

Solid-State Memory Camcorder

Operating Instructions

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

PXW-FS7

XDCM

XQD™

HDMI

MPEG HD422

Exmor™
Super35 CMOS

XAVC

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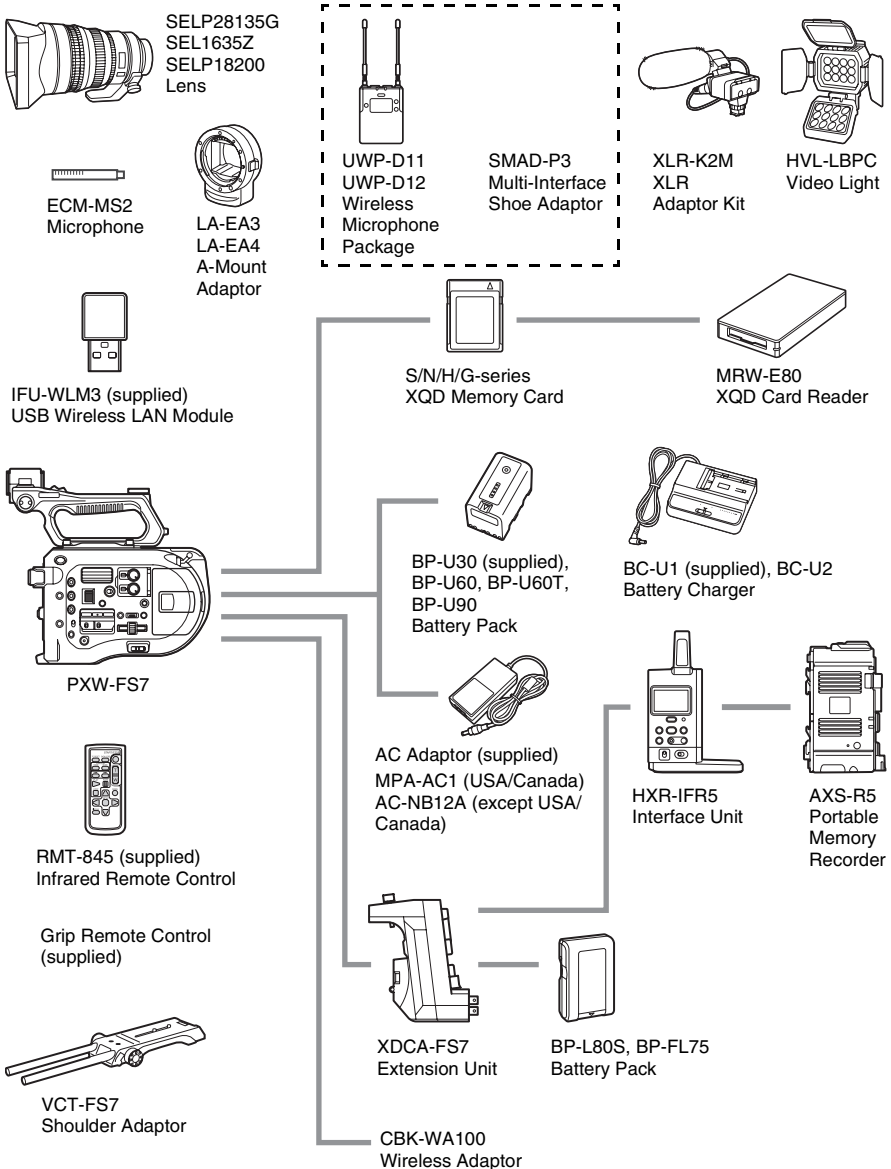
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Overview

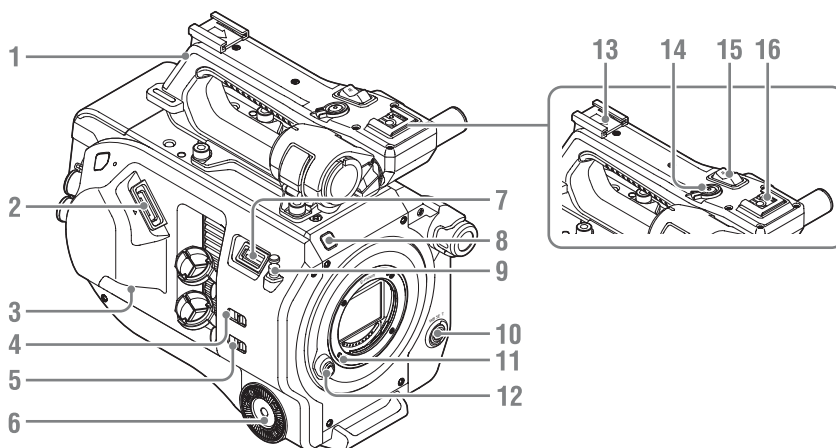
System Configuration

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 43)

5. INPUT2 (LINE/MIC/MIC+48V) switch
(page 43)

6. Grip attachment (page 24)

7. USB wireless LAN module connector

8. Recording indicator (page 92)

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 43)

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 66)

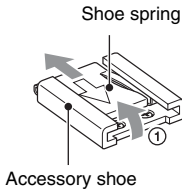
16. Multi-interface shoe

ni Multi
Interface Shoe

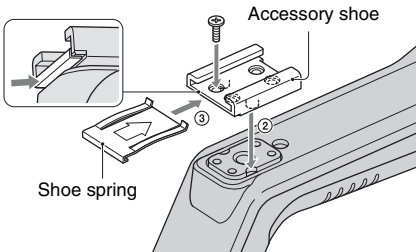
For details about accessories supported by the multi-interface shoe, contact your sales representative.

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.

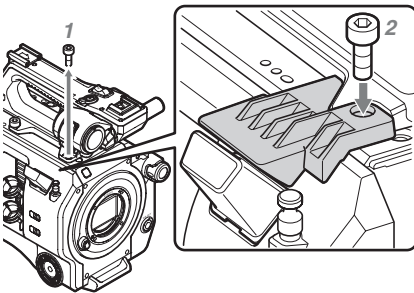


Removing the accessory shoe

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

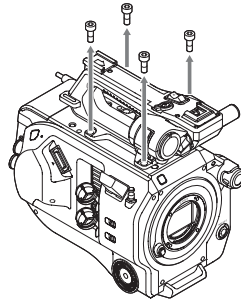
Attaching the USB wireless LAN module guard plate

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



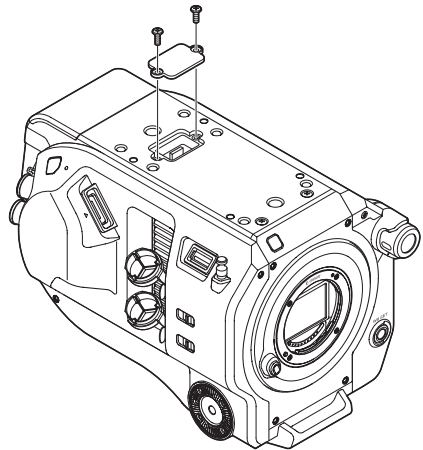
Removing the handle

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



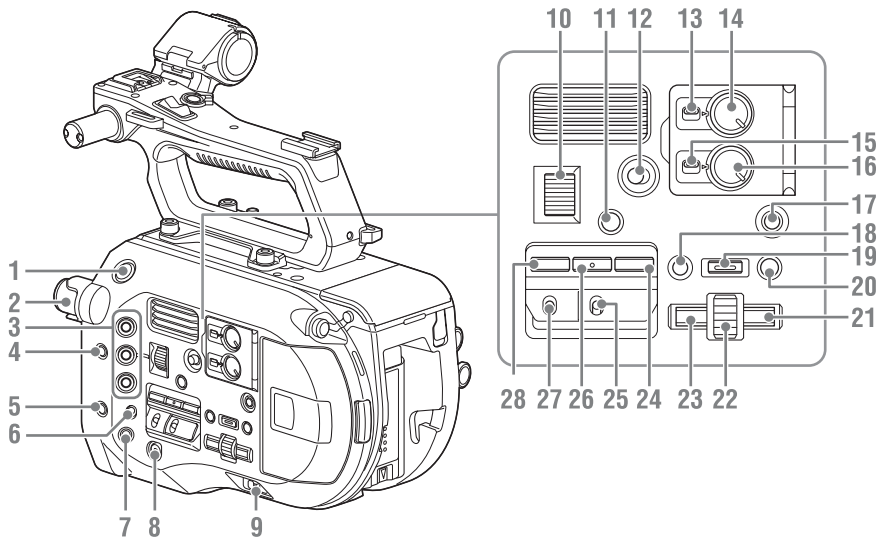
Attaching the handle connector protective cap (supplied)

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

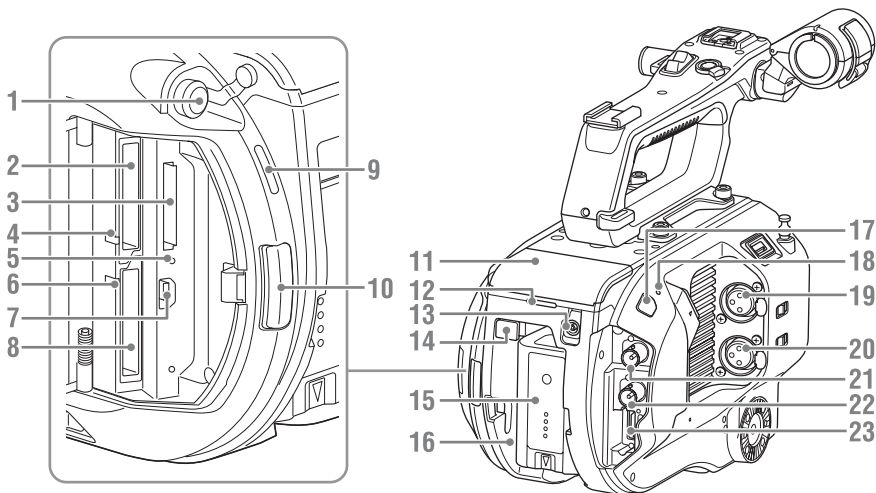


Protecting the connector terminals

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



- 1. Record START/STOP button**
- 2. ND FILTER dial** (page 42)
- 3. ASSIGN (assignable) 1 to 3 buttons** (page 45)
- 4. PUSH AUTO IRIS button** (page 41)
- 5. PUSH AUTO FOCUS button** (page 39)
- 6. FOCUS switch** (page 39)
- 7. DISPLAY button** (page 13)
- 8. FULL AUTO button** (page 37)
- 9. POWER switch** (page 18)
- 10. IRIS dial** (page 45)
- 11. STATUS CHECK button** (page 15)
- 12. HOLD switch** (page 92)
- 13. CH1 LEVEL CONTROL switch** (page 43)
- 14. CH1 INPUT LEVEL dial** (page 43)
- 15. CH2 LEVEL CONTROL switch** (page 43)
- 16. CH2 INPUT LEVEL dial** (page 43)
- 17. SLOT SELECT (XQD memory card select) button** (page 29)
- 18. CANCEL/BACK button** (page 56)
- 19. MENU button** (page 58)
- 20. THUMBNAIL button** (page 55)
- 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 42)
- 25. WHT BAL (white balance memory select) switch** (page 42)
- 26. WHT BAL (white balance) button** (page 42)
- 27. GAIN (gain select) switch** (page 41)
- 28. ISO/Gain button** (page 41)

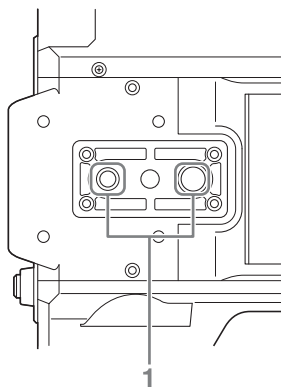


1. Headphone connector (page 40)
2. XQD card slot A (page 29)
3. UTILITY SD card slot (page 30)
4. XQD (A) access indicator (page 29)
5. SD card access indicator (page 30)
6. XQD (B) access indicator (page 29)
7. USB connector
Connect to a computer using a USB cable to access recording media in an XQD card slot on the camcorder.
8. XQD card slot B (page 29)
9. Built-in speaker (page 40)
10. Media cover release button (page 29)
11. Extension unit connector (page 31)
12. Rear recording indicator (page 37)
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 43)
Narration microphone for recording ambient sound.

19. INPUT1 (audio input 1) connector (page 43)
20. INPUT2 (audio input 2) connector (page 43)
21. SDI OUT 1 connector (page 96)
22. SDI OUT 2 connector (page 96)
23. HDMI OUT connector (page 96)

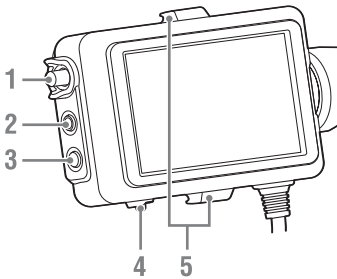
Underside



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

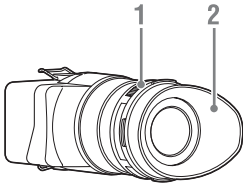
For details about attaching the viewfinder (supplied) and eyepiece, see *page 21*.



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*.



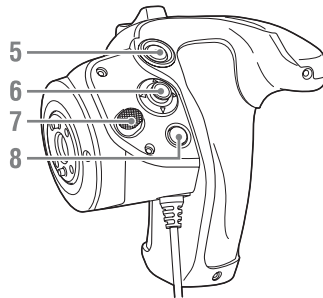
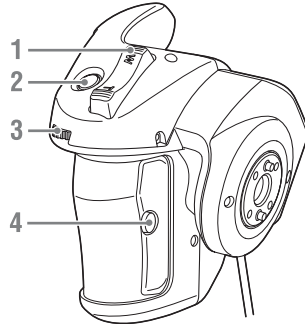
1. **Diopter adjustment knob**
2. **Eyecup**

Lens (PXW-FS7K only)

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

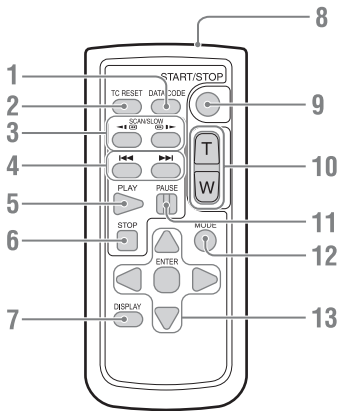
Grip Remote Control

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**

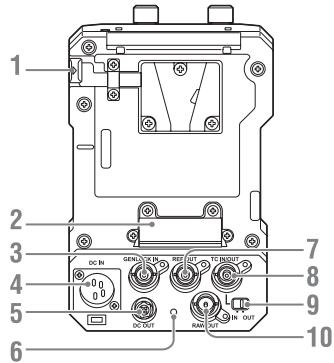
Infrared Remote Control



- 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 31*.



