settings (Rec Format >RAW Output Format and Video Format in the System menu)	SDI/HDMI output settings (Output Format >SDI and HDMI in the Video menu)		HDMI output signal
	SDI	HDMI	
<b>RAW Output Format</b> 4096x2160 59.94P	<b>2048x1080P (Level A)</b>	–	No output
<b>Video Format (fixed value)</b> 1920x1080 59.94P	2048x1080P (Level B)	–	No output
	1920x1080P (Level A)	1920x1080P	1920x1080 59.94P
	1920x1080P (Level B)	–	No output
	1920x1080i	1920x1080i	1920x1080 59.94i
<b>RAW Output Format</b> 4096x2160 59.94P	<b>2048x1080P (Level A)</b>	–	No output
<b>Video Format (fixed value)</b> 1280x720 59.94P	2048x1080P (Level B)	–	No output
	1920x1080P (Level A)	1920x1080P	1920x1080 59.94P
	1920x1080P (Level B)	–	No output
	1280x720P	1280x720P	1280x720 59.94P
<b>RAW Output Format</b> 2048x1080 59.94P	<b>2048x1080P (Level A)</b>	–	No output
<b>Video Format (fixed value)</b> 1920x1080 59.94P	2048x1080P (Level B)	–	No output
	1920x1080P (Level A)	1920x1080P	1920x1080 59.94P
	1920x1080P (Level B)	–	No output
	1920x1080i	1920x1080i	1920x1080 59.94i
<b>RAW Output Format</b> 2048x1080 59.94P	<b>2048x1080P (Level A)</b>	–	No output
<b>Video Format (fixed value)</b> 1280x720 59.94P	2048x1080P (Level B)	–	No output
	1920x1080P (Level A)	1920x1080P	1920x1080 59.94P
	1920x1080P (Level B)	–	No output
	1280x720P	1280x720P	1280x720 59.94P
<b>RAW Output Format</b> 4096x2160 29.97P	<b>2048x1080PsF</b>	–	No output
<b>Video Format (fixed value)</b> 1920x1080 29.97P	1920x1080PsF	1920x1080i	1920x1080 29.97PsF
<b>RAW Output Format</b> 2048x1080 29.97P	<b>2048x1080PsF</b>	–	No output
<b>Video Format (fixed value)</b> 1920x1080 29.97P	1920x1080PsF	1920x1080i	1920x1080 29.97PsF

Recording format settings (Rec Format >RAW Output Format and Video Format in the System menu)	SDI/HDMI output settings (Output Format >SDI and HDMI in the Video menu)		HDMI output signal
	SDI	HDMI	
<b>RAW Output Format</b> 4096x2160 23.98P	<b>2048x1080PsF</b>	—	No output
	1920x1080PsF	—	No output
	—	1920x1080P	1920x1080 23.98P (Pure)
<b>Video Format (fixed value)</b> 1920x1080 23.98P	<b>2048x1080PsF</b>	—	No output
	1920x1080PsF	—	No output
	—	1920x1080P	1920x1080 23.98P (Pure)
<b>RAW Output Format</b> 2048x1080 23.98P	<b>2048x1080PsF</b>	—	No output
	1920x1080PsF	—	No output
	—	1920x1080P	1920x1080 23.98P (Pure)
<b>Video Format (fixed value)</b> 1920x1080 23.98P	<b>2048x1080PsF</b>	—	No output
	1920x1080PsF	—	No output
	—	1920x1080P	1920x1080 23.98P (Pure)

#### When using extension unit (ProRes 422)

Recording format settings (Rec Format >Video Format in the System menu)	SDI/HDMI output settings (Output Format >SDI and HDMI in the Video menu)		HDMI output signal
	SDI	HDMI	
1920x1080 59.94i	<b>1920x1080i</b>	<b>1920x1080i</b>	1920x1080 59.94i
1920x1080 29.97P	<b>1920x1080PsF</b>	<b>1920x1080i</b>	1920x1080 29.97PsF
1920x1080 23.98P	<b>1920x1080P</b>	<b>1920x1080P</b>	1920x1080 23.98P (Pure)

#### When Country >NTSC/PAL Area in the System menu is set to PAL Area

##### When using basic configuration (XAVC-I / XAVC-L / MPEG HD)

Recording format settings (Rec Format >Video Format in the System menu)	SDI/HDMI output settings (Output Format >SDI and HDMI in the Video menu)		HDMI output signal
	SDI	HDMI	
4096x2160 50P	—	4096x2160P	4096x2160 50P
	—	3840x2160P	3840x2160 50P
	<b>1920x1080P (Level A)</b>	<b>1920x1080P</b>	1920x1080 50P
	1920x1080P (Level B)	—	No output
	1920x1080i	1920x1080i	1920x1080 50i
4096x2160 25P	—	4096x2160P	4096x2160 25P
	—	3840x2160P	3840x2160 25P
	<b>1920x1080PsF</b>	<b>1920x1080i</b>	1920x1080 25PsF
	1920x1080i	1920x1080i	1920x1080 50i
3840x2160 50P	—	4096x2160P	4096x2160 50P
	—	3840x2160P	3840x2160 50P
	<b>1920x1080P (Level A)</b>	<b>1920x1080P</b>	1920x1080 50P
	1920x1080P (Level B)	—	No output
	1920x1080i	1920x1080i	1920x1080 50i
3840x2160 25P	—	4096x2160P	4096x2160 25P
	—	3840x2160P	3840x2160 25P
	<b>1920x1080PsF</b>	<b>1920x1080i</b>	1920x1080 25PsF

Recording format settings (Rec Format >Video Format in the System menu)	SDI/HDMI output settings (Output Format >SDI and HDMI in the Video menu)		HDMI output signal
	SDI	HDMI	
1920×1080 50P	2048×1080P (Level A)	—	No output
	2048×1080P (Level B)	—	No output
	<b>1920×1080P (Level A)</b>	<b>1920×1080P</b>	1920×1080 50P
	1920×1080P (Level B)	—	No output
	1920×1080i	1920×1080i	1920×1080 50i
	—	720×576i	720×576 50i
	—	720×576P	720×576 50P
1920×1080 50i	<b>1920×1080i</b>	<b>1920×1080i</b>	1920×1080 50i
	—	720×576i	720×576 50i
	—	720×576P	720×576 50P
1920×1080 25P	2048×1080PsF	—	No output
	<b>1920×1080PsF</b>	1920×1080i	1920×1080 50i (PsF)
	—	720×576i	720×576 50i (PsF)
1280×720 50P	<b>1280×720P</b>	<b>1280×720P</b>	1280×720 50P
	—	720×576i	720×576 50i
	—	720×576P	720×576 50P
1280×720 25P	<b>1280×720P</b>	1280×720P	1280×720 50P (2-2RP)
	—	720×576i	720×576 50i (PsF)

#### When using extension unit (RAW)

Recording format settings (Rec Format >RAW Output Format and Video Format in the System menu)	SDI/HDMI output settings (Output Format >SDI and HDMI in the Video menu)		HDMI output signal
	SDI	HDMI	
<b>RAW Output Format</b> 4096×2160 50P <b>Video Format (fixed value)</b> 1920×1080 50P	<b>2048×1080P (Level A)</b>	—	No output
	2048×1080P (Level B)	—	No output
	1920×1080P (Level A)	1920×1080P	1920×1080 50P
	1920×1080P (Level B)	—	No output
	1920×1080i	1920×1080i	1920×1080 50i
	<b>2048×1080P (Level A)</b>	—	No output
	2048×1080P (Level B)	—	No output
<b>RAW Output Format</b> 4096×2160 50P <b>Video Format (fixed value)</b> 1280×720 50P	1920×1080P (Level A)	1920×1080P	1920×1080 50P
	1920×1080P (Level B)	—	No output
	1280×720P	1280×720P	1280×720 50P
	1280×720P	1280×720P	1280×720 50P

Recording format settings (Rec Format >RAW Output Format and Video Format in the System menu)	SDI/HDMI output settings (Output Format >SDI and HDMI in the Video menu)		HDMI output signal
	SDI	HDMI	
<b>RAW Output Format</b> 2048x1080 50P	<b>2048x1080P (Level A)</b>	—	No output
<b>Video Format (fixed value)</b> 1920x1080 50P	2048x1080P (Level B)	—	No output
	1920x1080P (Level A)	1920x1080P	1920x1080 50P
	1920x1080P (Level B)	—	No output
	1920x1080i	1920x1080i	1920x1080 50i
<b>RAW Output Format</b> 2048x1080 50P	<b>2048x1080P (Level A)</b>	—	No output
<b>Video Format (fixed value)</b> 1280x720 50P	2048x1080P (Level B)	—	No output
	1920x1080P (Level A)	1920x1080P	1920x1080 50P
	1920x1080P (Level B)	—	No output
	1280x720P	1280x720P	1280x720 50P
<b>RAW Output Format</b> 4096x2160 25P	<b>2048x1080PsF</b>	—	No output
<b>Video Format (fixed value)</b> 1920x1080 25P	1920x1080PsF	1920x1080i	1920x1080 25PsF
<b>RAW Output Format</b> 2048x1080 25P	<b>2048x1080PsF</b>	—	No output
<b>Video Format (fixed value)</b> 1920x1080 25P	1920x1080PsF	1920x1080i	1920x1080 25PsF

