

# Panasonic<sup>®</sup>

**Operating Instructions / Owner's Manual**

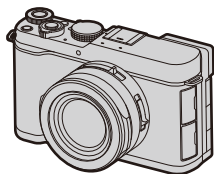
**<Complete Guide>**

Digital Camera

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Model No. **DC-L10**

**LUMIX**



Please read these instructions carefully before using this product.

**Register online at**

**<http://shop.panasonic.com/support/register>**

**(U.S. customers only)**

DVQP3497ZA  
F0426TN0

# About Operating Instructions

This document, “Operating Instructions / Owner’s Manual <Complete Guide>”, includes detailed explanations of all the functions and operations of the camera.

- The external design and specifications of this product, as described in this document, may differ from the actual product.
- Illustrations used in this document may differ from the actual product and the actual images displayed on the product.
- Images used in this document are sample pictures used to explain the functions and effects.

## ❖ Symbols Used in This Document



Black icons show conditions in which functions can be used, and gray icons show conditions in which functions cannot be used.

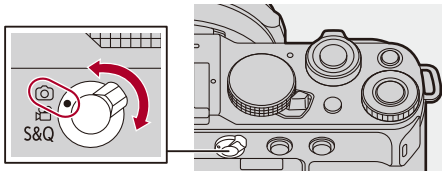
### Example:

Photo/Video/S&Q mode   S&Q

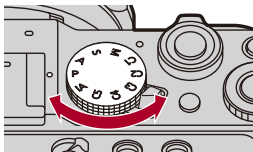
Recording mode  **P** **A** **S** **M**

Use the photo/video/S&Q switch to switch between the photo, video, and S&Q modes.

- These are shown as [] mode, [] mode, and [S&Q] mode in this document.

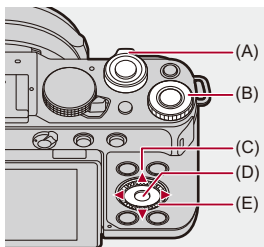


Use the mode dial to switch the recording mode.



## Operating symbols

In this document, camera operation is explained using the following symbols:



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(A) :  
**Zoom lever**

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(B) :  
**Rear dial**

---

(C) :  
**Cursor button up/down/left/right**

---

(D) :  
**[MENU/SET] button**

---

(E) :  
**Control dial**

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- Other symbols, such as icons shown on the camera screen, are also used in explanations.
- This document describes the procedure for selecting menu items as follows:  
Example) Set [JPEG/HEIF Picture Quality] of the [Photo] ([Image Quality]) menu to [STD.].

 ⇒ [  ] ⇒ [  ] ⇒ [JPEG/HEIF Picture Quality] ⇒ Select [STD.]


## Notification classification symbols

In this document, notifications are classified and described using the following symbols:

---

 : To confirm prior to using the function


---

 : Hints for better use of the camera and tips for recording

---

 : Notifications and supplementary items regarding specifications

---

 : Related functions and information

---

- Explanations in this document use images and illustrations of the -K model.

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# Introduction

This chapter describes information you should know before starting.

- [Before Use: 18](#)
- [Standard Accessories: 21](#)
- [Memory Cards That Can Be Used: 23](#)
- [Names of Parts: 26](#)

## Before Use

---

### ❖ Firmware of Your Camera

Firmware updates may be provided in order to improve camera capabilities or to add functionality.

Make sure that the firmware of the camera you purchased is the latest version.

We recommend using the latest firmware version.

- To check the firmware version of the camera, select [Firmware Version] in the [Setup] ([Others]) menu. You can also update the firmware in [Firmware Version].  
(→[Firmware Version]: 591)
- **For the latest information on the firmware or to download/update the firmware, visit the following support site:**  
**<https://panasonic.jp/support/global/cs/dsc/download/index2.html>**  
(English only)

## **❖ Handling of the Camera**

**When using the camera, take care not to drop it, bump it, or apply undue force. These may cause malfunction or damage to the camera.**

**The camera is not dust resistant, splash resistant, or waterproof.**

**Avoid using the camera in places with excessive dust or sand, or where water can come into contact with the camera.**

**If sand, dust, or liquid gets on the monitor, wipe it off with a dry soft cloth.**

- Touch operations may be incorrectly recognized.

## ❖ **Condensation (When the Lens, the Viewfinder or Monitor is Fogged Up)**

- Condensation occurs when there are temperature or humidity differences. Take care as this may lead to soiling, mold, and malfunctions in the lens, viewfinder, and monitor.
- If condensation occurs, turn off the camera and leave it for approx. 2 hours. The fog will disappear naturally when the temperature of the camera becomes close to the ambient temperature.

## ❖ **Be Sure to Perform Trial Recording in Advance**

Perform trial recording in advance of an important event (wedding, etc.) to check that recording can be performed normally.

## ❖ **No Compensation Regarding Recording**

Please note that compensation cannot be provided in the event that recording could not be performed due to a problem with the camera or a card.

## ❖ **Be Careful with Regard to Copyrights**

Under copyright law, you may not use the images and audio you have recorded for other than personal enjoyment without the permission of the copyright holder. Be careful because there are cases where restrictions apply to recording even for the purpose of personal enjoyment.

## ❖ **Also Read “[Cautions for Use](#)” (→ [Cautions for Use: 698](#))**

## Standard Accessories

---

- [Attaching the Auto Lens Cap: 22](#)

Check that all the accessories are supplied before using the camera.

- The accessories and their shape will differ depending on the country or area where the camera was purchased.

For details on the accessories, refer to “Operating Instructions / Owner’s Manual <Quick Start Guide>” (supplied).

- **Battery pack**

(This is referred to as **battery pack** or **battery** in this document.)

- Charge the battery before use.

- **Lens cap**<sup>\*1</sup>

- **Hot shoe cover**<sup>\*1</sup>

- **Shoulder strap**

- **Auto lens cap**<sup>\*2</sup>

- **Lens cloth**<sup>\*2</sup>

\*1 This is attached to the camera at the time of purchase.

\*2 This is supplied with -N models.

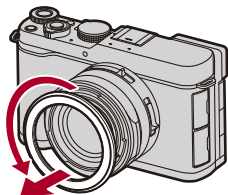
- **The memory card is optional (commercially available).**
- Consult the dealer or Panasonic if you lose the supplied accessories. (You can purchase the accessories separately.)

## Attaching the Auto Lens Cap

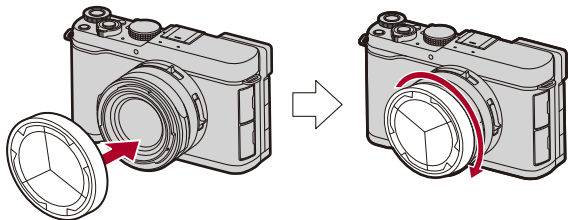
When you use the auto lens cap supplied with the -N model, you can record without detaching the auto lens cap from the camera.

### 1 Remove the lens front ring.

- Be careful not to lose the lens front ring.



### 2 Rotate the auto lens cap in the direction of the arrow until it clicks into place.



- The auto lens cap and any type of filter cannot be attached to the camera at the same time.
- Do not press the center area of the auto lens cap hard.

## Memory Cards That Can Be Used

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This section describes the memory cards that can be used with this camera. (As of May 2026)

### SD memory card/SDHC memory card/SDXC memory card (Maximum 512 GB)

- The camera supports UHS-I/UHS-II UHS Speed Class 3 standard and UHS-II Video Speed Class 90 standard SD cards.







- SD memory cards, SDHC memory cards, and SDXC memory cards are referred to by the generic name of **SD cards** or **cards** in this document.
- **For information on memory cards with confirmed operation, check the following support site:**  
<https://panasonic.jp/support/global/cs/dsc/connect/index.html>  
(English only)

## ❖ SD Cards That Can Be Used with This Camera

When using the following functions, use cards that have the correct SD Speed Class, UHS Speed Class, and Video Speed Class.

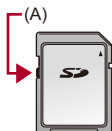
- Speed classes are standards to guarantee the minimum speed necessary for continuous writing.

### [Video Record]

Bit rate of the recording quality	Speed Class	Example of indication
72 Mbps or less	Class 10	CLASS  
	UHS Speed Class 1 or higher	
	Video Speed Class 10 or higher	<b>V10</b>
200 Mbps or less	UHS Speed Class 3	
	Video Speed Class 30 or higher	<b>V30</b>
400 Mbps or less	Video Speed Class 60 or higher	<b>V60</b>
600 Mbps or less	Video Speed Class 90	<b>V90</b>



- You can prevent the writing and deleting of data by setting the write-protect switch (A) on the SD card to “LOCK”.

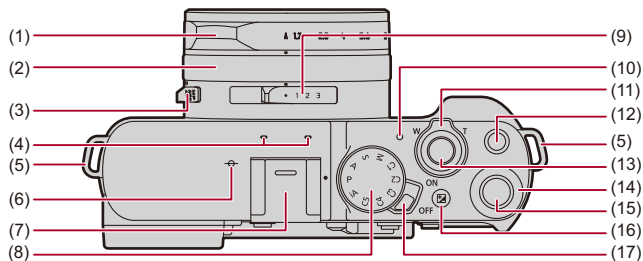


- The data stored on a card may be damaged due to electromagnetic waves, static electricity or a failure of the camera or card. We recommend backing up important data.
- Keep the memory card out of reach of children to prevent swallowing.


# Names of Parts

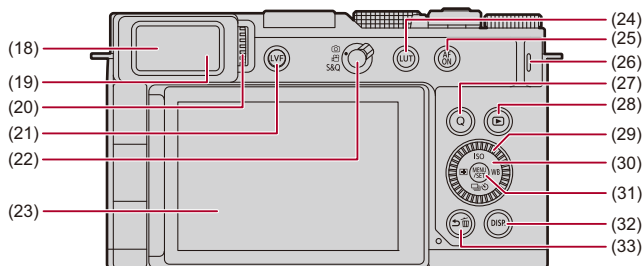
- [Camera: 26](#)
- [Viewfinder/Monitor Displays: 32](#)

## Camera







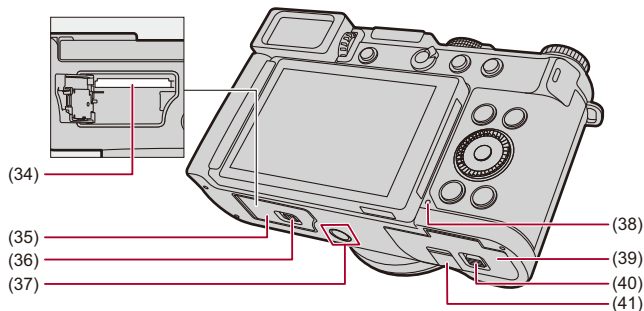
- (1) Aperture ring (→ [Aperture-Priority AE Mode: 274](#), [Manual Exposure Mode: 280](#))
- (2) Control ring (→ [Record Using MF: 191](#), [Recording with Zoom: 198](#))
- (3) Focus selector switch (→ [Selecting the Focus Mode: 145](#), [Taking Close-up Pictures: 189](#))
- (4) Stereo microphone (→ [Audio Settings: 377](#))
  - Do not block the microphone with a finger. Audio will be difficult to record.
- (5) Shoulder strap eyelet (→ [Attaching a Shoulder Strap: 36](#))
- (6) [—] (Recording distance reference mark) (→ [Operations on the MF Assist Screen: 193](#))
- (7) Hot shoe (hot shoe cover) (→ [Removing the Hot Shoe Cover: 348](#))
  - Keep the hot shoe cover out of reach of children to prevent swallowing.
- (8) Mode dial (→ [Selecting the Recording Mode: 62](#))
- (9) Fn switch (→ [Fn Switch: 518](#))

- (10) Charging light (→[Charging Light Indications: 41](#))/  
Network connection light (→[Checking operation of the Wi-Fi and Bluetooth functions: 646](#))
- (11) Zoom lever (→[Recording with Zoom: 198](#))
- (12) Video rec. button (→[Basic Video Operations: 115](#))
- (13) Shutter button (→[Basic Picture Operations: 101](#))  
There is a threaded hole on the -N model to attach a soft release shutter button (commercially available).
- (14) Rear dial (→[Rear Dial: 65](#))
- (15) Photo Style button (→[\[Photo Style\]: 310](#))/  
Fn button ([Fn2]) (→[Fn Buttons: 504](#))
- (16) [  ] (Exposure compensation) button (→[Exposure Compensation: 287](#))
- (17) Camera on/off switch (→[Setting the Clock \(When Turning On for the First Time\): 54](#))



- (18) Viewfinder (→ [Viewfinder/Monitor Displays: 32](#), [Switching Between the Monitor and Viewfinder: 70](#), [Monitor/Viewfinder Displays: 662](#))
- (19) Eye sensor (→ [Switching Between the Monitor and Viewfinder: 70](#))
- (20) Diopter adjustment dial (→ [Adjusting the Viewfinder Diopter: 69](#))
- (21) [LVF] button (→ [Switching Between the Monitor and Viewfinder: 70](#))
- (22) Photo/Video/S&Q switch (→ [Photo/Video/S&Q Switch: 61](#))
- (23) Monitor (→ [Viewfinder/Monitor Displays: 32](#), [Monitor/Viewfinder Displays: 662](#))/  
Touch screen (→ [Touch Screen: 67](#))
- (24) [LUT] button (→ [\[REAL TIME LUT\]: 333](#))
- (25) [AF ON] button (→ [\[AF ON\] button: 149](#))
- (26) Speaker (→ [\[Beep\]: 582](#))
- (27) [Q] (Quick menu) button (→ [Quick Menu: 78](#))
- (28) [▶] (Playback) button (→ [Playing Back and Editing of Images: 459](#))
- (29) Control dial (→ [Control Dial: 65](#))

- (30) Cursor buttons (→ [Cursor Buttons: 66](#))
- [ISO] (ISO sensitivity) button (▲) (→ [ISO Sensitivity: 295](#))
  - [] (Drive mode) button (▼) (→ [Selecting the Drive Mode: 206](#))
  - [] (AF mode) button (◀) (→ [Selecting the AF Mode: 161](#))
  - [WB] (White balance) button (▶) (→ [White Balance \(WB\): 302](#))
- Fn buttons (→ [Fn Buttons: 504](#))
- ▲: Fn8, ▶: Fn9, ▼: Fn10, ◀: Fn11
- (31) [MENU/SET] button (→ [\[MENU/SET\] Button: 66](#), [Menu Operation Methods: 82](#))
- (32) [DISP.] button (→ [Switching the Display Information: 73](#))
- (33) [] (Cancel) button (→ [Menu Operation Methods: 82](#))
- [] (Delete) button (→ [Deleting Images: 479](#))
- Fn button (Fn1) (→ [Fn Buttons: 504](#))



(34) Card slot (→ [Inserting a Card \(Optional\): 49](#))

(35) Card door (→ [Inserting a Card \(Optional\): 49](#))

(36) Card door lock lever (→ [Inserting a Card \(Optional\): 49](#))

(37) Tripod mount (→ [Tripod/Unipod: 704](#))

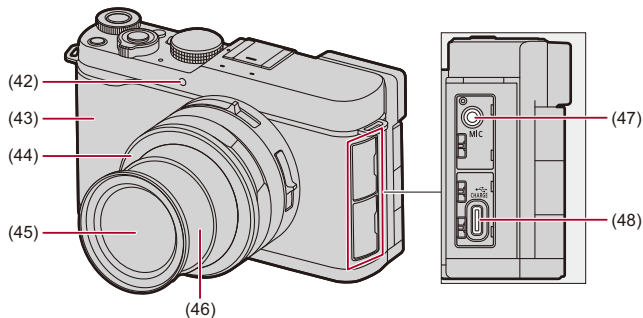
- If you attempt to attach a tripod with a screw length of 5.5 mm (0.22 inch) or more, you may not be able to securely fix it in place or it may damage the camera.

(38) Card access light (→ [Card Access Indications: 50](#))

(39) Battery door (→ [Battery Insertion: 38](#))

(40) Battery door release lever (→ [Battery Insertion: 38](#))

(41) DC Coupler cover (→ [DC Coupler \(Optional\): 661](#))



(42) Self-timer light (→[Recording Using the Self-timer: 233](#))/  
AF assist light (→[\[AF Assist Light\]: 159](#))

(43) Grip

(44) Lens front ring

- To attach the auto lens cap, remove the lens front ring.

(45) Lens surface

(46) Lens barrel

(47) [MIC] socket (→[External Microphones \(Optional\): 387](#))

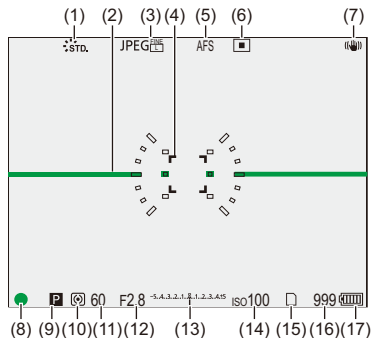
(48) USB port (→[Inserting a Battery into the Camera for Charging: 40](#), [USB port: 655](#),  
[Using as a Web Camera for a PC: 642](#))

## Viewfinder/Monitor Displays

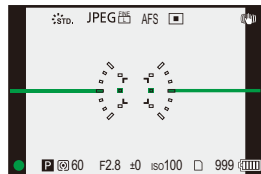
At the time of purchase, the viewfinder/monitor displays the following icons.

- For information about the icons other than those described here (→ [Monitor/Viewfinder Displays: 662](#))

### Viewfinder




### Monitor



- (1) Photo Style (→[\[Photo Style\]: 310](#))
- (2) Level gauge (→[\[Level Gauge\]: 566](#))
- (3) Rec. file format (photo) (→[\[Rec. File Format\(Photo\)\]: 108](#))/  
JPEG/HEIF picture quality (→[\[JPEG/HEIF Picture Quality\]: 113](#))/  
Picture size (→[\[Picture Size\]: 106](#))
- (4) AF area (→[AF Area Operations: 181](#))
- (5) Focus mode (→[Selecting the Focus Mode: 145](#), [Using AF: 147](#), [Record Using MF: 191](#))
- (6) AF mode (→[Selecting the AF Mode: 161](#))
- (7) Image stabilizer (→[Image Stabilizer: 263](#))
- (8) Focus (green) (→[Basic Picture Operations: 101](#), [Using AF: 147](#))/  
Recording state (red) (→[Basic Video Operations: 115](#))
- (9) Photo/Video/S&Q mode (→[Photo/Video/S&Q Switch: 61](#))/  
Recording mode (→[Selecting the Recording Mode: 62](#))
- (10) Metering mode (→[\[Metering Mode\]: 268](#))
- (11) Shutter speed (→[Basic Picture Operations: 101](#), [Shutter-Priority AE Mode: 277](#))
- (12) Aperture value (→[Basic Picture Operations: 101](#), [Aperture-Priority AE Mode: 274](#))
- (13) Exposure compensation value (→[Exposure Compensation: 287](#))/  
Manual Exposure Assist (→[Manual Exposure Assist: 282](#))

- (14) ISO sensitivity (→ [ISO Sensitivity: 295](#))
- (15) Card slot (→ [Inserting a Card \(Optional\): 49](#))
- (16) Number of pictures that can be taken (→ [Number of Pictures That Can Be Taken and Video Recording Time with Cards: 711](#))  
Number of pictures that can be taken continuously (→ [Number of Pictures That Can Be Taken Continuously: 215](#))
- (17) Battery indication (→ [Power Indications: 44](#))



- Press [] to switch between display/hide of the level gauge.

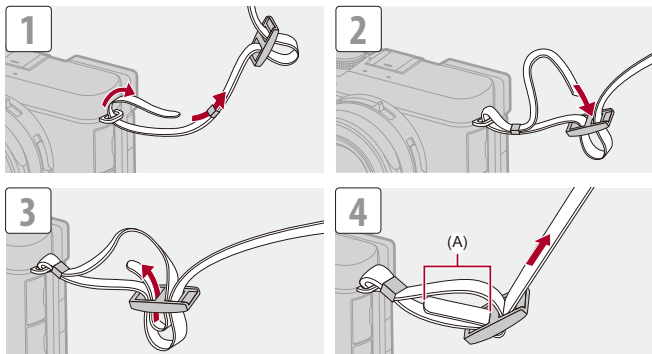
# Getting Started

Before recording, read this chapter to prepare the camera.

- [Attaching a Shoulder Strap: 36](#)
- [Charging the Battery: 37](#)
- [Inserting a Card \(Optional\): 49](#)
- [Adjusting the Monitor Direction and Angle: 52](#)
- [Setting the Clock \(When Turning On for the First Time\): 54](#)

## Attaching a Shoulder Strap

Attach a shoulder strap to the camera with the following procedure to prevent it from dropping.



(A) Pull 3 cm (0.098 feet) or more through (make sure it is not loose)



- Pull the shoulder strap and check that it will not come out.
- Attach the opposite end of the shoulder strap with the same procedure.
- Depending on how it is used, the shoulder strap may become loose. Regularly check that the shoulder strap is securely fastened.
- Use the shoulder strap around your shoulder.
  - Do not wrap the strap around your neck.  
It may result in injury or accident.
- Do not leave the shoulder strap where an infant can reach it.
  - It may result in an accident by mistakenly wrapping around the neck.

## Charging the Battery

---

- [Battery Insertion: 38](#)
- [Inserting a Battery into the Camera for Charging: 40](#)
- [Using the Camera While Supplying It with Power \(Supplying Power\): 43](#)
- [Notifications Regarding Charging/Power Supply: 44](#)
- [\[Power Save Mode\]: 46](#)

You can charge the battery using the camera.

You can also turn on the camera and supply power from an electrical outlet.

You can also use the Battery Charger (DMW-BTC15: optional).

- The battery that can be used with the camera is DMW-BLK22. (As of May 2026)



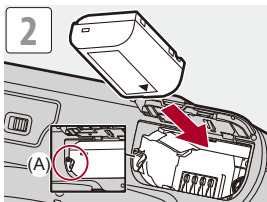
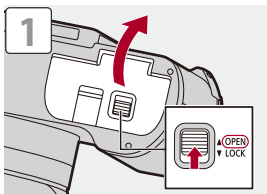
- The battery is not charged at the time of purchase. Charge the battery before use.

## Battery Insertion

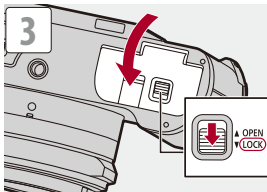
- Always use genuine Panasonic batteries (DMW-BLK22).
- If you use other batteries, we cannot guarantee the quality of this product.



- Check that the camera on/off switch is set to [OFF].

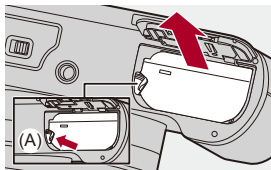


- Check that the lever (A) is holding the battery in place.



## ❖ Removing the Battery

- 1 Set the camera on/off switch to [OFF].
- 2 Open the battery door.
- 3 Push the lever (A) in the direction of the arrow and then remove the battery.
  - Check that the card access lights are off before removing the battery. (→ [Card Access Indications: 50](#))

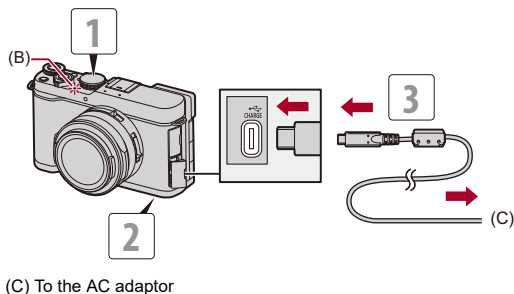


- Remove the battery after use.  
(The battery will drain if left inserted in the camera for a long period of time.)
- The battery becomes warm after use, during charging, and immediately after charging.  
The camera also becomes warm during use. This is not a malfunction.
- Be careful when removing the battery as the battery will jump out.

## Inserting a Battery into the Camera for Charging

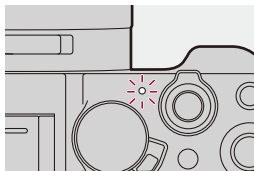


- It is recommended to use the **Panasonic AC Adaptor (DMW-AC11: optional)** or the supplied accessories of the **Panasonic Battery Charger (DMW-BTC15: optional)** for charging.
- You can charge the battery with the camera using a commercially available AC adaptor and a USB connection cable.
  - \*Recommended specifications for the commercially available AC adaptor
    - Supports 5 V/3 A (15 W) DC output
    - USB Type-C terminal
  - \*Use a USB connection cable with 15 W output or better for charging.
- You can also use an AC adaptor with 5 V/500 mA or better for charging. However, charging time may be longer than with the recommended AC adaptor.
- Operation is not guaranteed with all commercially available devices.



- 1 Set the camera on/off switch to [OFF].**
- 2 Insert the battery into the camera.**
- 3 Connect the camera USB port and the AC adaptor using the USB connection cable.**
  - Check the direction of the terminals and plug in/out straight holding onto the plug.  
(Inserting these at an angle may cause deformation or malfunction.)
- 4 Connect the AC adaptor to an electrical outlet.**
  - The charging light (B) turns red and charging begins.

#### ❖ Charging Light Indications



##### **Charging light (red)**

On: Charging.

Off: Charging has completed.

Blinking: Charging error.

## Charging time: Approx. 240 min

- Using either the camera and the optional AC adaptor (DMW-AC11), or the camera and the supplied accessories of the optional battery charger (DMW-BTC15).
- The indicated charging time is for when the battery has been discharged completely. The charging time may vary depending on how the battery has been used. The charging time for the battery in hot/cold environments or a battery that has not been used for a long time may be longer than normal.



- You can also charge the battery by connecting a USB device (PC, etc.) and the camera with the USB connection cable. In that case, charging may take a while.



- After charging, disconnect the connection to the power source.
- While the charging light is blinking red, charging is not possible.
  - The temperature of the battery or surroundings is either too high or too low. Try charging at an ambient temperature between 10 °C and 30 °C (50 °F and 86 °F).
  - The terminals of the battery are dirty. Remove the battery and wipe off the dirt with a dry cloth.
- Even when the camera on/off switch is set to [OFF] thus turning the camera off, it consumes power. When the camera will not be used for a long time, remove the power plug from the electrical outlet in order to save power.

## Using the Camera While Supplying It with Power (Supplying Power)

When the battery is inserted into the camera for charging and the camera is turned on, you can record while the camera is being supplied with power.

- **It is recommended to use the Panasonic AC Adaptor (DMW-AC11: optional) or the supplied accessories of the Panasonic Battery Charger (DMW-BTC15: optional) for supplying power.**

- The camera can be supplied with power with a commercially available AC adaptor and a USB connection cable.

\*Recommended specifications for the commercially available AC adaptor

–Supports 5 V/3 A (15 W) DC output

–USB Type-C terminal

\*Use a USB connection cable with 15 W output or better for supplying power.

- Operation is not guaranteed with all commercially available devices.

- [] is displayed in the screen while power is being supplied.



- You can also supply power by using a USB connection cable to connect the camera and a USB device (PC, etc.).



- The battery cannot be charged while power is being supplied.
- Turn off the camera before connecting or disconnecting the AC adaptor.
- Remaining charge in the battery may decrease depending on usage conditions. When the battery level is depleted, the camera will turn off.
- Depending on the power supply capabilities of the connected device, it may not be possible to supply power.
- **For information about the high temperature display (→ [For information about the high temperature display: 123](#))**

## Notifications Regarding Charging/Power Supply

### ❖ Power Indications

#### Indication on monitor




(D) USB connection cable supplying power

(E) Battery indication

	80 % or higher
	60 % to 79 %
	40 % to 59 %
	20 % to 39 %
	19 % or below
 <b>Blinking in red</b>	Low battery (The power indicator also blinks) <ul style="list-style-type: none"> <li>• Charge or replace the battery.</li> </ul>
<b>No indication</b>	DC Coupler fitted

- The battery level indicated on the screen is approximate.  
The exact level varies depending on the environment and the operating conditions.

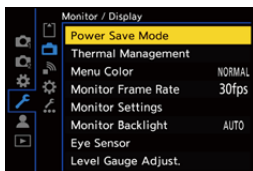


- **We recommend that genuine Panasonic batteries are used.**  
**There is a possibility that the use of non-genuine batteries can cause accidents or malfunctions that may lead to fire or explosion.**  
**Please be advised that we are not liable for any accident or failure resulting from the use of non-genuine batteries.**
- Do not leave any metal items (such as clips) near the contact areas of the power plug.  
Otherwise, a fire and/or electric shocks may be caused by short-circuiting or the resulting heat generated.
- Do not use USB extension cables or USB conversion adaptors.
- The battery can be charged even when it still has some charge left, but it is not recommended that the battery charge be frequently topped up while the battery is fully charged.
- If there is a power outage or other problem with the electrical outlet, then charging may not complete successfully.  
Reconnect the power plug.
- Do not connect to keyboard or printer USB ports, or to USB hubs.
- If the connected PC enters sleep status, then charging/power supply may stop.
- If the battery indication does not go to  even when charging is complete, the battery may be deteriorating.  
Try not to use that battery.

## [Power Save Mode]

This is a function to automatically turn the camera to sleep (power save) status or turn off the viewfinder/monitor if no operation is performed for a set time. Reduces battery consumption.

**MENU / SET** → [  ] → [  ] → **Select [Power Save Mode]**



<b>[Sleep Mode]</b>	Sets the amount of time until the camera is put to sleep. <ul style="list-style-type: none"> <li>When [Sleep Mode] is set to [OFF], the power consumption of this camera may rise.</li> </ul>
<b>[Auto LVF/ Monitor Off]</b>	Sets the amount of time it takes for the viewfinder/monitor to turn off. (The camera is not turned off.)

<b>[Power Save LVF Shooting]</b>		Puts the camera to sleep when the recording screen is being displayed on the monitor when automatic viewfinder/monitor switching is active.
	<b>[Time to Sleep]</b>	Sets the amount of time until the camera is put to sleep.
	<b>[Method of Activation]</b>	<p>Sets the screen where the camera is put to sleep.</p> <p><b>[Only Control Panel]:</b> Puts the camera to sleep only when the control panel (→ <a href="#">Control Panel: 80</a>) is displayed.</p> <p><b>[While Recording Standby]:</b> Puts the camera to sleep from any screen during recording standby.</p>

- To recover from [Sleep Mode] or [Power Save LVF Shooting], perform one of the following operations:
  - Press the shutter button halfway.
  - Set the camera on/off switch to [OFF] and then [ON] again.
- To recover from [Auto LVF/Monitor Off], press any button.

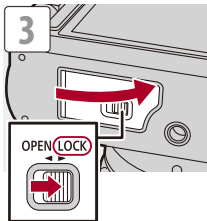
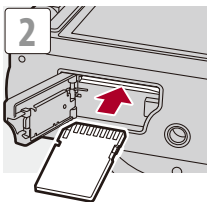
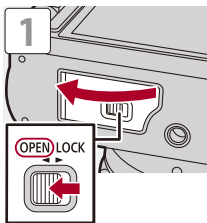


- [Power Save Mode] is not available in the following cases:
  - While connected to a PC
  - During video recording/video playback
  - During a [Time Lapse Shot]
  - When recording with [Stop Motion Animation] (when [Auto Shooting] is set)
  - When recording with [Live View Composite]
  - When recording with [Multiple Exposure]
  - When recording with [Focus Transition]
  - During a [Slide Show]

## Inserting a Card (Optional)



- Format the cards with the camera before use. (→[\[Card Format\]: 574](#))



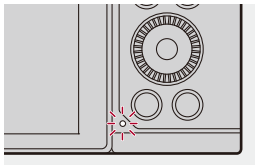
- Match the orientation of the cards as shown in the figure and then insert them firmly until they click.



- You can set the folder and file name where to save the images:  
(→ [\[Folder / File Settings\]: 575](#))

## ❖ Card Access Indications

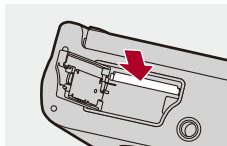
The card access light turns on while the card is being accessed.





- The card may be warm just after the camera has been used.
- **Do not perform the following operations during access.**  
**The camera may operate incorrectly or the card and recorded images may be damaged.**
  - Turn off the camera.
  - Remove the battery or card or disconnect the power plug.
  - Subject the camera to vibration, impacts, or static electricity.

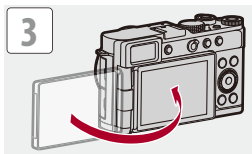
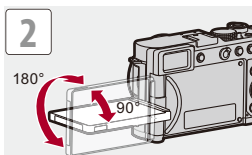
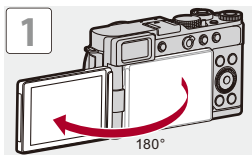
## ❖ Removing a Card



- 1 Open the card door.
- 2 Push the card until it clicks and then pull the card out straight.
  - Check that the card access lights are off before removing the card.

## Adjusting the Monitor Direction and Angle

At the time of purchase, the monitor is stowed in the camera body.





- The angles of adjustment are guides only.
- Do not apply an excessive force to the monitor. This may cause damage or malfunction.
- When not using the camera, close the monitor with the monitor surface facing in.



- You can set whether the screen flips or not depending on the facing or angle of the monitor during recording:  
(→ [\[LVF/Monitor Disp. Set\]: 562](#))

## Setting the Clock (When Turning On for the First Time)

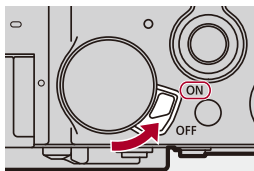
---

When you turn the camera on for the first time, a screen to set the time zone and clock appears.

Be sure to set these settings before use to ensure images are recorded with the correct date and time information.


### 1 Set the camera on/off switch to [ON].

- If the language select screen is not displayed, proceed to Step 4.





### 2 When [Please set the language] appears, press .

### 3 Set the language.

- Press ▲▼ to select the language and then press .

### 4 When [Please set the time zone] appears, press .

## 5 Set the time zone.

- Press ◀▶ to select the time zone and then press .
- If you are using Daylight Savings [, press ▲. (The time will move forward by 1 hour.)  
To return to the normal time, press ▲ again.



(A)

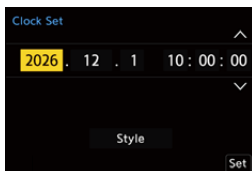
(A) Time difference from GMT (Greenwich Mean Time)

## 6 When [Please set the clock] appears, press .

## 7 Set the clock.

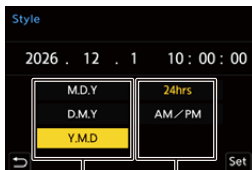
◀▶: Select an item (year, month, day, hour, minute, or second).

▲▼: Select a value.



### To set the display order and time display format


- To display the screen for setting the display order (B) and time display format (C), select [Style] by pressing ▶◀ and then press

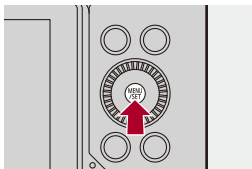


(B)

(C)

## 8 Confirm your selection.

- Press .



## 9 When [The clock setting has been completed.] appears, press .



- If the camera is used without setting the clock, it will be set to "0:00:00 1/1/2026".
- Clock settings are maintained for approx. 3 months using the built-in clock battery even without the battery.  
(Leave the fully-charged battery in the camera for approx. 24 hours to charge the built-in battery.)



- [Time Zone] and [Clock Set] can be changed from the menu:  
(→ [Time Zone]: 589, [Clock Set]: 589)

# Basic Operations

This chapter describes basic camera operations and the Intelligent Auto mode which helps you start recording immediately.

- [How to Hold the Camera: 59](#)
- [Photo/Video/S&Q Switch: 61](#)
- [Selecting the Recording Mode: 62](#)
- [Camera Setting Operations: 64](#)
- [Monitor/Viewfinder Display Settings: 69](#)
- [Quick Menu: 78](#)
- [Control Panel: 80](#)
- [Menu Operation Methods: 82](#)
- [Entering Characters: 88](#)
- [Intelligent Auto Mode: 89](#)
- [Recording Using Touch Functions: 95](#)

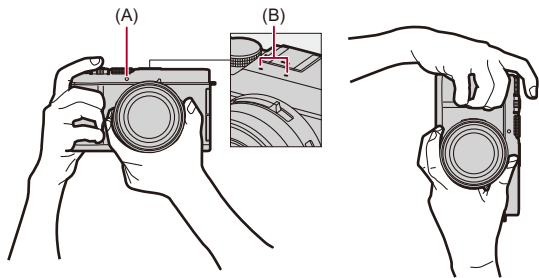
## How to Hold the Camera

---

To minimize camera shake, hold the camera so that it will not move during recording.

**Hold the camera with both hands, keep your arms still at your side, and stand with your feet shoulder width apart.**

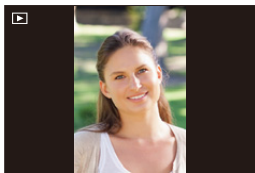
- Hold the camera firmly by wrapping your right hand around the camera grip.
- Support the lens from below with your left hand.
- Do not cover the AF assist light (A) or microphone (B) with your fingers or other objects.



## ❖ Vertical Orientation Detection Function

This function detects when pictures were recorded with the camera held vertically orientated.

With the default settings, pictures are automatically played back vertically orientated.



- If you set [Rotate Disp.] to [OFF], pictures will be played back without being rotated. (→[Rotate Disp.]: 496)



- When the camera is tilted significantly up or down, the vertical orientation detection function may not work correctly.



- You can set whether or not to record the camera's vertical orientation information during video recording: (→[Vertical Position Info (Video)]: 572)

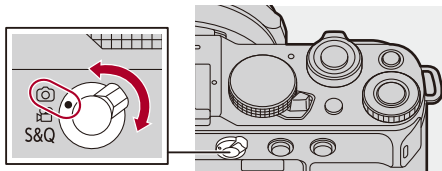
---

## Photo/Video/S&Q Switch

---

Switch the photo/video/S&Q switch to suit the type of recording you want to make.

### Switch the photo/video/S&Q switch.



---

#### (Photo mode)

Select when taking pictures. (→ [Basic Picture Operations: 101](#))

---

#### (Video mode)

Select when recording video. (→ [Basic Video Operations: 115](#))



---

#### **S&Q (Slow & Quick mode)**

Select when recording Slow & Quick video. (→ [Slow & Quick Video: 413](#))

---

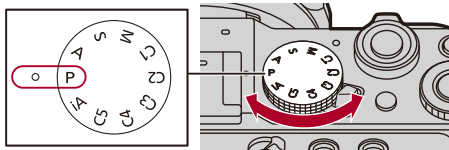


- The [Photo] menu is displayed only in [] mode and the [Video] menu is displayed only in []/[S&Q] mode. Select the appropriate mode to view the [Photo] menu or [Video] menu.

## Selecting the Recording Mode

---

Rotate the mode dial to select the recording mode.



---

### [iA]

Intelligent Auto mode (→ [Intelligent Auto Mode: 89](#))

---

### [P]

Program AE mode (→ [Program AE Mode: 270](#))

---

### [A]

Aperture-Priority AE mode (→ [Aperture-Priority AE Mode: 274](#))

---

### [S]

Shutter-Priority AE mode (→ [Shutter-Priority AE Mode: 277](#))

---

### [M]

Manual Exposure mode (→ [Manual Exposure Mode: 280](#))

---

### [C1]/[C2]/[C3]/[C4]/[C5]

Custom mode (→ [Custom Mode: 531](#))

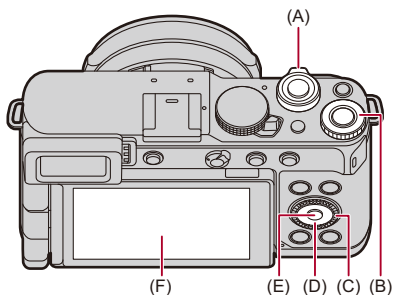
---



- You can fix the exposure setting for picture or video/S&Q to a desired exposure mode when the mode dial is set to [P]/[A]/[S]/[M]:  
(→ [\[Exposure Control in P/A/S/M\]: 544](#))

## Camera Setting Operations

When changing the camera settings, operate the camera using the following operation parts.



(A) Zoom lever (  ) (→[Zoom lever: 65](#))

(B) Rear dial (  ) (→[Rear Dial: 65](#))

(C) Control dial (  ) (→[Control Dial: 65](#))

(D) Cursor buttons (  ) (→[Cursor Buttons: 66](#))

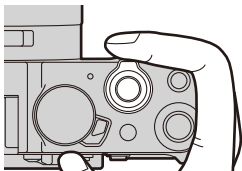
(E) [MENU/SET] button (  ) (→[\[MENU/SET\] Button: 66](#))

(F) Touch screen (→[Touch Screen: 67](#))

## ❖ Zoom lever

### Turn:

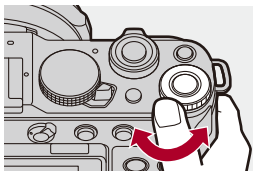
Selects an item or numeric value.



## ❖ Rear Dial

### Rotate:

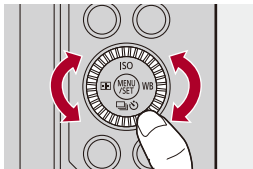
Selects an item or numeric value.



## ❖ Control Dial

### Rotate:

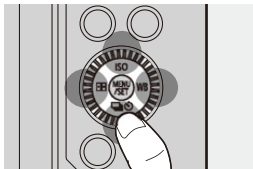
Selects an item or numeric value.



## ❖ Cursor Buttons

### Press:

Selects an item or numeric value.

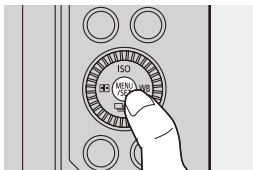


## ❖ [MENU/SET] Button

### Press:

Confirms a setting.

- Displays the menu during recording and playback.

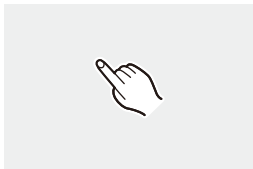


## ❖ Touch Screen

Operations can be performed by touching the icons, slide bars, menus, and other items displayed on the screen.

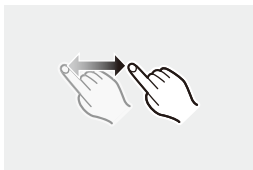
### Touch

Operation of touching and then lifting your finger from the touch screen.



### Drag

Operation of moving a finger while it touches the touch screen.



### Pinch (widen/narrow)

Operations of widening the distance between two fingers (pinch out) and narrowing the distance between two fingers (pinch in) while they are touching the touch screen.



- If you will use a commercially available monitor protection sheet, observe the precautions for the sheet.  
(Visibility and operability may be impaired depending on the type of monitor protection sheet.)



- Touch operations can be disabled:  
(→ [\[Touch Settings\]: 553](#))

## Monitor/Viewfinder Display Settings

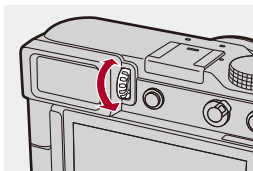
- [Setting the Viewfinder: 69](#)
- [Switching Between the Monitor and Viewfinder: 70](#)
- [Switching the Display Information: 73](#)
- [\[Live View Vertical Display\]: 76](#)

### Setting the Viewfinder

#### ❖ Adjusting the Viewfinder Diopter

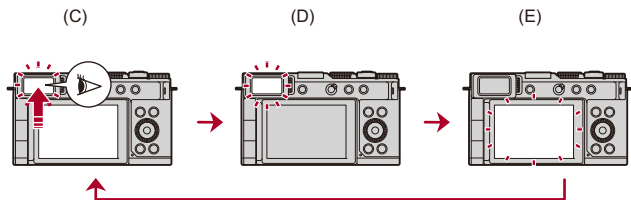
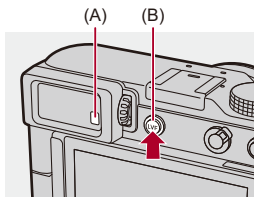
**Rotate the diopter adjustment dial while looking through the viewfinder.**

- Adjust until you can clearly see the text on the viewfinder.



## Switching Between the Monitor and Viewfinder

With the default settings, automatic viewfinder/monitor switching is set. When you look through the viewfinder, the eye sensor (A) works and the camera switches from monitor display to viewfinder display. You can switch to viewfinder display or monitor display with [LVF] button (B).



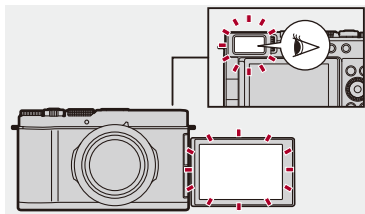
(C) Automatic viewfinder/monitor switching

(D) Viewfinder display

(E) Monitor display

## ❖ Simultaneous Display on the Monitor and Viewfinder

When automatic viewfinder/monitor switching (C), if the monitor is rotated towards the lens, the recording screen is displayed on the monitor even when you look into the viewfinder.





- The eye sensor may not work correctly due to the shape of eyeglasses, the way the camera is held, or bright light shining around the eyepiece.
- During video playback or slide show, automatic viewfinder/monitor switching does not work.

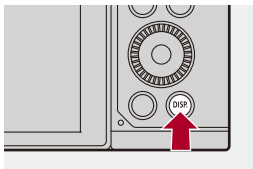


- To focus when looking through the viewfinder:  
(→ [\[Eye Sensor AF\]: 551](#))
- The sensitivity of the eye sensor can be changed:  
(→ [\[Eye Sensor\]: 580](#))
- You can set the display speed for live view on the monitor:  
(→ [\[Monitor Frame Rate\]: 579](#))
- You can adjust the brightness, coloring, red or blue tints, etc., of the monitor/  
viewfinder:  
(→ [\[Monitor Settings\]/\[Viewfinder\]: 579](#))
- You can adjust monitor/viewfinder luminance:  
(→ [\[Monitor Backlight\]/\[LVF Luminance\]: 580](#))

## Switching the Display Information

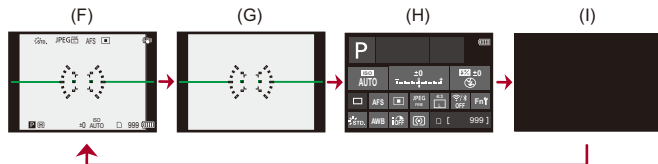
### Press [DISP.].

- The display information is switched.



### ❖ Recording Screen

#### Monitor



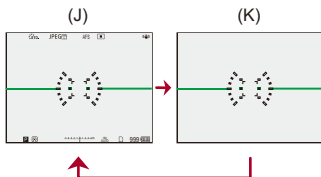
(F) With information

(G) Without information

(H) Control panel

(I) Turned off (black)

## Viewfinder



(J) With information

(K) Without information

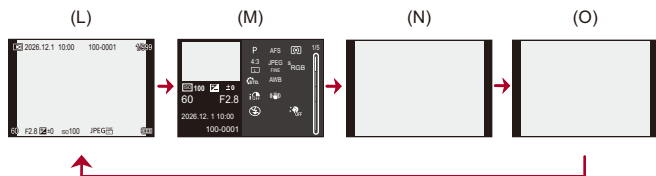


- Press [**↔**] to switch between display/hide of the level gauge.  
This can also be set by using [Level Gauge]. (→[\[Level Gauge\]: 566](#))



- Control panel operation (→[Control Panel: 80](#))
- You can hide the control panel and black screen:  
(→[\[Show/Hide Monitor Layout\]: 567](#))
- The display can be changed so that live view and display information do not overlap:  
(→[\[LVF/Monitor Disp. Set\]: 562](#))
- You can display the outline for the live view:  
(→[\[Framing Outline\]: 567](#))

## ❖ Playback Screen



(L) With information

(M) Detailed information display

- Pressing ▲▼ switches the display information. (→ [Detailed information display: 681](#))

(N) Without information

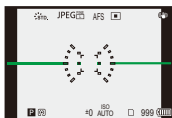
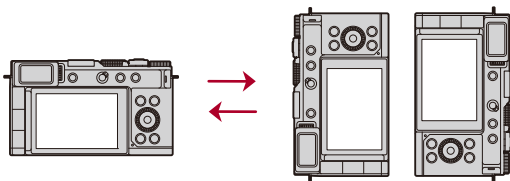
(O) Without blinking highlights

- This is a screen without blinking highlights display that is shown when [Blinking Highlights] of the [Custom] ([Monitor / Display (Photo)]) is set to [ON].

In other than this screen, overexposed parts of the screen will blink. (→ [Blinking Highlights\]: 564](#))

## [Live View Vertical Display]

When the camera is turned to the vertical, the screen also switches to a vertical display.



- When in the vertical display, the directions of the cursor buttons also rotate accordingly. Operate to match the orientation of the screen.



- When in the vertical display, long messages may be abbreviated, with ellipses (...) appearing at the end. Turn the camera to the horizontal orientation to see the complete message.
- The following screens will not be displayed vertically:
  - [Q.MENU]
  - Control panel
  - Playback Screen
  - Menu screen
  - [Focus Stacking]
  - [Live View Composite]
  - [Multiple Exposure]
  - [Focus Transition]
  - [Live Cropping]
  - When the monitor is facing the same way as the lens



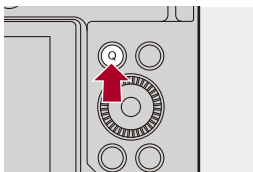
- You can disable the vertical display:  
(→ [\[Live View Vertical Display\]: 567](#))

# Quick Menu


This menu enables you to quickly set functions that are frequently used during recording without calling up the menu screen. You can also change the Quick menu display method and the items to display.

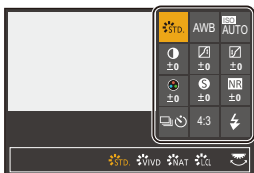
## 1 Display the Quick menu.

- Press [Q].




## 2 Select a menu item.

- Press ▲▼◀▶.
- Selection is also possible by rotating .
- Selection is also possible by touching a menu item.



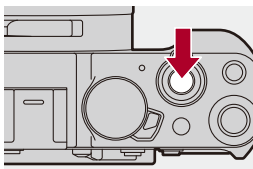
### 3 Select a setting item.

- Rotate .
- Selection is also possible by touching a setting item.



### 4 Close the Quick menu.

- Press the shutter button halfway.
- You can also close the menu by pressing [Q].



- Some items cannot be set depending on the recording mode or camera settings.



- The Quick menu can be customized:  
(→ [Quick Menu Customization: 524](#))

# Control Panel

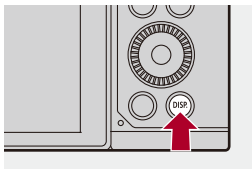
This screen allows you to view the current recording settings on the monitor. You can also touch the screen to change the settings.

In the [P] mode (Video mode)/[S&Q] mode (Slow & Quick mode), the display changes to one especially for video.

- For information about the screen (→ [Control Panel \(Photo Mode\): 670](#), [Control Panel \(Video Mode/S&Q Mode\): 673](#))

## 1 Display the control panel.

- Press [DISP.] several times.



## 2 Touch the items.

Example) Changing the AF mode



### 3 Change the setting.

- Touch the setting item.
- Refer to the pages explaining each item for information on how to change the settings.



### 4 Touch [Set].



- Some items cannot be set depending on the recording mode or camera settings.

## Menu Operation Methods

- [Reset]: 87

In this camera, the menu is used for setting a wide variety of functions and performing camera customizations.

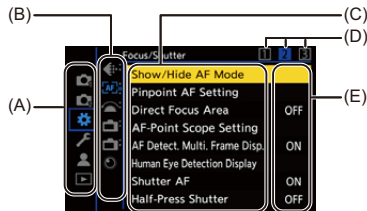
Menu operations can be performed using the cursors, dial, zoom lever or by touch.

### Configuration and operation parts of the menu

The menu can be operated by pressing ◀▶ to move between menu screens.

Use the operation parts indicated below to operate the main tab, the sub tab, the page tab, and menu items without moving to the corresponding menu levels.

- You can also operate by touching the icons, menu items, and setting items.



(A) Main tab\* ([Q] button)

(B) Sub tab (◀▶)


(C) Menu item (☀)

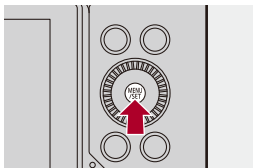
(D) Page tab (◀▶)

(E) Setting item






- \* The [Photo] menu is displayed only in [⊙] mode and the [Video] menu is displayed only in [📷]/[S&Q] mode. Select the appropriate mode to view the [Photo] menu or [Video] menu. (→ [Photo/Video/S&Q Switch: 61](#))

# 1 Display the menu.

- Press .





# 2 Select a main tab.

- Press   to select a main tab and then press .
- You can also perform the same operation by rotating  to select the main tab and then pressing .



### 3 Select a sub tab.



- Press ▲▼ to select a sub tab and then press ►.
- You can also perform the same operation by rotating  to select the sub tab and then pressing .
- If there are page tabs (D), then after the page tabs have finished switching, the next sub tab is switched to.



(D)






### 4 Select a menu item.

- Press ▲▼ to select a menu item and then press ►.
- You can also perform the same operation by rotating  to select the menu item and then pressing .




## 5 Select a setting item and then confirm your selection.

- Press ▲▼ to select a setting item and then press .
- You can also perform the same operation by rotating  to select the setting item and then pressing .



## 6 Close the menu.

- Press the shutter button halfway.
- You can also close the menu by pressing [




## ❖ Displaying Descriptions About Menu Items and Settings

If you press [DISP.] while a menu item or setting item is selected, a description about the item is displayed on the screen.

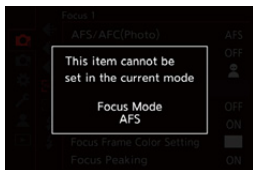


## ❖ Grayed Out Menu Items

Menu items that cannot be set are displayed grayed out.

If you press  while a grayed out menu item is selected, the reason why it cannot be set is displayed.

- The reason why a menu item cannot be set may not be displayed depending on the menu item.

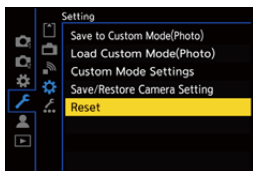


## [Reset]

Return each of the following settings to the default setting:

- Recording settings
- Network settings (settings of [Wi-Fi] and [Bluetooth])
- Setup and custom settings (other than [Wi-Fi] and [Bluetooth])

 →  →  → **Select [Reset]**



- If the setup and custom settings are reset, the [Playback] menu is also reset.
- The [LUT Library] is returned to the default settings when setup and custom settings are reset. Registered LUTs are deleted.
- The folder numbers and clock settings are not reset.








- List of default settings and settings that can be reset (→ [List of Default Settings/ Custom Saving/Settings Available for Copying: 720](#))

# Entering Characters


Follow the steps below when the character entry screen is displayed.

## 1 Enter characters.

- Press ▲▼◀▶ to select characters and then press  until the character to enter is displayed. (Repeat this)
- To repeatedly enter the same character, rotate  to the right to move the entry position cursor.
- If you select an item and press , you can perform the following operations:
  - []: Change the character type to [A] (upper case characters), [a] (lower case characters), [1] (numbers), and [&] (special characters)
  - []: Enter a blank
  - [Delete]: Delete a character
  - [<]: Move the entry position cursor to the left
  - [>]: Move the entry position cursor to the right
- When entering a password, (A) shows the number of characters you have entered and the number of characters you can enter.



## 2 Complete entering.

- Select [Set] and then press .

# Intelligent Auto Mode

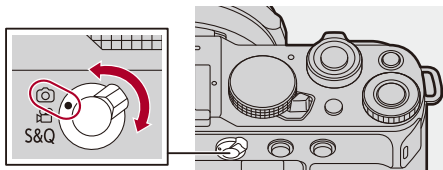


The [iA] mode (Intelligent Auto mode) can record images using settings automatically selected by the camera.

The camera detects the scene to set the optimal recording settings automatically to match the subject and recording conditions.

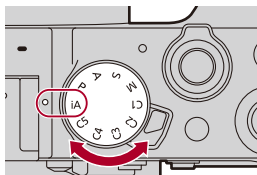
## 1 Set to [📷], [📹], or [S&Q] mode.

- Switch the photo/video/S&Q switch. (→ [Photo/Video/S&Q Switch: 61](#))



## 2 Set the recording mode to [iA].

- Set the mode dial. (→ [Selecting the Recording Mode: 62](#))



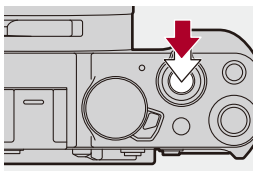
### 3 Aim the camera at the subject.

- When the camera detects the scene, the recording mode icon changes.  
(Automatic Scene Detection)



### 4 Adjust the focus.

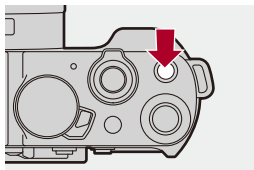
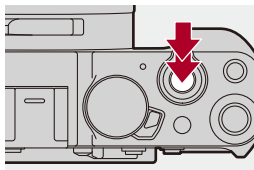
- Press the shutter button halfway.
- Once the subject is in focus, the focus icon lights.  
(When the subject is not in focus, the indication blinks.)
- [AF-ON] of the AF mode works and the AF area is displayed aligned to any humans.



## 5 Start recording.










- Press the shutter button fully to take pictures.
- Press the video rec. button to record videos.

In [P]/[S&Q] mode, you also can start recording video by pressing the shutter button fully.



- Backlight compensation operates automatically to prevent subjects from appearing dark when there is a backlight.

## ❖ Types of Automatic Scene Detection

		Taking pictures	Recording video
	i-Portrait <sup>*1</sup>	✓	✓
	i-Scenery	✓	✓
	i-Macro	✓	✓
	i-Night Portrait <sup>*2</sup>	✓	
	i-Night Scenery	✓	
	i-Food	✓	
	i-Sunset	✓	
	i-Low Light		✓
	iA <sup>*3</sup>	✓	✓

\*1 Detected when [Detecting Subject] ([Type of Subject]) in the [Photo] ([Focus]) menu is set to [HUMAN].

\*2 Detected when using an external flash.


\*3 Detected when [Detecting Subject] ([Type of Subject]) in the [Photo] ([Focus]) menu is set to other than [HUMAN].

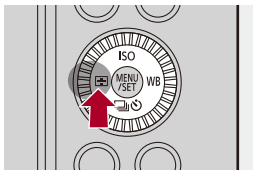


- If none of the scenes are applicable, recording is with [iA] (standard setting).
- Different scene types may be selected for the same subject depending on the recording conditions.
- Not all subjects can be detected according to the settings.
- When [Detecting Subject] ([Type of Subject]) is [ANIMAL], some subjects that are not animals may be detected as animals.

## ❖ AF Mode

### Changing the AF mode.

- Each press of [] (◀) changes the AF mode.
- The mode can also be changed by touching the screen.
- [AF Detection Setting] is fixed to [ON].
- The [Detecting Subject] setting is maintained for any recording mode other than [iA] mode. (➔ [Automatic Detection: 164](#))



---

### **([Full Area AF])**

Detects subjects for recording and focuses.



- You can switch the subject to be focused by touching one of the white AF areas.
-

### [] ([Tracking])

When the focus mode is set to [AFC], the AF area follows the movement of the subject, maintaining focusing.



**Aim the AF area over the subject and then press and hold the shutter button halfway.**



- The camera will track the subject while the shutter button is pressed halfway or fully.



- For information about AF modes (→ [Automatic Detection: 164](#), [\[Tracking\]: 170](#))

### **Flash**

When recording using a flash, the camera switches to the appropriate flash mode for the recording conditions.

When Slow Sync. (, []), be careful with regard to camera shake because the shutter speed becomes slow.



- For information about external flashes (→ [Using an External Flash: 348](#))

## Recording Using Touch Functions

---

- [Touch AF/Touch Shutter: 95](#)
- [Touch AE: 98](#)

### Touch AF/Touch Shutter



Touch functions allow you to focus on the point that you touch, release the shutter, etc.



- With the default settings, the Touch Tab is not displayed.  
Set [Touch Tab] to [ON] in [Touch Settings] in the [Custom] ([Operation]) menu.  
(→ [\[Touch Settings\]: 553](#))

1 Touch [**<**].

2 Touch the icon.

- The icon switches each time you touch it.



---

☞ **AF** (Touch AF)

Focus on the touched position.

---

☞ **Shutter** (Touch Shutter)

Record with focus on the touched position.

---

☞ **X** (OFF)

---

3 (When set to anything other than OFF) Touch the subject.





- When the Touch Shutter fails, the AF area first turns red and then disappears.



- For information about operations to move the AF area (→ [AF Area Operations: 181](#))
- It is also possible to optimize the focus and brightness on the touched position: (→ [Focus on and Adjust Brightness for the Touched Position \(\[AF+AE\]\): 185](#))

## Touch AE



S&Q

iA P A S M

This function adjusts the brightness according to a touched position. When a subject's face appears dark, you can make the screen brighter to match the face.



- With the default settings, the Touch Tab is not displayed.  
Set [Touch Tab] to [ON] in [Touch Settings] in the [Custom] ([Operation]) menu.  
(→[Touch Settings]: 553)

1 Touch [].

2 Touch [].

- The Touch AE settings screen appears.




### 3 Touch the subject to which you wish to adjust the brightness.

- To return the position to which to adjust the brightness to the center, touch [Reset].



### 4 Touch [Set].

#### ❖ How to Disable Touch AE

Touch [  ].



- When the following function is being used, Touch AE is not available:
  - [Live Cropping]



- You can also adjust both the focus and brightness to those of the position you touch. (At this time, Touch AE is not available):  
(→ [Focus on and Adjust Brightness for the Touched Position \(\[AF+AE\]\): 185](#))

# Taking Pictures

These are the basic operations and settings for taking pictures.

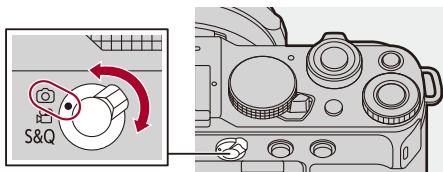
- [Basic Picture Operations](#): 101
- [\[Aspect Ratio\]](#): 104
- [\[Picture Size\]](#): 106
- [\[Rec. File Format\(Photo\)\]](#): 108
- [\[Switch JPEG/HEIF\]](#): 111
- [\[JPEG/HEIF Picture Quality\]](#): 113

# Basic Picture Operations



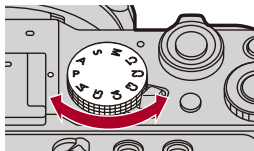
## 1 Set to [📷] mode.

- Switch the photo/video/S&Q switch. (→ [Photo/Video/S&Q Switch: 61](#))



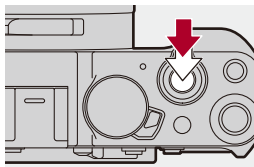
## 2 Select the recording mode ([iA]/[P]/[A]/[S]/[M]).

- Set the mode dial. (→ [Selecting the Recording Mode: 62](#))

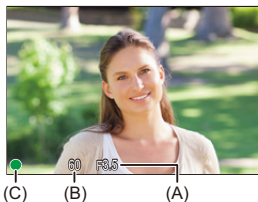


### 3 Adjust the focus.

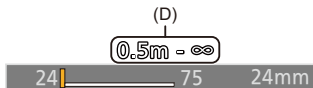
- Press the shutter button halfway (press it gently).



- The aperture value (A) and shutter speed (B) are displayed. (When the correct exposure cannot be obtained, the indications blink in red.)
- Once the subject is in focus, the focus icon (C) lights. (When the subject is not in focus, the indication blinks.)
- You can also perform the same operation by pressing [AF ON].



#### Focus range

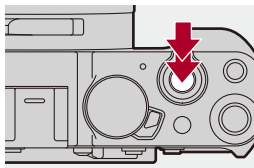


Focus range (D) is displayed when operating the zoom.

The focus range may change gradually depending on the zoom position.

## 4 Start recording.

- Press the shutter button fully (press it further).



- Recorded pictures can be displayed automatically by setting [Auto Review] of the [Custom] ([Monitor / Display (Photo)]) menu. You can also change the picture display duration to your preferred setting. (→[Auto Review]: 558)



- **With the default settings, you cannot take a picture until the subject is brought into focus.**

If you set [Focus/Shutter Priority] in the [Custom] ([Focus/Shutter]) menu to [BALANCE] or [RELEASE], you will be able to take a picture even when the subject is not in focus. (→[Focus/Shutter Priority]: 545)

---

# [Aspect Ratio]

---



iA P A S M

You can select the image aspect ratio.

## 1 Set to [📷] mode.

(→ [Photo/Video/S&Q Switch: 61](#))

## 2 Set [Aspect Ratio].

- → [📷] → [⚙️] → [Aspect Ratio]



---

### [4:3]

Aspect ratio of a 4:3 monitor

---

### [3:2]

Aspect ratio of a standard film camera

---

### [16:9]

Aspect ratio of a 16:9 TV

---

### [1:1]

Square aspect ratio

---



- A frame for trimming (cropping) can be displayed on the recording screen:  
(→[Frame Marker]: 409)

# [Picture Size]



iA P A S M

Sets the picture's image size.

## 1 Set to [📷] mode.

(→ [Photo/Video/S&Q Switch: 61](#))

## 2 Set [Picture Size].

• [MENU/SET] → [📷] → [⚙️] → [Picture Size]



[Aspect Ratio]	[Picture Size]	
[4:3]	[L] (20.5M)	5200×3904
	[M] (10.5M)	3744×2808
	[S] (5M)	2624×1968
	[XS] (3M)	1920×1440
[3:2]	[L] (19.5M)	5408×3608
	[M] (10M)	3888×2592
	[S] (5M)	2736×1824
	[XS] (2.5M)	1920×1280
[16:9]	[L] (18M)	5664×3192
	[M] (9.5M)	4096×2304
	[S] (4.5M)	2832×1592
	[XS] (2M)	1920×1080
[1:1]	[L] (15M)	3904×3904
	[M] (8M)	2816×2816
	[S] (4M)	1968×1968
	[XS] (2M)	1440×1440

- When [Crop Zoom(Photo)] is set, [Cr] is displayed on the image size.



- When the following functions are being used, [Picture Size] is not available:
  - [RAW] ([Rec. File Format(Photo)])
  - [Multiple Exposure]

## [Rec. File Format(Photo)]



iA P A S M

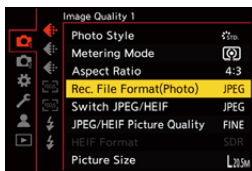
Sets the recording file format of pictures to be recorded.

### 1 Set to [📷] mode.

(→ [Photo/Video/S&Q Switch: 61](#))

### 2 Set [Rec. File Format(Photo)].

• → [📷] → [⚙️] → [Rec. File Format(Photo)]



---

### **[JPEG]**

This records JPEG images.

- This is available when [Switch JPEG/HEIF] is [JPEG]. (→[\[Switch JPEG/HEIF\]: 111](#))

---

### **[HEIF]**

This records HEIF images.

- This is available when [Switch JPEG/HEIF] is [HEIF]. (→[\[Switch JPEG/HEIF\]: 111](#))

---

### **[RAW+JPEG]**

This records RAW and JPEG images simultaneously.

- This is available when [Switch JPEG/HEIF] is [JPEG]. (→[\[Switch JPEG/HEIF\]: 111](#))

---

### **[RAW+HEIF]**

This records RAW and HEIF images simultaneously.

- This is available when [Switch JPEG/HEIF] is [HEIF]. (→[\[Switch JPEG/HEIF\]: 111](#))

---

### **[RAW]**

This records RAW images.

---



### Note on RAW

RAW format refers to a data format of images that have not been processed on the camera.

Playback and editing of RAW images require the camera or the dedicated software.

- You can process RAW images on the camera. (→[\[RAW Processing\]: 481](#))
- Use software (“SILKYPIX Developer Studio” by TECHNO HORIZON) to process and edit RAW files on a PC. (→[SILKYPIX Developer Studio SE: 641](#))



- Depending on the [Aspect Ratio], RAW images are recorded in the following sizes:
  - [4:3]: 5208×3912
  - [3:2]: 5416×3616
  - [16:9]: 5672×3200
  - [1:1]: 3912×3912
- When you delete an image recorded with [RAW+JPEG]/[RAW+HEIF] on the camera, both the RAW and JPEG/HEIF images will be deleted simultaneously.
- When the following function is being used, [Rec. File Format(Photo)] is not available:
  - [Multiple Exposure]



- You can assign the function that records a RAW image and a JPEG/HEIF image simultaneously once only to an Fn button:  
(→[\[1 Shot RAW+JPEG\]/\[1 Shot RAW+HEIF\]: 509](#))
- Selects a Color Space setting from [sRGB] or [AdobeRGB]:  
(→[\[Color Space\]: 543](#))

## [Switch JPEG/HEIF]

---



Sets the file format (JPEG or HEIF) when recording pictures.

### 1 Set to [📷] mode.

(→ [Photo/Video/S&Q Switch: 61](#))

### 2 Set [Switch JPEG/HEIF].

-  → [📷] → [⚙️] → [Switch JPEG/HEIF]



---

### [JPEG]

This records JPEG images.

---

### [HEIF]

This records HEIF images.

- This is a format for saving that has a higher compression rate compared to JPEG, but the environments where the recorded pictures can be played back or printed are limited.
-



### Notes about HEIF

HEIF is a format for saving that has a higher compression rate compared to JPEG, allowing for high image quality in a file with a small size. However, depending on the PC and software, you may be unable to display, edit, or print HEIF files.

You will need an environment that supports HEIF to play back HEIF images.



- HEIF images are saved as files with the ".HIF" extension. Depending on the PC and software, you may be unable to load the files. If this is the case, change the file extension to ".HEIC".



- You can record HLG (Hybrid Log Gamma) format HEIF images:  
(→ [HLG Recording \(HEIF Format\): 344](#))

## [JPEG/HEIF Picture Quality]



iA P A S M

Set the compression rate when saving JPEG images or HEIF images.

- This is available when [Rec. File Format(Photo)] is [JPEG]/[HEIF]/[RAW+JPEG]/[RAW+HEIF]. (→[Rec. File Format(Photo)]: 108)

### 1 Set to [📷] mode.

(→[Photo/Video/S&Q Switch]: 61)

### 2 Set [JPEG/HEIF Picture Quality].

- → [📷] → [⏏️] → [JPEG/HEIF Picture Quality]



#### [FINE]

This records JPEG images or HEIF images with image quality prioritized.

#### [STD.]

This records JPEG images or HEIF images with standard image quality.

This is useful for increasing the number of recordable pictures without changing the picture size.

# Recording Videos

These are the basic operations and settings for recording videos.

- Please also refer to the following chapters for more detailed information about recording videos:
  - [Video Settings: 366](#)
  - [Special Video Recording: 412](#)
- [Basic Video Operations: 115](#)
- [\[System Frequency\]: 125](#)
- [\[Rec. File Format\(Video\)\]: 127](#)
- [\[Rec Quality\]: 128](#)
- [\[Image Area of Video\]: 142](#)

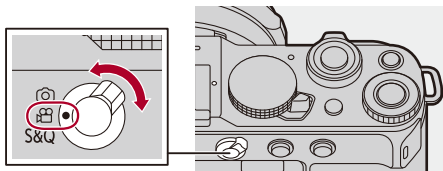
# Basic Video Operations



This camera is capable of recording video in a variety of resolutions. It also supports switching of the system frequency and the [MP4(Lite)], [MP4], and [MOV] recording file formats.

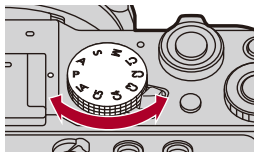
## 1 Set to [📷] or [S&Q] mode.

- Switch the photo/video/S&Q switch. (→ [Photo/Video/S&Q Switch: 61](#))
- Video recording is still possible in [📷] mode, but there are limitations, such as being unable to change exposure and audio settings using touch operations. (→ [Limitations on Video Recording in Photo Mode: 122](#))



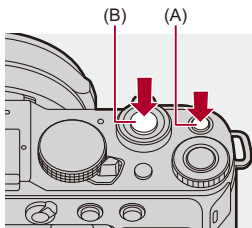
## 2 Select the recording mode ([iA]/[P]/[A]/[S]/[M]).

- Set the mode dial. (→ [Selecting the Recording Mode: 62](#))

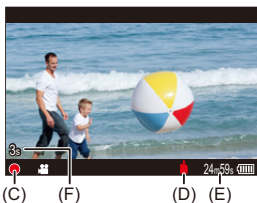


### 3 Start recording.

- Press the video rec. button (A).
- In [📷]/[S&Q] mode, you can also perform the same operation by pressing the shutter button (B) fully.
- Release the video rec. button right after you press it.



- The recording state indication (C) and card access indication (D) turn red while videos are being recorded.



(E) Video recording time

(F) Elapsed recording time

- “h” is an abbreviation for hour, “m” for minute and “s” for second.

## 4 Stop recording.

- Press the video rec. button (A) again.
- In [S&Q]/[S&Q] mode, you can also perform the same operation by pressing the shutter button (B) fully.



- If maintaining focus on the subject is difficult during video recording with AF, press the shutter button halfway to re-adjust the focus.

## ❖ Operations During Video Recording

In [⏏]/[S&Q] mode, you can change the exposure and audio settings with touch operations to prevent operation sounds from being recorded.



- With the default settings, the Touch Tab is not displayed.

Set [Touch Tab] to [ON] in [Touch Settings] in the [Custom] ([Operation]) menu.

(→[Touch Settings]: 553)

- 1 Touch [] or [].
- 2 Touch an icon.

---

**F** Aperture value

---

**SS** Shutter speed

---

Exposure compensation

---

**ISO** ISO sensitivity

---

<sub>dB</sub> Sound recording level adjustment

(→[Sound Rec Level Adj.]: 381)

- This setting is available only in [⏏] mode.

---

**S&Q** Slow & Quick setting

(→[Slow & Quick Video]: 413)

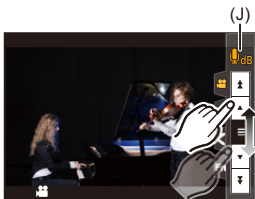
- This setting is available only in [S&Q] mode. (The setting cannot be changed during recording)
-

**3** Drag the slide bar to set the item.

[▼]/[▲]: Changes the setting slowly.



[▾]/[▲]: Changes the setting quickly.

- If you touch icon (J), the screen of Step 2 is redisplayed.



## ❖ Exposure Control While Video Recording

Videos will be recorded using the aperture value, shutter speed, and ISO sensitivity settings below.

Recording mode	Aperture value/shutter speed/ISO sensitivity	
[iA]	The camera automatically makes the settings to suit the scene. (→ <a href="#">Types of Automatic Scene Detection: 92</a> )	
[P]/[A]/[S]/[M]	[  ]/[S&Q] mode	<p>The settings vary depending on the [Exposure Control(Video Mode)] ([Exposure Control in P/A/S/M]) in the [Custom] ([Image Quality]) menu. The default setting is [MODE DIAL]. (→ <a href="#">Exposure Control(Video Mode): 544</a>)</p> <p><b>[MODE DIAL]:</b> Switch the [P]/[A]/[S]/[M] mode to match the mode dial.</p> <p><b>[P]/[A]/[S]/[M]:</b> Recording is done in the set mode irrespective of the mode dial.</p>
	[  ] mode	<p>The settings vary depending on the [Auto Exposure in Photo Mode] in the [Custom] ([Image Quality]) menu. The default setting is [ON]. (→ <a href="#">Auto Exposure in Photo Mode: 544</a>)</p> <p><b>[ON]:</b> Records with values set automatically by the camera.</p> <p><b>[OFF]:</b> Records with manually set values.</p>

## ❖ Size Interval for Dividing Files

A new file will be created to continue recording if the continuous recording time or the file size exceeds the following conditions.