- 1. BATT RELEASE button**
- 2. Battery compartment**
- 3. GENLOCK IN**
- 4. DC IN**
- 5. DC OUT**
- 6. Recording indicator**
- 7. REF OUT**
- 8. TC IN/OUT**
- 9. TC IN/OUT switch**
- 10. RAW OUT**

Screen Display

Viewfinder Screen

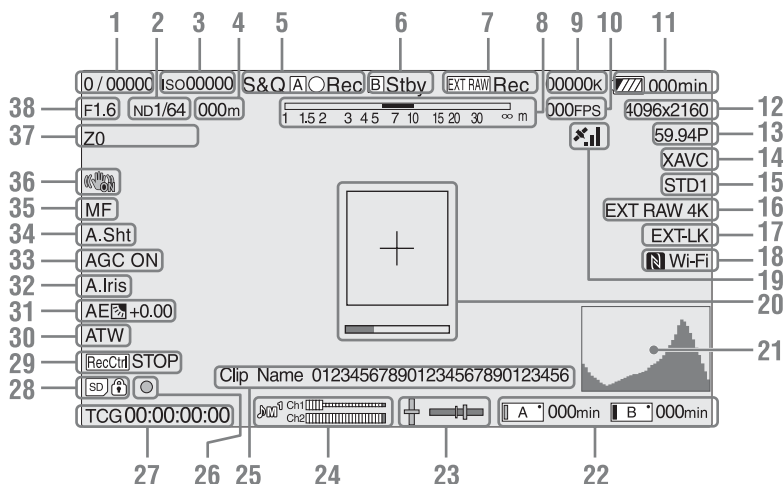
During shooting (recording/standby) and playback, the camcorder status and settings are superimposed on the image displayed in the viewfinder.

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

You can also select to show/hide each item independently (*page 78*).

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 42*)

2. ND filter indicator (*page 42*)

3. Gain indicator (*page 41*)

Displayed as an EI value when Base Setting (*page 88*) > 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

S&Q A ● Rec	Slow & Quick Motion, High Frame Rate mode recording
S&Q A / B Stby	Slow & Quick Motion, High Frame Rate mode standby
A / B ● Rec	Recording
A / B Stby	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 50)*

8. Depth-of-field indicator

9. Color temperature indicator *(page 42)*

10. S&Q Motion frame rate indicator *(page 83)*

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

12. Recording format (picture size) indicator *(page 89)*

Displays the picture size for recording on XQD memory cards.

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

14. Recording format (codec) indicator *(page 41)*

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

15. Gamma/monitor LUT indicator *(page 68, page 76)*


Displays the gamma setting. When Shooting Mode *(page 88)* 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 76)*

17. Timecode external lock indicator

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

18. Wi-Fi connection status indicator *(page 51)*

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 49)*

Displays the GPS status.

20. Focus assist indicator *(page 39)*

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 indicator *(page 16)*

Displays a waveform, vectorscope, and histogram.

22. Slot A/B media status/remaining capacity indicator *(page 30)*

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

25. Clip name indicator *(page 55)*

26. Focus indicator *(page 39)*

27. Time data indicator *(page 44)*

28. SD card indicator

29. SDI output control status indicator *(page 96)*

30. White balance mode indicator *(page 42)*

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

31. AE mode indicator *(page 41)*

32. Auto iris indicator *(page 41)*

33. AGC indicator *(page 41)*

34. Auto shutter indicator *(page 42)*

35. Focus mode indicator

36. Image stabilization mode indicator

37. Zoom position indicator

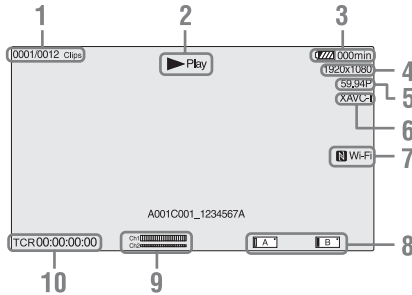
Displays the zoom position in the range 0 (wide angle) to 99 (telephoto) (if a lens that supports zoom setting display is attached).

38. 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 51)

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 indicator

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

Video Output Status screen

Displays the SDI, HDMI, and video output settings.

SDI1	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 Remaining	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).
--------------------	---

Note

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).
--------------------	---

Note

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 38*).

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 adaptor.

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

Lithium ion battery packs

BP-U30 (supplied)

BP-U60

BP-U60T

BP-U90

Battery chargers

BC-U1 (supplied)

BC-U2

AC adaptors (supplied)

MPA-AC1 (USA and Canada model only)

AC-NB12A (except USA and Canada model)

Caution

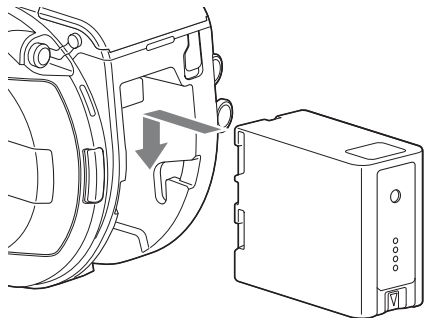
Do not store battery packs in locations exposed to direct sunlight, flame, or high temperature.

Notes

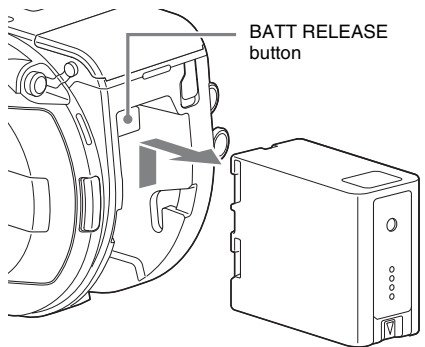
- The camcorder cannot be powered from the BC-U1/BC-U2 battery charger acting as an external power source.
- When operating from a power outlet, use the supplied AC adaptor.
- Always set the POWER switch to the Off position before connecting a battery or AC adaptor. If it is connected with the POWER 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 adaptor temporarily, then wait about 30 seconds before attempting to connect again. (If the AC adaptor 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-U1 or BC-U2 battery 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.

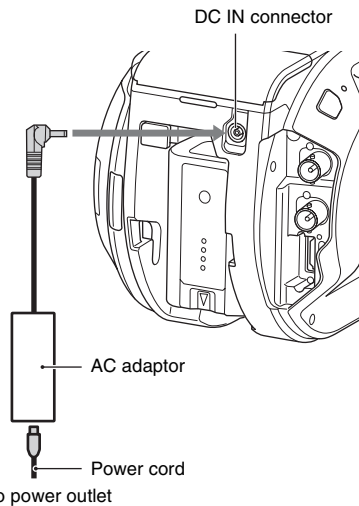
If the remaining battery charge falls below the level at which operation cannot continue (BATT Empty state), a battery-empty message appears. Replace with a charged battery pack.

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 94*) 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.



Connect the AC adaptor to the DC IN connector on the camcorder, and connect the power cord (supplied) to a power outlet.

If the output voltage from the AC adaptor becomes low

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

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

If this occurs, the AC adaptor may be faulty. Check the AC adaptor, 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 94*) in the System menu.

AC adaptors

- Do not connect and use an AC adaptor in a confined space, such as between a wall and furniture.
- Connect the AC adaptor 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 adaptor. Doing so will cause a malfunction.
- The battery cannot be charged while attached to the camcorder, even if the AC adaptor is connected.

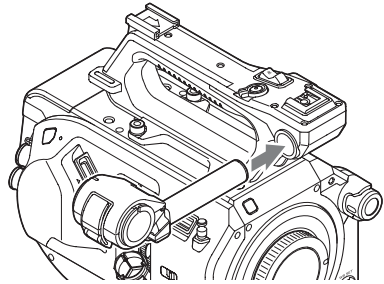
Attaching Devices

Attaching the Microphone Holder

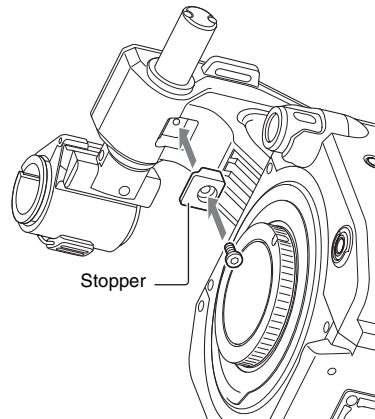
Notes

- 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

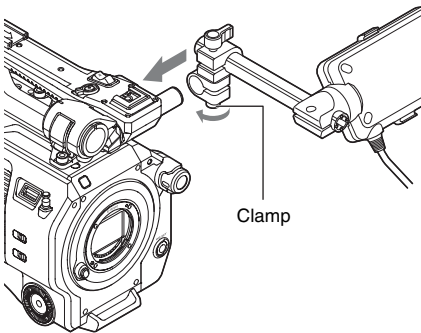
Remove the stopper, and use the reverse procedure of attaching the microphone holder.

Attaching the Viewfinder

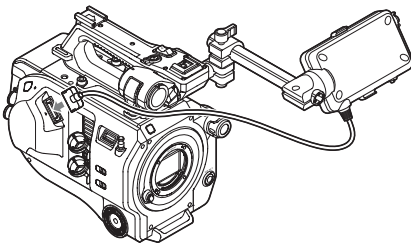
Note

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.**

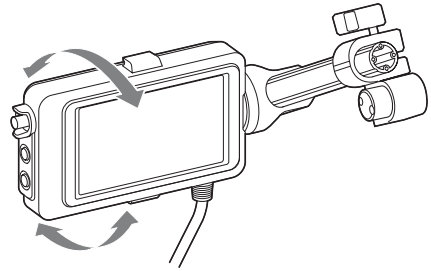


Note

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

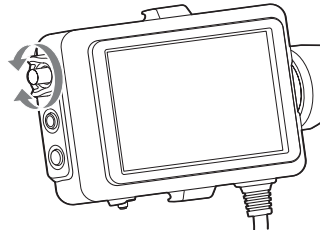
Tilt the viewfinder up/down to adjust the angle of the viewfinder.



You can adjust the angle so that the viewfinder is facing the subject. Setting the MIRROR switch (*page 48*) to the B/T 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 78*) in the VF menu.

Removing the viewfinder

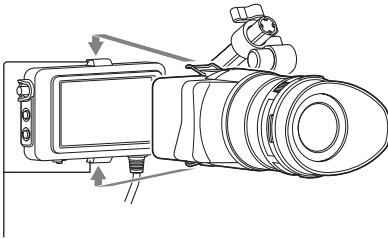
Loosen the viewfinder clamp, and use the reverse procedure of attaching the viewfinder.

Attaching the Eyepiece

Note

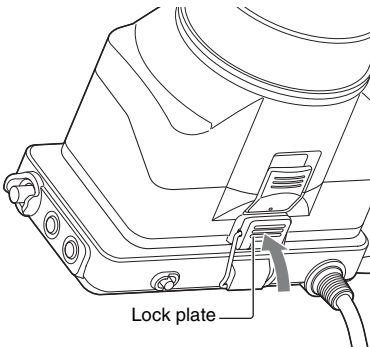
Attach/remove the eyepiece while the camcorder is turned off.

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



Eyepiece attachment hooks

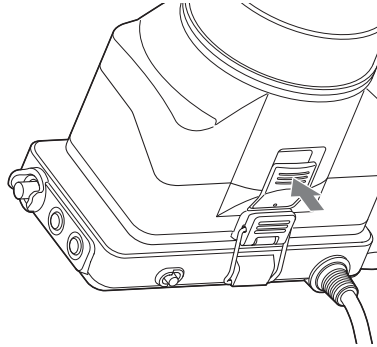
- 2 Push the lock plate on the bottom of the eyepiece in the direction of the arrow to lock the eyepiece into position.**



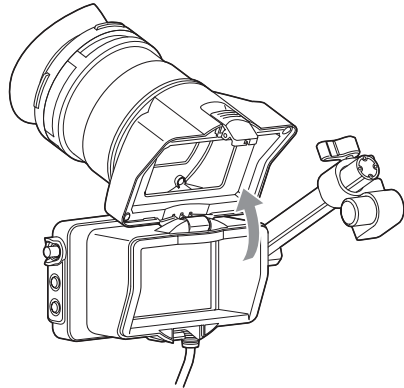
Lock plate

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

SELP28135G
SEL1635Z
SELP18200

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

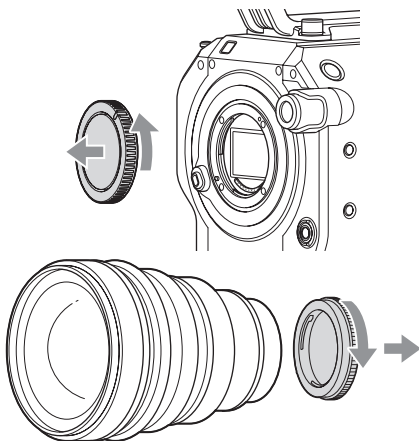
- Attach/remove a lens while the camcorder is turned off.
- A lens is a precision component. Do not place the lens on a surface with the lens mount face down. Attach the supplied lens mount cap.

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.

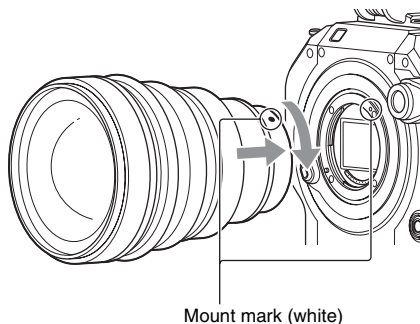
Attaching an E-mount lens

- 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 adaptor (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

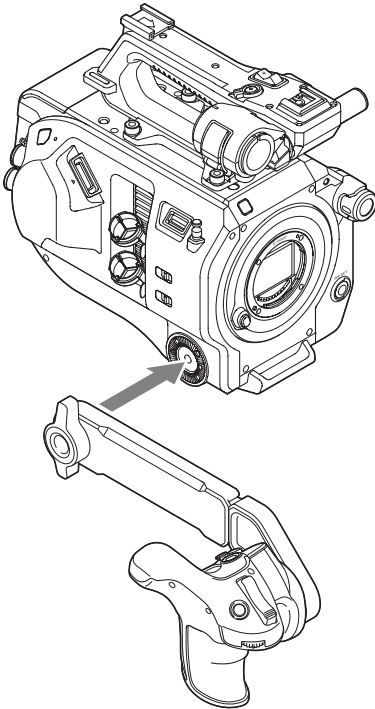
- When the lens focus switch is set to AF/MF or AF, the focus is adjusted automatically and can also be adjusted manually from the camcorder.
- When the lens focus switch is set to Full MF or MF, the focus can only be adjusted using the lens ring. Focus operation from the camcorder has no effect.

