

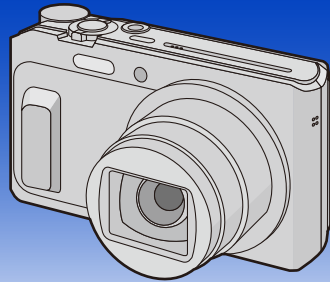
Panasonic[®]

Owner's Manual for advanced features

Digital Camera

Model No. **DMC-ZS45**

LUMIX



Please read these instructions carefully before using this product,
and save this manual for future use.



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SQW0169-1
F0215HH1035

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Care of the camera

Do not subject to strong vibration, shock, or pressure.

- The lens, monitor, or external case may be damaged if used in the following conditions.

It may also malfunction or image may not be recorded if you:

- Drop or hit the camera.
- Sit down with the camera in your trousers pocket or forcefully insert it into a full or tight bag, etc.
- Attach any items such as accessories to the strap attached to the camera.
- Press hard on the lens or the monitor.

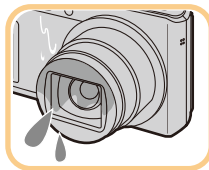
This camera is not dust/splash/water proof.

Avoid using the camera in places with a lot of dust, water, sand, etc.

- Liquid, sand and other foreign material may get into the space around the lens, buttons, etc. Be particularly careful since it may not just cause malfunctions, but it may also become irreparable.
 - Places with a lot of sand or dust.
 - Places where water can come into contact with this unit, such as when using it on a rainy day or at the beach.

■ About Condensation (When the lens is fogged up)

- Condensation occurs when the ambient temperature or humidity changes. Be careful of condensation since it causes lens stains, fungus and camera malfunction.
- If condensation occurs, turn the camera off and leave it for about 2 hours. The fog will disappear naturally when the temperature of the camera becomes close to the ambient temperature.



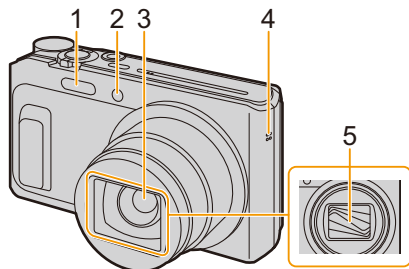
Standard Accessories

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

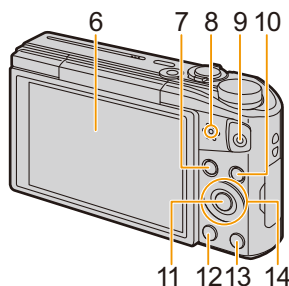
- The accessories and their shape will differ depending on the country or area where the camera was purchased.
For details on the accessories, refer to "Basic Owner's Manual".
- Battery Pack is indicated as **battery pack** or **battery** in the text.
- SD Memory Card, SDHC Memory Card and SDXC Memory Card are indicated as **card** in the text.
- **The card is optional.**
You can record or play back pictures on the built-in memory when you are not using a card.

Names and Functions of Main Parts

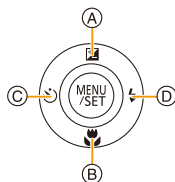
- 1 **Flash** (P62)
- 2 **Self-timer indicator** (P67)
- 3 **AF Assist Lamp** (P102)
- 3 **Lens** (P6, 183)
- 4 **Speaker**
 - Be careful not to cover the speaker with your finger. Doing so may make sound difficult to hear.
- 5 **Lens barrier**



- 6 **Monitor** (P58, 165, 183)
 - Peel off the protective film before use.
- 7 **[EXPOSURE] button** (P70, 71, 72)
- 8 **Charging lamp** (P13)
- 9 **Wi-Fi® connection lamp** (P126)
- 9 **Motion picture button** (P34)
- 10 **[▶] (Playback) button** (P37)
- 11 **[MENU/SET] button** (P41)
- 12 **[DISP.] button** (P58)
- 13 **[Q.MENU] button** (P43)
- 13 **[🗑️] (Delete) button** (P40)
- 13 **[↵] (Cancel) button** (P42)
- 14 **Cursor buttons**



- Ⓐ: ▲ / [⊕] (Exposure compensation/Auto Bracket) (P68, 69)
- Ⓑ: ▼ / [🔍] (Macro Mode/AF Tracking) (P66, 99)
- Ⓒ: ◀ / [⌚] (Self-timer) (P67)
- Ⓓ: ▶ / [⚡] (Flash setting) (P62)



In this owner's manual, the cursor buttons are described as shown in the figure below or described with ▲/▼/◀/▶.
e.g.: When you press the ▼ (down) button



or **Press ▼**

15 Strap eyelet (P24)

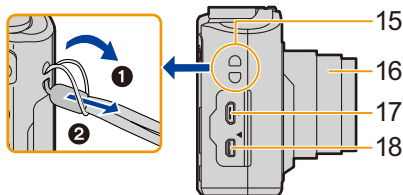
- To prevent dropping, be sure to attach the supplied strap and fit it to your wrist.

16 Lens barrel**17 [HDMI] socket (P155)**

- Do not connect with any cable other than an HDMI micro cable. Doing so may cause malfunction.

18 [AV OUT/DIGITAL] socket (P13, 156, 158, 160)

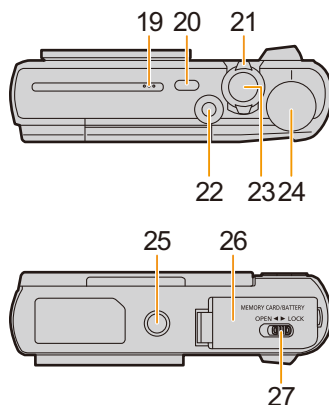
- This socket is also used when charging the battery.

**19 Microphone**

- Be careful not to cover the microphone with your finger.

20 Camera [ON/OFF] button (P22)**21 Zoom lever (P59)****22 [Wi-Fi] button (P126, 129)****23 Shutter button (P26, 31)****24 Mode dial (P25)****25 Tripod mount**

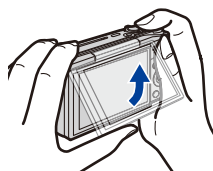
- It is not possible to attach and fasten a tripod with a screw length of 5.5 mm (0.22 inch) or more securely to the camera. Doing so may damage the camera.
- It may not be possible to attach certain types of tripods properly.

26 Card/Battery door (P12, 18)**27 Release lever (P12, 18)**

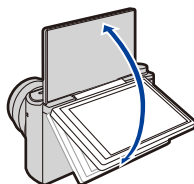
Monitor

You can adjust the angle of the monitor.

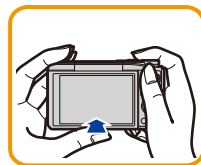
❶



❷



When closing



❶ Flip up the bottom of the monitor lightly to open.

❷ Adjust the angle of the monitor.

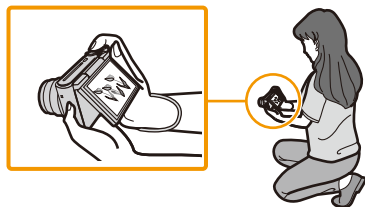
- Be careful not to catch your finger, etc. in the monitor.
- When rotating the monitor, be careful not to apply too much force or drop the camera. This may cause scratches and malfunctions.
- When not using this unit, close the monitor completely back to the original position.

■ Recording from a variety of angles

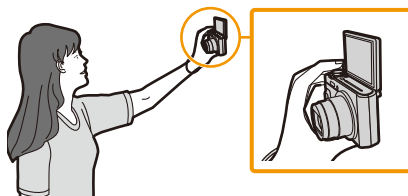
The monitor can be rotated to suit your needs. This is convenient as it allows you to take pictures from various angles by adjusting the monitor.

- Do not cover the AF Assist Lamp with your fingers or other objects.

Taking pictures at a low angle



Self shot



- If the monitor is rotated as shown in the illustration, the Self Shot Mode starts. (P51)

Charging the Battery

Use the dedicated AC adaptor (supplied), USB connection cable (supplied) and battery.

- The battery is not charged when the camera is shipped. Charge the battery before use.
- Charge the battery only when it is inserted in the camera.

Camera conditions	Charge
Turned off	○
Turned on	—

■ About batteries that you can use with this unit

It has been found that counterfeit battery packs which look very similar to the genuine product are made available for purchase in some markets. Some of these battery packs are not adequately protected with internal protection to meet the requirements of appropriate safety standards. There is a possibility that these battery packs may lead to fire or explosion. Please be advised that we are not liable for any accident or failure occurring as a result of use of a counterfeit battery pack. To ensure that safe products are used, we recommend that a genuine Panasonic battery pack is used.

■ About the power supply

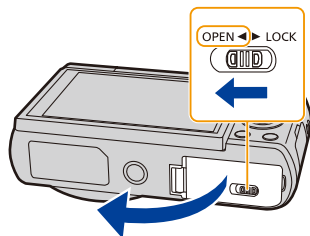
If you use the AC adaptor (supplied) when the battery is in this unit, you can supply power from a power outlet via the USB connection cable (supplied).

- **The battery may be running out during recording.**
The camera will turn off if the battery power is gone.
- Before connecting or disconnecting the AC adaptor (supplied), turn the camera off.

Inserting the Battery

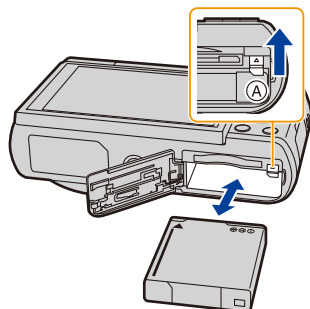
- 1** Slide the release lever in the direction of the arrow and open the card/battery door.

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



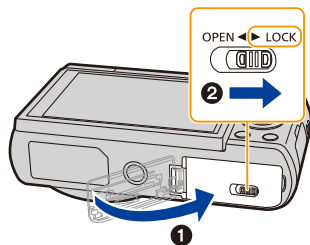
- 2** Being careful about the battery orientation, securely insert it all the way in, and then check that it is locked by the lever (A).

To remove the battery, move the lever (A) in the direction of the arrow.



- 3** **1**: Close the card/battery door.

- 2**: Slide the release lever in the direction of the arrow.

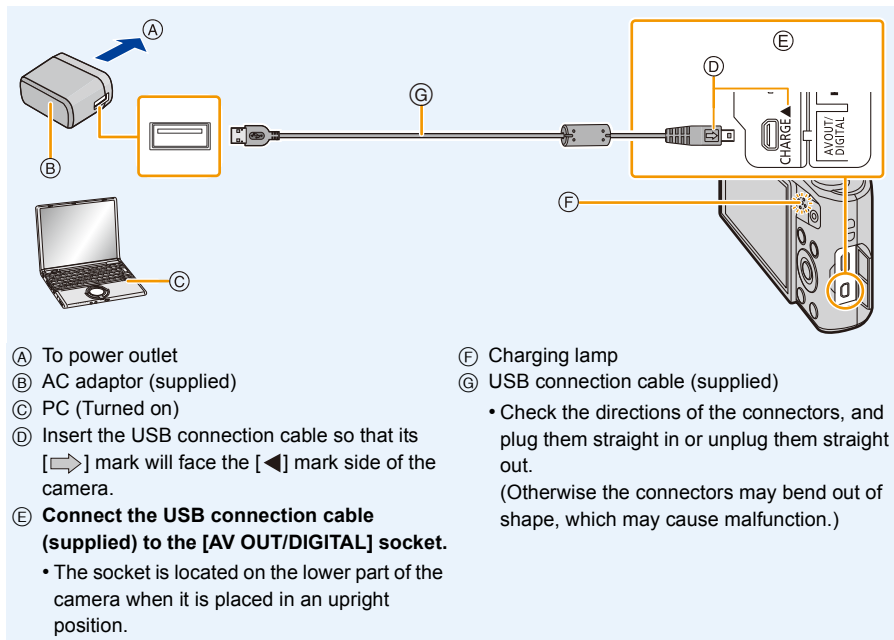


- Turn the camera off and wait for the “LUMIX” display on the monitor to clear before removing the battery.
(Otherwise, this unit may no longer operate normally and the card itself may be damaged or the recorded pictures may be lost.)

Charging

- Charge the battery in areas with an ambient temperature, between 10 °C and 30 °C (50 °F and 86 °F) (same as the battery temperature), is recommended.

**Insert the battery into this unit.
Check that this unit is turned off.**



(A) To power outlet

(B) AC adaptor (supplied)

(C) PC (Turned on)

(D) Insert the USB connection cable so that its [➡] mark will face the [⚡] mark side of the camera.

(E) **Connect the USB connection cable (supplied) to the [AV OUT/DIGITAL] socket.**

- The socket is located on the lower part of the camera when it is placed in an upright position.

(F) Charging lamp

(G) USB connection cable (supplied)

- Check the directions of the connectors, and plug them straight in or unplug them straight out.
(Otherwise the connectors may bend out of shape, which may cause malfunction.)

(Charging from the power outlet)

Connect the AC adaptor (supplied) and this camera with the USB connection cable (supplied), and insert the AC adaptor (supplied) into the power outlet.

(Charging from a computer)

Connect the computer and this camera with the USB connection cable (supplied).

- If the computer enters a suspended state while charging the battery, charging may stop.
- Connecting this camera to a notebook computer that is not connected to a power outlet will cause the notebook computer battery to drain faster. Do not leave the camera connected for extended periods of time.
- Be sure to always connect the camera to a computer USB terminal.
Do not connect the camera to a monitor, keyboard or printer USB terminal, or a USB hub.

■ About the charging lamp

- Lit red:** Charging.
- Off:** Charging has completed.
(When charging is complete, disconnect the camera from the power outlet or computer.)
- Blinking red:** Charging error.
(Refer to [P170](#) for details.)

■ Charging time

When using the AC adaptor (supplied)

Charging time

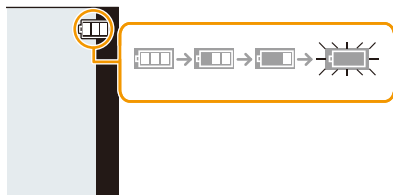
Approx. 210 min

- 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.
- When power is supplied from a computer, the power supply capacity of the computer determines the charging time.

■ Battery indication

The battery indication is displayed on the monitor.

- The indication turns red and blinks if the remaining battery power is low. Recharge the battery or replace it with a fully charged battery.



- **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 any other USB connection cables except the supplied one or a genuine Panasonic USB connection cable (DMW-USBC1: optional).
- Do not use any other AC adaptors except the supplied one.
- Do not use a USB extension cable.
- The AC adaptor (supplied) and USB connection cable (supplied) are for this camera only. Do not use them with other devices.
- Remove the battery after use.
(The battery will be exhausted if left for a long period of time after being charged.)
- The battery becomes warm after using and during and after charging. The camera also becomes warm during use. This is not a malfunction.
- The battery can be recharged even when it still has some power left, but it is not recommended that the battery charge be frequently topped up while the battery is fully charged.
(Since characteristic swelling may occur.)
- If a problem occurs in the power outlet, such as a power outage, charging may not be completed normally. If this happens, disconnect the USB connection cable (supplied) and connect it again.
- When the charging lamp does not light even if you connect the camera to the AC adaptor (supplied) or a PC, check if they are connected correctly.
- If you reconnect the USB connection cable (supplied) when the camera is fully charged, the charging lamp turns on for a while.