#### When using extension unit (ProRes 422)

Recording format settings (Rec Format >Video Format in the System menu)	SDI/HDMI output settings (Output Format >SDI and HDMI in the Video menu)		HDMI output signal
	SDI	HDMI	
1920x1080 50i	<b>1920x1080i</b>	<b>1920x1080i</b>	1920x1080 50i
1920x1080 25P	<b>1920x1080PsF</b>	<b>1920x1080i</b>	1920x1080 50i (PsF)

---

## HDMI output settings for HDMI devices

---

Output Setting >HDMI Target Device in the Video menu	Output Display >SDI/HDMI in the Video menu	HDMI output	
		OSD On/Off	MLUT On/Off
<b>Recorder (default)</b>	SDI=On, HDMI=On (default) * Grayed out, cannot be selected.	—	Follows SDI1
	SDI=On, HDMI=Off	Off	
	SDI=Off, HDMI=Off	Off	
<b>Monitor</b>	SDI=On, HDMI=On (default)	On	Follows SDI2
	SDI=On, HDMI=Off * Grayed out, cannot be selected.	—	
	SDI=Off, HDMI=Off	Off	

### Notes

- If the current Output Display setting becomes unavailable for selection after changing HDMI Target Device, the Output Display setting changes as follows.
  - Forcibly changes to the default value.
  - If the default value is not available for selection, forcibly changes to “SDI=On, HDMI=On.”
- HDMI Target Device cannot be set to Recorder if Codec is set to ProRes.

---

## States When Monitor LUT Cannot be Configured Independently

---

In the following cases, Monitor LUT >SDI2, HDMI, and Viewfinder in the Video menu cannot be set individually. They are synced with the SDI1 & Internal Rec setting.

- When Output Format >HDMI in the Video menu is set to 4096×2160 or 3840×2160
- When S&Q Motion >Setting in the Recording menu is set to On
- When Lens >Distortion Comp. in the System menu is set to Auto

# Error/Warning Messages

If a warning, caution, or operating condition that requires confirmation occurs on the camcorder, a message is displayed in the viewfinder, the recording indicators start flashing, and a warning sound is emitted.

The warning sound is emitted from the built-in speaker and headphones connected to the headphone connector.

## Error Messages

The camcorder will stop operation when the following kind of display occurs.

Viewfinder message	Warning sound	Recording indicator	Cause and Solution
E + error code	Continuous	High-speed flashing	<p>Indicates an abnormality in the camcorder. Recording stops, even if <b>●REC</b> is displayed in the viewfinder.</p> <p>Turn off the camcorder, and check for any problem with connected devices, cables, or media. If the error persists when the camcorder is turned on again, contact your Sony service representative.</p> <p>(If the camcorder does not turn off when the POWER switch is set to OFF, remove the battery or disconnect the DC IN supply.)</p>

## Warning Messages

Follow the instructions provided if the following display occurs.

Viewfinder message	Warning sound	Recording indicator	Cause and Solution
Media Near Full	Intermittent	Flashing	<p>The remaining capacity on the XQD memory card is getting low.</p> <p>Replace at the earliest convenience.</p>
Media Full	Continuous	High-speed flashing	<p>Clips could not be recorded, copied, or split because there is no remaining capacity on the XQD memory card.</p> <p>Replace immediately.</p>
Battery Near End	Intermittent	Flashing	<p>The remaining capacity of the battery pack is getting low.</p> <p>Recharge at the earliest convenience.</p>
Battery End	Continuous	High-speed flashing	<p>The battery pack is empty. Recording is disabled.</p> <p>Stop operation and replace the battery pack.</p>
Temperature High	Intermittent	Flashing	<p>The internal temperature is high.</p> <p>Turn off the camcorder and allow it to cool down before operating it again.</p>
Voltage Low	Intermittent	Flashing	The DC IN voltage is low (level 1). Check the power source.
Insufficient Voltage	Continuous	High-speed flashing	<p>The DC IN voltage is too low (level 2). Recording is disabled.</p> <p>Connect a different power source.</p>

## Caution and Operation Messages

The following caution and operation messages may appear in the center of the screen. Follow the instructions provided to resolve the issue.

Display message	Cause and Solution
Battery Error	An error was detected in the battery pack.
Please Change Battery	Replace with a normal battery pack.
Backup Battery End	The remaining capacity of the backup battery is insufficient.
Please Change	Charge the backup battery.
Unknown Media (A) <sup>1)</sup>	A memory card that has been partitioned or a memory card containing more clips that can be handled by the camcorder was inserted.
Please Change	The card cannot be used in the camcorder, and must be replaced.
Cannot Use Media (A) <sup>1)</sup>	A card using a different file system or an unformatted card was inserted.
Unsupported File System	The card cannot be used in the camcorder, and must be replaced or formatted using the camcorder.
Media Error	An error occurred on the memory card, and the card must be restored.
Media (A) <sup>1)</sup> Needs to be Restored	Restore the memory card.
Media Error	The memory card may be damaged, and can no longer be used for recording.
Cannot Record to Media (A) <sup>1)</sup>	Playback is possible, so making a copy and replacing the memory card is recommended.
Media Error	The memory card may be damaged, and can no longer be used for recording or playback.
Cannot Use Media (A) <sup>1)</sup>	The card cannot be used in the camcorder, and must be replaced.
Media (A) <sup>1)</sup> Error	Recording and playback was stopped because an error occurred while using the memory card.
Recording Halted	If the problem persists, replace the memory card.
Playback Halted	
Media Reached Rewriting Limit	The memory card has reached the end of its life.
Change Media (A) <sup>1)</sup>	Make a backup, and replace the card immediately. If you continue using the card, the card may not be able to record or play. <i>For details, refer to the operating instructions for the memory card.</i>
Fan Stopped	The built-in fan stopped. Avoid use at high temperatures, disconnect the power, and contact your Sony service representative.
Invalid setting value was reset: Media/Clip Naming/Camera Position Please save All File again	The Clip Naming format setting was reset because an invalid ALL file was loaded. Configure the desired format settings, and try to save the ALL file again.

1) "Media (B)" is displayed for the card in slot B.

# Items Saved in Files

Yes: Item is saved.

No: Item is not saved.

LEVEL 1	LEVEL 2	LEVEL 3	All File	Scene File
Camera	ISO/Gain/EI	Mode ISO/Gain<H> ISO/Gain<M> ISO/Gain<L> Exposure Index<H> Exposure Index<M> Exposure Index<L> Shockless Gain	Yes Yes Yes Yes Yes Yes Yes Yes	Yes Yes Yes Yes Yes Yes Yes Yes
	Auto Exposure	Level Mode Speed AGC AGC Limit Auto Shutter A.SHT Limit Clip High light Detect Window Detect Window Indication	Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes	Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes
	Focus	Focus Area Focus Area (Push AF) AF Assist	Yes Yes Yes	No No No
	Shutter	Mode Shutter Speed Shutter Angle ECS Frequency	Yes Yes Yes Yes	Yes Yes Yes Yes
	Color Bars	Setting Type	No Yes	No No
	Noise Suppression	Setting Level	Yes Yes	Yes Yes
	Flicker Reduce	Mode Frequency	Yes Yes	No No
	SteadyShot	Setting	Yes	No
	Handle Zoom	Zoom Speed Type Zoom Speed	Yes Yes	No No
	Auto Black Balance	Auto Black Balance	—	—
	AF Micro Adjustment	Setting Amount Clear All	No No —	No No —
	Video Light Set	Video Light Set	Yes	No

LEVEL 1	LEVEL 2	LEVEL 3	All File	Scene File
Paint	White	Preset White Color Temp <A> Color Temp Balance <A> R Gain <A> B Gain <A> Color Temp <B> Color Temp Balance <B> R Gain <B> B Gain <B> Filter White Memory Shockless White White Switch<B> ATW Speed	Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes No Yes Yes Yes	Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes
	Offset White	Offset White <A> Warm Cool <A> Warm Cool Balance <A> Offset White <B> Warm Cool <B> Warm Cool Balance <B> Offset White<ATW> Warm Cool<ATW> Warm Cool Balance<ATW>	Yes Yes Yes Yes Yes Yes Yes Yes Yes	Yes Yes Yes Yes Yes Yes Yes Yes Yes
	Black	Setting Master Black R Black B Black	Yes Yes Yes Yes	Yes Yes Yes Yes
	Gamma	Setting Step Gamma Master Gamma R Gamma G Gamma B Gamma Gamma Category Gamma Select	Yes Yes Yes Yes Yes Yes Yes Yes	Yes Yes Yes Yes Yes Yes Yes Yes
	Black Gamma	Setting Range Master Black Gamma	Yes — Yes	Yes — Yes
	Knee	Setting Auto Knee Point Slope Knee Saturation Knee Saturation Level	Yes Yes Yes Yes Yes Yes	Yes Yes Yes Yes Yes Yes
	White Clip	Setting Level	Yes Yes	Yes Yes