- (A) Using an SDHC memory card
- (B) Using an SDXC memory card

[Rec. File Format(Video)]	Resolution	Recording media	File division	
			Continuous recording time	File size
[MP4(Lite)]/[MP4]	[FHD]	(A)	30 minutes	4 GB
		(B)		
	Other than [FHD]	(A)	30 minutes	4 GB
		(B)	3 hours 4 minutes	96 GB
[MOV]	All	(A)	30 minutes	4 GB
		(B)	3 hours 4 minutes	192 GB

## ❖ Limitations on Video Recording in Photo Mode



There are the following limitations when recording video in the [📷] mode:

- Recording cannot be started or stopped with the shutter button.
- Exposure and audio settings cannot be changed with touch operations.
- [Video] menu items such as [Rec. File Format(Video)] and [Rec Quality] cannot be set. Set these in the [📷] mode beforehand.
- When the [Rec. File Format(Video)] is [MOV], recording with the following [Rec Quality] is not possible: \*
  - [Rec Quality] with resolutions 5.6K/5.2K/4.4K
  - [Rec Quality] exceeding a recording frame rate of 100.00p
- \* If a [Rec Quality] with above conditions is set when in [📷] mode, then in [📷] mode the [Rec Quality] switches automatically to the following:
  - When the [Rec. File Format(Video)] is [MOV]
    - [4K/30p/420/10-L] ([System Frequency]: [59.94Hz (NTSC)])
    - [4K/25p/420/10-L] ([System Frequency]: [50.00Hz (PAL)])
    - [4K/24p/420/10-L] ([System Frequency]: [24.00Hz (CINEMA)])



- If an operation such as a zoom or button operation is performed during video recording, that operation sound may be recorded.
- The lens operation sound (AF and image stabilizer) may be recorded to video.
- If the operation sound of pressing the video rec. button to end recording bothers you, try the following:
  - Record the video about 3 seconds longer, and then divide the last part of the video using [Video Divide] in the [Playback] ([Edit Image]) menu.
- Depending on the type of card, the card access indication may appear for a while after video recording. This is not a malfunction.
- Even when playback is performed on a supported device, situations may occur where image or sound quality is poor, recording information is not displayed correctly, or playback is not possible, for example.  
If you experience any of these, play them back on the camera.
- Video recording is not possible while you are using the following functions:
  - [Time Lapse Shot]
  - [Stop Motion Animation]

#### **For information about the high temperature display**

- When the temperature of the camera rises, [] appears blinking on the screen. If you continue to use the camera, a message indicating use is not possible is displayed on the screen and some functions, such as recording, will be stopped, and [] lights. Turn off the camera and wait until the camera cools down.



- You can set the temperature during video recording at which the camera automatically stops recording:  
(→ [\[Thermal Management\]: 578](#))
- You can display a red frame on the recording screen that indicates that video is being recorded:  
(→ [\[Red REC Frame Indicator\]: 570](#))
- You can disable the recording start/stop operations using the shutter button:  
(→ [\[Assign REC to Shutter Button\]: 551](#))
- Recording time until recording stops due to increase in camera temperature:  
(→ [\[Continuous Video Recording Time with Temperature Increases in the Camera\]: 706](#))

## [System Frequency]

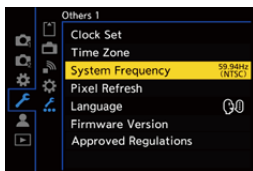
---



This changes the system frequency of videos that are recorded and played back with the camera.

The default setting is for the system frequency to be set to the TV broadcast system for the region where the camera was purchased.

→ → → **Select [System Frequency]**



---

### **[59.94Hz (NTSC)]**

System frequency for regions using the NTSC broadcasting system

---

### **[50.00Hz (PAL)]**

System frequency for regions using the PAL broadcasting system

---

### **[24.00Hz (CINEMA)]**

System frequency for producing cinema film

---



- After changing the setting, turn the camera off and on.
- If you record using a system frequency that differs from the broadcasting system of your region, it may not be possible for you to properly play back videos on your TV.

We recommend using the setting as it was at the time of purchase if you are unsure about broadcasting systems or if you will not be involved in producing cinema film.

- After changing the setting, it is recommended to insert another card and format it with this camera.
  - Make the [System Frequency] setting the same for when you are recording and playing back.

# [Rec. File Format(Video)]

---



Sets the recording file format of videos to be recorded.

## 1 Set to [Video] mode.

(→ [Photo/Video/S&Q Switch: 61](#))

## 2 Set [Rec. File Format(Video)].

- [MENU/SET] → [Video] → [Rec. File Format(Video)]



---

### [MP4(Lite)]

This MP4 file format is suitable for editing with smartphone apps.

---

### [MP4]

This file format is suitable for playback on PCs.

---

### [MOV]

This file format is suitable for image editing.

---

## [Rec Quality]

---



Sets the image quality of videos to be recorded.

The image qualities you can select depend on the recording mode, [System Frequency], and [Rec. File Format(Video)] settings.

The [Image Area of Video] setting items you can select depend on the [Rec Quality] settings.

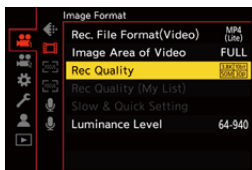
[Rec Quality] settings can also be made using [Filtering] (→ [\[Filtering\]: 139](#)) to display only items that meet your conditions and [add to list] (→ [\[add to list\]: 140](#)) to register recording qualities you use often.

# 1 Set to [ ] or [S&Q] mode.

(→ [Photo/Video/S&Q Switch: 61](#))

# 2 Set [Rec Quality].

-  → [  ] → [  ] → [Rec Quality]



- To record video with a bit rate of 72 Mbps or more, you require an SD card with the corresponding Speed Class.
- For information about the cards that can be used (→ [SD Cards That Can Be Used with This Camera: 24](#))

## ❖ [Rec. File Format(Video)]: [MP4(Lite)]

- YUV, Bit value, Image compression: 4:2:0, 10 bit, Long GOP
- Audio format: AAC (2ch)

(A) Recording frame rate

(B) Bit rate (Mbps)

(C) Video compression format (**HEVC**: H.265/HEVC)

[System Frequency]: [59.94Hz (NTSC)]							
[Rec Quality]	[Image Area of Video]		Resolution	Aspect ratio	(A)	(B)	(C)
	FULL	PIXEL PIXEL					
[3.8K/10bit/50M/30p]	✓	✓	3840×2880	4:3	29.97p	50	HEVC
[4K/10bit/70M/120p]	✓	✓	3840×2160	16:9	119.88p	70	HEVC
[4K/10bit/50M/60p]	✓	✓	3840×2160	16:9	59.94p	50	HEVC
[FHD/10bit/24M/120p]	✓	✓	1920×1080	16:9	119.88p	24	HEVC
[FHD/10bit/16M/60p]	✓	✓	1920×1080	16:9	59.94p	16	HEVC

[System Frequency]: [50.00Hz (PAL)]							
[Rec Quality]	[Image Area of Video]		Resolution	Aspect ratio	(A)	(B)	(C)
	FULL	PIXEL PIXEL					
[3.8K/10bit/50M/25p]	✓	✓	3840×2880	4:3	25.00p	50	HEVC
[4K/10bit/70M/100p]	✓	✓	3840×2160	16:9	100.00p	70	HEVC
[4K/10bit/50M/50p]	✓	✓	3840×2160	16:9	50.00p	50	HEVC
[FHD/10bit/24M/100p]	✓	✓	1920×1080	16:9	100.00p	24	HEVC
[FHD/10bit/16M/50p]	✓	✓	1920×1080	16:9	50.00p	16	HEVC

## ❖ [Rec. File Format(Video)]: [MP4]

- YUV, Bit value, Image compression:
  - [10bit] recording quality: 4:2:0, 10 bit, Long GOP
  - [8bit] recording quality: 4:2:0, 8 bit, Long GOP
- Audio format: AAC (2ch)

(A) Recording frame rate

(B) Bit rate (Mbps)

(C) Video compression format (**HEVC**: H.265/HEVC, **AVC**: H.264/MPEG-4 AVC)

[System Frequency]: [59.94Hz (NTSC)]							
[Rec Quality]	[Image Area of Video]		Resolution	Aspect ratio	(A)	(B)	(C)
	FULL	PIXEL PIXEL					
[4K/10bit/100M/60p]	✓	✓	3840×2160	16:9	59.94p	100	HEVC
[4K/10bit/72M/30p]	✓	✓	3840×2160	16:9	29.97p	72	HEVC
[4K/8bit/100M/30p]	✓	✓	3840×2160	16:9	29.97p	100	AVC
[4K/10bit/72M/24p]	✓	✓	3840×2160	16:9	23.98p	72	HEVC
[4K/8bit/100M/24p]	✓	✓	3840×2160	16:9	23.98p	100	AVC
[FHD/8bit/28M/60p]	✓	✓	1920×1080	16:9	59.94p	28	AVC
[FHD/8bit/20M/30p]	✓	✓	1920×1080	16:9	29.97p	20	AVC
[FHD/8bit/24M/24p]	✓	✓	1920×1080	16:9	23.98p	24	AVC

[System Frequency]: [50.00Hz (PAL)]							
[Rec Quality]	[Image Area of Video]		Resolution	Aspect ratio	(A)	(B)	(C)
	FULL	PIXEL PIXEL					
[4K/10bit/100M/50p]	✓	✓	3840×2160	16:9	50.00p	100	HEVC
[4K/10bit/72M/25p]	✓	✓	3840×2160	16:9	25.00p	72	HEVC
[4K/8bit/100M/25p]	✓	✓	3840×2160	16:9	25.00p	100	AVC
[FHD/8bit/28M/50p]	✓	✓	1920×1080	16:9	50.00p	28	AVC
[FHD/8bit/20M/25p]	✓	✓	1920×1080	16:9	25.00p	20	AVC

## ❖ [Rec. File Format(Video)]: [MOV]


- YUV, Bit value, Image compression:
  - [422/10-I] recording quality: 4:2:2, 10 bit, ALL-Intra
  - [422/10-L] recording quality: 4:2:2, 10 bit, Long GOP
  - [420/10-L] recording quality: 4:2:0, 10 bit, Long GOP
  - [420/8-L] recording quality: 4:2:0, 8 bit, Long GOP
- Audio format: LPCM (2ch/4ch)
  - 4-channel audio can be recorded when the XLR Microphone Adaptor (DMW-XLR2: optional) is connected by setting [4ch Audio Recording] to [XLR] or [XLR+CAMERA].
  - You can record 4-channel audio when you have connected the Digital Shotgun Microphone (DMW-DMS1: optional) and set [4ch Audio Recording] to other than [OFF].

: Only able to set or record when in [] mode.

(A) Recording frame rate


(B) Bit rate (Mbps)

(C) Video compression format (**HEVC**: H.265/HEVC, **AVC**: H.264/MPEG-4 AVC)

[System Frequency]: [59.94Hz (NTSC)]								
[Rec Quality]		[Image Area of Video]		Resolution	Aspect ratio	(A)	(B)	(C)
		FULL	PIXEL PIXEL					
[5.6K/60p/420/10-L]	✓	✓		5632×2976	17:9	59.94p	300	HEVC
[5.6K/48p/420/10-L]	✓	✓		5632×2976	17:9	47.95p	300	HEVC
[5.6K/30p/420/10-L]	✓	✓		5632×2976	17:9	29.97p	200	HEVC
[5.6K/24p/420/10-L]	✓	✓		5632×2976	17:9	23.98p	200	HEVC
[5.2K/30p/420/10-L]	✓	✓		5184×3888	4:3	29.97p	200	HEVC
[5.2K/24p/420/10-L]	✓	✓		5184×3888	4:3	23.98p	200	HEVC
[4.4K/60p/420/10-L]	✓		✓	4352×3264	4:3	59.94p	300	HEVC
[4.4K/48p/420/10-L]	✓		✓	4352×3264	4:3	47.95p	300	HEVC
[C4K/120p/420/10-L]	✓	✓	✓	4096×2160	17:9	119.88p	300	HEVC
[C4K/60p/422/10-I]		✓	✓	4096×2160	17:9	59.94p	600	AVC
[C4K/60p/422/10-L]		✓	✓	4096×2160	17:9	59.94p	200	AVC


[C4K/60p/420/10-L]		✓	✓	4096×2160	17:9	59.94p	200	HEVC
[C4K/60p/420/8-L]		✓	✓	4096×2160	17:9	59.94p	150	AVC
[C4K/48p/422/10-I]		✓	✓	4096×2160	17:9	47.95p	600	AVC
[C4K/48p/422/10-L]		✓	✓	4096×2160	17:9	47.95p	200	AVC
[C4K/48p/420/10-L]		✓	✓	4096×2160	17:9	47.95p	200	HEVC
[C4K/30p/422/10-I]		✓	✓	4096×2160	17:9	29.97p	400	AVC
[C4K/30p/422/10-L]		✓	✓	4096×2160	17:9	29.97p	150	AVC
[C4K/30p/420/10-L]		✓	✓	4096×2160	17:9	29.97p	150	HEVC
[C4K/30p/420/8-L]		✓	✓	4096×2160	17:9	29.97p	100	AVC
[C4K/24p/422/10-I]		✓	✓	4096×2160	17:9	23.98p	400	AVC
[C4K/24p/422/10-L]		✓	✓	4096×2160	17:9	23.98p	150	AVC
[C4K/24p/420/10-L]		✓	✓	4096×2160	17:9	23.98p	150	HEVC
[C4K/24p/420/8-L]		✓	✓	4096×2160	17:9	23.98p	100	AVC
[4K/120p/420/10-L]	✓	✓	✓	3840×2160	16:9	119.88p	300	HEVC
[4K/60p/422/10-I]		✓	✓	3840×2160	16:9	59.94p	600	AVC
[4K/60p/422/10-L]		✓	✓	3840×2160	16:9	59.94p	200	AVC
[4K/60p/420/10-L]		✓	✓	3840×2160	16:9	59.94p	200	HEVC
[4K/60p/420/8-L]		✓	✓	3840×2160	16:9	59.94p	150	AVC
[4K/48p/422/10-I]		✓	✓	3840×2160	16:9	47.95p	600	AVC
[4K/48p/422/10-L]		✓	✓	3840×2160	16:9	47.95p	200	AVC
[4K/48p/420/10-L]		✓	✓	3840×2160	16:9	47.95p	200	HEVC
[4K/30p/422/10-I]		✓	✓	3840×2160	16:9	29.97p	400	AVC
[4K/30p/422/10-L]		✓	✓	3840×2160	16:9	29.97p	150	AVC
[4K/30p/420/10-L]		✓	✓	3840×2160	16:9	29.97p	150	HEVC
[4K/30p/420/8-L]		✓	✓	3840×2160	16:9	29.97p	100	AVC
[4K/24p/422/10-I]		✓	✓	3840×2160	16:9	23.98p	400	AVC
[4K/24p/422/10-L]		✓	✓	3840×2160	16:9	23.98p	150	AVC
[4K/24p/420/10-L]		✓	✓	3840×2160	16:9	23.98p	150	HEVC
[4K/24p/420/8-L]		✓	✓	3840×2160	16:9	23.98p	100	AVC
[FHD/240p/422/10-L]	✓	✓		1920×1080	16:9	239.76p	200	AVC
[FHD/240p/420/10-L]	✓	✓		1920×1080	16:9	239.76p	200	HEVC
[FHD/120p/422/10-I]	✓	✓	✓	1920×1080	16:9	119.88p	400	AVC

[FHD/120p/422/10-L]	✓	✓	✓	1920×1080	16:9	119.88p	150	AVC
[FHD/120p/420/10-L]	✓	✓	✓	1920×1080	16:9	119.88p	150	HEVC
[FHD/60p/422/10-I]		✓	✓	1920×1080	16:9	59.94p	200	AVC
[FHD/60p/422/10-L]		✓	✓	1920×1080	16:9	59.94p	100	AVC
[FHD/60p/420/10-L]		✓	✓	1920×1080	16:9	59.94p	100	HEVC
[FHD/60p/420/8-L]		✓	✓	1920×1080	16:9	59.94p	50	AVC
[FHD/48p/422/10-I]		✓	✓	1920×1080	16:9	47.95p	200	AVC
[FHD/48p/422/10-L]		✓	✓	1920×1080	16:9	47.95p	100	AVC
[FHD/48p/420/10-L]		✓	✓	1920×1080	16:9	47.95p	100	HEVC
[FHD/30p/422/10-I]		✓	✓	1920×1080	16:9	29.97p	200	AVC
[FHD/30p/422/10-L]		✓	✓	1920×1080	16:9	29.97p	100	AVC
[FHD/30p/420/10-L]		✓	✓	1920×1080	16:9	29.97p	100	HEVC
[FHD/30p/420/8-L]		✓	✓	1920×1080	16:9	29.97p	25	AVC
[FHD/24p/422/10-I]		✓	✓	1920×1080	16:9	23.98p	200	AVC
[FHD/24p/422/10-L]		✓	✓	1920×1080	16:9	23.98p	100	AVC
[FHD/24p/420/10-L]		✓	✓	1920×1080	16:9	23.98p	100	HEVC
[FHD/24p/420/8-L]		✓	✓	1920×1080	16:9	23.98p	25	AVC

[System Frequency]: [50.00Hz (PAL)]								
[Rec Quality]		[Image Area of Video]		Resolution	Aspect ratio	(A)	(B)	(C)
		FULL	PIXEL PIXEL					
[5.6K/50p/420/10-L]	✓	✓		5632×2976	17:9	50.00p	300	HEVC
[5.6K/25p/420/10-L]	✓	✓		5632×2976	17:9	25.00p	200	HEVC
[5.2K/25p/420/10-L]	✓	✓		5184×3888	4:3	25.00p	200	HEVC
[4.4K/50p/420/10-L]	✓		✓	4352×3264	4:3	50.00p	300	HEVC
[C4K/100p/420/10-L]	✓	✓	✓	4096×2160	17:9	100.00p	300	HEVC
[C4K/50p/422/10-I]		✓	✓	4096×2160	17:9	50.00p	600	AVC
[C4K/50p/422/10-L]		✓	✓	4096×2160	17:9	50.00p	200	AVC
[C4K/50p/420/10-L]		✓	✓	4096×2160	17:9	50.00p	200	HEVC
[C4K/50p/420/8-L]		✓	✓	4096×2160	17:9	50.00p	150	AVC
[C4K/25p/422/10-I]		✓	✓	4096×2160	17:9	25.00p	400	AVC
[C4K/25p/422/10-L]		✓	✓	4096×2160	17:9	25.00p	150	AVC
[C4K/25p/420/10-L]		✓	✓	4096×2160	17:9	25.00p	150	HEVC
[C4K/25p/420/8-L]		✓	✓	4096×2160	17:9	25.00p	100	AVC
[4K/100p/420/10-L]	✓	✓	✓	3840×2160	16:9	100.00p	300	HEVC
[4K/50p/422/10-I]		✓	✓	3840×2160	16:9	50.00p	600	AVC
[4K/50p/422/10-L]		✓	✓	3840×2160	16:9	50.00p	200	AVC
[4K/50p/420/10-L]		✓	✓	3840×2160	16:9	50.00p	200	HEVC
[4K/50p/420/8-L]		✓	✓	3840×2160	16:9	50.00p	150	AVC
[4K/25p/422/10-I]		✓	✓	3840×2160	16:9	25.00p	400	AVC
[4K/25p/422/10-L]		✓	✓	3840×2160	16:9	25.00p	150	AVC
[4K/25p/420/10-L]		✓	✓	3840×2160	16:9	25.00p	150	HEVC
[4K/25p/420/8-L]		✓	✓	3840×2160	16:9	25.00p	100	AVC
[FHD/200p/422/10-L]	✓	✓		1920×1080	16:9	200.00p	200	AVC
[FHD/200p/420/10-L]	✓	✓		1920×1080	16:9	200.00p	200	HEVC
[FHD/100p/422/10-I]	✓	✓	✓	1920×1080	16:9	100.00p	400	AVC
[FHD/100p/422/10-L]	✓	✓	✓	1920×1080	16:9	100.00p	150	AVC
[FHD/100p/420/10-L]	✓	✓	✓	1920×1080	16:9	100.00p	150	HEVC

---

[FHD/50p/422/10-I]		✓	✓	1920×1080	16:9	50.00p	200	AVC
[FHD/50p/422/10-L]		✓	✓	1920×1080	16:9	50.00p	100	AVC
[FHD/50p/420/10-L]		✓	✓	1920×1080	16:9	50.00p	100	HEVC
[FHD/50p/420/8-L]		✓	✓	1920×1080	16:9	50.00p	50	AVC
[FHD/25p/422/10-I]		✓	✓	1920×1080	16:9	25.00p	200	AVC
[FHD/25p/422/10-L]		✓	✓	1920×1080	16:9	25.00p	100	AVC
[FHD/25p/420/10-L]		✓	✓	1920×1080	16:9	25.00p	100	HEVC
[FHD/25p/420/8-L]		✓	✓	1920×1080	16:9	25.00p	25	AVC

[System Frequency]: [24.00Hz (CINEMA)]								
[Rec Quality]		[Image Area of Video]		Resolution	Aspect ratio	(A)	(B)	(C)
		FULL	PIXEL PIXEL					
[5.6K/48p/420/10-L]	✓	✓		5632×2976	17:9	48.00p	300	HEVC
[5.6K/24p/420/10-L]	✓	✓		5632×2976	17:9	24.00p	200	HEVC
[5.2K/24p/420/10-L]	✓	✓		5184×3888	4:3	24.00p	200	HEVC
[4.4K/48p/420/10-L]	✓		✓	4352×3264	4:3	48.00p	300	HEVC
[C4K/120p/420/10-L]	✓	✓	✓	4096×2160	17:9	120.00p	300	HEVC
[C4K/24p/422/10-I]		✓	✓	4096×2160	17:9	24.00p	400	AVC
[C4K/24p/422/10-L]		✓	✓	4096×2160	17:9	24.00p	150	AVC
[C4K/24p/420/10-L]		✓	✓	4096×2160	17:9	24.00p	150	HEVC
[C4K/24p/420/8-L]		✓	✓	4096×2160	17:9	24.00p	100	AVC
[4K/120p/420/10-L]	✓	✓	✓	3840×2160	16:9	120.00p	300	HEVC
[4K/24p/422/10-I]		✓	✓	3840×2160	16:9	24.00p	400	AVC
[4K/24p/422/10-L]		✓	✓	3840×2160	16:9	24.00p	150	AVC
[4K/24p/420/10-L]		✓	✓	3840×2160	16:9	24.00p	150	HEVC
[4K/24p/420/8-L]		✓	✓	3840×2160	16:9	24.00p	100	AVC
[FHD/120p/422/10-I]	✓	✓	✓	1920×1080	16:9	120.00p	400	AVC
[FHD/120p/422/10-L]	✓	✓	✓	1920×1080	16:9	120.00p	150	AVC
[FHD/120p/420/10-L]	✓	✓	✓	1920×1080	16:9	120.00p	150	HEVC
[FHD/24p/422/10-I]		✓	✓	1920×1080	16:9	24.00p	200	AVC
[FHD/24p/422/10-L]		✓	✓	1920×1080	16:9	24.00p	100	AVC
[FHD/24p/420/10-L]		✓	✓	1920×1080	16:9	24.00p	100	HEVC
[FHD/24p/420/8-L]		✓	✓	1920×1080	16:9	24.00p	25	AVC

- In this document, videos are indicated as follows according to their resolution:
  - 5.6K (5632×2976) video: **5.6K video**
  - 5.2K (5184×3888) video: **5.2K video**
  - 4.4K (4352×3264) video: **4.4K video**
  - 3.8K (3840×2880) video: **3.8K video**
  - C4K (4096×2160) video: **C4K video**
  - 4K (3840×2160) video: **4K video**
  - Full High Definition (1920×1080) video: **FHD video**



- Since the camera employs the VBR recording format, the bit rate is changed automatically depending on the subject to record. As a result, video recording time is shortened when a fast-moving subject is recorded.
- Videos in ALL-Intra and 4:2:2 10-bit formats are intended for editing on a PC used for video production.





- You can register a combination of [System Frequency], [Rec. File Format(Video)], [Image Area of Video], and [Rec Quality] to My List. (→[\[add to list\]: 140](#))

## ❖ [Filtering]

When [Rec. File Format(Video)] is set to [MOV], you can specify items such as frame rate, number of pixels (resolution), and compression format (YUV, bit value, image compression), and just display recording qualities that meet those conditions.

- 1 In the [Rec Quality] setting screen, press [DISP.].



- 2 Press ▲▼ to select a setting item and then press .
  - Settings: [Frame Rate]/[Resolution]/[Codec]/[Hybrid Log Gamma]
- 3 Press ▲▼ to select the filtering conditions and then press .
- 4 Press [DISP.] to confirm the setting.
  - You are returned to the [Rec Quality] setting screen.

## Clearing the filtering conditions

### Select [ANY] in Step 3.

- The filtering conditions are also cleared when you do the following:
  - Change the [Rec. File Format(Video)]
  - Change the [System Frequency]
  - Select a recording quality from [Rec Quality (My List)]



- When you change recording quality using a filter, the current filtering conditions are stored.

## ❖ [add to list]

Select a recording quality and register it in My List. The recording quality you register can be set in [Rec Quality (My List)].

### In the [Rec Quality] setting screen, press [Q].

- The following settings are also registered at the same time:
  - [System Frequency]
  - [Rec. File Format(Video)]
  - [Image Area of Video]



## Setting or deleting in My List

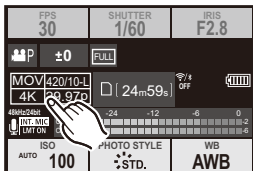
- 1 Select [Rec Quality (My List)].
  - MENU/SET ⇒ [ ] ⇒ [ ] ⇒ [Rec Quality (My List)]
- 2 Press ▲▼ to select a setting item and then press MENU/SET.
  - You cannot select setting items that have different system frequencies.
  - To delete from My List, select the item and press [Q].

## Setting from the control panel

It is possible to display the My List of recording qualities from the control panel in [DISP]/[S&Q] mode.

### Touch the recording quality item.

- When already registered in My List, the [Rec Quality (My List)] setting screen is displayed.  
When not yet registered, the [Rec Quality] setting screen is displayed.
- [Rec Quality (My List)] and [Rec Quality] switch each time you press the [DISP.] button.
- The next time the setting screen is displayed, the screen last used is displayed.



- Up to 12 types of recording quality can be registered.

# [Image Area of Video]



Set the image area during video recording. The angle of view differs depending on the image area. Narrowing the image area allows you to achieve a telescopic effect without image deterioration.

## 1 Set to [Video] or [S&Q] mode.

(→ [Photo/Video/S&Q Switch: 61](#))

## 2 Set [Image Area of Video].

- → → → [Image Area of Video]



### [FULL]

Records using a range corresponding to the lens image circle.

### [PIXEL/PIXEL]

Records with one pixel on the sensor, which is equal to one pixel of the video.

Records a range corresponding to the resolution range in [Rec Quality].

(→ [\[Rec Quality\]: 128](#))

- The [Image Area of Video] settings you can select differ depending on the [Rec Quality] setting. (→[Rec Quality]: 128)

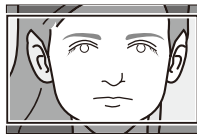
### Image area (Ex.: FHD video)



FULL



PIXEL/PIXEL



(A) Angle of view: Wide/Telescopic effect: Not possible

(B) Angle of view: Narrow/Telescopic effect: Possible

# Focus / Zoom

Smoother focusing is possible by selecting the focus mode and AF mode most suited to the recording conditions and the subject.

- This camera supports phase detection AF and contrast AF.

- [Selecting the Focus Mode: 145](#)
- [Using AF: 147](#)
- [Selecting the AF Mode: 161](#)
- [AF Area Operations: 181](#)
- [Taking Close-up Pictures: 189](#)
- [Record Using MF: 191](#)
- [Recording with Zoom: 198](#)

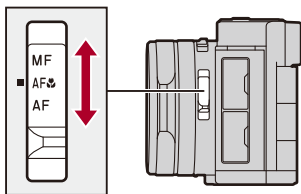
# Selecting the Focus Mode






Select the focusing method (focus mode) to match subject movement.

It is also possible to customize the AF tracking features with [AFC]. (→[AF Custom Setting(Photo)]: 154)


## 1 Set the focus selector switch to the desired position.



## 2 (When either [AF] or [AF ]) Set to AFS/AFC.

- [Photo]:  → [  ] → [  ] → [AFS/AFC(Photo)]
- [Video]:  → [  ] → [  ] → [AFS/AFC(Video)]

### [AFS]


In [  ] mode:

- When the shutter button is not being pressed, the camera does not focus.
- When the shutter button is pressed halfway, the camera focuses only once.


In [  ]/[S&Q] mode:

- When the shutter button is not being pressed, the camera does not focus.
- When the shutter button is pressed halfway, the camera focuses only once.

### [AFC]

In [] mode:

- When the shutter button is not being pressed, the camera does not focus.
- When the shutter button is pressed halfway, the focus is constantly adjusted according to the movement of the subject.

In []/[S&Q] mode:

- When the shutter button is not being pressed, the camera does not focus.
- When the shutter button is pressed halfway, the camera focuses only once.
- During video recording, the focus is constantly adjusted according to the movement of the subject.

---

### [MF]

Manual focusing. Use this when you want to fix the focus or avoid activating AF.

(→ [Record Using MF: 191](#))

---



- In the following case, [AFC] works the same as [AFS] when the shutter button is pressed halfway:
  - In low light situations

# Using AF

- [AF-Point Scope]: 152
- [AF Custom Setting(Photo)]: 154
- [Focus Limiter]: 157
- [AF Assist Light]: 159
- [Focus Frame Moving Speed]: 160
- [Focus Frame Color Setting]: 160








AF (Auto Focus) refers to automatic focusing.

Select the focus mode and the AF mode appropriate for the subject and scene.

## 1 Set the focus mode to [AFS] or [AFC].

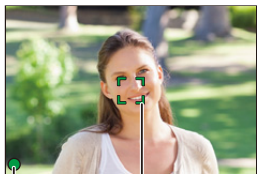
(→ [Selecting the Focus Mode: 145](#))

## 2 Select the AF mode.

- Press [  ] (◀) to display the AF mode selection screen, and set using . (→ [Selecting the AF Mode: 161](#))
- In [iA] mode, each press of [  ] switches between [  ] and [  ]. (→ [AF Mode: 93](#))

### 3 Press the shutter button halfway.

- The AF operates.



(A)

(B)

	Focus	
	In focus	Not in focus
Focus icon (A)	Lights	Blinking
AF area (B)	Green	Red
AF beep	Two beeps	—

## Low illumination AF

- In dark environments, low illumination AF automatically operates, and the focus icon is indicated as [ <sup>LOW</sup>● ].
- Achieving focus may take more time than usual.

## Starlight AF

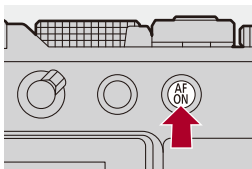
- If the camera detects stars in the night sky after determining low illumination AF, then Starlight AF will be activated.

When focus is achieved, the focus icon will display [ <sup>STAR</sup>● ], and the AF area will be displayed on the area in focus.

- Edges of the screen cannot detect Starlight AF.

## ❖ [AF ON] button

You can also activate AF by pressing [AF ON].





• **Subjects and recording conditions that make focusing difficult with AF mode**

- Fast-moving subjects
- Extremely bright subjects
- Subjects without contrast
- Subjects recorded through windows
- Subjects near shiny objects
- Subjects in very dark locations
- When recording subjects both distant and near



- When the following operations are performed while recording with [AFC], it may take some time for the camera to focus:
  - When zooming from the wide-angle end to the telephoto end
  - When the subject is suddenly changed from one far away to one close by
- If using the zoom after achieving focus, the focus may be erroneous. In that case, re-adjust the focus.
- To protect the camera against a rise in temperature when the camera temperature rises, the AFC operation is stopped and becomes AFS operation. The [AFS] indication on the recording screen turns yellow when operation is limited.

**For information about the high temperature display (→ [For information about the high temperature display: 123](#))**



- You can restrict the range for AF to work:  
(→[Focus Limiter]: 157)
- When camera shake reduces, it is possible to focus automatically:  
(→[Quick AF]: 551)
- You can change the settings so that AF does not function when the shutter button is pressed halfway:  
(→[Shutter AF]: 550)
- The AF beep volume and sound can be changed:  
(→[Beep]: 582)
- You can assign the function that makes AF work so that it prioritizes subjects close by to an Fn button.  
This function is useful when the camera mistakenly focuses on the background:  
(→[AF-ON : Near Shift]: 511)
- You can assign the function that makes AF work so that it prioritizes subjects far away to an Fn button.  
This function is useful when taking pictures through fences or nets:  
(→[AF-ON : Far Shift]: 511)

## [AF-Point Scope]



S&amp;Q

iA P A S M

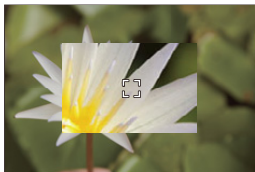
This magnifies the focus point when the AF mode is , , or . (In other AF modes, the center of the screen is magnified.)

You can check focus and observe an enlarged subject as with a telephoto lens.

### 1 Register [AF-Point Scope] to the Fn button. (→ [Fn Buttons: 504](#))

### 2 Enlarge display.

- Press the Fn button set in Step 1.
- While pressing the button, the focus point is enlarged.



- When the screen is enlarged, pressing the shutter button halfway re-acquires focus in a small central AF area.
- When the screen is enlarged, turn to adjust the magnification.



- When the screen is enlarged, [AFC] changes to [AFS].
- When the following function is being used, AF-Point Scope does not work:
  - Video recording/SH burst recording
- When simultaneously using functionality that puts a burden on internal camera processing, such as Wi-Fi connection, for example, the frame rate for live view is reduced.
- **For information about the high temperature display (→ [For information about the high temperature display: 123](#))**



- You can change the display method of the magnified screen:  
(→ [\[AF-Point Scope Setting\]: 549](#))

## [AF Custom Setting(Photo)]



You can select features of AF operation when taking pictures with [AFC] that are appropriate for the subject and scene.

Each of these features can be further customized.

### 1 Set to [📷] mode.

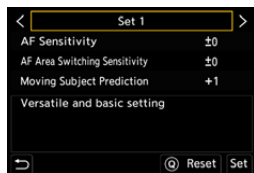
(→ [Photo/Video/S&Q Switch: 61](#))

### 2 Set the focus mode to [AFC].

(→ [Selecting the Focus Mode: 145](#))

### 3 Set [AF Custom Setting(Photo)].

- → [📷] → [FOCUS] → [AF Custom Setting(Photo)]



#### [Set 1]

Basic general-purpose setting.

#### [Set 2]

Suggested for situations where the subject moves at a constant speed in one direction.


**[Set 3]**

Suggested when the subject moves randomly, and other objects may be in the scene.

**[Set 4]**

Suggested for situations where the speed of the subject changes significantly.

## ❖ Adjusting AF Custom Settings

- 1 Press ◀▶ to select the AF Custom setting type.
- 2 Press ▲▼ to select items and press ◀▶ to adjust.
  - A description of the item is displayed on the screen when you press [DISP.].
  - To reset settings to the default, press [Q].
- 3 Press .

<b>[AF Sensitivity]</b>	Sets the tracking sensitivity for the movement of subjects.	
	[+]	When the distance to the subject changes drastically, the camera re-adjusts the focus immediately. You can bring different subjects into focus one after another.
	[-]	When the distance to the subject changes drastically, the camera waits for a short period of time before re-adjusting the focus. This allows you to prevent the focus from being accidentally re-adjusted when, for example, an object moves across the image.

<b>[AF Area Switching Sensitivity]</b>	Sets the sensitivity for switching the AF area to match subject movement. (When AF mode is set to Full Area AF)	
	[+]	When the subject moves out of the AF area, the camera immediately switches the AF area to keep the subject in focus.
	[-]	The camera switches the AF area at a gradual pace. Effects caused by a slight movement of the subject or by obstacles in front of the camera will be minimized.
<b>[Moving Subject Prediction]</b>	Sets the tracking method for changes in the speed of subject movement. <ul style="list-style-type: none"> <li>• At larger setting values, the camera tries to maintain focus by responding even to sudden movements of the subject. However, the camera becomes more sensitive to slight movements of the subject, so focusing may become unstable.</li> </ul>	
	[0]	This is suited to a subject with minimal changes in speed.
	[+1]	These are suited to a subject that changes its speed.
	[+2]	

## [Focus Limiter]



You can restrict the range for AF to work.

The focusing speed of AF increases when you limit the range where AF works.

### 1 Set the focus mode to [AFS] or [AFC].

(→ [Selecting the Focus Mode: 145](#))

### 2 Set [Focus Limiter].

-  → []/[] → [] → [Focus Limiter]

---

#### [ON]

Enables the following settings.

---

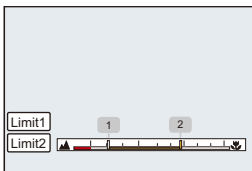
#### [OFF]


Disables the following settings.

---


**[SET]**

- 1 Use the same procedure as MF (→ [Record Using MF: 191](#)) to check the focus, then touch [Limit1] or [Limit2] to set the range of operation for AF.
  - [Limit1]/[Limit2] can be set from either.



- 2 Press  to confirm the setting.
  - Press [DISP.] to return the operation range to the default setting.



- When [Focus Limiter] is working, [ $A_{11}^F$ ]/[ $A_{11}^C$ ] is displayed on the screen.
- When the following function is being used, [Focus Limiter] is not available:
  - [AF+MF]
- When the temperature of the camera rises and [] lights on the screen, the enlarged screen is not displayed in order to protect the camera against a rise in temperature.

## [AF Assist Light]



S&Q

iA

P

A

S

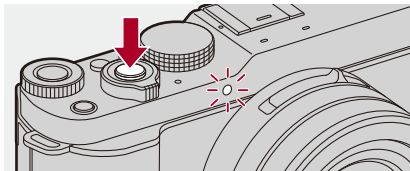
M

When recording in low light conditions, the AF assist light turns on when you press the shutter button halfway, making it easier for the camera to focus.



Select [AF Assist Light]

Settings: [ON]/[OFF]



- Effective range of the assist light: Approx. 1.0 m (3.3 feet) to 3.0 m (9.8 feet) (Wide)

## [Focus Frame Moving Speed]



Sets the speed when moving the AF area/MF Assist.

 →  /  →  → **Select [Focus Frame Moving Speed]**

Settings: [FAST]/[NORMAL]

## [Focus Frame Color Setting]



Sets the color of the focus frame.

 →  /  →  → **Select [Focus Frame Color Setting]**

Select the color to set.

## Selecting the AF Mode

- Automatic Detection: 164
- [Tracking]: 170
- [Full Area AF]: 172
- [Zone(Horizontal/Vertical)]/[Zone]: 175
- [1-Area+]/[1-Area]: 177
- [Pinpoint]: 179

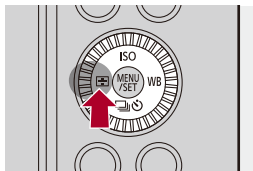


Select the focusing method to match the position and number of subjects.


In an AF mode other than Pinpoint, you can automatically focus by detecting subjects.

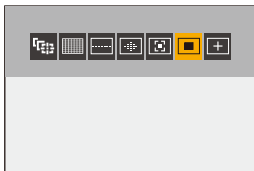
### 1 Press [ ] (◀).

- The AF mode selection screen appears.



## 2 Select the AF mode.

- Press ◀▶ to select an item and then press .




---

 [Tracking]

(→[Tracking]: 170)

---

 [Full Area AF]

(→[Full Area AF]: 172)

---

 [Zone(Horizontal/Vertical)]


(→[Zone(Horizontal/Vertical)]: 175)

---

 [Zone]


(→[Zone]: 176)

---

 [1-Area+]

(→[1-Area+]: 177)

---

 [1-Area]

(→[1-Area]: 177)




---

 [Pinpoint]

(→[Pinpoint]: 179)

---



- When the following functions are being used, [] is not available:
  - [Time Lapse Shot]
  - [Live View Composite]
- When the focus mode is set to [AFC], [] is not available.
- When the following function is being used, the AF mode is fixed to []:
  - [Live Cropping]



- You can set the AF mode items to be displayed on the AF mode selection screen:

(→ [\[Show/Hide AF Mode\]: 547](#))

## Automatic Detection

When automatic detection is enabled, subjects for recording are automatically detected and the camera focuses.



- Not all subjects can be detected according to the settings.
- When [Detecting Subject] ([Type of Subject]) is [ANIMAL], some subjects that are not animals may be detected as animals.

### 1 Set [AF Detection Setting] to [ON].

- → [ ]/[ ] → [ ] → [AF Detection Setting] → [ON]
- You can also press ▲ in the AF mode selection screen to switch automatic detection [ON]/[OFF].

### 2 Select [Detecting Subject].

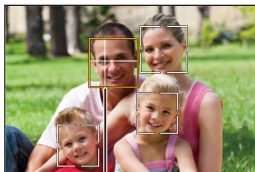
- → [ ]/[ ] → [ ] → [Detecting Subject]
- Select [Type of Subject] and [Detection Mode(Human)]/[Target Parts].
- It is also possible to select by pressing [DISP.] in the AF mode selection screen.

<b>[Type of Subject]</b>	[HUMAN]	<p>Detects humans.</p> <p>Select [Eye/Face/Body], [Eye/Face], or [Urban Sports] for [Detection Mode(Human)].</p> <ul style="list-style-type: none"> <li>• [👤]/[👁️]/[🏎️] appears on the AF mode icon.</li> </ul>
	[ANIMAL]	<p>Detects animals.</p> <p>Select either [Body] or [Eye/Body] for the [Target Parts].</p> <ul style="list-style-type: none"> <li>• Animals that can be detected are birds, canines (including wolves, etc.), and felines (including lions, etc.).</li> <li>• [🐾] or [🐾] is displayed on the AF mode icon.</li> </ul>
	[CAR]	<p>Detects cars (mainly for motor sports).</p> <p>Select either [Entire Subject] or [Main Part Priority] for the [Target Parts].</p> <ul style="list-style-type: none"> <li>• [🚗] or [🏎️] is displayed on the AF mode icon.</li> </ul>
	[MOTORCYCLE /BIKE]	<p>Detects motorcycles (mainly for motor sports) or bikes (mainly for sports).</p> <p>Select either [Entire Subject] or [Helmet Priority] for the [Target Parts].</p> <ul style="list-style-type: none"> <li>• [🏍️] or [🏍️] is displayed on the AF mode icon.</li> </ul>
	[TRAIN]	<p>Detects railroad cars.</p> <p>Select either [First Car] or [Main Part Priority] for the [Target Parts].</p> <ul style="list-style-type: none"> <li>• [🚂] or [🚂] is displayed on the AF mode icon.</li> </ul>
	[AIRPLANE]	<p>Detects aircraft and helicopters.</p> <p>Select either [Airframe] or [Nose Priority] for the [Target Parts].</p> <ul style="list-style-type: none"> <li>• [✈️] or [🚁] is displayed on the AF mode icon.</li> </ul>

<b>[Detection Mode(Human)]</b>	(When [Type of Subject] is [HUMAN]) Select the part or person to focus on. When [Urban Sports] is selected, detection is especially suited to scenes with athletes performing complex movements, such as street dancers that are breaking, or urban sports (BMX/skateboarding/parkour/freestyle soccer).
<b>[Target Parts]</b>	(When [Type of Subject] is other than [HUMAN]) Select the part to be brought into focus. The parts you can select depend on the [Type of Subject] setting.

## ❖ When [ ]

When a subject to be recorded is detected, an AF area is displayed. If multiple subjects are detected, multiple AF areas are also displayed, and you can select the subject you want to focus on from amongst these.



(A)

### **Yellow**

AF area to be brought into focus.

The camera selects this automatically.






- A cross appears in the AF area when a human eye is detected. (A)

For animal eyes, the cross does not appear.

You can specify the eye to be brought into focus. (→ [Specify the Subject to Bring into Focus: 172](#))

### **White**

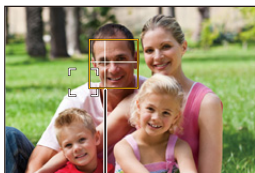
Displayed when multiple subjects are detected.

❖ **When [  ], [  ], [  ], [  ], or [  ]**

If even part of a subject to be recorded enters the AF area, it is automatically detected and focused.

- If eyes are detected inside the AF area, eye detection (B) works.

It is not possible to change the eye to focus on.



(B)



- [AF Detection Setting] is applied to all AF modes excluding [+].
- When a person's eyes are detected, the eye closer to the camera will be brought into focus.  
The exposure will be adjusted to the face. (When [Metering Mode] is set to [☉])
- Depending on [Detecting Subject], the number of subjects that can be detected at once with [ ] of the AF mode will be different.  
[HUMAN] ([Eye/Face/Body], [Eye/Face]): Maximum 15 (maximum 3 bodies detected)  
[HUMAN] ([Urban Sports]): Maximum 3  
[ANIMAL] ([Body]), [CAR], [MOTORCYCLE/BIKE], [TRAIN], [AIRPLANE]: Maximum 3  
[ANIMAL] ([Eye/Body]): Maximum 1
- Automatic detection may not be available due to the camera settings.



- You can make it so the metering range for automatic exposure is not prioritized on the eyes and face when automatic detection works:  
(→[Face Priority In Multi Metering]: 541)
- You can make settings to display the automatic detection frame on only the main subject:  
(→[AF Detect. Multi. Frame Disp.]: 549)
- You can set how to indicate the position of an eye when a human eye is detected:  
(→[Human Eye Detection Display]: 550)

## [Tracking]

When the focus mode is set to [AFC], the AF area follows the movement of the subject, maintaining focusing.

### Start tracking.



- Aim the AF area over the subject, and press the shutter button halfway. The camera will track the subject while the shutter button is pressed halfway or pressed fully.
- If tracking fails, the AF area blinks red.
- When set to [AFS], the focus will be on the AF area position. Tracking will not work.





- How to manipulate the AF area (→ [AF Area Operations: 181](#))



- In [S&Q] mode and while recording video, tracking will continue even if the shutter button is released.

To cancel tracking, press  or touch [].



- When automatic detection is working, the detected subject is tracked.
- When automatic detection is [ON] and there is no subject for detection, when you press the shutter button halfway, the camera enters the tracking standby state. If a subject for detection enters the AF area in this state, tracking starts.
- Set [Metering Mode] to [] to continue to adjust the exposure as well.
- [] may not be available due to the camera settings.

## [Full Area AF]

The camera selects the most optimal AF area to focus.

When multiple AF areas are selected, all selected AF areas will be brought into focus.

When the focus mode is set to [AFC], you can ensure that the focus stays on the subject by recording while keeping the subject within the Full Area AF area.


### Specify the Subject to Bring into Focus

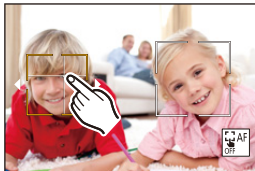
When automatic detection is [ON], multiple subjects are detected.

When the subject to be brought into focus is shown using the white AF area, you can change this to a yellow AF area.

#### ● Touch operations

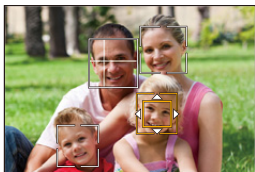
**Touch the subject indicated with the white AF area.**

- The AF area will change to yellow.
- To cancel the setting, touch [].



## ● Button operations

- 1 Press **▼** in the AF mode selection screen.
- 2 Press **▲▼◀▶** to move the position of the AF area.



- 3 When the white AF area changes to yellow, press **MENU/SET**.
  - To cancel the setting, press **MENU/SET**.



- When [Detecting Subject] is [ANIMAL] ([Eye/Body]), only one subject can be detected. (The white AF area is not shown on the subjects that are not recognized.)



If you want to focus on a different subject, operate with touch operations to switch to an unrecognized subject.

## ❖ Setting the AF Area in Any Position




The [■] AF area can be set in any position.

### ● Touch operations

**Touch any position on the recording screen and then touch [Set].**

- Touch [  ] to return to [  ].

### ● Button operations

- 1 Press ▼ in the AF mode selection screen.
- 2 Press ▲▼◀▶ to move the AF area, and then press  to confirm.
  - Press  again to return to [  ].



- You can move and change the size of the set AF area:

(→ [AF Area Operations: 181](#))

 [Zone(Horizontal/Vertical)] /  [Zone]

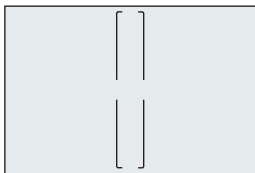
 [Zone(Horizontal/Vertical)]

Within the full area, vertical and horizontal zones can be focused.

#### Horizontal pattern



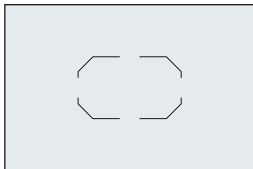
#### Vertical pattern



- To switch between the horizontal pattern and vertical pattern, press ▲▼◀▶ in the AF area setting screen.
- How to manipulate the AF area (→ [AF Area Operations: 181](#))




## [Zone]

Within the full area, a central oval zone can be focused.



- How to manipulate the AF area (→ [AF Area Operations: 181](#))



-  changes to  in the following cases:
  - During video recording
  -  mode
  - [S&Q] mode

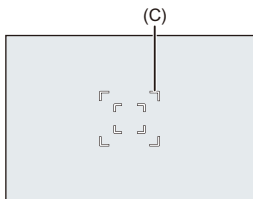
 [1-Area+]/  [1-Area]

 [1-Area+]

Emphasis within a single AF area can be focused.

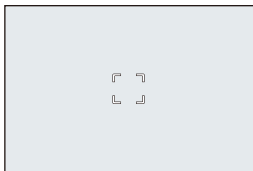
Even when the subject moves out of the single AF area, the subject remains focused in a supplementary AF area (C).

- Effective when recording moving subjects that are difficult to track with [].

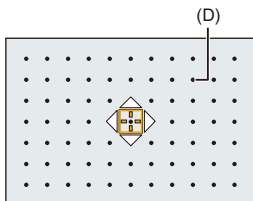


 [1-Area]

Specify the point to be brought into focus.



A dot (D) is displayed on the recording screen when a single AF area is reduced to the minimum size. The AF area can be set on the location where the dot is displayed.



- How to manipulate the AF area (→ [AF Area Operations: 181](#))

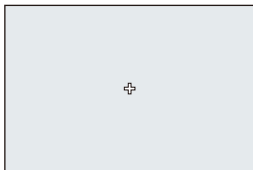


- It is not possible to reduce a single AF area to the minimum when using the following functions:
  - During video recording
  - [P] mode
  - [S&Q] mode
  - [Crop Zoom(Photo)]

**[+][Pinpoint]**

You can achieve a more precise focus on a small point.

If you press the shutter button halfway, the screen that lets you check the focus will be enlarged.



- The enlarged screen is displayed when you set an AF area.
- How to manipulate the AF area (→ [AF Area Operations: 181](#))




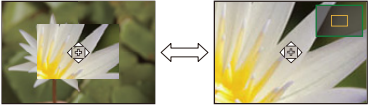



- When the focus mode is set to [AFC], [+ ] is not available.
- Automatic detection does not work in [+ ].



- When the following functions are being used, [+ ] switches to [■]:
  - During video recording
  - [P] mode
  - [S&Q] mode

## Operations on the Magnification Window

Button operations	Touch operations	Description of operation
▲▼◀▶	Touch	Moves [+].
—	Pinch out/ pinch in	Enlarges/reduces the screen in small steps.
	—	Enlarges/reduces the screen.
		Switches magnification window (windowed mode/full screen mode). 
[DISP.]	[Reset]	Quits the enlarged display.

- You can enlarge by approx. 3× to 6×.
- You can also take a picture by touching [].



- You can change the display method of the magnified screen:  
(→[Pinpoint AF Setting]: 548)

## AF Area Operations

- [Move the Position of the AF Area: 181](#)
- [Changing the Size of the AF Area: 183](#)
- [Resetting the AF Area: 184](#)
- [Focus on and Adjust Brightness for the Touched Position \(\[AF+AE\]\): 185](#)
- [Moving the AF Area Position with the Touch Pad: 186](#)
- [\[Focus Switching for Vert / Hor\]: 188](#)



### Move the Position of the AF Area

#### ❖ Touch operations

With the default settings, focus is on the point touched when you touch the screen. (→ [\[Touch Settings\]: 553](#))

#### Touch the recording screen.

- The AF area setting screen is displayed.  
The AF area is set when you either touch [Set] or press the shutter button halfway.




- You can optimize the focus and brightness on the touched position. (→ [Focus on and Adjust Brightness for the Touched Position \(\[AF+AE\]\): 185](#))
- You can focus on the touched position and release the shutter. (→ [Touch AF/Touch Shutter: 95](#))

## ❖ Button operations

- 1 Press **▼** in the AF mode selection screen.
  - The AF area setting screen is displayed.
- 2 Press **▲▼◀▶** to move the position of the AF area.
  - The AF area is set when you either press **MENU/SET** or press the shutter button halfway.



- When [Metering Mode] is [, the metering target also moves together with the AF area.



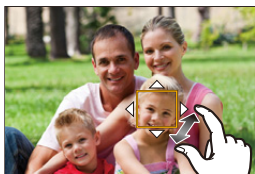
- You can set the AF area to loop when moved:  
(→ [\[Looped Focus Frame\]: 552](#))
- You can assign the function that displays the AF area/MF Assist movement screens to an Fn button:  
(→ [\[Focus Area Set\]: 511](#))
- You can use the cursor buttons to move the AF area and MF Assist:  
(→ [\[Direct Focus Area\]: 548](#))

## Changing the Size of the AF Area

### ❖ Touch operations


**Pinch out/pinch in the AF area in the AF area setting screen.**

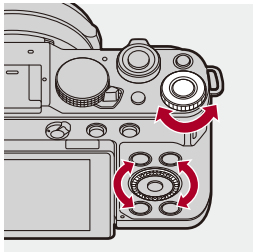
- Either touch [Set] or press the shutter button halfway to confirm.



### ❖ Dial Operations

**Rotate  or .**

- Either press  or press the shutter button halfway to confirm.



- In [.....] and [+], the size of the AF area cannot be changed.

## Resetting the AF Area

### ❖ Touch operations

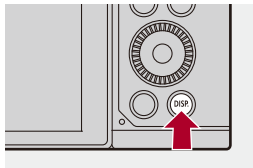
**Touch [Reset] in the AF area setting screen.**

- The first touch returns the AF area position to the center. The second touch returns the AF area size to the default.

### ❖ Button operations

**Press [DISP.] in the AF area setting screen.**

- The first press returns the AF area position to the center. The second press returns the AF area size to the default.




## Focus on and Adjust Brightness for the Touched Position ([AF+AE])

### 1 Set [Touch AF].





-  → [  ] → [  ] → [Touch Settings] → [Touch AF] → [AF+AE]

### 2 Touch the subject to which you wish to adjust the brightness.

- At the touched position, an AF area that works in the same way as  is displayed. This places a point to adjust brightness at the center of the AF area.
- How to manipulate the AF area (→ [AF Area Operations: 181](#))






### 3 Touch [Set].

- The [AF+AE] setting is canceled if you touch  (when  or  is set: )) on the recording screen.

## Moving the AF Area Position with the Touch Pad

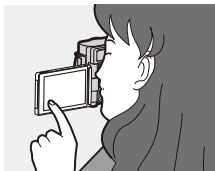
During viewfinder display, you can touch the monitor to change the position and size of the AF area.

### 1 Set [Touch Pad AF].

-  ⇒ [  ] ⇒ [  ] ⇒ [Touch Settings] ⇒ [Touch Pad AF] ⇒ [EXACT]/[OFFSET1] to [OFFSET7]

### 2 Move the position of the AF area.

- During viewfinder display, touch the monitor.
- How to manipulate the AF area (→ [AF Area Operations: 181](#))



### 3 Confirm your selection.

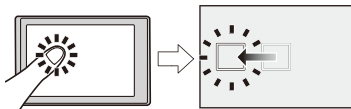
- Press the shutter button halfway.

## ❖ Setting Items ([Touch Pad AF])

---

### [EXACT]

Moves the AF area of the viewfinder by touching a desired position on the touch pad.

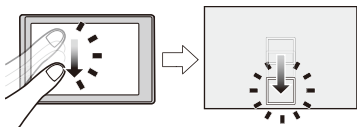


---

**[OFFSET1]** (entire area)/**[OFFSET2]** (right half)/**[OFFSET3]** (upper right)/**[OFFSET4]** (lower right)/**[OFFSET5]** (left half)/**[OFFSET6]** (upper left)/**[OFFSET7]** (lower left)

Moves the AF area of the viewfinder according to the distance you drag your finger on the touch pad.

Select the range to be detected with the drag operation.



### [OFF]

---

## [Focus Switching for Vert / Hor]

Memorizes separate positions for AF areas for when the camera is vertically aligned and for when it is horizontally aligned.

Two vertical orientations, left and right, are available.



 →  →  → **Select [Focus Switching for Vert / Hor]**

---

### [ON]

Memorizes separate positions for vertical and horizontal orientations.

---

### [OFF]

Sets the same position for vertical and horizontal orientations.

---



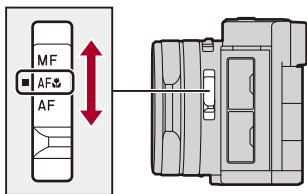
- In MF, this memorizes the MF Assist position.

## Taking Close-up Pictures



This mode allows you to take close-up pictures of a subject, e.g. when taking pictures of flowers.

**Switch the focus selector switch to [AF ].**



- You can take pictures of a subject as close as 3 cm (0.098 feet) from the lens when the zoom is set to the wide end.
- The focus range is displayed when you operate the zoom, for example. (→ [Focus range: 102](#))



- Keep the following points in mind when taking close-up pictures:
  - A picture may be out of focus when the subject is out of focus range, even if the focus display is lit.
  - Using a tripod and [Self Timer] is recommended.
  - We recommend not using the flash.
  - The effective focus range is significantly narrowed. Therefore, if the distance between the camera and the subject is changed after focusing on the subject, it may become difficult to focus on it again.
  - Resolution may be slightly reduced around the edges of the picture. This is not a malfunction.

## Record Using MF

---

- [\[Focus Peaking\]: 196](#)



MF (Manual Focus) refers to manual focusing.

Use this function when you want to fix the focus or when the distance between the lens and the subject is determined and you do not want to activate AF.

### 1 Set the focus mode to [MF].

(→ [Selecting the Focus Mode: 145](#))

### 2 Press [ ] (◀).

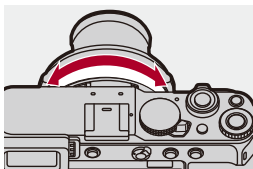
- This switches to the MF Assist screen, and shows an enlarged display.

### 3 Select the focus point.

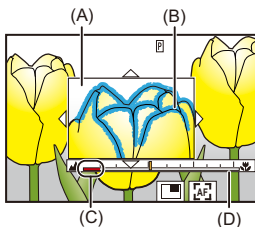
- Press ▲▼◀▶ to select the focus point.
- To return the point to be brought into focus to the center, press [DISP.].

## 4 Adjust the focus.

- Rotate the control ring.




- This will display the in-focus portion highlighted with color. (Focus Peaking)
- A recording distance guideline is displayed. (MF Guide)



- (A) MF Assist (enlarged screen)
- (B) Focus Peaking
- (C) Indicator for  $\infty$  (infinity)
- (D) MF Guide






## 5 Close the MF Assist screen.

- Press the shutter button halfway.
- This operation can also be performed by pressing  .

## 6 Start recording.

- Press the shutter button fully.

### ❖ Operations on the MF Assist Screen

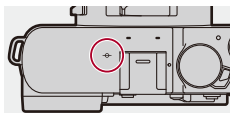
Button operations	Touch operations	Description of operation
▲▼◀▶	Drag	Moves the enlarged display position.
—	Pinch out/ pinch in	Enlarges/reduces the screen in small steps.
	—	Enlarges/reduces the screen.
		Switches magnification window (windowed mode*1/full screen mode*2). 
[DISP.]	[Reset]	First time: Returns the MF Assist position to the center. Second time: Returns the MF Assist magnification to the default setting.
[AF ON]		The AF operates.


\*1 You can enlarge by approx. 3× to 6×.

\*2 You can enlarge by approx. 3× to 20×. (Maximum 6× during video recording and when in [S&Q]/[S&Q] mode)



- On the recording screen, you can rotate the control ring to display the MF Assist screen. If the control ring has been rotated to enlarge the display, the assist screen will be exited a short time after you cease the operation.
- During MF, pressing [AF ON] will activate AF.
- The MF Assist screen can also be displayed during video recording.
- The recording distance reference mark indicates the position of the imaging surface. This becomes the reference when measuring the recording distance.



- When [Crop Zoom(Photo)] is [ON], the MF Assist magnification rate is between about 3× to 6×.
- When [Crop Zoom(Video)] is [ON], the MF Assist magnification rate is fixed to 3×.
- While you are using the following function, the MF Assist screen will not be displayed:
  - During SH burst recording
- During video recording using the following functions, the MF Assist screen cannot be displayed:
  - [Rec Quality] with a high frame rate video exceeding a recording frame rate of 60.00p
  - [Live Cropping]
- When the temperature of the camera rises and [  ] lights on the screen, the MF Assist screen is not displayed in order to protect the camera against a rise in temperature.

**For information about the high temperature display (→ [For information about the high temperature display: 123](#))**



- You can change the Focus Peaking sensitivity and the display method:  
(→[Focus Peaking]: 196)
- You can memorize the MF Assist position separately for vertical and horizontal orientations:  
(→[Focus Switching for Vert / Hor]: 188)
- You can change the display method of the magnified screen:  
(→[MF Assist]: 546)
- You can change the MF Guide display units:  
(→[MF Guide]: 547)
- You can disable control ring operation:  
(→[Control Ring Lock]: 547)
- You can set the movement of the MF Assist position to loop:  
(→[Looped Focus Frame]: 552)
- The camera memorizes the focus point when you turn it off:  
(→[Lens Focus Resume]: 571)
- The amount of focus movement can be set:  
(→[Control Ring Focus Control(MF)]: 571)
- You can assign the function that displays the AF area/MF Assist movement screens to an Fn button:  
(→[Focus Area Set]: 511)
- You can use the cursor buttons to move the AF area and MF Assist:  
(→[Direct Focus Area]: 548)

## [Focus Peaking]

During MF operation, in-focus portions (portions on the screen with clear outlines) are highlighted with color.



→ [CAMERA]/[PERSON] → [FOCUS] → **Select [Focus Peaking]**

[ON]	Focus Peaking display is performed.	
[OFF]	—	
[SET]	[Focus Peaking Sensitivity]	If adjusted to the negative direction, portions to be highlighted are reduced, allowing you to achieve a more precise focus.
	[Display Color]	You can set the display color of the in-focus portion.
	[Display During AFS]	When set to [ON], the Focus Peaking display is also possible when the shutter button is pressed halfway in the [AFS] focus mode.
	[Display During MF]	<p><b>[While In Live View]:</b> Focus Peaking is displayed in the recording screen.</p> <p><b>[While Live View Is Enlarged]:</b> Focus Peaking is displayed in the MF Assist screen and the video enlarged display of live view screen.</p> <p><b>[When Shutter Is Pressed]:</b> When set to [OFF], Focus Peaking is hidden when the shutter is pressed.</p>



- You can display the Touch Tab (→ [\[Touch Settings\]: 553](#)) and then touch **[PEAK]** in **[<]** to switch [ON]/[OFF].
- When [Live View Boost] is being used, [Focus Peaking] is not available.

## Recording with Zoom

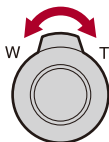
---

- [\[Crop Zoom\(Photo\)\]: 200](#)
- [\[Crop Zoom\(Video\)\]: 202](#)

Use the zoom lever or the control ring to zoom to telephoto or wide-angle.

### Using the zoom lever

Turn the zoom lever



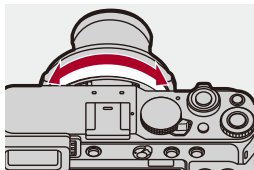
**[T] side:** Telephoto

**[W] side:** Wide-angle

### Using the control ring (during AF only)

Rotate the control ring<sup>\*</sup>

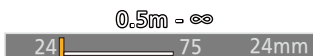
<sup>\*</sup> You can perform zoom operation by assigning the [Zoom] or [Step Zoom] setting to the control ring. (→[\[Control Ring Setting During AF\]: 571](#))



**Clockwise:** Telephoto

**Counterclockwise:** Wide-angle

- The focal length (as with a 35 mm film camera) is displayed on the recording screen.



- Do not touch the lens barrel during zooming.
- Adjust the focus after adjusting the zoom.
- The camera may make a rattling noise and vibrate when the zoom lever or control ring is operated. This is not a malfunction.



- You can set the zoom action and zoom speed:  
(→ [\[Zoom Settings\]: 554](#))
- The focal length display can be hidden:  
(→ [\[Focal Length\]: 564](#))

## [Crop Zoom(Photo)]



**iA P A S M**

Cut out the central section of the image to get an enhanced telescopic effect without image quality deterioration.

### 1 Set to [📷] mode.





(→ [Photo/Video/S&Q Switch: 61](#))

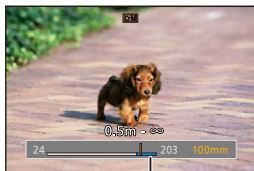
### 2 Set [Crop Zoom(Photo)].

• → [📷] → [🔍] → [Crop Zoom(Photo)]

[ON]	Enables crop zoom.	
[OFF]	—	
[SET]	[Minimum Image Size]	A higher rate of zoom is possible the smaller the [Picture Size] is. <b>[M]</b> : maximum 1.4× <b>[S]</b> : maximum 2.0× <b>[XS]</b> : maximum approx. 2.7×
	[Set Recording Image Size]	<b>[ON]</b> : Always records with the [Picture Size] set in [Minimum Image Size]. <b>[OFF]</b> : [Picture Size] changes according to the zoom position.

## ❖ Using [Crop Zoom(Photo)]

- 1 Set [Crop Zoom(Photo)] to [ON].
  -  ⇒ [  ] ⇒ [  ] ⇒ [Crop Zoom(Photo)] ⇒ [ON]
- 2 Turn  to perform the zoom operation.
  - When [Touch Tab] is set to [ON], you can enlarge/reduce with Touch Zoom.



(A)

(A) Crop zoom range



- RAW images are recorded without being cropped.



- When the following functions are being used, [Crop Zoom(Photo)] is not available:
  - [RAW] ([Rec. File Format(Photo)])
  - [Multiple Exposure]

## [Crop Zoom(Video)]



**iA P A S M**

Cut out the central section of the image to get an enhanced telescopic effect without image quality deterioration.

### 1 Set to [Video] or [S&Q] mode.

(→ [Photo/Video/S&Q Switch: 61](#))





### 2 Set [Crop Zoom(Video)].

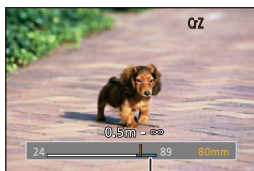
- → [Video] → [Options] → [Crop Zoom(Video)]



<b>[ON]</b>	Enables crop zoom.
<b>[OFF]</b>	—

## ❖ Using [Crop Zoom(Video)]

- Set [Crop Zoom(Video)] to [ON].
  -  ⇒ [  ] ⇒ [  ] ⇒ [Crop Zoom(Video)] ⇒ [ON]
- Turn  to perform the zoom operation.
  - When [Touch Tab] is set to [ON], you can enlarge/reduce with Touch Zoom.



(B)

(B) Crop zoom range

## ❖ [Rec Quality] and Crop Zoom Rate

[Rec Quality]	Maximum crop zoom rate
5.6K video, 5.2K video, 4.4K video	—
3.8K video (30p/25p)	Approx. 1.2×
C4K video (120p/100p/60p/50p/48p)	—
C4K video (30p/25p/24p)	Approx. 1.3×
4K video (120p/100p/60p/50p/48p)	—
4K video (30p/25p/24p)	Approx. 1.4×
FHD video (240p/200p/120p/100p/60p/50p/48p)	—
FHD video (30p/25p/24p)	Approx. 2.7×



- When the following functions are being used, [Crop Zoom(Video)] is not available:
  - [S&Q] video with a [Slow & Quick Setting] frame rate exceeding 30 fps
  - [Live Cropping]
- When [Crop Zoom(Video)] is set to [ON], power consumption increases and the battery is consumed faster. The temperature increase in the camera is also faster.

# Drive / Shutter / Image Stabilizer

This chapter describes functions for recording in drive mode and the image stabilizer function.

- [Selecting the Drive Mode: 206](#)
- [Taking Burst Pictures: 208](#)
- [Recording with Time Lapse Shot: 219](#)
- [Recording with Stop Motion Animation: 227](#)
- [Time Lapse Shot/Stop Motion Animation Videos: 231](#)
- [Recording Using the Self-timer: 233](#)
- [Bracket Recording: 238](#)
- [\[Focus Stacking\]: 246](#)
- [\[Live View Composite\]: 249](#)
- [\[Silent Mode\]: 253](#)
- [\[Shutter Type\]: 255](#)
- [Image Stabilizer: 263](#)

## Selecting the Drive Mode

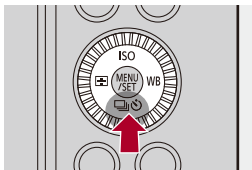


You can switch the drive mode to Single, Burst, etc. to match the recording conditions.



### 1 Set to [📷] mode.

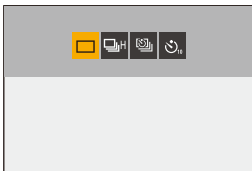
(→ [Photo/Video/S&Q Switch: 61](#))


### 2 Press [📷] (▼).



### 3 Select a drive mode.

- Press ◀▶ to select an item and then press .
- You can also select by rotating .



 (Single)

Takes one picture each time the shutter button is pressed.

---

 (Burst) (→ [Taking Burst Pictures: 208](#))

Takes pictures continuously while the shutter button is pressed and held.

---

 (Time Lapse Shot/Stop Motion Animation) (→ [Recording with Time Lapse Shot: 219](#), [Recording with Stop Motion Animation: 227](#))

Takes pictures with Time Lapse Shot or Stop Motion Animation.

---

 (Self-timer) (→ [Recording Using the Self-timer: 233](#))

Takes pictures when the set time elapses after the shutter button is pressed.

---



- The detailed setting screens for each drive mode can be called up with an Fn button:

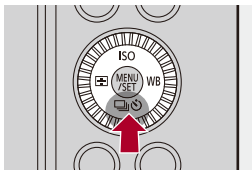
[  ] ⇒ [  ] ⇒ [Fn Button Set] ⇒ [Setting in Photo Mode] ⇒ [Drive Mode Setting]

## Taking Burst Pictures

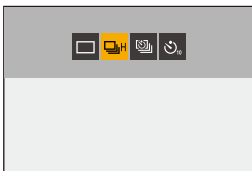


Takes pictures continuously while the shutter button is pressed and held. You can select burst recording settings to suit the recording conditions, including [H], [M], and [L] which enable burst recording with high image quality, and SH burst recording which takes burst pictures at ultra high speeds using an electronic shutter.




- 1 **Set to [📷] mode.**  
(→ [Photo/Video/S&Q Switch: 61](#))
- 2 **Press [📷/🔄] (▼).**

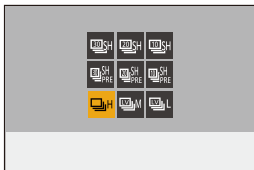


- 3 **Press ◀▶ to select [Burst] and press ▲.**
  - You can also select by rotating ⚙️.



## 4 Select the burst rate.

- Press ▲▼◀▶ to select an item and then press .
- You can also select by rotating  or .
- This can also be set in [Burst Shot Setting] in the [Photo] menu.



---

**[SH30]**

Takes burst pictures at ultra high speed with the electronic shutter, 30 frames/second.

---

**[SH20]**

Takes burst pictures at ultra high speed with the electronic shutter, 20 frames/second.

---

**[SH10]**

Takes burst pictures at high speed with the electronic shutter, 10 frames/second.

---

**[SH30 PRE]**

Takes pre-burst pictures at ultra high speed, 30 frames/second. (→ [SH Pre-burst Recording: 211](#))

---

**[SH20 PRE]**

Takes pre-burst pictures at ultra high speed, 20 frames/second. (→ [SH Pre-burst Recording: 211](#))

---

**[SH10 PRE]**

Takes pre-burst pictures at high speed, 10 frames/second. (→ [SH Pre-burst Recording: 211](#))

---

**[H]**

Takes high-speed burst pictures.

---

**[M]**

Takes medium-speed burst pictures.

---

**[L]**

Takes low-speed burst pictures.

---

## 5 Close the menu.

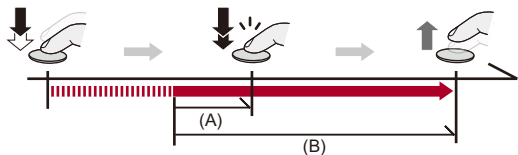
- Press the shutter button halfway.

## 6 Start recording.

- Takes burst pictures while the shutter button is pressed fully.

## ❖ SH Pre-burst Recording

The camera records pictures while the shutter button is pressed halfway before recording starts and for the 0.5 seconds just prior to the shutter button being pressed fully.



(A) 0.5 seconds

(B) Recorded range

- [PRE] is displayed on the recording screen during SH pre-burst recording.
- If the shutter button is pressed and held at halfway for approx. 1 minute, the frames before pressing fully cannot be saved. Press the shutter button halfway again.

## ❖ Burst Rate

	Mechanical shutter	Electronic shutter	Live View when taking burst pictures
[SH30]/ [SH30 PRE]	—	30 frames/second ([AFS]/[AFC]/[MF])	None
[SH20]/ [SH20 PRE]		20 frames/second ([AFS]/[AFC]/[MF])	
[SH10]/ [SH10 PRE]		10 frames/second ([AFS]/[AFC]/[MF])	
[H] (High speed)	11 frames/second ([AFS]/[MF]) 9 frames/second ([AFC])		None ([AFS]/[MF]) Available ([AFC])
[M] (Medium speed)	7 frames/second ([AFS]/[MF]) 5 frames/second ([AFC])		Available
[L] (Low speed)	2 frames/second ([AFS]/[AFC]/[MF])		Available

- The burst rate may be lower depending on the settings for recording such as [Picture Size] and focus mode.