Attaching the Grip Remote Control

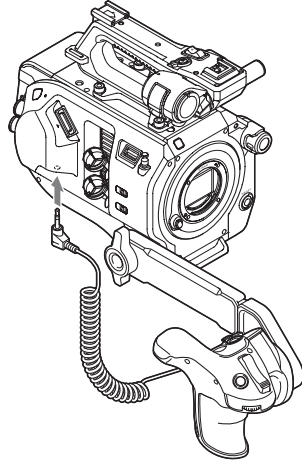
Note

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

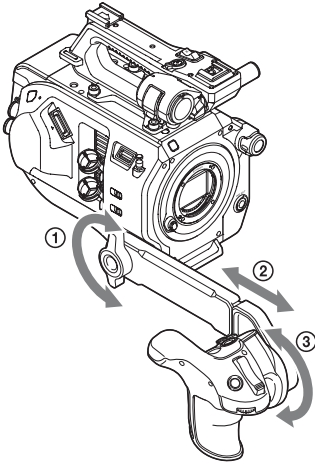
- Check that the arm and grip remote control are securely attached. They may fall off during shooting if the screws are loose.
- Do not support the weight of the camcorder by holding just the grip remote control.

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 93*) 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 100*).

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 88) >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-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 88) >Color Space in the System menu.

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

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 recommended media varies depending on the Rec Format and Recording settings.

Yes: Recommended media verified for normal operation

No: Normal operation not guaranteed

Format			XQD G	XQD N	Discontinued		
			XQD S (EB Stream)		XQD H XQD S (non EB Stream)		
			32/64/128 GB	32/64 GB	16/32/64 GB		
XAVC Intra 422	4096×2160P	–	59.94P	Yes	No	No	
			50P	Yes	No	No	
			29.97P	Yes	No	No	
			25P	Yes	No	No	
			23.98P	Yes	No	No	
	3840×2160	–	59.94P	Yes	No	No	
			50P	Yes	No	No	
			29.97P	Yes	No	No	
			25P	Yes	No	No	
			23.98P	Yes	No	No	
	1920×1080	Normal mode or S&Q (excluding HFR)	59.94P	Yes	No	No	
			59.94i	Yes	Yes	No	
			50P	Yes	No	No	
			50i	Yes	Yes	No	
			29.97P	Yes	Yes	No	
			25P	Yes	Yes	No	
			23.98P	Yes	Yes	No	
			S&Q (HFR mode)	59.94P	Yes	No	No
				50P	Yes	No	No
		29.97P		Yes	No	No	
		25P		Yes	No	No	
23.98P		Yes		No	No		

Format			XQD G		XQD N	Discontinued			
			XQD S			XQD H			
			(EB Stream)			XQD S			
							(non EB Stream)		
			32/64/128 GB	32/64 GB	16/32/64 GB				
XAVC-L	3840×2160	–	59.94P	Yes	Yes	No			
			50P	Yes	Yes	No			
			29.97P	Yes	Yes	No			
			25P	Yes	Yes	No			
			23.98P	Yes	Yes	No			
	1920×1080	Normal mode or S&Q (excluding HFR)	59.94P	Yes	Yes	Yes			
			50P	Yes	Yes	Yes			
			59.94i	Yes	Yes	Yes			
			50i	Yes	Yes	Yes			
			29.97P	Yes	Yes	Yes			
			25P	Yes	Yes	Yes			
			23.98P	Yes	Yes	Yes			
	1920×1080	S&Q (HFR mode)	59.94P	Yes	Yes	No			
			50P	Yes	Yes	No			
			29.97P	Yes	50 Mbps: No 30 Mbps: Yes	No			
			25P	Yes	50 Mbps: No 30 Mbps: Yes	No			
			23.98P	Yes	50 Mbps: No 30 Mbps: Yes	No			
	MPEG2 HD 422	1920×1080	–	59.94i	Yes	Yes	Yes		
				50i	Yes	Yes	Yes		
				29.97P	Yes	Yes	Yes		
25P				Yes	Yes	Yes			
23.98P				Yes	Yes	Yes			
1280×720		–	59.94P	Yes	Yes	Yes			
			50P	Yes	Yes	Yes			
			29.97P	Yes	Yes	Yes			
			25P	Yes	Yes	Yes			
			23.98P	Yes	Yes	Yes			
			ProRes 422 HQ	1920×1080	–	59.94i	Yes	No	No
						50i	Yes	No	No
						29.97P	Yes	No	No
						25P	Yes	No	No
23.98P	Yes	No				No			
ProRes 422	1920×1080	–	59.94i	Yes	Yes	No			
			50i	Yes	Yes	No			
			29.97P	Yes	Yes	No			
			25P	Yes	Yes	No			
			23.98P	Yes	Yes	No			

* 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 55) 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 85) >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 85) > 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

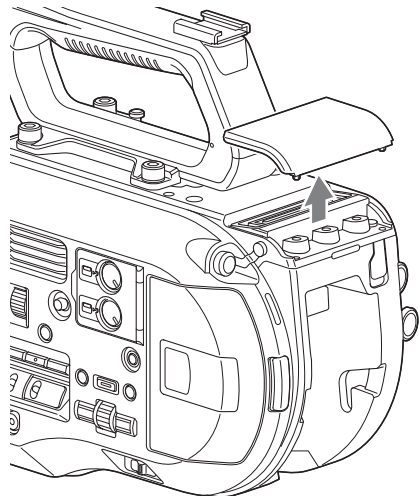
You can add functions to the camcorder, such as a V-shoe battery or external sync signal, by attaching an XDCA-FS7 Extension Unit (option) to the camcorder.

Attaching the XDCA-FS7

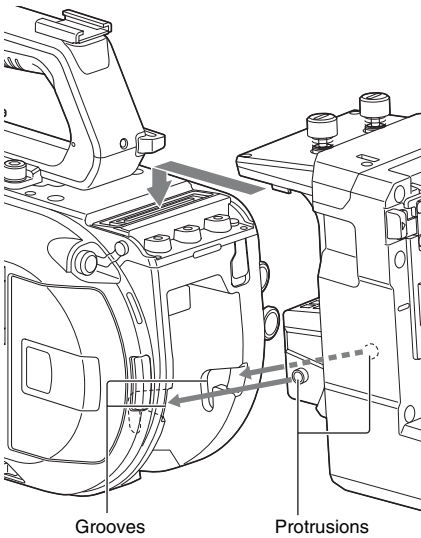
Notes

- 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.

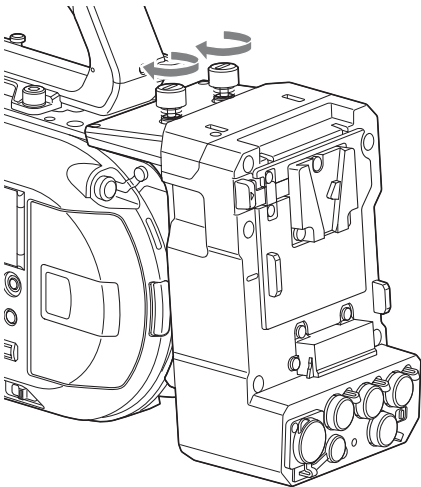
- 1 Remove the battery pack (page 18) attached to the camcorder.**
- 2 Remove the cover of the extension unit connector section.**



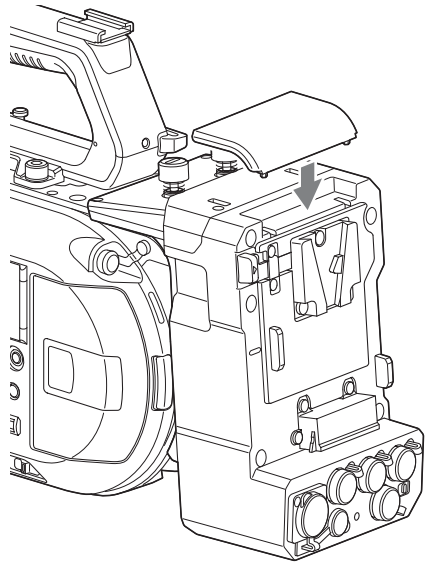
- 3** Align the protrusions of the XDCA-FS7 with the left and right grooves of the camcorder and slide all the way in, then slide the XDCA-FS7 down into the connector section.



- 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. The following Sony genuine battery packs are supported.

Lithium-ion battery packs

BP-L80S

BP-FL75

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 98.

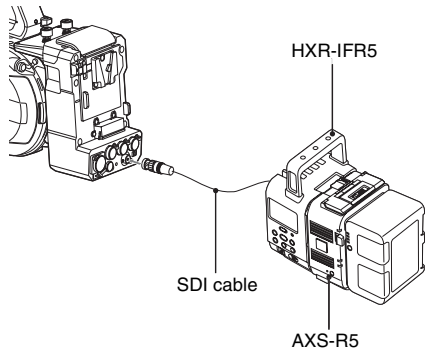
Using an HXR-IFR5 and AXS-R5

You can record RAW video (*page 50*) 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 31*).
- 2** Connect the RAW OUT connector of the XDCA-FS7 to the SDI IN (RAW) connector of the HXR-IFR5 using an SDI cable.



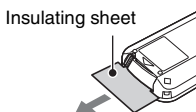
Removing the HXR-IFR5

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 94*) in the System menu to On.

Notes

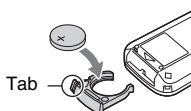
- Point the remote control at the remote control receiver sensor on the camcorder.
- Set up the camcorder so that the remote control receiver sensor is not exposed to direct sunlight or strong light from other sources. Strong light can prevent proper remote control operation.
- Other video decks may 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

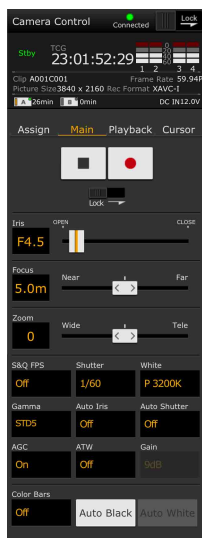
Replacing the battery with a non-specified battery may cause device failure. Always replace with the specified battery. Dispose of used batteries in accordance with federal and local laws.

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 54).

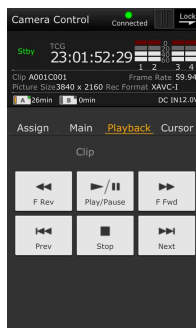
Wi-Fi Remote screen (smartphone)

Main screen



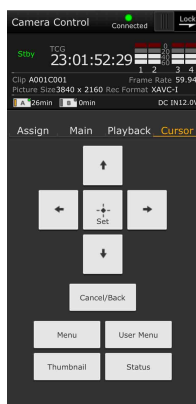
- Shooting settings
S&Q FPS, Shutter, White, Sensitivity/Gain/Exposure Index, Gamma, MLUT, Color Bars, Auto Black, Auto White, Rec Start/Stop, Lock, Iris, Focus, Zoom, Auto Iris, Auto Shutter, AGC, ATW

Playback screen



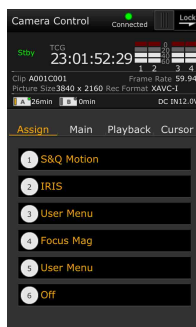
- Status display
- Playback buttons
Play/Pause, Stop, F Fwd, F Rev, Next, Prev

Cursor screen



- Status display
- Cursor buttons
Up, Down, Left, Right, Set, Cancel/Back, Menu, Status, Thumbnail, User Menu

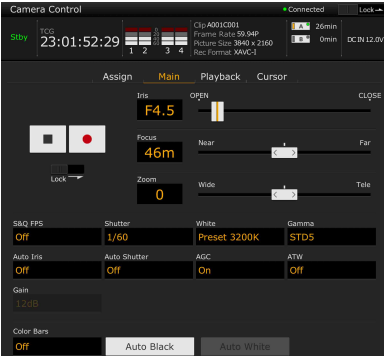
Assign screen



- Status display
- Assignable buttons
Assignable buttons 1 to 6

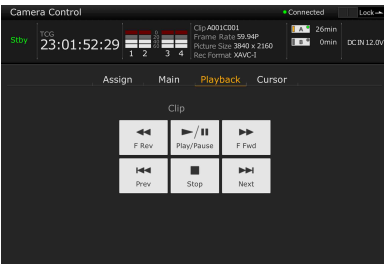
Wi-Fi Remote screen (tablet)

Main screen



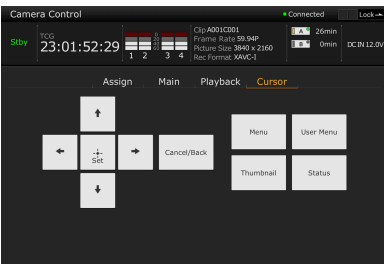
- Shooting settings
S&Q FPS, Shutter, White, Sensitivity/Gain/Exposure Index, Gamma, MLUT, Color Bars, Auto Black, Auto White, Rec Start/Stop, Lock, Iris, Focus, Zoom, Auto Iris, Auto Shutter, AGC, ATW

Playback screen



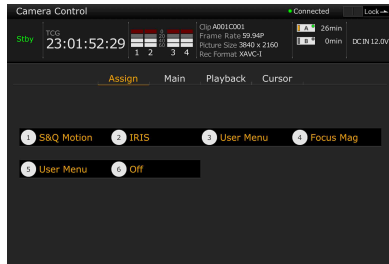
- Status display
- Playback buttons
Play/Pause, Stop, F Fwd, F Rev, Next, Prev

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

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 Content Browser 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 83) or Picture Cache recording mode (page 83).

Also, simultaneous recording is not supported for the following recording formats (page 89).

NTSC Area

XAVC-I

4096×2160 59.94P, 4096×2160 29.97P,
4096×2160 23.98P, 3840×2160 59.94P,
3840×2160 29.97P, 3840×2160 23.98P,
1920×1080 59.94P

XAVC-L

3840×2160 59.94P, 3840×2160 29.97P,
3840×2160 23.98P

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

4096×2160 59.94P, 4096×2160 29.97P,
4096×2160 23.98P, 2048×1080 59.94P,
2048×1080 29.97P, 2048×1080 23.98P

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

4096×2160 59.94P, 2048×1080 59.94P

ProRes 422 HQ, ProRes 422 (with XDCA-FS7 connected)

1920×1080 59.94i, 1920×1080 29.97P,
1920×1080 23.98P

PAL Area

XAVC-I

4096×2160 50P, 4096×2160 25P, 3840×2160 50P,
3840×2160 25P, 1920×1080 50P

XAVC-L

3840×2160 50P, 3840×2160 25P

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

4096×2160 50P, 4096×2160 25P,
2048×1080 50P, 2048×1080 25P

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

4096×2160 50P, 2048×1080 50P

ProRes 422 HQ, ProRes 422 (with XDCA-FS7 connected)

1920×1080 50i, 1920×1080 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*).

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.

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.

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 45*).

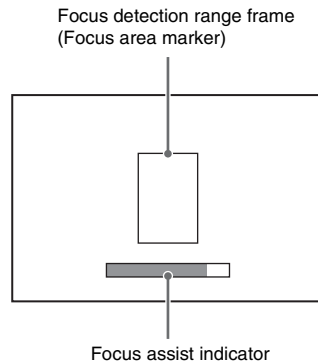
Press the ASSIGN4 button.

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.

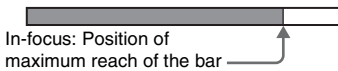
Notes

- 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.

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.



Note

The focus indicator may show little or no variation when you are shooting subjects with little surface variation or dark scenes.