Approximate operating time and number of recordable pictures

Recording still pictures

Number of recordable pictures	Approx. 350 pictures	By CIPA standard in Program AE Mode
Recording time	Approx. 180 min	

Recording conditions by CIPA standard

- CIPA is an abbreviation of [Camera & Imaging Products Association].
- Temperature: 23 °C (73.4 °F)/Humidity: 50%RH when monitor is on.
- Using a Panasonic SD Memory Card.
- Using the supplied battery.
- Starting recording 30 seconds after the camera is turned on.
(When the Optical Image Stabilizer function is set to [ON].)
- **Recording once every 30 seconds** using full flash every second recording.
- Changing the zoom magnification from Tele to Wide or vice versa in every recording.
- Turning the camera off every 10 recordings and leaving it until the temperature of the battery decreases.

The number of recordable pictures varies depending on the recording interval time. As the recording interval time becomes longer, the number of recordable pictures decreases.

[For example, if you were to take one picture every two minutes, then the number of pictures would be reduced to approximately one-quarter of the number of pictures given above (based upon one picture taken every 30 seconds).]

Recording motion pictures

When [Rec Quality] is set to [FHD]

Recordable time	Approx. 100 min
Actual recordable time	Approx. 50 min

- These times are for an ambient temperature of 23 °C (73.4 °F) and a humidity of 50%RH. Please be aware that these times are approximate.
- Actual recordable time is the time available for recording when repeating actions such as turning this unit on and off, starting/stopping recording, zoom operation, etc.
- The maximum continuous recordable time of a motion picture is 29 minutes and 59 seconds, which is equivalent to a file size of approximately 4 GB.
You can check the recordable time on the screen. (With [FHD], the file size becomes larger, causing the recordable time to become shorter than 29 minutes and 59 seconds)

■ Playback**Playback time****Approx. 270 min****• The operating times and number of recordable pictures will differ according to the environment and the operating conditions.**

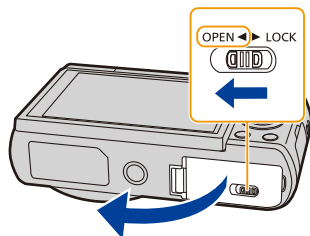
For example, in the following cases, the operating times will shorten and the number of recordable pictures is reduced:

- In low-temperature environments, such as on ski slopes.
 - When using [Monitor Luminance].
 - When operations such as flash and zoom are used repeatedly.
- When the operating time of the camera becomes extremely short even after properly charging the battery, the life of the battery may have expired. Buy a new battery.

Inserting and Removing the Card (optional)

- Check that this unit is turned off.
- We recommend using a Panasonic card.

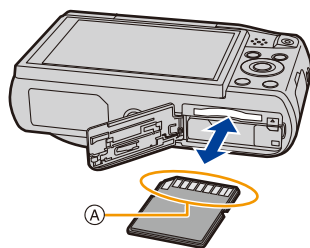
- 1** Slide the release lever in the direction of the arrow and open the card/battery door.



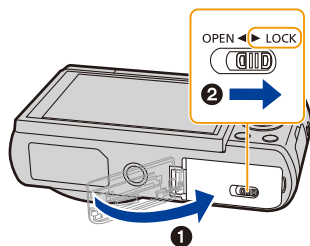
- 2** Push it securely all the way until you hear a “click” while being careful about the direction in which you insert it.

To remove the card, push the card until it clicks, then pull the card out upright.

(A): Do not touch the connection terminals of the card.



- 3** **1:** Close the card/battery door.
- 2:** Slide the release lever in the direction of the arrow.



- Turn the camera off and wait for the “LUMIX” display on the monitor to clear before removing the card.

(Otherwise, this unit may no longer operate normally and the card itself may be damaged or the recorded pictures may be lost.)

About the Built-in Memory/the Card


The following operations can be performed using this unit:

When a card has not been inserted	Pictures can be recorded on the built-in memory and played back.
When a card has been inserted	Pictures can be recorded on the card and played back.

• When using the built-in memory:

 →  (access indication*¹)

• When using the card:

 (access indication*¹)

*¹ The access indication is displayed in red when pictures are being recorded on the built-in memory (or the card).



Built-in Memory

- You can copy the recorded pictures to a card. (P124)
- **Memory size: Approx. 78 MB**
- The access time for the built-in memory may be longer than the access time for a card.

Card

The following cards, which conform to the SD standard, can be used with this unit.
(These cards are indicated as **card** in the text.)

	Remarks
SD Memory Card (8 MB to 2 GB)	<ul style="list-style-type: none"> • Use a card with SD Speed Class*² with “Class 4” or higher when recording motion pictures. • SDHC Memory Cards and SDXC Memory Cards can be used only with their compatible devices. • Check that the PC and other equipment are compatible when using the SDXC Memory Cards. http://panasonic.net/avc/sdcard/information/SDXC.html • Operation of the cards on the left has been confirmed with Panasonic’s cards.
SDHC Memory Card (4 GB to 32 GB)	
SDXC Memory Card (48 GB, 64 GB)	

*² SD Speed Class is the speed standard regarding continuous writing. Check via the label on the card, etc.

e.g.:

CLASS 



- Please confirm the latest information on the following website.

<http://panasonic.jp/support/global/cs/dsc/>

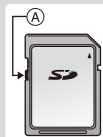
(This site is English only.)

- During access (image writing, reading and deleting, formatting etc.), do not turn this unit off, remove the battery, card or disconnect the AC adaptor (supplied). Furthermore, do not subject the camera to vibration, impact or static electricity.

The card or the data on the card may be damaged, and this unit may no longer operate normally.

If operation fails due to vibration, impact or static electricity, perform the operation again.

- Write-Protect switch (A) provided (When this switch is set to the [LOCK] position, no further data writing, deletion or formatting is possible. The ability to write, delete and format data is restored when the switch is returned to its original position.)
- The data on the built-in memory or the card may be damaged or lost due to electromagnetic waves, static electricity or breakdown of the camera or the card. We recommend storing important data on a PC etc.
- Do not format the card on your PC or other equipment. Format it on the camera only to ensure proper operation. (P50)
- Keep the Memory Card out of reach of children to prevent swallowing.



Approximate number of recordable pictures and available recording time

About the display of the number of recordable pictures and available recording time

- Switch the display (number of recordable pictures, available recording time, etc.) by pressing [DISP.]. (P58)
- The number of recordable pictures and the available recording time are an approximation. (These vary depending on the recording conditions and the type of card.)

Number of recordable pictures



Available recording time



Number of recordable pictures

- [+99999] is displayed if there are more than 100,000 pictures remaining.

Quality []

Picture size	Built-in Memory (Approx. 78 MB)	8 GB	32 GB	64 GB
16M (4:3)	14	1300	5400	10800
3M (4:3)	50	5700	23300	46700
0.3M (4:3)	155	15400	63200	130000

Available recording time (when recording motion pictures)

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

Recording quality setting	Built-in Memory (Approx. 78 MB)	8 GB	32 GB	64 GB
FHD	—	50m00s	3h20m00s	6h50m00s
HD	—	1h40m00s	6h50m00s	14h00m00s
VGA	2m30s	4h10m00s	17h10m00s	34h30m00s

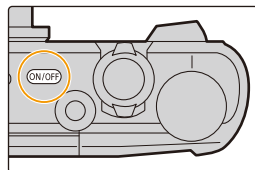
- The recordable time is the total time of all the motion pictures which have been recorded.
- The maximum continuous recordable time of a motion picture is 29 minutes and 59 seconds, which is equivalent to a file size of approximately 4 GB. You can check the recordable time on the screen. (With [FHD], the file size becomes larger, causing the recordable time to become shorter than 29 minutes and 59 seconds)

Setting Date/Time (Clock Set)

- The clock is not set when the camera is shipped.

1 Press camera [ON/OFF] button.

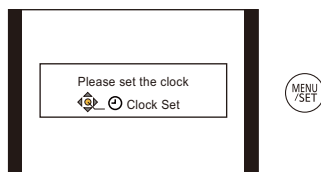
- If the language select screen is not displayed, proceed to step 4.



2 Press [MENU/SET].

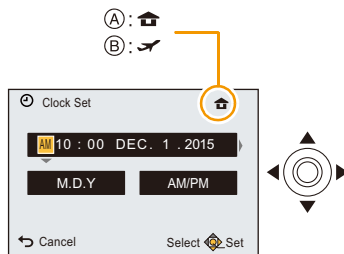
3 Press ▲/▼ to select the language, and press [MENU/SET].

4 Press [MENU/SET].



5 Press ◀/▶ to select the items (year, month, day, hour, minute, display sequence or time display format), and press ▲/▼ to set.

- Ⓐ: Time at the home area
- Ⓑ: Time at the travel destination
- You can cancel without setting the clock by pressing [↵].



6 Press [MENU/SET] to set.

7 Press [MENU/SET].

Changing the Clock Setting

Select **[Clock Set]** on the **[Setup]** menu and then press **[MENU/SET]**. (P41)

- The clock can be reset as shown in steps **5** and **6**.
- **The clock setting is maintained for about 14 days using the built-in clock battery even without the battery.**
(Leave the charged battery in the unit for 2 hours to charge the built-in battery.)

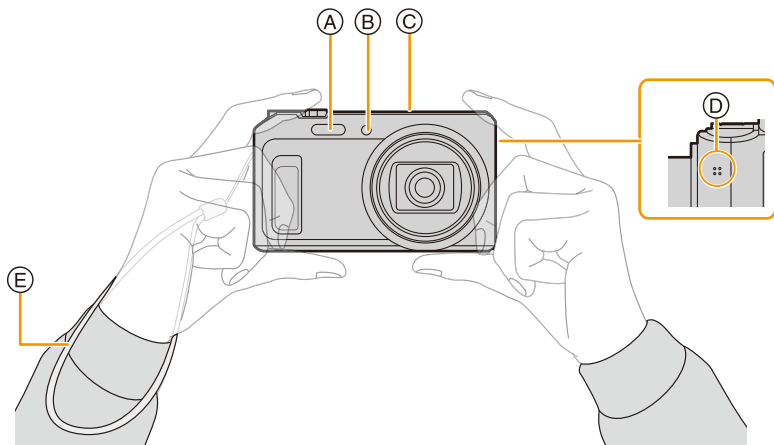
- If the clock is not set, the correct date cannot be printed when you order a photo studio to print the picture, or when you stamp the date on the pictures with **[Date Stamp]** or **[Text Stamp]**.

Tips for taking good pictures

Fit the strap and hold the camera carefully

Hold the camera gently with both hands, keep your arms still at your side and stand with your feet slightly apart.

- Do not swing around or pull forcefully on the unit with the strap attached. The strap may break.
- Be careful not to move the camera when you press the shutter button.
- Be careful not to put your fingers on the flash, AF assist lamp, microphone, speaker or lens etc.



Ⓐ Flash

Ⓑ AF assist lamp

Ⓒ Microphone

Ⓓ Speaker

Ⓔ Strap


■ Direction Detection Function ([Rotate Disp.])

Pictures recorded with the camera held vertically are played back vertically (rotated).

(Only when [Rotate Disp.] (P49) is set)

- When the camera is held vertically and tilted up and down to record pictures, the Direction Detection function may not work correctly.
- Motion pictures taken with the camera held vertically are not displayed vertically.

Preventing jitter (camera shake)

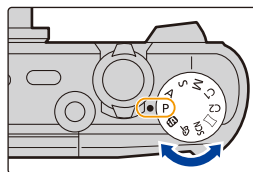
When the Jitter alert  appears, use [Stabilizer] (P103), a tripod or the Self-timer (P67).

- Shutter speed will be slower particularly in the following cases. Keep the camera still from the moment the shutter button is pressed until the picture appears on the screen.
 - [Slow Sync./Red-Eye]
 - [Night Portrait]/[Night Scenery]/[Starry Sky] (Scene Mode)



Selecting the Recording Mode

Switching the mode by rotating the mode dial.

- Rotate the mode dial slowly to select the desired mode.



List of Recording Modes

iA	Intelligent Auto Mode (P26)	The subjects are recorded using settings automatically selected by the camera.
P	Program AE Mode (P31)	The subjects are recorded using your own settings.
A	Aperture-Priority AE Mode (P70)	The shutter speed is automatically determined by the aperture value you set.
S	Shutter-Priority AE Mode (P71)	The aperture value is automatically determined by the shutter speed you set.
M	Manual Exposure Mode (P72)	The exposure is adjusted by the aperture value and the shutter speed which are manually adjusted.
C1C2	Custom Mode (P88)	Use this mode to take pictures with previously registered settings.
	Panorama Shot Mode (P73)	This mode allows you to take panorama pictures.
SCN	Scene Mode (P76)	This mode allows you to take pictures that match the scene being recorded.
	Creative Control Mode (P82)	Record while checking the image effect.

Taking pictures using the automatic function


(Intelligent Auto Mode)

Recording Mode:

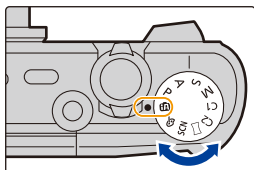
The camera will set the most appropriate settings to match the subject and the recording conditions so we recommend this mode for beginners or those who want to leave the settings to the camera and take pictures easily.

• The following functions are activated automatically.

- Scene Detection
- Backlight Compensation
- Intelligent ISO sensitivity control
- Auto White Balance
- Face Detection
- [i.Exposure]
- [i.Zoom]
- [AF Assist Lamp]
- [Red-Eye Removal]
- [Stabilizer]
- [Continuous AF]

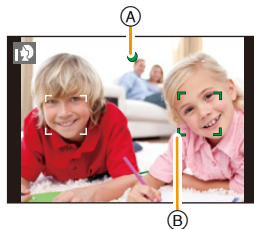
• Image quality is fixed to .

1 Set the mode dial to .



2 Press the shutter button halfway to focus.

- The focus indication (A) (green) lights when the subject is focused.
- The AF area (B) is displayed around the subject's face by the Face Detection function. In other cases, it is displayed at the point on the subject which is in focus.
- The minimal distance (how close you can be to the subject) will change depending on the zoom factor. Please check with the recordable range display on the screen. (P32)
- If you press ▲ while [AF Tracking] is displayed, you can set AF tracking.
For details, refer to P99.
(AF tracking is canceled by pressing ▲ again.)










3 Press the shutter button fully (push it in further), and take the picture.



Scene Detection

When the camera identifies the optimum scene, the icon of the scene concerned is displayed in blue for 2 seconds, after which its color changes to the usual red.



When taking pictures

 [i-Portrait]	 [i-Scenery]
 [i-Macro]	 [i-Night Portrait]* ¹
 [i-Night Scenery]	 [iHandheld Night Shot]* ²
 [i-Sunset]	

*1 Only displayed when the flash is set to [i↕A].

*2 Only displayed when [iHandheld Night Shot] is set to [ON].

When recording motion pictures

 [i-Portrait]	 [i-Scenery]
 [i-Low Light]	 [i-Macro]

- [iA] is set if none of the scenes are applicable, and the standard settings are set.
- When [iD] or [iS] is selected, the camera automatically detects a person's face, and it will adjust the focus and exposure. **(Face Detection)**
- If a tripod is used, for instance, and the camera has judged that camera shake is minimal when the scene detection has been identified as [iS], the shutter speed will be set to a maximum of 4 seconds. Take care not to move the camera while taking pictures.
- In Self Shot Mode, if a setting other than [OFF] is selected for [Defocusing], [iS], [iS] and [iS] scenes cannot be identified.
- Due to conditions such as the ones below, a different scene may be identified for the same subject.
 - Subject conditions: When the face is bright or dark, the size of the subject, the color of the subject, the distance to the subject, the contrast of the subject, when the subject is moving
 - Recording conditions: Sunset, sunrise, under low brightness conditions, when the camera is shaken, when zoom is used

The Backlight Compensation

When there is a backlight, the subject appears darker and the camera will automatically attempt to correct it by increasing the brightness of the picture.