LEVEL 1	LEVEL 2	LEVEL 3	All File	Scene File
	Detail	Setting	Yes	Yes
		Level	Yes	Yes
		H/V Ratio	Yes	Yes
		Crispening	Yes	Yes
		Level Depend	Yes	Yes
		Level Depend Level	Yes	Yes
		Frequency	Yes	Yes
		Knee Aperture	Yes	Yes
		Knee Aperture Level	Yes	Yes
		Limit	Yes	Yes
		White Limit	Yes	Yes
		Black Limit	Yes	Yes
		V Black Limit	Yes	Yes
		V Detail Creation	Yes	Yes
	Skin Detail	Setting	Yes	Yes
		Area Detection	—	—
		Area Indication	No	No
		Level	Yes	Yes
		Saturation	Yes	Yes
		Hue	Yes	Yes
		Width	Yes	Yes
	Aperture	Setting	Yes	Yes
		Level	Yes	Yes
	Matrix	Setting	Yes	Yes
		Adaptive Matrix	Yes	Yes
		Preset Matrix	Yes	Yes
		Preset Select	Yes	Yes
		User Matrix	Yes	Yes
		Level	Yes	Yes
		Phase	Yes	Yes
		User Matrix R-G	Yes	Yes
		User Matrix R-B	Yes	Yes
		User Matrix G-R	Yes	Yes
		User Matrix G-B	Yes	Yes
		User Matrix B-R	Yes	Yes
		User Matrix B-G	Yes	Yes
	Multi Matrix	Setting	Yes	Yes
		Area Indication	No	No
		Color Detection	—	—
		Axis	No	No
		Hue	Yes	Yes
		Saturation	Yes	Yes
	Maintenance	Test Saw	Yes	No

<b>LEVEL 1</b>	<b>LEVEL 2</b>	<b>LEVEL 3</b>	<b>All File</b>	<b>Scene File</b>
Audio	Audio Input	CH1 Input Select	Yes	No
		CH2 Input Select	Yes	No
		CH3 Input Select	Yes	No
		CH4 Input Select	Yes	No
		INPUT1 MIC Reference	Yes	No
		INPUT2 MIC Reference	Yes	No
		CH1 Wind Filter	Yes	No
		CH2 Wind Filter	Yes	No
		CH3 Wind Filter	Yes	No
		CH4 Wind Filter	Yes	No
		CH3 Level Control	Yes	No
		CH4 Level Control	Yes	No
		CH3 Input Level	Yes	No
		CH4 Input Level	Yes	No
		Audio Input Level	Yes	No
		Limiter Mode	Yes	No
		CH1&2 AGC Mode	Yes	No
		CH3&4 AGC Mode	Yes	No
		AGC Spec	Yes	No
		1kHz Tone on Color Bars	Yes	No
		CH1 Level	Yes	No
		CH2 Level	Yes	No
		CH3 Level	Yes	No
		CH4 Level	Yes	No
Video	Audio Output	Monitor CH	Yes	No
		Monitor Volume	Yes	No
		Headphone Out	Yes	No
		Alarm Volume	Yes	No
		Output Limiter	Yes	No
		HDMI Output CH	Yes	No
Video	Output On/Off	SDI	Yes	No
		HDMI	Yes	No
	Output Format	SDI	Yes	No
		HDMI	Yes	No
		REF	No	No
	Output Setting	HDMI Target Device	Yes	No
		4K/2K to HD Conv.	Yes	No
	Monitor LUT	Category	Yes	No
		LUT Select	Yes	No
		Look Profile Select	Yes	No
		User 3D LUT Select	Yes	No
		SDI1 & Internal Rec	Yes	No
		SDI2	Yes	No
		HDMI	Yes	No
		Viewfinder	Yes	No
	Output Display	SDI2	Yes	No
		HDMI	Yes	No

LEVEL 1	LEVEL 2	LEVEL 3	All File	Scene File
VF	VF Setting	Brightness	Yes	No
		Color Mode	Yes	No
	Peaking	Setting	Yes	No
		Peaking Type	Yes	No
		Frequency	Yes	No
		Normal Peaking Level	Yes	No
		Color	Yes	No
		Color Peaking Level	Yes	No
	Zebra	Setting	Yes	No
		Zebra Select	Yes	No
		Zebra1 Level	Yes	No
		Zebra1 Aperture Level	Yes	No
		Zebra2 Level	Yes	No
	Marker	Setting	Yes	No
		Color	Yes	No
		Center Marker	Yes	No
		Safety Zone	Yes	No
		Safety Area	Yes	No
		Aspect Marker	Yes	No
		Aspect Mask	Yes	No
		Aspect Safety Zone	Yes	No
		Aspect Safety Area	Yes	No
		Aspect Select	Yes	No
		User Box	Yes	No
		User Box Width	Yes	No
		User Box Height	Yes	No
		User Box H Position	Yes	No
		User Box V Position	Yes	No
		100% Marker	Yes	No
		Guide Frame	Yes	No

<b>LEVEL 1</b>	<b>LEVEL 2</b>	<b>LEVEL 3</b>	<b>All File</b>	<b>Scene File</b>
	Display On/Off	Setting	Yes	No
		Shutter Setting	Yes	No
		ND Filter Position	Yes	No
		Gain Setting	Yes	No
		Rec/Play Status	Yes	No
		HXR-IFR5 Rec Control	Yes	No
		Color Temp.	Yes	No
		Frame Rate / Interval	Yes	No
		Battery Remain	Yes	No
		Timecode	Yes	No
		Audio Manual	Yes	No
		Audio Level Meter	Yes	No
		Media Status	Yes	No
		Focus Position	Yes	No
		Iris Position	Yes	No
		Zoom Position	Yes	No
		SteadyShot	Yes	No
		Focus Mode	Yes	No
		Focus Area Indicator	Yes	No
		Focus Area Ind. (Push AF)	Yes	No
		Focus Indicator	Yes	No
		Auto Shutter	Yes	No
		AGC	Yes	No
		Auto Iris	Yes	No
		AE Mode	Yes	No
		Auto Exposure Level	Yes	No
		White Balance Mode	Yes	No
		SDI/HDMI Rec Control	Yes	No
		Rec Format	Yes	No
		Gamma	Yes	No
		Timecode Lock	Yes	No
		Wi-Fi Condition	Yes	No
		Clip Name	Yes	No
		Focus Assist Indicator	Yes	No
		Focus Area Marker	Yes	No
		Video Level Warning	Yes	No
		Clip Number	Yes	No
		GPS	Yes	No
		Level Gauge	Yes	No
		Lens Info	Yes	No
		Notice Message	Yes	No
	Video Signal Monitor	Setting	Yes	No
		Source	Yes	No

<b>LEVEL 1</b>	<b>LEVEL 2</b>	<b>LEVEL 3</b>	<b>All File</b>	<b>Scene File</b>
TC/UB	Timecode	Mode	Yes	No
		Run	Yes	No
		Setting	No	No
		Reset	—	—
		TC Format	Yes	No
	TC Display	Display Select	Yes	No
		Mode	Yes	No
		Setting	No	No
	HDMI TC Out	Setting	Yes	No
Recording	S&Q Motion	Setting	Yes	No
		High Frame Rate Mode	Yes	No
		Frame Rate	Yes	No
	Interval Rec	Setting	No	No
		Interval Time	Yes	No
		Number of Frames	Yes	No
		Pre-Lighting	Yes	No
	Picture Cache Rec	Setting	Yes	No
		Cache Rec Time	Yes	No
	Simul Rec	Setting	Yes	No
		Rec Button Set	Yes	No
	SDI/HDMI Rec Control	Setting	Yes	No
Thumbnail	Display Clip Properties	—	—	—
	Set Index Picture	—	—	—
	Thumbnail View	Essence Mark Thumbnail	—	—
		Clip Thumbnail	—	—
	Set Shot Mark	Add Shot Mark1	—	—
		Delete Shot Mark1	—	—
		Add Shot Mark2	—	—
		Delete Shot Mark2	—	—
	Set Clip Flag	Add OK	—	—
		Add NG	—	—
		Add KEEP	—	—
		Delete Clip Flag	—	—
	Lock/Unlock Clip	Select Clip	—	—
		Lock All Clips	—	—
		Unlock All Clips	—	—
	Delete Clip	Select Clip	—	—
		All Clips	—	—
	Filter Clips	OK	—	—
		NG	—	—
		KEEP	—	—
		None	—	—
	Customize View	Thumbnail Caption	Yes	Yes

<b>LEVEL 1</b>	<b>LEVEL 2</b>	<b>LEVEL 3</b>	<b>All File</b>	<b>Scene File</b>
Media	Update Media	Media(A) Media(B)	— —	— —
	Format Media	Media(A) Media(B) SD Card	— — —	— — —
	Clip	Auto Naming Camera ID Reel Number Camera Position Title Prefix Number Set	Yes Yes Yes Yes Yes No	No No No No No No
File	All File	Load SD Card Save SD Card File ID	— — Yes	— — No
	Scene File	Recall Internal Memory Store Internal Memory Load SD Card Save SD Card File ID Scene White Data	— — — — No Yes	— — — — Yes No
	User Menu Item	Load SD Card Save SD Card File ID	— — No	— — No
	User Gamma	Current Settings Load SD Card Reset	— — —	— — —
	Monitor LUT	Current Settings Load SD Card Reset	— — —	— — —
	Monitor 3D LUT	Current Settings Load SD Card Reset	— — —	— — —
	Lens File	White Offset R White Offset B	No No	No No