## ❖ Maximum Number of Frames Recordable

	[Rec. File Format(Photo)]				
	[JPEG]	[RAW+JPEG]	[RAW]	[HEIF]	[RAW+HEIF]
[SH30]/ [SH30 PRE]	45 frames* <sup>1</sup>			35 frames* <sup>1</sup>	
[SH20]/ [SH20 PRE]					
[SH10]/ [SH10 PRE]					
[H] (High speed)	100 frames or more* <sup>2, 3</sup>	40 frames or more* <sup>2, 3</sup>	55 frames or more* <sup>2, 3</sup>	35 frames or more* <sup>2, 3</sup>	25 frames or more* <sup>2, 3</sup>
[M] (Medium speed)					
[L] (Low speed)					

- When recording under the test conditions specified by Panasonic.

Recording conditions may reduce the maximum number of frames recordable.

- \*1 Recording stops when the maximum number of frames recordable is reached.

For SH pre-burst recording, this includes the number of pictures taken with pre-burst recording.

- \*2 The burst rate will become lower during recording but pictures can continue to be taken until the card becomes full.
- \*3 Using a Nextorage SDXC memory card compliant with UHS-II UHS Speed Class 3

## ❖ The Number of Frames That Can Be Saved in Pre-Burst Recording Before and After Fully Pressing the Shutter Button

Burst Rate	[Rec. File Format(Photo)]	Before pressing fully	After pressing fully
[SH30 PRE]	[JPEG] [RAW+JPEG] [RAW]	15 frames	30 frames
	[HEIF] [RAW+HEIF]	15 frames	20 frames
[SH20 PRE]	[JPEG] [RAW+JPEG] [RAW]	10 frames	35 frames
	[HEIF] [RAW+HEIF]	10 frames	25 frames
[SH10 PRE]	[JPEG] [RAW+JPEG] [RAW]	5 frames	40 frames
	[HEIF] [RAW+HEIF]	5 frames	30 frames

## ❖ Number of Pictures That Can Be Taken Continuously

When you press the shutter button halfway, the number of pictures that can be taken continuously will appear on the recording screen.

Example) When 20 frames: [r20]



- Once recording starts, the number of pictures that can be taken continuously will decrease.
  - During [H]/[M]/[L] burst recording: When [r0] appears, the burst rate decreases.
  - During SH burst recording: When [r0] appears, the burst recording stops.  
Also, the [r] indication continues to be displayed after recording until the number of pictures that can be taken continuously returns to the maximum.

## ❖ Focus when Taking Burst Pictures

Focus mode	[Focus/Shutter Priority] (→[Focus/Shutter Priority]: 545)	[SH30]/[SH30 PRE]/ [SH20]/[SH20 PRE]/ [SH10]/[SH10 PRE]	[H]	[M]/[L]
[AFS]	[FOCUS]	Fixed to the focus of the first frame		
	[BALANCE]			
	[RELEASE]			
[AFC]	[FOCUS]	Estimated focus	Estimated focus	Normal focus
	[BALANCE]	Estimated focus		
	[RELEASE]			
[MF]	—	Focus set with manual focus		

- When the subject is dark with [AFC], the focus is fixed to that of the first frame.
- With estimated focus, the burst rate takes priority and the focus is estimated to the extent possible.
- With normal focus, the burst rate may become slow.


## ❖ Exposure when Taking Burst Pictures

Focus mode	[SH30]/[SH30 PRE]/ [SH20]/[SH20 PRE]/ [SH10]/[SH10 PRE]	[H]	[M]/[L]
[AFS]	Fixed to the exposure of the first frame		The exposure is adjusted for each frame
[AFC]	The exposure is adjusted for each frame		
[MF]	Fixed to the exposure of the first frame		



- It may take a while to save burst pictures.  
If you continue to take burst pictures while saving is in progress, the maximum number of frames recordable will be reduced.  
When taking burst pictures, we recommend using a high-speed card.
- Taking burst pictures does not work while you are using the following functions:
  - [Live View Composite]
  - [Multiple Exposure]

### Notes on SH burst recording

- [Shutter Type] is fixed to [ELEC.].
- There are limits on the shutter speed you can set during SH burst recording.
  - [SH30]/[SH30 PRE]: To a minimum of 1/60
  - [SH20]/[SH20 PRE]: To a minimum of 1/60
  - [SH10]/[SH10 PRE]: To a minimum of 1/60
- The aperture will be fixed during burst recording.
- The images recorded will be saved as a set of burst group pictures. (→ [Group Images: 477](#))
- To protect the camera against a rise in temperature when the camera temperature rises, SH burst recording is stopped and becomes H burst recording. The [] (Burst Shot) indication on the recording screen turns yellow when operation is limited.

**For information about the high temperature display (→ [For information about the high temperature display: 123](#))**

### **Notes on SH pre-burst recording**

- Pictures taken before the shutter button is pressed fully are not saved in the following cases:
  - When recording with the Touch Shutter
  - When [Half-Press Shutter] in the [Custom] ([Focus/Shutter]) menu is set to [ON]
- When the ambient temperature is high or Pre-Burst recording is performed continuously, even if you press the shutter button halfway, Pre-Burst may not operate to protect the camera from overheating. Wait until the camera cools down.
- Even if you press the shutter button halfway, Pre-Burst may not operate when there is insufficient free space on the card.

## Recording with Time Lapse Shot



Pictures are taken automatically at a set recording interval.

This feature is ideal for keeping track of changes over time in subjects such as animals and plants.

The pictures taken will be saved as a set of group images that can also be combined into a video. (→ [Group Images: 477](#))

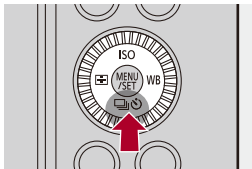


- Check that the clock is set correctly. (→ [Setting the Clock \(When Turning On for the First Time\): 54](#))
- We recommend using auto focus for time lapse recording in cases where a long [Shooting Interval] is set and the camera will turn off automatically between shots.

### 1 Set to [📷] mode.

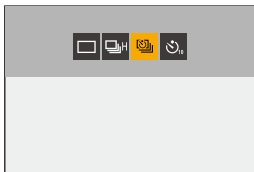
(→ [Photo/Video/S&Q Switch: 61](#))

### 2 Press [📷🌙] (▼).



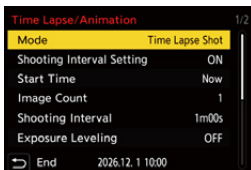
### 3 Press ◀▶ to select [Time Lapse/Animation] and press ▲.

- You can also select by rotating ⚙.



### 4 Set [Mode] to [Time Lapse Shot].

- This can also be set in [Time Lapse/Animation] in the [Photo] menu.



### 5 Set the recording settings.

#### [Mode]

Switches between Time Lapse Shot and Stop Motion Animation.

#### [Shooting Interval Setting]

[ON]: Sets the interval before the next recording takes place.

[OFF]: Takes pictures without leaving recording intervals.

### **[Start Time]**

**[Now]:** Starts recording when the shutter button is pressed fully.

**[After 2 Seconds]:** Starts recording 2 seconds after the shutter button is pressed fully.

**[Start Time Set]:** Starts recording at the set time.

---

### **[Image Count]/[Shooting Interval]**

Sets the number of pictures and the recording interval to be taken.

The number of pictures and the recording interval to be taken can be automatically calculated and set. (→ [Setting Assistant for Time Lapse Shot Recording: 223](#))

- [Shooting Interval] is not available when [Shooting Interval Setting] is set to [OFF].
- 

### **[Exposure Leveling]**

Adjusts the exposure automatically to prevent large changes in brightness between adjacent frames.

---

### **[Create New Folder At Rec]**

**[Create a New Folder]:** When set to [ON], a new folder is created each time that Time Lapse Shot recording is started.

**[File Number Reset]:** When set to [ON], the file number is reset each time a new folder is created.

---

## **6 Close the menu.**

- Press the shutter button halfway.

## 7 Start recording.

- Press the shutter button fully.
- When [Start Time Set] is set, the camera will enter into sleep status until the start time is reached.
- During recording standby, the camera enters into sleep status when no operation is performed for a certain period of time.
- The recording will stop automatically.

## 8 Create a video.

(→[Time Lapse Shot/Stop Motion Animation Videos: 231](#))

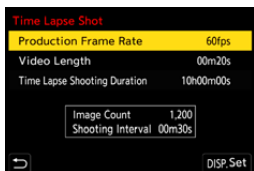
- After the recording has stopped, select [Yes] on the confirmation screen to proceed to create a video.

Even if you select [No], you can still create a video with [Time Lapse Video] in the [Playback] ([Process Image]) menu. (→[\[Time Lapse Video\]: 498](#))

## ❖ Setting Assistant for Time Lapse Shot Recording

When [DISP.] is pressed in the [Image Count]/[Shooting Interval] setting screen, [Image Count] and [Shooting Interval] can be set by automatically calculating them from the frame rate, time, and recording duration of the video to be created.

- 1 Press ▲▼ to select the item and then press .



### [Production Frame Rate]

Sets the frame rate of videos to be created.

It can be set in the range between 1 fps and 99 fps.

### [Video Length]

Sets the playback time of videos to be created.

It can be set in the range between 00m01s and 99m59s.

### [Time Lapse Shooting Duration]

Sets the Time Lapse Shot duration.

It can be set in the range between 00h00m01s and 99h59m59s.

- 2 Press [DISP.] to confirm.

- The settings are reflected when you select [Yes].



- [Image Count] can be set in the range between 1 and 9999.
- [Shooting Interval] is set in the range between 00m01s and 99m59s.  
Decimal places are rounded down if the number is not evenly divisible.
- When the setting is one where recording is not possible, [Image Count] or [Shooting Interval] is displayed in red letters.
- When [Shooting Interval Setting] is [OFF], the Time Lapse Shot settings cannot be automatically calculated.

## ❖ Operations during Time Lapse Shot Recording

Pressing the shutter button halfway during sleep status will turn on the camera.

- You can perform the following operations by pressing [Q] during Time Lapse Shot recording.

---

### **[Continue]**

Returns to the recording. (Only during recording)

---

### **[Pause]**

Pauses the recording. (Only during recording)

---

### **[Resume]**

Resumes the recording. (Only while paused)

- You can also press the shutter button to resume.

---

### **[End]**

Stops the Time Lapse Shot recording.

---



- Pictures recorded to more than one card cannot be combined into a single video.
- The camera gives priority to achieving the standard exposure, so it may not take pictures at the set interval or take the set number of pictures.  
Furthermore, it may not end at the end time displayed on the screen.
- Time Lapse Shot is paused in the following cases.
  - When the charge on the battery runs out
  - When you set the camera on/off switch to [OFF]  
You can set the camera on/off switch to [OFF] and replace the battery or card.  
Set the camera on/off switch to [ON] and then press the shutter button fully to resume recording.  
(Note that the images recorded after replacing the card will be saved as a separate set of group images.)
- [Exposure Leveling] is not available if ISO sensitivity is set to other than [AUTO] in [M] mode.
- [Time Lapse Shot] is not available when using the following functions:
  - [Live View Composite]
  - [Multiple Exposure]

# Recording with Stop Motion Animation

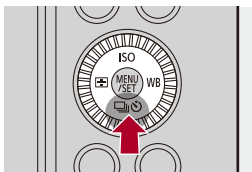


**iA P A S M**

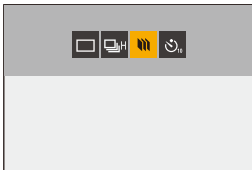
Take pictures while moving the subject little by little.

The pictures taken will be saved as a set of group images that can be combined into a stop motion video. (→[Group Images: 477](#))

- 1 Set to [📷] mode.**  
(→[Photo/Video/S&Q Switch: 61](#))
- 2 Press [📷🕒] (▼).**

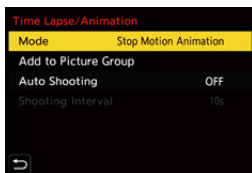


- 3 Press ◀▶ to select [Time Lapse/Animation] and press ▲.**
  - You can also select by rotating ⚙️.



## 4 Set [Mode] to [Stop Motion Animation].

- This can also be set in [Time Lapse/Animation] in the [Photo] menu.



## 5 Set the recording settings.

---

### [Mode]

Switches between Time Lapse Shot and Stop Motion Animation.

---

### [Add to Picture Group]

Allows you to continue recording for a set of stop motion images that have already been recorded.

- Select an image and proceed to Step **7**.
- 

### [Auto Shooting]

**[ON]**: Takes pictures automatically at a set recording interval.

**[OFF]**: This is for taking pictures manually, frame by frame.

---

### [Shooting Interval]

Sets the recording interval for [Auto Shooting].

---

## 6 Close the menu.

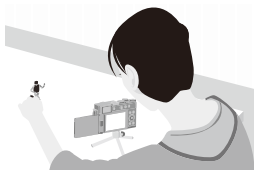
- Press the shutter button halfway.

## 7 Start recording.

- Press the shutter button fully.
- Take pictures repeatedly while moving the subject little by little.
- The recording screen displays up to two pictures taken previously. Use them as reference for the amount of movement.
- You can play back the recorded stop motion images by pressing [▶] during recording.

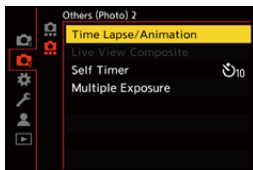
Press [🗑️] to delete unnecessary images.

To return to the recording screen, press [▶] again.



## 8 Stop recording.

- Press [MENU/SET] and then select [Time Lapse/Animation] from the [Photo] menu to stop recording.



## 9 Create a video.

(→[Time Lapse Shot/Stop Motion Animation Videos: 231](#))

- After the recording has stopped, select [Yes] on the confirmation screen to proceed to create a video.

Even if you select [No], you can still create a video with [Stop Motion Video] in the [Playback] ([Process Image]) menu. (→[\[Stop Motion Video\]: 498](#))



- Up to 9999 frames can be recorded.
- If the camera is turned off while recording, a message for resuming the recording is displayed when it is turned on. Selecting [Yes] allows you to continue the recording from the interruption point.
- The camera gives priority to achieving the standard exposure, so it may not take pictures at the set interval when the flash, etc. is used for recording.
- A picture cannot be selected from [Add to Picture Group] when it is the only one that was taken.
- [Stop Motion Animation] is not available when using the following functions:
  - [Live View Composite]
  - [Multiple Exposure]

# Time Lapse Shot/Stop Motion Animation Videos

After performing Time Lapse Shot or stop motion recording, you can proceed to create a video.

- Refer to the sections below about these recording functions.
  - [Recording with Time Lapse Shot: 219](#)
  - [Recording with Stop Motion Animation: 227](#)
- You can also create videos with [Time Lapse Video] (→[\[Time Lapse Video\]: 498](#)) or [Stop Motion Video] (→[\[Stop Motion Video\]: 498](#)) in the [Playback] menu.

- 1 Select [Yes] on the confirmation screen that appears after recording.**
- 2 Set the options for creating a video.**
- 3 Select [OK].**

- A video will be created in the [MP4] recording file format.



---

**[OK]**

Creates a video.

---

**[Rec Quality]**

Sets the video image quality.

---

**[Frame Rate]**

Sets the number of frames per second.

The larger the number is, the smoother the video will be.

---

**[Sequence]**

**[NORMAL]:** Splices pictures together in recording order.

**[REVERSE]:** Splices pictures together in reverse recording order.

---

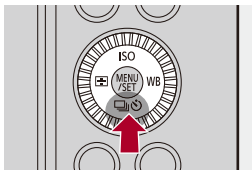


- Videos cannot be created when the [System Frequency] is set to [24.00Hz (CINEMA)].
- Videos cannot be created if the recording time exceeds 30 minutes.
- In the following cases, videos cannot be created if the file size exceeds 4 GB:
  - When an SDHC memory card is being used and a 4K [Rec Quality] is set
  - When an FHD [Rec Quality] is set
- [Time Lapse Video]/[Stop Motion Video] is not available when using the following functions:
  - [Auto Transfer(Wi-Fi)] (when there is an image queued to be transferred)


## Recording Using the Self-timer

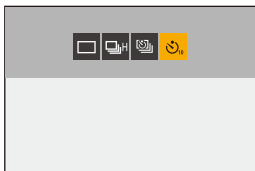


1 Press [MENU/SET] (▼).





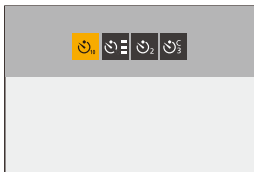
2 Press ◀▶ to select [Self Timer] and press ▲.

- You can also select by rotating .
- When recording videos, set [Self Timer For Video] in [Self Timer Setting] of the [Video] ([Others (Video)]) menu to [ON].



### 3 Select the self-timer time.

- Press ◀▶ to select an item and then press .
- You can also select by rotating .
- This can also be set in the [Photo]/[Video] menu. (→ [Setting the Self-timer Time: 236](#))



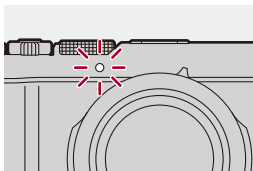
### 4 Decide on the composition and then adjust the focus.

- Press the shutter button halfway.
- The focus and exposure are fixed when the shutter button is pressed halfway.






## 5 Start recording.

- Press the shutter button or video rec. button.
- After the self-timer light blinks, shooting or video recording starts.





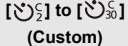


## ❖ Setting the Self-timer Time

Picture:  → [  ] → [  ] → Select [Self Timer]

Video:  → [  ] → [  ] → [Self Timer Setting] → Select [Self Timer]\*

\* This can be set by setting [Self Timer For Video] to [ON] in [Self Timer Setting] in the [Video] ([Others (Video)]) menu.

	Takes a picture after 10 seconds.	
	Takes 3 pictures at approx. 2 second intervals after 10 seconds. (When recording video, it will be the same operation with  )	
	Takes a picture after 2 seconds. • This setting is a convenient way to avoid camera shake caused by pressing the shutter button.	
 (Custom)	Takes a picture after the time selected with [Custom Time].	
[SET]	[Custom Time]	Sets the time until recording starts. [30SEC]/[20SEC]/[15SEC]/[10SEC]/ [9SEC]/[8SEC]/[7SEC]/[6SEC]/[5SEC]/ [4SEC]/[3SEC]/[2SEC]
	[Display Countdown]	A countdown is displayed on the recording screen when the self-timer is Custom.



- We recommend using a tripod when recording with the self-timer.



- [Self Timer] in the [Photo] ([Others (Photo)]) menu and [Self Timer] in the [Self Timer Setting] ([Video] ([Others (Video)]) menu) work together.
- When the following functions are being used, [Self Timer] is not available:
  - [Simultaneous Record w/o Filter] ([Filter Settings])
  - [Bracketing]
  - [Live View Composite]
  - [Multiple Exposure]

# Bracket Recording



When the shutter button is pressed, the camera can record multiple images while automatically changing the setting value for exposure, aperture, focus or white balance (adjustment value or color temperature).



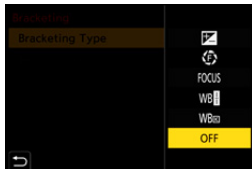
- Aperture Bracket can be selected in the following modes:
  - [A] mode
  - [M] mode (when ISO sensitivity is set to [AUTO])
- White Balance Bracket (Color Temperature) can be selected when the white balance is set to [K<sub>1</sub>], [K<sub>2</sub>], [K<sub>3</sub>], or [K<sub>4</sub>].

## 1 Set to [📷] mode.

(→ [Photo/Video/S&Q Switch: 61](#))

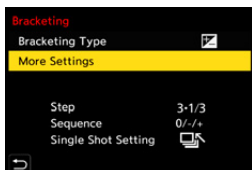
## 2 Set [Bracketing Type].

- → [📷] → [📷] → [Bracketing] → [Bracketing Type]



### 3 Set [More Settings].

- For information about [More Settings], refer to page for each bracketing method.



### 4 Close the menu.

- Press the shutter button halfway.

### 5 Focus on the subject and then take pictures.

## ❖ Setting Items ([Bracketing Type])

---

### [ ] (Exposure Bracket)

When the shutter button is pressed, the camera records while changing the exposure.

(→[More Settings] (Exposure Bracket): 242)

---

### [ ] (Aperture Bracket)

When the shutter button is pressed, the camera records while changing the aperture value.

(→[More Settings] (Aperture Bracket): 243)

---

### [ FOCUS ] (Focus Bracket)

When the shutter button is pressed, the camera records while changing the focus point.

(→[More Settings] (Focus Bracket): 244)

---

### [ WB ] (White Balance Bracket)

When the shutter button is pressed once, the camera automatically records three images with the different white balance adjustment values.

(→[More Settings] (White Balance Bracket): 245)

---

### [ WB ] (White Balance Bracket (Color Temperature))

When the shutter button is pressed once, the camera automatically records three images with the different white balance color temperatures.

(→[More Settings] (White Balance Bracket (Color Temperature)): 245)

---

### [OFF]

---

## ❖ How to Cancel Bracketing

Select [OFF] in Step 2.



- White Balance Bracket and White Balance Bracket (Color Temperature) are not available when using the following functions:
  - [iA] mode
  - Taking burst pictures
  - [RAW+JPEG]/[RAW+HEIF]/[RAW] ([Rec. File Format(Photo)])
  - [Filter Settings]
- Bracket recording is not available while you are using the following functions:
  - SH burst recording
  - [Time Lapse Shot]
  - [Stop Motion Animation] (when [Auto Shooting] is set)
  - [Live View Composite]
  - [Multiple Exposure]

## [More Settings] (Exposure Bracket)

---

### [Step]

Sets the image count and exposure compensation step.

**[3•1/3]** (record 3 images in 1/3 EV steps) to **[7•1]** (record 7 images in 1 EV steps)

---


### [Sequence]

Sets the order in which images are recorded.

---

### [Single Shot Setting]

**[□]**: Takes only one image each time the shutter button is pressed.

**[**]: Takes all of the set number of images when the shutter button is pressed once.

- The [BKT] icon blinks until all of the set number of pictures is taken.
- 



- When you record images with Exposure Bracket after setting the exposure compensation value, the images recorded are based on the selected exposure compensation value.

## ❖ [More Settings] (Aperture Bracket)

---

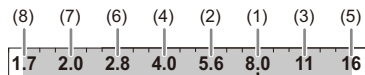
### [Image Count]

**[3]/[5]:** Records the set number of images while alternately setting the aperture value in the sequence of one before and then one after using the initial aperture value as the reference.

**[ALL]:** Records images using all aperture values.

---

### Example when the initial position is set to F8.0



(1) 1st image, (2) 2nd image, (3) 3rd image ... (8) 8th image

## ❖ [More Settings] (Focus Bracket)

### [Step]

Sets the focus adjustment step.

- The distance that the focus point is moved becomes shorter if the initial focus point is close, and longer if it is far away.

### [Image Count]

Sets the image count.

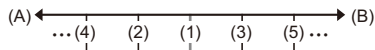
- This cannot be set when taking burst pictures.  
Burst pictures are taken while the shutter button is pressed.

### [Sequence]

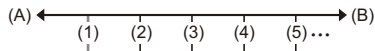
**[0/-/+]**: Records while alternately moving the focus point in the sequence of forward and then backward using the initial focus point as the reference.

**[0/+]**: Records while moving the focus point toward the far side using the initial focus point as the reference.

#### Example when [Sequence]: [0/-/+]



#### Example when [Sequence]: [0/+]



(A) Focus: closer

(B) Focus: more distant

(1) 1st image, (2) 2nd image ... (5) 5th image ...



- When [Focus Limiter] is set, recording is within the set range where AF works.
- Pictures recorded with Focus Bracket are displayed as images of one group.

(→ [Group Images: 477](#))

## ❖ [More Settings] (White Balance Bracket)





Rotate  or  to set the correction step and then press .

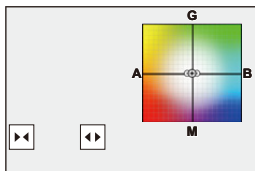
**Rotate to the right:**

Horizontal direction ([A] - [B])

**Rotate to the left:**



Vertical direction ([G] - [M])

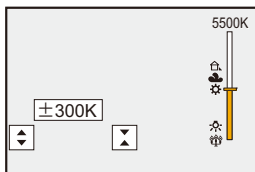
- The correction step can also be set by touching []/[]/[]/[].



## ❖ [More Settings] (White Balance Bracket (Color Temperature))

Rotate  or  to set the correction step and then press .

- The correction step can also be set by touching []/[].



## [Focus Stacking]



The camera records while automatically changing the focus point to compose an image with focus across a broad range.

Times you might find this feature convenient are when you want to get close to the subject and make it a feature of your shot but also want to have a deep depth of field, or when you want to take pictures of scenery where there is a clear separation between the foreground and background.



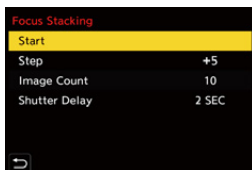
- Use a tripod to minimize camera shake.
- It is recommended to record subjects that are still. The images may not be properly merged when recording subjects that are moving.
- It is recommended to record with the aperture value set in the range between F5.6 and F11.
- The appropriate [Step] will depend on the subject. We recommend taking some test shots beforehand.

### 1 Set to [📷] mode.

(→ [Photo/Video/S&Q Switch: 61](#))

## 2 Set [Focus Stacking].

-  → [  ] → [  ] → [Focus Stacking]



---

### [Start]

Starts recording with focus stacking.

---

### [Step]

Sets the focus adjustment step.

- The distance that the focus point is moved becomes shorter if the initial focus point is close, and longer if it is far away.

---

### [Image Count]

Sets the image count.


- The number of images actually taken may be fewer than the number of images set to be recorded. Furthermore, not all of the images recorded are always used when merging the images.

---

### [Shutter Delay]

Sets the delay time from when the shutter button is pressed until the shutter is released.

## 3 Start [Focus Stacking].

- Select [Start] and then press  .


## 4 Start recording.

- Press the shutter button fully.
- Records while shifting the focus point backward and forward, using the focus point when recording starts as the reference.
- The merging is performed after recording. Depending on the recording conditions and the number of pictures taken, image merging may take some time.

## 5 End [Focus Stacking].

- Press [Q].



- During focus stacking, recording will be performed using the following settings:
  - [Shutter Type]: [ELEC.] (When [Long Exposure NR] is set to [OFF])/[ELEC.+NR] (When [Long Exposure NR] is set to [ON])
- A gray border is displayed in the recording screen in focus stacking. The image after focus stacking has the parts outside this border cropped, and they are not recorded. The images before focus stacking are recorded without being cropped.
- If recording is canceled, the recorded images are saved, but merging of the images is not performed.
- If there are great differences between the recorded images, merging may fail.
- Images recorded with focus stacking are saved in the following file formats:
  - [Rec. File Format(Photo)]: [JPEG]/[RAW+JPEG]/[RAW]  
Saved in the JPEG format
  - [Rec. File Format(Photo)]: [HEIF]/[RAW+HEIF]  
Saved in the HEIF format
- Images recorded using focus stacking are treated as group images () (Except for merged images) (→ [Group Images: 477](#))

## [Live View Composite]



Images are recorded over several times and only the parts that change to become brighter form part of the composition.

The images composed by recording at a set exposure time (shutter speed) are displayed, allowing the images to be confirmed as recording proceeds.

This allows you to reduce the overall brightness for recording, so it is convenient for recording the light trails of stars or fireworks against a bright nightscape.



- Use a tripod to minimize camera shake.

### 1 Set to [📷] mode.

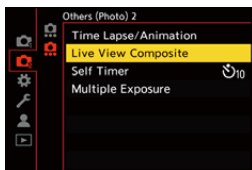
(→ [Photo/Video/S&Q Switch: 61](#))

### 2 Set the recording mode to [M].


- Set the mode dial. (→ [Selecting the Recording Mode: 62](#))

### 3 Set [Live View Composite].

-  → [  ] → [  ] → [Live View Composite]







### 4 Start Live View Composite recording.

- Select [Start] and then press .

### 5 Decide on the composition and then fix the camera in place.

### 6 Set the shutter speed and ISO sensitivity.

- Rotate  to set the shutter speed.
- Press [ISO] () , then rotate  or  to set the ISO sensitivity.
- The shutter speed can be set in the range between 60 seconds and 1/1.6 of a second. The range of ISO sensitivities you can set depends on the Photo Style used.
- The ISO sensitivity can be set in the range between [100] and [1600] ([50] and [1600] when [Extended ISO] is set).

### 7 Get the image to use for noise reduction.

- Press the shutter button fully.

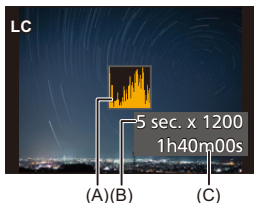
## 8 Start recording.

- Press the shutter button fully.
- Recording is done according to the settings in Step 6, and images processed with noise reduction are merged a frame at a time.

(A) Histogram display

(B) Shutter speed × Number of images merged

(C) Elapsed time



## 9 Stop recording.

- Press the shutter button fully.
- A maximum of 3 hours can be recorded with one Live View Composite recording.  
(Recording automatically ends when the time exceeds 3 hours.)

## 10 End [Live View Composite].

- Press [Q].

## ❖ Setting Items ([Live View Composite])

---

### [Start]

Starts Live View Composite recording.

---

### [Shutter Delay]

Sets the delay time from when the shutter button is pressed until the shutter is released.

[8 SEC]/[4 SEC]/[2 SEC]/[1 SEC]/[OFF]

---



- [Long Exposure NR] will be [ON].
- When recording with the flash, the flash fires only in the first frame.
- Some menus are not displayed after getting the noise reduction image.
- The image for noise reduction is discarded when you do the following. Do Step **7** again.
  - Modify the shutter speed/ISO sensitivity
  - Switch the playback mode
- When pressing the shutter button fully to end recording, the last image may not be merged.
- [Live View Composite] is not available when using the following functions:
  - [ELEC.]/[ELEC.+NR] ([Shutter Type])
  - [Filter Settings]
  - [Silent Mode]

## [Silent Mode]



This disables all operation sounds and light output at once.

The audio from the speaker will be muted and the flash and the AF assist light will be set to forced off mode.

- The following settings are fixed:
  - [Flash Mode]: [] (Forced Flash Off)
  - [AF Assist Light]: [OFF]
  - [Shutter Type]: [ELEC.]
  - [Beep Volume]: [] (OFF)
  - [AF Beep Volume]: [] (OFF)
  - [Shutter Vol.]: [] (OFF)

**For pictures:**

### 1 Set to [] mode.

(→ [Photo/Video/S&Q Switch: 61](#))

### 2 Set [Silent Mode].

- → [] → [] → [Silent Mode]

**For videos:**

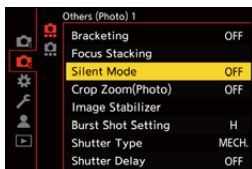
### 1 Set to [] mode.

(→ [Photo/Video/S&Q Switch: 61](#))

### 2 Set [Silent Mode].

- → [] → [] → [Silent Mode]

## Settings: [ON]/[OFF]



- Even when [ON] is set, the following functions light/blink:
  - Charging light/Network connection light
  - Card access light
  - Self-timer light
- [Silent Mode] is not available when using the following function:
  - [Live View Composite]
- Use this function at your own responsibility sufficiently considering the privacy, portrait, and other rights of subjects.

# [Shutter Type]

- [Long Exposure NR]: 258
- [Synchro Scan(Photo)]: 259
- [Min. Shutter Speed]: 261
- [Shutter Delay]: 262



Selects the shutter type to use for taking pictures.

## 1 Set to [] mode.

(→ [Photo/Video/S&Q Switch: 61](#))

## 2 Set [Shutter Type].

- → [] → [] → [Shutter Type]



**[AUTO]**

Switches the shutter type automatically depending on the recording conditions and shutter speed.

**[MECH.]**

Records with the mechanical shutter type.

**[ELEC.]**

Records with the electronic shutter type.

**[ELEC.+NR]**

Records with the electronic shutter type.

When pictures are taken at slower shutter speeds, the shutter is closed after recording to perform long shutter noise reduction.

	<b>Mechanical shutter type</b>	<b>Electronic shutter type</b>
<b>Mechanism</b>	This type starts and ends exposure with the mechanical shutter.	This type starts and ends exposure electronically.
<b>Flash</b>	✓	—
<b>Shutter speed (sec.)</b>	[T] (Time, max. approx. 60 seconds) <sup>*1</sup> , 60 to 1/2000	[T] (Time, max. approx. 60 seconds) <sup>*1</sup> , 60 to 1/32000
<b>Shutter sound</b>	Electronic shutter sound <sup>*2</sup>	Electronic shutter sound <sup>*2</sup>

\*1 This setting is available only in [M] mode.

\*2 The electronic shutter sound can be set in [Shutter Vol.] and [Shutter Tone] in [Beep] of the [Setup] ([IN/OUT]) menu. (→ [\[Beep\]: 582](#))

- The electronic shutter type allows you to record without vibration from the shutter.



- To reduce shutter-induced blur, you can set the shutter to release a few seconds after the shutter button is pressed:

(→ [\[Shutter Delay\]: 262](#))



- When [ E ] is displayed on the screen, recording will be with the electronic shutter type.
- When a moving subject is recorded using the electronic shutter, the subject may appear distorted in the picture.
- When you record using the electronic shutter under lighting such as fluorescent or LED lighting, horizontal stripes may be recorded. In such a case, lowering the shutter speed may reduce the effect of horizontal stripes.

## [Long Exposure NR]



S&amp;Q

iA P A S M

The camera automatically removes noise generated when recording images with a slow shutter speed.

### 1 Set to [📷] mode.

(→ [Photo/Video/S&Q Switch: 61](#))

### 2 Set [Long Exposure NR].

- → [📷] → [🔊] → [Long Exposure NR]

Settings: [ON]/[OFF]



- Recording is not possible during noise reduction.
- When the following functions are being used, [Long Exposure NR] is not available:
  - Video recording/SH burst recording
  - [ELEC.] (Excluding [ELEC.+NR])/[Silent Mode]

## [Synchro Scan(Photo)]



The flicker or horizontal stripes of the light source can be mitigated by making fine adjustments to the shutter speed.

The shutter speed set in Synchro Scan is saved separately from the shutter speed used for normal recording. In the Synchro Scan setting screen, you can call up the current shutter speed for normal recording and adjust it.

### 1 Set to [📷] mode.

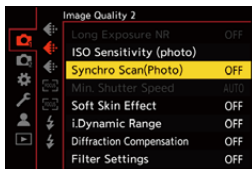
(→ [Photo/Video/S&Q Switch: 61](#))

### 2 Set the recording mode to [S] or [M].








- Set the mode dial. (→ [Selecting the Recording Mode: 62](#))

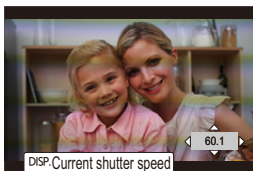
### 3 Set [Synchro Scan(Photo)].

- → [📷] → [🔧] → [Synchro Scan(Photo)] → [ON]



## 4 Set the shutter speed.

- Rotate  or  to select a numeric value, then press .
- The shutter speed can be set in the range between 1/48.0 and 1/8192.0 of a second.
- Press   to change the shutter speed in 1/4 TV intervals. Press   to make fine adjustments.
- You can call up the current shutter speed for normal recording by pressing [DISP.].
- Make adjustments to the shutter speed while looking at the screen until there is no noticeable flickering or horizontal stripes.



- There may be a difference between what you see on the recording screen and the actual results of recording. We recommend shooting some tests beforehand.
- To record video using the values set in [Synchro Scan(Photo)], set [Auto Exposure in Photo Mode] to [OFF].
- When the following function is being used, [Synchro Scan(Photo)] is not available:
  - [MECH.]

**[Min. Shutter Speed]**

S&amp;Q

iA **P** **A** S M

Sets the minimum shutter speed when the ISO sensitivity is set to [AUTO].

**1 Set to [📷] mode.**

(→ [Photo/Video/S&Q Switch: 61](#))

**2 Set [Min. Shutter Speed].**

- → [📷] → [⏏️] → [Min. Shutter Speed]

**[AUTO]**

The camera automatically sets the minimum shutter speed.

[1/32000] to [1/1]



- The shutter speed may become slower than the set value in recording situations where correct exposure cannot be achieved.

## [Shutter Delay]



S&amp;Q

iA P A S M

To reduce camera shake and shutter-induced blur, the shutter is released after the specified time has passed since the shutter button was pressed.

### 1 Set to [📷] mode.

(→ [Photo/Video/S&Q Switch: 61](#))

### 2 Set [Shutter Delay].

• → [📷] → [👁️] → [Shutter Delay]

Settings: [8SEC]/[4SEC]/[2SEC]/[1SEC]/[OFF]



- When the following functions are being used, [Shutter Delay] is not available:
  - Video recording/SH burst recording
  - [Live View Composite]

# Image Stabilizer

---

- [Image Stabilizer Settings: 264](#)



This camera automatically detects and prevents jitter.



- When the shutter button is pressed halfway, the camera shake alert icon [(((📷)))] may be displayed on the recording screen.  
If this is displayed, we recommend using a tripod or the self timer.
- We recommend turning off the image stabilizer function when using a tripod.



- The image stabilizer may cause vibration or produce operational sound during operation, but these are not malfunctions.

## Image Stabilizer Settings

Set the image stabilizer operation to match the recording situation.

**Picture:**  →  →  → **Select [Image Stabilizer]**

**Video:**  →  →  → **Select [Image Stabilizer]**

---

### [Operation Mode]

Sets the stabilization movement (image stabilizer) to match the recording method (normal, panning). (→ [\[Operation Mode\]: 265](#))

---

### [E-Stabilization (Video)]

Sets the electronic image stabilizer during video recording. (→ [\[E-Stabilization \(Video\)\]: 266](#))

---



- When the following functions are being used, [E-Stabilization (Video)] is not available:
  - [S&Q] mode
  - [Live Cropping]
  - [Rec Quality] exceeding a recording frame rate of 100.00p

## [Operation Mode]

Set the stabilization movement (image stabilizer) to match the recording method (normal, panning).

---

### [Normal]

Corrects vertical and horizontal camera shake.

---

### [Panning (Left/Right)]

Corrects vertical camera shake.

This is suitable for horizontal panning.

---

### [Panning (Up/Down)]

Corrects horizontal camera shake.



This is suitable for vertical panning.

---

### [OFF]

Turns the image stabilization function OFF.

---

- When the following functions are being used, [Operation Mode] switches to  ([Normal]):
  -  mode
  - [S&Q] mode
  - Video recording


## ❖ [E-Stabilization (Video)]

Corrects vertical and horizontal camera shake during video recording.

---

### [ON]

Turns [E-Stabilization (Video)] ON.

- [] is displayed on the screen during video recording.
- 

### [OFF]

Turns [E-Stabilization (Video)] OFF.

---



- There will be variations in the correction effect depending on recording conditions such as the focal length, the video mode used for recording, etc.
- Using [E-Stabilization (Video)] may cause a drop in resolution.
- [E-Stabilization (Video)] is fixed to [OFF] in the following case:
  - [Rec Quality] exceeding a recording frame rate of 100.00p

# Metering / Exposure / ISO

## Sensitivity

This chapter describes recording modes for determining exposure and ISO sensitivity.

- [Metering Mode]: 268
- Program AE Mode: 270
- Aperture-Priority AE Mode: 274
- Shutter-Priority AE Mode: 277
- Manual Exposure Mode: 280
- Preview Mode: 285
- Exposure Compensation: 287
- [Multiple Exposure]: 291
- Locking Focus and Exposure (AF/AE Lock): 293
- ISO Sensitivity: 295

## [Metering Mode]

---



Type of optical measurement to measure brightness can be changed.

**MENU / SET** → [] / [] → [] → **Select [Metering Mode]**



---

### [] (Multi-metering)

Method in which the most suitable exposure is measured by judging the allocation of brightness on the whole screen.

---

### [] (Center-weighted)

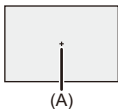
Method used to perform measuring which focuses on the center of the screen.

---

### [] (Spot)

Method used to measure the extremely small part around the spot-metering target (A).

- When you move the AF area, the spot metering target also moves to match.



---


### [] (Highlight-weighted)

Method used to perform measuring which focuses on the highlighted parts of the screen to prevent overexposure.

This is suitable for theatre photography, etc.

---



- The standard value for standard exposure can be adjusted:  
(→ [\[Exposure Offset Adjust.\]: 541](#))
- You can assign the function that records with the metering mode set to [] (Spot) once only to an Fn button:  
(→ [\[1 Shot Spot Metering\]: 509](#))

# Program AE Mode

- [Program Shift: 272](#)



In [P] mode (Program AE mode), the camera automatically sets the shutter speed and aperture value for the brightness of the subject.

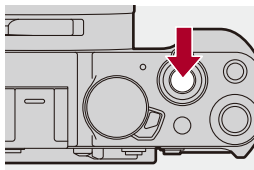
You can also use Program Shift to change combinations of shutter speed and aperture values while keeping the same exposure.

## 1 Set the recording mode to [P].

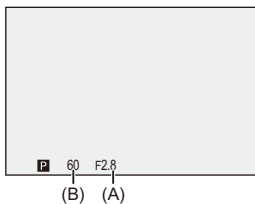
- Set the mode dial. (→ [Selecting the Recording Mode: 62](#))

## 2 Press the shutter button halfway.

- This displays the aperture value and shutter speed value on the recording screen.



- If the correct exposure is not achieved, the aperture value (A) and shutter speed (B) blink red.



### 3 Start recording.

## Program Shift

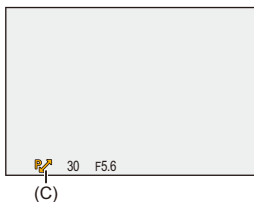
You can change the shutter speed and aperture value combination set automatically by the camera while maintaining the same exposure. With this, you can, for example, make the background more defocused by decreasing the aperture value or capture a moving subject more dynamically by slowing the shutter speed.

### 1 Press the shutter button halfway.

- This displays the aperture value and shutter speed value on the recording screen. (Approx. 10 seconds)



### 2 Rotate or while the values are displayed.

- This displays the Program Shift icon (C) on the recording screen.



### 3 Start recording.

#### Canceling Program Shift

- Set the camera on/off switch to [OFF].
- Rotate  or  until the Program Shift icon disappears.



- Program Shift is not available when using the following function:
  - Flash



- You can customize dial operations:
  - (→ [\[Dial Set.\]: 556](#))
- The recording screen can display an exposure meter indicating the relationship between aperture value and shutter speed:
  - (→ [\[Expo.Meter\]: 564](#))

## Aperture-Priority AE Mode

---



In [A] mode (Aperture-Priority AE mode), you can set the aperture value before recording.

The shutter speed will be automatically set by the camera.



### Smaller aperture values

It becomes easier to defocus the background.



### Larger aperture values

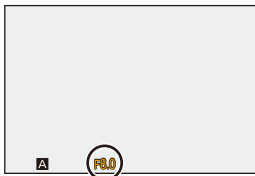
It becomes easier to bring everything into focus including the background.

## 1 Set the recording mode to [A].

- Set the mode dial. (→ [Selecting the Recording Mode: 62](#))

## 2 Turn the aperture ring to select the aperture value.

- You can set the aperture value with  or  if you set the aperture ring to the [A] position.



## 3 Start recording.

- If the correct exposure is not achieved when the shutter button is pressed halfway, the aperture value and the shutter speed blink red.

## ❖ Depth of Field Characteristics

Aperture value	Small	Large
Focal length of lens	Telephoto	Wide-angle
Distance to subject	Near	More distant
<b>Depth of field (area in sharp focus)</b>	<b>Shallow (narrow)</b> Example: When you want to take a image with a defocused background.	<b>Deep (wide)</b> Example: When you want to take a image with focus as far as the background.



- The effects of the set aperture value and shutter speed will not be visible on the recording screen.

To check the effects on the recording screen, use [Preview]. (→ [Preview Mode: 285](#))

You can set the preview of the aperture effect to constantly operate in [A] mode to check the depth of field while recording:

(→ [\[Constant Preview\]: 558](#))

- The brightness of the recording screen and of actual recorded images may differ. Check the images on the playback screen.



- You can customize dial operations:

(→ [\[Dial Set.\]: 556](#))

- The recording screen can display an exposure meter indicating the relationship between aperture value and shutter speed:

(→ [\[Expo.Meter\]: 564](#))

## Shutter-Priority AE Mode

---



In [S] mode (Shutter-Priority AE mode), you can set the shutter speed before recording.

The aperture value will be automatically set by the camera.



### Slower shutter speeds

It becomes easier to capture motion



### Faster shutter speeds

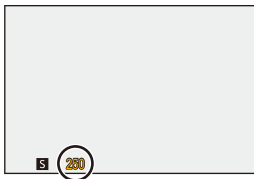
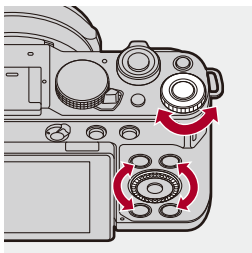
It becomes easier to freeze motion

## 1 Set the recording mode to [S].

- Set the mode dial. (→ [Selecting the Recording Mode: 62](#))

## 2 Set the shutter speed.

- Rotate  or .



## 3 Start recording.

- If the correct exposure is not achieved when the shutter button is pressed halfway, the aperture value and the shutter speed blink red.



- The effects of the set aperture value and shutter speed will not be visible on the recording screen.  
To check the effects on the recording screen, use [Preview]. (→ [Preview Mode: 285](#))
- The brightness of the recording screen and of actual recorded images may differ.  
Check the images on the playback screen.



- You can customize dial operations:  
(→ [\[Dial Set.\]: 556](#))
- The recording screen can display an exposure meter indicating the relationship between aperture value and shutter speed:  
(→ [\[Expo.Meter\]: 564](#))

## Manual Exposure Mode

---

- Available Shutter Speeds (Sec.): 283
- [T] (Time): 284



In [M] mode (Manual Exposure mode), you can record by manually setting the aperture value and shutter speed.

In default settings, the ISO sensitivity is set to [AUTO].



As a result, the ISO sensitivity will be adjusted according to the aperture value and shutter speed.

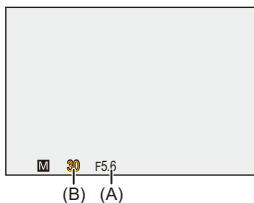
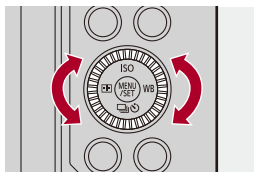
Exposure compensation can also be used when ISO sensitivity is set to [AUTO].

### 1 Set the recording mode to [M].

- Set the mode dial. (→ [Selecting the Recording Mode: 62](#))

## 2 Set the aperture value and shutter speed.


- Turn the aperture ring to set the aperture value (A), and  to set the shutter speed (B).
- You can set the aperture value with  if you set the aperture ring to the [A] position.



## 3 Start recording.

- If the correct exposure is not achieved when the shutter button is pressed halfway, the aperture value and the shutter speed blink red.

## ❖ Manual Exposure Assist

When ISO sensitivity is set to other than [AUTO], Manual Exposure Assist (example:  ) will be displayed on the recording screen.

You can check the difference between the current exposure value and the standard exposure ( $\pm 0$ ) measured by the camera.

- Use Manual Exposure Assist as a guide.

We recommend checking the images on the playback screen when recording.

## Available Shutter Speeds (Sec.)

- **[MECH.]**

[T] (Time, max. approx. 60 seconds), 60 to 1/2000

- **[ELEC.]**

[T] (Time, max. approx. 60 seconds), 60 to 1/32000

- **[ELEC.+NR]**

[T] (Time, max. approx. 60 seconds), 60 to 1/32000



- The effects of the set aperture value and shutter speed will not be visible on the recording screen.

To check the effects on the recording screen, use [Preview]. (→ [Preview Mode: 285](#))

You can set the preview of the aperture effect and the shutter speed effect to constantly operate in [M] mode to check the depth of field and movement of the subject while recording:

(→ [\[Constant Preview\]: 558](#))

- The brightness of the recording screen and of actual recorded images may differ. Check the images on the playback screen.



- You can customize dial operations:

(→ [\[Dial Set.\]: 556](#))

- The recording screen can display an exposure meter indicating the relationship between aperture value and shutter speed:

(→ [\[Expo.Meter\]: 564](#))

## [T] (Time)

If you set the shutter speed to [T] (Time) and press the shutter button fully, the shutter stays open. (max. approx. 60 seconds\*)

The shutter closes when you press the shutter button again.

Use this when you want to keep the shutter open for a long time to record images of fireworks, night scenery or a starry sky.

\* When the shutter type is [ELEC.] or when [Long Exposure NR] is [OFF], shutter speed will be faster than 60 seconds to suit the ISO sensitivity.

It will be about 30 seconds when the ISO sensitivity is 200 and about 15 seconds when it is 400.



- We recommend using a tripod during Time recording.
- Time recording may create noticeable noise.

If you are concerned about noise, we recommend that you set [Long Exposure NR] (→[Long Exposure NR]: 258) to [ON] in the [Photo] ([Image Quality]) menu before recording.



- Time is not available when using the following functions:
  - SH burst recording
  - [Time Lapse Shot]
  - [Stop Motion Animation] (when set to [Auto Shooting])
  - [Bracketing]
  - [Live View Composite]

# Preview Mode



You can check the effects of aperture on the recording screen by physically closing the aperture blades of the lens to the aperture value set for actual recording.

In addition to the effects of aperture, you can check the effects of shutter speed at the same time.

## 1 Set to [📷] mode.

(→ [Photo/Video/S&Q Switch: 61](#))

## 2 Register [Preview] to the Fn button.

(→ [Fn Buttons: 504](#))

## 3 Check the aperture effect.

- Press the Fn button set in Step 2.

- Each press of the button switches between the effect preview screens.

**Aperture effect: OFF**

**Shutter speed effect: OFF**



**Aperture effect: ON**

**Shutter speed effect: OFF**



**Aperture effect: ON**

**Shutter speed effect: ON**



- It is possible to record in preview mode.
- Range for shutter speed effect check is 8 seconds to 1/32000 of a second.
- Depending on the [Constant Preview] setting, there are preview screens that cannot be displayed.



- You can always confirm the effects of aperture on the recording screen when in [A]/[M] mode:  
(→ [\[Constant Preview\]: 558](#))
- You can assign the function that enables you to view the aperture effect just while the button is being pressed to an Fn button:  
(→ [\[Preview Aperture Effect\]: 513](#))

## Exposure Compensation

- [i.Dynamic Range]: 290

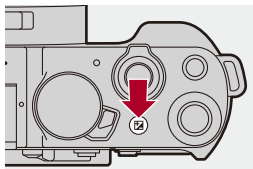


You can compensate the exposure when the standard exposure determined by the camera is too bright or too dark.

You can adjust the exposure in 1/3 EV steps in a range of  $\pm 5$  EV.

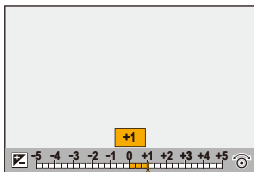
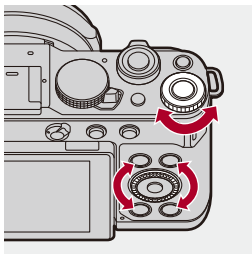
When recording videos, the range changes to  $\pm 3$  EV.

- 1 Press [  ].



## 2 Compensate the exposure.

- Rotate  or .



## 3 Confirm your selection.

- Press the shutter button halfway.



- In [M] mode, you can compensate the exposure by setting the ISO sensitivity to [AUTO].
- When the exposure compensation value falls below or exceeds  $\pm 3$  EV, the brightness of the recording screen will no longer change.  
Press the shutter button halfway or use AE Lock to reflect the value on the recording screen.
- The set exposure compensation value is stored even if you turn off the camera.



- The standard value for standard exposure can be adjusted:  
(→[Exposure Offset Adjust.]: 541)
- You can set the exposure compensation value to be reset when the camera is turned off:  
(→[Exposure Comp. Reset]: 543)
- Exposure Bracket can be set and flash output can be adjusted on the exposure compensation screen:  
(→[Exposure Comp. Disp. Setting]: 556)
- You can assign the function that matches the aperture value and shutter speed to the standard exposure to an Fn button:  
(→[One Push AE]: 510)

## [i.Dynamic Range]



S&Q

iA

P

A

S

M

Contrast and exposure are compensated when the brightness difference between the background and subject is great.



**Select [i.Dynamic Range]**

Settings: [AUTO]/[HIGH]/[STANDARD]/[LOW]/[OFF]



- Compensation effect may not be achieved depending on the recording conditions.
- When the following functions are being used, [i.Dynamic Range] is not available:
  - [Like709]/[V-Log]/[REAL TIME LUT]/[Hybrid Log Gamma] ([Photo Style])
  - [Filter Settings]
  - [Live View Composite]

# [Multiple Exposure]

---



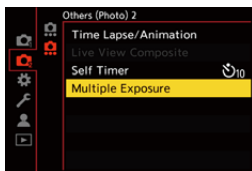
You can apply an effect equivalent to four exposures on a single image.

## 1 Set to [📷] mode.

(→ [Photo/Video/S&Q Switch: 61](#))

## 2 Set [Multiple Exposure].

- → [📷] → [📷] → [Multiple Exposure]



---

### [Start]

Starts exposure for multiple exposures.

---

### [Auto Gain]

Automatically adjusts brightness in accordance with image count.

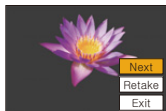
---

### [Overlay]

Allows multiple exposure for recorded RAW images. After selecting [Start], a selection screen for images to stack is displayed.

---

- After selecting [Start], pressing the shutter button fully starts multiple exposure.
- Preview is displayed for each recording, and the following operations are available:
  - [Next] (You can also perform the same operation by pressing the shutter button halfway.)
  - [Retake]
  - [Exit]: Records the picture, and finishes multiple exposure recording.



- Recording the picture will automatically stop multiple exposure recording.
- To finish multiple exposure recording before starting the recording, press [Q] on the recording screen.



- Recording information for the last-recorded image will be saved as recording information for images recorded with multiple exposures.
- [Overlay] can be set only for RAW images recorded with the camera.
- When the following functions are being used, [Multiple Exposure] is not available:
  - [Time Lapse Shot]
  - [Stop Motion Animation]
  - [Filter Settings]
  - [Live View Composite]

## Locking Focus and Exposure (AF/AE Lock)

---



Lock the focus and exposure in advance to take pictures with the same focus and exposure settings while changing the composition.

This is useful when you want to bring an edge of the screen into focus or there is a backlight, for example.

### 1 Register [AE LOCK], [AF LOCK], or [AF/AE LOCK] to the Fn button.

(→ [Fn Buttons: 504](#))

- These cannot be registered to [Fn3] to [Fn7].

---

#### [AE LOCK]

The exposure is locked.

---

#### [AF LOCK]

The focus is locked.

---

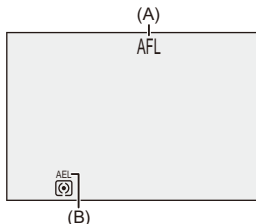
#### [AF/AE LOCK]

Both focus and exposure are locked.

---

## 2 Lock focus and exposure.

- Press and hold the Fn button.
- If focus is locked, then the AF lock icon (A) will be displayed.
- If exposure is locked, then the AE lock icon (B) will be displayed.



## 3 Hold the Fn button to decide on the composition and then perform recording.

- Press the shutter button fully.



- Program Shift can be set even when AE is locked.



- You can maintain lock even without pressing and holding the Fn button:  
(→ [\[AF/AE Lock Hold\]: 545](#))
- You can make fine manual adjustments to the focus during AF Lock:  
(→ [\[AF+MF\]: 546](#))

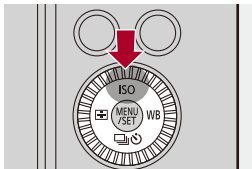
# ISO Sensitivity

- [ISO Sensitivity (photo)]: 300



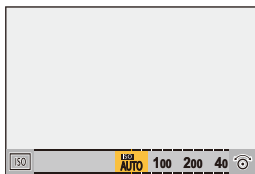
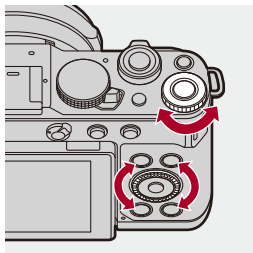
You can set light sensitivity (ISO sensitivity).

- 1 Press [ISO] (▲).



## 2 Select ISO sensitivity.

- Rotate  or .



## 3 Confirm your selection.

- Press the shutter button halfway.



### Characteristics of the ISO Sensitivity

By increasing the ISO sensitivity, the shutter speed can be increased in dark places to prevent camera shake and subject blur. However, higher ISO sensitivities also increase the amount of noise in the recorded images.

---

## ❖ Setting Items (ISO Sensitivity)

---

### [AUTO]

The ISO sensitivity is automatically adjusted according to the brightness.

- Taking picture: Maximum [3200]<sup>\*1</sup>
  - Video recording:
    - Maximum [6400]<sup>\*2</sup> (Sensor output 60 fps or lower)
    - Maximum [3200]<sup>\*3</sup> (Sensor output 61 fps or higher)
- 

In [📷] mode:

[100]<sup>\*4</sup> to [25600]

In [📷]/[S&Q] mode:

[100]<sup>\*4</sup> to [12800] (Sensor output 60 fps or lower)

[100]<sup>\*4</sup> to [3200]<sup>\*5</sup> (Sensor output 61 fps or higher)

The ISO sensitivity is fixed at the selected value.

---

\*1 Default setting. The upper limit can be changed with [ISO Sensitivity (photo)].

\*2 Default setting. The upper limit can be changed with [ISO Sensitivity (video)].

\*3 Default setting. When [Extended ISO] is set to [ON], the upper limit can be set to [6400] with [ISO Sensitivity (video)].

\*4 By setting [Extended ISO] (→ [Extended ISO]: 540) to [ON] in the [Custom] ([Image Quality]) menu, the ISO sensitivity can be extended to a lower limit of [50].

\*5 By setting [Extended ISO] (→ [Extended ISO]: 540) to [ON] in the [Custom] ([Image Quality]) menu, the ISO sensitivity can be extended to an upper limit of [12800].

- When the following functions are being used, the ISO sensitivity that can be set is restricted.
  - [Filter Settings]: Up to an upper limit of [3200]
  - [Multiple Exposure]: Down to a lower limit of [100], up to an upper limit of [3200]
  - [Like709] ([Photo Style]): Down to a lower limit of [100]
  - [V-Log] ([Photo Style]):
    - Picture: Down to a lower limit of [500], up to an upper limit of [12800]  
(The lower limit changes to [125] when [Extended ISO] is set.)
    - Video: Down to a lower limit of [500] (Sensor output 60 fps or lower)/[250] (Sensor output 61 fps or higher)  
(The lower limit changes to [125] when [Extended ISO] is set.)
  - [Standard(HLG)]/[Monochrome(HLG)]/[Hybrid Log Gamma] ([Photo Style]):
    - Picture: Down to a lower limit of [250], up to an upper limit of [12800]
    - Video: Down to a lower limit of [250]
  - [Live View Composite]: Up to an upper limit of [1600]
- When [Photo Style] is set to [REAL TIME LUT], the range of ISO sensitivity levels you can use depends on the base Photo Style of the applied LUT file.



- You can set upper and lower limits for ISO Auto:  
(→ [\[ISO Sensitivity \(photo\)\]: 300](#), [\[ISO Sensitivity \(video\)\]: 376](#))
- You can change the intervals between ISO sensitivity settings values:  
(→ [\[ISO Increments\]: 540](#))
- The setting range of ISO sensitivity can be extended:  
(→ [\[Extended ISO\]: 540](#))
- You can set the lower limit for shutter speed for ISO Auto:  
(→ [\[Min. Shutter Speed\]: 261](#))
- You can set the upper limit for ISO Auto on the ISO sensitivity settings screen:  
(→ [\[ISO Displayed Setting\]: 555](#))
- [ISO Auto] can be assigned to an Fn button:  
ISO auto switches between [ON] and [OFF] each time you press the assigned button in the recording screen.  
(ISO sensitivity reverts to the previous setting when [OFF] is set.)  
(→ [Fn Buttons: 504](#))

## [ISO Sensitivity (photo)]



S&Q

iA **P** **A** **S** **M**

Sets the lower and upper limits for ISO sensitivity when ISO sensitivity is set to [AUTO].

### 1 Set to [📷] mode.

(→ [Photo/Video/S&Q Switch: 61](#))

### 2 Set [ISO Sensitivity (photo)].

- → [📷] → [🔍] → [ISO Sensitivity (photo)]

---

#### [ISO Auto Lower Limit Setting]

Sets the lower limit for ISO sensitivity when ISO sensitivity is [AUTO].

- Set in the range between [100] and [12800].

---

#### [ISO Auto Upper Limit Setting]

Sets the upper limit for ISO sensitivity when ISO sensitivity is [AUTO].

- Set in the range between [200] and [25600].
- 



- When the following function is being used, [ISO Sensitivity (photo)] is not available:
  - [Live View Composite]

# White Balance / Image Quality

This chapter describes functions that enable you to record images how you imagine them, such as white balance and Photo Style.

- [White Balance \(WB\): 302](#)
- [\[Photo Style\]: 310](#)
- [\[Filter Settings\]: 325](#)
- [\[Soft Skin Effect\]: 331](#)
- [\[REAL TIME LUT\]: 333](#)
- [\[LUT Library\]: 335](#)
- [HLG Recording \(HEIF Format\): 344](#)
- [Lens Compensation: 346](#)

## White Balance (WB)

- [Adjusting the White Balance: 308](#)



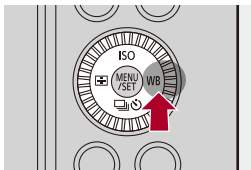
White balance (WB) is a function that corrects the color cast produced by the light illuminating the subject.

It corrects the colors so that white objects appear in white to make the overall color closer to what is seen by the eye.

Normally, you can use auto ([AWB], [AWBc] or [AWBw]) to obtain the optimal white balance.

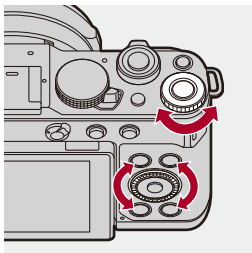
Set this function when the coloring of the image is different from what you expected, or you want to change the coloring to capture the ambience.

- 1 Press [WB] (▶).



## 2 Select the white balance.

- Rotate  or .



## 3 Confirm your selection.

- Press the shutter button halfway.

## Setting Items (White Balance)

---

### [AWB]

Auto

---

### [AWBc]

Auto (Reduces the reddish hue under an incandescent light source)

---

### [AWBw]

Auto (Leaves the reddish hue under an incandescent light source)

---

### ]

Clear sky

---

### ]

Cloudy sky

---

### ]

Shade under a clear sky

---

### ]

Incandescent light

---

### ]

Flash

---

### ] to [

Set mode 1 to 4 (→ [Registering the White Set: 307](#))

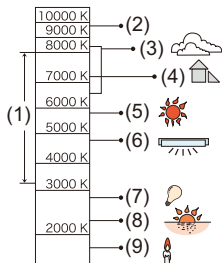
---

### ] to [

Color temperatures 1 to 4 (→ [Color Temperature Setting: 307](#))

---

\* It operates as [AWB] during video recording.



- (1) [AWB] will work within this range.
- (2) Blue sky
- (3) Cloudy sky (Rain)
- (4) Shade
- (5) Sunlight
- (6) White fluorescent light
- (7) Incandescent light bulb
- (8) Sunrise and sunset
- (9) Candlelight

K=Kelvin Color Temperature



- Under lighting such as fluorescent or LED lighting, the appropriate white balance will vary depending on the lighting type.

Use [AWB], [AWBc], [AWBw] or [] to [].



- The white balance is fixed to [AWB] while [Filter Settings] is being used.






- It is possible to temporarily lock auto white balance:

(→[\[AWB Lock Setting\]: 542](#))






## ❖ Registering the White Set

Take pictures of a white object under the light source of the recording location to adjust the white balance until it appears white.


- 1 Press [WB] (▶) and then select any value from [  ] to [  ].
- 2 Press ▲.
- 3 Aim the camera at a white object so that it appears inside the frame at the center of the screen and then press  .
  - This will set the white balance and return you to the recording screen.

## ❖ Color Temperature Setting

Set the numeric value for the white balance color temperature.

- 1 Press [WB] (▶) and then select any value from [  ] to [  ].
- 2 Press ▲.
  - The color temperature setting screen is displayed.
- 3 Press ▲▼ to select the color temperature and then press  .
  - You can set the White Balance Bracket (Color Temperature) by rotating  or  . (→[More Settings] (White Balance Bracket (Color Temperature)): 245)



- You can set a color temperature from [2500K] to [10000K].
- In [  ]/[S&Q] mode, the kelvin values are displayed on the recording screen.

## Adjusting the White Balance

You can adjust the coloring even when the coloring you want to apply is not produced by the selected white balance.

**1 Press [WB] (▶).**

**2 Select the white balance and then press ▼.**

- The adjustment screen is displayed.



**3 Adjust the coloring.**

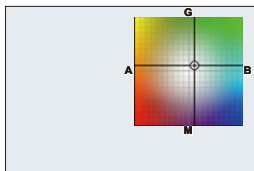
◀: [A] (AMBER: ORANGE)

▲: [G] (GREEN: GREENISH)

▶: [B] (BLUE: BLUISH)

▼: [M] (MAGENTA: REDDISH)

- You can also touch the graph to make adjustments.
- Press [DISP.] to return to the unadjusted state.
- You can set the White Balance Bracket by rotating  or . (→ [\[More Settings\] \(White Balance Bracket\): 245](#))



## 4 Confirm your selection.

- Press the shutter button halfway.



- When the white balance is adjusted, the color of its recording screen icon changes to the adjusted color.

Adjusting toward the [G] side will display [+], while adjusting toward the [M] side will display [-].

## [Photo Style]



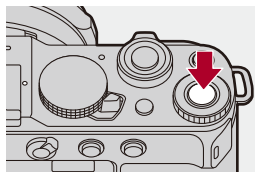
You can select the finishing settings of images to suit your subjects and expression styles.

The image quality can be adjusted for each Photo Style.

You can also apply the LUT file you have loaded in the camera and record pictures and videos.

- You can also perform the same operation by pressing the Fn button registered with [Photo Style]. (→ [Fn Buttons: 504](#))

### Press the Photo Style button.



- The Photo Style screen can also be displayed with the following operation:
  - → [ ] / [ ] → [ ] → Select [Photo Style]
- The Photo Style screen can also be displayed by pressing [LUT] and then pressing [Q].

---

 **[Standard]**


The standard setting.

---

 <sup>HLG</sup>**[Standard(HLG)]**

The standard setting.

- This can be selected when [HEIF Format] is set to [HDR(HLG)].
- 

 **[Vivid]**

A setting that produces a more vivid quality with higher saturation and contrast.

---

 **[Natural]**

A setting that produces subdued, softer saturation and contrast.

---

 **[L.Classic]**


A setting that produces a film-like quality that has lighter color tones with lower saturation and softer contrast.

---

 **[L.ClassicNeo]**

A setting that produces a film-like quality with refreshing cyan color tones and softer contrast.

---

 **[L.ClassicGold]**

A setting that produces a film-like quality with warm yellowish color tones and appropriate contrast.

---

 **[Flat]**

A setting that produces a flatter image quality with lower saturation and contrast.

---

 **[Landscape]**

A setting suited for sceneries with vivid blue skies and greens.

---

 **[Portrait]**

A setting that has a soft impression that is suited to recording people.

---

 **[Monochrome]**

A monochrome setting with no color shades.

---

 **[Monochrome(HLG)]**


A monochrome setting with no color shades.

- This can be selected when [HEIF Format] is set to [HDR(HLG)].
- 

 **[L.Monochrome]**


A monochrome setting with rich gradation and crisp black accents.

---

 **[L.Monochrome D]**

A monochrome setting that creates a dynamic impression with enhanced highlights and shadows.

---

 **[L.Monochrome S]**


A setting for a monochrome effect with a gentle touch suited to portraits.

---

 **[LEICA Monochrome]**


A setting mode that realizes Leica monochrome mode, featuring deep contrasts between black and white.

---

 **[Cinelike A2]**

A setting with a gamma curve that prioritizes a balance between dynamic range and contrast, and that uses a neutral color tone to create a film-like finishing touch.

---

 **[Cinelike D2]**

A setting that creates a film-like finishing touch using a gamma curve and gives priority to the dynamic range.

---

 **[Cinelike V2]**

A setting that creates a film-like finishing touch using a gamma curve that gives priority to the contrast.

---

### **[Like709]**

A setting that minimizes overexposure by applying a gamma curve correction equivalent to Rec.709 to perform compression (knee adjustment) of high-luminance areas. (→[Recording While Controlling Overexposure \(Knee\): 374](#))

- Rec.709 is an abbreviation of “ITU-R Recommendation BT.709”, a standard for high-definition broadcasting.

---

### **[V-Log]**

A gamma curve setting intended for post-production processing. (→[Log Recording: 441](#))

- It allows you to add rich gradation to images during post-production editing.






---

### **[REAL TIME LUT]**

You can apply the LUT file that was registered in [LUT Library]. (→[\[LUT Library\]: 335](#))

- [Sample LUT1] is applied in the default setting.
- The Photo Style acting as the base is set automatically by the applied LUT file. (If there is no base Photo Style information in the LUT file, you can select [V-Log].) Use My Photo Style when you want to change the Photo Style that will act as the base.
- The Photo Style can also be changed to [REAL TIME LUT] in the recording screen by pressing [LUT]. (→[\[REAL TIME LUT\]: 333](#))

#### **Selecting the LUT file to apply**

- 1 Press   to select [LUT] and then press [LUT].
  - 2 Rotate  or  to select the LUT file to apply, then press .
  - 3 Press the shutter button or video rec. button to start recording.
-

### **[Hybrid Log Gamma]<sup>\*1</sup>**

A setting used to record HLG format video. (→[HLG Videos: 445](#))

---

### **[MY PHOTO STYLE 1]<sup>\*2</sup> to [MY PHOTO STYLE 10]<sup>\*2</sup>**

Adjusts the image quality of Photo Style items to your preferred settings and registers these as My Photo Style items. (→[Registering Settings in My Photo Style: 323](#))

- Effects up to [MY PHOTO STYLE 4] are displayed with the default settings.



### **Applying a LUT file**


With image quality adjustments, you can apply up to 2 LUT files registered in the [LUT Library]. (→[\[LUT Library\]: 335](#))

- When applying 2 LUT files, the images with LUT1 applied have LUT2 applied.
- The Photo Style will be the base Photo Style of the applied LUT file (LUT1 if 2 LUT files are applied).

When applying a LUT file created with image editing software, select the [Photo Style] that is the same as the Photo Style used as the base when creating it.

When you select a different [Photo Style], the images may not be displayed or recorded correctly.

- [ MY] switches to [ LUT] when [LUT1] or [LUT2] is applied in image quality adjustments.
- 

\*1 Can only be selected when in the [ S&Q] mode and set to a 10-bit [Rec Quality]. (→[\[Rec Quality\]: 128](#))

\*2 You can set the items to display in the menu with [Show/Hide Photo Style] in [Photo Style Settings]. (→[\[Photo Style Settings\]: 539](#))



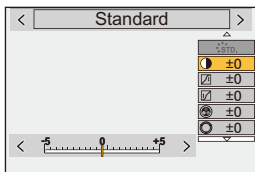
- In [iA] mode, operation differs from that in other recording modes.
  - [Standard] or [Monochrome] can be set.
  - The setting will be reset to [Standard] when the camera is switched to another recording mode or it is turned off.
  - Image quality cannot be adjusted.
- The range of available ISO sensitivities is different when [Photo Style] is set to the following (→ [Setting Items \(ISO Sensitivity\): 297](#)):
  - [Like709]/[V-Log]/[Standard(HLG)]/[Monochrome(HLG)]/[Hybrid Log Gamma]/[REAL TIME LUT] (base Photo Style is [Like709]/[V-Log]/[Standard(HLG)]/[Monochrome(HLG)]/[Hybrid Log Gamma])
- You can set the knee mode with [Like709]. (→ [Recording While Controlling Overexposure \(Knee\): 374](#))
- When [LUT] is set to [OFF] in the image quality adjustments of [REAL TIME LUT], [Photo Style] will operate the same as the Photo Style that acts as the base.
- When [Filter Settings] is being used, [Photo Style] is not available.



- You can make detailed Photo Style settings:  
(→ [Photo Style Settings: 539](#))

## ❖ Adjusting Image Quality

- 1 Press ◀▶ to select the type of Photo Style.
- 2 Press ▲▼ to select an item and then press ◀▶ to adjust.
  - Adjusted items are indicated with [\*].



- 3 Press **MENU/SET**.
  - When the image quality is adjusted, the Photo Style icon on the recording screen is indicated with [\*].

## Settings Items (Image Quality Adjustment)

### ☾ [Contrast]

Adjusts the contrast in the image.

### ☐ [Highlight]

Adjusts the brightness of bright areas.

### ☐ [Shadow]

Adjusts the brightness of dark areas.

### 🌈 [Saturation]

Adjusts the vividness of colors.

### 🌈 [Color Tone]

Adjusts blue and yellow tints.

### [Hue]

Assuming that the reference point is red, this rotates the hue toward violet/magenta or yellow/green to adjust the coloring of the entire image.

---

### [Filter Effect]

**[Yellow]:** Enhances the contrast. (Effect: weak) Records the sky with a clear blue.

**[Orange]:** Enhances the contrast. (Effect: medium) Records the sky with a darker blue.

**[Red]:** Enhances the contrast. (Effect: strong) Records the sky with a much darker blue.

**[Green]:** Skin and lips of people appear in natural tones. Green leaves appear brighter and more enhanced.

**[Off]**

---

### [Grain Effect]

**[Low]/[Standard]/[High]:** Sets the grain effect level.

**[Off]**

---

### [Color Noise]

**[On]:** Adds color to the grain effect.

**[Off]**

---

### [Sharpness]

Adjusts the outlines in the image.

---

### **NR** [Noise Reduction]

Adjusts the noise reduction effect.

- Increasing the effect may cause a slight drop in picture resolution.
-



### **ISO**[Sensitivity]<sup>\*3</sup>

Sets the ISO sensitivity. (→ [ISO Sensitivity: 295](#))

---




### **WB**[White Balance]<sup>\*3</sup>

Sets the white balance. (→ [White Balance \(WB\): 302](#))

- While [WB] is selected, press [  ] to display the white balance setting screen.  
Press [  ] again to return to the original screen.
- 

### **LUT** **LUT1** **LUT2** [LUT]

Applies the preset or the LUT file that was registered in [LUT Library]. (→ [\[LUT Library\]: 335](#))



- 1 Select either [REAL TIME LUT] or one of [MY PHOTO STYLE 1] to [MY PHOTO STYLE 10] in [Photo Style].
  - 2 Press ▲▼ to select [LUT] and then press [LUT].
  - 3 Rotate  or  to select the LUT file to apply, then press .
- 

### **LUT** **LUT1** **LUT2** [LUT Opacity]

Adjusts the LUT file effect.