In Intelligent Auto Mode, backlight compensation works automatically.

(Depending on the backlighting conditions, backlighting may not be detected correctly.)

Changing the settings

Following menus can be set.

Menu	Item
[Rec]	[Picture Size]*/[Burst Shooting]*/[Motion Deblur]/[iHandheld Night Shot]/[iHDR]/[Self Shot]
[Motion Picture]	[Rec Quality]
[Setup]	[Online Manual]/[Clock Set]/[World Time]/[Airplane Mode]/[Beep]*/ [Language] • Menu items other than those listed above are not displayed, but you can set them in other Recording Modes.
[Wi-Fi]	[New Connection]/[History Connection]/[Favorite Connection]/ [Wi-Fi Setup]

• For the setting method of the menu, refer to [P41](#).

* Available settings may be different from other Recording Modes.

Menus specific to Intelligent Auto Mode


■ [Motion Deblur]

When [Motion Deblur] is set to [ON], [] is displayed on the recording screen.

The camera automatically sets an optimal shutter speed according to the motion of the subject to reduce blur on the subject.

- It is initially set to [ON] on the camera.

■ [iHandheld Night Shot]

When [iHandheld Night Shot] is set to [ON] and [] is detected while taking handheld night shots, pictures of the night scenery will be taken at a high burst speed and composed into a single picture.

This mode is useful if you want to take stunning night shots with minimal jitter and noise, without using a tripod.

If the camera is mounted on a tripod or other type of stand, [] will not be detected.









- It is initially set to [ON] on the camera.

■ [iHDR]

When [iHDR] is set to [ON] and there is, for example, strong contrast between the background and the subject, multiple still pictures are recorded with differing exposures and combined to create a single still picture rich in gradation.

- It is initially set to [ON] on the camera.
- In the case that a single picture is going to be composed from a burst, a message indicating that multiple pictures are to be recorded appears on the screen and burst recording is carried out. Note that burst recording will not take place if the camera determines that it can compensate for the difference in contrast without composing the picture from a burst.
- In the case of composition from a burst, ghost images may appear if the subject was moving.
- In the following cases, a combined picture is not created.
 - When the zoom factor exceeds 20×.
 - When recording in [Burst Shooting].
 - When the flash is activated.

About the flash (P62)

- When [] is selected, [], [] or [] is set depending on the type of subject and brightness.
- When [], [] is set, [Red-Eye Removal] is enabled.
- Shutter speed will be slower during [] or [].

Taking Pictures with Your Favorite Settings

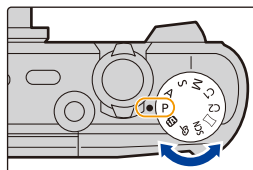
(Program AE Mode)

Recording Mode: **P**

The camera automatically sets the shutter speed and the aperture value according to the brightness of the subject.

You can take pictures with greater freedom by changing various settings in the [Rec] menu.

1 Set the mode dial to [P].

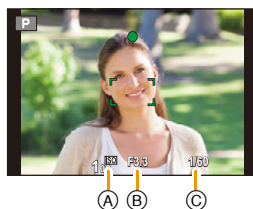


2 Aim the AF area at the point you want to focus on.

3 Press the shutter button halfway to focus.

- Ⓐ ISO sensitivity
- Ⓑ Aperture value
- Ⓒ Shutter speed

- Aperture value and shutter speed is displayed in red when correct exposure is not achieved.
(Exclude when using a flash)

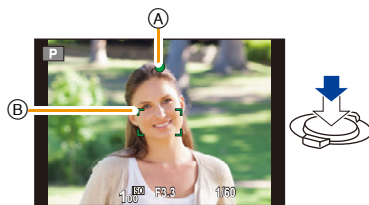


4 Press the shutter button fully (push it in further), and take the picture.



Focusing

Aim the AF area at the subject, and then press the shutter button halfway.



Focus	When the subject is focused	When the subject is not focused
Focus indication (A)	On	Blinks
AF area (B)	White → Green	White → Red
Sound	Beeps 2 times	Beeps 4 times

• The AF area may be displayed larger for certain zoom magnifications and in dark places.

About focus range

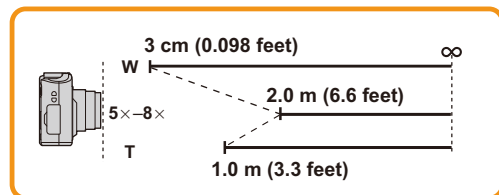
The focus range is displayed when operating the zoom.

• The focus range is displayed in red when it is not focused after pressing the shutter button halfway.



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

e.g.: Range of focus during the Intelligent Auto Mode



■ When the subject is not in focus (such as when it is not in the center of the composition of the picture you want to take)

- 1 Aim the AF area at the subject, and press the shutter button half way to fix the focus and exposure.
- 2 Press and hold the shutter button half way while moving the camera as you compose the picture.



- You can repeatedly retry the actions in step 1 before pressing the shutter button fully.

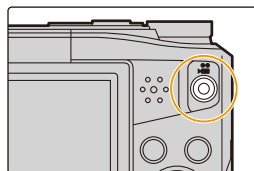
■ Subject and recording conditions which are difficult to focus in

- Fast-moving subjects, extremely bright subjects or subjects without contrast
- When recording subjects through windows or near shiny objects
- When it is dark or when jitter occurs
- When the camera is too close to the subject or when taking a picture of both distant and near subjects


Recording Motion Pictures

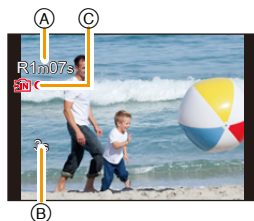
Applicable modes: **[M] [A] [P] [A] [S] [M] [C1] [C2]**  **[SCN]** 

1 Start recording by pressing the motion picture button.



- (A) Available recording time
- (B) Elapsed recording time

- You can record motion pictures fitting each Recording Mode.
- Release the motion picture button right after you press it.
- The recording state indicator (red)  will flash while recording motion pictures.
- For the setting of [Rec Quality], refer to [P105](#).



2 Stop the recording by pressing the motion picture button again.

■ About the recording format for recording motion pictures

This unit can record motion pictures in MP4 format.

MP4:

This is a simpler video format best used when extensive editing is needed, or when uploading videos to the internet.

■ About the compatibility of the recorded motion pictures

Even if a compatible MP4 playback device is used, the video or sound quality of the recorded motion pictures may be poor, or they may not be able to be played. There may also be times when the recorded data is not displayed properly. If you experience such issues, please play back the video on this camera.

- Depending on the type of the card, the card access indication may appear for a while after recording motion pictures. This is not a malfunction.
- The screen may be blacked out momentarily, or the unit may record noise due to static electricity or electromagnetic waves etc. depending on the environment of the motion picture recording.
- Even if the aspect ratio setting is the same in still pictures and motion pictures, the angle of view may change at the start of the motion picture recording.
When [Video Rec Area] (P47) is set to [ON], angle of view during motion picture recording is displayed.
- **About zooming while recording motion pictures**
 - If you use Extended Optical Zoom or Intelligent Zoom, the angle of view may change drastically when you start or finish recording a motion picture.
 - If you operate the zoom etc. while recording motion pictures, the sound of the operation may be recorded.
 - The zoom speed will be slower than usual when recording motion pictures.
 - Operating the zoom while recording motion pictures can take time for the image to come into focus.
- Motion pictures cannot be recorded in the following cases.
 - When a setting other than [OFF] is selected for [Defocusing] in Self Shot Mode
 - [Impressive Art]/[Soft Focus]/[Star Filter] (Creative Control Mode)
- It will be recorded in the following categories for certain Recording Modes. A motion picture recording matching each Recording Mode will be performed for the ones not listed below.

Selected Recording Mode	Recording Mode while recording motion picture
<ul style="list-style-type: none"> • Program AE Mode • Aperture-Priority AE Mode • Shutter-Priority AE Mode • Manual Exposure Mode • [Sports]/[HDR]/[Pet] (Scene Mode) 	Normal motion picture
<ul style="list-style-type: none"> • [Baby1]/[Baby2] (Scene Mode) 	Portrait Mode
<ul style="list-style-type: none"> • [Night Portrait]/[Night Scenery]/[Handheld Night Shot]/[Starry Sky] (Scene Mode) 	Low Light Mode

Recording still pictures while recording motion pictures

Still pictures can be recorded even while recording a motion picture. (Simultaneous recording)

During motion picture recording, press the shutter button fully to record a still picture.

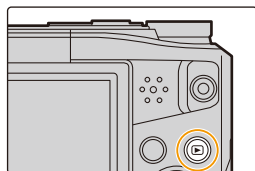
- The picture is saved with the following conditions.

Recording quality setting	Picture size
[FHD]/[HD]	3.5 M (16:9)

- You can record up to 2 pictures per motion picture recording.
- Simultaneous recording is not possible in the following cases:
 - When [Rec Quality] is set to [VGA]
 - [Miniature Effect] (Creative Control Mode)
- If you press the shutter button halfway to take a picture while recording a motion picture, the camera will refocus and the refocus movement will be recorded to the motion picture.
To prioritize the motion picture image, taking still pictures by fully pressing the shutter button is recommended.
- Picture size and number of recordable pictures are displayed by pressing the shutter button halfway.
- Recording of motion picture will continue after taking the still picture.
- Operation sound of the shutter button may be recorded when a picture is taken during motion picture recording.
- **The flash setting is fixed to [☺].**

Playing Back

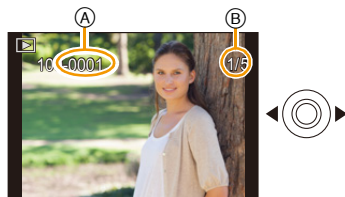
1 Press [▶].




2 Press ◀/▶ to select pictures.

- (A) File number
- (B) Picture number

- If you press and hold ◀/▶, you can play back the pictures in succession.
- Speed of picture Forwarding/Rewinding changes depending on the playback status.



■ Playing Back Motion Pictures

Press ◀/▶ to select a picture with a Motion Picture icon (such as ) , and then press ▲ to play back.


- (C) Motion picture icon
- (D) Motion picture recording time

- After playback starts, the elapsed playback time is displayed on the screen.

For example, 8 minutes and 30 seconds is displayed as [08m30s].



• Operations during Motion Picture Playback

	▲	Play/Pause
	▼	Stop
	◀	Fast rewind* / Frame-by-frame rewind (while pausing)
	▶	Fast forward* / Frame-by-frame forward (while pausing)

* The fast forward/rewind speed increases if you press ▶/◀ again.

– You can adjust the volume with the zoom lever.

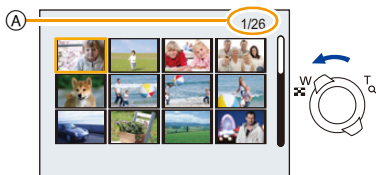
- When the camera is turned off, press and hold [▶]. If you turn it on this way, the playback screen will be displayed automatically.
(If too many images are stored in the card, it may take a while for the camera to turn on.)
- This camera complies with the DCF standard “Design rule for Camera File system” established by JEITA “Japan Electronics and Information Technology Industries Association” and with Exif “Exchangeable Image File Format”. Files that do not comply with the DCF standard cannot be played back.
- Images recorded or edited with the camera may not be played back correctly on other devices and applied effects may not appear on the devices.
Also, images recorded on other devices may not be played back on the camera and functions of the camera may not be available for the images.
- The lens barrel retracts about 15 seconds after switching from Recording Mode to Playback Mode. While the lens barrel is retracting, you may not be able to operate the camera.
- The file format that can be played back with this camera is MP4.
- Be careful not to block the speaker of the camera during playback.

Displaying Multiple Screens (Multi Playback)

Rotate the zoom lever towards [] (W).

1 screen → 12 screens → 30 screens → Calendar screen display

- ① Number of the selected picture and the total number of recorded pictures
- Rotate the zoom lever towards [Q] (T) to return to the previous screen.
- Pictures displayed using [!] cannot be played back.



To return to normal playback

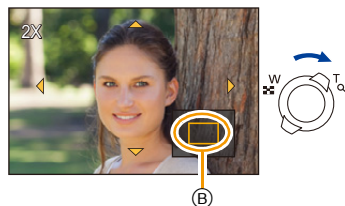
Press ▲/▼/◀/▶ to select a picture and then press [MENU/SET].

Using the Playback Zoom

Rotate the zoom lever towards [Q] (T).

1× → 2× → 4× → 8× → 16×

- When you rotate the zoom lever towards [] (W) after enlarging the picture, the magnification becomes lower.
- When you change the magnification, the zoom position indication ② appears for about 2 seconds, and the position of the enlarged section can be moved by pressing ▲/▼/◀/▶.
- The more a picture is enlarged, the more its quality deteriorates.



Creating Still Pictures from a Motion Picture

You can create a single still picture from a recorded motion picture.

1 Press **▲** to pause motion picture playback.

2 Press **[MENU/SET]**.

- Confirmation screen is displayed.
It is executed when **[Yes]** is selected.

- Still pictures will be saved with the following settings:

[Picture Size]	2M (16:9)
[Quality]	—■

- Still pictures created from a motion picture may be coarser than with normal picture quality.
- Still pictures cannot be created from motion pictures recorded in **[HD]/[VGA]**.

Deleting Pictures

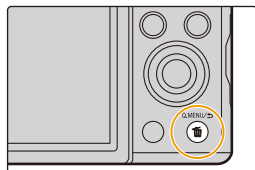
Once deleted, pictures cannot be recovered.

- Pictures on the built-in memory or the card that are being played back will be deleted.
- Pictures that are not in the DCF standard or those that are protected cannot be deleted.

To delete a single picture

Select the picture to be deleted, and then press [DISP].

- Confirmation screen is displayed.
Picture is deleted by selecting [Yes].



To delete multiple pictures (up to 50) or all the pictures

1 Press [DISP].

2 Press ▲/▼ to select [Delete Multi] or [Delete All] and then press [MENU/SET].

- [Delete All] → Confirmation screen is displayed.
Pictures are deleted by selecting [Yes].

3 (When [Delete Multi] is selected)

Press ▲/▼/◀/▶ to select the picture, and then press [DISP.] to set. (Repeat this step.)

- [DISP.] appears on the selected pictures.
If [DISP.] is pressed again, the setting is canceled.

4 (When [Delete Multi] is selected)

Press [MENU/SET].

- Confirmation screen is displayed.
Pictures are deleted by selecting [Yes].



- Do not turn the camera off while deleting.
- Depending on the number of pictures to be deleted, it may take some time to delete them.

Setting the Menu

The camera comes with menus that allow you to choose the settings for taking pictures and playing them back just as you like and menus that enable you to have more fun with the camera and use it more easily.

In particular, the [Setup] menu contains some important settings relating to the camera's clock and power.

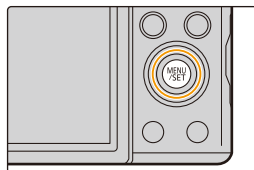
Check the settings of this menu before proceeding to use the camera.

Setting menu items

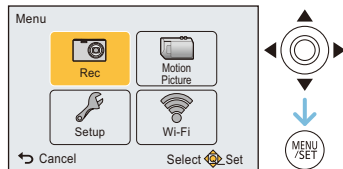
- If you rotate the monitor and set the camera to Self Shot Mode, the menu screen will not be displayed.