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 56*) 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 75*) in the Audio menu.

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.

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 37) 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 64) >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 45) 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 45).

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 64) >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 64) > 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 65) 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 67) > 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 45), 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 37) 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 64) >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 41).

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 adaptor, specify Shoe 1 or Shoe 2 in the same way. For details about the XLR adaptor, see “Adding Audio Input Connectors” (page 51).

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)	LINE
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 73*).

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 45*) 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 73*).

Notes

- When the following settings are configured for Audio Input in the Audio menu, Audio Input Level will be disabled as there is no target for the audio input level. In addition, adjustment of the audio recording level will not be possible using the assignable dial to which Audio Input Level is assigned.
 - When CH1 Level and CH2 Level are both set to “Side”
 - When CH3 Input Select is set to “Off,” or CH3 Level is set to “CH3 Input Level”
 - When CH4 Input Select is set to “Off,” or CH4 Level is set to “CH4 Input Level”
- If Audio Input > CH1 Level or CH2 Level in the Audio menu is set to “Level + Side,” the adjustment value is the product of the Audio Input Level setting and the level set by the INPUT LEVEL dial. If either level is set to the minimum value, the audio is muted. If both levels are set to the maximum value, the maximum level is selected. Similarly for CH3/CH4, if CH3 Level or CH4 Level is set to “Level+CH3 Input Level” or “Level+CH4 Input Level,” the audio recording level adjustment will be as above.
- 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 73*).

Specifying Time Data

Setting the timecode

Set the timecode to record using Timecode (*page 82*) 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 82*) > Display Select in the TC/UB menu. Pressing an assignable button (*page 45*) 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 90*) 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
- 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 92*) 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 88*) 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 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

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	Not supported (59.94P, 29.97P, 23.98P)
	1080	1 to 60 fps	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	Not supported (59.94P, 29.97P, 23.98P)
	1080	1 to 60 fps	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	Not supported (59P, 25P)
	1080	1 to 60 fps	72/75/80/90/96/ 100/110/120/ 125/135/144/ 150 fps (59P, 25P)
XAVC-L	2160	1 to 60 fps	Not supported (59P, 25P)
	1080	1 to 60 fps	72/75/80/90/96/ 100/110/120 fps (50P 50, 50P 35, 25P 50, 25P 35)

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 83*) in the Recording menu.

Supported recording formats

Recording format	Resolution	Cache time [sec.]
RAW	4096×2160 2048×1080	Not supported
XAVC *1	3840×2160	0 to 2
	1920×1080	0 to 2/2 to 4/4 to 6/6 to 8
MPEG-2	1920×1080	0 to 2/2 to 4/4 to 6/6 to 8/ 8 to 10/13 to 15
ProRes422	1920×1080	Not supported

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

Notes

- Picture Cache Rec cannot be on at the same time as Frame Rec, 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 82*).
- Zebra and Peaking cannot be used when Picture Cache Rec is on.

Configuring before shooting

Configure Picture Cache Rec (*page 83*) in the Recording menu before shooting. You can also assign the Picture Cache Rec function to an assignable button (*page 45*) and switch Picture Cache Rec 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 45*) 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

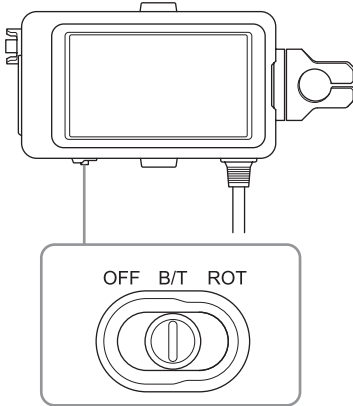
Press the assignable button with Rec Review assigned.

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.



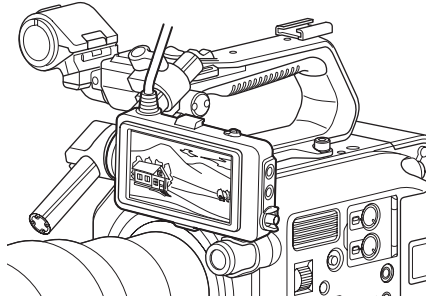
OFF

The image is not inverted.



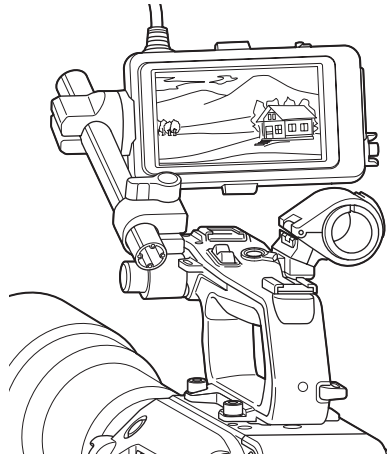
B/T

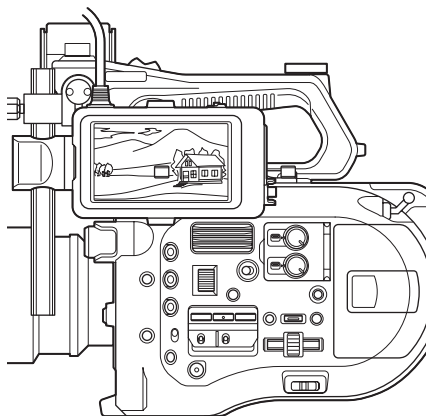
The image is flipped vertically.
The information display is flipped vertically and horizontally.



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 78) in the VF menu.

Note

Cannot be used when Picture Cache Rec mode is on.

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 78) in the VF menu.

Note

Cannot be used when Picture Cache Rec mode is on.






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
 - Noise Suppression
 - Paint menu settings
 - Scene File
 - Lens File

Functions available in Cine EI mode only

- Exposure Index
- Monitor LUT
- 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 33*).

- 1 Set up the external RAW recorder unit** (*page 33*).
- 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 Rec Format in the System menu to RAW Output Format.**

- 5 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 &	4096×2160 59.94P
XAVC-I / RAW	4096×2160 29.97P
& XAVC-L / RAW	4096×2160 23.98P
& MPEG HD422	2048×1080 59.94P
	2048×1080 29.97P
	2048×1080 23.98P

PAL Area

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

Recording status indicator

If Display On/Off (*page 80*) > 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).

Note

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.

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 adaptor (not supplied).

Attach the XLR adaptor 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 adaptor is selected as the input. Use the switches and dials on the XLR adaptor 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 adaptor. Audio Input Level is also enabled when the XLR adaptor switch is set to AUTO. When “Through” is specified, audio will be recorded at the level adjusted with the XLR adaptor.
- You can also assign to CH1 and CH2 by attaching an XLR adaptor 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 adaptor 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 Adaptor (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 4.3	Chrome
	iOS7	Safari
Tablet	Android 4.3	Chrome
	iOS7	Safari
Computer	Microsoft Windows 7/	Chrome
	Microsoft Windows 8.1	
	Mac OS 10.8/10.9	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 93) in the System menu to “Enable” to enable wireless LAN.

Note

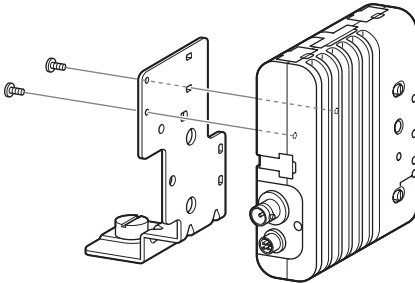
Attach/remove the IFU-WLM3 while the camcorder is turned off.

Attaching the CBK-WA100

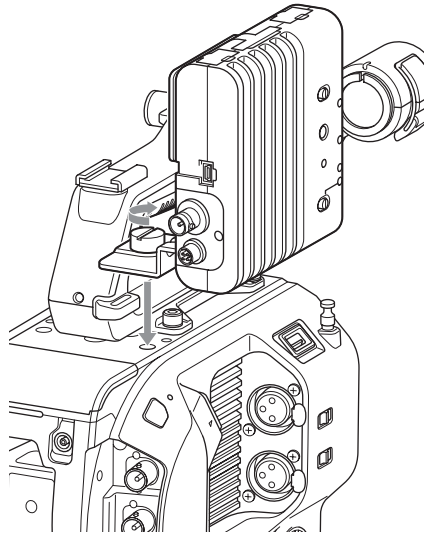
Note

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

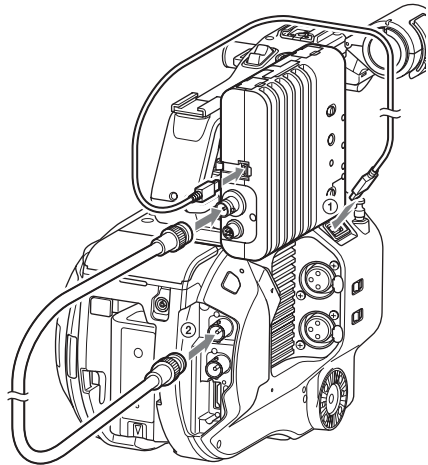
- 1 Attach the CBK-WA100 to the mounting bracket, and tighten the two screws.**



- 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 93) 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 ProRes 23.98P (page 76).


About the CBK-WA100

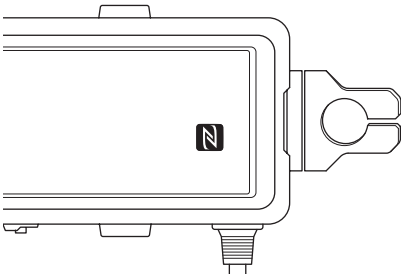
The CBK-WA100 has functions for recording low-resolution proxy files on an SD card, and for transferring the files to a server via a wireless LAN. For details, refer to the operation manual for the CBK-WA100.

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 52), and set Wi-Fi >Wi-Fi (page 93) in the System menu to “Enable” to enable wireless LAN.

 appears on the screen.

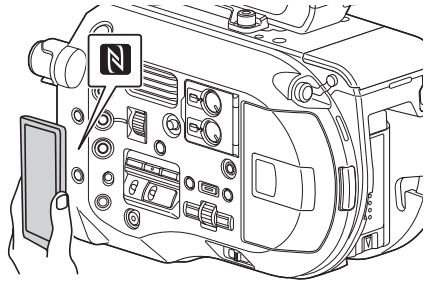


2 Open “Settings” on the device, select “More,” and place a check mark in the NFC checkbox.


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

- Some devices with a  mark support NFC. For details, refer to the operation manual for the device.
- 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 53).**
- 2 Launch a browser on the device and enter “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

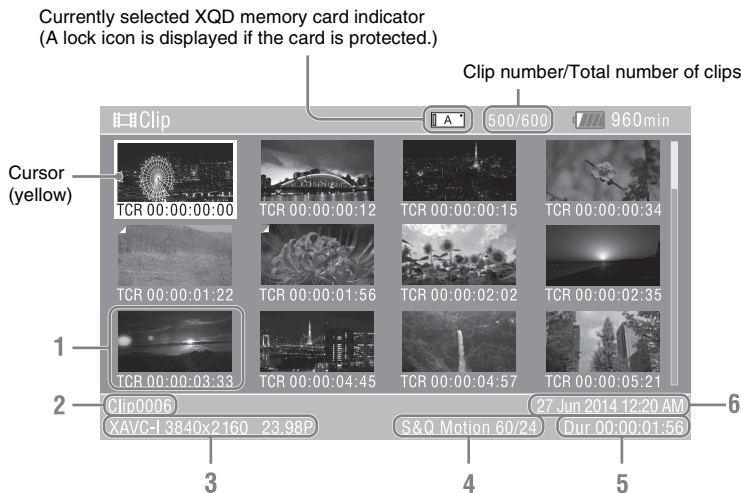
The thumbnail screen appears if you press the THUMBNAIL button (*page 9*). The thumbnail screen displays the clips stored on XQD memory cards as thumbnails (index pictures). You can select a clip on the thumbnail screen and start playback of that clip. The playback image can be displayed in the viewfinder 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 84)* >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 84*) 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 84*).

Displaying clip properties

Select Display Clip Properties (*page 84*) in the Thumbnail menu to display the clip properties screen.

Displaying the essence mark thumbnail screen

Select Thumbnail View (*page 84*) >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 84*) 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.

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.

Edit User 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

Video	Output On/Off
	Output Format
	Output Setting
	Monitor LUT
VF	Output Display
	VF Setting
	Peaking
	Zebra
TC/UB	Marker
	Display On/Off
	Timecode
	TC Display
Recording	Users Bit
	HDMI TC Out
	S&Q Motion
	Picture Cache Rec
Thumbnail	Simul Rec
	SDI/HDMI Rec Control
	Display Clip Properties
	Set Index Picture
	Thumbnail View
	Set Shot Mark
	Set Clip Flag
	Lock/Unlock Clip
Delete Clip	
Media	Filter Clips
	Customize View
	Update Media
File	Format Media
	Clip
	All File
	Scene File
	User Menu Item
	User Gamma
	Monitor LUT
Monitor 3D LUT	
Lens File	

System	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

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) and SEL/SET dial (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 39).

Setting menu items

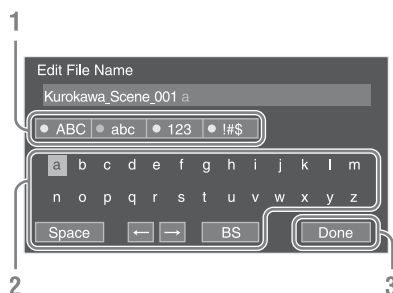
Turn the SEL/SET dial to move the cursor to the menu item to set, then press the SET/SEL dial to select the item.

