SONY
Help Guide

Interchangeable Lens Digital Camera

ZV-E10M2 Description for 4K 120p add-on

This Help Guide is for users of the "4K 120p Upgrade License for ZV-E10M2" and only describes items related to the additional functions.
The upgrade license can be downloaded from the following website:
https://creatorscloud.sony.net/cameraupgrade/4k120p/

> **ZV-E10M2: Help Guide**
>
> For details on other functions or how to use the camera, refer to the Help Guide at this link.

Memory cards that can be used

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Memory cards that can be used

This camera supports only SD memory cards (UHS-II compatible). When using microSD memory cards with this camera, be sure to use the appropriate adaptor.

For still-image shooting

The following memory cards can be used.

- SD/SDHC/SDXC memory cards

For movie recording (When [▶Px◀ Proxy Recording] is set to [Off])

Movie recording formats and compatible memory cards are as follows.

▶■ File Format	Maximum recordable bit rate when recording	Supported memory card
XAVC HS 4K	280Mbps	● SDXC V60 or higher
XAVC S 4K	280Mbps	● SDXC V60 or higher
XAVC S HD	100Mbps	● SDHC/SDXC card (U3 or higher)
XAVC S-I 4K*	600Mbps	● SDXC V90 or higher
XAVC S-I HD*	222Mbps	● SDXC V90 or higher

* Shooting at a recording frame rate of [120p]/[100p] is not available with [XAVC S-I 4K] or [XAVC S-I HD].

For movie recording (When [▶Px◀ Proxy Recording] is set to [On])

- Proxy recording is not possible when the recording frame rate is [120p]/[100p]. Depending on the setting for [▶■ File Format], the maximum recording bit rate may be lower than when [▶Px◀ Proxy Recording] is set to [Off]. Supported memory cards for [▶■ File Format] are as follows.
- This camera cannot perform proxy recording when shooting in the XAVC S-I format.

| ▶■ File Format	Maximum recordable bit rate when recording	Supported memory card
XAVC HS 4K	200Mbps + 16Mbps*	● SDXC card (V60 or higher)
XAVC S 4K	200Mbps + 16Mbps*	● SDXC card (V60 or higher)
XAVC S HD	50Mbps + 16Mbps*	● SDHC/SDXC card (U3 or higher)

For S&Q Motion shooting (When [Px Proxy Recording] is set to [Off])

File formats and compatible memory cards are as follows.

▶█ File Format	Maximum recordable bit rate when recording	Supported memory card
XAVC HS 4K	500Mbps	• SDXC V90 or higher
XAVC S 4K	560Mbps	• SDXC V90 or higher
XAVC S HD	500Mbps	• SDXC V90 or higher
XAVC S-I 4K*	600Mbps	• SDXC V90 or higher
XAVC S-I HD*	445Mbps	• SDXC V90 or higher

* Shooting at a recording frame rate of [120p]/[100p] is not available with [XAVC S-I 4K] or [XAVC S-I HD].

For S&Q Motion shooting (When [Px Proxy Recording] is set to [On])

- Proxy recording is not possible when the recording frame rate is [120p]/[100p]. Also, proxy recording is not possible when the frame rate is set to [120fps]/[100fps] or higher. Depending on the setting for [▶█ File Format], the maximum recording bit rate may be lower than when [Px Proxy Recording] is set to [Off]. Supported memory cards for [▶█ File Format] are as follows.
- This camera cannot perform proxy recording when shooting in the XAVC S-I format.

▶█ File Format	Maximum recordable bit rate when recording	Supported memory card
XAVC HS 4K	250Mbps + 16Mbps*	• SDXC card (V60 or higher)
XAVC S 4K	280Mbps + 16Mbps*	• SDXC card (V60 or higher)
XAVC S HD	125Mbps + 16Mbps*	• SDXC card (V60 or higher)

* The maximum recording bit rate for proxy movies on this camera is 16 Mbps.

For time-lapse shooting (When [Px Proxy Recording] is set to [Off])

- Supported memory cards for [▶█ File Format] are as follows.

▶▮ File Format	Supported memory card
XAVC HS 4K	● SDHC/SDXC card (U3 or higher)
XAVC S 4K	
XAVC S HD	
XAVC S-I 4K	● SDXC card (V90 or higher)
XAVC S-I HD	

For time-lapse shooting (When [Px Proxy Recording] is set to [On])

- Supported memory cards for [▶▮ File Format] are as follows.
- This camera cannot perform proxy recording when shooting in the XAVC S-I format.