Example: In the [Rec] menu, change [AF Mode] from [□] ([1-Area]) to [👤] ([Face Detection])

1 Press [MENU/SET].



2 Press ▲/▼/◀/▶ to select menu and then press [MENU/SET].

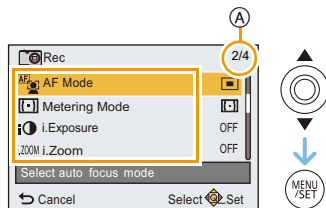


Menu	Description of settings
[Rec] (P91) (Recording Mode only)	The menu lets you set the Coloring, Sensitivity or Number of pixels, etc. of pictures you are recording.
[Motion Picture] (P105) (Recording Mode only)	This menu lets you set the setting for motion pictures such as recording quality.
[Playback Mode] (P107) (Playback Mode only)	This menu lets you set the playback method. For example, you can play back a desired type of images or play back a slideshow of images.
[Playback] (P114) (Playback Mode only)	This menu lets you set the Protection, Cropping or Print Settings, etc. of recorded pictures.
[Setup] (P44)	This menu lets you perform the clock settings, beep tone settings and other settings which make it easier for you to operate the camera.
[Wi-Fi] (P125)	This menu lets you make the settings necessary to connect to Wi-Fi or use the Wi-Fi function.

3 Press ▲/▼ to select the menu item and then press [MENU/SET].

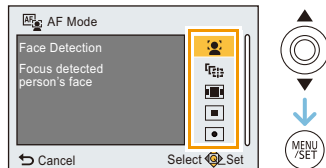
Ⓐ Menu screen page

- It will switch to the next page when you reach the bottom.
(It will also switch by rotating the zoom lever)



4 Press ▲/▼ to select the setting and then press [MENU/SET].

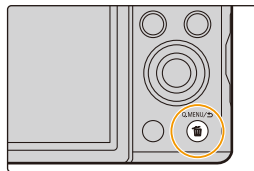
- Depending on the menu item, its setting may not appear or it may be displayed in a different way.



■ Close the menu

Press [↵] repeatedly until the recording/playback screen is displayed.

- When recording images, you can also close the menu by pressing the shutter button halfway.



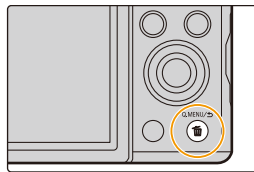
- There are functions that cannot be set or used depending on the modes or menu settings being used on the camera due to the specifications.

Using the Quick Menu

By using the Quick Menu, some of the menu settings can be easily found.

- The features that can be adjusted using Quick Menu are determined by the mode or a display style the camera is in.

1 Press [Q.MENU] when recording.




2 Press ▲/▼/◀/▶ to select the menu item and the setting and then press [MENU/SET] to close the menu.




About the Setup Menu




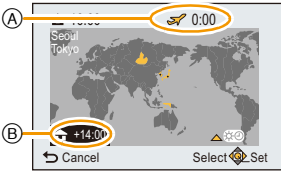
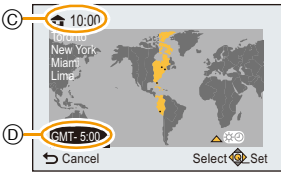
For details on how to select the [Setup] menu settings, refer to P41.


- [Clock Set], [Economy] and [Auto Review] are important items. Check their settings before using them.
- In Intelligent Auto Mode, only [Online Manual], [Clock Set], [World Time], [Airplane Mode], [Beep]*, [Language] can be set.
- * Available settings are different from other Recording Modes.

 [Online Manual]	[URL display]/[USB connection]/[QR Code display]
---	--

 [Clock Set]	Setting Date/Time.
---	--------------------

- Refer to P22 for details.

 [World Time]	<p>Set the time in your home area and travel destination. You can display the local times at the travel destinations and record them on the pictures you take.</p> <p>After selecting [Destination] or [Home], press ◀▶ to select an area, and press [MENU/SET] to set.</p> <ul style="list-style-type: none"> • Set [Home] first thing after purchasing. [Destination] can be set after setting up [Home]. <p> [Destination]: Travel destination area</p> <p>(A) Current time of the destination area (B) Time difference from home area</p> <p> [Home]: Your home area</p> <p>(C) Current time (D) Time difference from GMT (Greenwich Mean Time)</p>	 

- Press ▲ if you are using Daylight Savings []. (The time will move forward by 1 hour.) Press ▲ once more to return to the normal time.
- If you cannot find the travel destination in the areas displayed on the screen, set by the time difference from the home area.

✈️ [Airplane Mode]	Restricts Wi-Fi settings.
	<p>[ON]: Wi-Fi functions cannot be used.</p> <p>[OFF]</p> <ul style="list-style-type: none"> When you bring the camera on an airplane or to a hospital, etc., set [Airplane Mode] to [ON], and turn off the camera because electromagnetic waves, etc. emitted by the camera may interfere with gauges.




🔔 [Beep]	This allows you to set the beep and shutter sound.			
	<table border="0"> <tr> <td> <p>■)) [Beep Level]:</p> <p>[r(] ([Low])</p> <p>[r(🔔)] ([High])</p> <p>[🔔X] ([Off])</p> </td> <td> <p>🎵 [Shutter Vol.]:</p> <p>[🎵] ([Low])</p> <p>[🎵🔔)] ([High])</p> <p>[🎵X] ([Off])</p> </td> </tr> <tr> <td> <p>🔔🔔 [Beep Tone]:</p> <p>[🔔🔔]/[🔔🔔🔔]/[🔔🔔🔔]</p> </td> <td> <p>🔔🔔 [Shutter Tone]:</p> <p>[🔔🔔]/[🔔🔔🔔]/[🔔🔔🔔]</p> </td> </tr> </table>	<p>■)) [Beep Level]:</p> <p>[r(] ([Low])</p> <p>[r(🔔)] ([High])</p> <p>[🔔X] ([Off])</p>	<p>🎵 [Shutter Vol.]:</p> <p>[🎵] ([Low])</p> <p>[🎵🔔)] ([High])</p> <p>[🎵X] ([Off])</p>	<p>🔔🔔 [Beep Tone]:</p> <p>[🔔🔔]/[🔔🔔🔔]/[🔔🔔🔔]</p>
<p>■)) [Beep Level]:</p> <p>[r(] ([Low])</p> <p>[r(🔔)] ([High])</p> <p>[🔔X] ([Off])</p>	<p>🎵 [Shutter Vol.]:</p> <p>[🎵] ([Low])</p> <p>[🎵🔔)] ([High])</p> <p>[🎵X] ([Off])</p>			
<p>🔔🔔 [Beep Tone]:</p> <p>[🔔🔔]/[🔔🔔🔔]/[🔔🔔🔔]</p>	<p>🔔🔔 [Shutter Tone]:</p> <p>[🔔🔔]/[🔔🔔🔔]/[🔔🔔🔔]</p>			

c? [Cust.Set Mem.]	Up to 4 current camera settings can be registered as custom settings.
	[C1]/[C2-1]/[C2-2]/[C2-3]


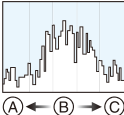
• Refer to [P88](#) for details.

* [Monitor Display]	Brightness, color, or red or blue tint of the monitor is adjusted.
	<p>[Brightness]: Adjust the brightness.</p> <p>[Contrast · Saturation]: Adjust the contrast or clarity of colors.</p>
	<p>[Red Tint]: Adjust the red tint.</p> <p>[Blue Tint]: Adjust the blue tint.</p>
	<p>1 Select the settings by pressing ▲/▼, and adjust with ◀/▶.</p> <p>2 Press [MENU/SET] to set.</p>

• Some subjects may appear differently from actuality on the monitor. However, this does not affect the recorded pictures.


 [Monitor Luminance]	<p>These menu settings make it easier to see the monitor when you are in bright places.</p>
	<p>[*] ([Auto Power Monitor])*: The brightness is adjusted automatically depending on how bright it is around the camera.</p> <p>[*] ([Power Monitor]): The monitor becomes brighter and easier to see even when taking pictures outdoors.</p> <p>[OFF]</p> <p>* Can be set only when Recording Mode is set.</p>

- The brightness of the pictures displayed on the monitor is increased so some subjects may appear different from real life on the monitor. However, this does not affect the recorded pictures.
- When [Monitor Luminance] is set, the usage time is reduced.


 [Histogram]	<p>This allows you to set either to display or not display the Histogram.</p>
	<p>[ON]/[OFF]</p> <p>A Histogram is a graph that displays brightness along the horizontal axis (black to white) and the number of pixels at each brightness level on the vertical axis. It allows you to easily check a picture's exposure.</p> <p>(A) dark (B) optimal (C) bright</p> 

- **When the recorded picture and the Histogram do not match each other under the following conditions, the Histogram is displayed in yellow.**



- When the Manual Exposure Assistance is other than [0] during exposure compensation or in the Manual Exposure Mode
- When the flash is activated
- Dark places
- The Histogram is an approximation in Recording Mode.
- The Histogram of a picture may not match in the Recording Mode and the Playback Mode.
- The Histogram displayed in this camera does not match Histograms displayed by picture editing software used in PCs, etc.
- Histograms are not displayed in the following cases.
 - Intelligent Auto Mode
 - Panorama Shot Mode
 - When recording motion pictures
 - Calendar
 - Multi Playback
 - Playback Zoom
 - When HDMI micro cable is connected

 [Video Rec Area]	Angle of view for motion picture recording can be checked.
	[ON]/[OFF]


- Motion picture recording area display is only an approximation.
- Recording area display may disappear when zooming to Tele depending on the picture size setting.
- The setting is fixed to [OFF] in the following case.
 - Intelligent Auto Mode

 [Zoom Resume]	This allows you to save the zoom position when you turn off the camera.
	[ON]/[OFF]


- The setting is fixed to [OFF] in the following case.
 - Intelligent Auto Mode


ECO [Economy]	The camera is automatically turned off if the camera has not been used for the time selected on the setting. Also, the battery life is conserved by dimming the monitor.
	 [Auto Power Off]: The camera is automatically turned off if the camera has not been used for the time selected on the setting. [2MIN.]/[5MIN.]/[10MIN.]/[OFF]
	 [Monitor Power Save]: The brightness of the monitor is lowered. [ON]/[OFF]

- [Auto Power Off] is fixed to [5MIN.] in the following case.
 - Intelligent Auto Mode
- [Auto Power Off] does not work in the following cases.
 - When connecting to a PC or a printer
 - When recording or playing back motion pictures
 - During a Slide Show
 - During panorama playback (while pausing)
 - When using a Wi-Fi connection


 [Auto Review]	Set the length of time that the picture is displayed after taking the still picture.
	[1SEC] [2SEC] [HOLD]: The pictures are displayed until one of the buttons is pressed. [OFF]

- [Auto Review] is activated regardless of its setting in the following cases.
 - When using Auto Bracket
 - When using [Burst Shooting].
- The setting is fixed to [2SEC] in the following case.
 - Intelligent Auto Mode
- [Auto Review] does not work when recording motion pictures.



 [Exposure Comp. Reset]	When you turn off the camera or switch the Recording Mode, the exposure value is set to [0 EV].
	[ON]/[OFF]





 [Reset]	The recording or setup settings are reset to the default.
--	---

- When the setup settings are reset, the following settings are also reset.
 - The birthday and name settings for [Baby1]/[Baby2] and [Pet] in Scene Mode.
- The folder number and the clock setting are not changed.

 [Reset Wi-Fi Settings]	Reset all settings in the [Wi-Fi] menu to factory default settings.
---	---

- Always reset the camera when disposing or selling it to prevent personal information saved within the camera from being misused.
- Always reset the camera after making a copy of personal information when sending the camera in to be repaired.


 [TV Connection]	Set to match the type of TV.
	[] ([TV Aspect]): [16:9] : When connecting to a 16:9 screen TV. [4:3] : When connecting to a 4:3 screen TV. • This will work when the AV cable (optional) is connected.

 [Rotate Disp.]	This mode allows you to display pictures vertically if they were recorded holding the camera vertically.
	[ ] ([On]): Rotate pictures on a TV and the monitor so that they are displayed vertically. [] ([External Only]): Pictures are displayed vertically by rotating when played back on TV. [OFF]


- When you play back pictures on a PC, they cannot be displayed in the rotated direction unless the OS or software is compatible with Exif. Exif is a file format for still pictures which allows recording information etc. to be added. It was established by "JEITA (Japan Electronics and Information Technology Industries Association)".
- Pictures are not rotated during Multi Playback.


[Ver.] [Version Disp.]	It is possible to check which version of firmware is on the camera.
-------------------------------	---

- Press [MENU/SET] on the version display screen to display information about the software on the unit.

 [Format]	The built-in memory or card is formatted. Formatting irretrievably deletes all the data so check the data carefully before formatting.
---	--

- Do not turn the camera off during formatting.
- If a card has been inserted, only the card is formatted. To format the built-in memory, remove the card.
- If the card has been formatted on a PC or other equipment, format it on the camera again.
- It may take longer to format the built-in memory than the card.
- If the card cannot be formatted, please try another card before contacting Panasonic.

 [Language]	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.

Taking Pictures of Yourself ([Self Shot])

Applicable modes: **[A]** **[P]** **[A]** **[S]** **[M]** **[C1]** **[C2]** **[SCN]** **[B]**

If you rotate the monitor, Self Shot Mode is activated.

You can easily take pictures of yourself while looking at the screen.

- When [Self Shot] (P104) in [Rec] menu is set to [OFF], even if you rotate the monitor, the camera will not be set to Self Shot Mode. (It is set to [ON] at the time of purchase.)

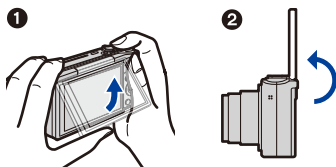
In Self Shot Mode...

- Deciding on a composition is easier because recording is performed while looking at the screen.
- Using the soft skin effect allows the faces of subjects to appear brighter and the skin color to appear smoother.
- Pictures with different poses and facial expressions can be taken at once by increasing the number of pictures to be recorded.
- You can take pictures with just a wink at the camera by setting [Countdown] to [Wink detector]. Pictures will be taken after the camera counts down from three. (P55)
- Settings for the respective Recording Modes are maintained, except for the recording settings for Self Shot Mode (P53).
- In Playback Mode, the camera can be set to display only the pictures taken in Self Shot Mode. ([Category Selection]) (P110)



1 Rotate the monitor as shown in the figure.

- When you rotate the monitor, a mirror image will be displayed on the monitor.



2 Press [MENU/SET] to set the soft skin effect, the number of pictures to be taken, and other details. (P53)

- Operate the buttons on the back of the unit while looking at the screen. Be careful not to operate the wrong buttons and not to drop the camera.
- Press ▲/▼ to select a setting, press ◀/▶ to select an option, and press [MENU/SET].



3 Decide on your poses while looking at the monitor.

- The AF area is displayed around the subject's face by the Face Detection function. (If [AF] in [AF Mode] is not available with the current Recording Mode, an available focus setting for each Recording Mode will be used.)

4 Press the shutter button halfway to focus and then press it fully to take the picture.

- Look at the lens when recording.
- Countdown starts, and recording takes place when it ends. If multiple pictures are set to be recorded, the recording continues until the set number is reached.






























- Be careful not to look at the light from the flash and the AF Assist Lamp directly.

Recording settings in Self Shot Mode

When you press [MENU/SET] in step **2**, you can change the following settings.