- 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: (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
Country Region settings	See Country in the System menu.	
Base Setting Base settings	See Base Setting in the System menu.	
Rec Format Recording format settings	See Rec Format in the System menu.	
Codec Codec settings	See Codec in the System menu.	
S&Q Motion Slow & Quick Motion mode settings	See S&Q Motion in the Recording menu.	
Picture Cache Rec Picture cache recording mode settings	See Picture Cache Rec in the Recording menu.	
Simul Rec Simultaneous recording settings	See Simul Rec in the Recording menu.	
Output Format Output format settings	See Output Format in the Video menu.	
Monitor LUT Monitor LUT settings	See Monitor LUT in the Video menu.	
Clip Settings related to clip names	See Clip in the Media menu.	
VF Setting Viewfinder settings	See VF Setting in the VF menu.	
Assignable Button Settings for assigning functions to assignable buttons	See Assignable Button in the System menu.	
Assignable Dial Settings for assigning functions to assignable dials	See Assignable Dial in the System menu.	
Format Media Format (initializes) memory cards	See Format Media in the Media menu.	
Edit User Menu Edit the User menu items		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 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
Add Item		Adds a menu item to the User menu.
Add an item to the User menu		
Customize Reset		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
ISO/Gain/EI	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 2000 / ISO 2500 / ISO 3200 /
	ISO 1250 / ISO 1600 /	ISO 4000 / ISO 5000 / ISO 6400 /
	ISO 2000 / ISO 2500 /	ISO 8000 / ISO 10000 / ISO 12500 /
	ISO 3200 / ISO 4000 /	ISO 16000
	ISO 5000 / ISO 6400	When Mode is set to dB.
	When Mode is set to ISO and dynamic range is 800%.	-3dB / 0dB / 3dB / 6dB /
	ISO 1600 / ISO 2000 /	9dB / 12dB / 18dB
ISO 2500 / ISO 3200 /		
ISO 4000 / ISO 5000 /	The dynamic range is determined by the gamma.	
ISO 6400 / ISO 8000 /		
ISO 10000 / ISO 12500		

Gamma	Dynamic range
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 3200EI / 6.7E 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
Auto Exposure Automatic exposure adjustment settings	Level	Sets the brightness level for the automatically detected exposure.
		-2.0 / -1.75 / -1.5 / -1.25 / -1.0 / -0.75 / -0.5 / -0.25 / 0 / +0.25 / +0.5 / +0.75 / +1.0 / +1.25 / +1.5 / +1.75 / +2.0
	Mode	Sets the control mode.
	Backlight / Standard / Spotlight	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	Sets the adjustment speed.
		-99 to +99 (±0)
	AGC	Turns the AGC (auto gain control) function on/off.
	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 / 15dB / 18dB ISO2000 / ISO3200 / ISO4000 / ISO6400 / ISO8000 / 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 / ISO2500 / ISO4000 / ISO5000 / ISO8000 / ISO10000 / ISO16000	
Auto Shutter	Turns the auto shutter control function on/off.	
On / Off		
A.SHT Limit	Sets the fastest shutter speed of the auto shutter function.	
	1/100 / 1/150 / 1/200 / 1/250 / 1/2000	
Clip High light	Turns the function that ignores brightest areas to provide a flatter reaction to high luminance on/off.	
On / Off		
Detect Window	Sets the light meter range for automatically adjusting the exposure according to the brightness of the subject. (Not available when adjusting exposure manually)	
	1 / 2 / 3 / 4 / 5 / 6	
Detect Window Indication	Turns the Detect Window function on/off.	
On / Off		
Focus Focus settings	AF Assist On / Off	When set to On, allows you to temporarily override auto focus and set focus manually.

Camera		
Item	Sub-item setting	Description
Shutter Electronic shutter operating condition settings	Mode	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 in the viewfinder.
	Speed / Angle / ECS / Off	
	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, 1/60 , 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, 1/50 , 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 , 1/60, 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 , 1/50, 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 23.98P: 1/3, 1/6, 1/12, 1/24, 1/40, 1/48 , 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
	Shutter Angle 5.625° / 11.25° / 22.5° / 45° / 90° / 120° / 144° / 150° / 172.8° / 180° / 216° / 300°	Sets the shutter angle when Mode is set to Angle.
	ECS Frequency 23.99 to 8000 (60)	Sets the ECS frequency when Mode is set to ECS. The available settings vary depending on the frame frequency of the selected video format.
Color Bars Color bar settings	Setting On / Off	Turns the color bars on/off. Note Cannot be set to On when configured to record RAW video.
	Type ARIB / SMPTE / 75% / 100%	Selects the color bar type.
Noise Suppression Noise suppression settings	Setting On / Off	Turns the noise suppression function on/off. (Enabled when Base Setting >Shooting Mode in the System menu is set to Custom)
	Level Low / Mid / High	Sets the noise suppression level.

Camera		
Item	Sub-item setting	Description
Flicker Reduce Flicker correction settings	Mode Auto / On / Off	Sets the flicker correction mode.
	Frequency 50Hz / 60Hz	Sets the frequency of the power source supplying the lighting that is causing the flicker.
SteadyShot Image stabilization settings	Setting Active SteadyShot / SteadyShot / Off	Turns the image stabilization function on/off. Note Enabled when a compatible lens is attached.
	Handle Zoom Handle zoom settings	Zoom Speed Type Fix / Variable / Off Note Disabled when the handle is not attached.
	Zoom Speed 1 to 8 (3)	Sets the speed of the handle zoom. (Enabled when Zoom Speed Type is set to Fix) Note Disabled when the handle is not attached.
	Auto Black Balance Auto black balance settings	Auto Black Balance Execute / Cancel Notes • Run the auto black balance function with the lens cap attached. • Cannot be run during recording or color bar display. • Cannot be run when in Interval Rec mode, Frame Rec mode, Slow & Quick Motion mode, or Slow Shutter mode.
AF Micro Adjustment Focus position micro adjustment (Enabled when LA-EA2/4 (option) is used)	Setting On / Off	Turns the auto focus micro adjustment function on/off.
	Amount -20 to 0 to +20	Sets the auto focus micro adjustment level. Use the following procedure to adjust A-mount lenses. 1 Attach the lens you want to adjust using an LA-EA2/4 (option). 2 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.
Video Light Set Video light settings (when using HVL-LBPC (option))	Video Light Set Power Link / 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
White White balance settings	Preset White 2100K to 10000K (3200K)	Sets the white balance preset value.
	Color Temp<A> 1500K to 50000K (3200K)	Displays the white balance color temperature saved in memory A.
	Color Temp. Balance<A> -99 to +99 (±0)	Sets the white balance gain value saved in memory A (linked to R gain and B gain).
	R Gain<A> -99 to +99 (±0)	Sets the white balance R gain value saved in memory A.
	B Gain<A> -99 to +99 (±0)	Sets the white balance B gain value saved in memory A.
	Color Temp 1500K to 50000K (3200K)	Displays the white balance color temperature saved in memory B.
	Color Temp. Balance -99 to +99 (±0)	Sets the white balance gain values saved in memory B (linked R gain and B gain).
	R Gain -99 to +99 (±0)	Sets the white balance R gain value saved in memory B.
	B Gain -99 to +99 (±0)	Sets the white balance B gain value saved in memory B.
	Filter White Memory On / Off	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 Off / 1 / 2 / 3	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 Memory / ATW	Selects the white balance adjustment mode that is selected when the WHT BAL switch is set to B.
	ATW Speed 1 / 2 / 3 / 4 / 5	Sets the response speed in ATW mode. 1: Fastest response speed

Paint		
Item	Sub-item setting	Description
Offset White White balance offset settings	Offset White<A> On / Off	Selects whether to add (On) or not to add (Off) an offset value to the white balance in memory A.
	Warm Cool <A> -99 to +99 (±0)	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 (±0)	Sets a more precise color temperature, for use when a satisfactory image cannot be obtained using Warm Cool <A>.
	Offset White On / Off	Selects whether to add (On) or not to add (Off) an offset value to the white balance in memory B.
	Warm Cool -99 to +99 (±0)	Sets the offset added to the white balance in memory B as a color temperature when Offset White is set to "On."
	Warm Cool Balance -99 to +99 (±0)	Sets a more precise color temperature, for use when a satisfactory image cannot be obtained using Warm Cool .
	Offset White<ATW> On / Off	Selects whether to add (On) or not to add (Off) an offset value to the ATW white balance.
	Warm Cool <ATW> -99 to +99 (±0)	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 (±0)	Sets a more precise color temperature, for use when a satisfactory image cannot be obtained using Warm Cool <ATW>.
Black Black settings	Setting On / Off	Turns black correction on/off.
	Master Black -99 to +99 (±0)	Sets the master black level. Note 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 (±0)	Sets the R black level.
	B Black -99 to +99 (±0)	Sets the B black level.
	Gamma Gamma correction settings	Setting On / Off
Step Gamma 0.35 to 0.45 to 0.90	Sets a gamma correction value in 0.05 steps.	
Master Gamma -99 to +99 (±0)	Sets the master gamma level.	
R Gamma -99 to +99 (±0)	Sets the R gamma level.	
G Gamma -99 to +99 (±0)	Sets the G gamma level.	
Gamma Category STD / HG / User / S-Log2 / S-Log3	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 / STD5 R709 / 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.
Black Gamma	Setting On / Off	Turns the black gamma correction function on/off. (Enabled when Gamma >Gamma Category is set to STD)
		Note The Black Gamma and Knee >Knee Saturation functions cannot be used at the same time.
	Range Low / Mid / High	Selects the effective range of the black gamma correction.
	Master Black Gamma -99 to +99 (±0)	Sets the master black gamma level.
Knee	Setting On / Off	Turns the knee correction function on/off. (Enabled when Gamma >Gamma Category is set to STD)
	Auto Knee On / Off	Turns the auto knee correction function on/off.
	Point 75% to 109% (90%)	Sets the knee point.
	Slope -99 to +99 (±0)	Sets the knee slope.
	Knee Saturation On / Off	Enables/disables knee saturation adjustment (adjusts coloring above the knee point).
		Note The Black Gamma and Knee >Knee Saturation functions cannot be used at the same time.
	Knee Saturation Level -99 to +99 (±0)	Sets the level for adjusting the coloring above the knee point (knee saturation).

Paint		
Item	Sub-item setting	Description
White Clip White clip adjustment settings	Setting On / Off	Turns the white clip adjustment function on/off.
	Level When Country is not set to PAL Area. 90.0% to 109.0% (108.0%) When Country is set to PAL Area. 90.0% to 109.0% (105.0%)	<div style="background-color: #cccccc; padding: 2px;">Note</div> Cannot be set when Gamma > Gamma Category is set to S-Log2 or S-Log3. Sets the white clip level.
Detail Detail adjustment settings	Setting On / Off	Turns the detail adjustment function on/off.
	Level -99 to +99 (±0)	Sets the detail level.
	H/V Ratio -99 to +99 (±0)	Sets the mix ratio between the H detail level and the V detail level.
	Crispensing -99 to +99 (±0)	Sets the crispensing level.
	Level Depend On / Off	Turns the level dependence adjustment function on/off.
	Level Depend Level -99 to +99 (±0)	Sets the level dependence level.
	Frequency -99 to +99 (±0)	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.
	Knee Aperture On / Off	Turns the knee aperture correction function on/off.
	Knee Aperture Level -99 to +99 (±0)	Sets the knee aperture level.
	Limit -99 to +99 (±0)	Sets the detail limiter for both the white-side and black-side directions.
	White Limit -99 to +99 (±0)	Sets the white-side detail limiter.
	Black Limit -99 to +99 (±0)	Sets the black-side detail limiter.
	V Black Limit -99 to +99 (±0)	Sets the black-side V detail limiter.
	V Detail Creation NAM / Y / G / G+R	Sets the signal source for creating the V detail to NAM (G or R, whichever is higher), Y, G, or G+R.

Paint		
Item	Sub-item setting	Description
Skin Detail Skin detail correction settings	Setting On / Off	Turns the skin detail correction function on/off.
	Area Detection Execute / Cancel	Detects the color used for skin detail correction. Execute: Run detection
	Area Indication On / Off	Turns the function that displays zebra in areas of the color used for skin detail correction on/off.
	Level -99 to +99 (±0)	Sets the skin detail level.
	Saturation -99 to +99 (±0)	Sets the saturation of the color targeted for skin detail correction.
	Hue 0 to 359	Sets the hue of the color targeted for skin detail correction.
	Width 0 to 90 (40)	Sets the range for the hue of the color targeted for skin detail correction.
	Aperture Aperture correction settings	Setting On / Off
Level -99 to +99 (±0)		Sets the aperture correction level.

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

Audio Menu

Audio		
Item	Sub-item setting	Description
Audio Input Audio input settings	CH1 Input Select INPUT1 / Internal MIC / Shoe 1	Switches the input source for recording on channel 1.
	CH2 Input Select INPUT1 / INPUT2 / Internal MIC / Shoe 2	Switches the input source for recording on channel 2.
	CH3 Input Select Off / Internal MIC / Shoe 1	Switches the input source for recording on channel 3.
	CH4 Input Select Off / Internal MIC / Shoe 2	Switches the input source for recording on channel 4.
	INPUT1 MIC Reference -60dB / -50dB / -40dB	Sets the reference recording level for XLR microphone input from INPUT1.
	INPUT2 MIC Reference -60dB / -50dB / -40dB	Sets the reference recording level for XLR microphone input from INPUT2.
	CH1 Wind Filter On / Off	Enables/disables the wind reduction filter for channel 1 recording.
	CH2 Wind Filter On / Off	Enables/disables the wind reduction filter for channel 2 recording.
	CH3 Wind Filter On / Off	Enables/disables the wind reduction filter for channel 3 recording.
	CH4 Wind Filter On / Off	Enables/disables the wind reduction filter for channel 4 recording.
	CH3 Level Control Auto / Manual	Selects automatic audio input level adjustment or manual adjustment 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.
	CH4 Level Control Auto / Manual	Selects automatic audio input level adjustment or manual adjustment for recording channel 4.
		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.
CH3 Input Level 0 to 99 (49)	Sets the audio input level for recording channel 3.	
	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. Note 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.
	Limiter Mode Off / -6dB / -9dB / -12dB / -15dB / -17dB	Selects the limiter characteristic for large input signals when adjusting the audio input level manually.
	CH1&2 AGC Mode Mono / Stereo	Sets the auto level adjustment mode for recording channel 1 and channel 2.
	CH3&4 AGC Mode Mono / Stereo	Sets the auto level adjustment mode for recording channel 3 and channel 4.
	AGC Spec -6dB / -9dB / -12dB / -15dB / -17dB	Selects the AGC characteristic.
	1kHz Tone on Color Bars On / Off	Turns the 1 kHz reference tone signal on/off when displaying color bars. Note 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 adaptor Audio Input Level / Side / Level+Side Input with XLR adaptor (page 51) Audio Input Level / Through	Sets the combination of audio input level adjustments enabled for recording channel 1.
	CH2 Level Input without XLR adaptor Audio Input Level / Side / Level+Side Input with XLR adaptor (page 51) Audio Input Level / Through	Sets the combination of audio input level adjustments enabled for recording channel 2.
	CH3 Level Input without XLR adaptor Audio Input Level / CH3 Input Level / Level+CH3 Input Level Input with XLR adaptor (page 51) Audio Input Level / Through	Sets the combination of audio input level adjustments enabled for recording channel 3.
	CH4 Level Input without XLR adaptor Audio Input Level / CH4 Input Level / Level+CH4 Input Level Input with XLR adaptor (page 51) Audio Input Level / Through	Sets the combination of audio input level adjustments enabled for recording channel 4.

Audio		
Item	Sub-item setting	Description
Audio Output Audio output settings	Monitor CH CH1/CH2 / CH3/CH4 / MIX ALL / CH1 / CH2 / CH3 / CH4	Selects the audio channel output to the headphone connector and built-in speaker. <div style="background-color: #cccccc; padding: 2px;">Note</div> 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 (7)	Adjusts the monitor audio level output to the headphone connector and built-in speaker.
	Headphone Out Mono / Stereo	Selects whether the headphone connector output is monaural (Mono) or stereo (Stereo).
	Alarm Volume 0 to 7 (4)	Adjusts the volume of the alarm.
	Output Limiter On / Off	Turns the audio output limiter on/off.
	HDMI Output CH CH1/CH2 / CH3/CH4	Sets the combination of audio channels on the HDMI output.