---

\*3 Available when the following is set while [MY PHOTO STYLE 1] to [MY PHOTO STYLE 10] are selected:

[  ] ⇒ [  ] ⇒ [Photo Style Settings] ⇒ [My Photo Style Settings] ⇒ [Add Effects] ⇒ [Sensitivity]/[White Balance] ⇒ [ON]

- The items that you can adjust the image quality for depend on the Photo Style type.

	✓	✓			✓*4
	✓	✓			✓*4
	✓	✓			✓*4
 ([Saturation])	✓		✓	✓*5	✓
 ([Color Tone])		✓			✓*4
	✓		✓		✓*4
		✓			
	✓	✓	✓	✓*5	✓
	✓*6		✓*6	✓*5, 6	✓*4, 6
	✓	✓	✓	✓	✓
	✓	✓	✓	✓	✓
  	✓*7	✓*7	✓*7	✓*7	✓

- \*4 Adjustment may not be possible depending on the base Photo Style.
- \*5 Can be set when a LUT file is applied with My Photo Style.
- \*6 Can be set when [Grain Effect] is one of [Low], [Standard], or [High].
- \*7 You can set up to 2 LUT files when the [Photo Style] is My Photo Style.



- The effects of [Grain Effect] and [Color Noise] cannot be checked on the recording screen in the [Ⓞ] mode.
- When recording video, we recommend shooting some tests beforehand in order to check the effects of [Grain Effect].
- When viewing recorded video on a TV, the [Grain Effect] may appear to be wavy depending on the settings for frame interpolation on the TV. If this occurs, set frame interpolation on the TV to OFF.
- [LUT] cannot be applied to RAW images. When [Rec. File Format(Photo)] is set to [RAW] for recording, a LUT file can be applied only to the live view and thumbnail displays in the playback screen.
- [Grain Effect] is not available when using the following functions:
  - Video recording in [Ⓞ] mode
  - [S&Q] mode
  - [Rec Quality] exceeding a resolution of C4K
- [Grain Effect] and [Color Noise] are not available when using the following function:
  - [Soft Skin Effect]
- [Grain Effect] may not be available depending on the combination of [Rec Quality] and the settings.

## ❖ Range Properties When Recording with a LUT File Applied

The following table shows the range properties for videos recorded with LUT files applied in Photo Style:

Base Photo Style of [REAL TIME LUT]/My Photo Style	LUT file applied	[Luminance Level]	Range property
[V-Log]	[Vlog_709]	Fixed to [16-255] ([64-1023])	⇒ Video range
	Other than [Vlog_709]	Fixed to [0-255] ([0-1023])	⇒ Full range
[Hybrid Log Gamma]	All	Fixed to [64-940]	⇒ Video range
Other than the above	All	[0-255]([0-1023])	⇒ Full range
		[16-235]([64-940])/[16-255]([64-1023])	⇒ Video range



- When editing video with image editing software, we recommend using LUT files for full range.
- When generating LUT files using image editing software, we recommend using video files recorded with [Luminance Level] set to [0-255] ([0-1023]) or [16-235] ([64-940]).
- Use LUT files for full range when recording pictures.  
If you record with a LUT file for video range applied, it may not be possible to properly display or record the images.
- If there is a difference between the range property of the applied LUT file and the range property of the video file, it may not be possible to generate the images properly in the image editing software.  
When loading the video files into the image editing software, select the correct range setting for each video file.
- The results of recording images with LUT files applied with this camera and the results of applying LUT files with image editing software will not match completely.

## ❖ Registering Settings in My Photo Style



- 1 Press ◀▶ to select the type of Photo Style.
- 2 Adjust the image quality.
  - My Photo Style displays the types of Photo Style at the top of image quality adjustment.  
Select the base Photo Style.
- 3 Press [DISP.].
- 4 (When [MY PHOTO STYLE 1] to [MY PHOTO STYLE 10] is selected)  
Press ▲▼ to select [Save Current Setting] and then press .
- 5 Press ▲▼ to select the registration destination number and then press .
  - A confirmation screen will be displayed.  
On the confirmation screen, press [DISP.] to change the My Photo Style name.  
Up to 22 characters may be entered. Double-byte characters are treated as 2 characters.  
How to enter characters (→ [Entering Characters: 88](#))



- [Standard(HLG)] and [Monochrome(HLG)] cannot be registered in My Photo Style.

## **Changing the Registered Contents of My Photo Style**

- 1 Select any value from [MY PHOTO STYLE 1] to [MY PHOTO STYLE 10].
- 2 Press [DISP.] and then set the item.

---

**[Load Preset Setting]**

---

**[Save Current Setting]**

---

**[Edit Title]**

---

**[Restore to Default]**

---

## [Filter Settings]

- [Simultaneous Record w/o Filter]: 330



This mode records with additional image effects (filters).

You can adjust the effect for each filter.

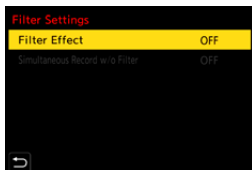
In addition, you can simultaneously take pictures without effects.

### 1 Set to [📷] or [📹] mode.


(→ [Photo/Video/S&Q Switch: 61](#))

### 2 Set the [Filter Effect].

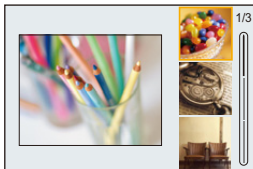
- [MENU/SET] → [📷]/[📹] → [⏏] → [Filter Settings] → [Filter Effect] → [SET]



### 3 Select the filter.




- Press ▲▼ to select, and then press .
- You can also select the image effect (filter) by touching the sample picture.
- Press [DISP.] to switch the screen in the order of normal display and guide display.

The guide display shows the description of each filter.



## ❖ Adjusting the Filter Effect

You can adjust the filter effect.

- 1 Select the filter.
- 2 On the recording screen, press [WB] (▶).
- 3 Rotate  or  to set.
  - Press  or the shutter button halfway to return to the recording screen.
  - When the filter effect is adjusted, the filter icon on the recording screen is indicated with [\*].






Filter	Items that can be adjusted
[Expressive]	Vividness
[Retro]	Coloring
[Old Days]	Contrast
[High Key]	Coloring
[Low Key]	Coloring
[Sepia]	Contrast
[Cross Process]	Coloring
[Bleach Bypass]	Contrast

## ❖ Setting a Filter with Touch Operation




- The default settings are for the Touch Tab to not be displayed.  
Set [Touch Tab] to [ON] in [Touch Settings] in the [Custom] ([Operation]) menu.  
(→[Touch Settings]: 553)

- 1 Touch [  ].
- 2 Touch the item to set.  
[  ]: Filter on/off  
[ EXPS ]: Filter  
[  ]: Filter effect adjustment





- White balance will be fixed to [AWB] and the flash will be fixed to [] (Forced Flash Off).
- The upper limit to ISO sensitivity is [3200].
- Depending on the filter, the recording screen may seem as if frames are missed.
- [Filter Effect] is not available when using the following functions:
  - [Live View Composite]
  - [Multiple Exposure]
  - [Live Cropping]



- When displaying the [Filter Effect] setting screen using the Fn button, pressing [DISP.] displays the filter selection screen.

## [Simultaneous Record w/o Filter]




You can simultaneously take pictures with no added filter effects.

### 1 Set to [📷] mode.

(→ [Photo/Video/S&Q Switch: 61](#))

### 2 Set the [Simultaneous Record w/o Filter].

-  ⇒ [📷] ⇒ [🔍] ⇒ [Filter Settings] ⇒ [Simultaneous Record w/o Filter]

Settings: [ON]/[OFF]



- [Simultaneous Record w/o Filter] is not available when using the following functions:

- Burst recording
- [Time Lapse Shot]
- [Stop Motion Animation]
- [RAW+JPEG]/[RAW+HEIF]/[RAW] ([Rec. File Format(Photo)])
- [Bracketing]

## [Soft Skin Effect]

---



Makes skin appear softer.

### 1 Set to [📷] mode.

(→ [Photo/Video/S&Q Switch: 61](#))

### 2 Set [Soft Skin Effect].

- → [📷] → [⏏️] → [Soft Skin Effect]

---

#### [HIGH]

A strong soft skin effect is applied to skin.

---

#### [STANDARD]

A medium soft skin effect is applied to skin.

---

#### [LOW]

A weak soft skin effect is applied to skin.

---

#### [OFF]

The soft skin effect is disabled.

---

When set to other than [OFF], [📷] is displayed in the recording screen.

The soft skin effect is not applied in the recording screen. The soft skin effect is applied to images after they are recorded.



- Parts that have a color close to that of skin will also have the effect applied.
- The effect may not be readily discernible in cases where there is insufficient brightness or with some Photo Styles.
- The [Soft Skin Effect] is not applied to RAW images.
- [Soft Skin Effect] is not available when using the following functions:
  - [Monochrome] / [Monochrome(HLG)] / [L.Monochrome] / [L.Monochrome D] / [L.Monochrome S] / [LEICA Monochrome] / [V-Log] ([Photo Style])
  - Taking burst pictures
  - [Time Lapse Shot]
  - [Stop Motion Animation]
  - [Multiple Exposure]
  - [Focus Stacking]
  - [Live View Composite]
  - [Filter Settings]
  - Focus Bracket recording

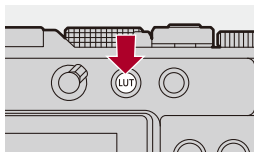
## [REAL TIME LUT]

---



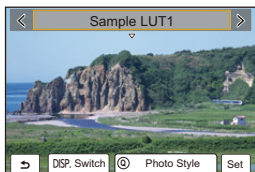
Set the Photo Style to [REAL TIME LUT] and apply a LUT file.





### 1 Press [LUT].



- When setting up initially, etc., after purchase, the QR code that takes you to the site for downloading "LUMIX Lab" may be displayed.

## 2 Select the LUT.



- Press ◀▶ to select, and then press .
- You can also select by rotating  or .
- If you press ▼, you can adjust image quality. (→ [Adjusting Image Quality: 316](#))
  - Select the settings by pressing ▲▼, adjust with ◀▶, and press .
  - Adjusted items are indicated with [\*].
- The LUT file list is displayed when you press [DISP.].
- Press [Q] to switch to the Photo Style screen. (→ [\[Photo Style\]: 310](#))
- You can apply the LUT file that was registered in the [LUT Library]. (→ [\[LUT Library\]: 335](#))
- [Sample LUT1] is applied in the default setting.

## [LUT Library]

---

- [Base Photo Style of LUT files: 340](#)



Register LUT files to the camera to use with Photo Style and LUT View Assist.

Using the “Panasonic LUMIX Lab” smartphone app, you can register LUT files on the smartphone in the [LUT Library] on the camera. (→ [LUT Library Operations: 617](#))

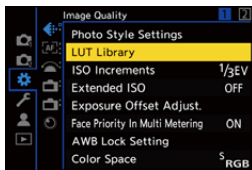


- The following LUT file can be used:
  - The “.vlt” format, which meets the requirements specified in the “VARICAM 3DLUT REFERENCE MANUAL Rev.1.0”
  - The “.cube” format
- The “.cube” format LUT files are compatible with 2-point to 33-point 3D LUT.
- We recommend loading LUT files for full range onto the camera. If the range property is different, the images may not be displayed or recorded correctly.
- The number of characters that can be used in a file name differs depending on the file system of the card.  
(Use alphanumeric characters for the file name)  
**FAT32 (SD memory card/SDHC memory card):** Up to 8 characters (excluding extension).  
**exFAT (SDXC memory card):** Up to 255 characters (including extension).
- Save the LUT file with a file extension of “.vlt” or “.cube” in the root directory of the card (the folder opened when the card is opened on a PC).
- When recording with SDR, use a LUT file for SDR, and when recording with HLG, use a LUT file for HLG.


**1** Insert a card on which a LUT file is saved into the camera.

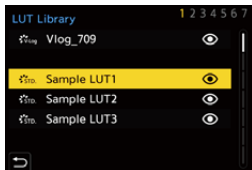
**2** Select [LUT Library].

-  → [  ] → [  ] → [LUT Library]




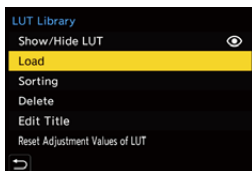
**3** Select the registration destination.

- Press ▲▼ to select, and then press .
- If you select a registered item, the LUT file will be registered by overwriting.




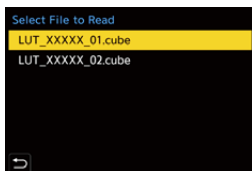
## 4 Select [Load].

- Press ▲▼ to select, and then press .
- When you select [Show/Hide LUT], you can set whether to show LUT files in the LUT selection screen.
- You can change the display order of LUT files by selecting [Sorting].
- The registered LUT file is deleted when you select [Delete].
- You can change the registered name of LUT files by selecting [Edit Title].
- When you select [Reset Adjustment Values of LUT], the image quality adjustment values changed on the camera are reset.



## 5 Select the LUT file to load.

- Press ▲▼ to select, and then press .





- The default setting is for [Vlog\_709] and 3 sample LUTs to be registered.
- Up to 39 LUT files can be registered.
- [Sorting], [Delete] and [Edit Title] are not possible with [Vlog\_709].  
It is also not possible to hide [Vlog\_709] with [Show/Hide LUT].
- [Sorting] and [Delete] are possible with the sample LUTs, but the default settings are restored when [Reset] is performed.
- With LUT files that have the Photo Style information (base Photo Style) set at the time of creation (".cube" format only), the base Photo Style icon is displayed.

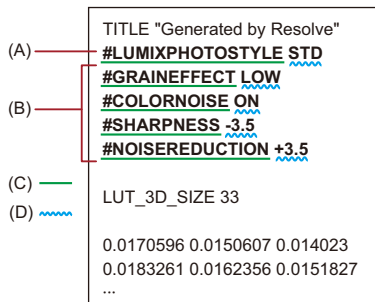
## Base Photo Style of LUT files

With Real Time LUT, the Photo Style information (base Photo Style) set in the LUT file is recognized to determine the Photo Style.

You can add the base Photo Style information to the LUT files (".cube" format only) you create yourself. Open the LUT file with a text editor and insert the Photo Style information under the title line.

- You can also add information about image quality adjustments to the LUT file.
- If there is a feature for selecting the character code in the text editor, select UTF-8.

For example: LUT file (".cube" format)



- (A) Photo Style information
- (B) Image quality adjustment information
- (C) Identifier tag
- (D) Setting value

- A half-width space is required between the identifier tag and the setting value.
- If the Photo Style information is absent or if it is not set correctly, [V-Log] is used as the base Photo Style. (However, when [HEIF Format] is set to [HDR(HLG)], the base Photo Style will become [Standard(HLG)].)
- Image quality adjustment information cannot be loaded if there is no Photo Style information.

## List of Photo Style Information

**#LUMIXPHOTOSTYLE STD:** [Standard]  
**#LUMIXPHOTOSTYLE STDHLG:** [Standard(HLG)]  
**#LUMIXPHOTOSTYLE VIVD:** [Vivid]  
**#LUMIXPHOTOSTYLE NAT:** [Natural]  
**#LUMIXPHOTOSTYLE LCLAS:** [L.Classic]  
**#LUMIXPHOTOSTYLE LCLASN:** [L.ClassicNeo]  
**#LUMIXPHOTOSTYLE LCLASG:** [L.ClassicGold]  
**#LUMIXPHOTOSTYLE FLAT:** [Flat]  
**#LUMIXPHOTOSTYLE LAND:** [Landscape]  
**#LUMIXPHOTOSTYLE PORT:** [Portrait]  
**#LUMIXPHOTOSTYLE MONO:** [Monochrome]  
**#LUMIXPHOTOSTYLE MONOHLG:** [Monochrome(HLG)]  
**#LUMIXPHOTOSTYLE LMONO:** [L.Monochrome]  
**#LUMIXPHOTOSTYLE LMONOD:** [L.Monochrome D]  
**#LUMIXPHOTOSTYLE LMONOS:** [L.Monochrome S]  
**#LUMIXPHOTOSTYLE LEICAMONO:** [LEICA Monochrome]  
**#LUMIXPHOTOSTYLE CNEA2:** [Cinelike A2]  
**#LUMIXPHOTOSTYLE CNED2:** [Cinelike D2]  
**#LUMIXPHOTOSTYLE CNEV2:** [Cinelike V2]  
**#LUMIXPHOTOSTYLE 709L:** [Like709]  
**#LUMIXPHOTOSTYLE VLOG:** [V-Log]  
**#LUMIXPHOTOSTYLE HLG:** [HLG]

## The image quality adjustment information and setting values that can be set

Below describes the identifier tags and setting values you can add to image quality adjustment information.

The setting values that can be included are ones that are recognizable by both the camera and LUMIX Lab, and these are detected when the LUT file is loaded.

When a LUT file with LUMIX Lab setting values included is loaded onto the camera, the setting values of the camera are loaded according to the chart below.

(A) Base Photo Style is other than [V-Log]

(B) Base Photo Style is [V-Log]

Image quality adjustment information	Identifier tag	Setting value		
		Camera		LUMIX Lab
		(A)	(B)	
[Grain Effect]	#GRAINEFFECT	OFF	OFF	L0
		LOW	LOW	L1 to L33
		STD	STD	L34 to L66
		HIGH	HIGH	L67 to L100
[Color Noise]	#COLORNOISE	OFF	OFF	L0
		ON	ON	L1

[Sharpness]/ [Noise Reduction]	#SHARPNESS/ #NOISEREDUCTION	-5	0	L0 to L4
		-4.5	+0.5	L5 to L9
		-4	+1	L10 to L14
		-3.5	+1.5	L15 to L19
		-3	+2	L20 to L24
		-2.5	+2.5	L25 to L29
		-2	+3	L30 to L34
		-1.5	+3.5	L35 to L39
		-1	+4	L40 to L44
		-0.5	+4.5	L45 to L49
		0	+5	L50 to L54
		+0.5	+5.5	L55 to L59
		+1	+6	L60 to L64
		+1.5	+6.5	L65 to L69
		+2	+7	L70 to L74
		+2.5	+7.5	L75 to L79
		+3	+8	L80 to L84
		+3.5	+8.5	L85 to L89
		+4	+9	L90 to L94
		+4.5	+9.5	L95 to L99
+5	+10	L100		

- [Color Noise] is not applied if the base Photo Style is the following:
  - [Monochrome]/[Monochrome(HLG)]/[L.Monochrome]/[L.Monochrome D]/[L.Monochrome S]/[LEICA Monochrome]

## HLG Recording (HEIF Format)

---



Record HEIF images with the wide dynamic range of the HLG format. You can record in very bright light where overexposure can occur or in dark areas where underexposure can occur, maintaining the rich yet subtle colors you can see with your naked eye.

Recorded HEIF images can be played back on devices that support HLG format for viewing.

- HLG (Hybrid Log Gamma) is a tone curve (gamma curve) format for HDR images.
- This is available when [Rec. File Format(Photo)] is [HEIF] or [RAW+HEIF]. (→[[Rec. File Format\(Photo\)](#)]: 108)
- This is available when [Switch JPEG/HEIF] is [HEIF]. (→[[Switch JPEG/HEIF](#)]: 111)

### HLG format HEIF images

- Compression format: HEVC
- Color sampling: 4:2:0
- Bit value: 10 bit

## 1 Set to [📷] mode.

(→[Photo/Video/S&Q Switch](#): 61)

## 2 Set [HEIF Format] to [HDR(HLG)].

-  →  →  → [HEIF Format]



### [HDR(HLG)]

Images with a wide dynamic range are recorded with the Hybrid Log Gamma mode.

### [SDR]

Records with SDR format.



- When set to [HDR(HLG)], only [Standard(HLG)]/[Monochrome(HLG)]/[REAL TIME LUT] can be selected for [Photo Style].

## Lens Compensation

- [\[Diffraction Compensation\]: 346](#)

### [Diffraction Compensation]



The camera raises the image resolution by correcting the blurriness caused by diffraction when the aperture is closed.

 →  /  →  → **Select [Diffraction Compensation]**

Settings: [AUTO]/[OFF]



- Compensation effect may not be achieved depending on the recording conditions.
- Noise may stand out with higher ISO sensitivity.

# Flash

If you attach the external flash to the hot shoe, you can record using the flash.

Furthermore, by attaching an external flash that supports wireless flash recording, you can wirelessly control an external flash that is in a position separate from the camera.

- Please also refer to the operating instructions for the external flash.
- **For information about external flashes whose operation has been verified with this camera, refer to the following support site:**  
<https://panasonic.jp/support/global/cs/dsc/connect/index.html>  
(English only)

- [Using an External Flash: 348](#)
- [Setting Flash: 350](#)
- [Recording Using a Wireless Flash: 360](#)

## Using an External Flash

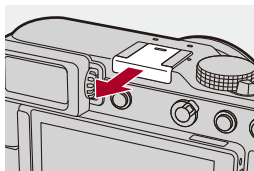
- [Removing the Hot Shoe Cover: 348](#)



### Removing the Hot Shoe Cover

Before attaching the external flash, remove the hot shoe cover. Refer to the operating instructions for the external flash for details about how to attach it.

**Remove the hot shoe cover by pulling it in the direction indicated by arrow.**



## ❖ Notes on Flash Recording



- Flash recording is not possible when the following functions are being used:
  - [ELEC.]/[Silent Mode]
  - [Filter Settings]
  - SH burst recording
- Do not bring any object near the flash. Heat or light may cause the object to deform or discolor.
- If you record repeatedly, time may be needed to charge the flash. While the flash is charging, images will be recorded without the flash firing.
- When an external flash is attached, do not carry the camera by holding only the external flash. It may become detached.
- When using an external flash, do not use one with reversed polarity or function for communicating with a camera. It may cause the camera to malfunction, or it may not operate correctly.
- Refer to the operating instructions for the external flash for details.

## Setting Flash

---

- [Flash Mode]: 351
- [Firing Mode]/[Manual Flash Adjust.]: 354
- [Flash Adjust.]: 356
- [Flash Synchro]: 357
- [Auto Exposure Comp.]: 359



You can set the flash function to control flash firing from the camera.

## [Flash Mode]

Sets the flash mode.

### 1 Set to [📷] mode.

(→ [Photo/Video/S&Q Switch: 61](#))

### 2 Set [Flash Mode].

•  → [📷] → [⚡] → [Flash Mode]

---

#### [⚡] (Forced Flash On)/[⚡👁] (Forced On/Red-Eye)

The flash fires every time regardless of the recording conditions.

This is suitable for recording when there is backlighting or under lighting such as fluorescent lighting.

---

#### [⚡S] (Slow Sync.)/[⚡S👁] (Slow Sync./Red-Eye)

When recording images against a nightscape, this will slow the shutter speed when the flash fires to make not only the subject but also the nightscape appear brighter.

- Slower shutter speeds may result in blurry images. To avoid this, we recommend using a tripod.

---



#### [🚫] (Forced Flash Off)



The flash does not fire.

---



- The flash fires twice.

The interval between the first and second firings is longer when [  ] or [  ] is set. The subject should not move until the second firing has finished.

- [  ] and [  ] cannot be used when the following are set:

- [Firing Mode]: [MANUAL]

- [Flash Synchro]: [2ND]

- [Wireless]: [ON]

- Some flash modes may not be available depending on the settings on the external flash.






- The effectiveness of red-eye reduction varies from person to person.

The effect, which is influenced by factors such as distance to the subject and whether the subject is looking at the camera when the preliminary flash is fired, may not be very noticeable in some cases.




## ❖ Available Flash Settings by Recording Mode

The available flash settings depend on the recording mode.

(✓: Available, —: Not available)

Recording mode	[  ]	[  ]	[  ]	[  ]	[  ]
[P]/[A]	✓	✓	✓	✓	✓
[S]/[M]	✓	✓	—	—	✓



- [] and [] can be set in [iA] mode. In [], the flash mode switches to one suited to the recording situation.

## [Firing Mode]/[Manual Flash Adjust.]

You can select whether to set the flash output automatically or manually.



- The settings made here are enabled when some external flashes are attached.  
For flashes other than the above, make the settings on the flash.

### 1 Set to [📷] mode.

(→ [Photo/Video/S&Q Switch: 61](#))

### 2 Set the [Firing Mode].

-  ⇒ [📷] ⇒ [⚡] ⇒ [Firing Mode]

---

#### [TTL]

Sets flash output to be set automatically by the camera.

---

#### [MANUAL]

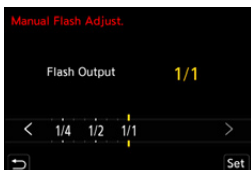
Sets the flash output manually.

- With [TTL], you can record the images you want even when recording dark scenes where the flash output tends to become greater.
  - The flash output ([1/1], etc.) is displayed on the flash icon of the recording screen.
-

**3** (When set to [MANUAL]) Select [Manual Flash Adjust.] and then press .

**4** Press   to set the flash output and then press .

- It can be set within the range of [1/1] (full flash output) to [1/128] in 1/3 steps.



## [Flash Adjust.]

You can adjust the flash output when taking pictures with the flash in TTL output mode.

### 1 Set to [📷] mode.

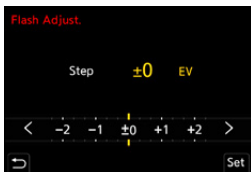
(→ [Photo/Video/S&Q Switch: 61](#))

### 2 Select [Flash Adjust.].

•  → [📷] → [⚡] → [Flash Adjust.]

### 3 Press ◀▶ to adjust the flash output and then press .

• It can be adjusted within the range of [-3 EV] to [+3 EV] in 1/3 EV steps.



- [⚡] is displayed on the recording screen.
- For information about adjusting the flash output when recording using a wireless flash (→ [\[Flash Adjust.\]: 364](#))
- [Flash Adjust.] cannot be used when the following are set:
  - [Firing Mode]: [MANUAL]
  - [Wireless]: [ON]

## [Flash Synchro]

When a moving subject is recorded at night using a slow shutter and flash, a trail of light may appear in front of the subject.

If you set [Flash Synchro] to [2ND], you can take a dynamic picture with a trail of light appearing behind the subject by firing the flash immediately before the shutter closes.

### 1 Set to [📷] mode.

(→ [Photo/Video/S&Q Switch: 61](#))

### 2 Set [Flash Synchro].

•  → [📷] → [⚡] → [Flash Synchro]

---

#### [1ST]

This is the normal method for recording with the Flash.



---

#### [2ND]

The light source appears behind the subject and the picture becomes dynamic.





- When [2ND] is set, [2nd] is displayed on the flash icon of the recording screen.
- When the following functions are being used, the setting is fixed to [1ST]:
  - [Wireless]
  - [Live View Composite]
- The effect may not be adequately achieved at faster shutter speeds.

## [Auto Exposure Comp.]

Automatically adjust the flash output in conjunction with the exposure compensation value. (→ [Exposure Compensation: 287](#))

### 1 Set to [📷] mode.

(→ [Photo/Video/S&Q Switch: 61](#))

### 2 Set [Auto Exposure Comp.].

•  → [📷] → [⚡] → [Auto Exposure Comp.]

Settings: [ON]/[OFF]

## Recording Using a Wireless Flash

---



You can use an external flash to record using a wireless flash.

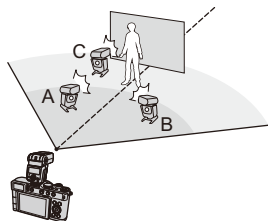
You can separately control the firing of three flash groups and the flash attached to the hot shoe of the camera.

## ❖ Placing a Wireless Flash

Place the wireless flash with its wireless sensor facing the camera.

### Placement example

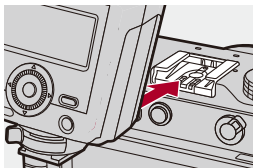
When (C) is placed to erase the shadow in the background of the subject that the flash groups (A) and (B) will create



- The placement range differs depending on the surrounding environment.
- We recommend using a maximum of three wireless flashes in each group.
- If the subject is too close, communication light may affect the exposure. You can reduce the effect by setting [Communication Light] to [LOW] or lowering the output with a diffuser or similar device. (→ [\[Communication Light\]: 365](#))

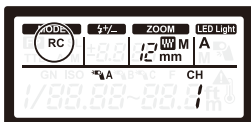
# 1 Attach an external flash to the camera.

(→ [Removing the Hot Shoe Cover: 348](#))



# 2 Set the wireless flashes to [RC] mode and then place them.

- Set the channel and group for the wireless flashes.



# 3 Set to [📷] mode.

(→ [Photo/Video/S&Q Switch: 61](#))

# 4 Enable the wireless flash function of the camera.

- **[MENU/SET]** → **[📷]** → **[⚡]** → **[Wireless]** → **[ON]**



## 5 Set [Wireless Channel].

- Select the same channel as on the wireless flash side.



## 6 Set [Wireless Setup].

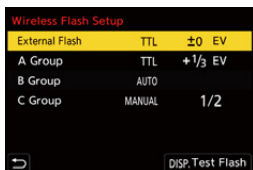
- Set the firing mode and flash output.



- When [Wireless] is set, [WL] is displayed on the flash icon of the recording screen.

## ❖ Setting Items ([Wireless Setup])

- To fire a test flash, press [DISP.].



<b>[External Flash]</b>	<b>[Firing Mode]</b>	<p><b>[TTL]:</b> The camera automatically sets the flash output.</p> <p><b>[AUTO]:</b> Sets the flash output on the external flash side.</p> <p><b>[MANUAL]:</b> Sets the flash output of the external flash manually.</p> <p><b>[OFF]:</b> The external flash outputs only communication light.</p>
	<b>[Flash Adjust.]</b>	Adjusts the flash output of the external flash manually when [Firing Mode] is set to [TTL].
	<b>[Manual Flash Adjust.]</b>	<p>Sets the flash output of the external flash when [Firing Mode] is set to [MANUAL].</p> <ul style="list-style-type: none"> <li>• It can be set within the range of [1/1] (full flash output) to [1/128] in 1/3 steps.</li> </ul>

<b>[A Group]/ [B Group]/ [C Group]</b>	<b>[Firing Mode]</b>	<p><b>[TTL]</b>: The camera automatically sets the flash output.</p> <p><b>[AUTO]</b>: Sets the flash output on the wireless flash side.</p> <p><b>[MANUAL]</b>: Sets the flash output of the wireless flash manually.</p> <p><b>[OFF]</b>: The wireless flashes of the specified group will not fire.</p>
	<b>[Flash Adjust.]</b>	<p>Adjusts the flash output of the wireless flash manually when [Firing Mode] is set to [TTL].</p>
	<b>[Manual Flash Adjust.]</b>	<p>Sets the flash output of the wireless flash when [Firing Mode] is set to [MANUAL].</p> <ul style="list-style-type: none"> <li>• It can be set within the range of [1/1] (full flash output) to [1/128] in 1/3 steps.</li> </ul>

## ❖ [Communication Light]

Set the strength of communication light.

 →  →  → Select [Communication Light]

Settings: [HIGH]/[STANDARD]/[LOW]

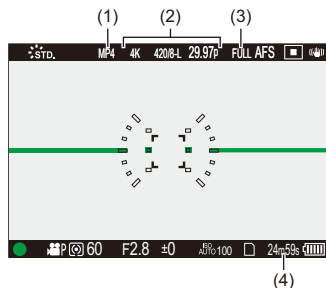
# Video Settings

This section describes the settings used when recording video.

- [Displays Suited to Video Recording: 367](#)
- [\[Photo/Video Separate Setting\]: 368](#)
- [Using AF \(Video\): 369](#)
- [Video Brightness and Coloring: 372](#)
- [Audio Settings: 377](#)
- [External Microphones \(Optional\): 387](#)
- [XLR Microphone Adaptor \(Optional\): 392](#)
- [Digital Shotgun Microphone \(Optional\): 397](#)
- [Main Assist Functions: 402](#)

## Displays Suited to Video Recording

When in [P/S&Q]/[S&Q] mode, in the recording screen, the following parts switch to displays suited to video recording.



- (1) Recording file format (Video) (→ [\[Rec. File Format\(Video\)\]: 127](#))
  - (2) Recording quality (→ [\[Rec Quality\]: 128](#))/Slow & Quick setting (→ [Slow & Quick Video: 413](#))
  - (3) Image area of video (→ [\[Image Area of Video\]: 142](#))
  - (4) Video recording time (→ [Video Recording Time: 713](#))
- Examples of displays at the time of purchase.  
For information about the icons other than those described here (→ [Monitor/Viewfinder Displays: 662](#))

## [Photo/Video Separate Setting]



In the default settings, the settings for exposure, white balance, etc., are separate for the [📷] mode and the [📹]/[S&Q] mode. You can select whether to have the settings during picture recording and video recording independent or shared.

 → [⚙️] → [📷] → **Select [Photo/Video Separate Setting]**

[F/SS/ISO/Exposure Comp.]/[White Balance]/[Photo Style]/[Metering Mode]/[AF Mode]

**[SEPARATE]:** Separate the recording settings for [📷] mode and [📹]/[S&Q] mode.

**[SAME]:** Link the recording settings for [📷] mode and [📹]/[S&Q] mode.



- The [iA] mode uses the optimum recording settings for the camera automatically, so the recording settings will be independent, irrespective of the settings made with this function.
- When changed from [SEPARATE] to [SAME], the [📷] mode settings are applied. (The [📹]/[S&Q] mode settings are deleted.)

## Using AF (Video)

- [\[AF Custom Setting\(Video\)\]: 369](#)
- [\[Enlarged Live Display\(Video\)\]: 370](#)

### [AF Custom Setting(Video)]



You can fine-adjust the focusing method for video recording with [AFC].

#### 1 Set to [Video] or [S&Q] mode.

(→ [Photo/Video/S&Q Switch: 61](#))

#### 2 Set [AF Custom Setting(Video)].

- → [Video] → [AF] → [AF Custom Setting(Video)]

[ON]	Enables the following settings.	
[OFF]	Disables the following settings.	
[SET]	[AF Speed]	<p><b>[+] side:</b> Focus moves at a faster speed.</p> <p><b>[-] side:</b> Focus moves at a slower speed.</p>
	[AF Sensitivity]	<p><b>[+] side:</b> When the distance to the subject changes significantly, the camera immediately readjusts the focus.</p> <p><b>[-] side:</b> When the distance to the subject changes significantly, the camera waits for a little before readjusting the focus.</p>

- A description of the item is displayed on the screen when you press [DISP].

## [Enlarged Live Display(Video)]



S&amp;Q

iA P A S M

When the AF mode is [], [], or [], or when recording with MF, the focus point can be enlarged for display.

(When the AF mode is [] or [], the center of the screen is enlarged for display.)

The focus point can also be enlarged for checking when recording videos.

- 1 Register [Enlarged Live Display(Video)] to the Fn button.**  
(→ [Fn Buttons: 504](#))
- 2 Set to [] or [S&Q] mode.**  
(→ [Photo/Video/S&Q Switch: 61](#))
- 3 Enlarge display of the focus point.**
  - Press the Fn button set in Step **1**.
  - The operations on the enlarged display screen are the same as the MF Assist screen operations. (→ [Operations on the MF Assist Screen: 193](#))





- If you use the following function, enlarged display magnifications is fixed at 3×:
  - [Crop Zoom(Video)]
- During video recording using the following functions, the video enlarged display of live view screen cannot be displayed:
  - [Rec Quality] with a high frame rate video exceeding a recording frame rate of 60.00p
  - [Live Cropping]



- You can change the display method of the enlarged display screen:  
(→[Enlarged Live Display(Video)]: 552)

# Video Brightness and Coloring

- [Luminance Level]: 372
- Recording While Controlling Overexposure (Knee): 374
- [ISO Sensitivity (video)]: 376

## [Luminance Level]



You can set the luminance range to suit the purpose of video recording. You can set to [16-235] or [16-255], the standard for video, or to [0-255], which covers the entire range of luminance, the same as pictures.

### 1 Set to [Video] or [S&Q] mode.

(→ [Photo/Video/S&Q Switch: 61](#))

### 2 Set [Luminance Level].

- → [Video] → [Luminance Level]

#### [0-255]([0-1023])

Setting for video recording at full range.

#### [16-235]([64-940])

Setting for video recording at video range.

#### [16-255]([64-1023])

Setting for video recording at video range.

- The display may not show the correct gradation depending on the monitor, the video playback software, and the video editing software that you are using.



- When set to a 10-bit [Rec Quality], the setting items change to [0-1023], [64-940], and [64-1023].
- When [Photo Style] is set to [V-Log] or [REAL TIME LUT] (base Photo Style is [V-Log]), this is fixed to [0-255] ([0-1023]). However, even if [Photo Style] is set to [REAL TIME LUT] (base Photo Style is [V-Log]) or Photo Style is set to [V-Log] in My Photo Style, if a [Vlog\_709] LUT file has been applied, this is fixed to [16-255] ([64-1023]).
- When the [Photo Style] is set to [Hybrid Log Gamma] or [REAL TIME LUT] (base Photo Style is [Hybrid Log Gamma]), this is fixed to [64-940].

## Recording While Controlling Overexposure (Knee)



When [Photo Style] is set to [Like709], you can adjust the knee so that recording can be performed with minimal overexposure.

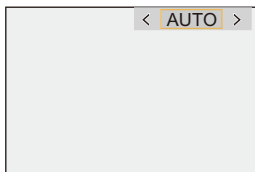
### 1 Set [Photo Style] to [Like709].

- → [ ]/[ ] → [ ] → [Photo Style] → [Like709]

### 2 Press [Q].

### 3 Select a knee setting.

- Press ◀▶ to select a setting item.



---

### [AUTO]

Adjusts the compression levels of high-luminance areas automatically.

---



### [MANUAL]

You can set the luminance where compression starts (knee master point) and the intensity of compression (knee master slope).

**Press ▲ ▼ to select an item and then press ◀ ▶ to adjust.**

**[POINT]:** Master knee point


**[SLOPE]:** Master knee slope

- Rotate  to adjust the knee master point, and  to adjust the knee master slope.
  - Values within the following ranges can be set:
    - Master knee point: 80.0 to 107.0
    - Master knee slope: 0 to 99
- 

### [Off]

---

## 4 Confirm your selection.

- Press  .

## [ISO Sensitivity (video)]



Sets the lower and upper limits for ISO sensitivity when ISO sensitivity is set to [AUTO].

### 1 Set to [Video] or [S&Q] mode.

(→ [Photo/Video/S&Q Switch: 61](#))

### 2 Set [ISO Sensitivity (video)].

- → [Video] → [ISO Sensitivity (video)] → [ISO Sensitivity (video)]

## ❖ Setting Items ([ISO Sensitivity (video)])

### [ISO Auto Lower Limit Setting]

Sets the lower limit for ISO sensitivity when ISO sensitivity is [AUTO].

- Sensor output 60 fps or lower: Set in the range between [100] and [6400].
- Sensor output 61 fps or higher: Set in the range between [100] and [1600]/[3200]\*.

### [ISO Auto Upper Limit Setting]

Sets the upper limit for ISO sensitivity when ISO sensitivity is [AUTO].

- Sensor output 60 fps or lower: Set in the range between [200] and [12800].
- Sensor output 61 fps or higher: Set in the range between [200] and [3200]/[6400]\*.

\* When [Extended ISO] is set



- The range of ISO sensitivities you can set depends on the Photo Style used.

## Audio Settings

---

- [Sound Rec Level Disp.]: 378
- [Mute Sound Input]: 379
- [Sound Rec Gain Level]: 380
- [Sound Rec Level Adj.]: 381
- [Sound Rec Quality]: 382
- [Sound Rec Level Limiter]: 384
- [Wind Noise Canceller]: 385
- [Lens Noise Cut]: 386
- [Audio Information]: 386



## [Sound Rec Level Disp.]

The sound recording level is displayed on the recording screen.

### 1 Set to [📷] mode.

(→ [Photo/Video/S&Q Switch: 61](#))

### 2 Set [Sound Rec Level Disp.].

-  → [👤] → [🎤] → [Sound Rec Level Disp.]

[ON]	Sound recording level displayed on the recording screen.	
[OFF]	—	
[SET]	Sets the display size of sound recording level.	
	[Displaying Size]	[LARGE]/[SMALL]



- When [Sound Rec Level Limiter] is set to [OFF], [Sound Rec Level Disp.] is fixed to [ON].


## [Mute Sound Input]

This mutes audio input.

### 1 Set to [📷] mode.

(→ [Photo/Video/S&Q Switch: 61](#))

### 2 Set [Mute Sound Input].

-  → [👤] → [🎤] → [Mute Sound Input]

Settings: [ON]/[OFF]



- [🎤] is displayed on the recording screen.

## [Sound Rec Gain Level]

This switches the gain of audio input.

### 1 Set to [P] mode.

(→ [Photo/Video/S&Q Switch: 61](#))

### 2 Set [Sound Rec Gain Level].

-  → [P] → [M] → [Sound Rec Gain Level]

---

#### [STANDARD]

This is the standard input gain setting. (0 dB)

---

#### [LOW]

Audio input is reduced for recording in environments with loud noises. (-12 dB)

---



- When [4ch Audio Recording] is set to other than [OFF], the sound recording gain of CH3/CH4 can be adjusted. (→ [4ch Audio Recording: 395](#))
- [Sound Rec Gain Level] is not available when [Mic Socket] is set to [LINE] and an external audio device is connected.



## [Sound Rec Level Adj.]

Manually adjust the sound recording level.

### 1 Set to [📷] mode.

(→ [Photo/Video/S&Q Switch: 61](#))

### 2 Set [Sound Rec Level Adj.].

-  → [👤] → [🎤] → [Sound Rec Level Adj.]
- Press ◀▶ to adjust the sound recording level and then press .

Settings: [MUTE]/[-18dB] to [+12dB]



- You can adjust by 1 dB increments.
- This can also be set during video recording.
- Displayed dB values are approximate.
- When set to [MUTE], [🔇] is displayed in the recording screen.
- When [4ch Audio Recording] is set to other than [OFF], the sound recording level of CH3/CH4 can be adjusted. (→ [4ch Audio Recording: 395](#))

## [Sound Rec Quality]


Sound quality for video can be set when the [Rec. File Format(Video)] is [MOV].

32-bit float recording is possible when an XLR Microphone Adaptor (DMW-XLR2: optional) or Digital Shotgun Microphone (DMW-DMS1: optional) is connected.

### 1 Set to [📷] mode.

(→ [Photo/Video/S&Q Switch: 61](#))

### 2 Set [Sound Rec Quality].

•  → [👤] → [🎤] → [Sound Rec Quality]

---

#### [96kHz/32bit]

Audio is recorded using 96 kHz/32 bit float format.

- This can be set when an XLR Microphone Adaptor is connected and [4ch Audio Recording] is set to [OFF].
- This can be set when you have connected a Digital Shotgun Microphone and [4ch Audio Recording] is set to [OFF].

---

#### [48kHz/32bit]

Audio is recorded using 48 kHz/32 bit float format.

- This can be set when an XLR Microphone Adaptor is connected and [4ch Audio Recording] is set to [XLR] or [OFF].
  - This is available when a Digital Shotgun Microphone is connected.
-

### **[96kHz/24bit]**

Audio is recorded using 96kHz/24bit linear format.

- This can be set when an XLR Microphone Adaptor, Stereo Shotgun Microphone (DMW-MS2: optional), or Stereo Microphone (VW-VMS10: optional) is connected.
  - This can be set when you have connected a Digital Shotgun Microphone and [4ch Audio Recording] is set to [OFF].
- 

### **[48kHz/24bit]**

Audio is recorded using 48kHz/24bit linear format.

---



- The setting is fixed to [48kHz/16bit] in the following case:
  - When [Rec. File Format(Video)] is set to [MP4(Lite)]/[MP4]
- The recording volume may vary if you switch between float format and linear format.

## [Sound Rec Level Limiter]

The sound recording level is adjusted automatically to minimize sound distortion (crackling noise).

### 1 Set to [📷] mode.

(→ [Photo/Video/S&Q Switch: 61](#))

### 2 Set [Sound Rec Level Limiter].

•  → [👤] → [🎤] → [Sound Rec Level Limiter]

Settings: [ON]/[OFF]

## [Wind Noise Canceller]

This reduces the wind noise coming into the built-in microphone while maintaining sound quality.

### 1 Set to [📷] mode.

(→ [Photo/Video/S&Q Switch: 61](#))

### 2 Set [Wind Noise Canceller].

•  → [👤] → [🎤] → [Wind Noise Canceller]

---

#### [HIGH]

This effectively reduces the wind noise by reducing the low-pitched sound when a strong wind is detected.

---

#### [STANDARD]

This reduces wind noise without loss of sound quality by filtering out only wind noise.

---

#### [OFF]

Turns the function off.

---



- You may not see the full effect depending on the recording conditions.
  - This function works only with the built-in microphone.  
When an external microphone is connected, [Wind Cut] is displayed.
- (→ [Reduction of Wind Noise: 391](#))

## [Lens Noise Cut]

This reduces the sounds made by the zoom when it operates during video recording.



→ [  ] → [  ] → **Select [Lens Noise Cut]**

Settings: [ON]/[OFF]



- When this function is used, the sound quality may differ from that during normal operation.

## [Audio Information]

This screen enables you to view audio settings and the status of recording all at once.

You can also touch the screen to change the settings.

- The operations on the audio information display screen are the same as the control panel operations. (→ [Control Panel: 80](#))

### 1 Register [Audio Information] to the Fn button.

(→ [Fn Buttons: 504](#))

### 2 Display the audio information.

- Press the Fn button set in Step 1.
- You can also display it by touching the audio display area on the control panel (Video mode/S&Q mode).
- For information about the screen (→ [Audio Information Display: 676](#))

## External Microphones (Optional)

- [Setting the Sound Pickup Range \(DMW-MS2: Optional\): 390](#)
- [Reduction of Wind Noise: 391](#)



**iA P A S M**

With a Stereo Shotgun Microphone (DMW-MS2: optional) or Stereo Microphone (VW-VMS10: optional), you can record higher-quality high resolution audio compared to the built-in microphone.

- Some optional accessories may not be available in some countries.

### 1 Set to [Video] mode.

(→ [Photo/Video/S&Q Switch: 61](#))

### 2 Set the [Mic Socket] that suits the device to be connected.

- → [Video] → [Microphone] → [Mic Socket]



---

### **MIC $\Psi$ ([Mic Input (Plug-in Power)])**

When connecting an external microphone that requires a power supply from the camera [MIC] socket.

---

### **MIC ([Mic Input])**

When connecting an external microphone that does not require a power supply from the camera [MIC] socket.

---

### **LINE ([Line Input])**

When connecting an external audio device for line output.

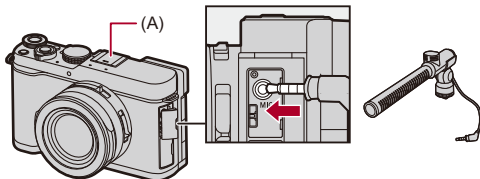
---

- The setting will be fixed to [MIC  $\Psi$ ] when a Stereo Shotgun Microphone (DMW-MS2: optional) is connected.
- When using [MIC  $\Psi$ ], if you connect an external microphone that does not require power supply, the connected external microphone may malfunction. Check the device before connecting.

## **3 Set the camera on/off switch to [OFF].**

## 4 Connect the external microphone to the camera and then turn on the camera.

- If mounting the external microphone on the camera hot shoe (A), remove the hot shoe cover. (→ [Removing the Hot Shoe Cover: 348](#))



## 5 Make settings for the sound quality of the audio to be recorded in [Sound Rec Quality].

(→ [\[Sound Rec Quality\]: 382](#))



- Use a stereo microphone cable with the length less than 3 m (9.8 feet).
- While the external microphone is connected, [EXT.] is displayed on the screen.
- When an external microphone is connected, [Sound Rec Level Disp.] automatically turns [ON], and the recording level is displayed on the screen.
- When the external microphone is attached, do not carry the camera by holding the external microphone. It may become detached.
- If noises are recorded when using the AC adaptor, use the battery.
- For details, refer to the operating instructions for the external microphone.

## Setting the Sound Pickup Range (DMW-MS2: Optional)

When using the Stereo Shotgun Microphone (DMW-MS2: optional), you can set the microphone sound pickup range.

### 1 Set to [ ] mode.

(→ [Photo/Video/S&Q Switch: 61](#))

### 2 Set [MS2 Mic].

•  → [  ] → [  ] → [MS2 Mic]

---

#### [STEREO]

Picks up sound over a wide area.

---

#### [SHOTGUN]

Helps prevent picking up background noise, and records sound from a specific direction.

---


## Reduction of Wind Noise

This reduces wind noise when an external microphone is connected.

### 1 Set to [📷] mode.

(→ [Photo/Video/S&Q Switch: 61](#))

### 2 Set [Wind Cut].

-  → [👤] → [🎤] → [Wind Cut]

Settings: [HIGH]/[STANDARD]/[LOW]/[OFF]



- Setting [Wind Cut] may alter the usual sound quality.

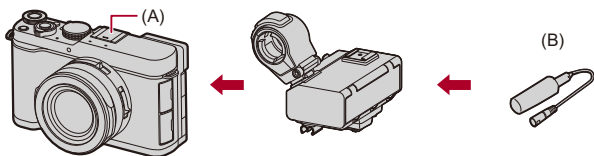
## XLR Microphone Adaptor (Optional)

- [\[4ch Audio Recording\]: 395](#)



iA P A S M

By attaching an XLR Microphone Adaptor (DMW-XLR2: optional), you can use a commercially available XLR microphone, etc., to enable superior-quality 32-bit float recording and 4-channel audio recording. (→ [\[Sound Rec Quality\]: 382](#), [\[4ch Audio Recording\]: 395](#))



(A) Hot shoe

(B) Commercially available XLR microphone, etc.

Getting started:

- Turn off the camera, and remove the hot shoe cover. (→ [Removing the Hot Shoe Cover: 348](#))

## 1 **Attach the XLR Microphone Adaptor to the hot shoe, and then turn on the camera.**

- Set to [  ] mode. (→ [Photo/Video/S&Q Switch: 61](#))
-  ⇒ [  ] ⇒ [  ] ⇒ [Hot Shoe Audio Input]
- When the XLR Microphone Adaptor is attached, [Hot Shoe Audio Input] automatically turns [ON].

---

### [ON]

Records the audio of a device connected to the XLR Microphone Adaptor.

---

### [OFF]

Records audio using the built-in microphone of the camera.

---

## 2 **Make settings for the sound quality of the audio to be recorded in [Sound Rec Quality].**

(→ [\[Sound Rec Quality\]: 382](#))



### Notes Regarding the Optional XLR Microphone Adaptor DMW-XLR1

You can also use DMW-XLR1 (optional), but there are the following limitations:

- The following functions cannot be used:
  - [XLR] of [4ch Audio Recording]
  - [96kHz/32bit] and [48kHz/32bit] ([Sound Rec Quality])We recommend using DMW-XLR2 (optional).



- While an XLR Microphone Adaptor is attached, [XLR] is displayed on the screen.
- There are the following limitations when an XLR Microphone Adaptor is connected.
  - When [Hot Shoe Audio Input] is set to [ON] and [4ch Audio Recording] is [XLR] or [OFF], the following settings are fixed:
    - [Sound Rec Level Limiter]: [OFF]
    - [Wind Noise Canceller]: [OFF]
  - When [Hot Shoe Audio Input] is set to [ON] and [4ch Audio Recording] is [XLR] or [OFF], [Sound Rec Gain Level] and [Sound Rec Level Adj.] are not available.
- When the XLR Microphone Adaptor is attached, [Sound Rec Level Disp.] automatically turns [ON], and the recording level is displayed on the screen.
- When the XLR Microphone Adaptor is attached, do not carry the camera by holding the XLR Microphone Adaptor. It may become detached.
- If noises are recorded when using the AC adaptor, use the battery.
- If you start video recording immediately after turning on the camera, a period with no sound may be recorded at the beginning.
- For details, refer to the operating instructions for the XLR Microphone Adaptor.
- When the temperature of the camera rises and [△] lights on the screen, operation of the XLR Microphone Adaptor stops in order to protect the camera against a rise in temperature.

## [4ch Audio Recording]

You can record 4-channel audio by using an XLR Microphone Adaptor (DMW-XLR2: optional) to which is connected a commercially available XLR microphone, etc.

By combining a Stereo Shotgun Microphone (DMW-MS2: optional) or a Stereo Microphone (VW-VMS10: optional) instead of using the built-in microphone, it is also possible to record 4-channel 96 kHz/24-bit high-resolution audio. (→ [External Microphones \(Optional\): 387](#))

### 1 Set to [📷] mode.

(→ [Photo/Video/S&Q Switch: 61](#))

### 2 Set [4ch Audio Recording].

-  → [👤] → [🎤] → [4ch Audio Recording]

---

#### [XLR]

Records the audio of a device connected to the XLR Microphone Adaptor to CH1/CH2/CH3/CH4.

---

#### [XLR+CAMERA]

Records the audio of a device connected to the XLR Microphone Adaptor to CH1/CH2.

The audio from the built-in microphone of the camera or the external microphone connected to the camera is recorded to CH3/CH4.

---

#### [OFF]

Records the audio of a device connected to the XLR Microphone Adaptor to CH1/CH2.

---



- When [4ch Audio Recording] is set to other than [OFF], it is displayed as [4ch] on the screen.
- This cannot be set when [Rec. File Format(Video)] is [MP4(Lite)]/[MP4].
- This cannot be set when [Hot Shoe Audio Input] is [OFF].

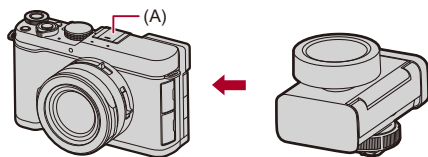
## Digital Shotgun Microphone (Optional)

- [\[4ch Audio Recording\]: 400](#)
- [\[DMS1 Button Backlight\]: 401](#)



**iA P A S M**

By connecting a Digital Shotgun Microphone (DMW-DMS1: optional), it is possible to make high quality 32-bit float audio recordings and backup audio recordings (4ch audio recording). (→ [\[Sound Rec Quality\]: 382](#), [\[4ch Audio Recording\]: 400](#))







(A) Hot shoe

Getting started:

- Turn off the camera, and remove the hot shoe cover. (→ [Removing the Hot Shoe Cover: 348](#))

## 1 **Attach the Digital Shotgun Microphone to the hot shoe, and then turn on the camera.**

- Set to [  ] mode. (→ [Photo/Video/S&Q Switch: 61](#))
-  ⇒ [  ] ⇒ [  ] ⇒ [Hot Shoe Audio Input]
- When the Digital Shotgun Microphone is attached, [Hot Shoe Audio Input] automatically turns [ON].

---

### [ON]

Records the audio of the Digital Shotgun Microphone.

---

### [OFF]

Records audio using the built-in microphone of the camera.

---

## 2 **Make settings for the sound quality of the audio to be recorded in [Sound Rec Quality].**

(→ [\[Sound Rec Quality\]: 382](#))



- You can change the directionality of CH1/CH2 on the Digital Shotgun Microphone itself.
- While a Digital Shotgun Microphone is attached, [DMS1] is displayed on the screen.
- There are the following limitations when a Digital Shotgun Microphone is connected.
  - When [Hot Shoe Audio Input] is set to [ON], the following settings are fixed:
    - [Sound Rec Level Limiter]: [OFF]
    - [Wind Noise Canceller]: [OFF]
  - When [Hot Shoe Audio Input] is set to [ON], [Sound Rec Gain Level] and [Sound Rec Level Adj.] are not available.
- When the Digital Shotgun Microphone is attached, [Sound Rec Level Disp.] automatically turns [ON], and the recording level is displayed on the screen.
- When the Digital Shotgun Microphone is attached, do not carry the camera by holding the Digital Shotgun Microphone. It may become detached.
- If noises are recorded when using the AC adaptor, use the battery.
- If you start video recording immediately after turning on the camera, a period with no sound may be recorded at the beginning.
- For details, refer to the operating instructions for the Digital Shotgun Microphone.
- When the temperature of the camera rises and [⚠] lights on the screen, operation of the Digital Shotgun Microphone stops in order to protect the camera against a rise in temperature.


## [4ch Audio Recording]

You can record 4-channel audio by using a Digital Shotgun Microphone (DMW-DMS1: optional).

### 1 Set to [📷] mode.

(→ [Photo/Video/S&Q Switch: 61](#))

### 2 Set [4ch Audio Recording].

-  → [👤] → [🎤] → [4ch Audio Recording]
- CH1/CH2 record to suit the directionality set on the Digital Shotgun Microphone.

---

#### [DMS1 BACKUP1]

Records the audio of the Digital Shotgun Microphone to CH1/CH2/CH3/CH4.

- CH3 records across the entire range of directions as a backup audio recording.
- CH4 records across the entire range of directions as a backup audio recording, 20 dB quieter than CH3.

---

#### [DMS1 BACKUP2]

Records the audio of the Digital Shotgun Microphone to CH1/CH2/CH3/CH4.

- CH3 records in the same direction as CH1, as a backup audio recording, 20 dB quieter than CH1.
- CH4 records in the same direction as CH2, as a backup audio recording, 20 dB quieter than CH2.

---

#### [OFF]

Records the audio of the Digital Shotgun Microphone to CH1/CH2.

---



- When [4ch Audio Recording] is set to other than [OFF], it is displayed as [4ch] on the screen.
- This cannot be set when [Rec. File Format(Video)] is [MP4(Lite)]/[MP4].
- This cannot be set when [Hot Shoe Audio Input] is [OFF].

## [DMS1 Button Backlight]

You can set the brightness when the directivity buttons on the Digital Shotgun Microphone light.

 ➔ [  ] ➔ [  ] ➔ [Hot Shoe Audio Input] ➔ [SET] ➔  
**Select [DMS1 Button Backlight]**

Settings: [H] / [M] / [L]

## Main Assist Functions

---

- [\[Flicker Decrease \(Video\)\]: 403](#)
- [\[Waveform Monitor\]: 404](#)
- [\[Luminance Spot Meter\]: 406](#)
- [\[Zebra Pattern\]: 407](#)
- [\[Frame Marker\]: 409](#)



- The [\[Custom\] \(\[Monitor / Display \(Video\)\]\)](#) menu has display assist functions such as the center marker and safety zone marker:

(→ [\[Custom\] menu \(\[Monitor / Display \(Video\)\)\]: 568](#))

## [Flicker Decrease (Video)]



S&amp;Q

iA P A S M

When recording video in [] mode, you can fix the shutter speed to mitigate the flickering and horizontal stripes that appear in videos.

- This can be set when [Auto Exposure in Photo Mode] is [ON]. (→[Auto Exposure in Photo Mode]: 544)

### 1 Set to [] mode.

(→[Photo/Video/S&Q Switch: 61])

### 2 Set [Flicker Decrease (Video)].

- → [] → [] → [Flicker Decrease (Video)]

---

[1/50]/[1/60]/[1/100]/[1/120]

---

[OFF]

---



- You cannot set a value that is slower than the frame rate of the video.

## [Waveform Monitor]



S&amp;Q

iA P A S M

This displays the waveform monitor on the recording screen. You can change the size of the waveform display.

### 1 Set [Waveform Monitor].

- → [ ] → [ ] → [Waveform Monitor]

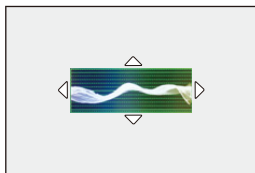
#### [ON]

Displays a waveform.

#### [OFF]

### 2 Select the position to display.

- Press to select and then press .
- You can also move using touch operations.
- You can rotate to change the size of the waveform.
- To return the waveform position back to the center, press [DISP.]. Pressing [DISP.] once again returns the size to the default setting.



## ❖ Screen Displays

### Waveform

- The waveform displayed on the camera indicates the luminance as values based on the conversions below:

0 % (IRE<sup>\*</sup>): Luminance value 16 (8 bit)/64 (10 bit)

100 % (IRE<sup>\*</sup>): Luminance value 235 (8 bit)/940 (10 bit)

\* IRE: Institute of Radio Engineers



(A) 109 % (IRE) (Dotted line)

(B) 100 % (IRE)

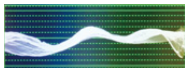
(C) 50 % (IRE)

(D) 0 % (IRE)

(E) -4 % (IRE) (Dotted line)

(F) The range between 0 % and 100 % shows dotted lines at intervals of 10 %.

Display example)



- When you assign the function to an Fn button, you can switch between displaying and hiding these during recording of video. (→ [Fn Buttons: 504](#))
- You can also change the position by dragging on the recording screen.
- The waveform is not displayed when the screen is being displayed vertically.

## [Luminance Spot Meter]



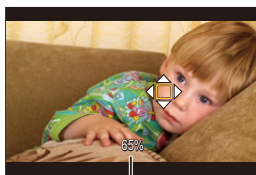
Specify any spot on the subject to measure the luminance over a small area.

### 1 Set [Luminance Spot Meter].

- → [ ] → [ ] → [Luminance Spot Meter] → [ON]

### 2 Select the position where you want to measure the luminance.

- Press to select and then press .
- You can also change the position by dragging the frame on the recording screen.
- To return the position back to the center, press [DISP.].



(G)

(G) Luminance value

### ❖ Measurement Range

Measuring is possible in the range  $-7\%$  to  $109\%$  (IRE).

- When [Photo Style] is set to [V-Log], this is measured with “Stop” units. (18 % gray output level is calculated as 0 Stop)

**[Zebra Pattern]****S&Q****iA P A S M**

Parts that are brighter than the base value are displayed with stripes. You can also set the base value and the breadth of the range so that the stripes are displayed on parts that are within the range of brightness you specify.

**[ZEBRA1]****[ZEBRA2]****[ZEBRA1+2]**

→ [  ] → [  ] → **Select [Zebra Pattern]**

<b>[ZEBRA1]</b>	Parts that are brighter than the base value are displayed with [ZEBRA1] stripes.	
<b>[ZEBRA2]</b>	Parts that are brighter than the base value are displayed with [ZEBRA2] stripes.	
<b>[ZEBRA1+2]</b>	Both [ZEBRA1] and [ZEBRA2] are displayed.	
<b>[OFF]</b>	—	
<b>[SET]</b>	Sets the base brightness.	
	<b>[Zebra 1]</b>	<b>[50%] to [105%]/[BASE/RANGE]</b>
	<b>[Zebra 2]</b>	<b>[50%] to [105%]/[BASE/RANGE]</b>

### ❖ When [BASE/RANGE] Was Selected with [SET]

Centered on the brightness set with [Base Level], parts with the brightness in the range set in [Range] are displayed with the stripes.

- [Base Level] can be set in the range between 0 % and 109 % (IRE).
- [Range] can be set in the range between  $\pm 1$  % and  $\pm 10$  % (IRE).
- When [Photo Style] is set to [V-Log], this is measured with “Stop” units. (18 % gray output level is calculated as 0 Stop)



- [ZEBRA1+2] cannot be selected while you are setting [BASE/RANGE].

## [Frame Marker]



iA P A S M

A frame with the set aspect ratio is displayed on the recording screen. (Maximum 3) This allows you to see during recording the angle of view that will be achieved with trimming (cropping) in post-processing.

→ → → **Select [Frame Marker]**



[ON]	Displays the frame on the recording screen.	
[OFF]	—	
[SET]	[Frame 1]	Refer to “[Frame 1]/[Frame 2]/[Frame 3] Settings”.
	[Frame 2]	
	[Frame 3]	
	[Frame Mask]	Sets the opacity of the outside of the frame. [100%]/[75%]/[50%]/[25%]/[OFF]
	[Live View Frame Adjustment]	When set to [ON], the [Change Size/Position] setting screen is displayed when you touch a frame in the recording screen. [ON]/[OFF]

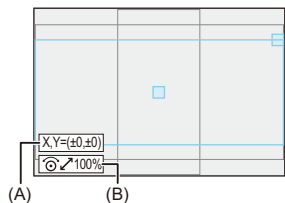
### [Frame 1]/[Frame 2]/[Frame 3] Settings

[Frame Aspect]	Sets the aspect ratio of the frame. [2.39:1]/[2.35:1]/[2.00:1]/[17:9]/[1.85:1]/[16:9]/[3:2]/[4:3]/[5:4]/[7:6]/[1:1]/[6:7]/[4:5]/[3:4]/[2:3]/[9:16]/[9:17]/[CUSTOM]/[OFF]
[Frame Color]	Sets the color of the frame.
[Change Size/Position]	Sets the size and position of a frame.

## ❖ When [Change Size/Position] Is Selected

You can change the size and position of the frame while maintaining the aspect ratio of the frame.

- You can change the height, width, and position of the frame if you select [CUSTOM] in [Frame Aspect]. (→ [The Setting Method for \[CUSTOM\] in \[Frame Aspect\]: 411](#))
- Press ▲▼◀▶ to move the center position.
- Set the size with [  ] or [  ].
- The position of the frame can be moved by dragging the center frame inside the frame in the recording screen. The size of the frame can be changed by dragging the frame at the top right of the frame.
- Press [Q] to switch the frame to be changed.



(A) Center coordinates (0 being the center of the screen)



(B) Frame size

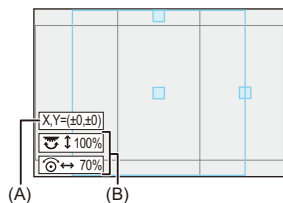
- Frame size can be set in the range between 20 % and 100 %.
- The first press of [DISP.] returns the frame position to the center. The second press returns the frame size to the default.

## ❖ The Setting Method for [CUSTOM] in [Frame Aspect]

The [CUSTOM] setting in [Frame Aspect] is performed with [Change Size/Position].

- 1 Select [SET] in the [Frame Marker] menu.
- 2 Select one of [Frame 1] to [Frame 3] and then select [CUSTOM] in [Frame Aspect].
- 3 Select [Change Size/Position].

- Press ▲▼◀▶ to move the center position.
- Set the height of the frame with [  ], and the width with [  ].
- The position of the frame can be moved by dragging the center frame inside the frame in the recording screen. The height and width of the frame can be changed by dragging the frame at the top or right edge of the frame.
- Press [Q] to switch the frame to be changed.



(A) Center coordinates (0 being the center of the screen)

(B) Height and width of the frame

- Height and width of the frame can be set in the range between 20 % and 100 %.
- The first press of [DISP.] returns the frame position to the center.  
The second press returns the height and width of the frame to the default.

# Special Video Recording

This chapter describes advanced video recording applications such as slow motion/quick motion video and Log recording.

- [Slow & Quick Video: 413](#)
- [High Frame Rate Video: 428](#)
- [\[Focus Transition\]: 431](#)
- [\[Live Cropping\]: 436](#)
- [Log Recording: 441](#)
- [HLG Videos: 445](#)
- [\[Synchro Scan\(Video\)\]: 449](#)
- [List of Recording Qualities That Enable Special Videos to be Recorded: 451](#)

## Slow & Quick Video

---



In the [S&Q] mode, the camera records at a different frame rate to the recording frame rate, enabling the creation of slow motion video and quick motion video in the MOV format.

---

### Slow Motion Video (Overcrank Recording)

Set a number of frames that is higher than the recording frame rate of the [Rec Quality].

For example: When recording at 60 fps when set to a 29.97p [Rec Quality], the speed is halved.

---

### Quick Motion Video (Undercrank Recording)

Set a number of frames that is lower than the recording frame rate of the [Rec Quality].

For example: When recording at 15 fps when set to a 29.97p [Rec Quality], the speed is doubled.

---



- Slow & Quick video recording is not available when using a recording quality with the ALL-Intra image compression system.
- The volume of data recorded increases when you record slow motion video, so if the card writing speed is insufficient, recording may stop.

## 1 Set to [S&Q] mode.

(→ [Photo/Video/S&Q Switch: 61](#))

- [Rec. File Format(Video)] changes to [MOV].







## 2 Select a recording quality with which you can record Slow & Quick video.

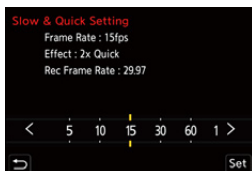
•  ⇒ [] ⇒ [] ⇒ [Rec Quality]

- Items available for recording with Slow & Quick video are indicated as [S&Q available].
- Recording qualities with which you can record Slow & Quick video (→ [List of Recording Qualities That Enable Special Videos to be Recorded: 451](#))



### 3 Set the frame rate.

-  → [] → [] → [Slow & Quick Setting]
- Rotate  or  to select a numeric value, then press .



## ❖ Frame Rate Combinations and Playback Speeds

When [Image Area of Video] is set to [FULL]

Frame rate	[System Frequency]: [59.94Hz (NTSC)]	
	5.6K/29.97p	5.6K/23.98p
1 fps	30× Quick	24× Quick
2 fps	15× Quick	12× Quick
5 fps	6× Quick	4.8× Quick
10 fps	3× Quick	2.4× Quick
15 fps	2× Quick	1.6× Quick
30 fps	1× Normal	1.25× Slow
60 fps	2× Slow	2.5× Slow
75 fps		
100 fps		
120 fps		
150 fps		
180 fps		
200 fps		
240 fps		
300 fps		

Frame rate	[System Frequency]: [59.94Hz (NTSC)]		
	C4K/59.94p 4K/59.94p	C4K/29.97p 4K/29.97p	C4K/23.98p 4K/23.98p
1 fps	60× Quick	30× Quick	24× Quick
2 fps	30× Quick	15× Quick	12× Quick
5 fps	12× Quick	6× Quick	4.8× Quick
10 fps	6× Quick	3× Quick	2.4× Quick
15 fps	4× Quick	2× Quick	1.6× Quick
30 fps	2× Quick	1× Normal	1.25× Slow
60 fps	1× Normal	2× Slow	2.5× Slow
75 fps	1.25× Slow	2.5× Slow	3.13× Slow
100 fps	1.67× Slow	3.33× Slow	4.17× Slow
120 fps	2× Slow	4× Slow	5× Slow
150 fps			
180 fps			
200 fps			
240 fps			
300 fps			

Frame rate	[System Frequency]: [59.94Hz (NTSC)]		
	FHD/59.94p	FHD/29.97p	FHD/23.98p
<b>1 fps</b>	60× Quick	30× Quick	24× Quick
<b>2 fps</b>	30× Quick	15× Quick	12× Quick
<b>5 fps</b>	12× Quick	6× Quick	4.8× Quick
<b>10 fps</b>	6× Quick	3× Quick	2.4× Quick
<b>15 fps</b>	4× Quick	2× Quick	1.6× Quick
<b>30 fps</b>	2× Quick	1× Normal	1.25× Slow
<b>60 fps</b>	1× Normal	2× Slow	2.5× Slow
<b>75 fps</b>	1.25× Slow	2.5× Slow	3.13× Slow
<b>100 fps</b>	1.67× Slow	3.33× Slow	4.17× Slow
<b>120 fps</b>	2× Slow	4× Slow	5× Slow
<b>150 fps</b>	2.5× Slow	5× Slow	6.25× Slow
<b>180 fps</b>	3× Slow	6× Slow	7.5× Slow
<b>200 fps</b>	3.33× Slow	6.67× Slow	8.33× Slow
<b>240 fps</b>	4× Slow	8× Slow	10× Slow
<b>300 fps</b>	5× Slow	10× Slow	12.5× Slow

Frame rate	[System Frequency]: [50.00Hz (PAL)]		
	5.6K/25.00p	C4K/50.00p 4K/50.00p	C4K/25.00p 4K/25.00p
1 fps	25× Quick	50× Quick	25× Quick
2 fps	12.5× Quick	25× Quick	12.5× Quick
5 fps	5× Quick	10× Quick	5× Quick
10 fps	2.5× Quick	5× Quick	2.5× Quick
15 fps	1.67× Quick	3.33× Quick	1.67× Quick
30 fps	1.2× Slow	1.67× Quick	1.2× Slow
60 fps	2.4× Slow	1.2× Slow	2.4× Slow
75 fps		1.5× Slow	3× Slow
100 fps		2× Slow	4× Slow
120 fps		2.4× Slow	4.8× Slow
150 fps			
180 fps			
200 fps			
240 fps			
300 fps			

Frame rate	[System Frequency]: [50.00Hz (PAL)]	
	FHD/50.00p	FHD/25.00p
1 fps	50× Quick	25× Quick
2 fps	25× Quick	12.5× Quick
5 fps	10× Quick	5× Quick
10 fps	5× Quick	2.5× Quick
15 fps	3.33× Quick	1.67× Quick
30 fps	1.67× Quick	1.2× Slow
60 fps	1.2× Slow	2.4× Slow
75 fps	1.5× Slow	3× Slow
100 fps	2× Slow	4× Slow
120 fps	2.4× Slow	4.8× Slow
150 fps	3× Slow	6× Slow
180 fps	3.6× Slow	7.2× Slow
200 fps	4× Slow	8× Slow
240 fps	4.8× Slow	9.6× Slow
300 fps	6× Slow	12× Slow

---

Frame rate	[System Frequency]: [24.00Hz (CINEMA)]	
	5.6K/24.00p	C4K/24.00p 4K/24.00p
1 fps	24× Quick	24× Quick
2 fps	12× Quick	12× Quick
5 fps	4.8× Quick	4.8× Quick
10 fps	2.4× Quick	2.4× Quick
15 fps	1.6× Quick	1.6× Quick
30 fps	1.25× Slow	1.25× Slow
60 fps	2.5× Slow	2.5× Slow
75 fps		3.13× Slow
100 fps		4.17× Slow
120 fps		5× Slow
150 fps		
180 fps		
200 fps		
240 fps		
300 fps		

---

Frame rate	[System Frequency]: [24.00Hz (CINEMA)]
	FHD/24.00p
1 fps	24× Quick
2 fps	12× Quick
5 fps	4.8× Quick
10 fps	2.4× Quick
15 fps	1.6× Quick
30 fps	1.25× Slow
60 fps	2.5× Slow
75 fps	3.13× Slow
100 fps	4.17× Slow
120 fps	5× Slow
150 fps	6.25× Slow
180 fps	7.5× Slow
200 fps	8.33× Slow
240 fps	10× Slow
300 fps	12.5× Slow

## When [Image Area of Video] is set to [PIXEL/PIXEL]

Frame rate	[System Frequency]: [59.94Hz (NTSC)]		
	C4K/59.94p 4K/59.94p	C4K/29.97p 4K/29.97p	C4K/23.98p 4K/23.98p
1 fps	60× Quick	30× Quick	24× Quick
2 fps	30× Quick	15× Quick	12× Quick
5 fps	12× Quick	6× Quick	4.8× Quick
10 fps	6× Quick	3× Quick	2.4× Quick
15 fps	4× Quick	2× Quick	1.6× Quick
30 fps	2× Quick	1× Normal	1.25× Slow
60 fps	1× Normal	2× Slow	2.5× Slow
75 fps	1.25× Slow	2.5× Slow	3.13× Slow
100 fps	1.67× Slow	3.33× Slow	4.17× Slow
120 fps	2× Slow	4× Slow	5× Slow
150 fps			
180 fps			
200 fps			
240 fps			
300 fps			

Frame rate	[System Frequency]: [59.94Hz (NTSC)]		
	FHD/59.94p	FHD/29.97p	FHD/23.98p
1 fps	60× Quick	30× Quick	24× Quick
2 fps	30× Quick	15× Quick	12× Quick
5 fps	12× Quick	6× Quick	4.8× Quick
10 fps	6× Quick	3× Quick	2.4× Quick
15 fps	4× Quick	2× Quick	1.6× Quick
30 fps	2× Quick	1× Normal	1.25× Slow
60 fps	1× Normal	2× Slow	2.5× Slow
75 fps	1.25× Slow	2.5× Slow	3.13× Slow
100 fps	1.67× Slow	3.33× Slow	4.17× Slow
120 fps	2× Slow	4× Slow	5× Slow
150 fps			
180 fps			
200 fps			
240 fps			
300 fps			

Frame rate	[System Frequency]: [50.00Hz (PAL)]			
	C4K/50.00p 4K/50.00p	C4K/25.00p 4K/25.00p	FHD/50.00p	FHD/25.00p
1 fps	50× Quick	25× Quick	50× Quick	25× Quick
2 fps	25× Quick	12.5× Quick	25× Quick	12.5× Quick
5 fps	10× Quick	5× Quick	10× Quick	5× Quick
10 fps	5× Quick	2.5× Quick	5× Quick	2.5× Quick
15 fps	3.33× Quick	1.67× Quick	3.33× Quick	1.67× Quick
30 fps	1.67× Quick	1.2× Slow	1.67× Quick	1.2× Slow
60 fps	1.2× Slow	2.4× Slow	1.2× Slow	2.4× Slow
75 fps	1.5× Slow	3× Slow	1.5× Slow	3× Slow
100 fps	2× Slow	4× Slow	2× Slow	4× Slow
120 fps	2.4× Slow	4.8× Slow	2.4× Slow	4.8× Slow
150 fps				
180 fps				
200 fps				
240 fps				
300 fps				

---

Frame rate	[System Frequency]: [24.00Hz (CINEMA)]	
	C4K/24.00p 4K/24.00p	FHD/24.00p
1 fps	24× Quick	24× Quick
2 fps	12× Quick	12× Quick
5 fps	4.8× Quick	4.8× Quick
10 fps	2.4× Quick	2.4× Quick
15 fps	1.6× Quick	1.6× Quick
30 fps	1.25× Slow	1.25× Slow
60 fps	2.5× Slow	2.5× Slow
75 fps	3.13× Slow	3.13× Slow
100 fps	4.17× Slow	4.17× Slow
120 fps	5× Slow	5× Slow
150 fps		
180 fps		
200 fps		
240 fps		
300 fps		

## ❖ Shutter Speeds When Recording Slow & Quick Video

When recording Slow & Quick video, the minimum shutter speed changes depending on the frame rate of [Slow & Quick Setting].