- You can also change the [Slimming Mode] setting in [Self Shot] in the [Rec] menu. (P54)

Settings	Description of settings
 ([Soft Skin])	Makes people's faces look brighter and their skin tones look softer. [] ([OFF])/[] ([Low])/[] ([Medium])/[] ([High])
 ([Defocusing])	Blurs the background. The in-focus portion guide is displayed on the screen. [] ([OFF]) [] ([Pattern 1]): When taking pictures of yourself by holding the camera vertically. [] ([Pattern 2]): When taking pictures of yourself by holding the camera horizontally. [] ([Pattern 3]): When taking pictures of two or three people by holding the camera horizontally.
 ([Flash])	Sets the flash output method. [] ([Auto])/[] ([iAuto]) ^{*1} /[] ([Auto/Red-Eye]) ^{*2} / [] ([Forced Flash On])/[] ([Slow Sync./Red-Eye]) ^{*2} / [] ([Forced Flash Off])
 ([Shot Count])	Sets the number of pictures to be taken in succession. [] (1 picture)/[] (2 pictures)/[] (3 pictures)/[] (4 pictures)
 ([Countdown])	Takes a picture after a countdown. [] ([OFF])/[] (3)/[] (10)/[] ([Wink detector]) • For details on [Wink detector], refer to P55.

*1 This can be set only when Intelligent Auto Mode is set.

*2 [Red-Eye Removal] (P103) on the [Rec] menu is set to [ON], [] appears on the flash icon.

- When the [Soft Skin] is set
 - The smoothing effect is applied to the part that has a similar tone to the complexion of a subject, as well.
 - This mode may not be effective under insufficient lighting.
- When a setting other than [OFF] is selected for [Defocusing], display of the recording screen will be delayed more than usual.
- [Soft Skin] is not available in the following cases:
 - Scene Mode
 - Creative Control Mode
- [Defocusing] is not available in the following cases:
 - Panorama Shot Mode
 - [Handheld Night Shot]/[HDR]/[Starry Sky] (Scene Mode)
 - Creative Control Mode
 - When recording motion pictures
- [Flash] is not available in the following cases:
 - When a setting other than [OFF] is selected for [Defocusing]
 - Panorama Shot Mode
 - Creative Control Mode
 - When recording motion pictures
- [Shot Count] is not available in the following cases:
 - Panorama Shot Mode
 - When recording motion pictures
- [Countdown] is not available in the following cases:
 - Panorama Shot Mode
 - When recording motion pictures

■ Changing the settings of Self Shot Mode from the [Rec] menu

- 1 Close the monitor to its original position.
- 2 Select [Self Shot] on the [Rec] menu and then press [MENU/SET]. (P41)
- 3 Press ▲/▼ to select [SET] and then press [MENU/SET].
- 4 Press ▲/▼ to select the menu item and then press [MENU/SET].

Item	Description of settings
[Slimming Mode]	Makes people look slimmer. [HIGH]/[LOW]/[OFF]

- For information on other settings, refer to P53.
- 5 Press ▲/▼ to select the setting and then press [MENU/SET].
 - Exit the menu after it is set.

- [Slimming Mode] is not available in the following case:
 - Panorama Shot Mode

■ [Wink detector]

When the camera detects a wink using the Face Detection function, it counts down from three and takes a picture.

1 Check that a yellow frame is displayed on the face of the person who will wink.

- Winks of the people who are not indicated with the yellow frame will not be detected.



2 Wink at the camera.

- Close the other eye until a countdown starts.
- When the wink is detected, a countdown starts. A picture will be taken when the countdown is over. If the camera is set to take more than one picture, recording will continue until the set number of pictures are taken.
- You can also start recording by pressing the shutter button. Even in this case, the camera takes a picture after counting down from three.

- Depending on recording conditions such as the ones below, winks may not be detected:

- When the face is not facing the camera
- When the face is at an angle
- When the face is extremely bright or dark
- When the face appears small on the screen
- When the eye is hidden by hair or other object
- When both eyes are closed
- When the subject is wearing glasses
- When there is little contrast on the faces
- When the camera is shaking

- When using a Recording Mode in which [AF] in [AF Mode] is not available, [Countdown] will be set to [3]. (The [Countdown] setting can be changed.)

Taking panorama pictures in Self Shot Mode

You can also take panorama pictures in Self Shot Mode.

By recording with Panorama Shot Mode, you can enjoy a variety of self-portraits, such as those with your friends or those incorporating a wide background.




- For information on taking pictures in Panorama Shot Mode, please also refer to P73 “Taking panorama pictures (Panorama Shot Mode)”.

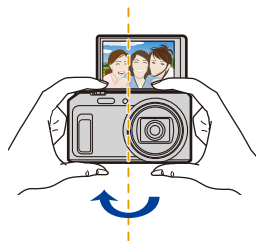
- 1 Set the mode dial to [].**
- 2 Press ▲/▼ to select the recording direction and then press [MENU/SET].**
 - If a screen that lets you select the recording direction is not displayed, press ►.
 - The recording direction is reversed horizontally when the monitor is rotated. Select the direction opposite to the desired direction of rotation.
- 3 Press ▲/▼ to select image effects and then press [MENU/SET].**
- 4 Rotate the monitor to enable Self Shot Mode.**
 - Instructions explaining how to take a picture will be displayed.
- 5 Read the instructions explaining how to take a picture, and press [MENU/SET].**
 - The instructions continue to the next page. Press [MENU/SET] repeatedly until the recording screen is displayed.
- 6 Point the camera at the front, and strike a pose while look at the monitor.**
 - The AF area is displayed around the subject's face by the Face Detection function.
 - If you have selected [No Effect] in step 3, you can set the [Soft Skin] by pressing [MENU/SET]. (P53)
 - To change settings other than [Soft Skin], such as the recording direction, close the monitor back to the original position before changing them.
- 7 Press the shutter button halfway (or fully) to lock the focus and exposure.**
 - After pressing the shutter button halfway (or fully), release your finger from it completely.
 - You can re-adjust the focus and exposure as many times as you want by pressing [↵].
- 8 Point the camera to the position where you start recording, press the shutter button fully, and pan the camera in the direction indicated on the screen in step 5 to take the picture.**
- 9 Press the shutter button once again to end the picture recording.**
 - Recording can also be ended by keeping the camera still while recording.
 - Recording can also be ended by moving the camera to the end of the guide.

■ Technique for Panorama Shot Mode

Swivel the camera around its center when moving it in the recording direction. Hold the camera with both hands, taking care not to shake it.

- Swivel the camera at a speed of about 2 seconds per quarter revolution.
- If the camera shakes too much, pictures may not be able to be recorded, or the recorded panorama picture may become narrower (smaller).
- Move the camera towards the edge of the range you wish to record.
- If you change the facial expression or blink, the recorded picture may look unnatural. Try to stay still.

Example:
When you have selected
[] in step 2

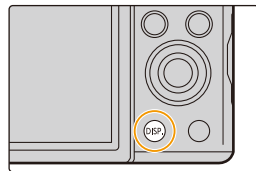


- Since the distance between the camera and subject is close when you take panorama pictures in Self Shot Mode, the edges of the pictures may appear significantly distorted.

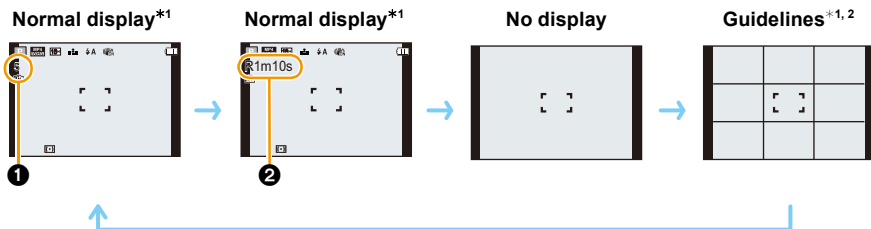
About the Monitor

Press [DISP.] to change.

- During motion picture playback, panorama playback or a slide show, you can only select “Normal Display” or “No Display”.

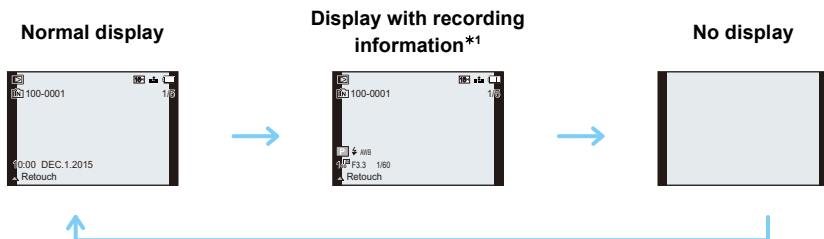


In Recording Mode



- ❶ Number of recordable pictures
- ❷ Available recording time

In Playback Mode



*1 If the [Histogram] in [Setup] menu is set to [ON], Histogram will be displayed.

*2 This screen is not displayed in Self Shot Mode if a setting other than [OFF] is selected for [Defocusing].

About the guidelines

When taking pictures, use the guide lines as a guide for adjusting the balance and other elements of composition.

Using the Zoom

Applicable modes: 

You can zoom in to make people and objects appear closer or zoom out to record landscapes in wide angle.

To make subjects appear further away use (Wide)

Rotate the zoom lever towards Wide.



To make subjects appear closer use (Tele)

Rotate the zoom lever towards Tele.



■ Screen display

Example of display when Extended Optical Zoom (EZ), Intelligent Zoom and Digital Zoom are used together.

- (A) Extended Optical Zoom indication
- (B) Optical Zoom range
- (C) Intelligent Zoom range
- (D) Digital Zoom range
- (E) Zoom magnification (approximation)



- When using the Zoom function, an estimate of the focus range will appear in conjunction with the zoom display bar. [Example: 0.03 m (0.098 ft.) -∞]

■ Storing the zoom position (Zoom resume)

- Refer to [P47](#) for details.

- The lens barrel will extend or retract depending on the zoom position. Take care not to obstruct the movement of the lens barrel when using the Zoom function.
- For details about using the zoom while recording motion pictures, refer to [P35](#).

Optical Zoom

Zooms in without deteriorating the image quality.

Maximum magnification: 20×

Extended Optical Zoom (EZ)

This function works when any of the picture sizes (P91) indicated with **EZ** is selected. You can zoom in further than you can with the Optical Zoom without deteriorating the image quality.

Maximum magnification: 45×

(This includes the optical zoom magnification. The magnification level differs depending on [Picture Size] setting.)

- “EZ” is an abbreviation of “Extended Optical Zoom”.
- This function is not available in the following cases:
 - Self Shot Mode
 - Macro Zoom Mode
 - [HDR]/[High Sens.] (Scene Mode)
 - [Impressive Art]/[Toy Effect] (Creative Control Mode)
 - When [Burst Shooting] is set to [☐H]
 - When recording motion pictures

Intelligent Zoom

Enabled when [i.Zoom] (P100) in the [Rec] menu is set to [ON].

You can zoom in up to twice the original zoom magnification while minimizing the deterioration of the image quality.

- This will work automatically in Intelligent Auto Mode.
- This function is not available in the following cases:
 - Self Shot Mode
 - Macro Zoom Mode
 - [Handheld Night Shot]/[HDR]/[High Sens.] (Scene Mode)
 - [Impressive Art]/[Toy Effect] (Creative Control Mode)
 - When [Burst Shooting] is set to [☐H]
 - When recording motion pictures

Digital Zoom

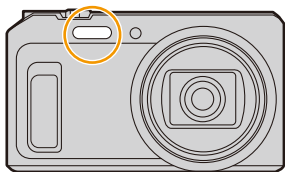
This function works when [Digital Zoom] (P100) in the [Rec] menu is set to [ON].

Although the image quality deteriorates every time you zoom in further, you can zoom in up to four times the original zoom magnification.

- When using the [i.Zoom], the maximum magnification of the Digital Zoom is limited to 2×.
- We recommend using a tripod and the Self-timer (P67) for taking pictures.
- This function is not available in the following cases:
 - Intelligent Auto Mode
 - Self Shot Mode
 - [Handheld Night Shot]/[HDR]/[High Sens.] (Scene Mode)
 - [Impressive Art]/[Toy Effect]/[Miniature Effect] (Creative Control Mode)
 - When [Burst Shooting] is set to [☐H]/[☐]

Taking Pictures Using the Built-in Flash

Applicable modes: **[M]** **[A]** **[P]** **[A]** **[S]** **[M]** **[C1]** **[C2]** **[SCN]** **[👍]**



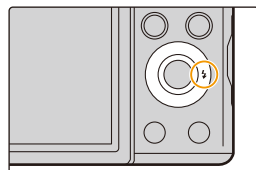
Flash

Do not cover it with your fingers or other objects.

Switching to the appropriate flash setting

Set the flash to match the recording.

1 Press **[▶]** **[🔍]**.



2 Press ▲/▼ to select the setting and then press [MENU/SET].

Settings	Description of settings
[A] ([Auto]) [iA] ([iAuto])*1	The flash is automatically activated when the recording conditions make it necessary.
[A⊙] ([Auto/Red-Eye])*2	The flash is automatically activated when the recording conditions make it necessary. It is activated once before the actual recording to reduce the red-eye phenomenon (eyes of the subject appearing red in the picture) and then activated again for the actual recording. • Use this when you take pictures of people in low lighting conditions.
[] ([Forced Flash On])	The flash is activated every time regardless of the recording conditions. • Use this when your subject is back-lit or under fluorescent light.
[S⊙] ([Slow Sync./Red-Eye])*2	If you take a picture with a dark background landscape, this feature will slow the shutter speed when the flash is activated so that the dark background will become bright. Simultaneously, it reduces the red-eye phenomenon. • Use this when you take pictures of people in front of a dark background.
[⊙] ([Forced Flash Off])	The flash is not activated in any recording conditions. • Use this when you take pictures in places where the use of flash is not permitted.

*1 This can be set only when Intelligent Auto Mode is set.

The icon changes depending on the type of subject and brightness.












*2 **The flash is activated twice. The subject should not move until the second flash is activated.**

[Red-Eye Removal] (P103) on the [Rec] menu is set to [ON], [] appears on the flash icon.

■ Available Flash Settings in Recording Mode

The available flash settings depend on the Recording Mode.

(○: Available, —: Not available, ●: Scene Mode initial setting)

					
	○*	—	—	—	○
P / A	○	○	○	○	○
S / M	○	○	○	—	○
	○	●	○	—	○
	—	—	—	—	●
	●	—	○	—	○
	—	—	—	●	○
	○	—	○	—	●






* [iA] is displayed.

- When [iA] is selected, [iA], [iA[Ⓢ]], [i[Ⓢ]S[Ⓢ]] or [i[Ⓢ]S] is set depending on the type of subject and brightness.
- When [iA[Ⓢ]], [i[Ⓢ]S[Ⓢ]] is set, [Red-Eye Removal] is enabled.
- Shutter speed will be slower during [i[Ⓢ]S[Ⓢ]] or [i[Ⓢ]S].
- The flash setting may change if the Recording Mode is changed. Set the flash setting again if necessary.
- The flash setting is memorized even if the camera is turned off. However, the Scene Mode flash setting is reset to the initial setting when the Scene Mode is changed.
- Flash will not be activated when recording motion picture.


■ The available flash range (approximation)

	Wide	Tele
[AUTO] in [Sensitivity]	0.6 m (2.0 feet) to 6.0 m (20 feet)	1.0 m (3.3 feet) to 3.1 m (10 feet)

■ Shutter speed for each flash setting

Flash setting	Shutter speed (Sec.)	Flash setting	Shutter speed (Sec.)
	1/60 to 1/2000		1 or 1/8 to 1/2000*
			
			

- * The shutter speed changes depending on the [Stabilizer] setting. The shutter speed becomes a maximum of 1 second in the following cases.
 - When the Optical Image Stabilizer is set to [OFF].
 - When the camera has determined that there is very little jitter when the Optical Image Stabilizer is set to [ON].
- In Intelligent Auto Mode, shutter speed changes depending on the identified scene.
- In Scene Mode, shutter speed will be different from the above table.