Video Menu

Video		
Item	Sub-item setting	Description
Output On/Off Video output settings	SDI On / Off	Turns SDI output on/off.
	HDMI On / Off	Turns HDMI output on/off.
Output Format Output format settings	SDI	Sets the SDI and HDMI output resolution.
	HDMI	For details about settings, see “ <i>Video Formats and Output Signals</i> ” (page 101).
Output Setting Output conversion mode settings	HDMI Target Device Recorder / Monitor	Sets the type of HDMI input device connected to the HDMI output. 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 / Letter Box	Sets the 17:9 to 16:9 video output conversion mode.
	Monitor LUT Category	Sets the type of Look applied as a monitor LUT.
Monitor LUT settings Available in Cine EI mode only.	LUT / Look Profile / User 3D LUT	LUT: Outputs video with applied preset LUT or user LUT.
	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.
		Note Monitor LUT may not be able to be set independently for each system (page 113).

Video		
Item	Sub-item setting	Description
	LUT Select P1: 709 (800%) P2: HG8009G40 P3: HG8009G33 P4: S-Log2 P5: S-Log3 U1 U2 U3 U4 U5 U6	<p>Selects the LUT type, when Monitor LUT >Category is set to LUT.</p> <p>709(800%): Signal with ITU-R709 base curve with extended dynamic range up to 800%.</p> <p>HG8009G40: Signal using HyperGamma with 800% dynamic range, 109% white limit, and 18% gray card video output of 40%.</p> <p>HG8009G33: Signal using HyperGamma with 800% dynamic range, 109% white limit, and 18% gray card video output of 33%.</p> <p>S-Log2: Log signal with 1300% dynamic range that takes visibility on a video monitor into account, with footage developed in post production. (Enabled when Base Setting >Color Space in the System menu is set to S-Gamut/SLog2)</p> <p>S-Log3: 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)</p> <p>U1 to U6: User LUT signals imported from an SD card.</p>
		<p>Note</p> <p>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\\PRO\\CAMERA\\PMWF55_F5</p>
	Look Profile Select 1: LC-709 2: LC-709typeA 3: SLog2-709 4: Cine+709	Selects the type of Look profile, when Monitor LUT >Category is set to Look Profile.
	User 3D LUT Select User 3D-1 User 3D-2 User 3D-3 User 3D-4	Selects the type of user 3D LUT.
	SDI1 & Internal Rec MLUT On / MLUT Off	Selects whether to apply monitor LUT to the SDI OUT1 output video and the video recorded on XQD memory cards.
	SDI2 MLUT On / MLUT Off	Selects whether to apply monitor LUT to the SDI OUT2 output video.
	HDMI MLUT On / MLUT Off	Displays whether monitor LUT is applied to the HDMI output video (<i>page 113</i>).
	Viewfinder MLUT On / MLUT Off	Selects whether to apply monitor LUT to the viewfinder output video.
Output Display Output signal settings	SDI2 On / Off HDMI On / Off	Selects whether to superimpose menus and status on the SDI output signal and HDMI output signal.

VF Menu

VF		
Item	Sub-item setting	Description
VF Setting Viewfinder settings	Brightness -99 to +99 (±0)	Adjusts the brightness of the viewfinder image.
	Color Mode Color / B&W	Selects the display mode of the viewfinder in E-E/recording mode.
Peaking Peaking settings	Setting On / Off	Turns the peaking function on/off. Note Cannot be set to On when Picture Cache Rec is set to On.
	Peaking Type Normal / Color	Selects the peaking type. Normal: Normal peaking Color: Color peaking
	Frequency Normal / High	Selects the peaking frequency.
	Normal Peaking Level 0 to 99 (50)	Sets the normal peaking level.
	Color B&W / Red / Yellow / Blue	Selects the color of the color peaking signal.
	Color Peaking Level 0 to 99 (50)	Sets the color peaking level.
	Zebra Zebra pattern settings	Setting On / Off
Zebra Select 1 / 2 / Both		Selects the zebra pattern type (Zebra 1, Zebra 2, Both).
Zebra1 Level 50% to 107% (70%)		Sets the Zebra 1 display level.
Zebra1 Aperture Level 1% to 20% (10%)		Sets the Zebra 1 aperture level.
Zebra2 Level 52% to 109% (100%)		Sets the Zebra 2 display level.

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

VF		
Item	Sub-item setting	Description
Display On/Off Display item settings	Setting On / Off	Selects the items to display in the viewfinder.
	Shutter Setting On / Off	
	ND Filter Position On / Off	
	Gain Setting On / Off	
	Rec/Play Status On / Off	
	HXR-IFR5 Rec Control On / Off	
	Color Temp. On / Off	
	Frame Rate On / Off	
	Battery Remain On / Off	
	Timecode On / Off	
	Audio Manual On / Off	
	Audio Level Meter On / Off	
	Media Status On / Off	
	Focus Position Meter / Feet / Off	
	Iris Position On / Off	
	Zoom Position Number / Bar / Off	
	SteadyShot On / Off	
	Focus Mode On / Off	
	Focus Area Indicator On / Off	
	Focus Indicator On / Off	
Auto Shutter On / Off		
AGC On / Off		
Auto Iris On / Off		

VF		
Item	Sub-item setting	Description
	AE Mode On / Off	
	Auto Exposure Level On / Off	
	White Balance Mode On / Off	
	SDI/HDMI Rec Control On / Off	
	Rec Format On / Off	
	Gamma On / Off	
	Timecode Lock On / Off	
	Wi-Fi Condition On / Off	
	Video Signal Monitor Off / Waveform / Vector / Histogram	<div style="display: flex; align-items: flex-start;"> <div style="background-color: #cccccc; padding: 2px 5px; margin-right: 5px;">Note</div> <div> <p>Cannot be set when SDI output is not configured in the Video menu. Displayed for SDI2 output only in the following cases.</p> <ul style="list-style-type: none"> – When SDI output is Edge Crop – When Monitor LUT On/Off settings are different for each system. <p>For details, see <i>(page 113)</i>.</p> </div> </div>
	Clip Name On / Off	
	Focus Assist Indicator On / Off	
	Focus Area Marker On / Off	
	Video Level Warning On / Off	
	Clip Number On / Off	
	GPS On / Off	
	Level Gauge On / Off	
	Lens Info Meter / Feet / Off	
	Notice Message On / Off	

TC/UB Menu

TC/UB		
Item	Sub-item setting	Description
Timecode Timecode settings	Mode Preset / 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 Rec Run / 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 DF / NDF	Sets the timecode format. DF: Drop Frame NDF: Non-Drop Frame
	TC Display Time data display settings	Display Select Timecode / Users Bit / Duration
Users Bit Settings related to user bits.	Mode Fix / 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.
HDMI TC Out	Setting On / Off	Sets whether to output the timecode to devices for other purposes, using HDMI.

Recording Menu

Recording		
Item	Sub-item setting	Description
S&Q Motion Slow & Quick Motion mode settings (page 46)	Setting On / Off	Turns Slow & Quick Motion on/off. When set to On, the following functions are disabled. <ul style="list-style-type: none"> • Auto iris • Auto focus
	High Frame Rate Mode Off / Full Scan	Enables higher speed imaging than 60P. Off: Higher speed imaging than 60P is disabled. Full Scan: Enables high-speed imaging at Super 35 frame size.
	Frame Rate Up to 240fps	Sets the frame rate for Slow & Quick Motion shooting.
		Note The initial value varies depending on the Codec, Country, Video Format, and RAW Output Format settings.
Picture Cache Rec Picture cache recording mode settings (page 47)	Setting On / Off	Turns the picture cache recording function on/off.
	Cache Rec Time 0-2sec / 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.
Simul Rec Simultaneous recording settings (page 38)	Setting On / Off	Turns the simultaneous recording function on/off and sets the recording destination media.
	Rec Button Set “ Rec Button [SlotA SlotB] Handle Rec Button [SlotA SlotB] ” / “Rec Button [SlotA] Handle Rec Button [SlotB]” / “Rec Button [SlotB] Handle Rec Button [SlotA]”	Assigns the record buttons used to control each recording media.
SDI/HDMI Rec Control SDI/HDMI recording control settings	Setting On / Off	Turns recording start/stop control for an external connected device, using SDI/HDMI signals, on/off. When different buttons are assigned using Rec Button Set, the recording control signal follows the recording state of slot A.

Thumbnail Menu

Thumbnail		
Item	Sub-item setting	Description
Display Clip Properties Display clip properties screen		Displays the clip properties screen.
Set Index Picture Clip index picture settings		Sets the index picture of a clip.
Thumbnail View Thumbnail screen settings	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.
Set Shot Mark Shot mark settings	Add Shot Mark1	Adds Shot Mark1.
	Delete Shot Mark1	Deletes Shot Mark1.
	Add Shot Mark2	Adds Shot Mark2.
	Delete Shot Mark2	Deletes Shot Mark2.
Set Clip Flag Clip flag settings	Add OK	Adds an OK flag.
	Add NG	Adds an NG flag.
	Add KEEP	Adds a Keep flag.
	Delete Clip Flag	Deletes all flags.
Lock/Unlock Clip Clip protection	Select Clip	Selects and locks/unlocks a clip.
	Lock All Clips	Locks all clips.
	Unlock All Clips	Unlocks all clips.
Delete Clip Delete clips	Select Clip	Deletes the selected clip.
	All Clips	Deletes all of the displayed clips.
Filter Clips Filtered clip display settings	OK	Display only clips that have an OK flag.
	NG	Display only clips that have an NG flag.
	KEEP	Display only clips that have a Keep flag.
	None	Display only clips that have no flag.
Customize View Thumbnail screen settings	Thumbnail Caption Date Time / Time Code / Duration / Sequential Number	Switches the information displayed below thumbnails.

Media Menu

Media		
Item	Sub-item setting	Description
Update Media Update memory cards	Media (A) Execute / Cancel	Updates the management file on the XQD memory card in slot A. Execute: Update card
	Media (B) Execute / Cancel	Updates the management file on the XQD memory card in slot B. Execute: Update card
Format Media Format (initializes) memory cards	Media (A) Execute / Cancel	Initializes the XQD memory card in slot A. Execute: Initialize card
	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
Clip Clip name settings	Auto Naming Cam ID + Reel# / Title	Sets the method for naming clips. Cam ID + Reel#: Camera ID + Reel Number + Shot Number + Date + randomized string Title: String set using Title Prefix + Clip Number
	Note	
	When Simul Rec is set to On, Cam ID + Reel# cannot be configured.	
	Camera ID A to Z	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 C / L / R	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 60).)
	Number Set 0001 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
All File Settings related to ALL files.	Load SD Card Execute / Cancel	Loads an ALL file. Execute: Load file
	Save SD Card Execute / Cancel	Saves an ALL file. Execute: Save file
	File ID	Assigns a name to the file.
Scene File Scene file settings	Recall Internal Memory Execute / Cancel	Loads a scene file from internal memory. Execute: Load file
	Store Internal Memory Execute / Cancel	Saves a scene file in internal memory. Execute: Save file
	Load SD Card Execute / Cancel	Loads a scene file from an SD card. Execute: Load file
	Save SD Card Execute / Cancel	Saves a scene file to an SD card. Execute: Save file
	File ID	Assigns a name to the file.
	Scene White Data On / Off	Sets whether to apply the white balance data when loading scene files.
User Menu Item User menu item settings	Load SD Card Execute / Cancel	Loads User menu settings on an SD card into internal memory. Execute: Load settings
	Save SD Card Execute / Cancel	Saves User menu settings on an SD card. 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.
User Gamma User gamma file settings	Current Settings	Displays a list of the current user gamma file settings (file names).
	Load SD Card Execute / Cancel	Loads user gamma settings on an SD card into internal memory. Execute: Load gamma
	Reset 1 / 2 / 3 / 4 / 5 / All 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
Monitor LUT Monitor LUT file settings	Current Settings	Displays a list of the current monitor LUT file settings (file names).
	Load SD Card Execute / Cancel	Loads monitor LUT settings on an SD card into internal memory. Execute: Load LUT settings
	Reset 1 / 2 / 3 / 4 / 5 / 6 / All	Resets the monitor LUT data in internal memory to default values. 1 to 6: Reset individual monitor LUT All: Reset all monitor LUTs

File		
Item	Sub-item setting	Description
Monitor 3D LUT	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
	Reset 1 / 2 / 3 / 4 / All	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
Lens File Lens file settings	White Offset R -99 to +99 (±0)	Sets the white balance offset R channel correction value for the lens in the lens file.
	White Offset B -99 to +99 (±0)	Sets the white balance offset B channel correction value for the lens in the lens file.

System Menu

System		
Item	Sub-item setting	Description
Base Setting Base settings	Shooting Mode Custom / Cine EI	Sets the shooting mode.
	Color Space S-Gamut/SLog2 / S-Gamut3.Cine/SLog3 / S-Gamut3/SLog3 / Matrix	Sets the color space.
Codec Codec settings	Select RAW / RAW & XAVC-I / RAW & XAVC-L / RAW & MPEG HD 422 / XAVC-I / XAVC-L / MPEG HD 422 / ProRes 422 HQ / ProRes 422	Sets the recording/playback mode. Notes <ul style="list-style-type: none"> • RAW / RAW & XAVC-I / RAW & XAVC-L / RAW & MPEG HD 422 are available when an XDCA-FS7 is connected and Base Setting >Shooting Mode is set to Cine EI. • ProRes 422 HQ / ProRes 422 are available only when an XDCA-FS7 is connected.

System		
Item	Sub-item setting	Description
Rec Format Recording format settings	Video Format	Sets the recording format.
	<ul style="list-style-type: none"> For NTSC systems: When Codec >Select is set to XAVC-I. 4096×2160 59.94P 4096×2160 29.97P 4096×2160 23.98P 3840×2160 59.94P 3840×2160 29.97P 3840×2160 23.98P 1920×1080 59.94P 1920×1080 59.94i 1920×1080 29.97P 1920×1080 23.98P When Codec >Select is set to 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 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 When Codec >Select is set to MPEG HD422. 1920×1080 59.94i 50 1920×1080 29.97P 50 1920×1080 23.98P 50 1280×720 59.94P 50 1280×720 29.97P 50 1280×720 23.98P 50 When Codec >Select is set to ProRes 422 HQ or ProRes 422. 1920×1080 59.94i 1920×1080 29.97P 1920×1080 23.98P 	<ul style="list-style-type: none"> For PAL systems: When Codec >Select is set to XAVC-I. 4096×2160 50P 4096×2160 25P 3840×2160 50P 3840×2160 25P 1920×1080 50P 1920×1080 50i 1920×1080 25P When Codec >Select is set to XAVC-L. 3840×2160 50P 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 When Codec >Select is set to MPEG HD422. 1920×1080 50i 50 1920×1080 25P 50 1280×720 50P 50 1280×720 25P 50 When Codec >Select is set to ProRes 422 HQ or ProRes 422. 1920×1080 50i 1920×1080 25P
		<div style="background-color: #cccccc; padding: 2px;">Notes</div> <ul style="list-style-type: none"> “---” is grayed out when Codec >Select is set to RAW. The fixed values are grayed out when Codec >Select is set to RAW & XAVC-I, RAW & XAVC-L, or RAW & MPEG HD 422.