Frame rate	Minimum shutter speed	
	[AFS]/[AFC]	[MF]
1 fps	1/30 of a second	1/8 of a second
2 fps		
5 fps		
10 fps		1/10 of a second
15 fps		1/15 of a second
30 fps		1/30 of a second
60 fps	1/60 of a second	1/60 of a second
75 fps	1/80 of a second	1/80 of a second
100 fps	1/100 of a second	1/100 of a second
120 fps	1/125 of a second	1/125 of a second
150 fps		1/160 of a second
180 fps		1/200 of a second
200 fps		
240 fps		1/250 of a second
300 fps		1/320 of a second



- Audio will not be recorded during Slow & Quick recording.
- The mode switches to MF when you set to a frame rate of 150 fps or more. (The camera automatically focuses when [AF ON] is pressed, but only before starting recording.)

# High Frame Rate Video



[MP4(Lite)] video or [MOV] video with high frame rates can be recorded to cards.


By converting it with the compatible software, it is possible to produce slow motion video.

Audio recording, not possible in the Slow & Quick mode, also becomes possible.


## 1 Set to [Video] mode.

(→ [Photo/Video/S&Q Switch: 61](#))

## 2 Set [Rec. File Format(Video)] to [MP4(Lite)] or [MOV].

-  → [Video] → [Rec. File Format(Video)] → [MP4(Lite)]/[MOV]

## 3 Select a recording quality for high frame rate video.

-  → [Video] → [Rec Quality]
- By filtering the [Rec Quality] by the frame rate, you can display just those recording qualities that match the frame rate conditions. (→ [\[Filtering\]: 139](#))
- Recording Qualities for High Frame Rate Video (→ [List of Recording Qualities That Enable Special Videos to be Recorded: 451](#))

## ❖ Shutter Speeds When Recording High Frame Rate Video

When recording high frame rate video, the minimum shutter speed changes depending on the recording frame rate of the video.

Recording frame rate of the video	Minimum shutter speed			
	[iA]		[P]/[A]/[S]/[M]	
	[AFS]/[AFC]	[MF]	[AFS]/[AFC]	[MF]
47.95p	1/25 of a second		1/50 of a second	
48.00p				
50.00p				
59.94p	1/30 of a second		1/60 of a second	
100.00p	1/100 of a second			
119.88p/ 120.00p	1/125 of a second			
200.00p	1/200 of a second			
239.76p	1/250 of a second			



**Notice regarding AF when recording high frame rate video**

- When set to a [Rec Quality] where the recording frame rate is 200.00p or more, AF operation will be as follows:
  - AF mode is fixed to [■]. By pressing the shutter button halfway or pressing [AF ON], focusing is in the AF area of [■].
  - Automatic detection is not available.
  - [Quick AF] is not available.
  - [Eye Sensor AF] is not available.

# [Focus Transition]




Smoothly transitions the focus position from the current position to a position registered in advance.

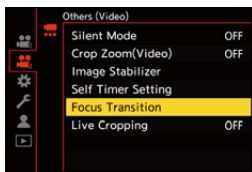
## 1 Set to [Video] mode.

(→ [Photo/Video/S&Q Switch: 61](#))

## 2 Select [Focus Transition].

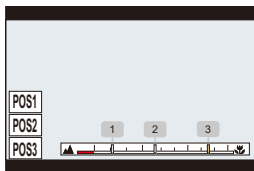
•  → [Video] → [Focus Transition] → [Focus Transition]

• If the [Please set the focus position.] message is displayed, press either .



### 3 Set focus positions.

- Check the focus using the same procedure as MF (→ [Record Using MF: 191](#)), and then touch [POS1], [POS2], and [POS3] to set focus positions.




### 4 Register the focus positions.

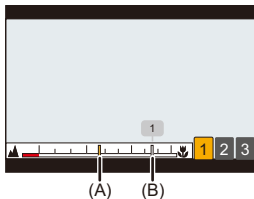
- Press  to register the focus positions.

### 5 Start recording.

- Press the video rec. button.
- The advanced setting screen is displayed when you press [DISP.] before recording. (→ [Setting Items \(\[Focus Transition\]\): 434](#))
- If you have enabled [Focus Transition Rec], Focus Transition will start when you start recording a video.

## 6 Start Focus Transition.

- Press ◀▶ to select [1], [2], or [3], and then press .
- When [Focus Transition Wait] is set, Focus Transition starts after the set time has elapsed.



- (A) Current focus position
- (B) Registered focus position

## 7 End Focus Transition.

- Press [Q].

## 8 Stop recording.

- Press the video rec. button once again.

## ❖ Setting Items ([Focus Transition])

---

### [Focus Position Setting]

Registers focus positions.

---

### [Focus Transition Speed]

Sets the moving speed of focus.

- Moving speed: [SH] (fast) to [SL] (slow)
- 

### [Focus Transition Rec]

Starts Focus Transition when recording starts.

- Select the position registered with [Focus Position Setting].
- 

### [Focus Transition Wait]

Sets the wait time before the start of Focus Transition.

---

- The recording screen is displayed when you press [↵].

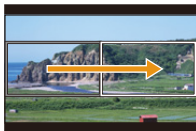


- Maintain the same distance to the subject after setting focus positions.
- The moving speed of focus slows as it approaches the closest focusing distance of the lens or infinity.
- While using [Focus Transition], it is not possible to focus on anything other than one of the registered focus positions.
- Any of the operations below will clear the focus position settings.
  - Operating the camera on/off switch
  - Zoom operation
  - Switching the focus mode
  - Switching the recording mode
- When the following function is being used, [Focus Transition] is not available:
  - [Live Cropping]

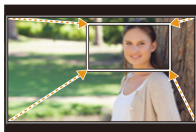
## [Live Cropping]



By cropping a part of the image from the image displayed in the live view, it is possible to record 4K/FHD video that incorporates panning and zooming with the camera staying in a fixed position.



**Pan**



**Zoom in**






- Use a tripod to minimize camera shake.

## 1 Set to mode.

(→ [Photo/Video/S&Q Switch: 61](#))

## 2 Select a recording quality with which you can record [Live Cropping] video.

•  →  →  → [Rec Quality]

- A recording quality with which you can record [Live Cropping] video (→ [List of Recording Qualities That Enable Special Videos to be Recorded: 451](#))

## 3 Set the pan and zoom effect.

•  →  →  → [Live Cropping] → [SET]

---

### [Cropping Duration]

You can set between 2 and 40 seconds.

---

### [Easing Settings]

Select an effect.

**[LINEAR]:** Moves at a constant speed.

**[EASE IN]:** Gradually accelerates.

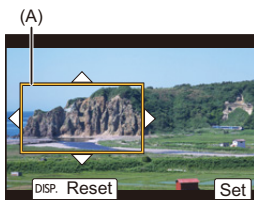
**[EASE OUT]:** Gradually decelerates.

**[EASE IN OUT]:** Decelerates after accelerating.

---

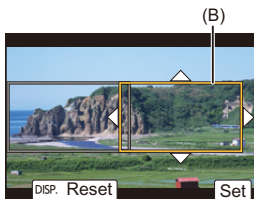
## 4 Set the cropping frame.

- **MENU/SET** → [**👤**] → [**📺**] → [Live Cropping] → [SET] → [Cropping Start/End Frame]
- Select the range to start cropping and press **MENU/SET**.



(A) Cropping start frame

- Select the range to end cropping and press **MENU/SET**.



(B) Cropping end frame

- To redo the settings for the position and size of the start frame and the end frame, press **◀**.
- Press [**🗑️**] to check the effect you have set.

## 5 Enable Live Cropping recording.

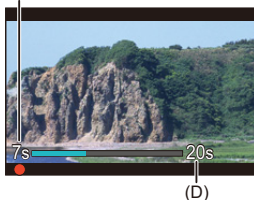
-  → [  ] → [  ] → [Live Cropping] → [ON]

- If you have selected a recording quality where Live Cropping recording is not available, the camera switches to a recording quality where recording is possible.

## 6 Start Live Cropping recording.

- Press the video rec. button.
- When the set operating time has elapsed, recording automatically ends.  
To end recording midway, press the video rec. button again.





(C)



(C) Elapsed recording time

(D) Set operating time

## ❖ Operations for Setting the Cropping Frame

Button operation	Touch operation	Description of operation
	Touch	Moves the frame.
	Pinch out/ pinch in	Enlarges/reduces the frame in small steps.
	—	Enlarges/reduces the frame.
[DISP.]	[Reset]	Start frame: Returns the frame position and size to the default settings. End frame: Cancels the settings for the position and size of the frame.
	[Set]	Confirms the frame position and size.



- The AF mode switches to [AF-ON].
- Brightness measurements and focusing are performed within the cropping frame.  
To lock the focus point, set the focus mode to [MF].
- [Metering Mode] will be [MULTI] (multi-metering).

# Log Recording

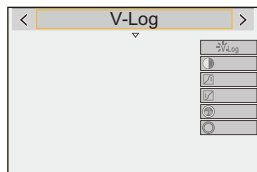
- [Log View Assist]: 444



Setting [Photo Style] to [V-Log] enables Log recording.

Images finished with rich gradation can be created through post-production processing.

**MENU/SET** → [**📷**]/[**👤**] → [**⚙️**] → [**Photo Style**] → **Select [V-Log]**



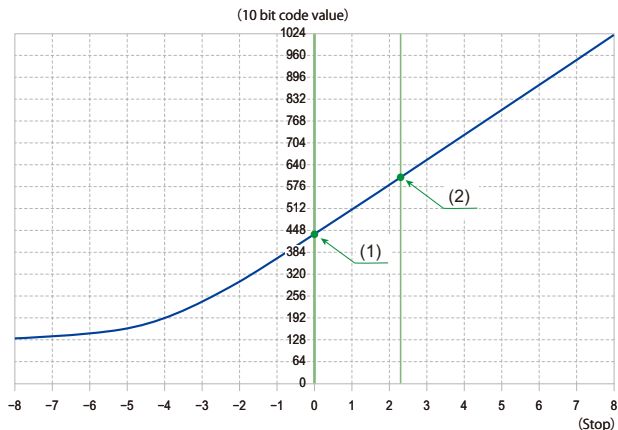
- Post-production processing is enabled by utilizing LUT (Look-Up Table). You can download the LUT file for [V-Log] from the following support site:  
**<https://panasonic.jp/support/global/cs/dsc/download/index3.html>**  
(English only)

## ❖ ISO Sensitivity When [V-Log] Is Set

ISO sensitivity can be set in the range between [500] and [12800] (Sensor output 60 fps or lower) or between [250] and [3200] (Sensor output 61 fps or higher). You can set between [125] and [12800] when [Extended ISO] is set.

## ❖ Exposure When [V-Log] Is Set

The [V-Log] curve characteristics comply with “V-Log/V-Gamut REFERENCE MANUAL Rev.1.0”. When set to [V-Log], the standard exposure when gray with a reflectance ratio of 18 % is imaged is IRE 42 %.



When [Photo Style] is set to [V-Log]				
Reflectance ratio (%)	IRE (%)	Stop	10 bit code value	12 bit code value
0	7.3	—	128	512
(1) 18	42	0.0	433	1732
(2) 90	61	2.3	602	2408

- When luminance is to be displayed by “Stop” units, this camera calculates IRE 42 % to “0 Stop”.



- Luminance can be checked by “Stop” units:  
(→[\[Luminance Spot Meter\]: 406](#), [\[Zebra Pattern\]: 407](#))

## [Log View Assist]

When [Photo Style] is set to [V-Log], the recording screen will darken. Using [Log View Assist] means you can show images with LUT file applied on the monitor/viewfinder or smartphone.



→ **[⚙️]** → **[📷]** → **Select [Log View Assist]**

---

### [LUT Select(V-Log)]

Selects the LUT file to apply from a preset or LUT files registered in [LUT Library].  
(→[\[LUT Library\]: 335](#))

---

### [LUT View Assist (Monitor)]

Displays the images with LUT file applied on the monitor/viewfinder of the camera.

---

### [LUT View Assist (App)]

You can view images with LUT files applied with the smartphone applications “LUMIX Lab”.

---



- When applying the LUT file, [LUT] is displayed on the recording screen.
- When [Photo Style] is [V-Log], you cannot apply LUT files which are a base Photo Style other than [V-Log].
- [LUT View Assist (Monitor)]/[LUT View Assist (App)] are not available when [LUT] is applied in the [Photo Style] image quality adjustments.

## HLG Videos

---

- [\[HLG View Assist\]: 448](#)



Record videos with the wide dynamic range of the HLG format. You can record in very bright light where overexposure can occur or in dark areas where underexposure can occur, maintaining the rich yet subtle colors you can see with your naked eye.

Recorded videos can be played back on devices (TV, etc.) that support HLG format for viewing.

- HLG (Hybrid Log Gamma) is a tone curve (gamma curve) format for HDR images.

# 1 Set to [ ] or [S&Q] mode.

(→ [Photo/Video/S&Q Switch: 61](#))

# 2 Select a recording quality with which you can record HLG video.

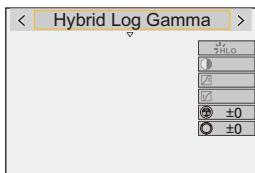
● [MENU/SET] → [ ] → [ ] → [Rec Quality]

- Items available for recording with HLG video are indicated as [HLG available].
- Recording qualities with which you can record HLG video (→ [List of Recording Qualities That Enable Special Videos to be Recorded: 451](#))



### 3 Set [Photo Style] to [Hybrid Log Gamma].

-  →  →  → [Photo Style] → [Hybrid Log Gamma]



- The monitor and viewfinder on this camera do not support display of HLG format images.

With [Monitor] in [HLG View Assist] in the [Custom] ([Monitor / Display (Video)]) menu, you can display the images converted for monitoring on the monitor/viewfinder of this camera. (→[[HLG View Assist](#)]: 448)

### ❖ ISO Sensitivity When [Hybrid Log Gamma] Is Set

The lower limit of available ISO sensitivities will become [250].

## [HLG View Assist]

At recording or playback of HLG video, this displays images with converted color gamut and brightness on the camera monitor/viewfinder.

 → [  ] → [  ] → **[HLG View Assist]** → **Select [Monitor]**

---

### [MODE1]

Converts with an emphasis on bright areas such as sky.

- [MODE1] is displayed on the recording screen.

---

### [MODE2]

Converts with an emphasis on the brightness of a main subject.

- [MODE2] is displayed on the recording screen.

---

### [OFF]

Displays without converting color gamut and brightness.

- HLG images appear darker on devices that do not support the HLG format.
-

## [Synchro Scan(Video)]



Fine-adjust the shutter speed to reduce flickering and horizontal stripes. The shutter speed set in Synchro Scan is saved separately from the shutter speed used for normal recording.

In the Synchro Scan setting screen you can call up the current shutter speed for normal recording and adjust it.




### 1 Set to [] or [S&Q] mode.

(→ [Photo/Video/S&Q Switch: 61](#))








### 2 Set the exposure mode to [S] or [M].

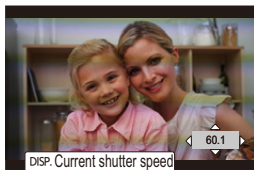
- Set the mode dial. (→ [Selecting the Recording Mode: 62](#))
- You can also set using [Exposure Control(Video Mode)] in [Exposure Control in P/A/S/M]. (→ [\[Exposure Control\(Video Mode\)\]: 544](#))

### 3 Set [Synchro Scan(Video)].

-  → [] → [] → [Synchro Scan(Video)] → [ON]

## 4 Set the shutter speed.

- Rotate  or  to select a numeric value, then press .
- Shutter speed can be set in the range between 1/24 of a second and 1/8192.0 of a second.  
(The minimum shutter speed depends on the frame rate of the video being recorded.)
- Press   to change the shutter speed in 1/4 TV intervals. Press   to make fine adjustments.
- You can call up the current shutter speed for normal recording by pressing [DISP.].
- Adjust the shutter speed while looking at the screen so that flickering and horizontal stripes will be minimized.



- There may be a difference between what you see on the recording screen and the actual results of recording. We recommend shooting some tests beforehand.

## List of Recording Qualities That Enable Special Videos to be Recorded

**S&Q** : Recording qualities with which you can record Slow & Quick video

**HFR** : Recording qualities for High Frame Rate video

**Live Crop** : Recording qualities that enable use of [Live Cropping]

**HLG** : Recording qualities with which you can record HLG video

### ❖ [Rec. File Format(Video)]: [MP4(Lite)]

[System Frequency]: [59.94Hz (NTSC)]

[Rec Quality]	S&Q	HFR	Live Crop	HLG
[3.8K/10bit/50M/30p]				✓
[4K/10bit/70M/120p]		✓		✓
[4K/10bit/50M/60p]				✓
[FHD/10bit/24M/120p]		✓		✓
[FHD/10bit/16M/60p]				✓

[System Frequency]: [50.00Hz (PAL)]

[Rec Quality]	S&Q	HFR	Live Crop	HLG
[3.8K/10bit/50M/25p]				✓
[4K/10bit/70M/100p]		✓		✓
[4K/10bit/50M/50p]				✓
[FHD/10bit/24M/100p]		✓		✓
[FHD/10bit/16M/50p]				✓

❖ **[Rec. File Format(Video)]: [MP4]****[System Frequency]: [59.94Hz (NTSC)]**

[Rec Quality]	S&Q	HFR	Live Crop	HLG
[4K/10bit/100M/60p]			✓	✓
[4K/10bit/72M/30p]			✓	✓
[4K/8bit/100M/30p]			✓	
[4K/10bit/72M/24p]				✓
[4K/8bit/100M/24p]				
[FHD/8bit/28M/60p]				
[FHD/8bit/20M/30p]			✓	
[FHD/8bit/24M/24p]				

**[System Frequency]: [50.00Hz (PAL)]**

[Rec Quality]	S&Q	HFR	Live Crop	HLG
[4K/10bit/100M/50p]			✓	✓
[4K/10bit/72M/25p]			✓	✓
[4K/8bit/100M/25p]			✓	
[FHD/8bit/28M/50p]				
[FHD/8bit/20M/25p]			✓	

## ❖ [Rec. File Format(Video)]: [MOV]

[System Frequency]: [59.94Hz (NTSC)]

[Rec Quality]	S&Q	HFR	Live Crop	HLG
[5.6K/60p/420/10-L]				✓
[5.6K/48p/420/10-L]		✓		✓
[5.6K/30p/420/10-L]	✓			✓
[5.6K/24p/420/10-L]	✓			✓
[5.2K/30p/420/10-L]				✓
[5.2K/24p/420/10-L]				✓
[4.4K/60p/420/10-L]				✓
[4.4K/48p/420/10-L]		✓		✓
[C4K/120p/420/10-L]		✓		✓
[C4K/60p/422/10-I]				✓
[C4K/60p/422/10-L]				✓
[C4K/60p/420/10-L]	✓			✓
[C4K/60p/420/8-L]				
[C4K/48p/422/10-I]		✓		✓
[C4K/48p/422/10-L]		✓		✓
[C4K/48p/420/10-L]		✓		✓
[C4K/30p/422/10-I]				✓
[C4K/30p/422/10-L]				✓
[C4K/30p/420/10-L]	✓			✓
[C4K/30p/420/8-L]				
[C4K/24p/422/10-I]				✓
[C4K/24p/422/10-L]				✓
[C4K/24p/420/10-L]	✓			✓
[C4K/24p/420/8-L]				
[4K/120p/420/10-L]		✓		✓

[4K/60p/422/10-I]				✓
[4K/60p/422/10-L]			✓	✓
[4K/60p/420/10-L]	✓		✓	✓
[4K/60p/420/8-L]				
[4K/48p/422/10-I]		✓		✓
[4K/48p/422/10-L]		✓		✓
[4K/48p/420/10-L]		✓		✓
[4K/30p/422/10-I]				✓
[4K/30p/422/10-L]			✓	✓
[4K/30p/420/10-L]	✓		✓	✓
[4K/30p/420/8-L]			✓	
[4K/24p/422/10-I]				✓
[4K/24p/422/10-L]			✓	✓
[4K/24p/420/10-L]	✓		✓	✓
[4K/24p/420/8-L]			✓	
[FHD/240p/422/10-L]		✓		✓
[FHD/240p/420/10-L]		✓		✓
[FHD/120p/422/10-I]		✓		✓
[FHD/120p/422/10-L]		✓		✓
[FHD/120p/420/10-L]		✓		✓
[FHD/60p/422/10-I]				✓
[FHD/60p/422/10-L]			✓	✓
[FHD/60p/420/10-L]	✓		✓	✓
[FHD/60p/420/8-L]				
[FHD/48p/422/10-I]		✓		✓
[FHD/48p/422/10-L]		✓		✓
[FHD/48p/420/10-L]		✓		✓
[FHD/30p/422/10-I]				✓
[FHD/30p/422/10-L]			✓	✓
[FHD/30p/420/10-L]	✓		✓	✓
[FHD/30p/420/8-L]			✓	

[FHD/24p/422/10-I]				✓
[FHD/24p/422/10-L]			✓	✓
[FHD/24p/420/10-L]	✓		✓	✓
[FHD/24p/420/8-L]			✓	

**[System Frequency]: [50.00Hz (PAL)]**

[Rec Quality]	S&Q	HFR	Live Crop	HLG
[5.6K/50p/420/10-L]				✓
[5.6K/25p/420/10-L]	✓			✓
[5.2K/25p/420/10-L]				✓
[4.4K/50p/420/10-L]				✓
[C4K/100p/420/10-L]		✓		✓
[C4K/50p/422/10-I]				✓
[C4K/50p/422/10-L]				✓
[C4K/50p/420/10-L]	✓			✓
[C4K/50p/420/8-L]				
[C4K/25p/422/10-I]				✓
[C4K/25p/422/10-L]				✓
[C4K/25p/420/10-L]	✓			✓
[C4K/25p/420/8-L]				
[4K/100p/420/10-L]		✓		✓
[4K/50p/422/10-I]				✓
[4K/50p/422/10-L]			✓	✓
[4K/50p/420/10-L]	✓		✓	✓
[4K/50p/420/8-L]				
[4K/25p/422/10-I]				✓
[4K/25p/422/10-L]			✓	✓
[4K/25p/420/10-L]	✓		✓	✓
[4K/25p/420/8-L]			✓	
[FHD/200p/422/10-L]		✓		✓
[FHD/200p/420/10-L]		✓		✓
[FHD/100p/422/10-I]		✓		✓
[FHD/100p/422/10-L]		✓		✓
[FHD/100p/420/10-L]		✓		✓
[FHD/50p/422/10-I]				✓
[FHD/50p/422/10-L]			✓	✓

[FHD/50p/420/10-L]	✓		✓	✓
[FHD/50p/420/8-L]				
[FHD/25p/422/10-I]				✓
[FHD/25p/422/10-L]			✓	✓
[FHD/25p/420/10-L]	✓		✓	✓
[FHD/25p/420/8-L]			✓	

**[System Frequency]: [24.00Hz (CINEMA)]**

[Rec Quality]	S&Q	HFR	Live Crop	HLG
[5.6K/48p/420/10-L]		✓		✓
[5.6K/24p/420/10-L]	✓			✓
[5.2K/24p/420/10-L]				✓
[4.4K/48p/420/10-L]		✓		✓
[C4K/120p/420/10-L]		✓		✓
[C4K/24p/422/10-I]				✓
[C4K/24p/422/10-L]				✓
[C4K/24p/420/10-L]	✓			✓
[C4K/24p/420/8-L]				
[4K/120p/420/10-L]		✓		✓
[4K/24p/422/10-I]				✓
[4K/24p/422/10-L]			✓	✓
[4K/24p/420/10-L]	✓		✓	✓
[4K/24p/420/8-L]			✓	
[FHD/120p/422/10-I]		✓		✓
[FHD/120p/422/10-L]		✓		✓
[FHD/120p/420/10-L]		✓		✓
[FHD/24p/422/10-I]				✓
[FHD/24p/422/10-L]			✓	✓
[FHD/24p/420/10-L]	✓		✓	✓
[FHD/24p/420/8-L]			✓	

# Playing Back and Editing of Images

This chapter explains how to play back and delete pictures and videos. You can also develop pictures recorded in the RAW format and repair video files that cannot be played back.

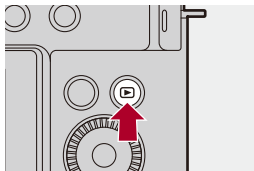
- Images recorded on devices other than this one may not be played back or edited correctly on this camera.
- [Playing Back Pictures: 460](#)
- [Playing Back Videos: 462](#)
- [Switching the Display Mode: 471](#)
- [Group Images: 477](#)
- [Deleting Images: 479](#)
- [\[RAW Processing\]: 481](#)
- [\[HEIF to JPEG Conversion\]: 489](#)
- [\[Video Repair\]: 490](#)
- [\[Playback\] Menu: 493](#)

## Playing Back Pictures


---

### 1 Display the playback screen.

- Press [].



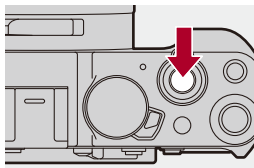
### 2 Select a picture.

- Select the pictures by pressing ◀▶.
- You can move continuously through images by pressing and holding ▶.
- You can also select by rotating .
- You can also move through images by dragging the screen horizontally.



### 3 Stop playback.

- Press the shutter button halfway.
- You can also stop playback by pressing [▶].



- This camera complies with the “Design rule for Camera File system” (DCF) and “Exchangeable Image File Format” (Exif) standards established by “Japan Electronics and Information Technology Industries Association” (JEITA). The camera cannot play back files that do not comply with the DCF standard. Exif is a file format for pictures which allows recording information, etc. to be added.



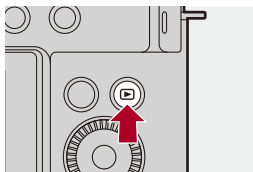
- You can assign switching of the recording screen/playback screen to an Fn button:  
(→[Rec / Playback Switch]: 512, [Rec / Playback Switch]: 515)

# Playing Back Videos

- [Video Repeat Playback: 466](#)
- [Extracting a Picture: 468](#)
- [\[Video Divide\]: 469](#)

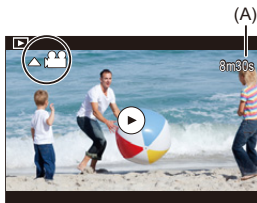
## 1 Display the playback screen.

- Press [▶].



## 2 Select a video.

- For information about how to select images (→ [Playing Back Pictures: 460](#))
- The [▶] video icon is displayed for a video.
- The video recording time is displayed on the screen.  
Example) When 8 minutes 30 seconds: 8m30s
- h: hour, m: minute, s: second



(A) Video recording time

### 3 Play back the video.

- Press ▲.
- You can also start playback by touching [▶] at the center of the screen.









- (B) Elapsed playback time  
(C) Playback bar

### 4 Stop playback.

- Press ▼.

## ❖ Operations During Video Playback

Button operations	Touch operations	Description of operation
▲		Plays/pauses.
▼	—	Stops.
◀	—	Performs fast-rewind playback. • If you press ◀ again, the fast-rewind speed increases.
		Performs frame-by-frame rewinding (while paused).
▶	—	Performs fast-forward playback. • If you press ▶ again, the fast-forward speed increases.
		Performs frame-by-frame forwarding (while paused).
—		Selects the frame to display.
		Extracts a picture (while paused). (→ <a href="#">Extracting a Picture: 468</a> )
	—	Reduces the volume.
		Increases the volume.



- The camera can play back videos in MP4(Lite), MP4, and MOV formats.
- Video recorded with a [System Frequency] setting that is different to the current one cannot be played back.
- If the reading speed of the card is slow, playback may pause or it may not be possible to play back smoothly.



- You may be able to repair video files that cannot be played back.  
(→[\[Video Repair\]: 490](#))
- You can set the operation for when playback of video finishes:  
(→[\[Behavior After Video Playback\]: 497](#))
- You can assign switching of the recording screen/playback screen to an Fn button:  
(→[\[Rec / Playback Switch\]: 512](#), [\[Rec / Playback Switch\]: 515](#))




## Video Repeat Playback

You can play back a part of a video repeatedly.

### 1 Display the screen for setting the part to repeat.

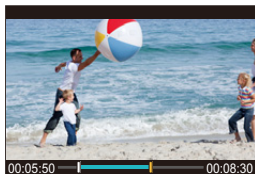
- Press [Q] while paused.
- The screen for setting the part to repeat is also displayed when you touch [Repeat Playback] while paused.

### 2 Set the position to start the repeat.

- Press ◀▶ to select the start position and then press .
- Selection is also possible by rotating  or .
- You can also select the start position by touching the playback bar.

### 3 Set the position to end the repeat.

- Set using the same procedure as **2**.
- The position cannot be set if the position to start the repeat and the position to end the repeat are too close.



## 4 Start playback.

- The operations during repeat playback are the same as “[Operations During Video Playback](#)”. (→[Operations During Video Playback: 464](#))
- End repeat playback by pressing ▼ to stop playback or by pressing [Q] while paused.



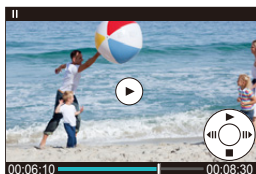
- Repeat playback is not possible if the recording time is short.
- The positions set for the repeated part may shift from the position where the video is paused.

## Extracting a Picture

Extract one frame of a video and save it as a JPEG image.

### 1 Pause playback at the position you wish to extract a picture.

- Press **▲**.
- To fine-adjust the position, press **◀▶** (rewind frame-by-frame or forward frame-by-frame).



### 2 Save the picture.

- Press **MENU/SET**.
- You can also save the picture by touching [Save].



- The picture created from the video is saved with a [FINE] picture quality. The picture is saved with a size according to the resolution of the [Rec Quality].
- The image quality of a picture created from a video may be coarser than normal.
- [**📷**] is displayed on the detailed information display screen for a picture created from a video.
- Pictures cannot be extracted when the following functions are being used:
  - [Auto Transfer(Wi-Fi)] (when there is an image queued to be transferred)

## [Video Divide]

Divide a recorded video into two.



- Images cannot be returned to their original state once they have been divided. Carefully confirm the images before performing the divide operation.
- Do not remove the card or battery from the camera during the divide process. The images may be lost.

### 1 Select [Video Divide].

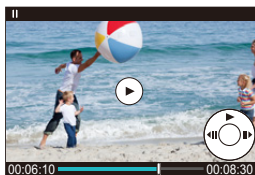
- Press **MENU/SET** → [**▶**] → [**✂**] → [Video Divide]

### 2 Select and play the image.


- Press **◀▶** to select an image and then press **MENU/SET**.

### 3 Pause playback at the position you wish to divide.

- Press **▲**.
- To fine-adjust the position, press **◀▶** (frame-by-frame rewind or frame-by-frame forward).



## 4 Divide the video.

- Press .
- You can also divide the video by touching [Divide].



- Dividing the video at a point close to the start or end may not be possible.
- Videos with a short recording time cannot be divided.
- [Video Divide] is not available when using the following functions:
  - [Auto Transfer(Wi-Fi)] (when there is an image queued to be transferred)

## Switching the Display Mode

---

- [Enlarged Display: 472](#)
- [Thumbnail Screen: 474](#)
- [Calendar Playback: 476](#)






You can use features to do things like enlarge recorded images for display and switch to thumbnail display to display multiple images at once (multi-playback).

You can also switch to calendar display to show images of a selected recording date.

## Enlarged Display




Playback images can be displayed enlarged (Playback Zoom).

### Enlarging the playback screen.

- Rotate  to the right.
- The playback screen is enlarged in the order of 2×  4×  8×   
16×.
- Rotating  to the left returns to the previous display size.
- Enlarged display to 16× may not be possible with images that have a small picture size.



## ❖ Operations During Enlarged Display

Button operations	Touch operations	Description of operation
	—	Enlarges/reduces the screen.
—	<b>Pinch out/ pinch in</b>	Enlarges/reduces the screen in small steps.
	<b>Drag</b>	Moves the enlarged display position.
	—	Forwards or rewinds images while maintaining the same zoom magnification and zoom position.










- You can display the point focused with AF. You can enlarge the display from that point:

(→[\[Magnify from AF Point\]: 496](#))






## Thumbnail Screen

### 1 Switch to thumbnail display.

- Rotate  to the left.
- The display is switched in the order of 12-image screen  30-image screen.
- Rotating  to the left during 30-image screen display switches to calendar display. (→ [Calendar Playback: 476](#))
- Rotating  to the right returns to the previous display.
- You can also switch the display by touching an icon.
  - [  ]: 1-image screen
  - [  ]: 12-image screen
  - [  ]: 30-image screen
  - [ CAL ]: Calendar (→ [Calendar Playback: 476](#))



### 2 Select an image.

- Press     to select an image and then press .





- You can scroll the screen by dragging the thumbnail display up or down.



- Images indicated with [!] cannot be played back.





## Calendar Playback

### 1 Switch to calendar playback.






- Rotate  to the left.
- The display is switched in the order of thumbnail screen (12 images) ⇨ Thumbnail screen (30 images) ⇨ Calendar playback.
- Rotating  to the right returns to the previous display.



### 2 Select the recording date.

- Press    to select a date and then press .

### 3 Select an image.

- Press    to select an image and then press .
- Rotating  to the left returns to calendar playback.



- The card to display cannot be switched during calendar display.
- The range that the calendar can be displayed is January 2000 to December 2099.

## Group Images

---

Images recorded with Time Lapse Shot or Stop Motion Shooting are handled as group images in the camera, and can be deleted and edited on a group basis.

(For example, if you delete a group image, all images in the group are deleted.)

You can also delete and edit each image in a group individually.

### ❖ Images Handled as Group Images by the Camera



Group images recorded with SH burst recording.



Group images recorded with Focus Bracket.



Group images recorded with Time Lapse Shot.



Group images recorded with Stop Motion Shooting.



Group images recorded with [Focus Stacking].

---

## ❖ **Playing and Editing the Images in a Group One by One**

Operations such as displaying thumbnails and deleting images are available with images in groups just as with normal playback.

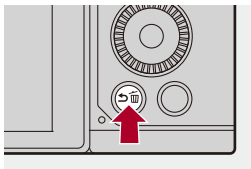
- 1 Select the group image in the playback state. (→ [Playing Back Pictures: 460](#))
- 2 Press ▼ to display the images in the group.
  - You can also perform the same operation by touching the group image icon.
- 3 Press ◀▶ to select an image.
  - To return to the normal playback screen, press ▼ or touch [▼▶] again.

## Deleting Images



- Images cannot be restored once they have been deleted. Carefully confirm the images before deletion.
- If you delete a group image, all images in the group are deleted.

### 1 Press [ ] in playback state.



## 2 Press ▲▼ to select the deletion method and then press



### [Delete Single]

Deletes the selected image.

### [Delete Multi]

Selecting and deleting multiple images.

- 1 Press ▲▼◀▶ to select the image to delete and then press .
  - [🗑️] is displayed for the selected image.
  - If you press again, the selection is canceled.
  - Up to 100 images can be selected.
- 2 Press [DISP.] to delete the selected image.



- Depending on the number of images to be deleted, it may take some time to delete them.
- Images cannot be deleted when the following functions are being used:
  - [Auto Transfer(Wi-Fi)] (when there is an image queued to be transferred)



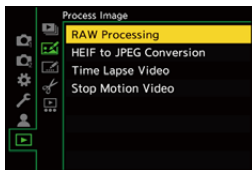
- You can set which of [Yes] and [No] is selected initially in the confirmation screen when deleting:
  - (→[Delete Confirmation]: 502)
- All images on the card can be deleted:
  - (→[Delete All Images]: 502)

# [RAW Processing]


This processes pictures taken in RAW format on the camera and saves them in JPEG format or HEIF format.

## 1 Select [RAW Processing].


-  → [ ] → [ ] → [RAW Processing]

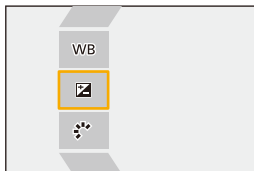


## 2 Select the RAW image.



- Press ◀▶ to select an image and then press .
- When group images are selected, press ▼ and then select an image in the group.  
Press ▼ again to return to the normal selection screen.
- The settings from the time of recording are reflected in displayed images.

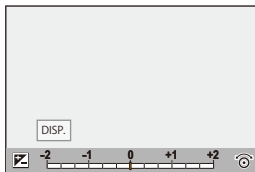
## 3 Select a setting item.

- Press ▲▼ to select an item and then press .




## 4 Change the setting.

- Rotate  or .
- The image can be enlarged/reduced by pinching out/pinching in the screen.

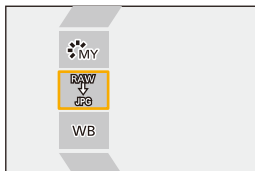


## 5 Confirm the setting.

- Press .
- The screen of Step 3 reappears.  
To set another item, repeat Steps 3 to 5.

## 6 Save the image.

- Press   to select [Begin Processing] and then press .



## ❖ **Setting Items ([RAW Processing])**

---


### **[Begin Processing]**



Saves the image.

---

### **WB [White Balance] (→ [White Balance \(WB\): 302](#))**

Selects and adjusts the white balance.

Selecting the item with [] enables processing with the same setting as at the time of recording.

- If you press ▼ in the [White Balance] selection screen, the white balance adjustment screen appears. (→ [Adjusting the White Balance: 308](#))
  - If you press ▲ while [] to [] is selected, the color temperature setting screen appears. (→ [Color Temperature Setting: 307](#))
- 

### **[Brightness correction]**

Corrects the brightness.

- The [Brightness correction] effect differs from the effect of exposure compensation during recording.
-

 **[Photo Style]** (→ **[Photo Style]: 310**)

Selects a Photo Style.

- If you press [Q] while [Like709] is selected, the knee setting screen appears.  
(→ **[Recording While Controlling Overexposure (Knee): 374]**)
  - You cannot select a Photo Style for images recorded with [V-Log]. You cannot select [V-Log] for images not recorded with [V-Log].
  - You cannot select a Photo Style other than [Cinelike A2], [Cinelike D2] or [Cinelike V2] for images recorded with [Cinelike A2], [Cinelike D2] or [Cinelike V2]. You cannot select [Cinelike A2], [Cinelike D2] or [Cinelike V2] for images not recorded with Photo Style [Cinelike A2], [Cinelike D2] or [Cinelike V2].
  - [REAL TIME LUT] cannot be selected. The Photo Styles that can be selected for images recorded with [REAL TIME LUT] depend on the base Photo Style.
  - You can select [Standard(HLG)] and [Monochrome(HLG)] when processing RAW images recorded with [HEIF Format] set to [HDR(HLG)] when [Switch JPEG/HEIF] is set to [HEIF].
- 

 **[i.Dynamic Range]**

Selects the setting of [i.Dynamic Range].

---

 **[Contrast]**

Adjusts the contrast.

---

 **[Highlight]**

Adjusts the brightness of bright portions.

---

 **[Shadow]**

Adjusts the brightness of dark portions.

---

 **[Saturation]/[Color Tone]**

Adjusts the saturation or color tone.

---

 **[Hue]**


Adjusts the hue.

---

 **[Filter Effect]**

Selects filter effects.

---

 **[Grain Effect]**

Selects a grain effect setting.

---

 **[Color Noise]**

Adds color to the grain effect.

---

 **[Sharpness]**

Adjusts the sharpness.

---

**NR [Noise Reduction]**

Sets noise reduction.

---

**LUT1 LUT2 [LUT]**


Selects the LUT file registered in [LUT Library]. (→[\[LUT Library\]: 335](#))

---

 **[LUT Opacity]**

Adjusts the LUT file effect.

---

 **[More Settings]**

**[Revert To Original]:** Returns the settings to the ones from the time of recording.

**[Switch JPEG/HEIF]:** Sets whether to save the images in the JPEG format or the HEIF format.

**[Color Space]:** Selects a Color Space setting from [sRGB] or [AdobeRGB]. (→[\[Color Space\]: 543](#))

- This is available when [Switch JPEG/HEIF] is [JPEG].

**[Picture Size]:** Selects the size for storing images.

---

 **[Load MY PHOTO STYLE]**

Load the image quality adjustment settings registered in My Photo Style.

---

- The items that can be adjusted depend on the selected [Photo Style].

WB	✓	✓	✓	✓
	✓	✓	✓	✓
	✓	✓	✓	
	✓ <sup>*1</sup>	✓ <sup>*1</sup>		
	✓	✓		
	✓	✓		
	✓	✓		
 ([Saturation])	✓		✓	✓ <sup>*2</sup>
 ([Color Tone])		✓		
	✓		✓	
		✓		
	✓	✓	✓	✓ <sup>*2</sup>
	✓ <sup>*3</sup>		✓ <sup>*3</sup>	✓ <sup>*2,3</sup>
NR	✓	✓	✓	✓
	✓	✓	✓	✓
LUT1/	✓	✓	✓	✓
LUT2/				


\*1 Cannot be set with [Standard(HLG)] or [Monochrome(HLG)].

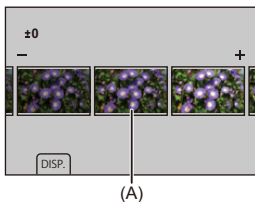
\*2 Can be set when a LUT file is applied with [LUT1] or [LUT2].

\*3 Can be set when [Grain Effect] is one of [Low], [Standard], or [High].


## ❖ Displaying a Comparison Screen

You can change a setting while checking the effect by displaying images with the applied setting value side by side.

- 1 Press [DISP.] in the screen of Step 4.
  - The image with the current setting (A) is displayed at the center.
  - Touching the image with the current setting enlarges it. Touching [] returns to the original display.
  - A comparison screen cannot be displayed while [Noise Reduction] or [Sharpness] is selected.



- 2 Rotate  or  to change the setting.

- 3 Press  to confirm the setting.




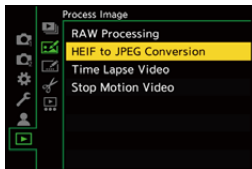
- It may take a while for the comparison screen to be displayed.
- Depending on the [Aspect Ratio], RAW images are recorded in the following sizes:
  - [4:3]: 5208×3912
  - [3:2]: 5416×3616
  - [16:9]: 5672×3200
  - [1:1]: 3912×3912
- The [White Balance] item is fixed to the setting from the time of recording for pictures recorded with multiple exposures.
- With this function, images are processed with the aspect ratio and the angle of view of [Crop Zoom(Photo)] from the time of recording.
- With RAW images recorded using [Crop Zoom(Photo)], the [Picture Size] that can be selected during processing may be different.
- [JPEG/HEIF Picture Quality] is processed as [FINE] with this function.
- The results of RAW processing with this function and with the “SILKYPIX Developer Studio” software do not completely match.
- RAW processing is not possible while you are using the following functions:
  - [Auto Transfer(Wi-Fi)] (when there is an image queued to be transferred)

## [HEIF to JPEG Conversion]






Convert pictures that have been saved as HEIF images to JPEG images.

### 1 Select [HEIF to JPEG Conversion].

-  → [ ] → [ ] → [HEIF to JPEG Conversion]



### 2 Select the HEIF image.

- Press   to select an image and then press .
- When group images are selected, press  and then select an image in the group.  
Press  again to return to the normal selection screen.

### 3 Save the image.

- Press   to select [Yes] and then press .



- Color sampling is the following when HEIF images are converted to JPEG images with this camera:  
HEIF(4:2:0 10 bit) → JPEG(4:2:2 8 bit)

## [Video Repair]

---

When the recording of a video could not be completed normally, a video file that cannot be played back may be generated (extension “.mdt”).

You can repair the “.mdt” file with this function to make it playable.

- Possible causes for the generation of “.mdt” files are:
  - Power turns off during video recording (battery is removed, AC cable is unplugged, power outage while using the AC adaptor, etc.)
  - Card removed during video recording
  - Card removed while writing to card after video recording
  - When an unexpected freeze occurs during video recording/while writing to the card



- Videos that can be repaired are those videos recorded with the [Rec. File Format(Video)] being [MOV].  
Video recorded in [MP4(Lite)] or [MP4] cannot be repaired.
- As repairs can take some time, supply with power during the operation. (→ [Using the Camera While Supplying It with Power \(Supplying Power\): 43](#))

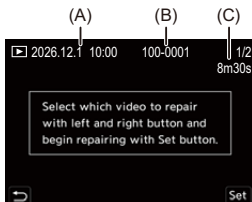
## 1 Select [Video Repair].

- Press **MENU/SET** → **[▶]** → **[✂]** → [Video Repair]



## 2 Select the video file to repair.

- Press **◀▶** to select a file and then press **MENU/SET**.
- Refer to the recording date and time (A), folder/file number (B), and video recording time (C) to help with selecting the video file.



## 3 Select [Yes] on the confirmation screen.

- Video repair starts. Repair takes some time.
- The video file after repair is saved in the same folder as the file before repair.

### ❖ Canceling Video Repair

Even if you cancel video repair, the file is not deleted, so the procedure can be done over again later if required.

- 1 Press either **MENU/SET** in the video repair progress screen.
- 2 Select [Yes] on the confirmation screen.



- It may not be possible to repair videos with a short recording time.
- It may not be possible to repair videos in some cases due to the state of the data.
- Video repair cannot be started if there is very limited free space on the card.
- Do not turn off the power or remove the card during repair.  
Otherwise, the card and recorded data may be damaged.
- Do not perform other operations during the repair.
- You cannot repair videos recorded with devices other than this camera.
- When the following function is being used, [Video Repair] is not available:
  - [Auto Transfer(Wi-Fi)] (when there is an image queued to be transferred)

## [Playback] Menu



---

- [How to Select an Image\(s\) in the \[Playback\] Menu: 493](#)
- [\[Playback\] \(\[Playback Mode\]\): 495](#)
- [\[Playback\] \(\[Process Image\]\): 498](#)
- [\[Playback\] \(\[Add/Delete Info.\]\): 499](#)
- [\[Playback\] \(\[Edit Image\]\): 500](#)
- [\[Playback\] \(\[Others\]\): 502](#)



### How to Select an Image(s) in the [Playback] Menu

Follow the steps below when the image selection screen is displayed.

#### ❖ When [Single] Has Been Selected

- 1 Press ◀▶ to select the image.
- 2 Press .
  - If [Set/Cancel] is displayed at the right bottom of the screen, the setting is canceled when  is pressed again.

## ❖ When [Multi] Has Been Selected

- 1 Press ▲▼◀▶ to select the image and then press  (repeat).
  - The setting is canceled when  is pressed again.



- 2 Press [DISP.] to execute.

## When [Protect] is selected

- Press ▲▼◀▶ to select the image, and then press  to set (repeat).
- The setting is canceled when  is pressed again.



## [Playback] ([Playback Mode])

▶: Default settings

### [Playback Mode]

▶[Normal Play] / [Picture Only] / [Video Only] / [Rating]

Filters the type of images to play back.

- When you have set [Rating], put a check mark in the rating level you want to display, then press [DISP.].

### [Slide Show]

[All] / [Picture Only] / [Video Only] / [Rating]

Selects image types and plays them back at regular intervals in order.

- When you have set [Rating], put a check mark in the rating level you want to display, then press [DISP.].

**[Start]:** Starts slide show playback.

**[Duration]:** Sets repeat playback.

**[Repeat]:** Sets repeat playback.

#### Operations during slide show

▲: Plays/pauses (You can also perform the same operation by touching [▶] or

[⏸])

◀: Move to the previous image

▶: Move to the next image

▼: Ends the slide show

⊙: Adjusts the volume

- When [Video Only] is set, [Duration] is not available.

## [Rotate Disp.]

▶[ON] / [OFF]

Automatically displays pictures vertically if they were recorded when holding the camera vertically.

## [Picture Sort]

[FILE NAME] / ▶[DATE/TIME]

This sets the order in which the camera displays images during playback.

**[FILE NAME]:** Displays images by folder name/file name.

**[DATE/TIME]:** Displays images by recording date.

- If you insert another card, it may take some time to read all data, therefore pictures may not be displayed in the set order.

## [Magnify from AF Point]

[ON] / ▶[OFF]

Displays the point focused with AF.

Enlarges the AF focus location when enlarging the image.

## [LUT View Assist (Monitor)]

[ON] / ▶[OFF]

When playing back images recorded with [Photo Style] set to [V-Log], this displays the images with LUT file applied on the monitor/viewfinder.

- This functions in tandem with [LUT View Assist (Monitor)] in [Log View Assist] in the [Custom] ([Monitor / Display (Video)]) menu. (→[Log View Assist]: 444)

## [HLG View Assist (Monitor)]

[MODE1] / ▶[MODE2] / [OFF]

At recording or playback of HLG video, this converts their color gamut and brightness for display.

- This functions in tandem with [Monitor] in [HLG View Assist] in the [Custom] ([Monitor / Display (Video)]) menu. (→[HLG View Assist]: 448)

## [Behavior After Video Playback]

▶[End Playback] / [Pause At Last Frame]

Sets the operation for when playback of video finishes.

**[End Playback]:** Ends video playback and returns to the image selection screen.

**[Pause At Last Frame]:** Does not end video playback, but pauses on the final frame. To end video playback, press ▼.

## [Playback] ([Process Image])

### [RAW Processing]

This processes pictures taken in RAW format on the camera and saves them in JPEG format or HEIF format.

(→ [\[RAW Processing\]: 481](#))


### [HEIF to JPEG Conversion]

Convert pictures that have been saved as HEIF images to JPEG images.

(→ [\[HEIF to JPEG Conversion\]: 489](#))

### [Time Lapse Video]


This creates videos from group images recorded with [Time Lapse Shot].

- 1 Press ◀▶ to select a [Time Lapse Shot] group and then press .
- 2 Select the options for creating a video to combine the pictures into a video.  
(→ [Time Lapse Shot/Stop Motion Animation Videos: 231](#))

- When [System Frequency] is set to [24.00Hz (CINEMA)], [Time Lapse Video] is not available.

### [Stop Motion Video]

This creates videos from group images recorded with [Stop Motion Animation].

- 1 Press ◀▶ to select the Stop Motion Animation group and then press .
- 2 Select the options for creating a video to combine the pictures into a video.  
(→ [Time Lapse Shot/Stop Motion Animation Videos: 231](#))

- When [System Frequency] is set to [24.00Hz (CINEMA)], [Stop Motion Video] is not available.

## [Playback] ([Add/Delete Info.])

### [Protect]

[Single] / [Multi] / [Cancel]

You can set protection for images so that they will not be deleted by mistake. However, if you format the card, the protected images will also be deleted.


- For information about how to select images (→ [How to Select an Image\(s\) in the \[Playback\] Menu: 493](#))
- Be careful because the [Protect] setting may be disabled on a device other than this camera.

### [Rating]

[Single] / [Multi] / [Cancel]

If you set any of the five different rating levels for images, you can do the following:

- Deleting all images except for those with ratings.
- Use the file details view on a PC, etc., to check the rating level.

- 1 Select an image. (→ [How to Select an Image\(s\) in the \[Playback\] Menu: 493](#))
- 2 Press ◀▶ to select a rating level (1 to 5) and then press .
  - When [Multi] is selected, repeat Steps 1 and 2.
  - To cancel the setting, set the rating level to [OFF].



## [Playback] ([Edit Image])

▶: Default settings

### [Resize]

[Single] / [Multi]


Reduce the volume of images (picture size) and save them as different images to enable them to be easily used for web pages or sent as email attachments.

- For information about how to select images (→ [How to Select an Image\(s\) in the \[Playback\] Menu: 493](#))
  - When [Single] is selected, after choosing the image, press ▲▼ to select the size, then press .
  - When [Multi] is selected, before choosing the images, press ▲▼ to select the size, then press .
- You can set up to 100 images at once with [Multi].
- The image quality of the resized image becomes lower.
- [Resize] is not available for images recorded using the following functions:
  - Video recording
  - Group images
  - [RAW] ([Rec. File Format(Photo)])
  - Pictures created from [C4K] video
  - [XS] ([Picture Size])

## [Rotate]

Rotate images manually in 90° steps.

[]: Rotates 90° clockwise.

[]: Rotates 90° counter-clockwise.

- For information about how to select images (→[How to Select an Image\(s\) in the \[Playback\] Menu: 493](#))
- When [Rotate Disp.] is [OFF], [Rotate] is not available.

## [Video Divide]

Divide a recorded video into two.

(→[\[Video Divide\]: 469](#))

## [Video Repair]

When recording does not finish normally for some reason, it is possible to repair the video file. (→[\[Video Repair\]: 490](#))

## [Playback] ([Others])

▶: Default settings

### [Delete Confirmation]

["Yes" first] / ▶["No" first]

This sets which option, [Yes] or [No], will be highlighted first when the confirmation screen for deleting an image is displayed.

**["Yes" first]:** [Yes] is highlighted first.

**["No" first]:** [No] is highlighted first.

### [Delete All Images]

Deleting all images in a card.

- Images cannot be restored once they have been deleted. Carefully confirm the images before deletion.
- If you select [Delete All Non-rating], all images except those with a rating set are deleted.
- [Delete All Images] can be used when [Playback Mode] is set to [Normal Play].

# Camera Customization

This chapter describes the customization function with which you can configure the camera to your preferred settings.

It also describes the [Custom] menu where you can make advanced settings for the camera operations and screen displays, and the [Setup] menu where you can make basic settings for the camera.

- [Fn Buttons: 504](#)
- [Fn Switch: 518](#)
- [\[Dial Operation Switch\]: 521](#)
- [Quick Menu Customization: 524](#)
- [Custom Mode: 531](#)
- [\[Custom\] Menu: 538](#)
- [\[Setup\] Menu: 573](#)
- [My Menu: 592](#)

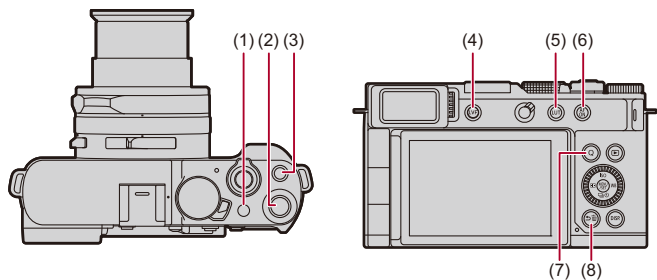
## Fn Buttons




- [Register Functions to the Fn Buttons: 507](#)
- [Use the Fn Buttons: 517](#)

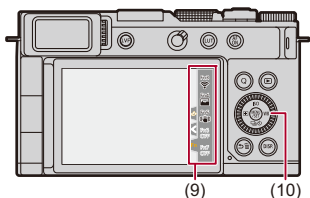
You can register functions to the Fn (Function) buttons.


Different functions can be set for each of the photo mode, video/S&Q mode, and for playback.

### ❖ Fn Button Default Settings






Fn buttons		[Setting in Photo Mode]	[Setting in Video/S&Q Mode]	[Setting in Playback Mode]
(1)		[Exposure Comp.]	[Same Setting as Photo Mode]	[No Setting]
(2)	[Fn2]	[Photo Style]		[No Setting]
(3)	<b>Video rec. button</b>	[Video Record]		[Video Record]
(4)	<b>LVF</b>	[LVF/Monitor Switch]		[LVF/Monitor Switch]
(5)	<b>LUT</b>	[REAL TIME LUT]		[No Setting]
(6)	<b>AF ON</b>	[AF-ON]		[Rating★3]
(7)	<b>Q</b>	[Q.MENU]		[Send Image (Smartphone)]
(8)	[Fn1]/  / 	[Level Gauge]		<ul style="list-style-type: none"> <li>• Cannot be used as Fn buttons during playback.</li> </ul>







Fn buttons	[Setting in Photo Mode]	[Setting in Video/S&Q Mode]	[Setting in Playback Mode]
(9) [Fn3]	[Wi-Fi]	[Same Setting as Photo Mode]	<ul style="list-style-type: none"> <li>• Cannot be used as Fn buttons during playback.</li> </ul>
[Fn4]	[Histogram]	[Waveform Monitor]	
[Fn5]	[Image Stabilizer]	[Same Setting as Photo Mode]	
[Fn6]	[Off (Disable Press and Hold)]	[Off (Disable Press and Hold)]	
[Fn7]	[Off (Disable Press and Hold)]	[Off (Disable Press and Hold)]	
(10)  Fn8 Fn9 Fn10 Fn11	[Sensitivity] [White Balance] [Drive Mode] [AF Mode]	[Same Setting as Photo Mode]	

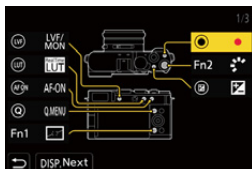
## Register Functions to the Fn Buttons

### 1 Select [Fn Button Set].







-  → [  ] → [  ] → [Fn Button Set] → [Setting in Photo Mode]/ [Setting in Video/S&Q Mode]/[Setting in Playback Mode]

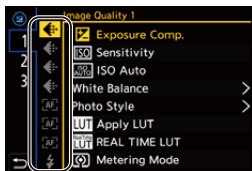
### 2 Select the button.

- Press   to select the button and then press .
- Selection is also possible by rotating .
- Press [DISP.] to change the page.







### 3 Find the function to register.

- Rotate  to select the sub tab where the function to register is categorized (→ [Setting Items \(\[Fn Button Set\]/\[Setting in Photo Mode\]/\[Setting in Video/S&Q Mode\]\): 509](#), [Setting Items \(\[Fn Button Set\]/\[Setting in Playback Mode\]\): 515](#)) and then press .
- You can also select by pressing  to select the sub tab, pressing  or rotating , and then pressing .
- Switch the [1] to [3] tabs by pressing [Q].



### 4 Register the function.

- Press  to select a function and then press .
- Selection is also possible by rotating  or .
- Select items with [>] by selecting the item again.
- Depending on the button, some functions cannot be registered.



- You can also touch [Fn] on the control panel (→ [Control Panel \(Photo Mode\): 670](#)) to display the screen in Step **2**.
- You can also press and hold the Fn button (2 sec.) to display the screen in Step **4**.  
(This may not be displayed depending on the registered function and on the button type.)

## ❖ Setting Items ([Fn Button Set]/[Setting in Photo Mode]/[Setting in Video/S&Q Mode])

### [1] tab

#### [Image Quality]

- [Exposure Comp.] (→ [Exposure Compensation: 287](#))
- [Sensitivity] (→ [ISO Sensitivity: 295](#))
- [ISO Auto]
  - ISO auto switches between [ON] and [OFF] each time you press the assigned button in the recording screen. (When [OFF], the ISO sensitivity returns to the original one.)
- [White Balance] (→ [White Balance \(WB\): 302](#))
- [Photo Style] (→ [Photo Style: 310](#))
- [Apply LUT]
  - Applies the LUT file that was set in [LUT] with either [REAL TIME LUT] or [MY PHOTO STYLE]. (→ [Adjusting Image Quality: 316](#))
- [REAL TIME LUT] (→ [REAL TIME LUT: 333](#))
- [Metering Mode] (→ [Metering Mode: 268](#))
- [Aspect Ratio] (→ [Aspect Ratio: 104](#))
- [Rec. File Format(Photo)] (→ [Rec. File Format\(Photo\): 108](#))
- [Switch JPEG/HEIF] (→ [Switch JPEG/HEIF: 111](#))
- [JPEG/HEIF Picture Quality] (→ [JPEG/HEIF Picture Quality: 113](#))
- [HEIF Format] (→ [HLG Recording \(HEIF Format\): 344](#))
- [Picture Size] (→ [Picture Size: 106](#))
- [1 Shot Spot Metering]
  - Records with the metering mode set to [Metering Mode: 268)
- [Long Exposure NR] (→ [Long Exposure NR: 258](#))
- [Min. Shutter Speed] (→ [Min. Shutter Speed: 261](#))
- [1 Shot RAW+JPEG]/[1 Shot RAW+HEIF]
  - Records a RAW image and a JPEG/HEIF image simultaneously once only. (→ [Rec. File Format\(Photo\): 108](#))
- [Soft Skin Effect] (→ [Soft Skin Effect: 331](#))

- [i.Dynamic Range] (→[i.Dynamic Range]: 290)
- [Filter Effect] (→[Filter Settings]: 325)
- [One Push AE]
  - Adjusts the aperture value and shutter speed to the settings suited for the standard exposure determined by the camera. (→[Exposure Compensation]: 287)
- [Touch AE] (→[Touch AE]: 98)
- [AWB Lock] (→[AWB Lock Setting]: 542)
- [Exposure Control(Photo Mode)] (→[Exposure Control(Photo Mode)]: 544)
- [Exposure Control(Video Mode)] (→[Exposure Control(Video Mode)]: 544)
- [Synchro Scan(Photo)] (→[Synchro Scan(Photo)]: 259)
- [Synchro Scan(Video)] (→[Synchro Scan(Video)]: 449)

### **[Focus/Shutter]**

- [AFS/AFC(Photo)] (→[Selecting the Focus Mode]: 145)
- [AFS/AFC(Video)] (→[Selecting the Focus Mode]: 145)
- [AF Mode] (→[Selecting the AF Mode]: 161)
- [AF Detection Setting] (→[Automatic Detection]: 164)
- [Detecting Subject] (→[Automatic Detection]: 164)
- [AF Custom Setting(Photo)] (→[AF Custom Setting(Photo)]: 154)
- [AF Custom Setting(Video)] (→[AF Custom Setting(Video)]: 369)
- [Focus Limiter] (→[Focus Limiter]: 157)
- [Focus Limiter Range Set] (→[Focus Limiter]: 157)
- [Focus Frame Color Setting] (→[Focus Frame Color Setting]: 160)
- [Focus Peaking] (→[Focus Peaking]: 196)
- [Focus Peaking Sensitivity] (→[Focus Peaking]: 196)
- [Focus Frame Moving Speed] (→[Focus Frame Moving Speed]: 160)
- [Control Ring Lock] (→[Control Ring Lock]: 547)
- [AE LOCK] (→[Locking Focus and Exposure (AF/AE Lock)]: 293)
- [AF LOCK] (→[Locking Focus and Exposure (AF/AE Lock)]: 293)
- [AF/AE LOCK] (→[Locking Focus and Exposure (AF/AE Lock)]: 293)

- [AF-ON] (→[AF ON] button: 149)
- [AF-ON : Near Shift]
  - AF operates giving priority to close-up subjects. (→Using AF: 147)
- [AF-ON : Far Shift]
  - AF operates giving priority to distant subjects. (→Using AF: 147)
- [AF-Point Scope] (→[AF-Point Scope]: 152)
- [Focus Area Set]
  - Displays the AF area/MF Assist movement screens. (→AF Area Operations: 181, Operations on the MF Assist Screen: 193)
- [Enlarged Live Display(Video)] (→[Enlarged Live Display(Video)]: 370)

## [Flash]

- [Flash Mode] (→[Flash Mode]: 351)
- [Flash Adjust.] (→[Flash Adjust.]: 356)
- [Wireless Flash Setup] (→Recording Using a Wireless Flash: 360)

## [2] tab

### [Others (Photo)]

- [Drive Mode] (→Selecting the Drive Mode: 206)
- [Drive Mode Setting] (→Selecting the Drive Mode: 206)
- [Bracketing] (→Bracket Recording: 238)
- [Focus Stacking] (→[Focus Stacking]: 246)
- [Silent Mode] (→[Silent Mode]: 253)
- [Image Stabilizer] (→[Operation Mode]: 265)
- [Shutter Type] (→[Shutter Type]: 255)
- [Crop Zoom(Photo)] (→[Crop Zoom(Photo)]: 200)
- [Live View Composite] (→[Live View Composite]: 249)

### [Image Format]

- [Rec. File Format(Video)] (→[Rec. File Format(Video)]: 127)
- [Rec Quality] (→[Rec Quality]: 128)
- [Rec Quality (My List)] (→Setting or deleting in My List: 140)
- [Slow & Quick Setting] (→Slow & Quick Video: 413)

## [Audio]

- [Audio Information] (→[Audio Information]: 386)
- [Sound Rec Level Disp.] (→[Sound Rec Level Disp.]: 378)
- [Mute Sound Input] (→[Mute Sound Input]: 379)
- [Sound Rec Level Adj.] (→[Sound Rec Level Adj.]: 381)
- [Sound Rec Quality] (→[Sound Rec Quality]: 382)
- [Sound Rec Level Limiter] (→[Sound Rec Level Limiter]: 384)
- [4ch Audio Recording] (→[4ch Audio Recording]: 395, [4ch Audio Recording]: 400)
- [Hot Shoe Audio Input] (→XLR Microphone Adaptor (Optional): 392, Digital Shotgun Microphone (Optional): 397)

## [Others (Video)]

- [Image Stabilizer] (→[Operation Mode]: 265)
- [E-Stabilization (Video)] (→[E-Stabilization (Video)]: 266)
- [Image Area of Video] (→[Image Area of Video]: 142)
- [Crop Zoom(Video)] (→[Crop Zoom(Video)]: 202)
- [Focus Transition] (→[Focus Transition]: 431)
- [Live Cropping] (→[Live Cropping]: 436)
- [Live Cropping Settings] (→[Live Cropping]: 436)

## [Operation]

- [Q.MENU] (→Quick Menu: 78)
- [Rec / Playback Switch]
  - Switches to the playback screen. (→Playing Back Pictures: 460, Playing Back Videos: 462)
- [Video Record] (→Basic Video Operations: 115)
- [LVF/Monitor Switch] (→Switching Between the Monitor and Viewfinder: 70)
- [Operation Lock]
- [Zoom Settings] (→[Zoom Settings]: 554)
- [Dial Operation Switch] (→Temporarily Change Dial Operation: 523)

## [Monitor / Display]

- [Preview] (→[Preview Mode: 285](#))
- [Preview Aperture Effect]
  - The aperture effect can be previewed while the Fn button is being pressed.  
(→[Preview Mode: 285](#))
- [Constant Preview] (→[Constant Preview: 558](#))
- [Level Gauge] (→[Level Gauge: 566](#))
- [Histogram] (→[Histogram: 559](#))
- [Luminance Spot Meter] (→[Luminance Spot Meter: 406](#))
- [Frame Marker] (→[Frame Marker: 409](#))
- [Photo Grid Line] (→[Photo Grid Line: 560](#))
- [Live View Boost] (→[Live View Boost: 560](#))
- [Monochrome Live View] (→[Monochrome Live View: 568](#))
- [Night Mode] (→[Night Mode: 561](#))
- [LVF/Monitor Disp. Set]
  - Switches the displayed monitor or viewfinder display style. (→[LVF/Monitor Disp. Set: 562](#))
- [Zebra Pattern] (→[Zebra Pattern: 407](#))
- [LUT View Assist (Monitor)] (→[LUT View Assist \(Monitor\): 444](#))
- [LUT View Assist (App)] (→[LUT View Assist \(App\): 444](#))
- [LUT Select(LUT View Assist)] (→[Log View Assist: 444](#))

### [3] tab

#### [Monitor / Display]

- [HLG View Assist (Monitor)] (→ [\[HLG View Assist\]: 448](#))
- [Sheer Overlay] (→ [\[Sheer Overlay\]: 565](#))
- [Waveform Monitor] (→ [\[Waveform Monitor\]: 404](#))

#### [Lens / Others]

- [Control Ring Focus Control(MF)] (→ [\[Control Ring Focus Control\(MF\)\]: 571](#))

#### [IN/OUT]

- [Wi-Fi] (→ [Wi-Fi/Bluetooth Connections and Settings: 645](#))

#### [Setting]

- [Save to Custom Mode] (→ [Registering Instant Customization: 533](#))

#### [Others]

- [No Setting]
  - Set when not using as an Fn button.
- [Off (Disable Press and Hold)]
  - The button does not work as an Fn button. The function registering screen is not displayed when you press and hold (2 seconds) the Fn button.
- [Same Setting as Photo Mode]
  - Linked to the menus set in [Setting in Photo Mode]. (Only in [Setting in Video/S&Q Mode])
- [Restore to Default]
  - Restore the default settings for the Fn button. (→ [Fn Button Default Settings: 504](#))

## ❖ Setting Items ([Fn Button Set]/[Setting in Playback Mode])

### [1] tab

#### [Playback Mode]

- [Magnify from AF Point] (→ [\[Magnify from AF Point\]: 496](#))
- [LUT View Assist (Monitor)] (→ [\[LUT View Assist \(Monitor\)\]: 496](#))
- [HLG View Assist (Monitor)] (→ [\[HLG View Assist \(Monitor\)\]: 497](#))

#### [Process Image]

- [RAW Processing] (→ [\[RAW Processing\]: 481](#))
- [HEIF to JPEG Conversion] (→ [\[HEIF to JPEG Conversion\]: 489](#))

#### [Add/Delete Info.]

- [Delete Single] (→ [\[Deleting Images\]: 479](#))
- [Protect] (→ [\[Protect\]: 499](#))
- [Rating★1] (→ [\[Rating\]: 499](#))
- [Rating★2] (→ [\[Rating\]: 499](#))
- [Rating★3] (→ [\[Rating\]: 499](#))
- [Rating★4] (→ [\[Rating\]: 499](#))
- [Rating★5] (→ [\[Rating\]: 499](#))

#### [Operation]

- [Rec / Playback Switch]
  - Switches to the recording screen. (→ [Basic Picture Operations: 101](#), [Basic Video Operations: 115](#))
- [LVF/Monitor Switch] (→ [\[Switching Between the Monitor and Viewfinder\]: 70](#))
- [Video Record] (→ [Basic Video Operations: 115](#))

### [Monitor / Display]

- [Night Mode] (→[\[Night Mode\]: 561](#))

### [IN/OUT]

- [Sound Monitoring Channel(Play)] (→[\[Sound Monitoring Channel\(Play\)\]: 582](#))
- [Wi-Fi] (→[Wi-Fi/Bluetooth Connections and Settings: 645](#))
- [Send Image (Smartphone)] (→[Sending Images on the Camera to a Smartphone with Simple Operations: 625](#))

### [Others]

- [No Setting]
  - Set when not using as an Fn button.
- [Off (Disable Press and Hold)]
  - The button does not work as an Fn button. The function registering screen is not displayed when you press and hold (2 seconds) the Fn button.
- [Restore to Default]
  - Restore the default settings for the Fn button. (→[Fn Button Default Settings: 504](#))

## Use the Fn Buttons

You can use the functions assigned with each of the settings when you press the Fn buttons.

- In [] mode: Functions assigned in [Setting in Photo Mode]
- In []/[S&Q] mode: Functions assigned in [Setting in Video/S&Q Mode]
- During playback: Functions assigned in [Setting in Playback Mode]

### 1 Press the Fn button.

### 2 Select a setting item.

- Press ◀▶ to select a setting item and then press .
- Selection is also possible by rotating or .
- Display and selection methods of a setting item differ depending on the menu item.

## ❖ Use [Fn3] to [Fn7] (Touch Icons)

During recording, you can use the Fn buttons within the Touch Tab.



- With the default settings, the Touch Tab is not displayed. Set [Touch Tab] to [ON] in [Touch Settings] in the [Custom] ([Operation]) menu. (→ [\[Touch Settings\]: 553](#))

- 1 Touch [].
- 2 Touch one of [Fn3] to [Fn7].



## Fn Switch

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- [Registering a Function to the Fn Switch: 519](#)
- [Using the Fn Switch: 520](#)
















You can assign a function and register its setting values to the Fn switch. You can easily switch between the setting values of the function you have registered.

## Registering a Function to the Fn Switch

### 1 Select [Fn Switch Setting].

-  →  →  → [Fn Switch Setting]

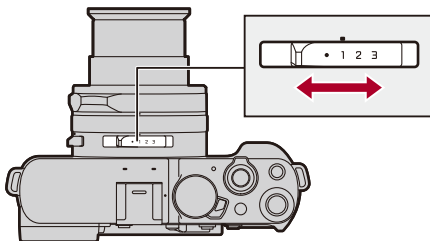
### 2 Set [Select Function to Assign] and [Setting Value for 1] / [Setting Value for 2] / [Setting Value for 3].

[Select Function to Assign]	Items that can be set in [Setting Value for 1] / [Setting Value for 2] / [Setting Value for 3]
[Step Zoom]	[24mm] / [28mm] / [35mm] / [50mm] / [70mm] / [75mm] / [Cr85mm]* / [Cr103mm]* / [Cr104mm]* / [Cr135mm]* / [Cr148mm]* / [Cr150mm]* / [MAXIMUM TELEPHOTO] * Depending on the [Minimum Image Size] setting, it may not be possible to crop to the setting value. When [Crop Zoom(Photo)] / [Crop Zoom(Video)] is [OFF], the setting value becomes [75mm] even when you change the Fn switch position.
[Photo Style]	(→[Photo Style]: 310)
[REAL TIME LUT]	You can set a LUT file that has been registered in the [LUT Library]. (→[LUT Library]: 335)
[Aspect Ratio]	[4:3] / [3:2] / [16:9] / [1:1]
[Detecting Subject]	 /  /  /  /  /  /  /  /  /  /  /  /  /  /  / [OFF]

## Using the Fn Switch

By setting the Fn switch to the desired position, you can switch to the setting value for the registered function.