▶▮ File Format	Supported memory card
XAVC HS 4K	● SDXC card (V60 or higher)
XAVC S 4K	
XAVC S HD	● SDHC/SDXC card (U3 or higher)

Note

- In slow-motion recording, the recording bit rate is higher than usual. You may need a memory card that can be written at a higher speed.
- When an SDHC memory card is used to record movies over extended periods of time, the recorded movies are divided into files 4 GB in size.
- Charge the battery pack sufficiently before attempting to recover the database files on the memory card.
- If the marks below appear on the memory card icon when shooting, use another memory card:
  ⛏️ : Indicates that the number of times the memory card can be rewritten is close to the upper limit.
  ⛏️ : Indicates that the number of rewrites on the memory card has reached the upper limit.
- Time-lapse shooting does not support the recording frame rate of [120p]/[100p].

Related Topic

- S&Q Settings

TP1002162081

Interchangeable Lens Digital Camera
ZV-E10M2 Description for 4K 120p add-on

Movie Settings (movie)

Sets the frame rate, bit rate, color information, etc.

1. **MENU → ⬛/▸■ (Shooting) → [Image Quality/Rec] → [▸■ Movie Settings] → [Rec Frame Rate] → desired setting.**

2. **MENU → ⬛/▸■ (Shooting) → [Image Quality/Rec] → [▸■ Movie Settings] → [Record Setting] → desired setting.**

   Example of setting values

   (A): Bit rate
   (B): Color sampling
   (C): Bit depth

   - The higher the bit rate, the higher the image quality.
   - Color sampling (4:2:2, 4:2:0) is the recording ratio of color information. The more uniform this ratio is, the better the color reproducibility, and it is possible to remove colors neatly even when compositing using a green screen.
   - Bit depth represents the gradation of luminance information. When the bit depth is 8 bits, 256 levels of gradation can be obtained. When the bit depth is 10 bits, 1024 levels of gradation can be obtained. A larger value enables smoother expression from dark to bright areas.
   - [4:2:2 10 bit] is a setting that assumes that the recorded movie will be edited on a computer. The playback environment for [4:2:2 10 bit] is limited.

Menu item details

When [▸■ File Format] is set to [XAVC HS 4K]

Rec Frame Rate	Record Setting	Size	Movie compression format
60p/50p	200M 4:2:2 10bit	3840×2160	Long GOP
60p/50p	150M 4:2:0 10bit	3840×2160	Long GOP
60p/50p	100M 4:2:2 10bit	3840×2160	Long GOP
60p/50p	75M 4:2:0 10bit	3840×2160	Long GOP
60p/50p	45M 4:2:0 10bit	3840×2160	Long GOP
24p*	100M 4:2:2 10bit	3840×2160	Long GOP
24p*	100M 4:2:0 10bit	3840×2160	Long GOP

Rec Frame Rate	Record Setting	Size	Movie compression format
24p*	50M 4:2:2 10bit	3840×2160	Long GOP
24p*	50M 4:2:0 10bit	3840×2160	Long GOP
24p*	30M 4:2:0 10bit	3840×2160	Long GOP
120p/100p	280M 4:2:2 10bit	3840×2160	Long GOP
120p/100p	200M 4:2:0 10bit	3840×2160	Long GOP

*   Only when [NTSC/PAL Selector] is set to NTSC.

When [▸■ File Format] is set to [XAVC S 4K]

Rec Frame Rate	Record Setting	Size	Movie compression format
60p/50p	200M 4:2:2 10bit	3840×2160	Long GOP
60p/50p	150M 4:2:0 8bit	3840×2160	Long GOP
30p/25p	140M 4:2:2 10bit	3840×2160	Long GOP
30p/25p	100M 4:2:0 8bit	3840×2160	Long GOP
30p/25p	60M 4:2:0 8bit	3840×2160	Long GOP
24p*	100M 4:2:2 10bit	3840×2160	Long GOP
24p*	100M 4:2:0 8bit	3840×2160	Long GOP
24p*	60M 4:2:0 8bit	3840×2160	Long GOP
120p/100p	280M 4:2:2 10bit	3840×2160	Long GOP
120p/100p	200M 4:2:0 8bit	3840×2160	Long GOP

*   Only when [NTSC/PAL Selector] is set to NTSC.