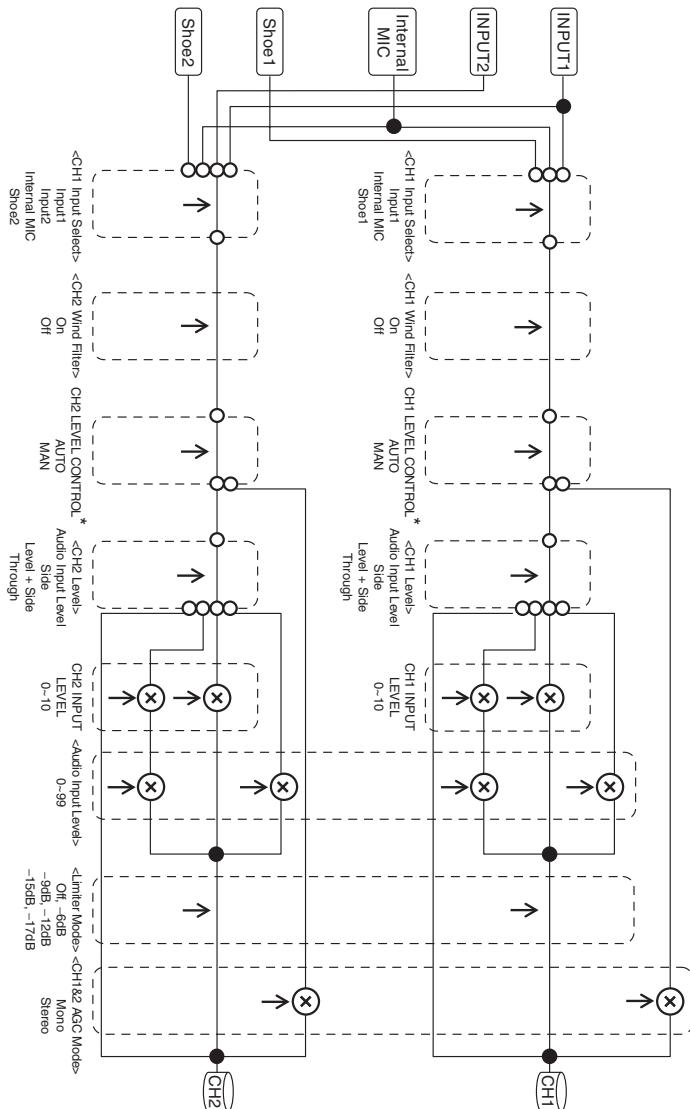
LEVEL 1	LEVEL 2	LEVEL 3	All File	Scene File
System	Base Setting	Shooting Mode	Yes	No
		Color Space	Yes	No
		Imager Scan Mode	Yes	No
	Codec	Select	Yes	No
	Rec Format	Video Format	Yes	No
		RAW Output Format	Yes	No
	Genlock	Reference	—	—
	Assignable Button	<1>	Yes	No
		<2>	Yes	No
		<3>	Yes	No
		<4>	Yes	No
		<5>	Yes	No
		<6>	Yes	No
	Assignable Dial	Assignable Dial	Yes	No
		IRIS Dial	Yes	No
		Assignable Dial Direction	Yes	No
		IRIS Dial Direction	Yes	No
	Rec Lamp	Rec Lamp	Yes	No
	Fan Control	Setting	Yes	No
	HOLD Switch Setting	with Rec Button	Yes	No
		with Hand Grip Remote	Yes	No
	Lens	Zoom Ring Direction	Yes	No
		Distortion Comp.	Yes	No
	Language	Select	Yes	No
	Clock Set	Time Zone	Yes	No
		Date Mode	Yes	No
		12H/24H	Yes	No
		Date	No	No
		Time	No	No
	Country	NTSC/PAL Area	Yes	No
	Hours Meter	Hours(System)	—	—
		Hours(Reset)	—	—
		Reset	—	—
	Basic Authentication	User Name	No	No
		Password	No	No
	Wi-Fi	Wi-Fi	Yes	No
		SSID & Password	—	—
		Wi-Fi Direct Connection	—	—
		Client	—	—
		IP Address	—	—
		Subnet Mask	—	—
		MAC Address	—	—
		Regenerate Password	—	—
	GPS	GPS	Yes	No
	IR Remote	Setting	Yes	No

<b>LEVEL 1</b>	<b>LEVEL 2</b>	<b>LEVEL 3</b>	<b>All File</b>	<b>Scene File</b>
Camera Battery Alarm	Low BATT		Yes	No
	BATT Empty		Yes	No
Camera DC IN Alarm	DC Low Voltage1		Yes	No
	DC Low Voltage2		Yes	No
Ext. Unit Battery Alarm	Near End:Info Battery		Yes	No
	End:Info Battery		Yes	No
	Near End:Sony Battery		Yes	No
	End:Sony Battery		Yes	No
	Near End:Other Battery		Yes	No
	End:Other Battery		Yes	No
	Detected Battery		No	No
Ext. Unit DC IN Alarm	DC Low Voltage1		Yes	No
	DC Low Voltage2		Yes	No
All Reset	Reset		–	–
APR	APR		–	–
Camera Config	HD/2K Modulation		Yes	No
	Number		–	–
	Version Up		–	–
	Ext. Unit Version Number		–	–
Version	Ext. Unit Version Up		–	–

# Block Diagrams

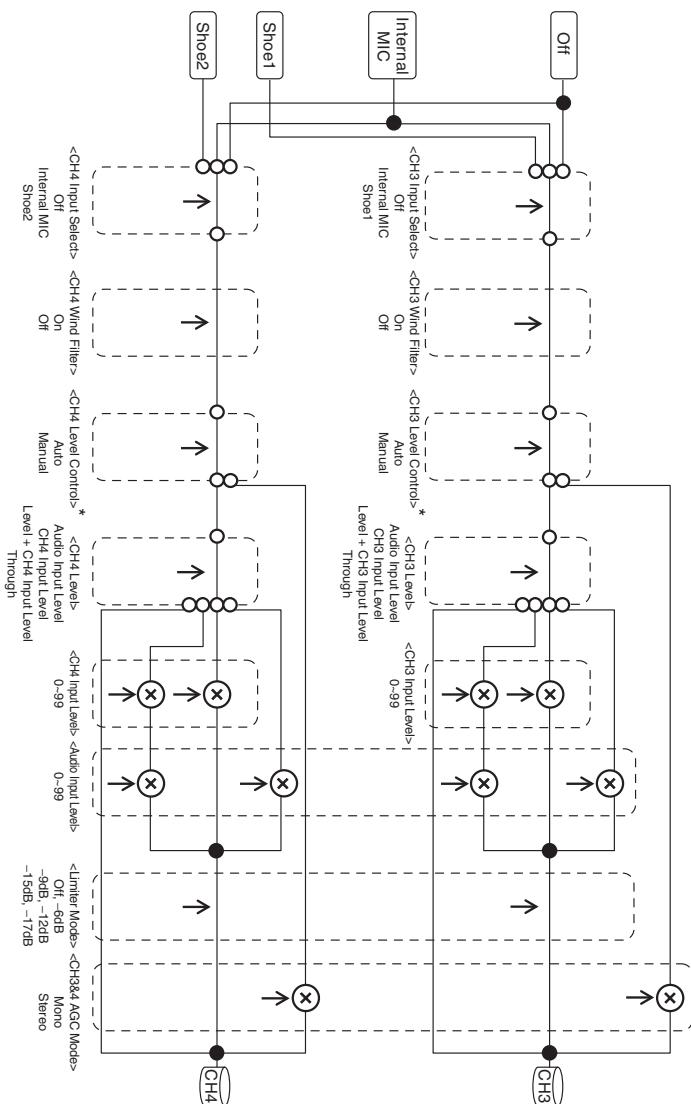
See related items in “Setting the Audio to Record” (page 44) and “Setup Menu List” (page 63).