### Set the Fn switch to the desired position.



•	The registered function operates according to the setting values set in the menus, etc.
1	The registered function operates using the setting value assigned with [Setting Value for 1].
2	The registered function operates using the setting value assigned with [Setting Value for 2].
3	The registered function operates using the setting value assigned with [Setting Value for 3].






## [Dial Operation Switch]

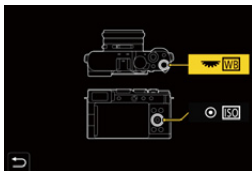
- Register Functions to the Dials: 521
- Temporarily Change Dial Operation: 523

This temporarily changes the functions operated with  (rear dial) and .

### Register Functions to the Dials

#### 1 Select [Dial Operation Switch Setup].

-  → [  ] → [  ] → [Dial Set.] → [Dial Operation Switch Setup] → [  ]/[  ]



#### 2 Register the function.

- Press   to select a function and then press .

## ❖ Functions That Can Be Registered

- [Exposure Comp.] (→ [Exposure Compensation: 287](#))
- [Sensitivity]<sup>\*1</sup> (→ [ISO Sensitivity: 295](#))
- [White Balance]<sup>\*2</sup> (→ [White Balance \(WB\): 302](#))
- [Photo Style] (→ [\[Photo Style\]: 310](#))
- [Aspect Ratio] (→ [\[Aspect Ratio\]: 104](#))
- [i.Dynamic Range] (→ [\[i.Dynamic Range\]: 290](#))
- [Filter Effect] (→ [\[Filter Settings\]: 325](#))
- [AF Mode] (→ [Selecting the AF Mode: 161](#))
- [Flash Mode] (→ [\[Flash Mode\]: 351](#))
- [Flash Adjust.] (→ [\[Flash Adjust.\]: 356](#))
- [Drive Mode] (→ [Selecting the Drive Mode: 206](#))

\*1  default setting



\*2  default setting

## Temporarily Change Dial Operation

### 1 Set [Dial Operation Switch] to the Fn button.


(→ [Fn Buttons: 504](#))

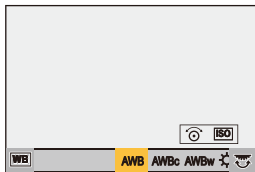
### 2 Switch dial operation.

- Press the Fn button set in Step 1.
- A guide will display the functions registered to  and .
- If no operations are performed, then several seconds later, the guide disappears.



### 3 Set the registered function.

- Rotate  or  while the guide is displayed.



### 4 Confirm your selection.

- Press the shutter button halfway.

# Quick Menu Customization

- [Register to the Quick Menu: 524](#)

You can change the items to display on the Quick menu and their order to suit your preferences.


For information about Quick menu operation methods (→ [Quick Menu: 78](#))

## Register to the Quick Menu



Change the menus to be displayed in the Quick menu.

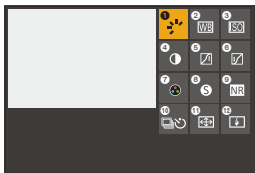
These can be set separately for [📷] mode and for [📷]/[S&Q] mode.

### 1 Select [Q.MENU Settings].







-  → [⚙️] → [🌅] → [Q.MENU Settings] → [Item Customize (Photo Mode)]/[Item Customize (Video/S&Q Mode)]

### 2 Select the item position (1 to 12).

- Press ▲▼◀▶ to select the position and then press .
- Selection is also possible by rotating .






### 3 Find the function to register.

- Rotate  to select the sub tab where the function to register is categorized (→ [Menu Items That Can Be Registered: 526](#)) and then press .
- You can also select by pressing  to select the sub tab, pressing  or rotating , and then pressing .
- Switch the [1] to [3] tabs by pressing [Q].



### 4 Register menu items.

- Press  to select an item and then press .
- Selection is also possible by rotating .
- Select items with [>] by selecting the item again.

## ❖ Menu Items That Can Be Registered

### [1] tab

#### [Image Quality]

- [Exposure Comp.] (→ [Exposure Compensation: 287](#))
- [Sensitivity] (→ [ISO Sensitivity: 295](#))
- [White Balance] (→ [White Balance \(WB\): 302](#))
- [Photo Style] (→ [Photo Style: 310](#))
- [Metering Mode] (→ [Metering Mode: 268](#))
- [Aspect Ratio] (→ [Aspect Ratio: 104](#))
- [Rec. File Format(Photo)] (→ [Rec. File Format\(Photo\): 108](#))
- [Switch JPEG/HEIF] (→ [Switch JPEG/HEIF: 111](#))
- [JPEG/HEIF Picture Quality] (→ [JPEG/HEIF Picture Quality: 113](#))
- [HEIF Format] (→ [HLG Recording \(HEIF Format\): 344](#))
- [Picture Size] (→ [Picture Size: 106](#))
- [Long Exposure NR] (→ [Long Exposure NR: 258](#))
- [Min. Shutter Speed] (→ [Min. Shutter Speed: 261](#))
- [Soft Skin Effect] (→ [Soft Skin Effect: 331](#))
- [i.Dynamic Range] (→ [i.Dynamic Range: 290](#))
- [Filter Effect] (→ [Filter Settings: 325](#))
- [Exposure Control(Photo Mode)] (→ [Exposure Control\(Photo Mode\): 544](#))
- [Exposure Control(Video Mode)] (→ [Exposure Control\(Video Mode\): 544](#))
- [Synchro Scan(Photo)] (→ [Synchro Scan\(Photo\): 259](#))
- [Synchro Scan(Video)] (→ [Synchro Scan\(Video\): 449](#))

### **[Focus/Shutter]**

- [AFS/AFC(Photo)] (→ [Selecting the Focus Mode: 145](#))
- [AFS/AFC(Video)] (→ [Selecting the Focus Mode: 145](#))
- [AF Mode] (→ [Selecting the AF Mode: 161](#))
- [AF Detection Setting] (→ [Automatic Detection: 164](#))
- [Detecting Subject] (→ [Automatic Detection: 164](#))
- [AF Custom Setting(Photo)] (→ [\[AF Custom Setting\(Photo\)\]: 154](#))
- [AF Custom Setting(Video)] (→ [\[AF Custom Setting\(Video\)\]: 369](#))
- [Focus Frame Color Setting] (→ [\[Focus Frame Color Setting\]: 160](#))
- [Focus Peaking] (→ [\[Focus Peaking\]: 196](#))
- [Focus Peaking Sensitivity] (→ [\[Focus Peaking\]: 196](#))
- [Focus Frame Moving Speed] (→ [\[Focus Frame Moving Speed\]: 160](#))

### **[Flash]**

- [Flash Mode] (→ [\[Flash Mode\]: 351](#))
- [Flash Adjust.] (→ [\[Flash Adjust.\]: 356](#))
- [Wireless Flash Setup] (→ [Recording Using a Wireless Flash: 360](#))

### **[Others (Photo)]**

- [Drive Mode] (→ [Selecting the Drive Mode: 206](#))
- [Drive Mode Setting] (→ [Selecting the Drive Mode: 206](#))
- [Bracketing] (→ [Bracket Recording: 238](#))
- [Silent Mode] (→ [\[Silent Mode\]: 253](#))
- [Image Stabilizer] (→ [\[Operation Mode\]: 265](#))
- [Shutter Type] (→ [\[Shutter Type\]: 255](#))
- [Crop Zoom(Photo)] (→ [\[Crop Zoom\(Photo\)\]: 200](#))

### **[Image Format]**

- [Rec. File Format(Video)] (→ [\[Rec. File Format\(Video\)\]: 127](#))
- [Rec Quality] (→ [\[Rec Quality\]: 128](#))
- [Rec Quality (My List)] (→ [\[add to list\]: 140](#))
- [Slow & Quick Setting] (→ [Slow & Quick Video: 413](#))

## [2] tab

### [Audio]

- [Audio Information] (→[Audio Information]: 386)
- [Sound Rec Level Disp.] (→[Sound Rec Level Disp.]: 378)
- [Sound Rec Level Adj.] (→[Sound Rec Level Adj.]: 381)
- [Sound Rec Quality] (→[Sound Rec Quality]: 382)
- [Sound Rec Level Limiter] (→[Sound Rec Level Limiter]: 384)
- [4ch Audio Recording] (→[4ch Audio Recording]: 395, [4ch Audio Recording]: 400)
- [Hot Shoe Audio Input] (→XLR Microphone Adaptor (Optional): 392, Digital Shotgun Microphone (Optional): 397)

### [Others (Video)]

- [Image Stabilizer] (→[Operation Mode]: 265)
- [E-Stabilization (Video)] (→[E-Stabilization (Video)]: 266)
- [Image Area of Video] (→[Image Area of Video]: 142)
- [Crop Zoom(Video)] (→[Crop Zoom(Video)]: 202)
- [Focus Transition] (→[Focus Transition]: 431)
- [Live Cropping] (→[Live Cropping]: 436)
- [Live Cropping Settings] (→[Live Cropping]: 436)

### [Operation]

- [Zoom Settings] (→[Zoom Settings]: 554)

## [Monitor / Display]

- [Constant Preview] (→[Constant Preview]: 558)
- [Level Gauge] (→[Level Gauge]: 566)
- [Histogram] (→[Histogram]: 559)
- [Luminance Spot Meter] (→[Luminance Spot Meter]: 406)
- [Frame Marker] (→[Frame Marker]: 409)
- [Photo Grid Line] (→[Photo Grid Line]: 560)
- [Live View Boost] (→[Live View Boost]: 560)
- [Monochrome Live View] (→[Monochrome Live View]: 568)
- [Night Mode] (→[Night Mode]: 561)
- [LVF/Monitor Disp. Set] (→[LVF/Monitor Disp. Set]: 562)
- [Zebra Pattern] (→[Zebra Pattern]: 407)
- [LUT View Assist (Monitor)] (→[LUT View Assist (Monitor)]: 444)
- [LUT View Assist (App)] (→[LUT View Assist (App)]: 444)
- [HLG View Assist (Monitor)] (→[HLG View Assist]: 448)
- [Sheer Overlay] (→[Sheer Overlay]: 565)
- [Waveform Monitor] (→[Waveform Monitor]: 404)

## [Lens / Others]

- [Control Ring Focus Control(MF)] (→[Control Ring Focus Control(MF)]: 571)

## [IN/OUT]

- [Wi-Fi] (→[Wi-Fi/Bluetooth Connections and Settings: 645])

## [Others]

- [No Setting]
  - Set when not using.

## ❖ Quick Menu Detailed Settings

Change the appearance of the Quick menu.

 ⇒ [  ] ⇒ [  ] ⇒ Select [Q.MENU Settings]

---

### [Layout Style]


Changes the appearance of the Quick menu.

**[MODE1]:** Displays the live view and the menu simultaneously.

**[MODE2]:** Displays the menu in full screen.


---

### [Item Customize (Photo Mode)]

Customizes the Quick menu displayed in [  ] mode.

---

### [Item Customize (Video/S&Q Mode)]

Customizes the Quick menu displayed in [  ]/[S&Q] mode.

---

## Custom Mode

---

- [Register in Custom Mode: 532](#)
- [Using Custom Mode: 535](#)
- [Calling Up Settings: 537](#)



Recording modes and menu settings that match your preferences can be registered in Custom mode. You can use registered settings by switching the mode dial to [C1] to [C5] modes.

## Register in Custom Mode

You can register the currently set information of the camera.


The settings can be registered for each of the [📷], [📹], and [S&Q] modes.

At the time of purchase, the default settings of the [P] mode menus are registered with all Custom modes.


### 1 Set to recording mode and menu settings of the state you wish to save.

- Switch the photo/video/S&Q switch. (→ [Photo/Video/S&Q Switch: 61](#))
- Set the mode dial. (→ [Selecting the Recording Mode: 62](#))
- Set the menu.

### 2 Select [Save to Custom Mode].

-  → [🔧] → [⚙️] → [Save to Custom Mode(Photo)]/[Save to Custom Mode(Video)]/[Save to Custom Mode(S&Q)]

### 3 Register.

- Select the save-to number and then press .
- A confirmation screen will be displayed. Press [DISP.] to change the Custom mode name.  
How to enter characters (→ [Entering Characters: 88](#))

## ❖ Registering Instant Customization

When you press the Fn button registered with [Save to Custom Mode] in the recording standby screen, you can quickly register the current recording settings in the Custom mode. (→ [Fn Buttons: 504](#))



- Even with menu items linked across the [Photo] menu and [Video] menu, menu items registered in the Custom mode are registered for each of the [📷], [📹], and [S&Q] modes, so they remain unlinked.  
For example: If the [Silent Mode] is registered as [ON] in the [📹] mode in [C1], then when [C1] is selected in the [📷] or [S&Q] mode, the setting for [Silent Mode] will remain as [OFF].
- You cannot register [iA] mode in Custom mode.



- List of settings that can be registered in Custom mode (→ [List of Default Settings/Custom Saving/Settings Available for Copying: 720](#))

## ❖ Custom Mode Detailed Settings

You can create additional Custom mode sets, and how long to retain temporarily changed settings details.

 → [  ] → [  ] → Select [Custom Mode Settings]

---

### [Limit No. of Custom Mode]

Sets the number of Custom modes that can be registered in [C5].

A maximum of 10 sets can be registered; 3 sets are available as default settings.

---

### [Edit Title]

Changes the Custom mode name.

**[PHOTO]/[VIDEO]/[S&Q]**: The name can be different for each mode.

A maximum of 22 characters can be entered. A two-byte character is treated as two characters.

- How to enter characters (→ [Entering Characters: 88](#))
- 

### [How to Reload Custom Mode]

Sets the timing at which to return the settings that were changed temporarily while the Custom mode was being used to their registered settings.

### [Change Recording Mode]/[Return from Sleep Mode]/[Turn the Power ON]

---

### [Select Loading Details]

Sets the types of settings to call up with [Load Custom Mode(Photo)]/[Load Custom Mode(Video)]/[Load Custom Mode(S&Q)].

**[F / SS / ISO Sensitivity]**: Enables calling up of aperture value, shutter speed, and ISO sensitivity settings.

**[White Balance]**: Enables calling up of white balance settings.

---

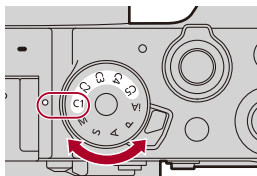
## Using Custom Mode

### 1 Set to [📷], [📹], or [S&Q] mode.



(→ [Photo/Video/S&Q Switch: 61](#))

### 2 Set the recording mode to [C1] to [C5].

- Set the mode dial. (→ [Selecting the Recording Mode: 62](#))
- If [C5], the last-used Custom mode will be called up.



## ❖ [C5] Custom Mode Selection

- 1 Set the recording mode to [C5].
- 2 Press  .
  - The Custom mode selection menu appears.
- 3 Press ▲▼ to select the Custom mode and then press  .
  - The selected Custom mode icon will be displayed on the recording screen.





## ❖ Changing Registered Details

Registered settings do not change even if you change the camera settings temporarily with the mode dial set to [C1] to [C5].

To change the registered details, overwrite them by using [Save to Custom Mode(Photo)]/[Save to Custom Mode(Video)]/[Save to Custom Mode(S&Q)] in the [Setup] ([Setting]) menu.

## Calling Up Settings

Call up registered Custom mode settings to the selected recording mode and overwrite the current settings with these.

- 1 Set to [📷], [📹], or [S&Q] mode.**  
(→ [Photo/Video/S&Q Switch: 61](#))
- 2 Set to the recording mode to be used.**
  - Set the mode dial. (→ [Selecting the Recording Mode: 62](#))
- 3 Select [Load Custom Mode].**
  -  ⇒ [🔧] ⇒ [⚙️] ⇒ [Load Custom Mode(Photo)]/[Load Custom Mode(Video)]/[Load Custom Mode(S&Q)]
- 4 Select the Custom mode to call up.**
  - Select the Custom mode and then press .

## [Custom] Menu

---

- [Custom] menu ([Image Quality]): 539
- [Custom] menu ([Focus/Shutter]): 545
- [Custom] menu ([Operation]): 553
- [Custom] menu ([Monitor / Display (Photo)]): 558
- [Custom] menu ([Monitor / Display (Video)]): 568
- [Custom] menu ([Lens / Others]): 571

## [Custom] menu ([Image Quality])

▶: Default settings

### [Photo Style Settings]

[Show/Hide Photo Style]	[Vivid] / [Natural] / [L.Classic] / [L.ClassicNeo] / [L.ClassicGold] / [Flat] / [Landscape] / [Portrait] / [L.Monochrome] / [L.Monochrome D] / [L.Monochrome S] / [LEICA Monochrome] / [Cinelike A2] / [Cinelike D2] / [Cinelike V2] / [Like709] / [V-Log] / [REAL TIME LUT] / [Hybrid Log Gamma] / [MY PHOTO STYLE 1] to [MY PHOTO STYLE 10]
Sets Photo Style items to be displayed on the menu.	
[My Photo Style Settings]	[Add Effects]
	[Load Preset Setting]
Enables detailed image quality adjustment settings for My Photo Style.	
<p><b>[Add Effects]:</b> Enables [Sensitivity] and [White Balance] settings in image quality adjustment.</p> <p><b>[Load Preset Setting]:</b> Sets the timing at which image quality adjustment values changed in My Photo Style are returned to their registered state.</p>	
[Reset Photo Style]	
Returns details changed in [Photo Style] and [Photo Style Settings] to their default settings.	

## [LUT Library]

[Vlog\_709] / [Sample LUT1] / [Sample LUT2] / [Sample LUT3] / [Set4] to [Set39]

Registers LUT files to the camera.

(→ [\[LUT Library\]: 335](#))

## [ISO Increments]

▶[1/3 EV] / [1 EV]

Changes the intervals between ISO sensitivity adjustment values.

## [Extended ISO]

[ON] / ▶[OFF]

Extends the setting range of ISO sensitivity.

**[Exposure Offset Adjust.]**

[Multi Metering]	[-1EV] to [+1EV] (▶[±0EV])
[Center Weighted]	[-1EV] to [+1EV] (▶[±0EV])
[Spot]	[-1EV] to [+1EV] (▶[±0EV])
[Highlight Weighted]	[-1EV] to [+1EV] (▶[±0EV])


Adjusts the exposure level that is the standard exposure for each setting item of [Metering Mode].

Adds the adjustment value from this function to the exposure compensation value (→ [Exposure Compensation: 287](#)) when recording.

- For video recording, it is not possible to add an adjustment value of a range that exceeds ±3 EV.

**[Face Priority In Multi Metering]**

▶[ON] / [OFF]

When [Metering Mode] is set to [] (Multi-metering), the metering range for automatic exposure is prioritized on the eyes and face.

When set to [OFF], the change to exposure caused by the [Eye/Face] automatic detection function can be avoided.

**[AWB Lock Setting]**

[Operation Syncs With Shutter]	[WHILE PRESSING] / [DURING BURST SHOOTING] / ▶[OFF]
[Lock Hold With Fn Button]	▶[ON] / [OFF]

Fixes the white balance while you are pressing the shutter button or the Fn button when white balance is auto ([AWB]/[AWBc]/[AWBw]).

This prevents the white balance from changing unintentionally while pressing the shutter button halfway, during burst recording, or while recording videos.

**[Operation Syncs With Shutter]**

**[WHILE PRESSING]:** Fixes white balance while pressing the shutter button (including while pressing halfway or during burst recording).

**[DURING BURST SHOOTING]:** Fixes white balance during burst recording.

**[OFF]:** White balance is not fixed.

**[Lock Hold With Fn Button]**

**[ON]:** When you press the Fn button registered with [AWB Lock], the white balance is fixed. Press again to cancel the lock.

**[OFF]:** While you are pressing the Fn button registered with [AWB Lock], the white balance is fixed.

- [AWBL] is displayed on the screen while white balance is locked.
- [Operation Syncs With Shutter] does not work in [p]/[S&Q] mode.

## [Color Space]

▶[sRGB] / [AdobeRGB]

This sets the method for correcting the color reproduction of the recorded images on the screens of a PC or on a device such as a printer.

**[sRGB]:** This is widely used in PCs and similar devices.

**[AdobeRGB]:** AdobeRGB is mainly used for business purposes such as professional printing because it has a greater range of reproducible colors than sRGB.

- Set to [sRGB] if you are not very familiar with AdobeRGB.
- When the following functions are being used, the setting is fixed to [sRGB]:
  - [SDR] ([HEIF Format])
  - Video recording
  - [Like709]/[V-Log]/[REAL TIME LUT] (base Photo Style is [V-Log]) ([Photo Style])
  - [Filter Settings]
- When [HEIF Format] is set to [HDR(HLG)], [Color Space] is not available.

## [Exposure Comp. Reset]

[ON] / ▶[OFF]

This resets the exposure value when you change the recording mode or turn off the camera.

**[Auto Exposure in Photo Mode]**

▶[ON] / [OFF]

In the [Ⓞ] mode, select the setting method for aperture value, shutter speed, and ISO sensitivity when recording video with the mode dial set to [P]/[A]/[S]/[M].

**[ON]:** Records with values set automatically by the camera.

**[OFF]:** Records with manually set values.

**[Exposure Control in P/A/S/M]**

[Exposure Control(Photo Mode)]	▶[MODE DIAL] / [P] / [A] / [S] / [M]
[Exposure Control(Video Mode)]	▶[MODE DIAL] / [P] / [A] / [S] / [M]

You can fix the exposure setting for picture or video/S&Q to a desired exposure mode when the mode dial is set to [P]/[A]/[S]/[M].

**[MODE DIAL]:** Switch the [P]/[A]/[S]/[M] mode to match the mode dial.

**[P]/[A]/[S]/[M]:** Recording is done in the set mode irrespective of the mode dial.

**[Photo/Video Separate Setting]**

[F/SS/ISO/Exposure Comp.]	▶[SEPARATE] / [SAME]
[White Balance]	▶[SEPARATE] / [SAME]
[Photo Style]	▶[SEPARATE] / [SAME]
[Metering Mode]	▶[SEPARATE] / [SAME]
[AF Mode]	▶[SEPARATE] / [SAME]

The settings set in the [Ⓞ] mode and the settings set in the [Ⓜ]/[S&Q] mode can be kept separate.

(→ [\[Photo/Video Separate Setting\]: 368](#))

## [Custom] menu ([Focus/Shutter])

▶: Default settings

### [Focus/Shutter Priority]

[AFS]	▶[FOCUS] / [BALANCE] / [RELEASE]
[AFC]	[FOCUS] / ▶[BALANCE] / [RELEASE]

This sets whether to give priority to focus or shutter release during AF.

**[FOCUS]:** Disables recording when focus is not achieved.

**[BALANCE]:** Performs recording while controlling the balance between focusing and shutter release timing.

**[RELEASE]:** Enables recording even when focus is not achieved.

### [Focus Switching for Vert / Hor]

[ON] / ▶[OFF]
---------------

This stores separate AF area positions (MF positions for MF Assist) for when the camera is held vertically and when it is held horizontally.

(→ [\[Focus Switching for Vert / Hor\]: 188](#))

### [AF/AE Lock Hold]

[ON] / ▶[OFF]
---------------

This sets button operations for AF/AE Lock.

Turning this [ON] maintains the lock after releasing the button until it is pressed again.

**[AF+MF]**

[ON] / ▶[OFF]

When the focus mode is set to [AFS]/[AFC], you can fine-adjust the focus manually during AF Lock.

- When the shutter button is pressed halfway
- When [AF ON] is pressed
- When locked using the Fn button [AF LOCK] or [AF/AE LOCK]

During video recording, the MF mode is engaged when you rotate the control ring, and the AF mode is engaged when you stop rotating the control ring.

**[MF Assist]**

[Control Ring]

▶[ON] / [OFF]

[AF Mode]

▶[ON] / [OFF]

[MF Assist Display]


[FULL] / ▶[PIP]

[Max. Magnification in "FULL"]

[6x] / ▶[20x]

This sets the display method of MF Assist (enlarged screen).

**[Control Ring]:** The screen is enlarged by focusing with the control ring.

**[AF Mode]:** The screen is enlarged by pressing [] (◀).

**[MF Assist Display]:** Sets the display method (full screen mode/windowed mode) of MF Assist (enlarged screen).

**[Max. Magnification in "FULL"]:** Sets the maximum magnification for the enlarged display ([FULL]). When set to [6x], the area that can be enlarged is broader.

**[MF Guide]**


▶[ON] / [OFF]

During MF, MF Guide, which acts as a guide to recording distance, is displayed on the screen.

**[Control Ring Lock]**

[ON] / ▶[OFF]

This disables the control ring operation.













- [MFL] or [] is displayed on the recording screen while the control ring is locked.

**[Focus Range Display]**[  ] / [  ] / [OFF]

\* Default setting specifications vary depending on the country or area where the camera was purchased.

The recordable range (the range of focus) is displayed during zoom operations. You can select from meters or feet for the display unit.

**[Show/Hide AF Mode]**

[Tracking]	▶[  ] / [  ]
[Full Area AF]	▶[  ] / [  ]
[Zone(Horizontal/Vertical)]	▶[  ] / [  ]
[Zone]	▶[  ] / [  ]
[1-Area+]	▶[  ] / [  ]
[Pinpoint]	▶[  ] / [  ]
Sets the AF mode items to be displayed on the AF mode selection screen.	

**[Pinpoint AF Setting]**

[Pinpoint AF Time]	[LONG] / ▶[MID] / [SHORT]
[Pinpoint AF Display]	[FULL] / ▶[PIP]

Changes enlarged screen settings displayed when AF mode is [ + ].

**[Pinpoint AF Time]:** Sets the time for which the screen is enlarged when the shutter button is pressed halfway.

**[Pinpoint AF Display]:** Sets the display method (full screen mode/windowed mode) of the enlarged screen.

**[Direct Focus Area]**

[ON] / ▶[OFF]
---------------

This moves the AF area or MF Assist using the cursor buttons when recording.

- You can move the positions below with the cursor buttons.
  - When [.....]/[⦿]/[⦿]/[■] is selected: AF area
  - When [■] is selected: Subject to be focused (When automatic detection is [ON] and multiple subjects have been detected, you can switch the subject to be focused.)
  - When [⦿] is selected: lock-on position
  - When [ + ] is selected: enlarged area
- Use the Quick Menu (→ [Quick Menu: 78](#)) or Fn buttons (→ [Fn Buttons: 504](#)) to set the functions assigned to the cursor buttons, such as White Balance and ISO sensitivity.
- [Direct Focus Area] is fixed to [OFF] in the following case:
  - When using [Filter Settings]

**[AF-Point Scope Setting]**

[Keep Enlarged Display]	[ON] / ▶[OFF]
[PIP Display]	[FULL] / ▶[PIP]

Changes the enlarged screen settings of AF-Point Scope (→[\[AF-Point Scope\]: 152](#)).

**[Keep Enlarged Display]:** Setting this to [ON] maintains the enlarged screen after pressing the Fn button until it is pressed again.

**[PIP Display]:** Sets the display method (full screen mode<sup>\*1</sup>/windowed mode<sup>\*2</sup>) of the enlarged screen.

\*1 You can enlarge by approx. 3× to 10×.

\*2 You can enlarge by approx. 3× to 6×.

- When [Crop Zoom(Photo)] is [ON], the AF-Point Scope magnification rate is between about 3× to 6×.

**[AF Detect. Multi. Frame Disp.]**

▶[ON] / [OFF]
---------------

Sets how automatic detection frames are displayed during AF.

**[ON]:** Frames are displayed on all detected subjects.

**[OFF]:** Frames displayed only on main subjects.

- If you want the frame displayed on another subject, use touch operations to change the subject.



## [Assign REC to Shutter Button]

▶[ON] / [OFF]

Use the shutter button for the start/stop operation of video recording in the [S&Q]/[S&Q] mode.

The start/stop operation of video recording using the shutter button can be disabled when set to [OFF].

## [Quick AF]

[ON] / ▶[OFF]

When the amount of camera shake becomes small, the camera will automatically adjust the focus and focus adjustment will then be quicker when the shutter button is pressed.

- The battery will drain faster than usual.
- This function is not available in the following cases:
  - In preview mode
  - In low light situations

## [Eye Sensor AF]

[ON] / ▶[OFF]

When looking through the viewfinder, if the eye sensor operates, then AF will function.

- [Eye Sensor AF] may not work in low light situations.

**[Looped Focus Frame]**

[ON] / ▶[OFF]

When moving the AF area, MF Assist, or video enlarged display of live view, this enables looping from one edge to the opposite edge of the screen.

**[Enlarged Live Display(Video)]**

[Keep Enlarged Display]

▶[ON] / [OFF]

[PIP Display]

[FULL] / ▶[PIP]

Sets the operation of the function for enlarging the video live view (→ [\[Enlarged Live Display\(Video\)\]: 370](#)).

**[Keep Enlarged Display]**

**[ON]:** Enlarges display after releasing the Fn button until the button is pressed again.

**[OFF]:** Enlarges display just while the Fn button is being pressed.

**[PIP Display]**

Sets the way the enlarged screen is displayed (full screen mode/windowed mode).


## [Custom] menu ([Operation])

▶: Default settings












### [Q.MENU Settings]

[Layout Style]	▶[MODE1] / [MODE2]
[Item Customize (Photo Mode)]	
[Item Customize (Video/S&Q Mode)]	
Customizes the Quick menu. (→ <a href="#">Quick Menu Customization: 524</a> )	



### [Touch Settings]

[Touch Screen]	▶[ON] / [OFF]
[Touch Tab]	[ON] / ▶[OFF]
[Touch AF]	▶[AF] / [AF+AE]
[Touch Pad AF]	▶[EXACT] / [OFFSET1] to [OFFSET7] / [OFF]
Enables touch operation on the monitor display.	
<p><b>[Touch Screen]:</b> All touch operations.</p> <p><b>[Touch Tab]:</b> Operations of tabs, such as [] on the right side of the screen.</p> <p><b>[Touch AF]:</b> Operation to optimize the focus ([AF]) for a touched subject. Alternatively, operation to optimize both the focus and brightness ([AF+AE]). (→ <a href="#">Focus on and Adjust Brightness for the Touched Position ([AF+AE]): 185</a>)</p> <p><b>[Touch Pad AF]:</b> Touch pad operation during viewfinder display. (→ <a href="#">Moving the AF Area Position with the Touch Pad: 186</a>)</p>	

**[Operation Lock Setup]**

[Cursor]	▶[  ] / [  ]
[Touch Screen]	▶[  ] / [  ]
[Dial]	▶[  ] / [  ]
[DISP. Button]	▶[  ] / [  ]
<p>This sets the control functions to be disabled with the Fn button [Operation Lock]. (Only for recording screen)</p> <p><b>[Cursor]:</b> Cursor buttons, [MENU/SET] button, and </p> <p><b>[Touch Screen]:</b> Touch screen</p> <p><b>[Dial]:</b>  and </p> <p><b>[DISP. Button]:</b> [DISP.] button</p>	

**[Zoom Settings]**

[Zoom Operation]	▶[Zoom] / [Step Zoom]	
[Zoom Speed(Photo)]	▶[H] / [L]	
[Zoom Speed(Video)]	[During Recording Standby]	▶[H] / [L]
	[During Recording]	▶[H] / [L]
<p>Sets the zoom operation and speed.</p> <p><b>[Zoom Operation]</b></p> <p><b>[Zoom]:</b> Performs normal zooming.</p> <p><b>[Step Zoom]:</b> You can set the zoom operation to allow easy visualization of the angle of view (picture angle) for the focal length of a regular fixed focal length lens (as with a 35 mm film camera). When using the [Step Zoom], you can operate the zoom ratio as easily as changing the camera lens.</p> <ul style="list-style-type: none"> <li>• [Zoom Speed(Photo)] sets the zoom speed for [] mode.</li> <li>• [Zoom Speed(Video)] sets the zoom speed for []/[S&amp;Q] mode.</li> <li>• [H] makes the zoom speed faster. [L] makes the zoom speed slower.</li> </ul>		

**[Fn Button Set]**

[Setting in Photo Mode]
[Setting in Video/S&Q Mode]
[Setting in Playback Mode]
Registers a function to the Fn button. (→ <a href="#">Register Functions to the Fn Buttons: 507</a> )

**[Fn Switch Setting]**

[Select Function to Assign]	[Step Zoom] / [Photo Style] / [REAL TIME LUT] / ▶[Aspect Ratio] / [Detecting Subject]
[Setting Value for 1]	
[Setting Value for 2]	
[Setting Value for 3]	
Sets the functions to be assigned to the Fn switch. (→ <a href="#">Fn Switch: 518</a> )	

**[ISO Displayed Setting]**



















[Rear Dial]	▶[ISO] / [ISO LIMIT] / [ISO AUTO] / [OFF]
<p>This sets the operations of the dials in the setting screen for ISO sensitivity.</p> <p>Assigning [ISO LIMIT] lets you change [ISO Auto Upper Limit Setting].</p> <p>ISO auto switches between [ON] and [OFF] each time you operate the dial allocated to [ISO AUTO].</p> <p>(ISO sensitivity reverts to the previous setting when [OFF] is set.)</p>	

**[Exposure Comp. Disp. Setting]**

[Cursor Buttons (Up/Down)]	/ ▶[OFF]
This sets the operations of the ▲▼ buttons in the exposure compensation screen. Assigning  lets you set exposure bracketing.	
[Rear Dial]	▶ /  / [OFF]
This sets the operations of the dials in the exposure compensation screen. Assigning  lets you adjust flash output.	

**[Dial Set.]**

[Assign Dial (F/SS)]	▶[SET1] / [SET2] / [SET3] / [SET4] / [SET5]				
Sets the operations to be assigned to the dials in [P]/[A]/[S]/[M] modes.					
P/↗: Program Shift, F: Aperture value, SS: Shutter speed					
		[P]	[A]	[S]	[M]
[SET1]		P/↗	F	SS	F
		P/↗	F	SS	SS
[SET2]		—	F	—	F
		P/↗	—	SS	SS
[SET3]		—	—	SS	SS
		P/↗	F	—	F
[SET4]		—	—	—	F
		P/↗	F	SS	SS
[SET5]		P/↗	F	SS	F
		—	—	—	SS

[Rotation (F/SS)]	▶[   ]/[   ]
Changes the rotational directions of the dials for aperture value and shutter speed adjustment.	
[Exposure Comp.]	[  ]/[  ]/▶[OFF]
Assigns exposure compensation to  or  . (Except in [M] mode)	
• The [Assign Dial (F/SS)] setting takes priority.	
[Dial Operation Switch Setup]	[  ]
	[  ]
In the Fn button [Dial Operation Switch], this sets the functions to be registered temporarily to  or  . (→ <a href="#">Register Functions to the Dials: 521</a> )	
[Rotation (Menu Operation)]	▶[   ]/[   ]/ [   ]
Changes the rotational direction of the zoom lever and dials when operating menus.	

## [Custom] menu ([Monitor / Display (Photo)])

▶: Default settings

### [Auto Review]

[Duration Time (photo)]	[HOLD] / [5SEC] to [0.5SEC] / ▶[OFF]
[Playback Operation Priority]	[ON] / ▶[OFF]
<p>This displays an image immediately after it is recorded.</p> <p><b>[Duration Time (photo)]:</b> Sets the Auto Review when taking pictures.</p> <p><b>[Playback Operation Priority]:</b> When this is set to [ON], you can toggle the playback screen during Auto Review, or delete pictures.</p> <ul style="list-style-type: none"> <li>• If you set [Duration Time (photo)] to [HOLD], the image recorded stays displayed until the shutter button is pressed halfway. [Playback Operation Priority] will be fixed to [ON].</li> </ul>	

### [Constant Preview]

▶[ON] / [OFF]	
[SET]	[Effect]
	[Preview While MF Assist]
	[Preview During AF Operation]
<p>You can always confirm the effects of aperture on the recording screen when in [A]/[M] mode.</p> <p>You can also confirm the shutter speed at the same time when in [M] mode.</p> <ul style="list-style-type: none"> <li>• You can set the combination of the aperture effect and the shutter speed effect in [Effect].</li> <li>• Preview also operates in the MF Assist screen when [Preview While MF Assist] is set to [ON].</li> <li>• Preview also works while AF is working when [Preview During AF Operation] is set to [ON].</li> </ul>	

**[Histogram]**

[ON] / ▶[OFF]

This displays the histogram.

Turning this [ON] displays the histogram transition screen.

Press ▲▼◀▶ to set the position.

- You can also move the position by dragging the histogram on the recording screen.
- A histogram is a graph that displays brightness along the horizontal axis, and the number of pixels at each brightness level on the vertical axis.

By looking at the distribution of the graph, you can determine the current exposure.



(A) ← → (B)

(A) Dark

(B) Bright



- When the recorded image and the histogram do not match each other under the following conditions, the histogram is displayed in orange:
  - During exposure compensation
  - When the flash fires
  - When the standard exposure is not achieved, such as in low light situations.
- When the following functions are being used, the [Histogram] is not available:
  - [Waveform Monitor]
- The histogram is an approximation in the recording mode.

**[Photo Grid Line]**

[  ] / [  ] / [  ] / ▶[OFF]
---

Sets the grid line pattern to be displayed on the recording screen.

When using [], you can press ▲▼◀▶ to set the position.

- When using [], you can also drag [] on the grid lines on the recording screen to move the position.

**[Live View Boost]**

[MODE1] / [MODE2] / ▶[OFF]	
[SET]	[P/A/S/M] / ▶[M]


Displays the screen brighter to make it easier to check subjects and compositions even in low-light environment.

**[MODE1]:** Setting for low brightness, with priority given to a soft display.





**[MODE2]:** Setting for high brightness, with priority given to image visibility.

- You can change the recording mode in which [Live View Boost] works by using [SET].
- This mode does not affect recorded images.
- Noise may be more noticeable in the screen than in the recorded image.
- This function does not work in the following cases:
  - When adjusting the exposure (when the shutter button is pressed halfway, for example)
  - When recording a video
  - When using [Filter Settings]
  - When displaying the shutter speed effect of [Constant Preview]


**[Night Mode]**

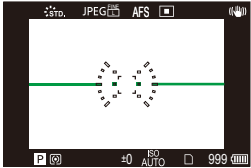
[Monitor]	[ON] / ►[OFF]
[LVF]	[ON] / ►[OFF]
<p>Displays the monitor and viewfinder in red.          In dark environments, this reduces brightness of the screen that can make the surroundings difficult to see.          You can also set the luminance of the red display.</p> <ol style="list-style-type: none"> <li>1 Press ▲▼◀▶ to select [ON] on the monitor or viewfinder (LVF).</li> <li>2 Press [DISP.] to display the brightness adjustment screen.             <ul style="list-style-type: none"> <li>• Display the monitor to adjust the monitor, and display the viewfinder to adjust the viewfinder.</li> </ul> </li> <li>3 Press ◀▶ to adjust luminance and then press  .</li> </ol>	


**[LVF/Monitor Disp. Set]**

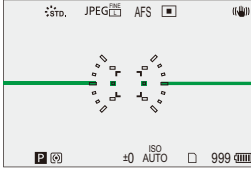
[LVF Disp. Set]	 / 
[Monitor Disp. Set]	 / 

Selects whether to show the live view without covering the information display, or to display over the entire screen.

: Scales down images slightly so you can better review the composition of the images.



: Scales images to fill the entire screen so you can see their details.



- You can assign the function that switches the currently displayed monitor or viewfinder display style to an Fn button. (→ [\[LVF/Monitor Disp. Set\]: 513](#))


[Horizontal Image Flip(Monitor)]	▶[AUTO] / [ON] / [OFF]
[Vertical Image Flip(Monitor)]	▶[AUTO] / [ON] / [OFF]
<p>You can set whether the screen flips or not depending on the facing or angle of the monitor during recording.</p> <p><b>[Horizontal Image Flip(Monitor)]</b> <b>[AUTO]:</b> The screen automatically flips horizontally according to the angle to which the monitor is opened or closed. <b>[ON]:</b> The screen is flipped horizontally all the time. <b>[OFF]:</b> Screen is not flipped.</p> <p><b>[Vertical Image Flip(Monitor)]</b> <b>[AUTO]:</b> The screen automatically flips vertically according to the angle to which the monitor is rotated. <b>[ON]:</b> The screen is flipped vertically all the time. <b>[OFF]:</b> Screen is not flipped.</p> <ul style="list-style-type: none"><li>• The settings for this function are not reflected in the playback screen.</li></ul>	

**[Expo.Meter]**

[ON] / ▶[OFF]

This displays the exposure meter.

SS	125	60	30	15	8
F	2.8	4.0	5.6	8.0	11

 30 F5.6

- Set to [ON] to display the exposure meter when performing Program Shift, setting aperture, and setting shutter speed.
- If no operations are performed for a certain period of time, the exposure meter disappears.

**[Focal Length]**

▶[ON] / [OFF]

Displays the focal length on the recording screen during zoom control.

**[Blinking Highlights]**



[ON] / ▶[OFF]

Overexposed areas appear blinking in black and white during Auto Review or playback.



- The display without the highlights is added to the display shown when [DISP.] is pressed in the playback screen.  
Use this to delete the highlight display. (→ [Playback Screen: 75](#))

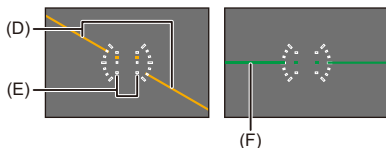
**[Sheer Overlay]**

[ON] / ▶[OFF]	
[SET]	[Transparency]
	[Image Select]
	[Reset at Power Off]
	[Disp. Image (shutter-press)]
<p>A picture that has been recorded or an image extracted from a video is overlaid on the recording screen.</p> <ol style="list-style-type: none"> <li>Use [Image Select] and select a picture or video to display. <ul style="list-style-type: none"> <li>Press ◀▶ to select a picture or video and then press  to confirm.</li> </ul> </li> <li>(When a video is selected) Pause playback at the position you wish to extract a picture. <ul style="list-style-type: none"> <li>Press ▲ to pause playback.</li> <li>To fine-adjust the position, press ◀▶ (rewind frame-by-frame or forward frame-by-frame).</li> </ul> </li> <li>(When a video is selected) Set a picture. <ul style="list-style-type: none"> <li>Press .</li> </ul> </li> </ol> <ul style="list-style-type: none"> <li>If you set [Disp. Image (shutter-press)] to [OFF], [Sheer Overlay] is canceled while the shutter button is being pressed halfway or pressed fully.</li> <li>The picture extracted from video is saved.</li> <li>When the following functions are being used, [Sheer Overlay] is not available: <ul style="list-style-type: none"> <li>– Video recording</li> <li>– [Stop Motion Animation]</li> <li>– [Auto Transfer(Wi-Fi)]</li> </ul> </li> </ul>	

**[Level Gauge]**

▶[ON] / [OFF]

Displays the level gauge which is useful in correcting camera tilt.



(D) Horizontal

(E) Vertical

(F) Green (no tilt)

- Even after correcting the tilt, there may still be an error of approx.  $\pm 1^\circ$ .
- When the camera is tilted significantly upwards or downwards, the level gauge may not be displayed correctly.
- You can adjust the level gauge and reset the adjusted values in [Level Gauge Adjust.] in the [Setup] ([Monitor / Display]) menu. (→[Level Gauge Adjust.]: 581)

**[Luminance Spot Meter]**

[ON] / ▶[OFF]

Specify any spot on the subject to measure the luminance over a small area.

(→ [\[Luminance Spot Meter\]: 406](#))**[Framing Outline]**

[ON] / ▶[OFF]

Displays the outline for the live view.

**[Show/Hide Monitor Layout]**

[Control Panel]

▶[ON] / [OFF]

[Black Screen]

▶[ON] / [OFF]

Displays the control panel and black screen when switching between displays using [DISP.] button. (→ [Recording Screen: 73](#))**[Live View Vertical Display]**

▶[ON] / [OFF]

When the camera is turned to the vertical, the screen also switches to a vertical display.

(→ [\[Live View Vertical Display\]: 76](#))

## [Custom] menu ([Monitor / Display (Video)])

▶: Default settings

### [Log View Assist]

[LUT Select(V-Log)]	
[LUT View Assist (Monitor)]	[ON] / ▶[OFF]
[LUT View Assist (App)]	[ON] / ▶[OFF]
You can show images with LUT file applied on the monitor/viewfinder or smartphone. (→[Log View Assist]: 444)	

### [HLG View Assist]

[Monitor]	[MODE1] / ▶[MODE2] / [OFF]
At recording or playback of HLG video, this displays images with converted color gamut and brightness on the camera monitor/viewfinder. (→[HLG View Assist]: 448)	

### [Monochrome Live View]

[ON] / ▶[OFF]
You can display the recording screen in black and white. <ul style="list-style-type: none"> <li>• [Monochrome Live View] is not available when [Night Mode] is used.</li> </ul>

**[Center Marker]**

[+ ] / [ - ' - ] / [ + ] / [ - ' - ] / ▶[OFF]

The center of the recording screen will be displayed as [+].

The shape of the marker can be changed.

**[Safety Zone Marker]**

[□] / [ [ ] ] / ▶[OFF]

[SET]

[Size]

[95%]

▶[90%]

[80%]

This displays the safety zone, which shows a guide to the area that would be shown on a household TV, on the recording screen.

**[Frame Marker]**

[ON] / ▶[OFF]

[SET]

[Frame 1]

[Frame 2]

[Frame 3]

[Frame Mask]

[Live View Frame Adjustment]

A frame with the set aspect ratio is displayed on the recording screen.

(→[Frame Marker]: 409)

**[Zebra Pattern]**

[ZEBRA1] / [ZEBRA2] / [ZEBRA1+2] / ▶[OFF]

[SET]

[Zebra 1]

[Zebra 2]

Parts that are brighter than the base value are displayed with stripes.

(→ [\[Zebra Pattern\]: 407](#))

**[Waveform Monitor]**

[ON] / ▶[OFF]

This displays the waveform monitor on the recording screen.

(→ [\[Waveform Monitor\]: 404](#))

**[Red REC Frame Indicator]**

[ON] / ▶[OFF]

A red frame is displayed on the recording screen that indicates that video is being recorded.

## [Custom] menu ([Lens / Others])

▶: Default settings

### [Lens Focus Resume]

[ON] / ▶[OFF]

The camera saves the focus position when you turn it off.

### [Lens Retraction]

▶[ON] / [OFF]

This retracts the lens barrel a little while after you switch to the playback screen.

### [Control Ring Setting During AF]

▶[Zoom] / [Step Zoom] / [Exposure Comp.] / [Sensitivity] / [White Balance] / [Color Temperature] / [AF Mode] / [Photo Style] / [LUT Select] / [No Setting]

Sets the function assigned to the control ring when the camera is in AF mode.

### [Control Ring Focus Control(MF)]

▶[NON-LINEAR] / [LINEAR] / [SET]

Sets the amount of focus movement by the control ring when the camera is in MF mode.

**[NON-LINEAR]:** Focus responds by accelerating according to rotation speed of the control ring.

**[LINEAR]:** Focus responds at a constant amount according to the rotational angle of the control ring.

**[SET]:** Sets the rotational angle of the control ring for when [LINEAR] is selected.

## [Vertical Position Info (Video)]

▶[ON] / [OFF]

You can set whether or not to record the camera's vertical orientation information during video recording.

**[ON]:** Records vertical orientation information. Videos recorded with the camera held vertically will be automatically played back vertically on the PC, smartphone, etc. during playback.

**[OFF]:** Does not record vertical orientation information.

- On the playback screen of the camera, only the thumbnail display is played in vertical orientation.

## [Setup] Menu

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- [Setup] menu ([Card/File]): 574
- [Setup] menu ([Monitor / Display]): 578
- [Setup] menu ([IN/OUT]): 582
- [Setup] menu ([Setting]): 586
- [Setup] menu ([Others]): 589

## [Setup] menu ([Card/File])

▶: Default settings

### [Card Format]

Formats the card (initialization).

Format the cards with the camera before use.

- **When a card is formatted, all of the data stored in the card is erased and cannot be restored.**

**Save a backup of necessary data before formatting the card.**

- Do not turn off the camera or perform another operation during formatting.
- Take care not to turn off the camera while formatting is in progress.
- If the card has been formatted with a PC or other device, format it again with the camera.
- You can format the card while keeping the camera settings information stored on the card. (→[[Save/Restore Camera Setting](#)]: 587)

**[Folder / File Settings]**

[Select Folder] / [Create a New Folder] / [File Name Setting]

Set the folder and file name where to save the images.

**Folder name**

100ABCDE



- (1) Folder number (3 numeric characters, 100 to 999)  
 (2) 5-character user-defined segment

**File name**

PABC0001.JPG



- (3) Color space ([P]: sRGB, [\_]: AdobeRGB)  
 (4) 3-character user-defined segment  
 (5) File number (4 numeric characters, 0001 to 9999)  
 (6) Extension

**[Select Folder]:** Selects a folder for storing images.**[Create a New Folder]:** Creates a new folder with an incremented folder number.

- If there are no recordable folders in the card, a screen for resetting the folder number is displayed.

**[OK]:**

Increments the folder number without changing the 5-character user-defined segment ((2) above).

**[Change]:**

Changes the 5-character user-defined segment ((2) above). This will also increment the folder number.

**[File Name Setting]**

**[Folder Number Link]:**

Uses the 3-character user-defined segment ((4) above) to set the folder number ((1) above).

**[User Setting]:**

Changes the 3-character user-defined segment ((4) above).

- Follow the steps on “[Entering Characters](#)” when the character entry screen is displayed. (→ [Entering Characters: 88](#))

Available characters: alphabetic characters (upper-case), numerals, [ \_ ]

- Each folder can store up to 1000 files.
- File numbers are assigned sequentially from 0001 to 9999 in the order of recording.

If you change the storage folder, a number continuing on from the last file number will be assigned.

- In the following cases, a new folder with an incremented folder number will be created automatically when the next file is saved:
  - The number of files in the current folder reaches 1000.
  - The file number reaches 9999.
- New folders cannot be created when there are folders numbered from 100 all the way up to 999.

We recommend backing up your data and formatting the card.

**[File Number Reset]**

Refresh the folder number within the DCIM folder and reset the file number to 0001.

- When the folder number reaches 999, the file number cannot be reset.  
We recommend backing up your data and formatting the card.
- **To reset the folder number to 100:**
  - 1 Perform [Card Format] to format the card. (→ [\[Card Format\]: 574](#))
  - 2 Perform [File Number Reset] to reset the file number.
  - 3 Select [Yes] on the folder number reset screen.

**[Copyright Information]**

[Artist]	[ON] / ▶[OFF] / [SET]
[Copyright Holder]	[ON] / ▶[OFF] / [SET]
[Display Copyright Info.]	
<p>Records the names of the artist and the copyright holder in the image Exif data.</p> <ul style="list-style-type: none"> <li>• You can register names from [SET] in [Artist] and [Copyright Holder]. How to enter characters (→ <a href="#">Entering Characters: 88</a>)</li> <li>• Up to 63 characters may be entered.</li> <li>• You can confirm registered copyright information in [Display Copyright Info.].</li> </ul>	

## [Setup] menu ([Monitor / Display])

▶: Default settings

### [Power Save Mode]

[Sleep Mode]	[10MIN.] / [5MIN.] / [2MIN.] / ▶[1MIN.] / [OFF]
[Auto LVF/Monitor Off]	[5MIN.] / [2MIN.] / ▶[1MIN.] / [OFF]
[Power Save LVF Shooting]	[Time to Sleep]
	[Method of Activation]
<p>This is a function to automatically turn the camera to sleep (power save) status or turn off the viewfinder/monitor if no operation is performed for a set time.          (→[Power Save Mode]: 46)</p>	

### [Thermal Management]

[Recording Max Temperature]	[HIGH] / ▶[STANDARD]
<p>This sets the temperature during video recording at which the camera automatically stops recording.          When set to [HIGH], recording continues even if the camera temperature rises.</p> <p><b>[Recording Max Temperature]</b>  <b>[HIGH]:</b> Sets the temperature at which recording is stopped due to the camera temperature rising to a higher temperature.</p> <ul style="list-style-type: none"> <li>It is possible to record for a longer time, but the camera gets hot.              Use a tripod, etc., because recording with a handheld camera for long periods can cause low temperature burns.</li> </ul> <p><b>[STANDARD]:</b> Recording stops when the camera temperature rises.</p> <ul style="list-style-type: none"> <li>Set to [STANDARD] when recording with a handheld camera.</li> </ul>	

## [Menu Color]

[NORMAL] / ▶[GOLD]

(Supported by -N model only)

Sets the color of the menu screen.

## [Monitor Frame Rate]

▶[30fps] / [60fps]

Sets the display speed for live view on the monitor.

**[30fps]**: Reduces the power consumption for a longer operating time.

**[60fps]**: Enables smooth display of movements.


- The frame rate switches to 30 fps when the camera temperature rises.

## [Monitor Settings]/[Viewfinder]

[Brightness] / [Contrast] / [Saturation] / [Red Tint] / [Blue Tint]

This adjusts the brightness, coloring, and red or blue tints of the monitor/viewfinder.

1 Press ▲▼ to select the setting item, and press ◀▶ to adjust.

2 Press  to confirm the setting.

- It will adjust the monitor when the monitor is in use, and the viewfinder when the viewfinder is in use.

**[Monitor Backlight]/[LVF Luminance]**

▶[AUTO] / [-3] to [+3]

Adjusts monitor/viewfinder luminance.

**[AUTO]:** The brightness is adjusted automatically depending on how bright it is around the camera.

- Adjusts the monitor luminance when displaying the monitor, and the viewfinder luminance when displaying the viewfinder.
- When either [AUTO] is set, or the adjusted value is set to positive side, the usage period will shorten.
- When [Night Mode] is being used, [Monitor Backlight]/[LVF Luminance] are not available.
- When the camera temperature rises, the camera may automatically lower the brightness of the monitor. The brightness is restored when the camera temperature cools down.

**[Eye Sensor]**

[Sensitivity]

▶[HIGH] / [LOW]

This will set the sensitivity of the eye sensor.

[LVF/Monitor Switch]


▶[LVF/MON AUTO] (automatic viewfinder/monitor switching) / [LVF] (viewfinder) / [MON] (monitor)

This will set the method for switching between the viewfinder and monitor.

- If you press [LVF] to switch the display, the [LVF/Monitor Switch] setting will also switch.

## [Level Gauge Adjust.]

[Adjust.]

Hold the camera in a horizontal position, and press . The level gauge will be adjusted.

[Level Gauge Value Reset]

Restores the default level gauge setting.

**[Setup] menu ([IN/OUT])**

▶: Default settings

**[Beep]**

[Beep Volume]	[] (High) / ▶[] (Low) / [] (Off)
[AF Beep Volume]	[] (High) / ▶[] (Low) / [] (Off)
[AF Beep Tone]	▶[] (Pattern 1) / [] (Pattern 2) / [] (Pattern 3)
[Shutter Vol.]	[] (High) / ▶[] (Low) / [] (Off)
[Shutter Tone]	▶[] (Pattern 1) / [] (Pattern 2) / [] (Pattern 3)
Sets the beep sounds, AF beep, and shutter sounds.	

**[Sound Monitoring Channel(Play)]**

▶[CH1+CH2] / [CH3+CH4] / [CH1+CH2+CH3+CH4] / [CH1] / [CH2] / [CH3] / [CH4]

During video playback, this selects the audio channel output to the speaker on the camera.

- You cannot change settings during video playback.
- The L channel and R channel are mixed for audio output from the camera's speaker.

**[Wi-Fi®]**

[Wi-Fi Frequency Bands]
[Device Name/Password]
[Wi-Fi Function Lock]
[Network Address]
Makes settings for Wi-Fi. (→ <a href="#">[Wi-Fi] Menu: 648</a> )

**[Bluetooth®]**

[Bluetooth Function] (→ <a href="#">Connecting to a Bluetooth device: 651</a> )	
[Pairing]	[Add Smartphone]
	[Gimbal]
	[Delete]

**[LUMIX Lab]**

[Send Image (Smartphone)] (→ <a href="#">Using the menu to transfer easily: 626</a> )
[Auto Transfer(Wi-Fi)] (→ <a href="#">[Auto Transfer(Wi-Fi)]: 630</a> )
[Location Logging] (→ <a href="#">[Location Logging]: 633</a> )

**[USB]**

[USB Mode]	▶ [🔌] [Select on connection] / [📁] [PC(Storage)] / [📷] [PC(Webcam)] / [📱] [LUMIX Lab]
<p>This sets the communication method to be used when the USB connection cable is connected.</p> <p><b>[🔌] [Select on connection]:</b> Select this setting to select the USB communication system when connecting to another device. (→ <a href="#">USB port: 655</a>)</p> <p><b>[📁] [PC(Storage)]:</b> Select this setting to export images to a connected PC. (→ <a href="#">Importing Images to a PC: 637</a>)</p> <p><b>[📷] [PC(Webcam)]:</b> Select this setting to use the camera as a web camera for a PC. (→ <a href="#">Using as a Web Camera for a PC: 642</a>)</p> <p><b>[📱] [LUMIX Lab]:</b> Select this setting to control the camera from a smartphone installed with “LUMIX Lab”. (→ <a href="#">Connecting to “LUMIX Lab” (USB Connection): 615</a>)</p>	
[USB Power Supply]	▶ [ON] / [OFF]
<p>Provides power from the USB connection cable.</p> <ul style="list-style-type: none"> <li>• Even if this item is set to [OFF], power will be supplied when the AC adaptor is connected.</li> </ul>	
[Webcam Image Quality]	<p>[4K/15p] / [4K/12.5p] / [FHD/60p] / [FHD/50p] / [FHD/30p]<sup>*1</sup> / [FHD/25p]<sup>*2</sup> / [HD/30p] / [HD/25p]</p> <p>*1 Initial setting when [System Frequency] is [59.94Hz (NTSC)]</p> <p>*2 Initial setting when [System Frequency] is [50.00Hz (PAL)]</p>
<p>Sets the image quality when using the camera as a web camera.</p> <ul style="list-style-type: none"> <li>• The items you can select depend on the [System Frequency] setting.</li> </ul>	

## **[Network Connection Light]**

▶[ON] / [OFF]

This will turn on the network connection light.

**[Setup] menu ([Setting])****[Save to Custom Mode(Photo)]/[Save to Custom Mode(Video)]/[Save to Custom Mode(S&Q)]**

[C1] / [C2] / [C3] / [C4] / [C5-1] to [C5-10]

You can register the currently set information of the camera.

(→ [Register in Custom Mode: 532](#))**[Load Custom Mode(Photo)]/[Load Custom Mode(Video)]/[Load Custom Mode(S&Q)]**

[C1] / [C2] / [C3] / [C4] / [C5-1] to [C5-10]

Calls up registered Custom mode settings to the selected recording mode and overwrites the current settings with these.

(→ [Calling Up Settings: 537](#))**[Custom Mode Settings]**

[Limit No. of Custom Mode]

[Edit Title]

[How to Reload Custom Mode]

[Select Loading Details]

Sets the ease of use of Custom mode.

(→ [Custom Mode Detailed Settings: 534](#))

## [Save/Restore Camera Setting]

[Save] / [Load] / [Delete] / [Keep Settings While Format]

Saves the camera's settings information to the card.

Saved settings information can be loaded to the camera, letting you set the same settings on multiple cameras.

**[Save]:** Saves the camera's settings information to the card.

- If saving new data, then select [New File], and if overwriting an existing file, select that existing file.
- When [New File] is selected, a screen to select the file name to save as is displayed.

**[OK]:**

Saves using the file name on the screen.

**[Change the file name]:**

Changes the file name and saves the file.

- Available characters: alphabetic characters (upper-case), numerals, up to 8 characters
- How to enter characters (→ [Entering Characters: 88](#))

**[Load]:** Loads the settings information on the card and copies it to the camera.

**[Delete]:** Deletes settings information on the card.

**[Keep Settings While Format]:** When formatting the card, formats the card while keeping camera settings information stored on the card.

- Only settings information from the same model can be loaded.
- Up to 10 instances of settings information can be saved on one card.
- List of functions for which saving of settings information is possible (→ [List of Default Settings/Custom Saving/Settings Available for Copying: 720](#))

## **[Reset]**

Returns the camera to its default settings.

(→ [\[Reset\]: 87](#))

## [Setup] menu ([Others])


### [Clock Set]

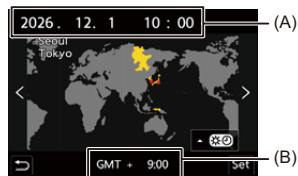
Sets the date and time.

(→ [Setting the Clock \(When Turning On for the First Time\): 54](#))

### [Time Zone]

Sets the time zone.

Press ◀▶ to select the time zone and then press  to confirm.



(A) Current time

(B) Time difference from GMT (Greenwich Mean Time)

- If you are using Daylight Savings [, press ▲. (The time will move forward by 1 hour.)

To return to the normal time, press ▲ again.

**[System Frequency]**

[59.94Hz (NTSC)] / [50.00Hz (PAL)] / [24.00Hz (CINEMA)]

\* Default setting specifications vary depending on the country or area where the camera was purchased.

This changes the system frequency of videos that are recorded and played back with the camera.

(→[System Frequency]: 125)

**[Pixel Refresh]**

[Now]

[Auto]

▶[ON] / [OFF]

This optimizes the image sensor and image processing.


**[Now]:** Starts a Pixel Refresh immediately. Turn the camera off and on after it is finished.

**[Auto]:** Starts a Pixel Refresh automatically when the power is turned off after a certain time has elapsed.

- The image sensor and image processing are optimized when the camera is purchased. Use this function when bright spots that do not exist in the subject get recorded.
- It is not possible to execute a Pixel Refresh with [Auto] when [Silent Mode] is [ON].

**[Language]**

This set the language displayed on the screen.

- If you set a different language by mistake, select [] from the menu icons to set the desired language.


## [Firmware Version]

[Firmware Update] / [Software info]

You can check the firmware version.

In addition, you can update the firmware, and display information about the camera software.

**[Firmware Update]:** Updates firmware.

- 1 Download the firmware. (→ [Firmware of Your Camera: 18](#))
- 2 Save the firmware to the root directory of the card (the first folder that appears when you access the card on your PC), and then insert the card into the camera.
- 3 Select [Firmware Update], press , and then select [Yes] to update the firmware.

**[Software info]:** Displays information about the camera software.

- When a supported optional item (XLR Microphone Adaptor, Digital Shotgun Microphone, etc.) is attached to the camera, you can also check its firmware version.

## [Approved Regulations]

Displays the authentication information, etc.

- \* Depending on the country or area where the camera was purchased, this is not displayed due to differences in specifications.



# My Menu

---

- [Registration in My Menu: 592](#)
- [Edit My Menu: 593](#)

Register frequently-used menus in My Menu.

A maximum of 23 items can be registered.

Registered menus can be called up from [  ] to [  ].

## Registration in My Menu

### 1 Select [Add].



-  → [  ] → [  ] → [Add]

### 2 Register.

- Select the menu to register and then press  .

## ❖ Calling up My Menu

Call up the menus registered in My Menu.

 → [  ] → [  ]/[  ]/[  ] → Registered menus

## Edit My Menu

You can reorder the display order of My Menu, and delete unnecessary menus.



---

### [Add]

Selects and registers the menus to be displayed in My Menu.

---

### [Sorting]

Changes the order of My Menu.

Select the menu to change, then set the destination.

---

### [Delete]

Deletes menus that are registered to My Menu.

**[Delete Item]:** Selects the menu, then deletes.

**[Delete All]:** Deletes all menus registered in My Menu.

---

### [Display from My Menu]

Displays My Menu first when displaying a menu.

**[ON]:** Displays My Menu.

**[OFF]:** Displays the last-used menu.

---

# List of Menu

Camera customization and many function settings are performed with menus on this camera.

This chapter introduces all of the menu items in a list format.




- For information about menu operation methods (→ [Menu Operation Methods: 82](#))
- Refer to the “[Materials](#)” chapter for the following lists:
  - [List of Default Settings/Custom Saving/Settings Available for Copying: 720](#)
  - [List of Functions That Can Be Set in Each Recording Mode: 743](#)

- [\[Photo\] menu: 595](#)
- [\[Video\] menu: 598](#)
- [\[Custom\] menu: 601](#)
- [\[Setup\] menu: 605](#)
- [\[My Menu\]: 607](#)
- [\[Playback\] menu: 608](#)

## [Photo] menu

The [Photo] menu is displayed when in the [] mode.








- Switch the photo/video/S&Q switch to [].

: Menu items common to the [Photo] menu and [Video] menu. Their settings are synchronized.

### [Image Quality]

- [Photo Style] (→ [Photo Style]: 310) 
- [Metering Mode] (→ [Metering Mode]: 268) 
- [Aspect Ratio] (→ [Aspect Ratio]: 104)
- [Rec. File Format(Photo)] (→ [Rec. File Format(Photo)]: 108)
- [Switch JPEG/HEIF] (→ [Switch JPEG/HEIF]: 111)
- [JPEG/HEIF Picture Quality] (→ [JPEG/HEIF Picture Quality]: 113)
- [HEIF Format] (→ HLG Recording (HEIF Format): 344)
- [Picture Size] (→ [Picture Size]: 106)
- [Long Exposure NR] (→ [Long Exposure NR]: 258)
- [ISO Sensitivity (photo)] (→ [ISO Sensitivity (photo)]: 300)
- [Synchro Scan(Photo)] (→ [Synchro Scan(Photo)]: 259)
- [Min. Shutter Speed] (→ [Min. Shutter Speed]: 261)
- [Soft Skin Effect] (→ [Soft Skin Effect]: 331)
- [i.Dynamic Range] (→ [i.Dynamic Range]: 290) 
- [Diffraction Compensation] (→ [Diffraction Compensation]: 346) 
- [Filter Settings] (→ [Filter Settings]: 325) 
- [Flicker Decrease (Video)] (→ [Flicker Decrease (Video)]: 403)

## **[Focus]**

- [AFS/AFC(Photo)] (→ [Selecting the Focus Mode: 145](#))
- [AF Detection Setting] (→ [Automatic Detection: 164](#)) 
- [Detecting Subject] (→ [Automatic Detection: 164](#)) 
- [AF Custom Setting(Photo)] (→ [\[AF Custom Setting\(Photo\)\]: 154](#))
- [Focus Limiter] (→ [\[Focus Limiter\]: 157](#)) 
- [AF Assist Light] (→ [\[AF Assist Light\]: 159](#)) 
- [Focus Frame Color Setting] (→ [\[Focus Frame Color Setting\]: 160](#)) 
- [Focus Peaking] (→ [\[Focus Peaking\]: 196](#)) 
- [Focus Frame Moving Speed] (→ [\[Focus Frame Moving Speed\]: 160](#))  



## **[Flash]**

- [Flash Mode] (→ [\[Flash Mode\]: 351](#))
- [Firing Mode] (→ [\[Firing Mode\]/\[Manual Flash Adjust.\]: 354](#))
- [Flash Adjust.] (→ [\[Flash Adjust.\]: 356](#))
- [Flash Synchro] (→ [\[Flash Synchro\]: 357](#))
- [Manual Flash Adjust.] (→ [\[Firing Mode\]/\[Manual Flash Adjust.\]: 354](#))
- [Auto Exposure Comp.] (→ [\[Auto Exposure Comp.\]: 359](#))
- [Wireless] (→ [Recording Using a Wireless Flash: 360](#))
- [Wireless Channel] (→ [Recording Using a Wireless Flash: 360](#))
- [Communication Light] (→ [\[Communication Light\]: 365](#))
- [Wireless Setup] (→ [Setting Items \(\[Wireless Setup\]\): 364](#))


## [Others (Photo)]

- [Bracketing] (→ [Bracket Recording: 238](#))
- [Focus Stacking] (→ [\[Focus Stacking\]: 246](#))
- [Silent Mode] (→ [\[Silent Mode\]: 253](#)) 
- [Crop Zoom(Photo)] (→ [\[Crop Zoom\(Photo\)\]: 200](#))
- [Image Stabilizer] (→ [Image Stabilizer: 263](#)) 
- [Burst Shot Setting] (→ [Taking Burst Pictures: 208](#))
- [Shutter Type] (→ [\[Shutter Type\]: 255](#))
- [Shutter Delay] (→ [\[Shutter Delay\]: 262](#))
- [Time Lapse/Animation] (→ [Recording with Time Lapse Shot: 219](#),  
[Recording with Stop Motion Animation: 227](#))
- [Live View Composite] (→ [\[Live View Composite\]: 249](#))
- [Self Timer] (→ [Recording Using the Self-timer: 233](#)) 
- [Multiple Exposure] (→ [\[Multiple Exposure\]: 291](#))

## [Video] menu

The [Video] menu is displayed when in the []/[S&Q] mode.

- Switch the photo/video/S&Q switch to [] or [S&Q].

: Menu items common to the [Photo] menu and [Video] menu. Their settings are synchronized.