When [▸■ File Format] is set to [XAVC S HD]

Rec Frame Rate	Record Setting	Size	Movie compression format
60p/50p	50M 4:2:2 10bit	1920×1080	Long GOP
60p/50p	50M 4:2:0 8bit	1920×1080	Long GOP
60p/50p	25M 4:2:0 8bit	1920×1080	Long GOP
30p/25p	50M 4:2:2 10bit	1920×1080	Long GOP
30p/25p	50M 4:2:0 8bit	1920×1080	Long GOP
30p/25p	16M 4:2:0 8bit	1920×1080	Long GOP
24p*	50M 4:2:2 10bit	1920×1080	Long GOP
24p*	50M 4:2:0 8bit	1920×1080	Long GOP

Rec Frame Rate	Record Setting	Size	Movie compression format
120p/100p	100M 4:2:0 8bit	1920×1080	Long GOP
120p/100p	60M 4:2:0 8bit	1920×1080	Long GOP

* Only when [NTSC/PAL Selector] is set to NTSC.

When [▶▮ File Format] is set to [XAVC S-I 4K]

Rec Frame Rate	Record Setting	Size	Movie compression format
60p/50p	600M 4:2:2 10bit/500M 4:2:2 10bit	3840×2160	Intra
30p/25p	300M 4:2:2 10bit/250M 4:2:2 10bit	3840×2160	Intra
24p*	240M 4:2:2 10bit	3840×2160	Intra

* Only when [NTSC/PAL Selector] is set to NTSC.

When [▶▮ File Format] is set to [XAVC S-I HD]

Rec Frame Rate	Record Setting	Size	Movie compression format
60p/50p	222M 4:2:2 10bit/185M 4:2:2 10bit	1920×1080	Intra
30p/25p	111M 4:2:2 10bit/93M 4:2:2 10bit	1920×1080	Intra
24p*	89M 4:2:2 10bit	1920×1080	Intra

* Only when [NTSC/PAL Selector] is set to NTSC.

Note

● Recording frame rates are indicated as the closest integer values. The actual corresponding frame rates are as follows:
24p: 23.98 fps, 30p: 29.97 fps, 60p: 59.94 fps, and 120p: 119.88 fps.

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S&Q Settings

You can record a moment that cannot be captured by the naked eye (slow-motion recording), or record a long-term phenomenon into a compressed movie (quick-motion recording). For example, you can record an intense sports scene, the moment when a bird starts to fly, a blooming flower, and a changing view of clouds or a starry sky. Sound will not be recorded.

1 **Set the Still/Movie/S&Q switch to S&Q (S&Q Motion).**

2 **Select [S&Q Motion] on the [S&Q 🔅 Shoot Mode] screen, and then use the left/right side of the control wheel to select the desired shooting mode (Intelligent Auto, Program Auto, Aperture Priority, Shutter Priority, or Manual Exposure).**

● The [S&Q 🔅 Shoot Mode] screen is not displayed when [Shoot Mode Sel. Screen] is set to [Not Displayed]. Select MENU → ▶■ (Shooting) → [Shooting Mode] → [S&Q 🔅 Shoot Mode], and then select the desired shooting mode for [S&Q Motion].

3 **Select MENU → ▶■ (Shooting) → [Image Quality/Rec] → [S&Q S&Q Settings] → Select an item to set, and then select the desired setting.**

4 **Press the MOVIE (movie) button to start recording.**

● Press the MOVIE button again to stop recording.

Menu item details

S&Q Frame Rate Settings:
Selects the frame rate of the movie and the shooting frame rate.

S&Q Record Setting:
Selects the bit rate, color sampling, and bit depth of the movie.

● The format of the recorded movie will be the same as the [▶■ File Format] setting.

Playback speed

The playback speed will vary as below depending on the value set for [S&Q Frame Rate Settings].