## Audio Input (CH1&CH2)



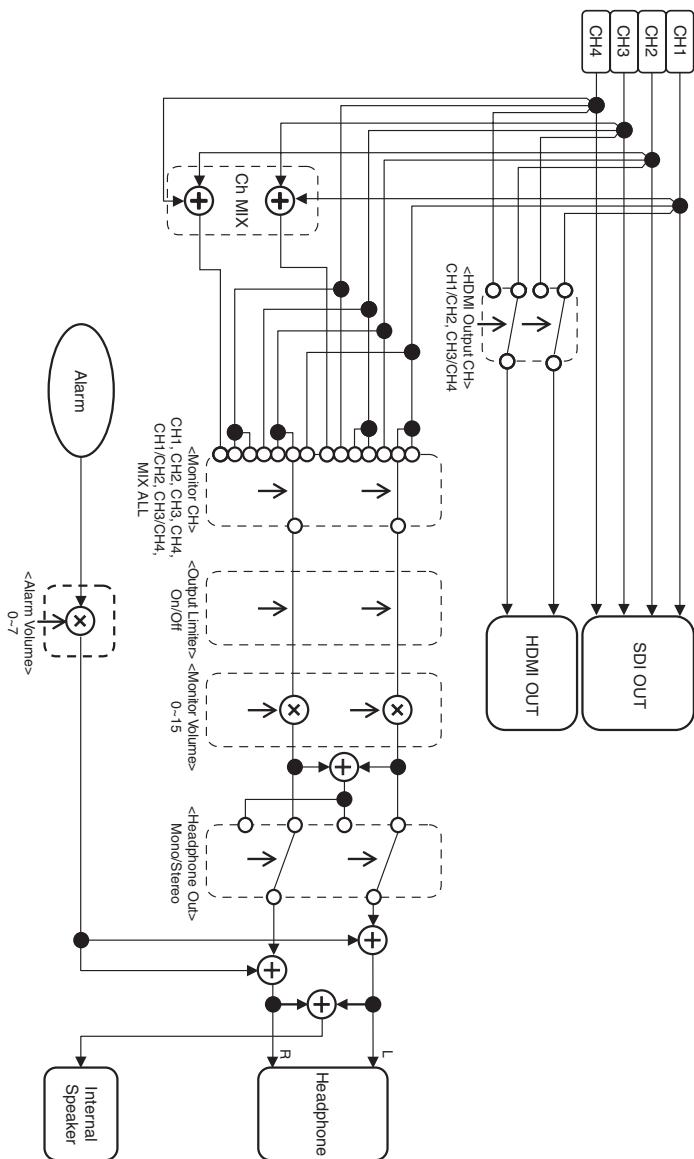
\* Set to MAN when audio is input from XLR adapter.

## Audio Input (CH3&CH4)



\* Set to Manual when audio is input from XLR adapter.

## Audio Output



# Licenses

## MPEG-4 Visual Patent Portfolio License

THIS PRODUCT IS LICENSED UNDER THE MPEG-4 VISUAL PATENT PORTFOLIO LICENSE FOR THE PERSONAL AND NON-COMMERCIAL USE OF A CONSUMER FOR

(i) ENCODING VIDEO IN COMPLIANCE WITH THE MPEG-4 VISUAL STANDARD (“MPEG-4 VIDEO”)

AND/OR

(ii) DECODING MPEG-4 VIDEO THAT WAS ENCODED BY A CONSUMER ENGAGED IN A PERSONAL AND NON-COMMERCIAL ACTIVITY AND/OR WAS OBTAINED FROM A VIDEO PROVIDER LICENSED BY MPEG LA TO PROVIDE MPEG-4 VIDEO.

NO LICENSE IS GRANTED OR SHALL BE IMPLIED FOR ANY OTHER USE.

ADDITIONAL INFORMATION INCLUDING THAT RELATING TO PROMOTIONAL, INTERNAL AND COMMERCIAL USES AND LICENSING MAY BE OBTAINED FROM MPEG LA, LLC. SEE [HTTP://WWW.MPEGLA.COM](http://WWW.MPEGLA.COM)

## Obtaining Software Under the GPL/LGPL License

This product uses software to which the GPL/LGPL applies. This informs you that you have a right to have access to, modify, and redistribute source code for these software programs under the conditions of the GPL/LGPL.

The source code is provided on the internet. Use the following URL and follow the download instructions.

<http://www.sony.net/Products/Linux/common/search.html>

We would prefer that you do not contact us about the contents of the source code.

For the content of these licenses, see “License1.pdf” in the “License” folder of the supplied CD-ROM.

Adobe Reader must be installed on your computer to view PDF files.

If Adobe Reader is not installed on your computer, you can download it by accessing the following URL.

<http://get.adobe.com/reader/>

## **END USER LICENSE AGREEMENT**

### **IMPORTANT:**

BEFORE USING THE SOFTWARE CONTAINED IN THE SOLID STATE MEMORY CAMCORDER, PLEASE READ THIS END USER LICENSE AGREEMENT (“EULA”) CAREFULLY. BY USING THE SOFTWARE YOU ARE ACCEPTING THE TERMS OF THIS EULA. IF YOU DO NOT ACCEPT THE TERMS OF THIS EULA, YOU MAY NOT USE THE SOFTWARE.

This EULA is a legal agreement between you and Sony Corporation (“SONY”). This EULA governs your rights and obligations regarding the software of SONY and/or its third party licensors (including SONY’s affiliates) and their respective affiliates (collectively, the “THIRD-PARTY SUPPLIERS”) contained in the wireless adapter, together with any updates/ upgrades provided by SONY, any printed, on-line or other electronic documentation for such software, and any data files created by operation of such software (collectively, the “SOFTWARE”).

Notwithstanding the foregoing, any software in the SOFTWARE having a separate end user license agreement (including, but not limited to, GNU General Public license and Lesser/Library General Public License) shall be covered by such applicable separate end user license agreement in lieu of the terms of this EULA to the extent required by such separate end user license agreement (“EXCLUDED SOFTWARE”).

### **SOFTWARE LICENSE**

The SOFTWARE is licensed, not sold. The SOFTWARE is protected by copyright and other intellectual property laws and international treaties.

### **COPYRIGHT**

All right and title in and to the SOFTWARE (including, but not limited to, any images, photographs, animation, video, audio, music, text and “applets” incorporated into the SOFTWARE) is owned by SONY or one or more of the THIRD-PARTY SUPPLIERS.

### **GRANT OF LICENSE**

SONY grants you a limited license to use the SOFTWARE solely in connection with the

wireless adapter and only for your individual use. SONY and the THIRD-PARTY SUPPLIERS expressly reserve all rights, title and interest (including, but not limited to, all intellectual property rights) in and to the SOFTWARE that this EULA does not specifically grant to you.

### **REQUIREMENTS AND LIMITATIONS**

You may not copy, publish, adapt, redistribute, attempt to derive source code, modify, reverse engineer, decompile, or disassemble any of the SOFTWARE, whether in whole or in part, or create any derivative works from or of the SOFTWARE unless such derivative works are intentionally facilitated by the SOFTWARE. You may not modify or tamper with any digital rights management functionality of the SOFTWARE. You may not bypass, modify, defeat or circumvent any of the functions or protections of the SOFTWARE or any mechanisms operatively linked to the SOFTWARE. You may not separate any individual component of the SOFTWARE for use on more than one wireless adapter unless expressly authorized to do so by SONY. You may not remove, alter, cover or deface any trademarks or notices on the SOFTWARE. You may not share, distribute, rent, lease, sublicense, assign, transfer or sell the SOFTWARE. The software, network services or other products other than SOFTWARE upon which the SOFTWARE’S performance depends might be interrupted or discontinued at the discretion of the suppliers (software suppliers, service suppliers, or SONY). SONY and such suppliers do not warrant that the SOFTWARE, network services, contents or other products will continue to be available, or will operate without interruption or modification.

### **EXCLUDED SOFTWARE AND OPEN SOURCE COMPONENTS**

Notwithstanding the foregoing limited license grant, you acknowledge that the SOFTWARE may include EXCLUDED SOFTWARE. Certain EXCLUDED SOFTWARE may be covered by open source software licenses (“Open Source Components”), which means any software licenses approved as open source licenses by the Open Source Initiative or any substantially similar licenses, including but not limited to any license that, as a condition of distribution of the software licensed under such

license, requires that the distributor make the software available in source code format. If and to the extent disclosure is required, please visit [www.sony.com/linux](http://www.sony.com/linux) or other SONY-designated web site for a list of applicable OPEN SOURCE COMPONENTS included in the SOFTWARE from time to time, and the applicable terms and conditions governing its use. Such terms and conditions may be changed by the applicable third party at any time without liability to you. To the extent required by the licenses covering EXCLUDED SOFTWARE, the terms of such licenses will apply in lieu of the terms of this EULA. To the extent the terms of the licenses applicable to EXCLUDED SOFTWARE prohibit any of the restrictions in this EULA with respect to such EXCLUDED SOFTWARE, such restrictions will not apply to such EXCLUDED SOFTWARE. To the extent the terms of the licenses applicable to Open Source Components require SONY to make an offer to provide source code in connection with the SOFTWARE, such offer is hereby made.

#### **USE OF SOFTWARE WITH COPYRIGHTED MATERIALS**

The SOFTWARE may be capable of being used by you to view, store, process and/or use content created by you and/or third parties. Such content may be protected by copyright, other intellectual property laws, and/or agreements. You agree to use the SOFTWARE only in compliance with all such laws and agreements that apply to such content. You acknowledge and agree that SONY may take appropriate measures to protect the copyright of content stored, processed or used by the SOFTWARE. Such measures include, but are not limited to, counting the frequency of your backup and restoration through certain SOFTWARE features, refusal to accept your request to enable restoration of data, and termination of this EULA in the event of your illegitimate use of the SOFTWARE.