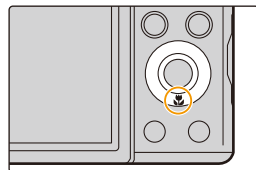
- If you bring the flash too close to an object, the object may be distorted or discolored by the heat or lighting from the flash.
- If you take a picture using the flash at close range (around Wide) without using the zoom, the periphery of the picture may appear dark. The dark area may appear brighter if you zoom in a little.
- Recording a subject from too close, or without sufficient flash will not provide the appropriate level of exposure, and may result in a picture that is too white or dark.
- When the flash is being charged, the flash icon blinks red, and you cannot take a picture even when you press the shutter button fully.
- If recording a subject without sufficient flash, the White Balance may not be properly adjusted.
- The effects of the flash may not be adequately achieved under the following conditions.
 - When [Burst Shooting] is set to []
 - When the shutter speed is too fast
- It may take time to charge the flash if you repeatedly take pictures. Take a picture after the access indication disappears.
- The Red-Eye Reduction effect differs between people. Also, if the subject is far away from the camera or was not looking at the first flash, the effect may not be evident.

Taking Close-up Pictures ([AF Macro]/[Macro Zoom])



Applicable modes:          




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

1 Press  .



2 Press  to select the item and then press .

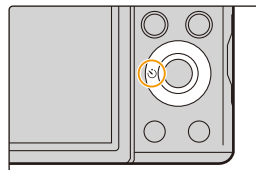
Item	Description of settings
 ([AF Macro])	You can take pictures of a subject as close as 3 cm (0.098 feet) from the lens by rotating the zoom lever upmost to Wide (1×).
 ((Macro Zoom))	Use this setting to get close to the subject and then further enlarge when taking the picture. You can take a picture with the Digital Zoom up to 3× while maintaining the distance to the subject for the extreme Wide position [3 cm (0.098 feet)]. • The image quality is poorer than during normal recording. • Zoom range will be displayed in blue. (digital zoom range)
[OFF]	—

- We recommend using a tripod and the Self-timer.
- We recommend setting the flash to  when you take pictures at close range.
- If the distance between the camera and the subject is beyond the focus range of the camera, the picture may not be properly focused even if the focus indication lights.
- When a subject is close to the camera, 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.
- Macro Mode gives priority to a subject close to the camera. Therefore, if the distance between the camera and the subject is far, it takes longer to focus on it.
- When you take pictures at close range, the resolution of the periphery of the picture may decrease slightly. This is not a malfunction.
- [Macro Zoom] cannot be set in the following cases.
 - Self Shot Mode
 - [Impressive Art]/[Toy Effect]/[Miniature Effect] (Creative Control Mode)
 - When [AF Mode] is set to 
 - When [Burst Shooting] is set to 



Taking Pictures with the Self-timer

Applicable modes:         

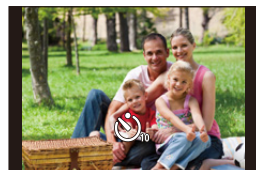
1 Press  [].



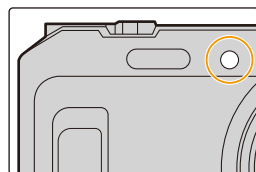
2 Press / to select the setting and then press [MENU/SET].

Settings	Description of settings
[] ₁₀ ([10sec.])	Picture is taken 10 seconds after shutter is pressed.
[] ₂ ([2sec.])	Picture is taken 2 seconds after shutter is pressed. • When using a tripod, etc., this setting is a convenient way to avoid the jitter caused by pressing the shutter button.
[OFF]	—

3 Press the shutter button halfway to focus and then press it fully to take the picture.



- The Self-timer indicator blinks and the shutter is activated after 10 seconds (or 2 seconds).



• This function is not available in the following cases:

- Self Shot Mode
(When taking pictures in Self Shot Mode, you can set the Self-timer in [Countdown]. (P53))
- When recording motion pictures

Compensating the Exposure

Applicable modes:        

Use this function when you cannot achieve appropriate exposure due to the difference in brightness between the subject and the background.

Underexposed



Properly exposed



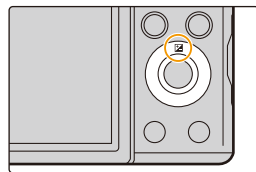
Overexposed



Compensate the exposure towards positive.

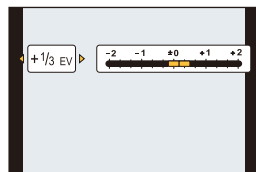
Compensate the exposure towards negative.

1 Press   to display [Exposure Comp.].



2 Press   to compensate the exposure and then press [MENU/SET].

- The exposure compensation value appears on the screen.
- Select [0 EV] to return to the original exposure.



- “EV” is an abbreviation of “Exposure Value”, a unit indicating the amount of exposure. The EV changes with the aperture value or the shutter speed.
- When [Exposure Comp. Reset] in the [Setup] menu is set to [OFF], the current exposure value will be maintained even if you turn off the camera.
- This function is not available in the following case:
 - [Starry Sky] (Scene Mode)

Taking Pictures Using Auto Bracket

Applicable modes:  **P A S M C1 C2**  **SCN** 

In this mode, 3 pictures are automatically recorded in the selected exposure compensation range each time the shutter button is pressed.

With Auto Bracket ± 1 EV

1st picture



± 0 EV

2nd picture



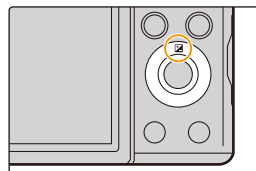
-1 EV


3rd picture



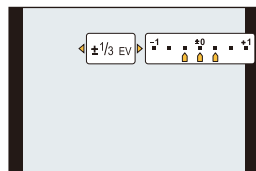
$+1$ EV



- 1 Press  repeatedly until [Auto Bracket] is displayed.



- 2 Press  to set the compensation range of the exposure and then press [MENU/SET].

- When you do not use Auto Bracket, select [OFF] (± 0).



- If you turn off the camera, Auto Bracket will be canceled.
- When setting Auto Bracket,  appears on the screen.
- When taking pictures using Auto Bracket after setting the Exposure Compensation range, the pictures taken are based on the selected Exposure Compensation range.
- The exposure may not be compensated with Auto Bracket depending on the brightness of the subject.
-  is set for the flash when Auto Bracket is set.
- This function is not available in the following cases:
 - Self Shot Mode
 - [Impressive Art]/[Toy Effect]/[Miniature Effect]/[Soft Focus]/[Star Filter] (Creative Control Mode)
 - [Handheld Night Shot]/[HDR]/[Starry Sky] (Scene Mode)
 - When recording motion pictures

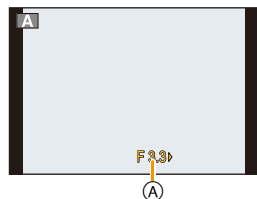
Taking Pictures by Specifying the Aperture/ Shutter Speed

Recording Mode: **A** **S** **M**

Aperture-Priority AE Mode

Set the aperture value to a higher number when you want a sharp focus background. Set the aperture value to a lower number when you want a soft focus background.

- 1 Set the mode dial to [**A**].
- 2 Press [EXPOSURE].
- 3 Press ◀▶ to set the aperture value.
 (A) Aperture Value
- 4 Press [EXPOSURE].

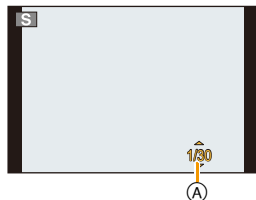


- The brightness of the monitor and the recorded pictures may differ. Check the pictures on the playback screen.
- Set the aperture value to a higher number when the subject is too bright. Set the aperture value to a lower number when the subject is too dim.
- The aperture value and the shutter speed displayed on the screen turn red when the exposure is not adequate.
- The minimum shutter speed to be set differs according to the ISO sensitivity setting.
- In motion picture recording, the aperture and shutter speed are set automatically.

Shutter-Priority AE Mode

Set with a faster shutter speed when you want to take a sharp picture of a fast moving subject. Set to a slower shutter speed when you want to create a trail effect.

- 1** Set the mode dial to [S].
- 2** Press [EXPOSURE].
- 3** Press ▲/▼ to set the shutter speed.
 - Ⓐ Shutter Speed
- 4** Press [EXPOSURE].



- The brightness of the monitor and the recorded pictures may differ. Check the pictures on the playback screen.
- The aperture value and the shutter speed displayed on the screen turn red when the exposure is not adequate.
- The minimum shutter speed you can set differs according to the ISO sensitivity setting.
- We recommend using a tripod when the shutter speed is slow.
- In motion picture recording, the aperture and shutter speed are set automatically.

Manual Exposure Mode

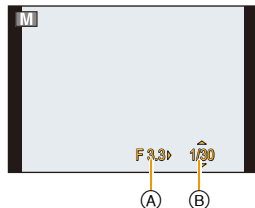
Determine the exposure by manually setting the aperture value and the shutter speed.

- 1 Set the mode dial to [M].
- 2 Press [EXPOSURE].
- 3 Press ▲/▼/◀/▶ to set the aperture and shutter speed.

◀/▶: Aperture Value (A)

▲/▼: Shutter Speed (B)

- 4 Press [EXPOSURE].



■ Optimizing the ISO sensitivity for the shutter speed and aperture value

When the ISO sensitivity is set to [AUTO], the camera sets the ISO sensitivity automatically so that the exposure will be appropriate for the shutter speed and aperture value.

- Depending on recording conditions, an appropriate exposure may not be set or the ISO sensitivity may become higher.

■ Manual Exposure Assistance

If you press the shutter button halfway, the Manual Exposure Assistance is displayed.

	The exposure is adequate.
	Set to faster shutter speed or larger aperture value.
	Set to slower shutter speed or smaller aperture value.

- The Manual Exposure Assistance is an approximation. We recommend checking the pictures on the playback screen.

- The brightness of the monitor and the recorded pictures may differ. Check the pictures on the playback screen.
- The aperture value and the shutter speed displayed on the screen turn red when the exposure is not adequate.
- The minimum shutter speed you can set differs according to the ISO sensitivity setting.
- We recommend using a tripod when the shutter speed is slow.
- In motion picture recording, the aperture and shutter speed are set automatically.

Taking panorama pictures (Panorama Shot Mode)

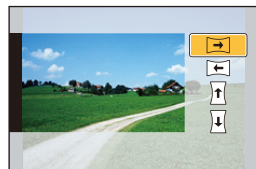
Recording Mode: 

Pictures are recorded continuously while moving the camera horizontally or vertically, and are combined to make a single panorama picture.

This mode allows you to add any of 13 types of effects before recording.

1 Set the mode dial to .

2 Press **▲/▼** to select the recording direction and then press **[MENU/SET]**.



3 Press **▲/▼** to select image effects and then press **[MENU/SET]**.

- You can add the same image effect as the Creative Control Mode with the same operation as the Creative Control Mode. (except for [Toy Effect] and [Miniature Effect]) (P83–87)
- During panorama picture recording, the following image effects of the Creative Control Mode are not visible on the screen:
 - [Soft Focus]/[Star Filter]
- If you are not going to add an image effect, select [No Effect].

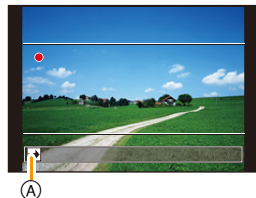
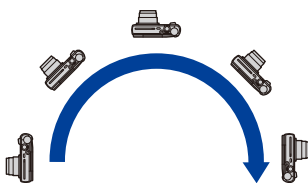
4 After confirming the recording direction, press **[MENU/SET]**.

- If the selected recording direction is the same as that of the previous recording, the screen that lets you check the recording direction may not be displayed.
- A horizontal/vertical guide is displayed. If you press **▶**, you will return to step **2**.

5 Press the shutter button halfway to focus.

6 Press the shutter button fully and record a picture while moving the camera in a small circle in the direction selected in Step 2.

Recording from left to right



Trace a half-circle with the camera, taking about 4 seconds.

- Move the camera at a constant speed.

Pictures may not be able to be recorded properly if the camera is moved too fast or slow.

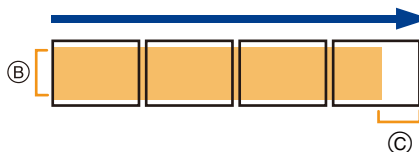
(A) Recording direction and panning (Guide)

- If the camera is not panned enough (1/4 or less of a circle), the recording may not be successful.

7 Press the shutter button once again to end the picture recording.

- Recording can also be ended by keeping the camera still while recording.
- Recording can also be ended by moving the camera to the end of the guide.

■ Technique for Panorama Shot Mode



(B) Move the camera in the recording direction without shaking it.

(If the camera shakes too much, pictures may not be able to be recorded, or the recorded panorama picture may become narrower (smaller).)

(C) Move the camera towards the edge of the range you wish to record.


(The edge of the range will not be recorded in the last frame)

- The zoom position is fixed to Wide.
- [Stabilizer] is fixed to [OFF].
- The focus, White Balance, and exposure are fixed at the optimum values for the first picture. As a result, if the focus or brightness changes substantially during recording, the entire panorama picture may not be recorded at the suitable focus or brightness.
- White Balance is fixed to [AWB] while an image effect is applied.
- When multiple pictures are combined to create a single panorama picture, the subject may appear distorted or the connection points may be noticeable in some cases.
- The number of recording pixels in the horizontal and vertical directions of the panorama picture varies depending on the recording direction and the number of combined pictures.
The maximum number of pixels is shown below.

Recording direction	Horizontal Resolution	Vertical Resolution
Horizontal	3200 pixels	720 pixels
Vertical	960 pixels	3200 pixels

- A panorama picture may not be able to be created, or the pictures may not be combined properly when recording the following subjects or under the recording conditions below.
 - Subjects with a single, uniform color or repetitive pattern (such as the sky or a beach)
 - Moving subjects (person, pet, car, waves, flowers blowing in the breeze, etc.)
 - Subjects where the color or patterns change in a short time (such as an image appearing on a display)
 - Dark places
 - Locations with flickering light sources such as fluorescent lights or candles

■ About playback

	▲	Start panorama playback/Pause*
	▼	Stop

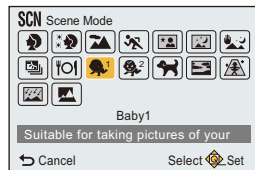
- * You can perform frame-by-frame forward/rewind by pressing ►/◀ during a pause.

Taking pictures that match the scene being recorded (Scene Mode)

Recording Mode: 

You can select any of 16 types of Scene Modes according to the subject and scene.

- 1 Set the mode dial to [SCN].
- 2 Press $\blacktriangle/\blacktriangledown/\blacktriangleleft/\blacktriangleright$ to select the Scene Mode and then press [MENU/SET].



- To change the Scene Mode, press [MENU/SET], select [Scene Mode] using $\blacktriangle/\blacktriangledown/\blacktriangleleft/\blacktriangleright$, and then press [MENU/SET].
- The following cannot be set in Scene Mode as the camera adjusts automatically.
 - [Sensitivity]/[Metering Mode]/[i.Zoom]

[Portrait]

When taking pictures of people outdoors during the daytime, this mode allows you to improve the appearance and make their skin tones look healthier.

■ Technique for Portrait Mode

To make this mode more effective:

- ❶ Rotate the zoom lever as far as possible to Tele.
- ❷ Move close to the subject to make this mode more effective.