### [Image Quality]

- [Photo Style] (→ [\[Photo Style\]: 310](#)) 
- [Metering Mode] (→ [\[Metering Mode\]: 268](#)) 
- [ISO Sensitivity (video)] (→ [\[ISO Sensitivity \(video\)\]: 376](#))
- [Synchro Scan(Video)] (→ [\[Synchro Scan\(Video\)\]: 449](#))
- [i.Dynamic Range] (→ [\[i.Dynamic Range\]: 290](#)) 
- [Diffraction Compensation] (→ [\[Diffraction Compensation\]: 346](#)) 
- [Filter Settings] (→ [\[Filter Settings\]: 325](#)) 

### [Image Format]

- [Rec. File Format(Video)] (→ [\[Rec. File Format\(Video\)\]: 127](#))
- [Image Area of Video] (→ [\[Image Area of Video\]: 142](#))
- [Rec Quality] (→ [\[Rec Quality\]: 128](#))
- [Rec Quality (My List)] (→ [\[add to list\]: 140](#))
- [Slow & Quick Setting] (→ [\[Slow & Quick Video\]: 413](#))
- [Luminance Level] (→ [\[Luminance Level\]: 372](#))


## **[Focus]**

- [AFS/AFC(Video)] (→ [Selecting the Focus Mode: 145](#))
- [AF Detection Setting] (→ [Automatic Detection: 164](#)) 
- [Detecting Subject] (→ [Automatic Detection: 164](#)) 
- [AF Custom Setting(Video)] (→ [\[AF Custom Setting\(Video\)\]: 369](#))
- [Focus Limiter] (→ [\[Focus Limiter\]: 157](#)) 
- [AF Assist Light] (→ [\[AF Assist Light\]: 159](#)) 
- [Focus Frame Color Setting] (→ [\[Focus Frame Color Setting\]: 160](#)) 
- [Focus Peaking] (→ [\[Focus Peaking\]: 196](#)) 
- [Focus Frame Moving Speed] (→ [\[Focus Frame Moving Speed\]: 160](#))  


## **[Audio]**

- [Sound Rec Level Disp.] (→ [\[Sound Rec Level Disp.\]: 378](#))
- [Mute Sound Input] (→ [\[Mute Sound Input\]: 379](#))
- [Sound Rec Gain Level] (→ [\[Sound Rec Gain Level\]: 380](#))
- [Sound Rec Level Adj.] (→ [\[Sound Rec Level Adj.\]: 381](#))
- [Sound Rec Quality] (→ [\[Sound Rec Quality\]: 382](#))
- [Sound Rec Level Limiter] (→ [\[Sound Rec Level Limiter\]: 384](#))
- [Wind Noise Canceller] (→ [\[Wind Noise Canceller\]: 385](#))
- [Wind Cut] (→ [Reduction of Wind Noise: 391](#))
- [Lens Noise Cut] (→ [\[Lens Noise Cut\]: 386](#))
- [Mic Socket] (→ [External Microphones \(Optional\): 387](#))
- [4ch Audio Recording] (→ [\[4ch Audio Recording\]: 395](#), [\[4ch Audio Recording\]: 400](#))
- [Hot Shoe Audio Input] (→ [XLR Microphone Adaptor \(Optional\): 392](#), [Digital Shotgun Microphone \(Optional\): 397](#))
- [MS2 Mic] (→ [Setting the Sound Pickup Range \(DMW-MS2: Optional\): 390](#))

## [Others (Video)]

- [Silent Mode] (→[\[Silent Mode\]: 253](#)) 
- [Crop Zoom(Video)] (→[\[Crop Zoom\(Video\)\]: 202](#))
- [Image Stabilizer] (→[Image Stabilizer: 263](#)) 
- [Self Timer Setting] (→[Recording Using the Self-timer: 233](#)) 
- [Focus Transition] (→[\[Focus Transition\]: 431](#))
- [Live Cropping] (→[\[Live Cropping\]: 436](#))

## [Custom] menu

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-  [Image Quality] (→ [Custom] menu ([Image Quality]): 539)
- [Photo Style Settings] (→ [Photo Style Settings]: 539)
- [LUT Library] (→ [LUT Library]: 335)
- [ISO Increments] (→ [ISO Increments]: 540)
- [Extended ISO] (→ [Extended ISO]: 540)
- [Exposure Offset Adjust.] (→ [Exposure Offset Adjust.]: 541)
- [Face Priority In Multi Metering] (→ [Face Priority In Multi Metering]: 541)
- [AWB Lock Setting] (→ [AWB Lock Setting]: 542)
- [Color Space] (→ [Color Space]: 543)
- [Exposure Comp. Reset] (→ [Exposure Comp. Reset]: 543)
- [Auto Exposure in Photo Mode] (→ [Auto Exposure in Photo Mode]: 544)
- [Exposure Control in P/A/S/M] (→ [Exposure Control in P/A/S/M]: 544)
- [Photo/Video Separate Setting] (→ [Photo/Video Separate Setting]: 544)

 **[Focus/Shutter] (→[Custom] menu ([Focus/Shutter]): 545)**


- [Focus/Shutter Priority] (→[Focus/Shutter Priority]: 545)
- [Focus Switching for Vert / Hor] (→[Focus Switching for Vert / Hor]: 545)
- [AF/AE Lock Hold] (→[AF/AE Lock Hold]: 545)
- [AF+MF] (→[AF+MF]: 546)
- [MF Assist] (→[MF Assist]: 546)
- [MF Guide] (→[MF Guide]: 547)
- [Control Ring Lock] (→[Control Ring Lock]: 547)
- [Focus Range Display] (→[Focus Range Display]: 547)
- [Show/Hide AF Mode] (→[Show/Hide AF Mode]: 547)
- [Pinpoint AF Setting] (→[Pinpoint AF Setting]: 548)
- [Direct Focus Area] (→[Direct Focus Area]: 548)
- [AF-Point Scope Setting] (→[AF-Point Scope Setting]: 549)
- [AF Detect. Multi. Frame Disp.] (→[AF Detect. Multi. Frame Disp.]: 549)
- [Human Eye Detection Display] (→[Human Eye Detection Display]: 550)
- [Shutter AF] (→[Shutter AF]: 550)
- [Half-Press Shutter] (→[Half-Press Shutter]: 550)
- [Assign REC to Shutter Button] (→[Assign REC to Shutter Button]: 551)
- [Quick AF] (→[Quick AF]: 551)
- [Eye Sensor AF] (→[Eye Sensor AF]: 551)
- [Looped Focus Frame] (→[Looped Focus Frame]: 552)
- [Enlarged Live Display(Video)] (→[Enlarged Live Display(Video)]: 552)

 **[Operation] (→[Custom] menu ([Operation]): 553)**

- [Q.MENU Settings] (→[Q.MENU Settings]: 553)
- [Touch Settings] (→[Touch Settings]: 553)
- [Operation Lock Setup] (→[Operation Lock Setup]: 554)
- [Zoom Settings] (→[Zoom Settings]: 554)
- [Fn Button Set] (→[Fn Button Set]: 555)
- [Fn Switch Setting] (→[Fn Switch Setting]: 555)
- [ISO Displayed Setting] (→[ISO Displayed Setting]: 555)
- [Exposure Comp. Disp. Setting] (→[Exposure Comp. Disp. Setting]: 556)
- [Dial Set.] (→[Dial Set.]: 556)

 **[Monitor / Display (Photo)] (→[Custom] menu ([Monitor / Display (Photo)]): 558)**

- [Auto Review] (→[Auto Review]: 558)
- [Constant Preview] (→[Constant Preview]: 558)
- [Histogram] (→[Histogram]: 559)
- [Photo Grid Line] (→[Photo Grid Line]: 560)
- [Live View Boost] (→[Live View Boost]: 560)
- [Night Mode] (→[Night Mode]: 561)
- [LVF/Monitor Disp. Set] (→[LVF/Monitor Disp. Set]: 562)
- [Expo.Meter] (→[Expo.Meter]: 564)
- [Focal Length] (→[Focal Length]: 564)
- [Blinking Highlights] (→[Blinking Highlights]: 564)
- [Sheer Overlay] (→[Sheer Overlay]: 565)
- [Level Gauge] (→[Level Gauge]: 566)
- [Luminance Spot Meter] (→[Luminance Spot Meter]: 567)
- [Framing Outline] (→[Framing Outline]: 567)
- [Show/Hide Monitor Layout] (→[Show/Hide Monitor Layout]: 567)
- [Live View Vertical Display] (→[Live View Vertical Display]: 567)

 **[Monitor / Display (Video)] (→[Custom] menu ([Monitor / Display (Video)]): 568)**

- [Log View Assist] (→[Log View Assist]: 568)
- [HLG View Assist] (→[HLG View Assist]: 568)
- [Monochrome Live View] (→[Monochrome Live View]: 568)
- [Center Marker] (→[Center Marker]: 569)
- [Safety Zone Marker] (→[Safety Zone Marker]: 569)
- [Frame Marker] (→[Frame Marker]: 569)
- [Zebra Pattern] (→[Zebra Pattern]: 570)
- [Waveform Monitor] (→[Waveform Monitor]: 570)
- [Red REC Frame Indicator] (→[Red REC Frame Indicator]: 570)

 **[Lens / Others] (→[Custom] menu ([Lens / Others]): 571)**

- [Lens Focus Resume] (→[Lens Focus Resume]: 571)
- [Lens Retraction] (→[Lens Retraction]: 571)
- [Control Ring Setting During AF] (→[Control Ring Setting During AF]: 571)
- [Control Ring Focus Control(MF)] (→[Control Ring Focus Control(MF)]: 571)
- [Vertical Position Info (Video)] (→[Vertical Position Info (Video)]: 572)

## [Setup] menu

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### [Card/File] (→ [Setup] menu ([Card/File]): 574)

- [Card Format] (→ [Card Format]: 574)
- [Folder / File Settings] (→ [Folder / File Settings]: 575)
- [File Number Reset] (→ [File Number Reset]: 577)
- [Copyright Information] (→ [Copyright Information]: 577)

### [Monitor / Display] (→ [Setup] menu ([Monitor / Display]): 578)

- [Power Save Mode] (→ [Power Save Mode]: 578)
- [Thermal Management] (→ [Thermal Management]: 578)
- [Menu Color] (→ [Menu Color]: 579)
- [Monitor Frame Rate] (→ [Monitor Frame Rate]: 579)
- [Monitor Settings]/[Viewfinder] (→ [Monitor Settings]/[Viewfinder]: 579)
- [Monitor Backlight]/[LVF Luminance] (→ [Monitor Backlight]/[LVF Luminance]: 580)
- [Eye Sensor] (→ [Eye Sensor]: 580)
- [Level Gauge Adjust.] (→ [Level Gauge Adjust.]: 581)

### [IN/OUT] (→ [Setup] menu ([IN/OUT]): 582)

- [Beep] (→ [Beep]: 582)
- [Sound Monitoring Channel(Play)] (→ [Sound Monitoring Channel(Play)]: 582)
- [Wi-Fi®] (→ [Wi-Fi®]: 583)
- [Bluetooth®] (→ [Bluetooth®]: 583)
- [LUMIX Lab] (→ [LUMIX Lab]: 583)
- [USB] (→ [USB]: 584)
- [Network Connection Light] (→ [Network Connection Light]: 585)

 **[Setting] (→[Setup] menu ([Setting]): 586)**

- [Save to Custom Mode(Photo)]/[Save to Custom Mode(Video)]/[Save to Custom Mode(S&Q)] (→[Save to Custom Mode(Photo)]/[Save to Custom Mode(Video)]/[Save to Custom Mode(S&Q)]: 586)
- [Load Custom Mode(Photo)]/[Load Custom Mode(Video)]/[Load Custom Mode(S&Q)] (→[Load Custom Mode(Photo)]/[Load Custom Mode(Video)]/[Load Custom Mode(S&Q)]: 586)
- [Custom Mode Settings] (→[Custom Mode Settings]: 586)
- [Save/Restore Camera Setting] (→[Save/Restore Camera Setting]: 587)
- [Reset] (→[Reset]: 588)

 **[Others] (→[Setup] menu ([Others]): 589)**

- [Clock Set] (→[Clock Set]: 589)
- [Time Zone] (→[Time Zone]: 589)
- [System Frequency] (→[System Frequency]: 590)
- [Pixel Refresh] (→[Pixel Refresh]: 590)
- [Language] (→[Language]: 590)
- [Firmware Version] (→[Firmware Version]: 591)
- [Approved Regulations] (→[Approved Regulations]: 591)\*

\* Depending on the country or area where the camera was purchased, this is not displayed due to differences in specifications.


## [My Menu]

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<sub>1</sub> [Page 1] (→ [My Menu: 592](#))

<sub>2</sub> [Page 2] (→ [My Menu: 592](#))

<sub>3</sub> [Page 3] (→ [My Menu: 592](#))

 [Edit My Menu] (→ [Edit My Menu: 593](#))

- [Add]
- [Sorting]
- [Delete]
- [Display from My Menu]

## [Playback] menu

---

### [Playback Mode] (→[Playback] ([Playback Mode]): 495)

- [Playback Mode] (→[Playback Mode]: 495)
- [Slide Show] (→[Slide Show]: 495)
- [Rotate Disp.] (→[Rotate Disp.]: 496)
- [Picture Sort] (→[Picture Sort]: 496)
- [Magnify from AF Point] (→[Magnify from AF Point]: 496)
- [LUT View Assist (Monitor)] (→[LUT View Assist (Monitor)]: 496)
- [HLG View Assist (Monitor)] (→[HLG View Assist (Monitor)]: 497)
- [Behavior After Video Playback] (→[Behavior After Video Playback]: 497)

### [Process Image] (→[Playback] ([Process Image]): 498)

- [RAW Processing] (→[RAW Processing]: 498)
- [HEIF to JPEG Conversion] (→[HEIF to JPEG Conversion]: 498)
- [Time Lapse Video] (→[Time Lapse Video]: 498)
- [Stop Motion Video] (→[Stop Motion Video]: 498)

### [Add/Delete Info.] (→[Playback] ([Add/Delete Info.]): 499)

- [Protect] (→[Protect]: 499)
- [Rating] (→[Rating]: 499)

### [Edit Image] (→[Playback] ([Edit Image]): 500)

- [Resize] (→[Resize]: 500)
- [Rotate] (→[Rotate]: 501)
- [Video Divide] (→[Video Divide]: 501)
- [Video Repair] (→[Video Repair]: 501)

### [Others] (→[Playback] ([Others]): 502)

- [Delete Confirmation] (→[Delete Confirmation]: 502)
- [Delete All Images] (→[Delete All Images]: 502)


# Operating with a Smartphone

This chapter describes how to connect the smartphone app to the camera and how to use it.

• This document refers to both smartphones and tablets as **smartphones**.

- [Installing “LUMIX Lab”](#): 610
- [Connecting to “LUMIX Lab” \(Bluetooth Connection\)](#): 611
- [Connecting to “LUMIX Lab” \(USB Connection\)](#): 615
- [Using “LUMIX Lab”](#): 617

## ❖ App That Can Be Used

	Features	Connections
“Panasonic LUMIX Lab” 	LUT Library operations, image transfers, etc.	Connection via Bluetooth
		Connection via USB

## Installing “LUMIX Lab”


“LUMIX Lab” is an application for smartphones provided by Panasonic.



### Supported OS

Android™: Android 11 or higher

iOS: iOS 17 or higher

- 1 Connect the smartphone to a network.**
- 2 (Android) Select “Google Play™ Store”.**  
**(iOS) Select “App Store”.**
- 3 Enter “LUMIX” or “panasonic lumix lab” into the search box.**
- 4 Select and install the “Panasonic LUMIX Lab”** 



- This can also be downloaded via the QR code displayed with [REAL TIME LUT].
- Use the latest version.
- Supported OSs are current as of May 2026 and are subject to change.
- Read the [Help] in the “LUMIX Lab” menu for further details on how to operate.
- The app may not operate correctly depending on your smartphone.

For information on the “LUMIX Lab”, refer to the following support site:

<https://panasonic.jp/support/global/cs/dsc/>

(English only)

## Connecting to “LUMIX Lab” (Bluetooth Connection)

---

Follow a simple connection setup procedure (pairing) to connect to a smartphone that supports Bluetooth Low Energy.

- For the first-time connection, pairing settings are required.

When connecting the second and subsequent times, the connection is automatic when you set [Bluetooth Function] to [SMARTPHONE] on the camera.



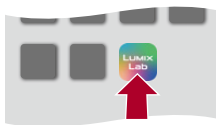
### **Supported smartphones**

Android™: Android 11 or higher with Bluetooth 4.0 or higher (excluding those that do not support Bluetooth Low Energy)

iOS: iOS 17 or higher

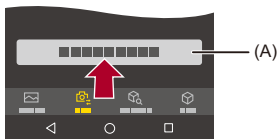
- **Turn on the Bluetooth function on the smartphone beforehand.**

# 1 On the smartphone, start up “LUMIX Lab”.



# 2 View the content in the displayed guidance and start using the app.



# 3 Switch to the [Camera] screen and select [Add Camera].





(A) [Add Camera]

# 4 Select [Connect via Bluetooth].

# 5 Set the camera to Bluetooth pairing standby state.

- **MENU/SET** ⇒ [  ] ⇒ [  ] ⇒ [Bluetooth] ⇒ [Bluetooth Function] ⇒ [SMARTPHONE]



- The camera enters the pairing standby state.
- If there is a paired smartphone, the camera enters the connection standby state. If you want to pair with a new smartphone, use the following procedure to put the camera in the pairing standby state.

- **MENU/SET** ⇒ [  ] ⇒ [  ] ⇒ [Bluetooth] ⇒ [Pairing] ⇒ [Add Smartphone]

# 6 Select the camera to be connected in “LUMIX Lab”.


- Pairing is executed when you select [Pairing] in the confirmation screen.



- The paired smartphone is registered as a paired device.
- Even if you set up pairing with more than one smartphone, you can only connect to one smartphone at a time.
- When pairing takes some time, canceling the pairing settings on both the smartphone and camera and re-establishing the connection may result in the camera being detected correctly.
- During Bluetooth connection, [  ] is displayed in the recording screen. When the Bluetooth function is enabled, but a connection is not established with the smartphone, [  ] appears translucent.
- Up to a total of 16 Bluetooth devices can be paired. If you try to register more than 16 devices, the registration information will be deleted from the oldest first.

## ❖ End Bluetooth Connection




To terminate the Bluetooth connection, turn off the Bluetooth function of the camera.

 ⇒ [  ] ⇒ [  ] ⇒ [Bluetooth] ⇒ [Bluetooth Function] ⇒ Select [OFF]



- Even if you terminate the connection, the pairing information for it will not be deleted.

## ❖ Canceling Pairing

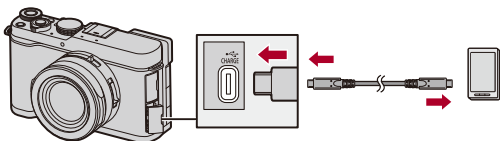
- 1 Cancel the pairing setting of the camera.
  -  ⇒ [  ] ⇒ [  ] ⇒ [Bluetooth] ⇒ [Pairing] ⇒ [Delete]
- 2 Select the smartphone for which to cancel the pairing.





- Also cancel the pairing setting on the smartphone.
- When [Reset] in the [Setup] ([Setting]) menu is used to reset the network settings, the information for registered devices is deleted.

## Connecting to “LUMIX Lab” (USB Connection)

- 1 On the smartphone, start up “LUMIX Lab”.
- 2 View the content in the displayed guidance and start using the app.
- 3 Switch to the [Camera] screen and select [Add Camera].
- 4 Select [Connect via USB].
- 5 Connect the camera and Smartphone with the USB connection cable (commercially available).



- 6 Press ▲▼ to select [LUMIX Lab] and then press .
  - [] is displayed on the camera's screen.
  - If a confirmation message appears on the smartphone screen asking for permission to enable access by the connected device, grant permission. Connection is not complete until permission is given.
  - Please also refer to the operating instructions of your smartphone.
- 7 Select [Next] on the smartphone.



- If [USB Mode] is set to [LUMIX Lab] in the [Setup] ([IN/OUT]) menu, the camera will be connected to the Smartphone without the [USB Mode] selection screen being displayed. (→[USB Mode]: 584)



- The following functions are not available when connected via USB:
  - [Auto Transfer(Wi-Fi)]
  - [Remote shooting]
  - [Shutter Remote Control]

## Using “LUMIX Lab”

- LUT Library Operations: 617
- [Remote shooting]: 619
- [Shutter Remote Control]: 621
- Editing My Photo Style: 623
- Sending Images on the Camera to a Smartphone with Simple Operations: 625
- [Transfer Photo / Video]: 628
- [Auto Transfer(Wi-Fi)]: 630
- [Location Logging]: 633

This explains the functions for operating the camera from “LUMIX Lab”.

### LUT Library Operations

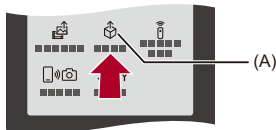
Operate “LUMIX Lab” to update the [LUT Library] in the camera.

Getting started:

- Connect the camera to a smartphone. (→ [Connecting to “LUMIX Lab” \(Bluetooth Connection\): 611](#), [Connecting to “LUMIX Lab” \(USB Connection\): 615](#))
- On the smartphone, start up “LUMIX Lab”.

#### 1 Select [LUT Transfer] in the [Camera] screen.

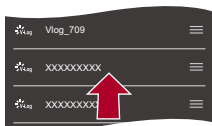
- If the connection is via Bluetooth, connect to the camera via Wi-Fi. Select [Join] to start the connection.



(A) [LUT Transfer]

## 2 Select the LUT file in the [LUT Library] screen to edit.

- You can transfer, rename, delete or reorder your LUT files.
- A list of LUT files saved to “LUMIX Lab” is shown in [Device].
- A list of LUT files saved to the camera is shown in [Camera].



## 3 Select from [Device] the LUT file to transfer.

## 4 Select [Transfer to Camera] and update the [LUT Library] on the camera.

## [Remote shooting]

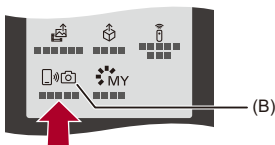
You can use the smartphone to record from a remote location while viewing the live view images from the camera.

Getting started:

- Connect the camera to a smartphone. (→ [Connecting to “LUMIX Lab” \(Bluetooth Connection\): 611](#))
- On the smartphone, start up “LUMIX Lab”.

### 1 Select [Remote shooting] in the [Camera] screen.

- Connect to the camera with Wi-Fi. Select [Join] to start the connection.



(B) [Remote shooting]

### 2 Start recording.

- The recorded image is saved on the camera.

- : Takes a picture
- : Starts/ends the video recording



- When used in combination with [Auto Transfer(Wi-Fi)], it is possible to automatically transfer the remotely recorded images to a smartphone. (→ [Auto Transfer(Wi-Fi)]: 630)
- If [Auto Transfer(Wi-Fi)] is set to [ON] using the setting menu for remote recording, it is enabled when you return to the camera screen from the remote recording screen.



- Certain features, including some settings, may not be available.
- Remote recording is not available when connected via USB.

## ❖ Operation Method During Remote Recording

Set either the camera or the smartphone as the priority control device to be used during remote recording.

Touch [  ] in the “LUMIX Lab” remote recording screen.

- The icon switches each time you touch it.



### (Camera prioritized)

Operation is possible on both the camera and the smartphone.

- You cannot use the smartphone to change settings for photo/video/S&Q mode, recording mode, etc.



### (Smartphone prioritized)

Operation is possible only on the smartphone.

- You can use the smartphone to change settings for photo/video/S&Q mode, recording mode, etc.
- To end remote recording, press any of the buttons on the camera to turn on the screen, and select [End].

- 
- The default setting is [  ] (Camera prioritized).

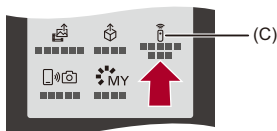
## [Shutter Remote Control]

You can use the smartphone as a remote control for the shutter.

Getting started:

- Connect the camera to a smartphone. (→ [Connecting to “LUMIX Lab” \(Bluetooth Connection\): 611](#))
- On the smartphone, start up “LUMIX Lab”.

### 1 Select [Shutter Remote Control] in the [Camera] screen.




(C) [Shutter Remote Control]


### 2 Start recording.



---

 Starts/ends the video recording

---





 Takes a picture

- [Bulb Recording: 622](#)
-

## ❖ Bulb Recording

The shutter can be kept open from the start to end of recording, which is useful for recording of starry skies or night scenery.

Getting started:

- Set the camera to [M] mode. (→ [Manual Exposure Mode: 280](#))
  - Set the camera shutter speed to [T] (Time). (→ [\[T\] \(Time\): 284](#))
- 1 Touch [  ] to start recording (keep touching, without removing your finger).
  - 2 Remove your finger from [  ] to end recording.
    - Slide [  ] in the direction of [LOCK] to record with the shutter button locked in a fully-pressed state.  
(Slide [  ] back to its original position or press the camera shutter button to end recording)
    - During [B] (Bulb) recording, if the Bluetooth connection is broken, then carry out Bluetooth connection again, then end recording from the smartphone.



- When [Auto Transfer(Wi-Fi)] is set to [ON], [Shutter Remote Control] cannot be used.
- [Shutter Remote Control] is not available when connected via USB.

## Editing My Photo Style

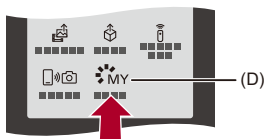
You can edit the My Photo Style on your camera with “LUMIX Lab”.

Getting started:

- Connect the camera to a smartphone. (→ [Connecting to “LUMIX Lab” \(Bluetooth Connection\): 611](#), [Connecting to “LUMIX Lab” \(USB Connection\): 615](#))
- On the smartphone, start up “LUMIX Lab”.

### 1 Select [Edit MY PHOTO STYLE] in the [Camera] screen.

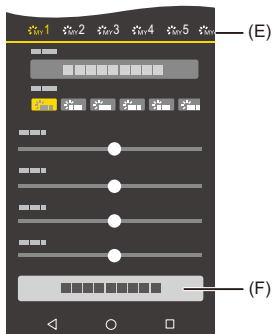
- If the connection is via Bluetooth, connect to the camera via Wi-Fi. Select [Join] to start the connection.



(D) [Edit MY PHOTO STYLE]

## 2 Select My Photo Style in the [Edit MY PHOTO STYLE] screen and edit it.

- You can change the name, select the Photo Style to use as the base, and adjust the image quality.



(E) My Photo Style

(F) [Save MY PHOTO STYLE]

## 3 Select [Save MY PHOTO STYLE] and register in the camera's My Photo Style.



- Editing of My Photo Style is not available when the camera's settings are as follows:
  - [iA] mode
  - When [HEIF Format] is set to [HDR(HLG)]


## Sending Images on the Camera to a Smartphone with Simple Operations

You can transfer pictures to a smartphone just by pressing [Q] during playback.

You can also use the menu to connect easily.

- You can also perform the same operation by pressing the Fn button registered with [Send Image (Smartphone)]. (→ [Fn Buttons: 504](#))


Getting started:

- Connect the camera to a smartphone. (→ [Connecting to “LUMIX Lab” \(Bluetooth Connection\): 611](#), [Connecting to “LUMIX Lab” \(USB Connection\): 615](#))
- Press [] on the camera to display the playback screen.




### Send a single image

- 1 Press ◀▶ to select the image.
- 2 Press [Q].
- 3 Select [Single Select].
  - To change the send settings of images, press [DISP.]. (→ [Image Send Settings: 631](#))
- 4 When connected via Bluetooth, select either [Send via Wi-Fi] or [Send via USB].
  - Connection via Wi-Fi is automatic when [Send via Wi-Fi] is selected.


## Send multiple images

- 1 Press [Q].
- 2 Select [Multi Select].
  - To change the send settings of images, press [DISP.]. (→ [Image Send Settings: 631](#))
- 3 Select the images and then transfer.
  - ◀▶ : Select images
  -  : Set/Cancel
  - [DISP.]: Transfer
- 4 When connected via Bluetooth, select either [Send via Wi-Fi] or [Send via USB].
  - Connection via Wi-Fi is automatic when [Send via Wi-Fi] is selected.

## ❖ Using the menu to transfer easily

 ⇒ [  ] ⇒ [  ] ⇒ [LUMIX Lab] ⇒ [Send Image (Smartphone)]

Settings: [Single Select]/[Multi Select]

- If [Single Select], press ▶◀ to select the image and then press  to execute.
- If [Multi Select], use the same operation as with “[Send multiple images](#)”. (→ [Send multiple images: 626](#))



- It is not possible to transfer images with file sizes exceeding 4 GB.
- Images recorded using the following function cannot be transferred:
  - [MOV] videos
- When recording, recording is prioritized so it will take time for sending to complete.
- If the camera is turned off, or the Wi-Fi is disconnected before sending is completed, then sending will not restart.
- You may not be able to delete files or use the [Playback] menu while sending.
- When [Auto Transfer(Wi-Fi)] is set to [ON], [Send Image (Smartphone)] cannot be used.

## [Transfer Photo / Video]

Operate “LUMIX Lab” to transfer images from the camera to your smartphone.

Getting started:

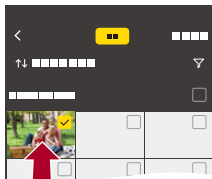
- Connect the camera to a smartphone. (→ [Connecting to “LUMIX Lab” \(Bluetooth Connection\): 611](#), [Connecting to “LUMIX Lab” \(USB Connection\): 615](#))
- On the smartphone, start up “LUMIX Lab”.

### 1 Select [Transfer Photo / Video] in the [Camera] screen.


- If the connection is via Bluetooth, connect to the camera via Wi-Fi. Select [Join] to start the connection.

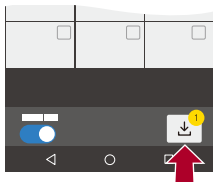
### 2 Select the image to transfer.

- Touch the checkbox to select.



### 3 Transfer the image.

- Select [].



- It is not possible to transfer images with file sizes exceeding 4 GB.
- Images recorded using the following function cannot be transferred:
  - [MOV] videos
- The transfer speed slows when the camera temperature rises.




## [Auto Transfer(Wi-Fi)]

You can automatically transfer images from the camera to your smartphone as they are taken.

Getting started:


- Connect the camera to a smartphone. (→ [Connecting to “LUMIX Lab” \(Bluetooth Connection\): 611](#))

### 1 Enable [Auto Transfer(Wi-Fi)] on the camera.

-  → [  ] → [  ] → [LUMIX Lab] → [Auto Transfer(Wi-Fi)] → [ON]
- The function can also be enabled in “LUMIX Lab”.
- Connect to the smartphone with Wi-Fi.


### 2 Check the send settings on the camera and then press



- To change the send setting, press [DISP.]. (→ [Image Send Settings: 631](#))
- Automatic image transfer is possible when [  ] is displayed on the camera recording screen.



### 3 Record with the camera.

- [  ] is displayed in the recording screen of the camera while a file is being sent.

## ❖ Image Send Settings

Set the size and file format for sending the image.

- 1 Send settings confirmation screen will be displayed, so press [DISP].
- 2 Change the send settings.

---

### [Size]

Resize the image to send.

[Original]/[Change] ([M], [S], [XS] or [VGA])

---




### [File Format]

Sets the file format of images to send.

[MP4(Lite)]/[JPG/HEIF]/[RAW]

---

## ❖ To Stop the Automatic Transfer of Images

 ⇒ [  ] ⇒ [  ] ⇒ [LUMIX Lab] ⇒ [Auto Transfer(Wi-Fi)] ⇒ Select [OFF]

- A confirmation screen is displayed, asking you to terminate the Wi-Fi connection.



- When [Bluetooth Function] is set to [SMARTPHONE] and [Auto Transfer(Wi-Fi)] is set to [ON] on the camera and you turn on the camera, Wi-Fi/Bluetooth connection to the smartphone is performed automatically.  
Start up the “LUMIX Lab” on the smartphone to connect to the camera.



- Automatic image transfer is interrupted while recording or playing back videos. The transfer starts at the start of the file where it was interrupted when the transmission restarts.
- If the camera is turned off during image transfer, and the file sending is interrupted, then turn on the camera to restart the sending.
  - If the storage status of unsent files changes, then sending of files may no longer be possible.
  - If there are many unsent files, then sending of all files may not be possible.
- If automatic image transfer is performed in places where the ambient temperature is high, communications may be interrupted.  
Turn off the camera and wait until the camera cools down.
- Images recorded with the following function cannot be transferred automatically:
  - [MP4], [MOV] ([Rec. File Format(Video)])
- Automatic image transfer is not available when connected via USB.




## [Location Logging]

The smartphone sends its location information to the camera, and the camera performs recording while writing the acquired location information.

Getting started:

- Enable the GPS function on the smartphone.
- Connect the camera to a smartphone. (→ [Connecting to “LUMIX Lab” \(Bluetooth Connection\): 611](#), [Connecting to “LUMIX Lab” \(USB Connection\): 615](#))

### 1 Enable [Location Logging] on the camera.

-  → [  ] → [  ] → [LUMIX Lab] → [Location Logging] → [ON]
- The function can also be enabled in “LUMIX Lab”.
- The camera will enter a mode where location information can be recorded and [ GPS ] is displayed in the recording screen of the camera.

### 2 Record images with the camera.

- Location information will be written to the recorded images.



- When [ GPS ] on the recording screen appears translucent, location information cannot be acquired, therefore data cannot be written.

Smartphone GPS positioning may not be possible if the smartphone is within a building, a bag, or similar. Move the smartphone to a position affording a wide view of the sky to improve positioning performance.

In addition, refer to the operating instructions of your smartphone.

- Images with location information are indicated with [ GPS ].
- Be sure to pay special attention to the privacy, the likeness rights, etc. of the subject when you use this function. Use at your own risk.
- The smartphone drains its battery faster while acquiring location information.

# Operations on a PC

This chapter describes connections with PCs.  
Connect using the USB port on the camera.

- [Connecting to a PC \(USB Connection\): 636](#)
- [Importing Images to a PC: 637](#)
- [Using as a Web Camera for a PC: 642](#)

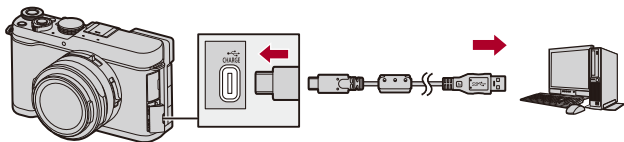
## Connecting to a PC (USB Connection)



- Check the direction of the terminals and plug in/out straight holding onto the plug. (Inserting these at an angle may cause deformation or malfunction)
- Do not connect the cable to the wrong terminals. This may cause a malfunction.

### USB port

**Use a USB connection cable (commercially available) to connect the camera to a PC.**



- Use a USB connection cable that complies with the USB standards.

## Importing Images to a PC

---

- [Copying Images to a PC: 638](#)
- [Installing Software: 641](#)

If you connect the camera to a PC, you can copy the recorded images to the PC.

You will need to use software that is compatible with the recorded video format in order to play back or edit video on the PC.

You can also use software for processing and editing RAW images.

(→ [Installing Software: 641](#))

## Copying Images to a PC

After connecting to the PC, you can copy the recorded images by dragging files and folders on this camera to the PC.



- The camera can be connected to a PC running any of the following OSs which can detect mass storage devices.

### Supported OS

Windows: Windows 10, Windows 11

Mac: macOS 12.0 to 12.7, 13.0 to 13.7, 14.0 to 14.7, 15.0 to 15.6

- Mac:

Supported by “Final Cut Pro X”.

For details on “Final Cut Pro X”, please contact Apple Inc.

Getting started:

- Turn on the camera and PC.

### 1 **Connect the camera and PC with the USB connection cable (commercially available).**

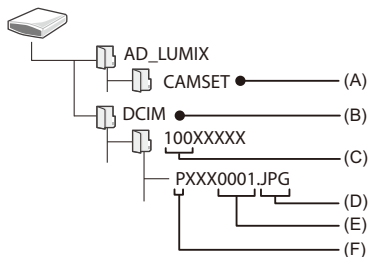
(→ [Connecting to a PC \(USB Connection\): 636](#))

### 2 **Press ▲▼ to select [PC(Storage)] and then press .**

- Windows: The drive (“LUMIX”) is displayed in [This PC].
- Mac: The drive (“LUMIX”) is displayed on the desktop.

### 3 **Drag the files and folders from the camera to the PC.**

## ❖ Folder Structure Inside Card



(A) The camera's setup information

(B) Images

(C) Folder number

(D) JPG: JPEG format pictures

HIF: HEIF format pictures

RW2: RAW format pictures

MP4: MP4(Lite) videos, MP4 videos

MOV: MOV videos

(E) File number

(F) Color space

P: sRGB

\_ : AdobeRGB



- If [USB Mode] is set to [PC(Storage)] in the [Setup] ([IN/OUT]) menu, the camera will be automatically connected to the PC without the [USB Mode] selection screen being displayed. (→[USB Mode]: 584)



- Take care not to turn off the camera while images are being imported.
- After importing of the images is completed, perform the operation to safely remove the USB connection cable on the PC.
- Turn off the camera and disconnect the USB connection cable before removing the card from the camera. Otherwise, the recorded data may be damaged.

## Installing Software

Install the software to process and edit RAW images.



- To download the software, your PC needs to be able to connect to the internet.
- Supported OSs are current as of May 2026 and are subject to change.

### ❖ **SILKYPIX Developer Studio SE**

This software processes and edits RAW images.

Edited images can be saved in a format (JPEG, TIFF, etc.) that can be displayed on a PC.

Check the following site and then download and install the software:

<http://www.isl.co.jp/SILKYPIX/english/p/>

### **Operating environment**

#### ● **Supported OS**

Windows: Windows 10 (64 bit), Windows 11

Mac: macOS 10.13 to 10.15, 11, 12, 13, 14, 15, 26

- For more information such as how to use “SILKYPIX Developer Studio”, refer to the Help or the TECHNO HORIZON’s support site.

## Using as a Web Camera for a PC



By connecting the camera to a PC via USB, you can use the camera as a web camera.

- The camera supports the UVC (USB Video Class) specification.



- You can connect to the following PCs:

### Supported OS



Windows: Windows 10, Windows 11

Mac: macOS 14.0 to 14.7, 15.0 to 15.6

There may be cases when images are not shown properly due to the PC environment you are using. If this occurs, the situation may be corrected by changing the web camera image quality settings or changing the USB port used for connection.

Getting started:

- Turn on the camera and PC.

- 1 Set to [📹] mode.**  
(→ [Photo/Video/S&Q Switch: 61](#))
- 2 Connect the camera and PC with the USB connection cable (commercially available).**  
(→ [Connecting to a PC \(USB Connection\): 636](#))
- 3 Press ▲▼ to select [PC(Webcam)] and then press .**
  - [] is displayed on the camera's screen.

## ❖ Setting [Webcam Image Quality]

 ⇒ [] ⇒ [] ⇒ [USB] ⇒ Select [Webcam Image Quality]

[Webcam Image Quality]	[System Frequency]	Resolution	Frame rate	Connected port	
				USB3.0	USB2.0
[4K/15p]	[59.94Hz (NTSC)]	3840×2160	14.99p	✓	—
[FHD/60p]		1920×1080	59.94p	✓	—
[FHD/30p]		1920×1080	29.97p	✓	—
[HD/30p]		1280×720	29.97p	✓	✓
[4K/12.5p]	[50.00Hz (PAL)]	3840×2160	12.50p	✓	—
[FHD/50p]		1920×1080	50.00p	✓	—
[FHD/25p]		1920×1080	25.00p	✓	—
[HD/25p]		1280×720	25.00p	✓	✓

- Video format: MJPEG
- Audio format: LPCM (2ch, 48 kHz/16 bit)



- If [USB Mode] is set to [PC(Webcam)] in the [Setup] ([IN/OUT]) menu, the camera will be automatically connected to the PC without the [USB Mode] selection screen being displayed. (→[USB Mode]: 584)






- There may be some audio delay after using as a web camera for a long time.
- The menu screen cannot be displayed while the camera is connected as a web camera.
- When there is a PC connection with [PC(Webcam)], the following functions are not available:
  - [Bluetooth]
  - Viewfinder display
- **For information about the high temperature display (→For information about the high temperature display: 123)**

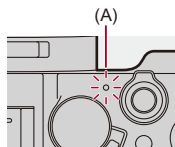
# Wi-Fi/Bluetooth Connections and Settings

This chapter describes connections and settings using Wi-Fi® and Bluetooth®.

- [\[Wi-Fi\] Menu: 648](#)
- [Connecting to a Bluetooth device: 651](#)

## ❖ Checking operation of the Wi-Fi and Bluetooth functions

Light (blue)	Monitor	Operation
Lit		The Wi-Fi function is set, or there is a connection.
		The Bluetooth function is set, or there is a connection.
Blinking		When image data is sent using a camera operation.



(A) Network connection light



- Do not remove the card or battery or move to an area without any reception while sending images.
- The camera cannot be used to connect to a public wireless LAN connection.
- We strongly recommend that you set an encryption to maintain information security.
- We recommend that you use a sufficiently charged battery when sending images.
- When the remaining battery level is low, it may not be possible to connect to or maintain communication with other devices.  
(A message such as [Communication error] is displayed.)
- Images may not be completely sent depending on radio wave conditions.  
If the connection is terminated while sending images, images with missing parts may be sent.



- You can set so that the network connection light does not turn on:  
(→ [\[Network Connection Light\]: 585](#))

---

## [Wi-Fi] Menu

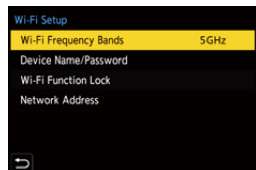
---

### • Fn Button Assigned with [Wi-Fi]: 650

This configures the settings required for the Wi-Fi function.  
The settings cannot be changed while connected with Wi-Fi.

### Displaying the [Wi-Fi] menu.

-  → [  ] → [  ] → [Wi-Fi]



---

### [Wi-Fi Frequency Bands]

This sets the frequency band used for direct connection with a smartphone.

**[2.4GHz]:** Connection uses the 2.4 GHz frequency band.

**[5GHz]:** Connection uses the 5 GHz frequency band.

- Depending on the region, local regulations, etc. may prohibit you from using the 5 GHz frequency band outdoors. If this is the case, when outdoors, connect to the smartphone using [2.4GHz] for the Wi-Fi connection.
-

### **[Device Name/Password]**

You can change the camera name (SSID) and password.

- Press [DISP.] to change the device name and password.
  - The number of characters you can enter is a maximum of 32 for the device name and between 8 and 63 for the password.
- 

### **[Wi-Fi Function Lock]**

You can set a password to prevent incorrect operation and use of the Wi-Fi functions by a third party and to protect personal information that may be found either in the camera itself or in images recorded with the camera.

**[Setup]:** Enter any 4-digit numbers as the password.

- Once a password is set, you are required to enter it when you select [Wi-Fi].

**[Cancel]:** Cancel the password.

---

### **[Network Address]**

Displays the MAC address and IP address of the camera when connecting via Wi-Fi.

---



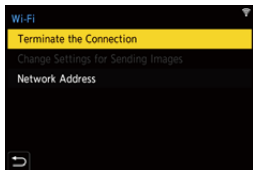
- If you forget your password, you can use [Reset] in the [Setup] ([Setting]) menu to reset the network settings and thereby reset the password.



- How to enter characters (→ [Entering Characters: 88](#))

## Fn Button Assigned with [Wi-Fi]

You can perform the following operations by pressing the Fn button assigned with [Wi-Fi] after connecting to Wi-Fi. (→ [Fn Buttons: 504](#))



---

### [Terminate the Connection]

Terminates the Wi-Fi connection.

---

### [Change Settings for Sending Images]

Sets the image size, file format, and other items for sending recorded images.

(→ [Image Send Settings: 631](#))

---

### [Network Address]

Displays the MAC address and IP address of the camera. (→ [\[Network Address\]: 649](#))

- 
- Depending on the Wi-Fi function being used or the connection destination, you may not be able to perform some of these operations.

## Connecting to a Bluetooth device

Follow a simple connection setup procedure (pairing) to connect to a Bluetooth device.




- For the first-time connection, pairing settings are required.

When connecting the second and subsequent times, the connection is automatic when you set [Bluetooth Function] on the camera to the connected device.




When connecting via Bluetooth using the smartphone application:

(→ [Connecting to "LUMIX Lab" \(Bluetooth Connection\): 611](#))

### 1 Set the camera to Bluetooth pairing standby state.



-  ⇒ [  ] ⇒ [  ] ⇒ [Bluetooth] ⇒ [Bluetooth Function] ⇒ [SMARTPHONE]/[GIMBAL]

- The camera enters the pairing standby state.
- If there is a paired Bluetooth device, the camera enters the connection standby state. If you want to pair with a new Bluetooth device, use the following procedure to put the camera in the pairing standby state.

 ⇒ [  ] ⇒ [  ] ⇒ [Bluetooth] ⇒ [Pairing] ⇒ [Add Smartphone]/[Gimbal]


### 2 Pair with the camera on the Bluetooth device.



- The paired Bluetooth device is registered as a paired device.
- Even if you set up pairing with more than one Bluetooth device, you can only connect to one Bluetooth device at a time.
- When pairing takes some time, canceling the pairing settings on both the Bluetooth device and camera and re-establishing the connection may result in the camera being detected correctly.
- During Bluetooth connection, [  ] is displayed in the recording screen. When the Bluetooth function is enabled, but a connection is not established with the Bluetooth device, [  ] appears translucent.
- Up to a total of 16 Bluetooth devices can be paired. If you try to register more than 16 devices, the registration information will be deleted from the oldest first.

## ❖ End Bluetooth Connection




To terminate the Bluetooth connection, turn off the Bluetooth function of the camera.

 ⇒ [  ] ⇒ [  ] ⇒ [Bluetooth] ⇒ [Bluetooth Function] ⇒ Select [OFF]



- Even if you terminate the connection, the pairing information for it will not be deleted.

## ❖ Canceling Pairing

- 1 Cancel the pairing setting of the camera.
  -  ⇒ [  ] ⇒ [  ] ⇒ [Bluetooth] ⇒ [Pairing] ⇒ [Delete]
- 2 Select the Bluetooth device for which to cancel the pairing.



- Also cancel the pairing setting on the Bluetooth device.
- When [Reset] in the [Setup] ([Setting]) menu is used to reset the network settings, the information for registered devices is deleted.

# Connecting to Other Devices

This chapter describes connections with other devices, for example, recorders.

Connect using the USB port on the camera.

- [Connecting: 655](#)
- [Storing on a Recorder: 656](#)

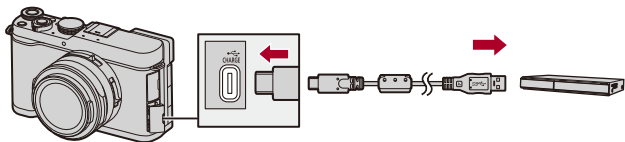
## Connecting



- Check the direction of the terminals and plug in/out straight holding onto the plug. (Inserting these at an angle may cause deformation or malfunction)
- Do not connect the cable to the wrong terminals. This may cause a malfunction.

### USB port

**Use a USB connection cable (commercially available) to connect the camera to a recorder.**




- Use a USB connection cable that complies with the USB standards.

## Storing on a Recorder

By connecting the camera to a Panasonic Blu-ray disc recorder or DVD recorder, you can store the pictures and videos.

Getting started:

- Turn on the camera and recorder.

- 1 Connect the camera and recorder with the USB connection cable (commercially available).**  
(→ [USB port: 655](#))
- 2 Press ▲▼ to select [PC(Storage)] and then press .**
- 3 Operate the recorder to store the images.**



- If [USB Mode] is set to [PC(Storage)] in the [Setup] ([IN/OUT]) menu, the camera will be automatically connected to the recorder without the [USB Mode] selection screen being displayed. (→ [\[USB Mode\]: 584](#))



- Take care not to turn off the camera while storage is in progress.
- Images such as 4K videos may not be supported depending on your recorder.
- Turn off the camera and disconnect the USB connection cable before removing the card from the camera. Otherwise, the recorded data may be damaged.
- For the storage and playback procedures, refer to the operating instructions for the recorder.

# Materials

This chapter describes procedures to try when there is a problem and provides information about the specifications for your reference.

- [Digital Camera Accessory System: 658](#)
- [Using Optional Accessories: 659](#)
- [Monitor/Viewfinder Displays: 662](#)
- [Message Displays: 683](#)
- [Troubleshooting: 686](#)
- [Cautions for Use: 698](#)
- [Continuous Video Recording Time with Temperature Increases in the Camera: 706](#)
- [Number of Pictures That Can Be Taken and Available Recording Time with the Battery: 708](#)
- [Number of Pictures That Can Be Taken and Video Recording Time with Cards: 711](#)
- [List of Default Settings/Custom Saving/Settings Available for Copying: 720](#)
- [List of Functions That Can Be Set in Each Recording Mode: 743](#)
- [Specifications: 749](#)
- [Trademarks and Licenses: 761](#)

# Digital Camera Accessory System

(Product numbers correct as of May 2026.)

Product name	Product number
Battery Pack	DMW-BLK22
Battery Charger	DMW-BTC15 <sup>*1</sup> , DMW-BTCD15 <sup>*2</sup>
AC Adaptor	DMW-AC11 <sup>*3</sup>
DC Coupler	DMW-DCC18 <sup>*2</sup>
Auto Lens Cap	DMW-LFAC1
Stereo Shotgun Microphone	DMW-MS2
Stereo Microphone	VW-VMS10
Digital Shotgun Microphone	DMW-DMS1
XLR Microphone Adaptor	DMW-XLR2
Tripod Grip	DMW-SHGR2

\*1 Supplied with an AC adaptor, an AC cable/AC mains lead and a USB connection cable. (Charging time: Approx. 175 min)

\*2 A separately available AC adaptor and USB connection cable are required. It is recommended to use the Panasonic AC Adaptor (DMW-AC11: optional).

\*3 Supplied with an AC cable/AC mains lead and USB connection cable.

- Some optional accessories may not be available in some countries.
- For the latest information on optional accessories, refer to our catalogs/website, etc.

## Using Optional Accessories

---

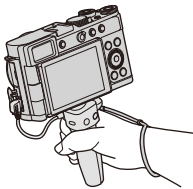
- [Tripod Grip \(Optional\): 660](#)
- [DC Coupler \(Optional\): 661](#)

- For information on the external flash (→ [Using an External Flash: 348](#))
- For information on the external microphone (→ [External Microphones \(Optional\): 387](#))
- For information on the XLR Microphone Adaptor (→ [XLR Microphone Adaptor \(Optional\): 392](#))
- For information on the Digital Shotgun Microphone (→ [Digital Shotgun Microphone \(Optional\): 397](#))
- Some optional accessories may not be available in some countries.

## Tripod Grip (Optional)

Attach a Tripod Grip (DMW-SHGR2: optional) to use it as a grip for recording while walking, a tripod, or a Shutter Remote Control.

- Connect the grip cable to the USB socket on the camera.



- Always use a genuine Panasonic Tripod Grip (DMW-SHGR2: optional).
- Do not carry just by holding the hand strap when the camera is attached.
- For details, refer to the operating instructions for the Tripod Grip.

## DC Coupler (Optional)

Using a DC Coupler (DMW-DCC18: optional) means you do not have to worry about the remaining battery charge.




- A separately available AC adaptor and USB connection cable are required. It is recommended to use the Panasonic AC Adaptor (DMW-AC11: optional).
- For details, refer to the operating instructions for the AC Adaptor and DC Coupler.

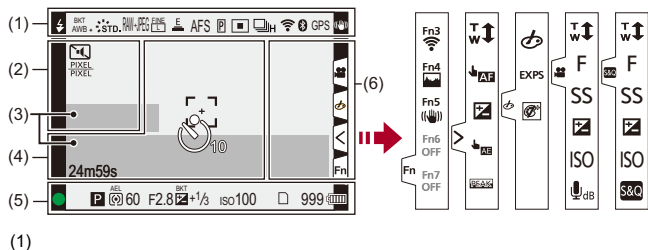





- Screen indications when the DC Coupler is fitted (→ [Power Indications: 44](#))

# Monitor/Viewfinder Displays













- [Recording Screen: 662](#)
- [Playback Screen: 678](#)
- The screen is an monitor display example of when [LVF/Monitor Disp. Set] is set to .

## Recording Screen










	Flash mode (→ <a href="#">[Flash Mode]: 351</a> )
	Flash setting (→ <a href="#">[Flash Synchro]: 357</a> , <a href="#">Recording Using a Wireless Flash: 360</a> )
AWBc AWBw   2500K	White balance (→ <a href="#">White Balance (WB): 302</a> )/ Color Temperature (→ <a href="#">Color Temperature Setting: 307</a> )
BKT AWB	White Balance Bracket, White Balance Bracket (Color Temperature) (→ <a href="#">[More Settings] (White Balance Bracket): 245</a> )

AWB + AWB -	Adjusting the white balance (→ <a href="#">Adjusting the White Balance: 308</a> )
AWBL	AWB lock setting (→ <a href="#">[AWB Lock Setting]: 542</a> )
 STD.	Photo Style (→ <a href="#">[Photo Style]: 310</a> )
* EXPS	Filter setting (→ <a href="#">[Filter Settings]: 325</a> )/ Filter effect adjustment (→ <a href="#">Adjusting the Filter Effect: 327</a> )
MON LUT APP LUT	LUT View Assist (→ <a href="#">[Log View Assist]: 444</a> )
MON MODE2	HLG View Assist (→ <a href="#">[HLG View Assist]: 448</a> )
RAW+ JPEG <small>FINE</small> <small>L</small> JPEG <small>STD</small> <small>M</small> HEIF <small>FINE</small> <small>L</small> HEIF <small>STD</small> <small>M</small>	Recording file format (photo) (→ <a href="#">[Rec. File Format(Photo)]: 108</a> )/ JPEG/HEIF picture quality (→ <a href="#">[JPEG/HEIF Picture Quality]: 113</a> )/ Picture size (→ <a href="#">[Picture Size]: 106</a> )
	Crop Zoom (Photo) (→ <a href="#">[Crop Zoom(Photo)]: 200</a> )
CrZ	Crop Zoom (Video) (→ <a href="#">[Crop Zoom(Video)]: 202</a> )
	Recording file format (video) (→ <a href="#">[Rec. File Format(Video)]: 127</a> )/ Recording quality (→ <a href="#">[Rec Quality]: 128</a> )
MOV 4K 420/10-L	Recording file format (video) (→ <a href="#">[Rec. File Format(Video)]: 127</a> )/ Recording quality (→ <a href="#">[Rec Quality]: 128</a> )
59.94p 60/59.94p	Recording frame rate (→ <a href="#">[Rec Quality]: 128</a> )/ Slow & Quick setting (→ <a href="#">Slow &amp; Quick Video: 413</a> )
	Electronic shutter (→ <a href="#">[Shutter Type]: 255</a> )
AFS AFC MF	Focus mode (→ <a href="#">Selecting the Focus Mode: 145</a> , <a href="#">Record Using MF: 191</a> )
AFS <small>1/1</small> AFC <small>1/1</small>	Focus Limiter (→ <a href="#">[Focus Limiter]: 157</a> )
BKT AFS	Focus Bracket (→ <a href="#">[More Settings] (Focus Bracket): 244</a> )

	AF Lock (→ <a href="#">Locking Focus and Exposure (AF/AE Lock): 293</a> )
	Control ring lock (→ <a href="#">Control Ring Lock: 547</a> )
	Focus Peaking (→ <a href="#">Focus Peaking: 196</a> )
	Image area of video (→ <a href="#">Image Area of Video: 142</a> )
	AF mode (→ <a href="#">Selecting the AF Mode: 161</a> )
	AF detection setting (→ <a href="#">Automatic Detection: 164</a> )
	Drive mode (→ <a href="#">Selecting the Drive Mode: 206</a> )
	Connected to Wi-Fi (→ <a href="#">Checking operation of the Wi-Fi and Bluetooth functions: 646</a> )
	Connected to Bluetooth (→ <a href="#">Connecting to "LUMIX Lab" (Bluetooth Connection): 611</a> )
	Location logging (→ <a href="#">Location Logging: 633</a> )
	Image stabilizer (→ <a href="#">Image Stabilizer: 263</a> )
	Camera shake alert (→ <a href="#">Image Stabilizer: 263</a> )

(2)



	Multiple exposures (→ <a href="#">[Multiple Exposure]: 291</a> )
	Focus Stacking (→ <a href="#">[Focus Stacking]: 246</a> )
AF 	Macro recording (→ <a href="#">[Taking Close-up Pictures]: 189</a> )
	Silent mode (→ <a href="#">[Silent Mode]: 253</a> )
	Image area of video (→ <a href="#">[Image Area of Video]: 142</a> )
LC	Live View Composite recording (→ <a href="#">[Live View Composite]: 249</a> )
	Overlay indication (→ <a href="#">[Sheer Overlay]: 565</a> )
	LUT View Assist (→ <a href="#">[Log View Assist]: 444</a> )

(3)








	Built-in microphone, External microphone (→ <a href="#">[Sound Rec Level Disp.]: 378</a> , <a href="#">[External Microphones (Optional)]: 387</a> )
96kHz/24bit	Sound recording quality (→ <a href="#">[Sound Rec Quality]: 382</a> )
	When an XLR Microphone Adaptor (optional) is connected (→ <a href="#">[XLR Microphone Adaptor (Optional)]: 392</a> )
4ch/96kHz/24bit	4ch audio recording (→ <a href="#">[4ch Audio Recording]: 395</a> )
	When a Digital Shotgun Microphone (optional) is connected (→ <a href="#">[Digital Shotgun Microphone (Optional)]: 397</a> )
4ch/48kHz/24bit	4ch audio recording (→ <a href="#">[4ch Audio Recording]: 400</a> )
	Sound recording level limiter (→ <a href="#">[Sound Rec Level Limiter]: 384</a> )
	Mute (→ <a href="#">[Mute Sound Input]: 379</a> )


Sound recording level (→ [\[Sound Rec Level Disp.\]: 378](#))Exposure meter (→ [\[Expo.Meter\]: 564](#))

(4)

	Histogram (→ <a href="#">[Histogram]: 559</a> )
	AF area (→ <a href="#">AF Area Operations: 181</a> )
+	Spot metering target (→ <a href="#">[Metering Mode]: 268</a> )
+	Center marker (→ <a href="#">[Center Marker]: 569</a> )
	Self-timer (→ <a href="#">Recording Using the Self-timer: 233</a> )
24m59s	Elapsed recording time (→ <a href="#">Basic Video Operations: 115</a> )
	Image being sent (→ <a href="#">[Auto Transfer(Wi-Fi)]: 630</a> )

(5)

	Focus (turns green) (→ <a href="#">Basic Picture Operations: 101</a> )/ Recording state (turns red) (→ <a href="#">Basic Video Operations: 115</a> )
LOW 	Focus (in low light AF situations) (→ <a href="#">Low illumination AF: 149</a> )
STAR 	Focus (Starlight AF) (→ <a href="#">Starlight AF: 149</a> )
	Flash adjustment (→ <a href="#">[Flash Adjust.]: 356</a> )
	Video mode/S&Q mode (→ <a href="#">Photo/Video/S&amp;Q Switch: 61</a> )
iA P A S M <sup>C5-1</sup> P	Recording mode (→ <a href="#">Selecting the Recording Mode: 62</a> )
	Program Shift (→ <a href="#">Program Shift: 272</a> )
	Metering mode (→ <a href="#">[Metering Mode]: 268</a> )
AEL	AE Lock (→ <a href="#">Locking Focus and Exposure (AF/AE Lock): 293</a> )
60	Shutter speed (→ <a href="#">Basic Picture Operations: 101</a> )
F2.8	Aperture value (→ <a href="#">Basic Picture Operations: 101</a> )

	Aperture Bracket (→ <a href="#">[More Settings] (Aperture Bracket): 243</a> )
	Exposure compensation value (→ <a href="#">Exposure Compensation: 287</a> )
	Exposure Bracket (→ <a href="#">[More Settings] (Exposure Bracket): 242</a> )
	Manual Exposure Assist (→ <a href="#">Manual Exposure Assist: 282</a> )
iso100	ISO sensitivity (→ <a href="#">ISO Sensitivity: 295</a> )
	Card access indication (turns red) (→ <a href="#">Basic Video Operations: 115</a> )
	No card
	Card full
999	Number of pictures that can be taken (→ <a href="#">Number of Pictures That Can Be Taken and Video Recording Time with Cards: 711</a> )
r20	Number of pictures that can be taken continuously (→ <a href="#">Number of Pictures That Can Be Taken Continuously: 215</a> )
24m59s	Video recording time (→ <a href="#">Video Recording Time: 713</a> )
	Battery indication (→ <a href="#">Power Indications: 44</a> )
	Power supply (→ <a href="#">Using the Camera While Supplying It with Power (Supplying Power): 43</a> )

(6)



Temperature rise warning icon (→ [Recording: 687](#), [Wi-Fi Function: 694](#))

Touch Tab (→ [\[Touch Settings\]: 553](#))

Fn



Fn button (→ [Use \[Fn3\] to \[Fn7\] \(Touch Icons\): 517](#))



Zoom (→ [Recording with Zoom: 198](#))



Touch AF, Touch Shutter (→ [Touch AF/Touch Shutter: 95](#))












Exposure compensation (→ [Exposure Compensation: 287](#))



Touch AE (→ [Touch AE: 98](#))



Focus Peaking (→ [\[Focus Peaking\]: 196](#))

 (→ <a href="#">Setting a Filter with Touch Operation: 328</a> ) /  /  (→ <a href="#">Operations During Video Recording: 118</a> )	
	Filter effect adjustment (→ <a href="#">Adjusting the Filter Effect: 327</a> )
	Filter on/off (→ <a href="#">Setting a Filter with Touch Operation: 328</a> )
EXPS	Filter setting (→ <a href="#">[Filter Settings]: 325</a> )
	Zoom (→ <a href="#">Recording with Zoom: 198</a> )
F	Aperture value (→ <a href="#">Operations During Video Recording: 118</a> )
SS	Shutter speed (→ <a href="#">Operations During Video Recording: 118</a> )
	Exposure compensation (→ <a href="#">Operations During Video Recording: 118</a> )
ISO	ISO sensitivity (→ <a href="#">Operations During Video Recording: 118</a> )
	Sound recording level adjustment (→ <a href="#">Operations During Video Recording: 118</a> )
	Slow & Quick setting (→ <a href="#">Operations During Video Recording: 118</a> )

## ❖ Control Panel (Photo Mode)








(1)

	Recording mode (→ <a href="#">Selecting the Recording Mode: 62</a> )
1/60	Shutter speed (→ <a href="#">Basic Picture Operations: 101</a> )
F2.8	Aperture value (→ <a href="#">Basic Picture Operations: 101</a> )
 	Battery indication (→ <a href="#">Power Indications: 44</a> )/ Power supply (→ <a href="#">Using the Camera While Supplying It with Power (Supplying Power): 43</a> )






(2)

	ISO sensitivity (→ <a href="#">ISO Sensitivity: 295</a> )
	Exposure compensation value (→ <a href="#">Exposure Compensation: 287</a> )/ Manual Exposure Assist (→ <a href="#">Manual Exposure Assist: 282</a> )
	Flash setting (→ [ <a href="#">Flash Adjust.:</a> 356, <a href="#">Flash Synchro:</a> 357, <a href="#">Recording Using a Wireless Flash:</a> 360])/ Flash mode (→ [ <a href="#">Flash Mode:</a> 351])

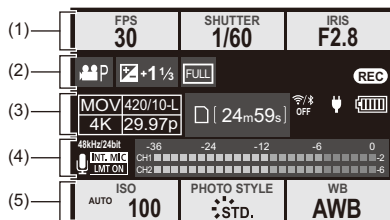
(3)

	Drive mode (→ <a href="#">Selecting the Drive Mode: 206</a> )
AFS	Focus mode (→ <a href="#">Selecting the Focus Mode: 145</a> , <a href="#">Record Using MF: 191</a> )
	AF mode (→ <a href="#">Selecting the AF Mode: 161</a> )
JPEG FINE	Recording file format (photo) (→ <a href="#">[Rec. File Format(Photo)]: 108</a> )/ Switch JPEG/HEIF (→ <a href="#">[Switch JPEG/HEIF]: 111</a> )/ JPEG/HEIF picture quality (→ <a href="#">[JPEG/HEIF Picture Quality]: 113</a> )
PIXEL PIXEL	Image area of video (→ <a href="#">[Image Area of Video]: 142</a> )/
MOV 420/10L 4K 30P	Recording file format (video) (→ <a href="#">[Rec. File Format(Video)]: 127</a> )/ Recording quality (→ <a href="#">[Rec Quality]: 128</a> )
4:3 	Picture size/Aspect ratio (→ <a href="#">[Picture Size]: 106</a> )
	Wi-Fi/Bluetooth connection state (→ <a href="#">Checking operation of the Wi-Fi and Bluetooth functions: 646</a> )
Fn 	Fn button settings (→ <a href="#">Fn Buttons: 504</a> )

(4)

 STD.	Photo Style (→ <a href="#">[Photo Style]: 310</a> )
AWB	White balance (→ <a href="#">White Balance (WB): 302</a> )
 OFF	i.Dynamic Range (→ <a href="#">[i.Dynamic Range]: 290</a> )
	Metering mode (→ <a href="#">[Metering Mode]: 268</a> )
	No card
	Card full
999	Number of pictures that can be taken (→ <a href="#">Number of Pictures That Can Be Taken and Video Recording Time with Cards: 711</a> )
r20	Number of pictures that can be taken continuously (→ <a href="#">Number of Pictures That Can Be Taken Continuously: 215</a> )
R24m59s	Video recording time (→ <a href="#">Video Recording Time: 713</a> )
----	No card

## ❖ Control Panel (Video Mode/S&Q Mode)



(1)

FPS 60	Frame rate (→ <a href="#">[Rec Quality]: 128/</a> Slow & Quick setting (→ <a href="#">Slow &amp; Quick Video: 413</a> ))
SHUTTER 1/60	Shutter speed (→ <a href="#">Shutter-Priority AE Mode: 277</a> )
IRIS F2.8	Aperture value (→ <a href="#">Aperture-Priority AE Mode: 274</a> )

(2)

	Exposure control (video mode) (→ <a href="#">[Exposure Control(Video Mode)]: 544</a> )
 	Exposure compensation value (→ <a href="#">Exposure Compensation: 287/</a> Manual Exposure Assist (→ <a href="#">Manual Exposure Assist: 282</a> ))
 	Image area of video (→ <a href="#">[Image Area of Video]: 142</a> )
	Recording state

(3)

	Recording file format (video) (→[Rec. File Format(Video)]: 127)/ Recording quality (→[Rec Quality]: 128)
24m59s	Video recording time (→Video Recording Time: 713)
	Wi-Fi/Bluetooth connection state (→Checking operation of the Wi-Fi and Bluetooth functions: 646)
	Battery indication (→Power Indications: 44)/ Power supply (→Using the Camera While Supplying It with Power (Supplying Power): 43)

(4)

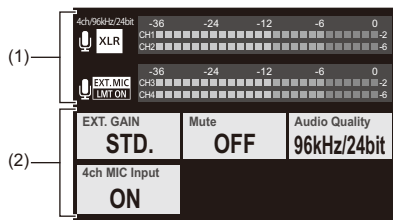
	Built-in microphone, External microphone (→[Sound Rec Level Disp.]: 378, External Microphones (Optional): 387)
96kHz/24bit	Sound recording quality (→[Sound Rec Quality]: 382)
 4ch/96kHz/24bit	When an XLR Microphone Adaptor (optional) is connected (→XLR Microphone Adaptor (Optional): 392) 4ch audio recording (→[4ch Audio Recording]: 395)
 4ch/48kHz/24bit	When a Digital Shotgun Microphone (optional) is connected (→Digital Shotgun Microphone (Optional): 397) 4ch audio recording (→[4ch Audio Recording]: 400)
	Sound recording level limiter (→[Sound Rec Level Limiter]: 384)
	Mute (→[Mute Sound Input]: 379)

Sound recording level (→[Sound Rec Level Disp.]: 378)

(5)

<b>ISO</b> AUTO <b>100</b>	ISO sensitivity (→ <a href="#">ISO Sensitivity: 295</a> )						
PHOTO STYLE STD. <table border="1"><tr><td>MON</td><td>LUT</td></tr><tr><td>APP</td><td>LUT</td></tr></table> <table border="1"><tr><td>MON</td><td>MODE2</td></tr></table>	MON	LUT	APP	LUT	MON	MODE2	Photo Style (→ <a href="#">[Photo Style]: 310</a> )/ LUT View Assist (→ <a href="#">[Log View Assist]: 444</a> )/ HLG View Assist (→ <a href="#">[HLG View Assist]: 448</a> )
MON	LUT						
APP	LUT						
MON	MODE2						
<b>WB</b> <b>AWB</b>	White balance (→ <a href="#">White Balance (WB): 302</a> )						

## ❖ Audio Information Display



(1)

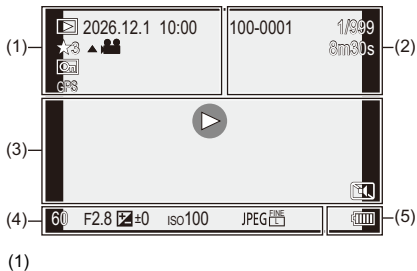
<b>INT. MIC</b> <b>EXT. MIC</b>	Built-in microphone, External microphone (→[ <a href="#">Sound Rec Level Disp.</a> ]: 378, <a href="#">External Microphones (Optional)</a> : 387)
96kHz/24bit	Sound recording quality (→[ <a href="#">Sound Rec Quality</a> ]: 382)
<b>XLR</b> 4ch/96kHz/24bit	When an XLR Microphone Adaptor (optional) is connected (→ <a href="#">XLR Microphone Adaptor (Optional)</a> : 392) 4ch audio recording (→[ <a href="#">4ch Audio Recording</a> ]: 395)
<b>DMS1</b> 4ch/48kHz/24bit	When a Digital Shotgun Microphone (optional) is connected (→ <a href="#">Digital Shotgun Microphone (Optional)</a> : 397) 4ch audio recording (→[ <a href="#">4ch Audio Recording</a> ]: 400)
<b>LMT ON</b> <b>LMT OFF</b>	Sound recording level limiter (→[ <a href="#">Sound Rec Level Limiter</a> ]: 384)
	Mute (→[ <a href="#">Mute Sound Input</a> ]: 379)





Sound recording level (→[[Sound Rec Level Disp.](#)]: 378)

(2)





EXT.GAIN STD.	Sound recording gain switch (→[ <a href="#">Sound Rec Gain Level</a> ]: 380)
Mute OFF	Sound input mute (→[ <a href="#">Mute Sound Input</a> ]: 379)
Audio Quality 96kHz/24bit	Sound recording quality (→[ <a href="#">Sound Rec Quality</a> ]: 382)
4ch MIC Input ON	4ch audio recording (→[ <a href="#">4ch Audio Recording</a> ]: 395)

## Playback Screen



	Playback mode (→ <a href="#">[Playback Mode]: 495</a> )
2026.12. 1 10:00	Recording date and time (→ <a href="#">Setting the Clock (When Turning On for the First Time): 54</a> )
★3	Rating (→ <a href="#">[Rating]: 499</a> )
	Video playback (→ <a href="#">Playing Back Videos: 462</a> )
	Protected picture (→ <a href="#">[Protect]: 499</a> )
GPS	Location logging (→ <a href="#">[Location Logging]: 633</a> )
	Obtaining information

(2)

100-0001	Folder/file number (→ <a href="#">[Folder / File Settings]: 575</a> )
1/999	Image number/Total number of images
9 pic. 9 files	Number of group images/ Number of files
8m30s	Video recording time (→ <a href="#">Playing Back Videos: 462</a> )
 XXmXXs  XXs	Slow & Quick video (→ <a href="#">Slow &amp; Quick Video: 413</a> )
	LUT View Assist (→ <a href="#">[Log View Assist]: 444</a> )
	HLG View Assist (→ <a href="#">[HLG View Assist]: 448</a> )

(3)

	Playback (video) (→ <a href="#">Playing Back Videos: 462</a> )
    	Group images (→ <a href="#">Group Images: 477</a> )
96kHz/24bit	Sound recording quality (→ <a href="#">[Sound Rec Quality]: 382</a> )
MOV 4K 420/10-L	Recording file format (video) (→ <a href="#">[Rec. File Format(Video)]: 127</a> )/ Recording quality (→ <a href="#">[Rec Quality]: 128</a> )
59.94p 60/59.94p	Frame rate (→ <a href="#">[Rec Quality]: 128</a> )/ Slow & Quick setting (→ <a href="#">Slow &amp; Quick Video: 413</a> )
FULL  	Image area of video (→ <a href="#">[Image Area of Video]: 142</a> )
 	Wi-Fi/Bluetooth connection state (→ <a href="#">Checking operation of the Wi-Fi and Bluetooth functions: 646</a> )
	Silent mode (→ <a href="#">[Silent Mode]: 253</a> )



(4)

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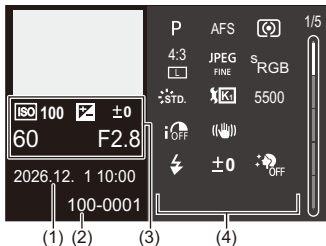
Recording information

---

(5)

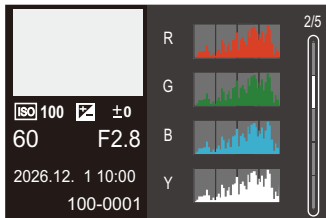
	Battery indication (→ <a href="#">Power Indications: 44</a> )
	Power supply (→ <a href="#">Using the Camera While Supplying It with Power (Supplying Power): 43</a> )

## Detailed information display



- (1) Recording date and time (→ [Setting the Clock \(When Turning On for the First Time\): 54](#))
- (2) Folder/file number (→ [\[Folder / File Settings\]: 575](#))
- (3) Recording information (basic)
- (4) Recording information (advanced)

## Histogram display



## Photo Style display

ISO 100  $\pm 0$   
 60 F2.8  
 2026.12. 1 10:00  
 100-0001

Standard 3/5  
 Contrast  $\pm 0$   
 Highlight  $\pm 0$   
 Shadow  $\pm 0$   
 Saturation  $\pm 0$   
 Hue  $\pm 0$   
 Grain Effect OFF  
 Color Noise  
 Sharpness  $\pm 0$   
 Noise Reduction  $\pm 0$

## White balance display

ISO 100  $\pm 0$   
 60 F2.8  
 2026.12. 1 10:00  
 100-0001

5500K 4/5  
 G  
 A B  
 M

## Lens information display

ISO 100  $\pm 0$   
 60 F2.8  
 2026.12. 1 10:00  
 100-0001

DC VARIO-SUMMILUX 5/5  
 1:1.7-2.8/10.9-34 ASPH.  
 Focal Length 10.9mm  
 35mm Focal Length 24mm  
 Long Exposure NR OFF

# Message Displays

---

Meanings of main messages displayed on the camera screen, and response methods.

## ❖ Card

### **[Memory Card Error]/[Format this card?]**

- It is a format that cannot be used with the camera.  
Either insert another card, or back up any necessary data before formatting.  
(→[\[Card Format\]: 574](#))

### **[Memory Card Error]/[This memory card cannot be used]**

- Use a card compatible with the camera. (→[Memory Cards That Can Be Used: 23](#))

### **[Insert memory card again.]/[Try another card]**

- Unable to access the card. Reinsert the card.
- Insert a different card.

### **[Read Error]/[Write Error]/[Please check the card]**

- Failure to read or write data.  
Turn off the camera, reinsert the card, and then turn it on again.
- The card may be broken.
- Insert a different card.

**[Recording was cancelled due to the limitation of the writing speed of the card]**

- The card does not meet the writing speed requirements for recording.  
Use a card of a supported Speed Class. (→[SD Cards That Can Be Used with This Camera: 24](#))
- If the recording stops even when you are using a card that meets the specified Speed Class rating, the data writing speed of the card is getting slow.  
We recommend backing up data, and formatting. (→[\[Card Format\]: 574](#))

**❖ Battery**

**[This battery cannot be used]**

- Use a genuine Panasonic battery.  
If this message is displayed even when a genuine Panasonic battery is used, contact the dealer.
- If the terminal of the battery is dirty, remove the dirt and dust from the terminal.

**[The life span of this battery is starting to decline and should be considered for replacement. To maintain reliability refrain from using this battery.]**

- The battery has deteriorated. Try not to use that battery.

## ❖ Others

### **[Some pictures cannot be deleted]/[This picture cannot be deleted]**

- Images that do not comply with the DCF standard cannot be deleted.  
Back up any necessary data before formatting the card. (→[\[Card Format\]: 574](#))

### **[A folder cannot be created]**

- The maximum number of folder numbers has been reached, so new folders cannot be created.  
After formatting the card, execute [File Number Reset] in the [Setup] ([Card/File]) menu. (→[\[File Number Reset\]: 577](#))

### **[Please turn camera off and then on again]/[System Error]**

- Turn off and on the camera.  
If the message is displayed even when doing this several times, contact the dealer.

# Troubleshooting

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- [Power, Battery: 686](#)
- [Recording: 687](#)
- [Video: 692](#)
- [Playback: 692](#)
- [Monitor/Viewfinder: 693](#)
- [Flash: 693](#)
- [Wi-Fi Function: 694](#)
- [PC: 696](#)
- [Others: 697](#)

First, try out the following procedures.

**If the problem is not resolved, it may be improved by selecting [Reset] (→ [\[Reset\]: 87](#)) on the [Setup] ([Setting]) menu.**

## Power, Battery

### The camera turns off automatically.



- [Power Save Mode] is enabled. (→ [\[Power Save Mode\]: 46](#))

### The battery becomes flat too quickly.

- When connected to Wi-Fi, the battery drains quickly.  
Turn the camera off frequently such as by using [Power Save Mode] (→ [\[Power Save Mode\]: 46](#)).

## Recording

### Recording stops before finishing. Cannot record. Cannot use some functions.

- The temperature of the camera rises more readily in the following circumstances: when the ambient temperature is high, during continuous use such as when recording high-definition video. When the temperature of the camera rises, [  ] appears blinking on the screen. If you continue to use the camera, a message indicating use is not possible is displayed on the screen and some functions, such as recording, will be stopped, and [  ] lights. Turn off the camera and wait until the camera cools down. (→ [Continuous Video Recording Time with Temperature Increases in the Camera: 706](#))
  - \* When recording with the camera mounted on a tripod, etc., you can set the temperature at which recording is stopped to a higher temperature. (→ [\[Thermal Management\]: 578](#))

### Cannot record images. The shutter will not operate immediately when the shutter button is pressed.

- If [Focus/Shutter Priority] is set to [FOCUS], then recording will not take place until focus is achieved. (→ [\[Focus/Shutter Priority\]: 545](#))

### The recorded image is whitish.

- Images may look whitish when the lens gets dirty with fingerprints or similar. If the lens is dirty, turn the camera off, then wipe the lens surface with a soft, dry cloth.

### The recorded image is too bright or dark.

- Ensure AE Lock is not set where it is not appropriate. (→ [Locking Focus and Exposure \(AF/AE Lock\): 293](#))

### **Multiple images are recorded at once.**

- When drive mode is set to [ ] (Burst Shot), pressing and holding the shutter button will take burst pictures. (→ [Selecting the Drive Mode: 206](#))
- When [Bracketing] is set, then pressing the shutter button records multiple images while automatically changing the settings. (→ [Bracket Recording: 238](#))

### **The subject is not focused properly.**

- Confirm the following details:
  - Is the subject outside of the focus range?
  - Is [Shutter AF] set to [OFF]? (→ [\[Shutter AF\]: 550](#))
  - Is [Focus/Shutter Priority] set to [RELEASE]? (→ [\[Focus/Shutter Priority\]: 545](#))
  - Is AF Lock (→ [Locking Focus and Exposure \(AF/AE Lock\): 293](#)) set where it is not appropriate?
  - Is [Focus Limiter] set to [ON]? (→ [\[Focus Limiter\]: 157](#))

### **Cannot focus with the lens during MF.**

- Confirm the following details:
  - Is [Control Ring Lock] set to [ON]? (→ [\[Control Ring Lock\]: 547](#))

### **The recorded image is blurred. The image stabilizer is not effective.**

- The shutter speed will become slower and the image stabilizer function may not work properly when recording in dark places.  
In these cases, use a tripod and the self-timer when recording.

### **The recorded image looks rough. Noise appears on the picture.**

- Try the following:
  - Reduce the ISO sensitivity. (→ [ISO Sensitivity: 295](#))
  - Increase [Noise Reduction] of [Photo Style] to the positive direction, or adjust each item other than [Noise Reduction] to the negative direction. (→ [Adjusting Image Quality: 316](#))
  - Set [Long Exposure NR] to [ON]. (→ [Long Exposure NR: 258](#))
- When the camera is used continuously, the temperature inside the camera may rise and this may cause lower image quality. We recommend turning off the camera whenever you are not actually recording.