#### **CONTENT SERVICE**

PLEASE ALSO NOTE THAT THE SOFTWARE MAY BE DESIGNED TO BE USED WITH CONTENT AVAILABLE THROUGH ONE OR MORE CONTENT SERVICES (“CONTENT SERVICE”). USE OF THE SERVICE AND THAT CONTENT IS SUBJECT TO THE TERMS OF SERVICE OF THAT CONTENT SERVICE. IF YOU

DECLINE TO ACCEPT THOSE TERMS, YOUR USE OF THE SOFTWARE WILL BE LIMITED. You acknowledge and agree that certain content and services available through the SOFTWARE may be provided by third parties over which SONY has no control. USE OF THE CONTENT SERVICE REQUIRES AN INTERNET CONNECTION. THE CONTENT SERVICE MAY BE DISCONTINUED AT ANY TIME.

#### **INTERNET CONNECTIVITY AND THIRD PARTY SERVICES**

You acknowledge and agree that access to certain SOFTWARE features may require an Internet connection for which you are solely responsible. Further, you are solely responsible for payment of any third party fees associated with your Internet connection, including but not limited to Internet service provider or airtime charges. Operation of the SOFTWARE may be limited or restricted depending on the capabilities, bandwidth or technical limitations of your Internet connection and service. The provision, quality and security of such Internet connectivity are the sole responsibility of the third party providing such service.

#### **EXPORT AND OTHER REGULATIONS**

You agree to comply with all applicable export and re-export restrictions and regulations of the area or country in which you reside, and not to transfer, or authorize the transfer, of the SOFTWARE to a prohibited country or otherwise in violation of any such restrictions or regulations.

#### **HIGH RISK ACTIVITIES**

The SOFTWARE is not fault-tolerant and is not designed, manufactured or intended for use or resale as on-line control equipment in hazardous environments requiring fail-safe performance, such as in the operation of nuclear facilities, aircraft navigation or communication systems, air traffic control, direct life support machines, or weapons systems, in which the failure of the SOFTWARE could lead to death, personal injury, or severe physical or environmental damage (“HIGH RISK ACTIVITIES”). SONY, each of the THIRD-PARTY SUPPLIERS, and each of their respective affiliates specifically disclaim any express or implied warranty, duty or condition of fitness for HIGH RISK ACTIVITIES.

## **EXCLUSION OF WARRANTY ON SOFTWARE**

You acknowledge and agree that use of the SOFTWARE is at your sole risk and that you are responsible for use of the SOFTWARE. The SOFTWARE is provided "AS IS," without warranty, duty or condition of any kind.

SONY AND EACH OF THE THIRD-PARTY SUPPLIERS (for purposes of this Section, SONY and each of the THIRD-PARTY SUPPLIERS shall be collectively referred to as "SONY") EXPRESSLY DISCLAIM ALL WARRANTIES, DUTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY, NONINFRINGEMENT AND FITNESS FOR A PARTICULAR PURPOSE. SONY DOES NOT WARRANT OR MAKE ANY CONDITIONS OR REPRESENTATIONS (A) THAT THE FUNCTIONS CONTAINED IN ANY OF THE SOFTWARE WILL MEET YOUR REQUIREMENTS OR THAT THEY WILL BE UPDATED, (B) THAT THE OPERATION OF ANY OF THE SOFTWARE WILL BE CORRECT OR ERROR-FREE OR THAT ANY DEFECTS WILL BE CORRECTED, (C) THAT THE SOFTWARE WILL NOT DAMAGE ANY OTHER SOFTWARE, HARDWARE OR DATA, (D) THAT ANY SOFTWARE, NETWORK SERVICES (INCLUDING THE INTERNET) OR PRODUCTS (OTHER THAN THE SOFTWARE) UPON WHICH THE SOFTWARE'S PERFORMANCE DEPENDS WILL CONTINUE TO BE AVAILABLE, UNINTERRUPTED OR UNMODIFIED, AND (E) REGARDING THE USE OR THE RESULTS OF THE USE OF THE SOFTWARE IN TERMS OF ITS CORRECTNESS, ACCURACY, RELIABILITY, OR OTHERWISE.

NO ORAL OR WRITTEN INFORMATION OR ADVICE GIVEN BY SONY OR AN AUTHORIZED REPRESENTATIVE OF SONY SHALL CREATE A WARRANTY, DUTY OR CONDITION OR IN ANY WAY INCREASE THE SCOPE OF THIS WARRANTY. SHOULD THE SOFTWARE PROVE DEFECTIVE YOU ASSUME THE ENTIRE COST OF ALL NECESSARY

SERVICING, REPAIR OR CORRECTION. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OF IMPLIED WARRANTIES, SO THESE EXCLUSIONS MAY NOT APPLY TO YOU.

## **LIMITATION OF LIABILITY**

SONY AND EACH OF THE THIRD-PARTY SUPPLIERS (for purposes of this Section, SONY and each of the THIRD-PARTY SUPPLIERS shall be collectively referred to as "SONY") SHALL NOT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES FOR BREACH OF ANY EXPRESS OR IMPLIED WARRANTY, BREACH OF CONTRACT, NEGLIGENCE, STRICT LIABILITY OR UNDER ANY OTHER LEGAL THEORY RELATED TO THE SOFTWARE, INCLUDING, BUT NOT LIMITED TO, ANY DAMAGES ARISING OUT OF LOSS OF PROFITS, LOSS OF REVENUE, LOSS OF DATA, LOSS OF USE OF THE SOFTWARE OR ANY ASSOCIATED HARDWARE, DOWN TIME AND USER'S TIME, EVEN IF ANY OF THEM HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. IN ANY CASE, EACH AND ALL OF THEIR AGGREGATE LIABILITY UNDER ANY PROVISION OF THIS EULA SHALL BE LIMITED TO THE AMOUNT ACTUALLY PAID FOR THE PRODUCT. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE EXCLUSION OR LIMITATION MAY NOT APPLY TO YOU.

## **CONSENT TO USE OF NON-PERSONAL INFORMATION, LOCATION DATA, DATA SECURITY**

You acknowledge and agree that SONY and its affiliates, partners and agents may read, collect, transfer, process and store certain information collected from the SOFTWARE, including but not limited to information about (i) the SOFTWARE and (ii) the software applications, contents and peripheral devices that interact with your wireless adapter and the SOFTWARE ("Information"). Information includes, but is not limited to: (1) unique identifiers relating to your wireless adapter and its components; (2) performance of the wireless adapter, the

SOFTWARE and their components; (3) configurations of your wireless adapter, the SOFTWARE and the software applications, contents and peripheral devices that interact with the wireless adapter and the SOFTWARE; (4) use and frequency of use of the functions of (x) the SOFTWARE, and (y) the software applications, contents and peripheral devices that interact with the SOFTWARE; and (5) location data, as indicated below. SONY and its affiliates, partners and agents may use and disclose Information subject to applicable laws in order to improve its products and services or to provide products or services to you. Such uses include, but are not limited to: (a) administering the functionalities of the SOFTWARE; (b) to improve, service, update or upgrade the SOFTWARE; (c) improving, developing and enhancing the current and future products and services of SONY and other parties; (d) to provide you with information about the products and services offered by SONY and other parties; (e) complying with applicable laws or regulations; and (f) to the extent offered, providing you with location-based services of SONY and other parties, as indicated below. In addition, SONY retains the right to use Information to protect itself and third parties from illegal, criminal or harmful conduct.

Certain services available through the SOFTWARE may rely upon location information, including, but not limited to, the geographic location of the wireless adapter. You acknowledge that for the purpose of providing such services, SONY, the THIRDPARTY SUPPLIERS or their partners may collect, archive, process and use such location data, and that such services are governed by the privacy policies of SONY or such third party. By reviewed the privacy policies applicable to such services and consent to such activities.

SONY, its affiliates, partners and agents will not intentionally use Information to personally identify the owner or user of the SOFTWARE without your knowledge or consent. Any use of Information will be in accordance with the privacy policies of SONY or such third party.

Please contact applicable contact address of each area or country for SONY's current privacy

policy. Please contact applicable third parties for privacy policies relating to personally identifiable and other information you provide when you use or access third party software or services.

Information may be processed, stored or transferred to SONY, its affiliates or agents which are located in countries outside of your country of residence. Data protection and information privacy laws in certain countries may not offer the same level of protection as your country of residence and you may have fewer legal rights in relation to Information processed and stored in, or transferred to, such countries. SONY will use reasonable efforts to take appropriate technical and organizational steps to prevent unauthorized access to or disclosure of Information, but does not warrant it will eliminate all risk of misuse of such Information.

#### **AUTOMATIC UPDATE FEATURE**

From time to time, SONY or the THIRDPARTY SUPPLIERS may automatically update or otherwise modify the SOFTWARE, including, but not limited to, for purposes of enhancement of security functions, error correction and improvement of functions, at such time as you interact with SONY's or third parties' servers, or otherwise. Such updates or modifications may delete or change the nature of features or other aspects of the SOFTWARE, including, but not limited to, functions you may rely upon. You acknowledge and agree that such activities may occur at SONY's sole discretion and that SONY may condition continued use of the SOFTWARE upon your complete installation or acceptance of such update or modifications. Any updates/modifications shall be deemed to be, and shall constitute part of, the SOFTWARE for purposes of this EULA. By acceptance of this EULA, you consent to such update/modification.