System		
Item	Sub-item setting	Description
	RAW Output Format	Sets the recording format for an external RAW recorder.
	<ul style="list-style-type: none"> For NTSC systems: When Codec >Select is set to an item that includes RAW. 4096×2160 59.94P 4096×2160 29.97P 4096×2160 23.98P 2048×1080 59.94P 2048×1080 29.97P 2048×1080 23.98P For PAL systems: When Codec >Select is set to an item that includes RAW. 4096×2160 50P 4096×2160 25P 2048×1080 50P 2048×1080 25P 	
Genlock Genlock settings	Reference Internal / External (HD) / External (SD)	Displays the genlock state. It displays the signal type if genlock is applied. Internal: External genlock not applied. External (HD): Genlock to HD signal. External (SD): Genlock to SD signal.
Assignable Button Assignable button settings	<1> to <6> Off / Marker / Zebra / Peaking / Video Signal Monitor / Focus Magnifier x4/x8 / Focus Magnifier x4 / Focus Magnifier x8 / 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	Assigns functions to assignable buttons. Marker: Turns the marker function on/off. Zebra: Turns the Zebra function on/off. Peaking: Turns the peaking function on/off. Video Signal Monitor: Switches the video signal display (histogram, etc.). Focus Magnifier x4/x8: Focus Magnifier x4: Focus Magnifier x8: Turns the focus magnifier function on/off. VF Mode: Switches the viewfinder display between color and B&W. IRIS: Switches the iris function between Auto and Manual. Push Auto Iris: Enables the auto iris function while the button is pressed. AGC: Turns the AGC function on/off.

System		
Item	Sub-item setting	Description
		<p>Push AGC: Enables the AGC function while the button is pressed.</p> <p>SHUTTER: Switches the shutter between Auto and Manual.</p> <p>Auto Exposure Level: Opens the Auto Exposure Level screen.</p> <p>Spotlight: Switches between Spotlight and Standard.</p> <p>Backlight: Switches between Backlight and Standard.</p> <p>ATW: Turns the ATW function on/off.</p> <p>ATW Hold: Pauses ATW function operation.</p> <p>Push AF/Focus Hold: Runs the push auto focus function or focus hold function.</p> <p>SteadyShot: Switches between Active SteadyShot, SteadyShot, and Off.</p> <p>Color Bars: Turns the color bars on/off.</p> <p>User Menu: Opens/closes the User menu.</p> <p>Rec Lamp: Turns the recording indicator light on/off.</p> <p>S&Q Motion: Turns Slow & Quick Motion on/off.</p> <p>Picture Cache Rec: Turns picture cache recording mode on/off.</p> <p>Rec Review: Turns the Rec Review function on/off.</p> <p>Thumbnail: Opens/closes the thumbnail screen.</p> <p>Shot Mark1: Runs the Add Shot Mark1 function.</p> <p>Shot Mark2: Runs the Add Shot Mark2 function.</p> <p>Clip Flag OK: Runs the Add OK function. Press twice to execute Delete Clip Flag.</p> <p>Clip Flag NG: Runs the Add NG function. Press twice to execute Delete Clip Flag.</p> <p>Clip Flag Keep: Runs the Add Keep function. Press twice to execute Delete Clip Flag.</p> <p>DURATION/TC/U-BIT: Switches between Time Code, Users Bit, and Duration.</p> <p>High/Low Key: Switches between High Key, Low Key, and Off.</p>

System		
Item	Sub-item setting	Description
Assignable Dial Settings for assigning functions to assignable dials	Assignable Dial Off / ISO/Gain/EI / IRIS / 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 Normal / 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 Normal / Opposite	Sets the direction of rotation of the IRIS dial. Normal: Turn in forward direction. Opposite: Turn in opposite direction.
Rec Lamp Recording indicator settings	Rec Lamp On / Off	Turns the recording indicator light on/off.
Fan Control Fan control mode settings	Fan Control Mode Auto / Minimum / Off in Rec	Sets the control mode of the camcorder fan. Note Even when “Off in Rec” is selected, the fan will operate if the internal temperature of the camcorder rises above a certain value.
HOLD Switch Setting Hold switch settings	with Rec Button On / Off	Sets whether or not to lock the recording button.
	with Hand Grip Remote On / Off	Sets whether to lock operation of the grip remote control.
Lens Lens settings	Zoom Ring Direction Left (W)/Right (T) / Right (W)/Left (T)	Sets the direction of zoom ring operation. Note Enabled only when using an E-mount lens that supports zoom ring direction switching.
	Distortion Comp. Auto / Off	Turns automatic distortion compensation on/off. Notes <ul style="list-style-type: none"> • Not available in picture cache recording mode or when recording. • Distortion compensation is not applied during 4K or QFHD recording. • When “Auto” is selected, there are some restrictions to Monitor LUT (<i>page 113</i>).
Language Language settings	Select	Sets the display language. SET: Set language.

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

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

System		
Item	Sub-item setting	Description
Version Display version	Number x.xx	Displays the software version of the camcorder.
	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.

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 77*) 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 76*).

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 83*) >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.

Note

If a connected external device does not support a REC trigger signal, the device cannot be operated.

HDMI OUT connector (Type A connector)

Turn the output on/off and set the output format using the Video menu (*page 76*).

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

Select the type of the connected device using HDMI Target Device (*page 113*) 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 33*).

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	1920×1080 59.94i 720×486 59.94i 1280×720 59.94P
29.97P	1920×1080 59.94i 720×486 59.94i
23.98P	1920×1080 47.95i (23.98PsF)
59.94i	1920×1080 59.94i 720×486 59.94i

For PAL Area

Frame rate of recording format	Supported input reference signals
50P	1920×1080 50i 720×576 50i 1280×720 50P
25P	1920×1080 50i 720×576 50i
50i	1920×1080 50i 720×576 50i

Notes

- If the selected recording format is 1280×720 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 45) 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 the Timecode (page 82) 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 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.

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 adaptors) is a consumable part.

Power may not be supplied to the unit properly if the pins of the battery terminal are bent or deformed by shock or vibrations, or if they become corroded due to prolonged outdoor use. Periodic inspections are recommended to keep the unit working properly and to prolong its usable lifetime. Contact a Sony service or sales representative for more information about inspections.

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 adaptor 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 adaptor 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)**).

Note

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
	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
4096×2160 29.97P	–	4096×2160P	No output
	–	3840×2160P	No output
	1920×1080PsF	1920×1080i	1920×1080 29.97PsF
4096×2160 23.98P	–	4096×2160P	No output
	–	3840×2160P	No output
	1920×1080PsF	–	1920×1080 23.98PsF
3840×2160 59.94P	–	1920×1080P	No output
	–	4096×2160P	No output
	–	3840×2160P	No output
	1920×1080P (Level A)	1920×1080P	1920×1080 59.94P Level-A
3840×2160 29.97P	–	4096×2160P	No output
	–	3840×2160P	No output
	1920×1080P (Level B)	–	1920×1080 59.94P Level-B
3840×2160 23.98P	–	4096×2160P	No output
	–	3840×2160P	No output
	1920×1080PsF	–	1920×1080 23.98PsF
	–	1920×1080P	No output

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	
1920×1080 59.94P	2048×1080P (Level A)	–	2048×1080 59.94P Level-A
	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
	–	720×480i	No output
	–	720×480P	No output
1920×1080 59.94i	1920×1080i	1920×1080i	1920×1080 59.94i
	–	720×480i	No output
	–	720×480P	No output
1920×1080 29.97P	2048×1080PsF	–	2048×1080 29.97PsF
	1920×1080PsF	1920×1080i	1920×1080 29.97PsF
	–	720×480i	No output
1920×1080 23.98P	2048×1080PsF	–	2048×1080 23.98PsF
	1920×1080PsF	–	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	1280×720P	1280×720P	1280×720 59.94P
	–	720×480i	No output
	–	720×480P	No output
1280×720 29.97P	1280×720P	1280×720P	1280×720 59.94P (2-2RP)
	–	720×480i	No output
1280×720 23.98P	1280×720P (2-3PD)	1280×720P (2-3PD)	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	
RAW Output Format 4096×2160 59.94P Video Format (fixed value) 1920×1080 59.94P	2048×1080P (Level A)	–	2048×1080 59.94P Level-A
	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
RAW Output Format 4096×2160 59.94P Video Format (fixed value) 1280×720 59.94P	2048×1080P (Level A)	–	2048×1080 59.94P Level-A
	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
RAW Output Format 2048×1080 59.94P Video Format (fixed value) 1920×1080 59.94P	2048×1080P (Level A)	–	2048×1080 59.94P Level-A
	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
RAW Output Format 2048×1080 59.94P Video Format (fixed value) 1280×720 59.94P	2048×1080P (Level A)	–	2048×1080 59.94P Level-A
	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
RAW Output Format 4096×2160 29.97P Video Format (fixed value) 1920×1080 29.97P	2048×1080PsF	–	2048×1080 29.97PsF
	1920×1080PsF	1920×1080i	1920×1080 29.97PsF
RAW Output Format 2048×1080 29.97P Video Format (fixed value) 1920×1080 29.97P	2048×1080PsF	–	2048×1080 29.97PsF
	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	
RAW Output Format 4096×2160 23.98P Video Format (fixed value) 1920×1080 23.98P	2048×1080PsF	–	2048×1080 23.98PsF
	1920×1080PsF	–	1920×1080 23.98PsF
	–	1920×1080P	No output
RAW Output Format 2048×1080 23.98P Video Format (fixed value) 1920×1080 23.98P	2048×1080PsF	–	2048×1080 23.98PsF
	1920×1080PsF	–	1920×1080 23.98PsF
	–	1920×1080P	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	
1920×1080 59.94i	1920×1080i	1920×1080i	1920×1080 59.94i
1920×1080 29.97P	1920×1080PsF	1920×1080i	SDI OUT 1 1920×1080 29.97P SDI OUT 2 1920×1080 29.97PsF
1920×1080 23.98P	1920×1080P	1920×1080P	1920×1080 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	
4096×2160 50P	–	4096×2160P	No output
	–	3840×2160P	No output
	1920×1080P (Level A)	1920×1080P	1920×1080 50P Level-A
	1920×1080P (Level B)	–	1920×1080 50P Level-B
	1920×1080i	1920×1080i	1920×1080 50i
4096×2160 25P	–	4096×2160P	No output
	–	3840×2160P	No output
	1920×1080PsF	1920×1080i	1920×1080 25PsF
3840×2160 50P	–	4096×2160P	No output
	–	3840×2160P	No output
	1920×1080P (Level A)	1920×1080P	1920×1080 50P Level-A
	1920×1080P (Level B)	–	1920×1080 50P Level-B
	1920×1080i	1920×1080i	1920×1080 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	
3840×2160 25P	–	4096×2160P	No output
	–	3840×2160P	No output
	1920×1080PsF	1920×1080i	1920×1080 25PsF
1920×1080 50P	2048×1080P (Level A)	–	2048×1080 50P Level-A
	2048×1080P (Level B)	–	2048×1080 50P Level-B
	1920×1080P (Level A)	1920×1080P	1920×1080 50P Level-A
	1920×1080P (Level B)	–	1920×1080 50P Level-B
	1920×1080i	1920×1080i	1920×1080 50i
	–	720×576i	No output
	–	720×576P	No output
1920×1080 50i	1920×1080i	1920×1080i	1920×1080 50i
	–	720×576i	No output
	–	720×576P	No output
1920×1080 25P	2048×1080PsF	–	2048×1080 25PsF
	1920×1080PsF	1920×1080i	1920×1080 25PsF
	–	720×576i	No output
1280×720 50P	1280×720P	1280×720P	1280×720 50P
	–	720×576i	No output
	–	720×576P	No output
1280×720 25P	1280×720P	1280×720P	1280×720 50P (2-2RP)
	–	720×576i	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	
RAW Output Format 4096×2160 50P Video Format (fixed value) 1920×1080 50P	2048×1080P (Level A)	–	2048×1080 50P Level-A
	2048×1080P (Level B)	–	2048×1080 50P Level-B
	1920×1080P (Level A)	1920×1080P	1920×1080 50P Level-A
	1920×1080P (Level B)	–	1920×1080 50P Level-B
	1920×1080i	1920×1080i	1920×1080 50i

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	
RAW Output Format 4096×2160 50P	2048×1080P (Level A)	–	2048×1080 50P Level-A
Video Format (fixed value) 1280×720 50P	2048×1080P (Level B)	–	2048×1080 50P Level-B
	1920×1080P (Level A)	1920×1080P	1920×1080 50P Level-A
	1920×1080P (Level B)	–	1920×1080 50P Level-B
	1280×720P	1280×720P	1280×720 50P
RAW Output Format 2048×1080 50P	2048×1080P (Level A)	–	2048×1080 50P Level-A
Video Format (fixed value) 1920×1080 50P	2048×1080P (Level B)	–	2048×1080 50P Level-B
	1920×1080P (Level A)	1920×1080P	1920×1080 50P Level-A
	1920×1080P (Level B)	–	1920×1080 50P Level-B
	1920×1080i	1920×1080i	1920×1080 50i
RAW Output Format 2048×1080 50P	2048×1080P (Level A)	–	2048×1080 50P Level-A
Video Format (fixed value) 1280×720 50P	2048×1080P (Level B)	–	2048×1080 50P Level-B
	1920×1080P (Level A)	1920×1080P	1920×1080 50P Level-A
	1920×1080P (Level B)	–	1920×1080 50P Level-B
	1280×720P	1280×720P	1280×720 50P
RAW Output Format 4096×2160 25P	2048×1080PsF	–	2048×1080 25PsF
Video Format (fixed value) 1920×1080 25P	1920×1080PsF	1920×1080i	1920×1080 25PsF
RAW Output Format 2048×1080 25P	2048×1080PsF	–	2048×1080 25PsF
Video Format (fixed value) 1920×1080 25P	1920×1080PsF	1920×1080i	1920×1080 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)		SDI output signal
	SDI	HDMI	
1920×1080 50i	1920×1080i	1920×1080i	1920×1080 50i
1920×1080 25P	1920×1080PsF	1920×1080PsF	SDI OUT 1 1920×1080 25P SDI OUT 2 1920×1080 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
	1920×1080P (Level A)	1920×1080P	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
	1920×1080PsF	1920×1080i	1920×1080 29.97PsF
4096×2160 23.98P	–	4096×2160P	4096×2160 23.98P
	–	3840×2160P	3840×2160 23.98P
	1920×1080PsF	–	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
	1920×1080P (Level A)	1920×1080P	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
	1920×1080PsF	1920×1080i	1920×1080 29.97PsF
3840×2160 23.98P	–	4096×2160P	4096×2160 23.98P
	–	3840×2160P	3840×2160 23.98P
	1920×1080PsF	–	No output
	–	1920×1080P	1920×1080 23.98P (Pure)
1920×1080 59.94P	2048×1080P (Level A)	–	No output
	2048×1080P (Level B)	–	No output
	1920×1080P (Level A)	1920×1080P	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