### **The subject appears distorted on the image.**

- When a moving subject is recorded while using the following functions, the subject may appear distorted in the picture:
  - [ELEC.]
  - Video recording

This is a characteristic of the CMOS sensor that is the image sensor of the camera, and is not a malfunction.

**Striping or flicker may appear under lighting such as fluorescent or LED lighting.**



- This is characteristic of CMOS sensors which serve as the camera's pickup sensors. This is not a malfunction.
- When using the electronic shutter (→ [\[Shutter Type\]: 255](#)), lowering the shutter speed may reduce the effect of the horizontal stripes.
- If flicker or horizontal stripes are noticeable when recording video, this can be mitigated by fixing the shutter speed. Either set [\[Flicker Decrease \(Video\)\]](#) (→ [\[Flicker Decrease \(Video\)\]: 403](#)), or fix the shutter speed with the [\[S&Q\]](#) mode.
- You can make finer adjustments to shutter speed by using [\[Synchro Scan\(Photo\)\]](#) or [\[Synchro Scan\(Video\)\]](#). (→ [\[Synchro Scan\(Photo\)\]: 259](#), [\[Synchro Scan\(Video\)\]: 449](#))

**Stripes appear in high ISO sensitivity.**

- Stripes may appear in high ISO sensitivity. Decrease the ISO sensitivity. (→ [ISO Sensitivity: 295](#))

**The brightness or coloring of the recorded image is different from the actual scene.**

- When recording under lighting such as fluorescent or LED lighting, increasing the shutter speed may introduce slight changes to brightness or coloring. These are a result of the characteristics of the light source and do not indicate a malfunction.
- When recording subjects in extremely bright locations or recording under lighting such as fluorescent, LED, mercury, or sodium lighting, the coloring or screen brightness may change or horizontal striping may appear on the screen.

**Bright spot not in subject is recorded.**

- Pixels may be missing from the image sensor.  
Perform [Pixel Refresh]. (→[\[Pixel Refresh\]: 590](#))

## Video

### Cannot record videos.

- Try again after either returning the [System Frequency] to the original setting or inserting another card.
- When using a large capacity card, you may not be able to record for a while after turning on the camera.

### Clicks and mechanical noises are recorded on the video. The volume of the recorded audio is very low.

- Depending on the recording conditions, sounds made when changing the aperture, focus, zoom, etc., may be recorded on the video, but this does not indicate a malfunction.
- Do not block the microphone hole during video recording.

### An operation sound is recorded in a video.

- We recommend setting the [P/S&Q] mode and recording with touch operation if you are bothered about the operation sounds during recording. (→[Operations During Video Recording: 118](#))

## Playback

### Cannot play back. There are no recorded pictures.

- Folders and images processed on a PC cannot be played on the camera.
- Some images are not displayed when the [Playback Mode] is set. Set to [Normal Play]. (→[\[Playback Mode\]: 495](#))
- Videos recorded with a different [System Frequency] setting cannot be played back. Return the [System Frequency] setting to the one you used during the recording. (→[\[System Frequency\]: 125](#))

## Monitor/Viewfinder

### **The monitor/viewfinder turns off when the camera is turned on.**

- If no operations are performed during the set time period, [Auto LVF/Monitor Off] (→[Auto LVF/Monitor Off]: 46) is activated, and the monitor/viewfinder turns off.
- When an object or your hand is positioned near the eye sensor, the monitor display may switch to the viewfinder display.

### **It may flicker for an instant or the brightness of the screen may change significantly for an instant.**

- This occurs when the shutter button is pressed halfway, or when the subject brightness changes, making the lens aperture change.  
This is not a malfunction.

### **Unevenly bright parts or irregular colors appear on the viewfinder.**

- The viewfinder of the camera is built with OLED components. Screen burn-in may occur on the screen/viewfinder when a same image is displayed for a long period of time, but it does not affect the recorded images.

### **The viewfinder display is laggy.**

- When the camera temperature rises, the camera may automatically suppress the speed of the viewfinder display. The speed is restored when the camera temperature cools down.

## Flash

### **The flash does not fire.**

- The flash does not fire when using the following functions:
  - Video recording
  - [ELEC.]/[Silent Mode]
  - [Filter Settings]

## Wi-Fi Function

### **A Wi-Fi connection cannot be established. Radio waves get disconnected. Wireless access point is not displayed.**

#### **General tips for using a Wi-Fi connection**

- Use within the communication range of the device to be connected.
- Usage near devices that utilize the 2.4 GHz frequency such as microwave ovens and cordless telephones may result in the radio wave being lost.  
Use the camera at a sufficient distance from these devices.
- When the remaining battery level is low, it may not be possible to connect to or maintain communication with other devices.  
(A message such as [Communication error] is displayed.)
- If you place the camera on a metal table or shelf, the radio waves may be adversely affected. In such cases, you may not be able to establish a connection.  
Move the camera away from the metal surface.

#### **Wireless access point**

- Confirm that the connected wireless access point can be used.
- Confirm the radio wave conditions of the wireless access point.
  - Move the camera closer to the wireless access point.
  - Change the location and angle of the wireless access point.
- Depending on the wireless access point, the radio wave may not be displayed even though it is present.
  - Turn off and then on the wireless access point.
  - If the wireless channel of the wireless access point cannot be set automatically, manually set the channel supported by the camera.
- Depending on the wireless access point, connection may be automatically disconnected after specific time has passed.  
Reconnect the connection again.

### **Cannot connect with a wireless access point.**

- Radio waves from other devices may block the connection to a wireless access point.  
Check the status of other devices that are connected to the wireless access point as well as the status of other wireless devices.

### **Wi-Fi connection on an iOS device fails.**

- Follow the message displayed to allow connection to the camera.  
If you still cannot connect, select the SSID of the camera on the Wi-Fi setup screen of the smartphone to connect.  
If the SSID is not displayed, turn off and on the camera, then perform the Bluetooth connection settings again.

### **Wi-Fi connection with a smartphone is not possible.**

- Change the access point to connect to in the smartphone Wi-Fi settings to the camera.



### **Sending of videos/images fails midway. There are some videos/images that cannot be sent.**

- Is the size of the image too large?
  - Reduce the image size at [Size] (→[Size]: 631), and then send.
  - Transmit after dividing the video with [Video Divide] (→[Video Divide]: 469).
- Set the file format of video files to send. (→[File Format]: 631)
- If sending of videos/images fails, we recommend transferring them over a USB connection cable.

### **I have forgotten the password for the Wi-Fi.**

- In the [Setup] ([Setting]) menu, [Reset], reset network settings. (→[Reset]: 87)  
However, all information set in [Wi-Fi] and [Bluetooth] will also be reset.

### **Wi-Fi/Bluetooth function stops. Unusable.**

- When the temperature of the camera rises while using the Wi-Fi/Bluetooth function, [] appears blinking on the screen. [] is displayed steadily if you continue to use the camera and the Wi-Fi/Bluetooth function stops. (The settings cannot be changed either.)

Turn off the camera and wait until the camera cools down.

## **PC**

### **Images cannot be imported even when connected to a PC.**

- Set the [USB Mode] of the camera to [PC(Storage)]. (→[\[USB Mode\]: 584](#))
- Turn the camera off and on.





## Others

### There is a sound from lens.

- The lens movement and aperture operation emit sound when turning the camera on or off; this is not a malfunction.
- Sound is emitted when the aperture automatically operates during zoom operations or when the camera is moved; this does not indicate a problem.

### An unreadable language was selected by mistake.

- Reselect the language from the menu using the following procedure:

 ⇒ [  ] ⇒ [  ] ⇒ [  ] ⇒ Select desired language (⇒ [\[Language\]: 590](#))

### The camera becomes warm.

- The camera surface and back of the monitor may become warm during use, but this does not indicate a problem with performance or quality.

## Cautions for Use

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### ❖ The Camera

**Keep this unit as far away as possible from electromagnetic equipment (such as microwave ovens, TVs, video games etc.).**

- If you use this unit on top of or near a TV, the pictures and/or sound on this unit may be disrupted by electromagnetic wave radiation.
- Do not use this unit near cell phones because doing so may result in noise adversely affecting the pictures and/or sound.
- Recorded data may be damaged, or pictures may be distorted, by strong magnetic fields created by speakers or large motors.
- Electromagnetic wave radiation may adversely affect this unit, disturbing the pictures and/or sound.
- If this unit is adversely affected by electromagnetic equipment and stops functioning properly, turn this unit off and remove the battery or disconnect AC adaptor. Then reinsert the battery or reconnect AC adaptor and turn this unit on.

**Do not use this unit near radio transmitters or high-voltage lines.**

- If you record near radio transmitters or high-voltage lines, the recorded pictures and/or sound may be adversely affected.

**Do not extend the cords or the cables.**

**Do not spray the camera with insecticides or volatile chemicals.**

- If the camera is sprayed with such chemicals, the body of the camera may be damaged and the surface finish may peel off.

**Do not keep products made of rubber, PVC or similar materials in contact with the camera for a long period of time.**

## ❖ Cleaning

**Before cleaning the camera, remove the battery or the DC Coupler, and disconnect the power plug from the electrical outlet. Then wipe the camera with a dry, soft cloth.**

- When the camera is soiled badly, it can be cleaned by wiping the dirt off with a wrung wet cloth, and then with a dry cloth.
- Do not use solvents such as benzine, thinners, alcohol, kitchen cleansers, etc., as there is a possibility that these can deform the surfaces of the camera, such as those of the external case and the mount, or cause peeling of the coatings.
- When using a chemical cloth, be sure to follow the accompanying instructions.

## ❖ Cleaning the Viewfinder

If the viewfinder becomes dirty, blow dirt off the surface of the viewfinder using a commercially available blower, then lightly wipe with a soft dry cloth.

## ❖ Monitor/Viewfinder

- Do not push hard on the monitor.  
This may cause irregular coloration or malfunction.
- Extremely high precision technology is employed to produce the monitor/viewfinder screen. However there may be some dark or bright spots, or spots that light constantly (red, blue, or green) on the screen.  
This is not a malfunction.  
Though the monitor/viewfinder screen parts are produced with highly controlled precision technology, some pixels may be inactive or always lit.  
The spots will not be recorded on images on a card.

## ❖ Lens

- Do not press the lens with excessive force.
- Images may appear slightly white if lens is dirty (fingerprints, etc.). Turn the camera on, hold the extracted lens barrel with your fingers, and gently wipe the lens surface with a soft, dry cloth.
- Do not leave the camera with the lens facing the sun as rays of light from the sun may cause it to malfunction. Also, be careful when placing the camera outside or near a window.

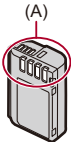
## ❖ Battery

The battery is a rechargeable lithium ion battery.

It is highly sensitive to temperature and humidity, and the effect on performance increases as the temperature rises or drops.

### **Do not let the battery terminals (A) become soiled.**

- Wipe with a dry cloth if they become soiled.



### **Always remove the battery after use.**

- Place the removed battery in a plastic bag, etc., and keep away from metallic objects (clips, etc.) for storage or transport.

### **If you drop the battery accidentally, check to see if the body of the battery and the contacts are deformed.**

- Damage to the camera will result if a battery with deformed contacts is inserted into the camera.

### **Dispose of unusable battery.**

- The battery has a limited life.
- Do not throw the battery into fire because it may cause an explosion.

**Do not allow battery terminals to come into contact with metal objects (such as necklaces, hairpins, etc.).**

- This can cause short-circuiting or heat generation and you may be badly burned if you touch a battery.

**❖ Card**

**Do not leave the card in areas with high temperatures, direct sunlight, or areas prone to electromagnetic waves and static.**

**Do not bend or drop the card.**

**Do not subject the card to strong vibration.**

- Otherwise, the card and recorded data may be damaged.
- Put the card in the card case or the storage bag after use and when storing or carrying the card.
- Do not allow dirt, water or other foreign objects to get into the contacts on the card. Additionally, do not touch the contacts with your hands.

## ❖ Personal Information

Personal information is stored within the camera and in recorded images. We recommend that you enhance security by setting the Wi-Fi function lock to protect personal information. (→[Wi-Fi] Menu: 648)

- Images may contain information that can be used to identify the user, such as recording dates and times, and location information.
- Avoid using passwords that may be easily guessed by someone else, such as birthdays, etc.
- Use a different password to the passwords you have used for services provided by other companies.

## Disclaimer

- Information including personal information may be altered or vanish due to erroneous operation, effect of static electricity, accident, malfunction, repair, or other handlings.

Please note in advance that Panasonic is not liable in any way for any direct or indirect damage from the alteration or vanishing of information or personal information.

## When requesting a repair or transferring/disposing of the camera

- After making a copy of personal information, be sure to delete information, including personal information, such as wireless LAN connection settings that you have registered or saved within the camera with [Reset] (→[Reset]: 87).
- Reset the settings to protect the personal information. (→[Reset]: 87)
- Remove the card from the camera.
- Settings may return to factory default when camera is repaired.
- Please contact the dealer where you purchased the camera or Panasonic if above operations are not possible due to malfunction.

## **Points to remember when disposing of/transferring the memory card**

Format or delete using the camera or a PC will only modify the file management information, so it will not delete the data in the card completely.

We recommend physically destroying the card or using commercially available PC data deletion software to delete the card data completely when disposing of/transferring the card.

You are responsible for handling of data on cards.

## **❖ When Not Using the Camera for a Long Period of Time**

- Ensure you remove the battery and card from the camera.  
If the battery is left in the camera, it may over-discharge, and be rendered unusable even after charging.
- Store the battery in a cool and dry place with a relatively stable temperature.  
(Recommended temperature: 15 °C to 25 °C (59 °F to 77 °F); recommended humidity: 40 %RH to 60 %RH)
- If storing for a long period of time, it is recommended that the battery be charged once per year, fully drained in the camera, then removed from the camera and then stored again.
- We recommend storing the camera with a desiccant (silica gel) when you keep it in a closet or a cabinet.
- Check all the parts before recording when you have not used the camera for a long period of time.

### ❖ Image Data

- Recorded data may be damaged or lost if the camera breaks down due to inappropriate handling.  
Panasonic will not be liable for any damage caused due to loss of recorded data.

### ❖ Tripod/Unipod

- When you use a tripod, make sure the tripod is stable when the camera is attached to it.
- You may not be able to remove the card or the battery when using a tripod or unipod.
- Care is required because tightening the screw excessively may damage the camera.
- Please also carefully read the operating instructions for the tripod/unipod.

### ❖ Lens Cloth (Supplied with the -N Model)

- Avoid keeping the cloth in places exposed to direct sunlight for long periods as this can lead to fading.

## **Wi-Fi Function**

### **Use the camera as a wireless LAN device.**

When using devices or computer systems that require more reliable security than wireless LAN devices, ensure that the appropriate measures are taken for safety designs and defects for the systems used.

Panasonic will not take any responsibility for any damage that arises when using the camera for any purpose other than as a wireless LAN device.

### **Use of the Wi-Fi function of the camera is presumed to be in countries where it is sold.**

There is the risk that the camera violates the radio wave regulations if used in countries other than those where it is sold, and Panasonic takes no responsibility for any violations.

### **There is the risk that data sent and received via radio waves may be intercepted.**

Please note that there is the risk that data sent and received via radio waves may be intercepted by a third party.

### **Do not use the camera in areas with magnetic fields, static electricity or interference.**

- Do not use the camera in areas with magnetic fields, static electricity or interference, such as near microwave ovens.  
These may cause the interruption of the radio waves.
- Using the camera near devices such as microwave ovens or cordless telephones that use the 2.4 GHz radio wave band may cause a decrease in performance in both devices.

### **Do not connect to the wireless network you are not authorized to use.**

When using Wi-Fi, wireless networks (SSID) that you are not allowed to use may be displayed, but you should not connect to these as it may be viewed as unauthorized access.

## Continuous Video Recording Time with Temperature Increases in the Camera

During video recording, recording will be stopped automatically to protect the camera if the ambient temperature is high or recording is performed over extended periods and the internal temperature gets too high.

- For information about the continuous recording time for video, refer also to the support site below.

[https://panasonic.jp/support/global/cs/dsc/info/L10\\_rec.html](https://panasonic.jp/support/global/cs/dsc/info/L10_rec.html)

(English only)

### ❖ Guide to Continuous Recording Times for Video from a Cold Start\*<sup>1</sup>

- [Image Area of Video]: [FULL]

[Rec. File Format(Video)]	[Rec Quality]	[Recording Max Temperature] in [Thermal Management]	
		[STANDARD]	[HIGH]
[MOV]	[C4K/120p/420/10-L]	Approx. 5 min <sup>*2</sup>	Approx. 6 min <sup>*2</sup>
	[C4K/60p/422/10-L]	Approx. 10 min <sup>*2</sup>	Approx. 10 min <sup>*2</sup>
	[C4K/30p/422/10-L]	Approx. 15 min <sup>*2</sup>	Approx. 20 min <sup>*2</sup>
	[FHD/60p/422/10-L]	Approx. 10 min <sup>*2</sup>	Approx. 15 min <sup>*2</sup>

- When recording under the test conditions specified by Panasonic:
  - Ambient temperature (temperature in the vicinity of the camera): 23 °C (73.4 °F)
  - Camera settings at the time of purchase
  - No external device connections, no wireless connections
  - Using a Nextorage SDXC memory card

- \*1 With the camera turned off and the temperature inside and outside the camera at 23 °C (73.4 °F), the camera is turned on and video recording is started immediately.
- \*2 Times may be shorter than shown in the table due to the environment and conditions of use, the status of camera use, and the usage conditions prior to video recording.

#### **Conditions that cause overheating**

- Using in locations where the ambient temperature is high or in direct sunlight
- Repeatedly make video recordings
- Leave the camera in the ON state for extended periods and then trying to make video recordings.
- When connected to external devices (USB, Wi-Fi/Bluetooth)
- When using the following function or setting:
  - [Crop Zoom(Video)]
  - [AF-Point Scope]

#### **❖ Restarting Video Recording After Stopping Due to Temperature Increase in the Camera**

If video recording stops due to temperature increase in the camera, the temperature in the camera needs to be lowered before video recording can be started again.

- Turn the camera off to lower the temperature in the camera.
- The continuous recording time for video after restarting depends on the standby time (the amount of time the camera was off for).

## Number of Pictures That Can Be Taken and Available Recording Time with the Battery

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Listed below are the numbers of pictures that can be taken and the time lengths available for recording when the supplied battery is being used.

- The number of pictures that can be taken is according to the CIPA (Camera & Imaging Products Association) standards.
- Using a Nextorage SDXC memory card.
- The values listed are approximate.

### ❖ Recording Pictures (When Using the Monitor)

Number of pictures that can be taken	420
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### ❖ Recording Pictures (When Using the Viewfinder)

Number of pictures that can be taken	410
--------------------------------------	-----

## ❖ Recording Videos (When Using the Monitor)

- [Image Area of Video]: [FULL]

[Rec. File Format(Video)]	[Rec Quality]	Continuous available recording time (minutes)	Actual available recording time (minutes)
[MP4(Lite)]	[3.8K/10bit/50M/30p] [3.8K/10bit/50M/25p]	110	55
[MP4]	[4K/10bit/100M/60p] [4K/10bit/100M/50p]	100	50
	[FHD/8bit/20M/30p] [FHD/8bit/20M/25p]	140	70
[MOV]	[5.6K/60p/420/10-L] [5.6K/50p/420/10-L]	70	35
	[C4K/120p/420/10-L] [C4K/100p/420/10-L]	60	30
	[C4K/60p/422/10-I] [C4K/50p/422/10-I]	90	45
	[FHD/30p/420/10-L] [FHD/25p/420/10-L]	130	65

- Actual available recording time is the time available for recording when repeating actions such as turning the camera on and off, starting/stopping recording, etc.



- Continuous Video Recording Time with Temperature Increases in the Camera  
(→ [Continuous Video Recording Time with Temperature Increases in the Camera: 706](#))

## ❖ Playback (When Using the Monitor)

<b>Playback time (minutes)</b>	<b>290</b>
--------------------------------	------------



- The number of pictures that can be taken and the available recording time vary depending on the surrounding environment and the usage conditions.  
For example, these will reduce in the following case:
  - In low-temperature environments, such as on ski slopes.
- If the usage duration drops significantly even when the battery is fully charged, then the battery is at the end of its service life.  
Replace with a new battery.

## Number of Pictures That Can Be Taken and Video Recording Time with Cards

Listed below are the numbers of pictures and the time lengths of videos that can be recorded on a card.

- Using a Nextorage SDXC memory card.

### ❖ Number of Pictures That Can Be Taken

- The listed values are a guide to the minimum number of pictures to be taken.

This may vary depending on the recorded subject.

- [Aspect Ratio]: [4:3]
- [JPEG/HEIF Picture Quality]: [FINE]

- [Rec. File Format(Photo)]: [JPEG]

[Picture Size]	SDXC memory card capacity	
	256 GB	512 GB
[L] (20.5M)	20480	40180
[M] (10.5M)	35650	69940
[S] (5M)	60160	118030
[XS] (3M)	87500	171670

- [Rec. File Format(Photo)]: [RAW+JPEG]

[Picture Size]	SDXC memory card capacity	
	256 GB	512 GB
[L] (20.5M)	4070	8000
[M] (10.5M)	4450	8740
[S] (5M)	4690	9210
[XS] (3M)	4810	9440

---

- [Rec. File Format(Photo)]: [HEIF]

[Picture Size]	SDXC memory card capacity	
	256 GB	512 GB
[L] (20.5M)	24680	48420
[M] (10.5M)	41850	82110
[S] (5M)	68760	134890
[XS] (3M)	96250	188830

- [Rec. File Format(Photo)]: [RAW+HEIF]

[Picture Size]	SDXC memory card capacity	
	256 GB	512 GB
[L] (20.5M)	4230	8310
[M] (10.5M)	4560	8940
[S] (5M)	4760	9340
[XS] (3M)	4860	9530

## ❖ Video Recording Time

- “h” is an abbreviation for hour, “m” for minute and “s” for second.
- Video recording time is the total time of all the videos which have been recorded.
- The values listed are approximate.
- **[Rec. File Format(Video)]: [MP4(Lite)]**

<b>[System Frequency]: [59.94Hz (NTSC)]</b>		
<b>[Rec Quality]</b>	<b>SDXC memory card capacity</b>	
	<b>256 GB</b>	<b>512 GB</b>
<b>[4K/10bit/70M/120p]</b>	7h55m	15h35m
<b>[3.8K/10bit/50M/30p] [4K/10bit/50M/60p]</b>	11h05m	21h50m
<b>[FHD/10bit/24M/120p]</b>	23h00m	45h20m
<b>[FHD/10bit/16M/60p]</b>	34h30m	67h45m

<b>[System Frequency]: [50.00Hz (PAL)]</b>		
<b>[Rec Quality]</b>	<b>SDXC memory card capacity</b>	
	<b>256 GB</b>	<b>512 GB</b>
<b>[4K/10bit/70M/100p]</b>	7h55m	15h35m
<b>[3.8K/10bit/50M/25p] [4K/10bit/50M/50p]</b>	11h05m	21h50m
<b>[FHD/10bit/24M/100p]</b>	23h00m	45h20m
<b>[FHD/10bit/16M/50p]</b>	34h30m	67h45m

## • [Rec. File Format(Video)]: [MP4]

<b>[System Frequency]: [59.94Hz (NTSC)]</b>		
<b>[Rec Quality]</b>	<b>SDXC memory card capacity</b>	
	<b>256 GB</b>	<b>512 GB</b>
[4K/10bit/100M/60p] [4K/8bit/100M/30p] [4K/8bit/100M/24p]	5h30m	10h55m
[4K/10bit/72M/30p] [4K/10bit/72M/24p]	7h45m	15h10m
[FHD/8bit/28M/60p]	19h45m	38h50m
[FHD/8bit/20M/30p]	26h20m	51h45m
[FHD/8bit/24M/24p]	23h00m	45h20m

<b>[System Frequency]: [50.00Hz (PAL)]</b>		
<b>[Rec Quality]</b>	<b>SDXC memory card capacity</b>	
	<b>256 GB</b>	<b>512 GB</b>
[4K/10bit/100M/50p] [4K/8bit/100M/25p]	5h30m	10h55m
[4K/10bit/72M/25p]	7h45m	15h10m
[FHD/8bit/28M/50p]	19h45m	38h50m
[FHD/8bit/20M/25p]	26h20m	51h45m

## • [Rec. File Format(Video)]: [MOV]

[System Frequency]: [59.94Hz (NTSC)]		
[Rec Quality]	SDXC memory card capacity	
	256 GB	512 GB
[C4K/60p/422/10-I] [C4K/48p/422/10-I] [4K/60p/422/10-I] [4K/48p/422/10-I]	55m00s	1h45m
[C4K/30p/422/10-I] [C4K/24p/422/10-I] [4K/30p/422/10-I] [4K/24p/422/10-I] [FHD/120p/422/10-I]	1h20m	2h40m
[5.6K/60p/420/10-L] [5.6K/48p/420/10-L] [4.4K/60p/420/10-L] [4.4K/48p/420/10-L] [C4K/120p/420/10-L] [4K/120p/420/10-L]	1h50m	3h35m
[5.6K/30p/420/10-L] [5.6K/24p/420/10-L] [5.2K/30p/420/10-L] [5.2K/24p/420/10-L] [C4K/60p/422/10-L] [C4K/60p/420/10-L] [C4K/48p/422/10-L] [C4K/48p/420/10-L] [4K/60p/422/10-L] [4K/60p/420/10-L] [4K/48p/422/10-L] [4K/48p/420/10-L] [FHD/240p/422/10-L] [FHD/240p/420/10-L] [FHD/60p/422/10-I] [FHD/48p/422/10-I] [FHD/30p/422/10-I] [FHD/24p/422/10-I]	2h45m	5h25m

[C4K/60p/420/8-L] [C4K/30p/422/10-L] [C4K/30p/420/10-L] [C4K/24p/422/10-L] [C4K/24p/420/10-L] [4K/60p/420/8-L] [4K/30p/422/10-L] [4K/30p/420/10-L] [4K/24p/422/10-L] [4K/24p/420/10-L] [FHD/120p/422/10-L] [FHD/120p/420/10-L]	3h40m	7h10m
[C4K/30p/420/8-L] [C4K/24p/420/8-L] [4K/30p/420/8-L] [4K/24p/420/8-L] [FHD/60p/422/10-L] [FHD/60p/420/10-L] [FHD/48p/422/10-L] [FHD/48p/420/10-L] [FHD/30p/422/10-L] [FHD/30p/420/10-L] [FHD/24p/422/10-L] [FHD/24p/420/10-L]	5h25m	10h40m
[FHD/60p/420/8-L]	10h40m	20h55m
[FHD/30p/420/8-L] [FHD/24p/420/8-L]	20h25m	40h10m

<b>[System Frequency]: [50.00Hz (PAL)]</b>		
<b>[Rec Quality]</b>	<b>SDXC memory card capacity</b>	
	<b>256 GB</b>	<b>512 GB</b>
[C4K/50p/422/10-I] [4K/50p/422/10-I]	55m00s	1h45m
[C4K/25p/422/10-I] [4K/25p/422/10-I] [FHD/100p/422/10-I]	1h20m	2h40m
[5.6K/50p/420/10-L] [4.4K/50p/420/10-L] [C4K/100p/420/10-L] [4K/100p/420/10-L]	1h50m	3h35m
[5.6K/25p/420/10-L] [5.2K/25p/420/10-L] [C4K/50p/422/10-L] [C4K/50p/420/10-L] [4K/50p/422/10-L] [4K/50p/420/10-L] [FHD/200p/422/10-L] [FHD/200p/420/10-L] [FHD/50p/422/10-I] [FHD/25p/422/10-I]	2h45m	5h25m
[C4K/50p/420/8-L] [C4K/25p/422/10-L] [C4K/25p/420/10-L] [4K/50p/420/8-L] [4K/25p/422/10-L] [4K/25p/420/10-L] [FHD/100p/422/10-L] [FHD/100p/420/10-L]	3h40m	7h10m
[C4K/25p/420/8-L] [4K/25p/420/8-L] [FHD/50p/422/10-L] [FHD/50p/420/10-L] [FHD/25p/422/10-L] [FHD/25p/420/10-L]	5h25m	10h40m
[FHD/50p/420/8-L]	10h40m	20h55m
[FHD/25p/420/8-L]	20h25m	40h10m


<b>[System Frequency]: [24.00Hz (CINEMA)]</b>		
<b>[Rec Quality]</b>	<b>SDXC memory card capacity</b>	
	<b>256 GB</b>	<b>512 GB</b>
[C4K/24p/422/10-I] [4K/24p/422/10-I] [FHD/120p/422/10-I]	1h20m	2h40m
[5.6K/48p/420/10-L] [4.4K/48p/420/10-L] [C4K/120p/420/10-L] [4K/120p/420/10-L]	1h50m	3h35m
[5.6K/24p/420/10-L] [5.2K/24p/420/10-L] [FHD/24p/422/10-I]	2h45m	5h25m
[C4K/24p/422/10-L] [C4K/24p/420/10-L] [4K/24p/422/10-L] [4K/24p/420/10-L] [FHD/120p/422/10-L] [FHD/120p/420/10-L]	3h40m	7h10m
[C4K/24p/420/8-L] [4K/24p/420/8-L] [FHD/24p/422/10-L] [FHD/24p/420/10-L]	5h25m	10h40m
[FHD/24p/420/8-L]	20h25m	40h10m










- The number of pictures that can be taken and the available video recording time depend on the recording conditions and the type of recording media.
- [9999+] is displayed on the recording screen if the remaining number of pictures that can be taken is 10000 or more.
- The continuous recordable time for videos is displayed on the screen.

## List of Default Settings/Custom Saving/ Settings Available for Copying







: Using [Reset], the function to return to default settings







: Using [Save to Custom Mode(Photo)]/[Save to Custom Mode(Video)]/[Save to Custom Mode(S&Q)], the function to save settings details in the Custom mode

: Using [Save/Restore Camera Setting], the function to copy settings details

Menu		Default setting			
 [Photo]:  [Image Quality]					
[Photo Style]		[  STD.]	✓	✓	✓
[Metering Mode]		[  ]	✓	✓	✓
[Aspect Ratio]		[4:3]	✓	✓	✓
[Rec. File Format(Photo)]		[JPEG]	✓	✓	✓
[Switch JPEG/HEIF]		[JPEG]	✓	✓	✓
[JPEG/HEIF Picture Quality]		[FINE]	✓	✓	✓
[HEIF Format]		[SDR]	✓	✓	✓
[Picture Size]		[L]	✓	✓	✓
[Long Exposure NR]		[ON]	✓	✓	✓
[ISO Sensitivity (photo)]	[ISO Auto Lower Limit Setting]	[100]	✓	✓	✓
	[ISO Auto Upper Limit Setting]	[3200]	✓	✓	✓
[Synchro Scan(Photo)]		[OFF]	✓	✓	✓
[Min. Shutter Speed]		[AUTO]	✓	✓	✓
[Soft Skin Effect]		[OFF]	✓	✓	✓
[i.Dynamic Range]		[OFF]	✓	✓	✓
[Diffraction Compensation]		[OFF]	✓	✓	✓








[Filter Settings]	[Filter Effect]	[OFF]	✓	✓	✓
	[Simultaneous Record w/o Filter]	[OFF]	✓	✓	✓
[Flicker Decrease (Video)]		[OFF]	✓	✓	✓






Menu		Default setting			
 [Photo]:  [Focus]					
[AFS/AFC(Photo)]		[AFS]	✓	✓	✓
[AF Detection Setting]		[OFF]	✓	✓	✓
[Detecting Subject]	[Type of Subject]	[HUMAN]	✓	✓	✓
	[Detection Mode(Human)] [Target Parts]	[  ]	✓	✓	✓
[AF Custom Setting(Photo)]		[Set 1]	✓	✓	✓
[Focus Limiter]	[ON] / [OFF]	[OFF]	✓	✓	✓
	[SET]	—	✓	✓	✓
[AF Assist Light]		[ON]	✓	✓	✓
[Focus Frame Color Setting]		<input type="checkbox"/>	✓	✓	✓
[Focus Peaking]	[ON] / [OFF]	[ON]	✓	✓	✓
	[SET]	—	✓	✓	✓
[Focus Frame Moving Speed]		[FAST]	✓	✓	✓








Menu	Default setting			
 [Photo]:  [Flash]				
[Flash Mode]	[  ]	✓	✓	✓
[Firing Mode]	[TTL]	✓	✓	✓
[Flash Adjust.]	[±0 EV]	✓	✓	✓
[Flash Synchro]	[1ST]	✓	✓	✓
[Manual Flash Adjust.]	[1/1]	✓	✓	✓
[Auto Exposure Comp.]	[OFF]	✓	✓	✓
[Wireless]	[OFF]	✓	✓	✓
[Wireless Channel]	[1CH]	✓	✓	✓
[Communication Light]	[HIGH]	✓	✓	✓
[Wireless Setup]	—	✓	✓	✓






Menu		Default setting			
 [Photo]:  [Others (Photo)]					
[Bracketing]	[Bracketing Type]	[OFF]	✓	✓	✓
	[More Settings]	—	✓	✓	✓
[Focus Stacking]	[Start]	—			
	[Step]	[+5]	✓	✓	✓
	[Image Count]	[10]	✓	✓	✓
	[Shutter Delay]	[2 SEC]	✓	✓	✓
[Silent Mode]		[OFF]	✓	✓	✓
[Crop Zoom(Photo)]	[ON] / [OFF]	[OFF]	✓	✓	✓
	[SET]	—	✓	✓	✓
[Image Stabilizer]	[Operation Mode]	[  ]	✓	✓	✓
	[E-Stabilization (Video)]	[OFF]	✓	✓	✓
[Burst Shot Setting]		[H]	✓	✓	✓
[Shutter Type]		[MECH.]	✓	✓	✓
[Shutter Delay]		[OFF]	✓	✓	✓
[Time Lapse/ Animation]	[Mode]	[Time Lapse Shot]	✓	✓	✓
	[Shooting Interval Setting]	[ON]	✓	✓	✓
	[Start Time]	[Now]	✓	✓	✓
	[Image Count]	[1]	✓	✓	✓
	[Shooting Interval]	[1m00s]	✓	✓	✓
	[Exposure Leveling]	[OFF]	✓	✓	✓
	[Create New Folder At Rec]	—	✓	✓	✓
[Live View Composite]	[Start]	—			
	[Shutter Delay]	[OFF]	✓	✓	✓
[Self Timer]	[  ] / [  ] / [  ] / [  ] to [  ]	[  ]	✓	✓	✓
	[SET]	—	✓	✓	✓








	[Start]	—			
[Multiple Exposure]	[Auto Gain]	[ON]	✓	✓	✓
	[Overlay]	[OFF]	✓	✓	✓




Menu		Default setting			
 [Video]:  [Image Quality]					
[Photo Style]		[  STD.]	✓	✓	✓
[Metering Mode]		[  ]	✓	✓	✓
[ISO Sensitivity (video)]	[ISO Auto Lower Limit Setting]	[100]	✓	✓	✓
	[ISO Auto Upper Limit Setting]	[3200]	✓	✓	✓
[Synchro Scan(Video)]		[OFF]	✓	✓	✓
[i.Dynamic Range]		[OFF]	✓	✓	✓
[Diffraction Compensation]		[OFF]	✓	✓	✓
[Filter Settings]	[Filter Effect]	[OFF]	✓	✓	✓
	[Simultaneous Record w/o Filter]	[OFF]	✓	✓	✓













Menu	Default setting			
 [Video]:  [Image Format]				
[Rec. File Format(Video)]	When [System Frequency] is set to [59.94Hz (NTSC)] or [50.00Hz (PAL)]: [MP4(Lite)]	✓	✓	✓
	When [System Frequency] is set to [24.00Hz (CINEMA)]: [MOV]			
[Image Area of Video]	[FULL]	✓	✓	✓
[Rec Quality]	When [System Frequency] is set to [59.94Hz (NTSC)]: [3.8K/10bit/50M/30p]			
	When [System Frequency] is set to [50.00Hz (PAL)]: [3.8K/10bit/50M/25p]	✓	✓	✓
	When [System Frequency] is set to [24.00Hz (CINEMA)]: [4K/24p/420/10-L]			
[Rec Quality (My List)]	—	✓	✓	✓
[Slow & Quick Setting]	[30fps]	✓	✓	✓
[Luminance Level]	[64-940]	✓	✓	✓

Menu		Default setting			
 [Video]:  [Focus]					
[AFS/AFC(Video)]		[AFC]	✓	✓	✓
[AF Detection Setting]		[OFF]	✓	✓	✓
[Detecting Subject]	[Type of Subject]	[HUMAN]	✓	✓	✓
	[Detection Mode(Human)] [Target Parts]		✓	✓	✓
[AF Custom Setting(Video)]	[ON] / [OFF]	[OFF]	✓	✓	✓
	[SET]	—	✓	✓	✓
[Focus Limiter]	[ON] / [OFF]	[OFF]	✓	✓	✓
	[SET]	—	✓	✓	✓
[AF Assist Light]		[ON]	✓	✓	✓
[Focus Frame Color Setting]		[  ]	✓	✓	✓
[Focus Peaking]	[ON] / [OFF]	[ON]	✓	✓	✓
	[SET]	—	✓	✓	✓
[Focus Frame Moving Speed]		[FAST]	✓	✓	✓

Menu		Default setting			
 [Video]:  [Audio]					
[Sound Rec Level Disp.]	[ON] / [OFF]	[OFF]	✓	✓	✓
	[SET]	—	✓	✓	✓
[Mute Sound Input]		[OFF]	✓	✓	✓
[Sound Rec Gain Level]		[STANDARD]	✓	✓	✓
[Sound Rec Level Adj.]		[0dB]	✓	✓	✓
[Sound Rec Quality]		[48kHz/24bit]	✓	✓	✓
[Sound Rec Level Limiter]		[ON]	✓	✓	✓
[Wind Noise Canceller]		[STANDARD]	✓	✓	✓
[Wind Cut]		[OFF]	✓	✓	✓
[Lens Noise Cut]		[ON]	✓	✓	✓
[Mic Socket]		[MIC]	✓	✓	✓
[4ch Audio Recording]		[OFF]	✓	✓	✓
[Hot Shoe Audio Input]	[ON] / [OFF]	[ON]	✓	✓	✓
	[SET]	—	✓	✓	✓
[MS2 Mic]		[STEREO]	✓	✓	✓











Menu		Default setting			
 [Video]:  [Others (Video)]					
[Silent Mode]		[OFF]	✓	✓	✓
[Crop Zoom (Video)]	[ON] / [OFF]	[OFF]	✓	✓	✓
[Image Stabilizer]	[Operation Mode]	[  ]	✓	✓	✓
	[E-Stabilization (Video)]	[OFF]	✓	✓	✓
[Self Timer Setting]	[Self Timer]	[  10]	✓	✓	✓
	[Self Timer For Video]	[OFF]	✓	✓	✓
[Focus Transition]	[Focus Position Setting]	—			
	[Focus Transition Speed]	[M]	✓	✓	✓
	[Focus Transition Rec]	[OFF]	✓	✓	✓
	[Focus Transition Wait]	[OFF]	✓	✓	✓
[Live Cropping]		[OFF]	✓	✓	✓




Menu		Default setting			
 [Custom]:  [Image Quality]					
[Photo Style Settings]	[Show/Hide Photo Style]	—	✓	✓	✓
	[My Photo Style Settings]	—	✓	✓	✓
	[Reset Photo Style]	—			
[LUT Library]		—	✓		✓
[ISO Increments]		[1/3 EV]	✓	✓	✓
[Extended ISO]		[OFF]	✓	✓	✓
[Exposure Offset Adjust.]	[Multi Metering]	[±0EV]	✓	✓	✓
	[Center Weighted]	[±0EV]	✓	✓	✓
	[Spot]	[±0EV]	✓	✓	✓
	[Highlight Weighted]	[±0EV]	✓	✓	✓
[Face Priority In Multi Metering]		[ON]	✓	✓	✓
[AWB Lock Setting]	[Operation Syncs With Shutter]	[OFF]	✓	✓	✓
	[Lock Hold With Fn Button]	[ON]	✓	✓	✓
[Color Space]		[sRGB]	✓	✓	✓
[Exposure Comp. Reset]		[OFF]	✓		✓
[Auto Exposure in Photo Mode]		[ON]	✓	✓	✓
[Exposure Control in P/A/S/M]	[Exposure Control(Photo Mode)]	[MODE DIAL]	✓	✓	✓
	[Exposure Control(Video Mode)]	[MODE DIAL]	✓	✓	✓
[Photo/Video Separate Setting]	[F/SS/ISO/Exposure Comp.]	[SEPARATE]	✓	✓	✓
	[White Balance]	[SEPARATE]	✓	✓	✓
	[Photo Style]	[SEPARATE]	✓	✓	✓
	[Metering Mode]	[SEPARATE]	✓	✓	✓
	[AF Mode]	[SEPARATE]	✓	✓	✓








Menu		Default setting			
 <b>[Custom]:</b>  [Focus/Shutter]					
[Focus/Shutter Priority]	[AFS]	[FOCUS]	✓	✓	✓
	[AFC]	[BALANCE]	✓	✓	✓
[Focus Switching for Vert / Hor]		[OFF]	✓	✓	✓
[AF/AE Lock Hold]		[OFF]	✓	✓	✓
[AF+MF]		[OFF]	✓	✓	✓
[MF Assist]	[Control Ring]	[ON]	✓	✓	✓
	[AF Mode]	[ON]	✓	✓	✓
	[MF Assist Display]	[PIP]	✓	✓	✓
	[Max. Magnification in "FULL"]	[20x]	✓	✓	✓
[MF Guide]		[ON]	✓	✓	✓
[Control Ring Lock]		[OFF]	✓	✓	✓
[Focus Range Display]		[  ]/[  ] <sup>1</sup>	✓	✓	✓
[Show/Hide AF Mode]	[Tracking]	[  ]	✓	✓	✓
	[Full Area AF]	[  ]	✓	✓	✓
	[Zone(Horizontal/Vertical)]	[  ]	✓	✓	✓
	[Zone]	[  ]	✓	✓	✓
	[1-Area+]	[  ]	✓	✓	✓
	[Pinpoint]	[  ]	✓	✓	✓
[Pinpoint AF Setting]	[Pinpoint AF Time]	[MID]	✓	✓	✓
	[Pinpoint AF Display]	[PIP]	✓	✓	✓
[Direct Focus Area]		[OFF]	✓	✓	✓
[AF-Point Scope Setting]	[Keep Enlarged Display]	[OFF]	✓	✓	✓
	[PIP Display]	[PIP]	✓	✓	✓
[AF Detect. Multi. Frame Disp.]		[ON]	✓	✓	✓
[Human Eye Detection Display]	[Eye Detection Style]	[ + ]	✓	✓	✓
	[Crosshairs During Focus]	[ON]	✓	✓	✓






[Shutter AF]	[ON]	✓	✓	✓
[Half-Press Shutter]	[OFF]	✓	✓	✓
[Assign REC to Shutter Button]	[ON]	✓	✓	✓
[Quick AF]	[OFF]	✓	✓	✓
[Eye Sensor AF]	[OFF]	✓	✓	✓
[Looped Focus Frame]	[OFF]	✓	✓	✓
[Enlarged Live Display(Video)]	[Keep Enlarged Display]	[ON]	✓	✓
	[PIP Display]	[PIP]	✓	✓






\*1 Default setting specifications vary depending on the country or area where the camera was purchased.






Menu		Default setting			
 [Custom]:  [Operation]					
[Q.MENU Settings]	[Layout Style]	[MODE1]	✓	✓	✓
	[Item Customize (Photo Mode)]	—	✓	✓	✓
	[Item Customize (Video/S&Q Mode)]	—	✓	✓	✓
[Touch Settings]	[Touch Screen]	[ON]	✓	✓	✓
	[Touch Tab]	[OFF]	✓	✓	✓
	[Touch AF]	[AF]	✓	✓	✓
	[Touch Pad AF]	[EXACT]	✓	✓	✓
[Operation Lock Setup]	[Cursor]	[ 	✓	✓	✓
	[Touch Screen]	[ 	✓	✓	✓
	[Dial]	[ 	✓	✓	✓
	[DISP. Button]	[ 	✓	✓	✓
[Zoom Settings]	[Zoom Operation]	[ <u>ZOOM</u> ]	✓	✓	✓
	[Zoom Speed(Photo)]	[H]	✓	✓	✓
	[Zoom Speed(Video)]	—	✓	✓	✓
[Fn Button Set]	[Setting in Photo Mode]	—	✓	✓	✓
	[Setting in Video/S&Q Mode]	—	✓	✓	✓
	[Setting in Playback Mode]	—	✓	✓	✓
[Fn Switch Setting]	[Select Function to Assign]	[ 	✓	✓	✓
	[Setting Value for 1]	[1:1]	✓	✓	✓
	[Setting Value for 2]	[16:9]	✓	✓	✓
	[Setting Value for 3]	[3:2]	✓	✓	✓






[ISO Displayed Setting]	[Rear Dial]	[ISO]	✓	✓	✓
[Exposure Comp. Disp. Setting]	[Cursor Buttons (Up/Down)]	[OFF]	✓	✓	✓
	[Rear Dial]	[ 	✓	✓	✓
[Dial Set.]	[Assign Dial (F/SS)]	[SET1]	✓	✓	✓
	[Rotation (F/SS)]	[ 	✓	✓	✓
	[Exposure Comp.]	[OFF]	✓	✓	✓
	[Dial Operation Switch Setup]	—	✓	✓	✓
	[Rotation (Menu Operation)]	[ 	✓	✓	✓

Menu		Default setting			
 [Custom]:  [Monitor / Display (Photo)]					
[Auto Review]	[Duration Time (photo)]	[OFF]	✓	✓	✓
	[Playback Operation Priority]	[OFF]	✓	✓	✓
[Constant Preview]	[ON] / [OFF]	[ON]	✓	✓	✓
	[SET]	—	✓	✓	✓
[Histogram]		[OFF]	✓	✓	✓
[Photo Grid Line]		[OFF]	✓	✓	✓
[Live View Boost]	[MODE1] / [MODE2] / [OFF]	[OFF]	✓	✓	✓
	[SET]	[M]	✓	✓	✓
[Night Mode]	[Monitor]	[OFF]	✓	✓	✓
	[LVF]	[OFF]	✓	✓	✓
[LVF/Monitor Disp. Set]	[LVF Disp. Set]		✓	✓	✓
	[Monitor Disp. Set]		✓	✓	✓
	[Horizontal Image Flip(Monitor)]	[AUTO]	✓	✓	✓
	[Vertical Image Flip(Monitor)]	[AUTO]	✓	✓	✓
[Expo.Meter]		[OFF]	✓	✓	✓
[Focal Length]		[ON]	✓	✓	✓
[Blinking Highlights]		[OFF]	✓	✓	✓
[Sheer Overlay]	[ON] / [OFF]	[OFF]	✓		
	[SET]	—	✓		
[Level Gauge]		[ON]	✓	✓	✓
[Luminance Spot Meter]		[OFF]	✓	✓	✓
[Framing Outline]		[OFF]	✓	✓	✓
[Show/Hide Monitor Layout]	[Control Panel]	[ON]	✓	✓	✓
	[Black Screen]	[ON]	✓	✓	✓
[Live View Vertical Display]		[ON]	✓	✓	✓












Menu		Default setting			
 [Custom]:  [Monitor / Display (Video)]					
[Log View Assist]	[LUT Select(V-Log)]	[Vlog_709]	✓	✓	✓
	[LUT View Assist (Monitor)]	[OFF]	✓	✓	✓
	[LUT View Assist (App)]	[OFF]	✓	✓	✓
[HLG View Assist]	[Monitor]	[MODE2]	✓	✓	✓
[Monochrome Live View]		[OFF]	✓	✓	✓
[Center Marker]		[OFF]	✓	✓	✓
[Safety Zone Marker]		[OFF]	✓	✓	✓
[Frame Marker]	[ON] / [OFF]	[OFF]	✓	✓	✓
	[SET]	—	✓	✓	✓
[Zebra Pattern]	[ZEBRA1] / [ZEBRA2] / [ZEBRA1+2] / [OFF]	[OFF]	✓	✓	✓
	[SET]	—	✓	✓	✓
[Waveform Monitor]		[OFF]	✓	✓	✓
[Red REC Frame Indicator]		[OFF]	✓	✓	✓






Menu	Default setting			
 [Custom]:  [Lens / Others]				
[Lens Focus Resume]	[OFF]	✓	✓	✓
[Lens Retraction]	[ON]	✓	✓	✓
[Control Ring Setting During AF]	[ <u>Z</u> <u>O</u> <u>O</u> <u>M</u> ]	✓	✓	✓
[Control Ring Focus Control(MF)]	[NON-LINEAR]	✓	✓	✓
[Vertical Position Info (Video)]	[ON]	✓	✓	✓






Menu	Default setting			
 [Setup]:  [Card/File]				
[Card Format]	—			
[Folder / File Settings]	[Select Folder]	—		
	[Create a New Folder]	—		
	[File Name Setting]	[Folder Number Link]	✓	✓
[File Number Reset]	—			
[Copyright Information]	[Artist]	[OFF]	✓	✓
	[Copyright Holder]	[OFF]	✓	✓
	[Display Copyright Info.]	—		

Menu		Default setting			
 [Setup]:  [Monitor / Display]					
[Power Save Mode]	[Sleep Mode]	[1MIN.]	✓		✓
	[Auto LVF/Monitor Off]	[1MIN.]	✓		✓
	[Power Save LVF Shooting]	—	✓		✓
[Thermal Management]	[Recording Max Temperature]	[STANDARD]	✓		✓
[Menu Color] <sup>*1</sup>		[GOLD]	✓		✓
[Monitor Frame Rate]		[30fps]	✓		✓
[Monitor Settings] / [Viewfinder]		—	✓		
[Monitor Backlight] / [LVF Luminance]		[AUTO]	✓		✓
[Eye Sensor]	[Sensitivity]	[HIGH]	✓		✓
	[LVF/Monitor Switch]	[LVF/MON AUTO]	✓		✓
[Level Gauge Adjust.]	[Adjust.]	—	✓		
	[Level Gauge Value Reset]	—			

\*1 Supported by -N model only






Menu		Default setting			
 [Setup]:  [IN/OUT]					
[Beep]	[Beep Volume]	[  ]	✓		✓
	[AF Beep Volume]	[  ]	✓		✓
	[AF Beep Tone]	[  ]	✓		✓
	[Shutter Vol.]	[  ]	✓		✓
	[Shutter Tone]	[  ]	✓		✓
[Sound Monitoring Channel(Play)]		[CH1+CH2]	✓	✓	✓
[Wi-Fi]		—	✓		
[Bluetooth]		—	✓		
[LUMIX Lab]	[Send Image (Smartphone)]	—			
	[Auto Transfer(Wi-Fi)]	[OFF]	✓		✓
	[Location Logging]	[OFF]	✓		✓
[USB]	[USB Mode]	[  ] [Select on connection]	✓		✓
	[USB Power Supply]	[ON]	✓		✓
	[Webcam Image Quality]	When [System Frequency] is set to [59.94Hz (NTSC)]: [FHD/30p]	✓		✓
		When [System Frequency] is set to [50.00Hz (PAL)]: [FHD/25p]	✓		✓
[Network Connection Light]		[ON]	✓		✓






Menu		Default setting			
 [Setup]:  [Setting]					
[Save to Custom Mode(Photo)]/[Save to Custom Mode(Video)]/[Save to Custom Mode(S&Q)]		—	✓		✓
[Load Custom Mode(Photo)]/[Load Custom Mode(Video)]/[Load Custom Mode(S&Q)]		—	✓		✓
[Custom Mode Settings]	[Limit No. of Custom Mode]	[3]	✓		✓
	[Edit Title]	—	✓		✓
	[How to Reload Custom Mode]	—	✓		✓
	[Select Loading Details]	—	✓		✓
[Save/Restore Camera Setting]	[Save]	—			
	[Load]	—			
	[Delete]	—			
	[Keep Settings While Format]	[OFF]	✓		✓
[Reset]		—			






Menu		Default setting			
 [Setup]:  [Others]					
[Clock Set]		0:00:00 1/1/2026			
[Time Zone]		*1			✓
[System Frequency]		[59.94Hz (NTSC)] / [50.00Hz (PAL)] <sup>*1</sup>	✓		✓
[Pixel Refresh]	[Now]	—			
	[Auto]	[ON]	✓		✓
[Language]		*1	✓		✓
[Firmware Version]		—			
[Approved Regulations] <sup>*2</sup>		—			






\*1 Default setting specifications vary depending on the country or area where the camera was purchased.






\*2 Depending on the country or area where the camera was purchased, this is not displayed due to differences in specifications.






Menu		Default setting			
 [My Menu]:  [Edit My Menu]					
[Add]		—	✓		✓
[Sorting]		—			
[Delete]		—			
[Display from My Menu]		[OFF]	✓		✓

Menu	Default setting			
 [Playback]:  [Playback Mode]				
[Playback Mode]	[Normal Play]	✓		✓
[Slide Show]	—	✓		✓
[Rotate Disp.]	[ON]	✓		✓
[Picture Sort]	[DATE/TIME]	✓		✓
[Magnify from AF Point]	[OFF]	✓		✓
[LUT View Assist (Monitor)]	[OFF]	✓	✓	✓
[HLG View Assist (Monitor)]	[MODE2]	✓	✓	✓
[Behavior After Video Playback]	[End Playback]	✓		✓

Menu	Default setting			
 [Playback]:  [Process Image]				
[RAW Processing]	—			
[HEIF to JPEG Conversion]	—			
[Time Lapse Video]	—			
[Stop Motion Video]	—			



Menu	Default setting			
 <b>[Playback]:</b>  [Add/Delete Info.]				
[Protect]	—			
[Rating]	—			



Menu	Default setting			
 <b>[Playback]:</b>  [Edit Image]				
[Resize]	—			
[Rotate]	—			
[Video Divide]	—			
[Video Repair]	—			



Menu	Default setting			
 <b>[Playback]:</b>  [Others]				
[Delete Confirmation]	["No" first]	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
[Delete All Images]	—			



## List of Functions That Can Be Set in Each Recording Mode



Menu		iA	P	A	S	M
[Photo]:  [Image Quality]						
[Photo Style]		✓	✓	✓	✓	✓
[Metering Mode]			✓	✓	✓	✓
[Aspect Ratio]		✓	✓	✓	✓	✓
[Rec. File Format(Photo)]		✓	✓	✓	✓	✓
[Switch JPEG/HEIF]		✓	✓	✓	✓	✓
[JPEG/HEIF Picture Quality]		✓	✓	✓	✓	✓
[HEIF Format]			✓	✓	✓	✓
[Picture Size]		✓	✓	✓	✓	✓
[Long Exposure NR]			✓	✓	✓	✓
[ISO Sensitivity (photo)]	[ISO Auto Lower Limit Setting]		✓	✓	✓	✓
	[ISO Auto Upper Limit Setting]		✓	✓	✓	✓
[Synchro Scan(Photo)]					✓	✓
[Min. Shutter Speed]			✓	✓		
[Soft Skin Effect]		✓	✓	✓	✓	✓
[i.Dynamic Range]			✓	✓	✓	✓
[Diffraction Compensation]			✓	✓	✓	✓
[Filter Settings]	[Filter Effect]		✓	✓	✓	✓
	[Simultaneous Record w/o Filter]		✓	✓	✓	✓
[Flicker Decrease (Video)]			✓	✓	✓	✓



Menu		iA	P	A	S	M
 [Photo]:  [Focus]						
[AFS/AFC(Photo)]		✓	✓	✓	✓	✓
[AF Detection Setting]			✓	✓	✓	✓
[Detecting Subject]	[Type of Subject]		✓	✓	✓	✓
	[Detection Mode(Human)] [Target Parts]		✓	✓	✓	✓
[AF Custom Setting(Photo)]			✓	✓	✓	✓
[Focus Limiter]		✓	✓	✓	✓	✓
[AF Assist Light]			✓	✓	✓	✓
[Focus Frame Color Setting]		✓	✓	✓	✓	✓
[Focus Peaking]		✓	✓	✓	✓	✓
[Focus Frame Moving Speed]		✓	✓	✓	✓	✓



Menu		iA	P	A	S	M
 [Photo]:  [Flash]						
[Flash Mode]		✓	✓	✓	✓	✓
[Firing Mode]			✓	✓	✓	✓
[Flash Adjust.]			✓	✓	✓	✓
[Flash Synchro]			✓	✓	✓	✓
[Manual Flash Adjust.]			✓	✓	✓	✓
[Auto Exposure Comp.]			✓	✓	✓	✓
[Wireless]			✓	✓	✓	✓
[Wireless Channel]			✓	✓	✓	✓
[Communication Light]			✓	✓	✓	✓
[Wireless Setup]			✓	✓	✓	✓



Menu		iA	P	A	S	M
 [Photo]:  [Others (Photo)]						
[Bracketing]	[Bracketing Type]	✓	✓	✓	✓	✓
	[More Settings]	✓	✓	✓	✓	✓
[Focus Stacking]	[Start]	✓	✓	✓	✓	✓
	[Step]	✓	✓	✓	✓	✓
	[Image Count]	✓	✓	✓	✓	✓
	[Shutter Delay]	✓	✓	✓	✓	✓
[Silent Mode]		✓	✓	✓	✓	✓
[Crop Zoom(Photo)]		✓	✓	✓	✓	✓
[Image Stabilizer]	[Operation Mode]	✓	✓	✓	✓	✓
	[E-Stabilization (Video)]	✓	✓	✓	✓	✓
[Burst Shot Setting]		✓	✓	✓	✓	✓
[Shutter Type]		✓	✓	✓	✓	✓
[Shutter Delay]		✓	✓	✓	✓	✓
[Time Lapse/Animation]		✓	✓	✓	✓	✓
[Live View Composite]	[Start]					✓
	[Shutter Delay]					✓
[Self Timer]		✓	✓	✓	✓	✓
[Multiple Exposure]	[Start]		✓	✓	✓	✓
	[Auto Gain]		✓	✓	✓	✓
	[Overlay]		✓	✓	✓	✓

Menu		iA	P	A	S	M
 [Video]:  [Image Quality]						
[Photo Style]		✓	✓	✓	✓	✓
[Metering Mode]			✓	✓	✓	✓
[ISO Sensitivity (video)]	[ISO Auto Lower Limit Setting]		✓	✓	✓	✓
	[ISO Auto Upper Limit Setting]		✓	✓	✓	✓
[Synchro Scan(Video)]					✓	✓
[i.Dynamic Range]			✓	✓	✓	✓
[Diffraction Compensation]			✓	✓	✓	✓
[Filter Settings]	[Filter Effect]		✓	✓	✓	✓
	[Simultaneous Record w/o Filter]		✓	✓	✓	✓

Menu		iA	P	A	S	M
 [Video]:  [Image Format]						
[Rec. File Format(Video)]		✓	✓	✓	✓	✓
[Image Area of Video]		✓	✓	✓	✓	✓
[Rec Quality]		✓	✓	✓	✓	✓
[Rec Quality (My List)]		✓	✓	✓	✓	✓
[Slow & Quick Setting]		✓	✓	✓	✓	✓
[Luminance Level]		✓	✓	✓	✓	✓

Menu		iA	P	A	S	M
 [Video]:  [Focus]						
[AFS/AFC(Video)]		✓	✓	✓	✓	✓
[AF Detection Setting]			✓	✓	✓	✓
[Detecting Subject]	[Type of Subject]		✓	✓	✓	✓
	[Detection Mode(Human)]		✓	✓	✓	✓
	[Target Parts]		✓	✓	✓	✓
[AF Custom Setting(Video)]		✓	✓	✓	✓	✓
[Focus Limiter]		✓	✓	✓	✓	✓
[AF Assist Light]			✓	✓	✓	✓
[Focus Frame Color Setting]		✓	✓	✓	✓	✓
[Focus Peaking]		✓	✓	✓	✓	✓
[Focus Frame Moving Speed]		✓	✓	✓	✓	✓

Menu	iA	P	A	S	M
 [Video]:  [Audio]					
[Sound Rec Level Disp.]	✓	✓	✓	✓	✓
[Mute Sound Input]	✓	✓	✓	✓	✓
[Sound Rec Gain Level]	✓	✓	✓	✓	✓
[Sound Rec Level Adj.]	✓	✓	✓	✓	✓
[Sound Rec Quality]	✓	✓	✓	✓	✓
[Sound Rec Level Limiter]	✓	✓	✓	✓	✓
[Wind Noise Canceller]	✓	✓	✓	✓	✓
[Wind Cut]	✓	✓	✓	✓	✓
[Lens Noise Cut]	✓	✓	✓	✓	✓
[Mic Socket]	✓	✓	✓	✓	✓
[4ch Audio Recording]	✓	✓	✓	✓	✓
[Hot Shoe Audio Input]	✓	✓	✓	✓	✓
[MS2 Mic]	✓	✓	✓	✓	✓

Menu	iA	P	A	S	M
 [Video]:  [Others (Video)]					
[Silent Mode]	✓	✓	✓	✓	✓
[Crop Zoom (Video)]	✓	✓	✓	✓	✓
[Image Stabilizer]	[Operation Mode]	✓	✓	✓	✓
	[E-Stabilization (Video)]	✓	✓	✓	✓
[Self Timer Setting]	[Self Timer]	✓	✓	✓	✓
	[Self Timer For Video]	✓	✓	✓	✓
[Focus Transition]		✓	✓	✓	✓
[Live Cropping]		✓	✓	✓	✓

# Specifications

The specifications are subject to change for performance enhancement.

## Digital Camera:

Information for your safety

### Power source:

9.0 V===

### Power consumption:

4.1 W (when recording with the monitor), 3.1 W (when playing back with the monitor)

## Type

- **Type**  
Digital Camera
- **Recording media**  
SD memory card / SDHC memory card<sup>\*1</sup> / SDXC memory card<sup>\*1</sup>  
<sup>\*1</sup> Compliant with UHS-I/UHS-II UHS Speed Class 3, UHS-II Video Speed Class 90

## Image sensor

- **Image sensor**  
4/3-type back-illuminated (BSI) CMOS image sensor, a total of approx.  
26,500,000 pixels, primary color filter
- **Effective number of pixels of the camera**  
Approx. 20,400,000 pixels

## Lens

- **Lens name**

Leica DC VARIO-SUMMILUX

- **Mount**

Fixed

- **Focal length**

f=10.9 mm to 34 mm

(35 mm film camera equivalent: 24 mm to 75 mm)

- **Lens construction**

11 elements in 8 groups (5 aspheric elements with 8 aspheric surfaces)

- **Aperture type**

9 diaphragm blades/circular aperture diaphragm

- **Maximum aperture**

F1.7 (Wide) to F2.8 (Tele)

- **Minimum aperture value**

F16

- **In focus distance**

AF: 50 cm (1.6 feet) to  $\infty$

AF Macro / MF / Intelligent auto / Motion Picture:

3 cm (0.098 feet) (Wide) / 30 cm (0.98 feet) (Tele) to  $\infty$

- **Maximum image magnification**

0.22 $\times$  (35 mm film camera equivalent: 0.48 $\times$ )

- **Optical Image Stabilizer**

Yes

- **Filter diameter**

43 mm

## Latitude

13+ stops (Sensor output 60 fps or lower),

12+ stops (Sensor output 61 fps or higher) ([V-Log])

## Recording format for still images

- **File format for still images**

JPEG (DCF compliant, Exif 3.0 compliant) / HEIF / RAW

- **Picture size (pixels)**

When the aspect ratio setting is [4:3]

[L]: 5200×3904

[M]: 3744×2808

[S]: 2624×1968

[XS]: 1920×1440

When the aspect ratio setting is [3:2]

[L]: 5408×3608

[M]: 3888×2592

[S]: 2736×1824

[XS]: 1920×1280

When the aspect ratio setting is [16:9]

[L]: 5664×3192

[M]: 4096×2304

[S]: 2832×1592

[XS]: 1920×1080

When the aspect ratio setting is [1:1]

[L]: 3904×3904

[M]: 2816×2816

[S]: 1968×1968

[XS]: 1440×1440

- **Image quality for pictures**

Fine / Standard

## Recording format for video

### ● Video format

MP4 (H.264/MPEG-4 AVC, H.265/HEVC)

MP4 (Lite) (H.265/HEVC)

MOV (H.264/MPEG-4 AVC, H.265/HEVC)

### ● Audio compression format

When [OFF] is selected for [4ch Audio Recording]

MP4 Linear format: AAC (2ch stereo 48 kHz/16 bit)

MP4 (Lite) Linear format: AAC (2ch stereo 48 kHz/16 bit)

MOV Linear format: LPCM (2ch stereo 48 kHz/24 bit, 96 kHz/24 bit)<sup>\*2</sup>

Float format: LPCM (2ch stereo 48 kHz/32 bit, 96 kHz/32 bit)<sup>\*3</sup>

When [XLR] is selected for [4ch Audio Recording]

MOV Linear format: LPCM (4ch monaural 48 kHz/24 bit)<sup>\*3</sup>

Float format: LPCM (4ch monaural 48 kHz/32 bit)<sup>\*3</sup>

When [XLR+CAMERA] is selected for [4ch Audio Recording]

MOV Linear format: LPCM (4ch monaural 48 kHz/24 bit, 96 kHz/24 bit)<sup>\*2, 3</sup>

When [DMS1 BACKUP1]/[DMS1 BACKUP2] is selected for [4ch Audio Recording]

MOV Linear format: LPCM (4ch monaural 48 kHz/24 bit)<sup>\*4</sup>

Float format: LPCM (4ch monaural 48 kHz/32 bit)<sup>\*4</sup>

\*2 Supports only 48 kHz when using the built-in microphone

\*3 When the XLR Microphone Adaptor DMW-XLR2 is attached

\*4 When the Digital Shotgun Microphone DMW-DMS1 is attached

### ● System frequency

59.94 Hz / 50.00 Hz / 24.00 Hz

### ● Image quality for video

Refer to the “[[Rec Quality](#)]” pages for information about resolution, recording frame rate, and other elements of recording quality. (→ [[Rec Quality](#)]: 128)

### ● S&Q (Slow & Quick)

Refer to the pages for “[[Slow & Quick Video](#)]” for information about the [Rec Quality] and frame rates combinations with which you can record Slow & Quick video and the playback speeds. (→ [[Slow & Quick Video](#)]: 413)

## Viewfinder

- **Type**  
Aspect ratio 4:3, 0.39 inches, approx. 2,360,000 dots, organic EL (OLED) live view viewfinder
- **Field of view ratio**  
Approx. 100 %
- **Magnification**  
Approx. 0.74× (−1.0 m<sup>-1</sup> 50 mm at infinity, with aspect ratio set to [4:3])
- **Eye point**  
Approx. 20 mm (at −1.0 m<sup>-1</sup>)
- **Diopter adjustment range**  
−4.0 to +4.0 diopter
- **Eye sensor**  
Yes

## Monitor

- **Type**  
Aspect ratio 3:2, 3.0 inches, approx. 1,840,000 dots monitor, capacitive touch screen
- **Field of view ratio**  
Approx. 100 %

## Focus

- **AF type**

TTL type based on image detection (image plane phase detection AF/contrast AF)

- **Focus mode**

AFS / AFC / MF

- **AF mode**

Tracking\*<sup>5</sup> / Full Area AF\*<sup>5</sup> / Zone (Horizontal/Vertical)\*<sup>5</sup> / Zone\*<sup>5</sup> /

1-Area+Supplementary\*<sup>5</sup> / 1-Area\*<sup>5</sup> / Pinpoint

Focus area selection is possible by touching

\*<sup>5</sup> Automatic detection (Human, Animal, Car, Motorcycle/Bike, Train, Airplane) can be switched ON/OFF

## Exposure control

- **Light metering system, Light metering mode**

1728-zone metering, multi-metering / center-weighted metering / spot metering / highlight-weighted metering

- **Exposure**

Program AE (P) / Aperture-Priority AE (A) / Shutter-Priority AE (S) / Manual Exposure (M)

- **Exposure compensation**

1/3 EV steps,  $\pm 5$  EV

- **ISO sensitivity for still images (standard output sensitivity)**

**Normal:** AUTO / 50\*<sup>6</sup> / 100 to 25600

**[V-Log]:** AUTO / 125\*<sup>6</sup> / 500 to 12800

\*<sup>6</sup> When [Extended ISO] is set

- Switchable between 1/3 EV and 1 EV steps

● **ISO sensitivity for video (standard output sensitivity)**

**Normal:**

Sensor output 60 fps or lower: AUTO / 50<sup>\*7</sup> / 100 to 12800 (base sensitivity ISO100)

Sensor output 61 fps or higher: AUTO / 50<sup>\*7</sup> / 100 to 3200 / 4000<sup>\*7</sup> to 12800<sup>\*7</sup> (base sensitivity ISO100)

**[V-Log]:**

Sensor output 60 fps or lower: AUTO / 125<sup>\*7</sup> to 400<sup>\*7</sup> / 500 to 12800 (base sensitivity ISO500)

Sensor output 61 fps or higher: AUTO / 125<sup>\*7</sup> to 200<sup>\*7</sup> / 250 to 3200 / 4000<sup>\*7</sup> to 12800<sup>\*7</sup> (base sensitivity ISO250)

**[Hybrid Log Gamma]:**

Sensor output 60 fps or lower: AUTO / 250 to 12800 (base sensitivity ISO250)

Sensor output 61 fps or higher: AUTO / 250 to 3200 / 4000<sup>\*7</sup> to 12800<sup>\*7</sup> (base sensitivity ISO250)

\*7 When [Extended ISO] is set

- Switchable between 1/3 EV and 1 EV steps

## Image stabilizer

● **Image stabilizer type**

Lens-based system with 2-axis compensation

## White balance

- **White balance mode**

AWB / AWBc / AWBw / Daylight / Cloudy / Shade / Incandescent lights / Flash / Set mode 1, 2, 3, 4 / Color temperature 1, 2, 3, 4  
AWB lock supported

## Shutter

- **Type**

Electronic shutter+Mechanical shutter

- **Shutter speed**

**Pictures:**

Mechanical shutter: Time (max. approx. 60 seconds), 60 seconds to 1/2000 of a second

Electronic shutter: Time (max. approx. 60 seconds), 60 seconds to 1/32000 of a second

Electronic shutter+NR: Time (max. approx. 60 seconds), 60 seconds to 1/32000 of a second

**Videos:**

1/25 of a second to 1/25000 of a second

It is not possible to set a shutter speed slower than the frame rate. (However, the shutter speed may be slower than the frame rate in low light situations.)

## Burst recording

### ● Mechanical shutter

[H]: 11 frames/second ([AFS], [MF]) / 9 frames/second ([AFC])

[M]: 7 frames/second ([AFS], [MF]) / 5 frames/second ([AFC])

[L]: 2 frames/second ([AFS], [AFC], [MF])

### ● Electronic shutter

[SH30]: 30 frames/second ([AFS], [AFC], [MF])

[SH20]: 20 frames/second ([AFS], [AFC], [MF])

[SH10]: 10 frames/second ([AFS], [AFC], [MF])

[SH30 PRE]: 30 frames/second ([AFS], [AFC], [MF])

[SH20 PRE]: 20 frames/second ([AFS], [AFC], [MF])

[SH10 PRE]: 10 frames/second ([AFS], [AFC], [MF])

[H]: 11 frames/second ([AFS], [MF]) / 9 frames/second ([AFC])

[M]: 7 frames/second ([AFS], [MF]) / 5 frames/second ([AFC])

[L]: 2 frames/second ([AFS], [AFC], [MF])

### ● Maximum number of frames recordable (SH burst recording)

JPEG burst/RAW+JPEG burst/RAW burst: 45 frames

HEIF burst/RAW+HEIF burst: 35 frames

### ● Maximum number of frames recordable ([H], [M], [L])

JPEG burst: 100 frames or more<sup>\*8</sup>

RAW+JPEG burst: 40 frames or more<sup>\*8</sup>

RAW burst: 55 frames or more<sup>\*8</sup>

HEIF burst: 35 frames or more<sup>\*8</sup>

RAW+HEIF burst: 25 frames or more<sup>\*8</sup>

\*8 Using a Nextorage SDXC memory card compliant with UHS-II UHS Speed Class 3

(When recording is performed under the test conditions specified by Panasonic)

## Zoom

- **Crop Zoom (Photo)**

Max. approx. 2.7× ([Minimum Image Size]: when [XS] is selected)

- **Crop Zoom (Video)**

Max. approx. 2.7× ([Rec Quality]: when FHD video is selected)

## Microphone / Speaker

- **Microphone**

Stereo

- **Speaker**

Monaural

## Interface

- **USB**

USB Type-C<sup>®</sup>, USB 10Gbps

- **[MIC]**

Ø3.5 mm stereo mini jack

Mic Input (Plug-in Power) / Mic Input / Line Input (Operate the menu to switch between these inputs)

Standard input level: -55 dBV (Mic Input) / -10 dBV (Line Input)

## Splash Resistant

No

## External dimensions / Mass (Weight)

### ● External dimensions

Approx. 127.1 mm (W)×73.9 mm (H)×66.9 mm (D)

(5.01" (W)×2.91" (H)×2.64" (D))

(excluding the projecting parts)

### ● Mass (Weight)

Approx. 508 g/1.12 lb (with card and the battery)

Approx. 425 g/0.94 lb (excluding card and battery)

## Operating environment

### ● Recommended operating temperature

0 °C to 40 °C (32 °F to 104 °F)

### ● Permissible relative humidity

10 %RH to 80 %RH

## Wi-Fi

### ● Compliance standard

IEEE 802.11a/b/g/n/ac (standard wireless LAN protocol)

### ● Frequency range used (central frequency)

Specifications vary depending on the country or area where the camera was purchased.

Refer to the "Operating Instructions / Owner's Manual <Quick Start Guide>" (supplied) for details.

### ● Encryption method

Wi-Fi compliant WPA™ / WPA2™ / WPA3™

### ● Access method

Infrastructure mode

## Bluetooth

- **Compliance standard**

Bluetooth v5.0, Bluetooth Low Energy (BLE)

- **Frequency range used (central frequency)**

2402 MHz to 2480 MHz

The symbols on this product (including the accessories) represent the following:

=== DC
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See <http://www.mpegla.com>

## Disposal of Old Equipment and Batteries

### Only for European Union and countries with recycling systems



These symbols on the products, packaging, and/or accompanying documents mean that used electrical and electronic products and batteries must not be mixed with general household waste.

For proper treatment, recovery and recycling of old products and used batteries, please take them to applicable collection points in accordance with your national legislation.

By disposing of them correctly, you will help to save valuable resources and prevent any potential negative effects on human health and the environment.

For more information about collection and recycling, please contact your local authority.

Penalties may be applicable for incorrect disposal of this waste, in accordance with national legislation.



#### **Note for the battery symbol (bottom symbol):**

This symbol might be used in combination with a chemical symbol. In this case it complies with the requirement set by the Directive for the chemical involved.