[Soft Skin]

When taking pictures of people outdoors during the daytime, this mode enables the texture of their skin to appear even softer than with [Portrait].

(It is effective when taking pictures of people from the chest up.)

■ Technique for Soft Skin Mode

To make this mode more effective:

- ❶ Rotate the zoom lever as far as possible to Tele.
- ❷ Move close to the subject to make this mode more effective.

- If a part of the background etc. is a color similar to skin color, this part is also smoothed.
- This mode may not be effective when there is insufficient brightness.

[Scenery]

This allows you to take pictures of a wide landscape.


[Sports]

Setting for when you want to take pictures of sports scenes or other fast-moving events.

- Shutter speed may slow down up to 1 second.
- This mode is suitable for taking pictures of subjects at distances of 5 m (16 feet) or more.

[Night Portrait]

This allows you to take pictures of a person and the background with near real-life brightness.

- **Use the flash. (You can set to [].)**
- Ask the subject not to move while taking a picture.
- We recommend using a tripod and the Self-timer for taking pictures.
- Shutter speed may slow down up to 4 seconds.
- Noise may become visible when you take pictures in dark places.

[Night Scenery]

This allows you to take vivid pictures of the nightscape.

- We recommend using a tripod and the Self-timer for taking pictures.
- Shutter speed may slow down up to 4 seconds.
- Noise may become visible when you take pictures in dark places.

[Handheld Night Shot]

This mode allows you to record multiple pictures of night scenes at high speed, which are all combined to make a single picture.

It will reduce the jitter and noise from the picture even when recording with the camera in your hand.

- Do not move the camera while recording pictures continuously.
- Noise may become visible when you take pictures in dark places or take pictures of moving subjects.

[HDR]

You can combine several pictures with different levels of exposure into a single picture with rich gradation.

You can minimize the loss of gradations in bright areas and dark areas when, for example, the contrast between the background and the subject is large.

■ What Is HDR?

HDR stands for High Dynamic Range and refers to a technique for expressing a wide contrast range.

- Do not move the camera during the continuous shooting after pressing the shutter button.
- You cannot take the next picture until the combination of pictures is complete.
- A moving subject may be recorded with unnatural blurs.
- The continuous shooting may not work under certain recording conditions. In that case, a single picture is recorded.

[Food]

This mode allows you to take pictures of food with a natural hue without being affected by the ambient light in restaurants, etc.

[Baby1]/[Baby2]

This takes pictures of a baby with a healthy complexion.

It is possible to set different birthdays and names for [Baby1] and [Baby2]. You can select to have these appear at the time of playback, or have them stamped on the recorded image using [Text Stamp] (P116).

■ Birthday/Name setting

1 Press ▲/▼ to select [Age] or [Name] and then press [MENU/SET].

2 Press ▲/▼ to select [SET] and then press [MENU/SET].

3 Enter the birthday or name.

Birthday: ◀/▶: Select the items (year/month/day)

▲/▼: Setting

[MENU/SET]: Set

Name: For details on how to enter characters, refer to "Entering Text" on P90.

- When the birthday or name is set, [Age] or [Name] is automatically set to [ON].
- If [ON] is selected when the birthday or name has not been registered, the setting screen appears automatically.

4 Press ▼ to select [Exit] and then press [MENU/SET] to finish.

■ To cancel [Age] and [Name]

Select the [OFF] setting in step 2.

- If [Age] or [Name] is set to [OFF] even when the birthday or name has been set, the age or name will not be displayed.
- Shutter speed may slow down up to 1 second.

[Pet]

Select this when you want to take pictures of a pet such as a dog or a cat.

You can set your pet's birthday and name.

For information about [Age] or [Name], refer to [Baby1]/[Baby2] on P80.

[Sunset]

Select this when you want to take pictures of a sunset view.

This allows you to take vivid pictures of the red color of the sun.

[High Sens.]

This mode minimizes the jitter of the subjects, and enables you to take pictures of these subjects in dimly lit rooms.

■ Picture Size

Select the picture size of 3M (4:3), 2.5M (3:2), 2M (16:9) or 2.5M (1:1).

[Starry Sky]

This mode allows you to take vivid pictures of a starry sky or a dark subject.

■ Setting the shutter speed

Select a shutter speed of [15 sec.] or [30 sec.].

- Press the shutter button fully to display the countdown screen. Do not move the camera after this screen is displayed.

When countdown finishes, [Please wait...] is displayed for the same length of time as the set shutter speed for signal processing.

- The shutter opens for 15 or 30 seconds. Be sure to use a tripod. We also recommend taking pictures with the Self-timer.

[Glass Through]

Objects in the distance are prioritized for focus.

This mode is ideal for taking pictures of scenery and other landscapes through clear glass, such as in vehicles or buildings.

- The camera may focus on the glass if it is dirty or has dust on it.
- The pictures taken may not look natural if the glass is colored. When this happens, change the White Balance settings. (P94)

Taking Pictures with different image effects

(Creative Control Mode)


Recording Mode: 

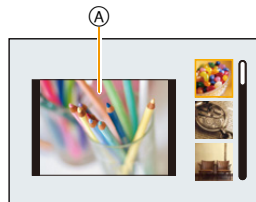
This mode allows you to add any of 15 types of effects before recording.

You can set the effects to add by selecting example images and checking them on the screen.

1 Set the mode dial to [].

2 Press **▲/▼** to select image effects and then press **[MENU/SET]**.

- The image effect of the selected example image will be applied in a preview display .
- A brief description of selected image effect appears when you press **[DISP.]**.



- To change the Creative Control Mode, press **[MENU/SET]**, select **[Creative Control]** using **▲/▼/◀/▶**, and then press **[MENU/SET]**.
- The displayed image on the recording screen and the preview of the selected image effect may differ from the actual recorded image.
- ISO sensitivity will be fixed to **[AUTO]**.
- White Balance will be fixed to **[AWB]**.

For details on how to select the “Creative Control Mode” settings, refer to [P82](#).

* These pictures are examples to show the effect.

[Expressive]



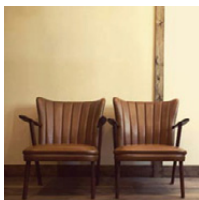
This effect emphasizes the color to make a pop art picture.

[Retro]



This effect gives a faded image.

[Old Days]



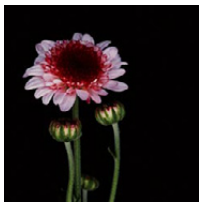
This effect adds a bright, soft and nostalgic feel to the overall image.

[High Key]



This effect adds a bright, airy and soft feel to the overall image.

- If you select this effect with Panorama Shot Mode, the effect may not be apparent in places with insufficient brightness.

[Low Key]

This effect adds a dark and relaxing feel to the overall image and enhances bright parts.

[Sepia]

This effect creates a sepia image.

[Dynamic Monochrome]

This effect gives a higher contrast to create an impressive black and white picture.

[Impressive Art]

This effect gives your photo a dramatic contrast look.

- If you select this effect with Panorama Shot Mode, seams between pictures may become noticeable.

[High Dynamic]

This effect produces the optimum brightness for both dark and bright parts.

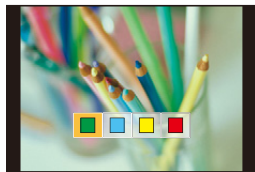
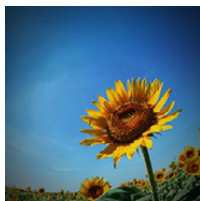
[Cross Process]

This effect gives your photo a dramatic color look.

Items that can be set

Color	Green tone/Blue tone/Yellow tone/Red tone
-------	---

- Press ◀/▶ to select the color to enhance, and press [MENU/SET].

**[Toy Effect]**

This effect reduces peripheral brightness to give the impression of a toy camera.

Items that can be set

Color	Orange emphasized ↔ Blue emphasized
-------	-------------------------------------

- Press ◀/▶ to select the color tone, and press [MENU/SET].



[Miniature Effect]

This effect blurs peripheral areas to give the impression of a diorama.

Items that can be set

Direction of the blur	Horizontal/Vertical
-----------------------	---------------------

- Press ◀/▶ to select the direction of the blur, and press [MENU/SET].



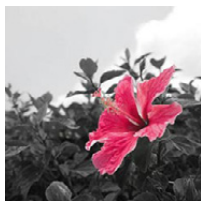
- Display of the recording screen will be delayed more than usual and the screen will look as if frames are being dropped during motion picture recording.
- No sound is recorded in motion pictures.
- If you record a motion picture with [Rec Quality] set to [FHD], its length will be approximately 1/15th of the actual recorded time period. On the other hand, the recordable time displayed on the camera will be approximately 15 times longer than the actual time needed for recording.
If you record a motion picture with [Rec Quality] set to [HD]/[VGA], its length will be approximately 1/6th of the actual recorded time period. On the other hand, the recordable time displayed on the camera will be approximately 6 times longer than the actual time needed for recording.
When switching to Recording Mode, please check the available recording time.
- Even if motion picture recording is terminated in a short time, the recording may actually continue for a certain period of time.
Keep the camera still until the recording is complete.
- When taking pictures of a large size, the screen may turn black after taking the picture because of signal processing. This is not a malfunction.

[Soft Focus]

This effect blurs the overall image to produce a soft feel.

[Star Filter]

This effect transforms pin-points of light into a star effect.

[One Point Color]

This effect leaves one selected color to emphasize impressiveness.

■ **Set the color to leave in**

- 1 Fit the color you want to leave in the frame at the center of the screen, and then press [MENU/SET].**

- You can set the color again by pressing [DISP].

- 2 Check the color you have set, and then press [MENU/SET].**

- The set color is memorized even if the camera is turned off.



• Depending on the subject, the set color may not be left in.

Taking Pictures in Custom Mode

Recording Mode: **C1** **C2**

You can register the current camera settings as custom settings.

If you then record in Custom Mode, you can use the registered settings.

- Initial setting of the Program AE Mode is registered as the custom settings initially.

Registering Personal Menu Settings (Registering custom settings)

If you want to take pictures that have the same settings, you can register up to four items of the current camera settings to [Cust.Set Mem.].

- 1** Set the mode dial to select the mode you wish to save, and then set the menu on the camera.
- 2** Select [Cust.Set Mem.] on the [Setup] menu. (P41)
- 3** Press ▲/▼ to select the custom set to register and then press [MENU/SET].

Custom set	Description of settings
C1	The settings are registered for [C1] on the mode dial. • You can record using by simply rotating the mode dial to the corresponding position. If you register the custom settings you use often, it is then convenient to use them.
C2-1	The settings are registered for [C2] on the mode dial. • You can register up to 3 sets of custom settings and use the different sets as condition demand.
C2-2	
C2-3	

- Confirmation screen is displayed. It is executed when [Yes] is selected.
Exit the menu after it is executed.

Recording using registered custom set

You can easily call up the settings you have registered using [Cust.Set Mem.].

(When calling up a custom set registered for [C 1])

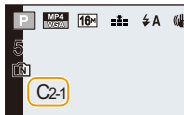
Set the mode dial to [C 1].

- The custom set registered for [C 1] is called up.

(When calling up a custom set registered for [C 2-1]/[C 2-2]/[C 2-3])

- 1 Set the mode dial to [C 2].**
- 2 Press ▲/▼ to select the custom set, and press [MENU/SET].**

- Saving of the selected custom settings is displayed on the screen.



■ To change the menu settings

When the Recording Mode is set to [C 1] or [C 2], registered settings do not change even if you change the menu settings temporarily.

You can change the registered settings from [Cust.Set Mem.] in the [Setup] menu.

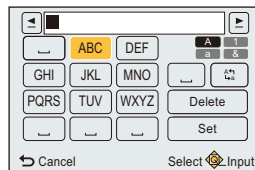
- Since certain menu items would be reflected in other recording modes, they are not saved.

Entering Text

You can enter the name of your baby or pet when taking pictures. In addition, you can enter characters (comments) on the pictures you have taken.

When a screen that looks like the one on the right is displayed, you can enter characters.

(Only alphabetical characters and symbols can be entered.)



1 Press ▲/▼/◀/▶ to select text and then press [MENU/SET] to register.

- Move the cursor to [A^a] and then press [MENU/SET] to switch text between [A] (capitals), [a] (lower case), [1] (numbers) and [&] (special characters). (Pressing [DISP.] will also switch the text input mode)
- To enter the same character again, rotate the zoom lever towards [Q] (T) to move the cursor.
- The following operations can be performed by moving the cursor to the item and pressing [MENU/SET]:
 - []: Enter a blank
 - [Delete]: Delete a character
 - [◀]: Move the entry position cursor to the left
 - [▶]: Move the entry position cursor to the right
- A maximum of 30 characters can be entered.
- A maximum of 15 characters can be entered for [[], []] and [—].

2 Press ▲/▼/◀/▶ to move the cursor to [Set] and then press [MENU/SET] to end text input.

- Text can be scrolled if all of the entered text does not fit on the screen.

Using the [Rec] Menu

For details on [Rec] menu settings, refer to P41.

[Picture Size]

Applicable modes:  **P** **A** **S** **M** **C1** **C2**  **SCN** 

Set the number of pixels.

The higher the numbers of pixels, the finer the detail of the pictures will appear even when they are printed onto large sheets.

Settings	Picture Size
[4:3 16M]	4608×3456
[4:3 8M²] *	3264×2448
[4:3 3M²]	2048×1536
[4:3 0.3M²] *	640×480
[3:2 14M]	4608×3072
[3:2 7M²] *	3264×2176
[3:2 2.5M²]	2048×1360
[16:9 12M]	4608×2592
[16:9 2M²]	1920×1080
[1:1 12M]	3456×3456
[1:1 2.5M²]	1536×1536

* This item cannot be set in the Intelligent Auto Mode.

4:3 : Aspect ratio of a 4:3 TV

3:2 : Aspect ratio of a 35 mm film camera

16:9 : Aspect ratio of a high-definition TV, etc.

1:1 : Square aspect ratio

• In specific modes, Extended Optical Zoom cannot be used, and the picture size for **[3Z]** is not displayed.



For details regarding modes in which Extended Optical Zoom cannot be used, refer to P60.


• Pictures may appear mosaic depending on the subject and the recording conditions.

[Quality]

Applicable modes:  **P** **A** **S** **M** **C1** **C2**  **SCN** 

Set the compression rate at which the pictures are to be stored.


Settings	Description of settings
 ((Fine))	When giving priority to the picture quality
 ((Standard))	When using the standard picture quality and increasing the number of pictures to be recorded without changing the number of pixels

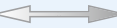
- The setting is fixed to  in the following case.
 - [High Sens.] (Scene Mode)



[Sensitivity]


Applicable modes:  **P** **A** **S** **M** **C1** **C2**  **SCN** 


This allows the Sensitivity to light (ISO sensitivity) to be set. Setting to a higher figure enables pictures to be taken even in dark places without the resulting pictures coming out dark.

Settings	Description of settings
[AUTO]	The ISO sensitivity is automatically adjusted according to the brightness. • Maximum [1600]
[ISO] ([Intelligent ISO])	The ISO sensitivity is adjusted according to the movement of the subject and the brightness. • Maximum [1600]
[100]/[200]/[400]/[800]/[1600]/[3200]	The ISO sensitivity is fixed to various settings.

	[100]  [3200]	
Recording location (recommended)	When it is light (outdoors)	When it is dark
Shutter speed	Slow	Fast
Noise	Less	Increased
Jitter of the subject	Increased	Less

- For the focus range of flash when [AUTO] is set, refer to **P65**.
- The ISO sensitivity is automatically set under the following conditions.
 - When recording motion pictures
 - When [Burst Shooting] is set to [H]/[]
- When you take pictures with the flash, the maximum ISO sensitivity will be set to [2000].
- The shutter speed is determined by the [Sensitivity] setting as shown in the table below.