#### **ENTIRE AGREEMENT, WAIVER, SEVERABILITY**

This EULA and SONY's privacy policy, each as amended and modified from time to time, together constitute the entire agreement between you and SONY with respect to the SOFTWARE. The failure of SONY to exercise or enforce any right or provision of this EULA shall not constitute a waiver of such right or provision. If

any part of this EULA is held invalid, illegal, or unenforceable, that provision shall be enforced to the maximum extent permissible so as to maintain the intent of this EULA, and the other parts will remain in full force and effect.

#### **GOVERNING LAW AND JURISDICTION**

The United Nations Convention on Contracts for the International Sale of Goods shall not apply to this EULA. This EULA shall be governed by the laws of Japan, without regards to conflict of laws provisions. Any dispute arising out of this EULA shall be subject to the exclusive venue of the Tokyo District Court in Japan, and the parties hereby consent to the venue and jurisdiction of such courts.

#### **EQUITABLE REMEDIES**

Notwithstanding anything contained in this EULA to the contrary, you acknowledge and agree that any violation of or noncompliance with this EULA by you will cause irreparable harm to SONY, for which monetary damages would be inadequate, and you consent to SONY obtaining any injunctive or equitable relief that SONY deems necessary or appropriate in such circumstances. SONY may also take any legal and technical remedies to prevent violation of and/or to enforce this EULA, including, but not limited to, immediate termination of your use of the SOFTWARE, if SONY believes in its sole discretion that you are violating or intend to violate this EULA. These remedies are in addition to any other remedies SONY may have at law, in equity or under contract.

#### **TERMINATION**

Without prejudice to any of its other rights, SONY may terminate this EULA if you fail to comply with any of its terms. In case of such termination, you must: (i) cease all use, and destroy any copies, of the SOFTWARE; (ii) comply with the requirements in the section below entitled "Your Account Responsibilities".

#### **AMENDMENT**

SONY RESERVES THE RIGHT TO AMEND ANY OF THE TERMS OF THIS EULA AT ITS SOLE DISCRETION BY POSTING NOTICE ON A SONY DESIGNATED WEB SITE, BY EMAIL NOTIFICATION TO AN EMAIL ADDRESS PROVIDED BY YOU, BY PROVIDING NOTICE AS PART OF THE PROCESS IN WHICH YOU OBTAIN

UPGRADES/ UPDATES OR BY ANY OTHER LEGALLY RECOGNIZABLE FORM OF NOTICE. If you do not agree to the amendment, you should promptly contact SONY for instructions. Your continued use of the SOFTWARE after the effective date of any such notice shall be deemed your agreement to be bound by such amendment.

#### **THIRD-PARTY BENEFICIARIES**

Each THIRD-PARTY SUPPLIER is an express intended thirdparty beneficiary of, and shall have the right to enforce, each provision of this EULA with respect to the SOFTWARE of such party.

Should you have any questions concerning this EULA, you may contact SONY by writing to SONY at applicable contact address of each area or country.

Copyright © 2012 Sony Corporation.

### **Open Software Licenses**

On the basis of license contracts between Sony and the software copyright holders, this product uses open software.

To meet the requirements of the software copyright holders, Sony is obligated to inform you of the content of these licenses. For the content of these licenses, see "License1.pdf" in the "License" folder of the supplied CD-ROM.

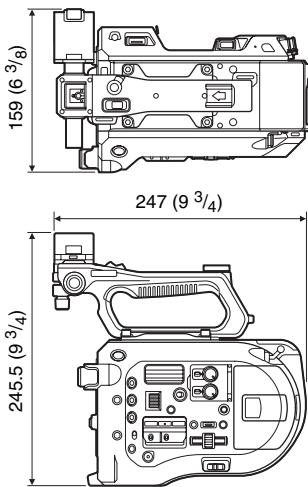
# Specifications

## General

Mass Approx. 2.0 kg (4 lb 6.5 oz) (body only)

Dimensions

(Unit: mm (inch), body only)<sup>1)</sup>



1) The values for dimensions are approximate.

Power requirement

12 V DC (11 V to 17.0 V)

Power consumption

Approx. 19 W (body, SELP28135G lens, XAVC-I QFHD 59.94P recording, viewfinder on)

Operating temperature

0 °C to 40 °C (32 °F to 104 °F)

Storage temperature

-20 °C to +60 °C (-4 °F to +140 °F)

Continuous operating time

Approx. 60 minutes (using BP-U30)

Recording format (video)

**XAVC Intra**

AVC/H.264 High 4:2:2 Intra Profile

QFHD: VBR, 600 Mbps max.

4K: VBR, 600 Mbps max.

HD: CBG, 222 Mbps

**XAVC Long**

AVC/H.264 High Profile

QFHD: VBR, 150 Mbps max., 4:2:0

Long

HD: VBR, 50 Mbps max., 4:2:2 Long

**MPEG HD 422**

MPEG-2 Long GOP

HD422 mode: CBR, 50 Mbps, MPEG-2

422P@HL

**ProRes 422 HQ<sup>1)</sup>**

Apple ProRes 422 HQ

4:2:2, 10-bit, VBR, 220 Mbps max.

**ProRes 422<sup>1)</sup>**

Apple ProRes 422

4:2:2, 10-bit, VBR, 147 Mbps max.

Recording format (audio)

LPCM 24-bit, 48 kHz, 4-channel

Recording frame rate

**XAVC Intra**

4096×2160/59.94P, 50P, 29.97P, 24P,

23.98P, 25P

3840×2160/59.94P, 50P, 29.97P,

23.98P, 25P

1920×1080/59.94P, 50P, 59.94i, 50i,

29.97P, 23.98P, 25P

**XAVC Long**

3840×2160/59.94P, 50P, 29.97P,

23.98P

1920×1080/59.94P, 50P, 59.94i, 50i,

29.97P, 23.98P, 25P

**MPEG HD 422**

1920×1080/59.94i, 50i, 29.97P, 23.98P,

25P

1280×720/59.94P, 50P, 29.97P, 23.98P,

25P

**ProRes 422 HQ<sup>1)</sup>**

1920×1080/59.94i, 50i, 29.97P, 25P,

23.98P

**ProRes 422<sup>1)</sup>**

1920×1080/59.94i, 50i, 29.97P, 25P,

23.98P

Recording/playback time	29.97P
<b>XAVC Intra 4096x2160/3840x2160</b>	
59.94P	Approx. 118 minutes: Using QD-G128A
Approx. 22 minutes: Using QD-G128A	Approx. 59 minutes: Using QD-G64A
Approx. 11 minutes: Using QD-G64A	23.98P
50P	Approx. 147 minutes: Using QD-G128A
Approx. 26 minutes: Using QD-G128A	Approx. 74 minutes: Using QD-G64A
Approx. 13 minutes: Using QD-G64A	25P
29.97P	Approx. 141 minutes: Using QD-G128A
Approx. 44 minutes: Using QD-G128A	Approx. 70 minutes: Using QD-G64A
Approx. 22 minutes: Using QD-G64A	<b>XAVC Long 3840x2160</b>
23.98P/24P	
Approx. 55 minutes: Using QD-G128A	59.94P/50P
Approx. 27 minutes: Using QD-G64A	Approx. 87 minutes: Using QD-G128A
25P	Approx. 44 minutes: Using QD-G64A
Approx. 52 minutes: Using QD-G128A	29.97P/23.98P/25P
Approx. 26 minutes: Using QD-G64A	Approx. 131 minutes: Using QD-G128A
<b>XAVC Intra 1920x1080</b>	Approx. 66 minutes: Using QD-G64A
59.94P	
Approx. 59 minutes: Using QD-G128A	<b>XAVC Long 1920x1080</b>
Approx. 30 minutes: Using QD-G64A	50M mode
50P	Approx. 262 minutes: Using QD-G128A
Approx. 71 minutes: Using QD-G128A	Approx. 131 minutes: Using QD-G64A
Approx. 35 minutes: Using QD-G64A	35M mode
59.94i	Approx. 374 minutes: Using QD-G128A
Approx. 118 minutes: Using QD-G128A	Approx. 187 minutes: Using QD-G64A
Approx. 59 minutes: Using QD-G64A	25M mode
50i	Approx. 524 minutes: Using QD-G128A
Approx. 141 minutes: Using QD-G128A	Approx. 262 minutes: Using QD-G64A
Approx. 70 minutes: Using QD-G64A	<b>MPEG HD 422</b>
	Approx. 131 minutes: Using QD-G64A

<b>ProRes 422 HQ<sup>1)</sup></b>	
59.94i/29.97P	
Approx. 60 minutes: Using QD-G128A	ND filters
Approx. 30 minutes: Using QD-G64A	1: Clear
50i/25P	2: 1/4ND
Approx. 72 minutes: Using QD-G128A	3: 1/16ND
Approx. 36 minutes: Using QD-G64A	4: 1/64ND
23.98P	Sensitivity
Approx. 74 minutes: Using QD-G128A	Video Gamma: T14@24p (2000 lx, 89.9% reflectance, 3200K)
Approx. 37 minutes: Using QD-G64A	ISO sensitivity
	S-Log3 Gamma ISO2000 (D55 light source)
<b>ProRes 422<sup>1)</sup></b>	Minimum subject illumination
59.94i/29.97P	0.7 lx (18 dB, 23.98P, Shutter: OFF, ND Clear, F1.4)
Approx. 90 minutes: Using QD-G128A	Lens mount
Approx. 45 minutes: Using QD-G64A	E-mount
50i/25P	Latitude
Approx. 108 minutes: Using QD-G128A	14-stop
Approx. 54 minutes: Using QD-G64A	Video S/N
23.98P	57 dB (Video Gamma/Noise Suppression: off)
Approx. 112 minutes: Using QD-G128A	Shutter speed
Approx. 56 minutes: Using QD-G64A	1/3 to 1/9000 sec. (23.98P)

1) With XDCA-FS7 (option) connected

### Note

The recording/playback time may vary due to usage conditions and memory characteristics.