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 59.94i	1920×1080i	1920×1080i	1920×1080 59.94i
	–	720×480i	720×480 59.94i
	–	720×480P	720×480 59.94P
1920×1080 29.97P	2048×1080PsF	–	No output
	1920×1080PsF	1920×1080i	1920×1080 29.97PsF
	–	720×480i	720×480 59.94i (PsF)
1920×1080 23.98P	2048×1080PsF	–	No output
	1920×1080PsF	–	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	1280×720P	1280×720P	1280×720 59.94P
	–	720×480i	720×480 59.94i
	–	720×480P	720×480 59.94P
1280×720 29.97P	1280×720P	1280×720P	1280×720 59.94P (2-2RP)
	–	720×480i	720×480 59.94i (PsF)
1280×720 23.98P	1280×720P (2-3PD)	1280×720P (2-3PD)	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	
RAW Output Format 4096×2160 59.94P	2048×1080P (Level A)	–	No output
Video Format (fixed value) 1920×1080 59.94P	2048×1080P (Level B)	–	No output
	1920×1080P (Level A)	1920×1080P	1920×1080 59.94P
	1920×1080P (Level B)	–	No output
	1920×1080i	1920×1080i	1920×1080 59.94i

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	
RAW Output Format 4096×2160 59.94P Video Format (fixed value) 1280×720 59.94P	2048×1080P (Level A)	–	No output
	2048×1080P (Level B)	–	No output
	1920×1080P (Level A)	1920×1080P	1920×1080 59.94P
	1920×1080P (Level B)	–	No output
	1280×720P	1280×720P	1280×720 59.94P
RAW Output Format 2048×1080 59.94P Video Format (fixed value) 1920×1080 59.94P	2048×1080P (Level A)	–	No output
	2048×1080P (Level B)	–	No output
	1920×1080P (Level A)	1920×1080P	1920×1080 59.94P
	1920×1080P (Level B)	–	No output
	1920×1080i	1920×1080i	1920×1080 59.94i
RAW Output Format 2048×1080 59.94P Video Format (fixed value) 1280×720 59.94P	2048×1080P (Level A)	–	No output
	2048×1080P (Level B)	–	No output
	1920×1080P (Level A)	1920×1080P	1920×1080 59.94P
	1920×1080P (Level B)	–	No output
	1280×720P	1280×720P	1280×720 59.94P
RAW Output Format 4096×2160 29.97P Video Format (fixed value) 1920×1080 29.97P	2048×1080PsF	–	No output
	1920×1080PsF	1920×1080i	1920×1080 29.97PsF
RAW Output Format 2048×1080 29.97P Video Format (fixed value) 1920×1080 29.97P	2048×1080PsF	–	No output
	1920×1080PsF	1920×1080i	1920×1080 29.97PsF
RAW Output Format 4096×2160 23.98P Video Format (fixed value) 1920×1080 23.98P	2048×1080PsF	–	No output
	1920×1080PsF	–	No output
	–	1920×1080P	1920×1080 23.98P (Pure)
RAW Output Format 2048×1080 23.98P Video Format (fixed value) 1920×1080 23.98P	2048×1080PsF	–	No output
	1920×1080PsF	–	No output
	–	1920×1080P	1920×1080 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	
1920×1080 59.94i	1920×1080i	1920×1080i	1920×1080 59.94i
1920×1080 29.97P	1920×1080PsF	1920×1080i	1920×1080 29.97PsF
1920×1080 23.98P	1920×1080P	1920×1080P	1920×1080 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	
4096×2160 50P	–	4096×2160P	4096×2160 50P
	–	3840×2160P	3840×2160 50P
	1920×1080P (Level A)	1920×1080P	1920×1080 50P
	1920×1080P (Level B)	–	No output
	1920×1080i	1920×1080i	1920×1080 50i
4096×2160 25P	–	4096×2160P	4096×2160 25P
	–	3840×2160P	3840×2160 25P
	1920×1080PsF	1920×1080i	1920×1080 25PsF
	–	–	–
3840×2160 50P	–	4096×2160P	4096×2160 50P
	–	3840×2160P	3840×2160 50P
	1920×1080P (Level A)	1920×1080P	1920×1080 50P
	1920×1080P (Level B)	–	No output
	1920×1080i	1920×1080i	1920×1080 50i
3840×2160 25P	–	4096×2160P	4096×2160 25P
	–	3840×2160P	3840×2160 25P
	1920×1080PsF	1920×1080i	1920×1080 25PsF
	–	–	–
1920×1080 50P	2048×1080P (Level A)	–	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
	–	720×576i	720×576 50i
	–	720×576P	720×576 50P

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 50i	1920×1080i	1920×1080i	1920×1080 50i
	–	720×576i	720×576 50i
	–	720×576P	720×576 50P
1920×1080 25P	2048×1080PsF	–	No output
	1920×1080PsF	1920×1080i	1920×1080 50i (PsF)
	–	720×576i	720×576 50i (PsF)
1280×720 50P	1280×720P	1280×720P	1280×720 50P
	–	720×576i	720×576 50i
	–	720×576P	720×576 50P
1280×720 25P	1280×720P	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	
RAW Output Format 4096×2160 50P	2048×1080P (Level A)	–	No output
Video Format (fixed value) 1920×1080 50P	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
	1280×720P	1280×720P	1280×720 50P
RAW Output Format 4096×2160 50P	2048×1080P (Level A)	–	No output
Video Format (fixed value) 1280×720 50P	2048×1080P (Level B)	–	No output
	1920×1080P (Level A)	1920×1080P	1920×1080 50P
	1920×1080P (Level B)	–	No output
	1280×720P	1280×720P	1280×720 50P
	1920×1080P (Level A)	1920×1080P	1920×1080 50P
RAW Output Format 2048×1080 50P	2048×1080P (Level A)	–	No output
Video Format (fixed value) 1920×1080 50P	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
	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	
RAW Output Format 2048×1080 50P	2048×1080P (Level A)	–	No output
Video Format (fixed value) 1280×720 50P	2048×1080P (Level B)	–	No output
	1920×1080P (Level A)	1920×1080P	1920×1080 50P
	1920×1080P (Level B)	–	No output
	1280×720P	1280×720P	1280×720 50P
RAW Output Format 4096×2160 25P	2048×1080PsF	–	No output
Video Format (fixed value) 1920×1080 25P	1920×1080PsF	1920×1080i	1920×1080 25PsF
RAW Output Format 2048×1080 25P	2048×1080PsF	–	No output
Video Format (fixed value) 1920×1080 25P	1920×1080PsF	1920×1080i	1920×1080 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	
1920×1080 50i	1920×1080i	1920×1080i	1920×1080 50i
1920×1080 25P	1920×1080PsF	1920×1080i	1920×1080 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
Recorder (default)	SDI=On, HDMI=On (default) * Grayed out, cannot be selected.	–	Follows SDI1
	SDI=On, HDMI=Off	Off	
	SDI=Off, HDMI=Off	Off	
Monitor	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

States When Video Signal Monitor Cannot be Displayed

- To use Video Signal Monitor, SDI output must be enabled. Also, the output resolution must be 2K or lower. Check the following settings.
 - Output On/Off >SDI in the Video menu
 - Output Format >SDI in the Video menu
- In the following cases, Video Signal Monitor cannot be displayed in the viewfinder.
 - When the SDI output is edge cropped using Output Setting >4K/2K to HD Conv. in the Video menu
 - When there is a mixture of MLUT On and MLUT Off settings for Monitor LUT >SDI1 & Internal Rec, SDI2, HDMI, and Viewfinder in the Video menu

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	Indicates an abnormality in the camcorder. Recording stops, even if ●REC is displayed in the viewfinder. 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. (If the camcorder does not turn off when the POWER switch is set to OFF, remove the battery or disconnect the DC IN supply.)

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

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 Please Change Battery	An error was detected in the battery pack. Replace with a normal battery pack.
Backup Battery End Please Change	The remaining capacity of the backup battery is insufficient. Charge the backup battery.
Unknown Media (A) ¹⁾ Please Change	A memory card that has been partitioned or a memory card containing more clips that can be handled by the camcorder was inserted. The card cannot be used in the camcorder, and must be replaced.
Cannot Use Media (A) ¹⁾ Unsupported File System	A card using a different file system or an unformatted card was inserted. The card cannot be used in the camcorder, and must be replaced or formatted using the camcorder.
Media Error Media (A) ¹⁾ Needs to be Restored	An error occurred on the memory card, and the card must be restored. Restore the memory card.
Media Error Cannot Record to Media (A) ¹⁾	The memory card may be damaged, and can no longer be used for recording. Playback is possible, so making a copy and replacing the memory card is recommended.
Media Error Cannot Use Media (A) ¹⁾	The memory card may be damaged, and can no longer be used for recording or playback. The card cannot be used in the camcorder, and must be replaced.
Media (A) ¹⁾ Error Recording Halted Playback Halted	Recording and playback was stopped because an error occurred while using the memory card. If the problem persists, replace the memory card.
Media Reached Rewriting Limit Change Media (A) ¹⁾	The memory card has reached the end of its life. 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.

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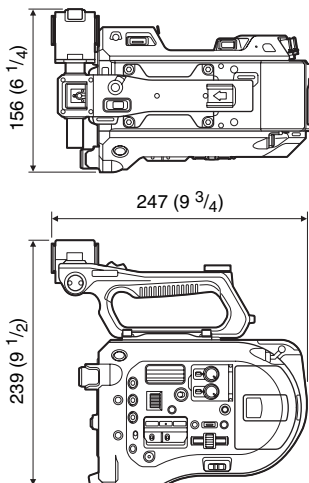
Specifications

General

Mass Approx. 2.0 kg (4 lb 6.5 oz) (body only)

Dimensions

(Unit: mm (inch), body only) ¹⁾



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 HD422

MPEG-2 Long GOP

HD422 mode: CBR, 50 Mbps, MPEG-2

422P@HL

ProRes 422 HQ ¹⁾

Apple ProRes 422 HQ

4:2:2, 10-bit, VBR, 220 Mbps max.

ProRes 422 ¹⁾

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,

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, 25P

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 ¹⁾

1920×1080/59.94i, 50i, 29.97P, 25P,

23.98P

ProRes 422 ¹⁾

1920×1080/59.94i, 50i, 29.97P, 25P,

23.98P

Recording/playback time

XAVC Intra 4096×2160/3840×2160

59.94P

Approx. 22 minutes: Using
QD-G128A

Approx. 11 minutes: Using
QD-G64A

50P

Approx. 26 minutes: Using
QD-G128A

Approx. 13 minutes: Using
QD-G64A

29.97P

Approx. 44 minutes: Using
QD-G128A

Approx. 22 minutes: Using
QD-G64A

23.98P

Approx. 55 minutes: Using
QD-G128A

Approx. 27 minutes: Using
QD-G64A

25P

Approx. 52 minutes: Using
QD-G128A

Approx. 26 minutes: Using
QD-G64A

XAVC Intra 1920×1080

59.94P

Approx. 59 minutes: Using
QD-G128A

Approx. 30 minutes: Using
QD-G64A

50P

Approx. 71 minutes: Using
QD-G128A

Approx. 35 minutes: Using
QD-G64A

59.94i

Approx. 118 minutes: Using
QD-G128A

Approx. 59 minutes: Using
QD-G64A

50i

Approx. 141 minutes: Using
QD-G128A

Approx. 70 minutes: Using
QD-G64A

29.97P

Approx. 118 minutes: Using
QD-G128A

Approx. 59 minutes: Using
QD-G64A

23.98P

Approx. 147 minutes: Using
QD-G128A

Approx. 74 minutes: Using
QD-G64A

25P

Approx. 141 minutes: Using
QD-G128A

Approx. 70 minutes: Using
QD-G64A

XAVC Long 3840×2160

59.94P/50P

Approx. 87 minutes: Using
QD-G128A

Approx. 44 minutes: Using
QD-G64A

29.97P/23.98P/25P

Approx. 131 minutes: Using
QD-G128A

Approx. 66 minutes: Using
QD-G64A

XAVC Long 1920×1080

50M mode

Approx. 262 minutes: Using
QD-G128A

Approx. 131 minutes: Using
QD-G64A

35M mode

Approx. 374 minutes: Using
QD-G128A

Approx. 187 minutes: Using
QD-G64A

25M mode

Approx. 524 minutes: Using
QD-G128A

Approx. 262 minutes: Using
QD-G64A

MPEG HD 422

Approx. 262 minutes: Using
QD-G128A

Approx. 131 minutes: Using
QD-G64A

ProRes 422 HQ¹⁾

59.94i/29.97P

Approx. 60 minutes: Using
QD-G128A

Approx. 30 minutes: Using
QD-G64A

50i/25P

Approx. 72 minutes: Using
QD-G128A

Approx. 36 minutes: Using
QD-G64A

23.98P

Approx. 74 minutes: Using
QD-G128A

Approx. 37 minutes: Using
QD-G64A

ProRes 422¹⁾

59.94i/29.97P

Approx. 90 minutes: Using
QD-G128A

Approx. 45 minutes: Using
QD-G64A

50i/25P

Approx. 108 minutes: Using
QD-G128A

Approx. 54 minutes: Using
QD-G64A

23.98P

Approx. 112 minutes: Using
QD-G128A

Approx. 56 minutes: Using
QD-G64A

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 (18dB, 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

4.2° to 359.7°

5.6° to 180° (23.98P)

5.6° to 216° (59.94P)

5.6° to 300° (50P)

Slow & Quick Motion

XAVC QFHD: 1 to 60P,

XAVC HD: 1 to 180P

White balance

Preset mode, Memory mode A, B

(1500K to 5000K)

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

50 Hz to 20 kHz (±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 ST424/425 Level-A/B, 292M
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 adaptor

MPA-AC1 (USA and Canada)

Rated input: 100 V to 240 V AC,

50 Hz/60 Hz, 0.4 A to 0.75 A

Rated output: 12 V DC, 3 A

AC-NB12A (except USA and Canada)

Rated input: 100 V to 240 V AC,

50 Hz/60 Hz, 0.35 A to 0.65 A

Rated output: 12 V DC, 2.5 A

Battery pack (BP-U30)

Maximum voltage: 16.4 V DC

Nominal voltage: 14.4 V DC

Capacity: 28 Wh

Battery charger (BC-U1)

Power requirements: 100 V to 240 V

AC, 50 Hz/60 Hz

Power consumption: 38 W

Rated output: Charging 16.4 V, 1.9 A/
1.5 A

Power cords (2)

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
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Notes

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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:

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Canada	http://www.sonybiz.ca
Latin America	http://sonypro-latin.com
Europe	http://www.pro.sony.eu/pro
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Japan	http://www.sonybsc.com
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Korea	http://bp.sony.co.kr
China	http://pro.sony.com.cn
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