When [NTSC/PAL Selector] is set to NTSC

S&Q Frame Rate	S&Q Rec Frame Rate: 24p	S&Q Rec Frame Rate: 30p	S&Q Rec Frame Rate: 60p	S&Q Rec Frame Rate: 120p
240fps	10 times slower	8 times slower	4 times slower	2 times slower

S&Q Frame Rate	S&Q Rec Frame Rate: 24p	S&Q Rec Frame Rate: 30p	S&Q Rec Frame Rate: 60p	S&Q Rec Frame Rate: 120p
120fps	5 times slower	4 times slower	2 times slower	Normal playback speed
60fps	2.5 times slower	2 times slower	Normal playback speed	2 times quick
30fps	1.25 times slower	Normal playback speed	2 times quick	4 times quick
15fps	1.6 times quick	2 times quick	4 times quick	8 times quick
8fps	3 times quick	3.75 times quick	7.5 times quick	15 times quick
4fps	6 times quick	7.5 times quick	15 times quick	30 times quick
2fps	12 times quick	15 times quick	30 times quick	60 times quick
1fps	24 times quick	30 times quick	60 times quick	120 times quick

When [NTSC/PAL Selector] is set to PAL

S&Q Frame Rate	S&Q Rec Frame Rate: 25p	S&Q Rec Frame Rate: 50p	S&Q Rec Frame Rate: 100p
200fps	8 times slower	4 times slower	2 times slower
100fps	4 times slower	2 times slower	Normal playback speed
50fps	2 times slower	Normal playback speed	2 times quick
25fps	Normal playback speed	2 times quick	4 times quick
12fps	2.08 times quick	4.16 times quick	8.33 times quick
6fps	4.16 times quick	8.33 times quick	16.66 times quick
3fps	8.33 times quick	16.66 times quick	33.33 times quick
2fps	12.5 times quick	25 times quick	50 times quick
1fps	25 times quick	50 times quick	100 times quick

- [120fps]/[100fps] cannot be selected when [▶▅ File Format] is set to following items:

  - XAVC S-I 4K

- [240fps]/[200fps] cannot be selected when [▶▅ File Format] is set to following items:

  - XAVC HS 4K
  - XAVC S 4K
  - XAVC S-I 4K
  - XAVC S-I HD

> **Note**
>
> - In slow-motion/quick-motion recording, the actual shooting time differs from the time recorded in the movie. The recordable time displayed toward the top of the monitor shows the remaining recording time for the movie, not the remaining recording time on the memory card.

- In slow-motion recording, the shutter speed becomes faster and you may not be able to obtain the proper exposure. If this happens, decrease the aperture value or set the ISO sensitivity to a higher value.

- During slow-motion/quick-motion recording, the following functions are not available.
    - [Time Code Run] under [TC/UB]
    - [Time Code Output] under [▶▮ HDMI Output Settings]

Related Topic

- [Memory cards that can be used](#)

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Interchangeable Lens Digital Camera
ZV-E10M2 Description for 4K 120p add-on

Angle of view

The angle of view changes depending on the shooting mode and recording settings, etc.

When [▶▐ SteadyShot] is set to [Active]

(A) When shooting still images*
(B) When recording movies (other than 4K 60p/50p)
The angle of view becomes approximately 1.4 times the focal length indicated on the lens.
(C) When recording movies (4K 60p/50p)
The angle of view becomes approximately 1.5 times the focal length indicated on the lens.

When [▶▐ SteadyShot] is set to [Standard] or [Off]

(A) When shooting still images*
(B) When recording movies (excluding 4K 60p/50p and 4K 120p/100p)
The angle of view becomes approximately 1.0 times the focal length indicated on the lens.
(C) When recording movies (4K 60p/50p)
The angle of view becomes approximately 1.1 times the focal length indicated on the lens.
(D) When recording movies (4K 120p/100p)
The angle of view becomes approximately 1.6 times the focal length indicated on the lens.

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*   When shooting still images, the angle of view does not change according to the setting for [📷 SteadyShot] ([On]/[Off]).

Related Topic
- Movie Settings (movie)

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Interchangeable Lens Digital Camera
ZV-E10M2 Description for 4K 120p add-on

Restrictions for the 4K 120p add-on

- When [Rec Frame Rate] is set to [120p]/[100p], the following functions are restricted.

  - Proxy recording (for normal movies and slow-motion/quick-motion movies)
  - Smart Zoom, Clear Image Zoom, and Digital Zoom
  - [Active] under [▶■ SteadyShot] (for normal movies)

- During slow-motion/quick-motion shooting with [S&Q Frame Rate] set to [120fps]/[100fps] or higher, the following functions are restricted.

  - Proxy recording
  - Smart Zoom, Clear Image Zoom, and Digital Zoom
  - [Active] under [▶■ SteadyShot]

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