## Camera Section

Imaging device (type)	Super 35 equivalent CMOS image sensor
Number of pixels	11.6 Megapixels (total), 8.8 Megapixels@17:9/ 8.3 Megapixels@16:9 (effective)

ND filters	
1: Clear	
2: 1/4ND	
3: 1/16ND	
4: 1/64ND	
Sensitivity	
Video Gamma: T14@24p (2000 lx, 89.9% reflectance, 3200K)	
ISO sensitivity	
S-Log3 Gamma ISO2000 (D55 light source)	
Minimum subject illumination	
0.7 lx (18 dB, 23.98P, Shutter: OFF, ND Clear, F1.4)	
Lens mount	
E-mount	
Latitude	
14-stop	
Video S/N	
57 dB (Video Gamma/Noise Suppression: off)	
Shutter speed	
1/3 to 1/9000 sec. (23.98P)	
Shutter angle	
5.6° to 300°	
Slow & Quick Motion	
XAVC QFHD: 1 to 60P, XAVC HD: 1 to 180P	
White balance	
Preset mode (2100K to 10000K), Memory mode A, B (1500K to 50000K)	
Gain	-3, 0, 3, 6, 9, 12, 18 dB
Gamma curve	
STD1, STD2, STD3, STD4, STD5, STD6, HG1, HG2, HG3, HG4, HG7, HG8, S-Log2, S-Log3, USER1, USER2, USER3, USER4, USER5	

## Audio Section

Sampling frequency	48 kHz
Quantization	24-bit
Frequency response	
XLR input MIC mode:	
50 Hz to 20 kHz ( $\pm 3$ dB or less)	
XLR input LINE mode:	
20 Hz to 20 kHz ( $\pm 3$ dB or less)	
Dynamic range	
90 dB (typical)	

Distortion  
0.08% or lower (-40 dBu input level)  
Built-in speaker  
Monaural  
Internal microphone  
Monaural

## Input/Output Section

### Inputs

INPUT 1/2:  
XLR type, 3-pin, female  
LINE / MIC / MIC+48V switchable  
MIC: Reference -40, -50, -60 dBu

### Outputs

SDI OUT 1/2:  
BNC type, 0.8 Vp-p, unbalanced  
(3G HD/1.5G HD output)  
SMPTE ST424 Level A/B, SMPTE  
ST425 Level A/B, SMPTE ST292-1  
standard compliant  
4-channel audio  
Headphones (stereo mini jack):  
-16 dBu (reference level output,  
maximum monitor volume, 16 Ω load)  
HDMI: Type A, 19-pin

### Other

DC IN: EIAJ compliant, 11 V to 17 V DC  
Extension unit connector:  
Dedicated (144-pin)  
Multi-interface shoe:  
Dedicated (21-pin)  
REMOTE:  
Φ2.5 3-pole sub-mini type  
USB: 2.0 standard compliant, type AB mini for  
mass storage (1)  
Type A for W-LAN connection (1)  
VF: Dedicated (40-pin)

## Display Section

LCD monitor  
Screen size  
8.8 cm (3.5 inch) diagonal  
Aspect ratio  
16:9  
Number of pixels  
960 (H) × 540 (V)

## Media Slot Section

XQD card slots for video recording (2)  
UTILITY SD card slot (1)

## Supplied Accessories

Viewfinder (including eyepiece, eyecup, rod,  
clamp)  
Grip remote control  
USB wireless LAN module (IFU-WLM3)  
Infrared remote control (RMT-845)  
AC Adapter/Charger  
Battery pack (BP-U30)  
Maximum voltage: 16.4 V DC  
Nominal voltage: 14.4 V DC  
Capacity: 28 Wh  
Power cord (1)  
Mini USB cable (1)  
Option mounting bracket (1)  
Lens mount cap (1)  
Handle connector protective cap (including two  
M2 screws) (1)  
USB wireless LAN module cap (2)  
W-LAN connector cover spare (1)  
Extension unit connector cover spare (1)  
Accessory shoe kit (accessory shoe (1), shoe plate  
(1), screws (4))  
Before Using this Unit (1)  
Operating Instructions (CD-ROM) (1)

Design and specifications are subject to change  
without notice.

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.

#### Notes

- Always make a test recording, and verify that it was recorded successfully.  
**SONY WILL NOT BE LIABLE FOR DAMAGES OF ANY KIND INCLUDING, BUT NOT LIMITED TO, COMPENSATION OR REIMBURSEMENT ON ACCOUNT OF FAILURE OF THIS UNIT OR ITS RECORDING MEDIA, EXTERNAL STORAGE SYSTEMS OR ANY OTHER MEDIA OR STORAGE SYSTEMS TO RECORD CONTENT OF ANY TYPE.**
- Always verify that the unit is operating properly before use.  
**SONY WILL NOT BE LIABLE FOR DAMAGES OF ANY KIND INCLUDING, BUT NOT LIMITED TO, COMPENSATION OR REIMBURSEMENT ON ACCOUNT OF THE LOSS OF PRESENT OR PROSPECTIVE PROFITS DUE TO FAILURE OF THIS UNIT, EITHER DURING THE WARRANTY PERIOD OR AFTER EXPIRATION OF THE WARRANTY, OR FOR ANY OTHER REASON WHATSOEVER.**
- SONY WILL NOT BE LIABLE FOR CLAIMS OF ANY KIND MADE BY USERS OF THIS UNIT OR MADE BY THIRD PARTIES.
- SONY WILL NOT BE LIABLE FOR THE LOSS, REPAIR, OR REPRODUCTION OF ANY DATA RECORDED ON THE INTERNAL STORAGE SYSTEM, RECORDING MEDIA, EXTERNAL STORAGE SYSTEMS OR ANY OTHER MEDIA OR STORAGE SYSTEMS.
- SONY WILL NOT BE LIABLE FOR THE TERMINATION OR DISCONTINUATION OF ANY SERVICES RELATED TO THIS UNIT THAT MAY RESULT DUE TO CIRCUMSTANCES OF ANY KIND.

## Software Downloads

When the unit is used with a PC connection, download device drivers, plug-ins, and application software, where applicable, from the Sony Professional products web site.

Sony Professional products web site homepage:

U.S.A	<a href="http://pro.sony.com">http://pro.sony.com</a>
Canada	<a href="http://www.sonybiz.ca">http://www.sonybiz.ca</a>
Latin America	<a href="http://sonypro-latin.com">http://sonypro-latin.com</a>
Europe	<a href="http://www.pro.sony.eu/pro">http://www.pro.sony.eu/pro</a>
Middle East and Africa	<a href="http://sony-psmea.com">http://sony-psmea.com</a>
Russia	<a href="http://sony.ru/pro/">http://sony.ru/pro/</a>
Brazil	<a href="http://sonypro.com.br">http://sonypro.com.br</a>
Australia	<a href="http://pro.sony.com.au">http://pro.sony.com.au</a>
New Zealand	<a href="http://pro.sony.co.nz">http://pro.sony.co.nz</a>
Japan	<a href="http://www.sonybsc.com">http://www.sonybsc.com</a>
Asia	<a href="http://pro.sony-asia.com">http://pro.sony-asia.com</a>
Korea	<a href="http://bp.sony.co.kr">http://bp.sony.co.kr</a>
China	<a href="http://pro.sony.com.cn">http://pro.sony.com.cn</a>
India	<a href="http://pro.sony.co.in">http://pro.sony.co.in</a>

Sony Creative Software, software download page  
[http://www.sonycreativesoftware.com/download/software\\_for\\_sony\\_equipment](http://www.sonycreativesoftware.com/download/software_for_sony_equipment)

## Trademarks

- XDCAM is a trademark of Sony Corporation.
- XAVC and **XAVC** are registered trademarks of Sony Corporation.
- XQD and **XQD** are trademarks of Sony Corporation.
- HDMI, the HDMI logo, and High-Definition Multimedia Interface are trademarks or registered trademarks of HDMI Licensing, LLC in the United States and/or other countries.

All other company names and product names are registered trademarks or trademarks of their respective owners. Trademarked items are not indicated by ® or ™ symbols in this document.