[Sensitivity]	Shutter speed (Sec.)
AUTO/	The shutter speed changes automatically according to ISO sensitivity setting.
100/200/400	4 to 1/2000
800/1600	1 to 1/2000
3200	1/4 to 1/2000

- [ISO] cannot be set in the following cases.
 - Shutter-Priority AE Mode.
 - Manual Exposure Mode.

[White Balance]

Applicable modes:         

In sunlight, under incandescent lights or in other such conditions where the color of white takes on a reddish or bluish tinge, this item adjusts to the color of white which is closest to what is seen by the eye in accordance with the light source.

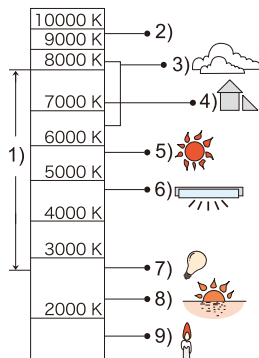
Settings	Description of settings
[AWB] ([Auto White Balance])	Automatic adjustment
[☀] ([Daylight])	When taking pictures outdoors under a clear sky
[☁] ([Cloudy])	When taking pictures outdoors under a cloudy sky
[🏠] ([Shade])	When taking pictures outdoors in the shade
[☹] ([Incandescent])	When taking pictures under incandescent lights
[🖥] ([White Set])	Value set by using [🖥SET]
[🖥SET] ([White Set Setting])	Set manually

- Under fluorescent lighting, LED lighting fixture etc., the appropriate White Balance will vary depending on the lighting type, so use [AWB] or [🖥SET].
- The White Balance setting for a Scene Mode returns to [AWB] when the Scene Mode is changed.
- The setting is fixed to [AWB] in the following cases.
 - [Scenery]/[Night Portrait]/[Night Scenery]/[Handheld Night Shot]/[Food]/[Sunset]/[Starry Sky] (Scene Mode)

■ Auto White Balance

Depending on the conditions prevailing when pictures are taken, the pictures may take on a reddish or bluish tinge. Furthermore, when a multiple number of light sources are being used or there is nothing with a color close to white, Auto White Balance may not function properly. In this case, set the White Balance to a mode other than [AWB].

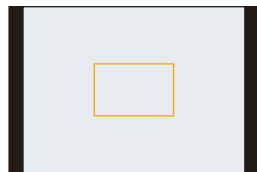
- 1 Auto White Balance will work within this range
 - 2 Blue sky
 - 3 Cloudy sky (Rain)
 - 4 Shade
 - 5 Sunlight
 - 6 White fluorescent light
 - 7 Incandescent light bulb
 - 8 Sunrise and sunset
 - 9 Candlelight
- K=Kelvin Color Temperature



Setting the White Balance manually

Set the White Balance value. Use to match the condition when taking photographs.

- 1 Select [SET] and then press [MENU/SET].
- 2 Aim the camera at a sheet of white paper etc. so that the frame in the center is filled by the white object only and then press [MENU/SET].
 - White Balance may not be set when the subject is too bright or too dark. Set the White Balance again after adjusting to appropriate brightness.
 - Exit the menu after it is set.



Finely adjusting the White Balance

You can finely adjust the White Balance when you cannot acquire the desired hue by setting the White Balance.

- Fine adjustment is possible only when the White Balance is set to [☼]/[☾]/[☽]/[☹]/[☺].

1 Select the White Balance to finely adjust and then press [DISP.] to display [WB Adjust.].

2 Press ◀/▶ to adjust the White Balance.

◀ ([Red]): Press when the hue is bluish.

▶ ([Blue]): Press when the hue is reddish.

- Select [0] to return to the original White Balance.






3 Press [MENU/SET] to finish.


- The White Balance icon on the screen turns red or blue.
- The White Balance fine adjustment setting is reflected in the picture when using the flash.
- You can finely adjust the White Balance independently for each White Balance item.
- The White Balance fine adjustment level in [☼] returns to [0] when you reset the White Balance using [☼SET].






[AF Mode]

Applicable modes:  **P A S M C1 C2**  **SCN** 

This allows the focusing method that suits the positions and number of the subjects to be selected.

Settings	Description of settings
 ([Face Detection])	The camera automatically detects the person's face. (max. 12 areas) The focus and exposure can then be adjusted to fit that face no matter what portion of the picture it is in.
 ([AF Tracking])*	Focus can be adjusted to a specified subject. Focus will keep on following the subject even if it moves. (Dynamic tracking)
 ([21-Area])*	Up to 21 points for each AF area can be focused. This is effective when the subject is not in the center of the screen. (AF area frame will be same as image aspect ratio setting.)
 ([1-Area])	The camera focuses on the subject in the AF area on the center of the screen.
 ([Spot]) ⁺	The camera focuses on a limited narrow area in the screen.

*  will be used during motion picture recording.

- The setting is fixed to  in the following case.
 - Self Shot Mode
(If  is not available with the current Recording Mode, an available focus setting for each Recording Mode will be used.)
- The setting is fixed to  in the following cases.
 - [Starry Sky] (Scene Mode)
 - [Miniature Effect] (Creative Control Mode)
- It is not possible to set  in the following cases.
 - Panorama Shot Mode (except in Self Shot Mode)
 - [Night Scenery]/[Handheld Night Shot]/[Food] (Scene Mode)
 - [Soft Focus] (Creative Control Mode)
-  cannot be set in the following cases.
 - Panorama Shot Mode
 - [Sepia]/[Dynamic Monochrome]/[High Dynamic]/[Soft Focus] (Creative Control Mode)

■ About [👤] ([Face Detection])

The following AF area frames are displayed when the camera detects the faces.

Yellow:

When the shutter button is pressed halfway, the frame turns green when the camera is focused.

White:

Displayed when more than one face is detected. Other faces that are the same distance away as the faces within the yellow AF areas are also brought into focus.



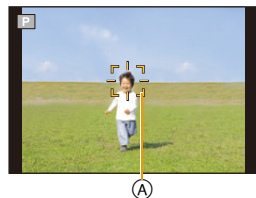
- Under certain picture-taking conditions including the following cases, the face detection function may fail to work, making it impossible to detect faces.
 - [AF Mode] is switched to [📷] ([📷]) while motion pictures are taken).
 - When the face is not facing the camera
 - When the face is at an angle
 - When the face is extremely bright or dark
 - When the facial features are hidden behind sunglasses, etc.
 - When the face appears small on the screen
 - When there is little contrast on the faces
 - When there is rapid movement
 - When the subject is not a human being
 - When the camera is shaking
 - When Digital Zoom is used
- If the camera is registering something other than someone's face, change the settings to something other than [👤].

■ Setting up [AF Tracking]

Align the subject with the AF tracking frame, and then press **▼** to lock onto the subject.

Ⓐ AF tracking frame

- AF area will be displayed in yellow when a subject is recognized, and focus will automatically adjust continuously following the subject's movement (Dynamic tracking).
- AF tracking is canceled when **▼** is pressed again.



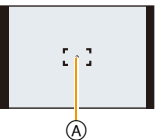
• Dynamic tracking function may not work in the following cases:

- When the subject is too small
 - When the recording location is too dark or bright
 - When the subject is moving too fast
 - When the background has the same or similar color to the subject
 - When jitter is occurring
 - When using the zoom
- When the lock fails, the AF tracking frame will turn red and then disappear. Press **▼** again.
- The camera records pictures with [AF Mode] as [■] when locked or Dynamic Tracking is not working.
- AF tracking will be canceled after you take a picture. Set AF tracking for each picture you take.

[Metering Mode]

Applicable modes: [A] [P] [A] [S] [M] [C1] [C2] [SCH] [i]

Type of optical measurement to measure brightness can be changed.

Settings	Description of settings
[□] ([Multi Metering])	This is the method in which the camera measures the most suitable exposure by judging the allocation of brightness on the whole screen automatically. Usually, we recommend using this method.
[□] ([Center Weighted])	This is the method used to focus on the subject on the center of the screen and measure the whole screen evenly.
[•] ([Spot])	This is the method to measure the subject in the spot metering target Ⓐ. 

[i.Exposure]

Applicable modes:  **P** **A** **S** **M** **C1** **C2**  

Contrast and exposure will be adjusted automatically when there is a big difference in brightness between the background and subject, to bring the image close to real life.

Settings: [ON]/[OFF]

- Compensation effect may not be achieved depending on the conditions.

[i.Zoom]

Applicable modes:  **P** **A** **S** **M** **C1** **C2**  

Zoom magnification can be increased while minimizing deterioration of the image quality.

Settings: [ON]/[OFF]

- Refer to [P60](#) for details.

[Digital Zoom]

Applicable modes:  **P** **A** **S** **M** **C1** **C2**  

This can enlarge subjects even more than the Optical Zoom, Extended Optical Zoom, or [i.Zoom].





Settings: [ON]/[OFF]

- Refer to [P61](#) for details.
- The setting is fixed to [ON] in the following case.
 - Macro Zoom Mode

[Burst Shooting]

 Applicable modes:          

Pictures are taken continuously while the shutter button is pressed.

Settings	Description of settings	Number of recordable pictures
 ([2 fps AF-Continuous])	<ul style="list-style-type: none"> The focus is adjusted for each picture recorded in the burst. The Burst speed changes according to the recording conditions. 	max. 100 pictures*
 ([10 fps AF-Single])	<ul style="list-style-type: none"> The focus, exposure and White Balance are fixed to the settings for the first picture. 	max. 10 pictures
 ([Hi-Speed Burst])	Burst speed: approx. 10 pictures/second <ul style="list-style-type: none"> This option is available only in Program AE Mode, Aperture-Priority AE Mode or Shutter Priority AE mode. The picture size is fixed to 3M (4:3), 2.5M (3:2), 2M (16:9) or 2.5M (1:1). The Burst speed changes according to the recording conditions. The number of Burst recording pictures may increase when you use a card with fast writing speed or card is formatted. The focus, zoom, exposure, White Balance, shutter speed and ISO sensitivity are fixed to the settings for the first picture. The ISO sensitivity is automatically adjusted. However, the ISO sensitivity is increased to make the shutter speed become high-speed. 	max. 100 pictures*
 ([Flash Burst])	<ul style="list-style-type: none"> Still pictures are taken continuously with flash. This option is available only in Program AE Mode, Aperture-Priority AE Mode or Shutter Priority AE mode. Settings for focus, zoom, exposure, shutter speed, ISO sensitivity, flash output are fixed to the first picture. The flash setting is fixed to [🔚]. 	max. 5 pictures
[OFF]	—	—

* The number of Burst recording pictures are limited by the picture-taking conditions and the type and/or status of the card used.


- Depending on the operating conditions, it may take time to take the next picture if you repeat the recording of pictures.
- It may take time to save pictures taken in Burst Mode on the card. If you take pictures continuously while saving, the maximum number of recordable pictures decreases. For continuous shooting, use of a high speed memory card is recommended.
- The burst speed (pictures/second) may become slower depending on the recording environment. For example, it may become slower in dark locations.
- When [AF] is set, focus prediction will be performed in a possible range to prioritize the burst speed. Therefore, if you try to take a picture of a subject that is moving fast, it may have trouble with focusing or it may take time to focus.
- When [AF] is set, the recording may be brighter or darker from the second picture depending on changes in the brightness of the subject.
- This function is not available in the following cases:
 - When using Auto Bracket
 - Self Shot Mode
 - [Handheld Night Shot]/[HDR]/[Starry Sky] (Scene Mode)
 - [Impressive Art]/[Toy Effect]/[Miniature Effect]/[Soft Focus]/[Star Filter] (Creative Control Mode)
- When the Self-Timer is used, the number of recordable pictures in Burst Mode is fixed to 3. (5 pictures in [AF])
- The flash setting is fixed to [ON] (except for [OFF]).

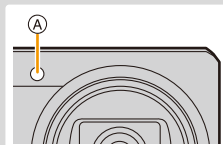
[AF Assist Lamp]

Applicable modes: [A] [P] [A] [S] [M] [C1] [C2] [SCN] [B]

AF assist lamp will illuminate the subject when the shutter button is pressed halfway, making it easier for the camera to focus when recording in low light conditions.
(Larger AF area is displayed depending on the recording conditions.)

Settings: [ON]/[OFF]

- The effective distance of the assist lamp is approximately 1.5 m (4.9 feet).
- Depending on the state of the zoom or subject, the effective distance may become shorter.
- When you do not want to use the AF Assist Lamp  (e.g. when taking pictures of animals in dark places), set the [AF Assist Lamp] to [OFF]. In this case, it will become more difficult to focus on the subject.
- The setting is fixed to [OFF] in the following cases.
 - [Scenery]/[Night Scenery]/[Handheld Night Shot]/[Sunset]/[Glass Through] (Scene Mode)



[Red-Eye Removal]

Applicable modes:  **P** **A** **S** **M** **C1** **C2**  **SCN** 

When Red-Eye Reduction ([~~AE~~], [~~SC~~]) is selected, Red-Eye Removal is performed whenever the flash is used. The camera automatically detects red-eye and corrects the picture.

Settings: [ON]/[OFF]

- This function works only when the camera detects a face.
- Under certain circumstances, red-eye cannot be corrected.

[Stabilizer]

Applicable modes:  **P** **A** **S** **M** **C1** **C2**  **SCN** 

The camera detects jitter during recording and automatically corrects it, so you can record images with reduced jitter.

When recording motion pictures, "Active Mode" (stabilizer for motion pictures) will automatically function. This decreases the jitter of the image when recording motion pictures while walking, etc.

Settings: [ON]/[OFF]

- The setting is fixed to [ON] in the following cases.
 - When recording motion pictures
 - [Handheld Night Shot] (Scene Mode)
- The setting is fixed to [OFF] in the following case.
 - [Starry Sky] (Scene Mode)
- The stabilizer function may not be effective in the following cases.

Be careful of camera jitter when you press the shutter button.

 - When there is a lot of jitter.
 - When the zoom magnification is high.
 - In Digital Zoom range.
 - When taking pictures while following a moving subject.
 - When the shutter speed becomes slower to take pictures indoors or in dark places.
- In "Active Mode", stronger effect of the correction can be achieved at the wide end.
- In the following case, "Active Mode" will not function even when recording motion pictures.
 - When [Rec Quality] is set to [VGA]

[Date Stamp]

Applicable modes:  **P** **A** **S** **M** **C1** **C2**  **SCN** 

You can take a picture with date and time of recording.

Settings	Description of settings
[W/O TIME]	Stamp the year, month, and day.
[WITH TIME]	Stamp the year, month, day, hour, and minutes.
[OFF]	—

- Date information for pictures recorded with the [Date Stamp] set cannot be deleted.
- When printing pictures with [Date Stamp] at a shop or with a printer, the date will be printed on top of the other if you choose to print with the date.
- If the time has not been set, you cannot stamp with the date information.
- The setting is fixed to [OFF] in the following cases.
 - When recording motion pictures
 - When using Auto Bracket
 - When using [Burst Shooting]
- [Date Stamp] cannot be set in the Intelligent Auto Mode. Setting of other Recording Mode will be reflected.
- Even if you take a picture with [Date Stamp] set to [OFF], it is possible to stamp dates onto the recorded pictures using [Text Stamp] (P116) or setup the Date print (P122, 162).

[Self Shot]

Applicable modes:  **P** **A** **S** **M** **C1** **C2**  **SCN** 

You can set the soft skin effect, the number of pictures to be taken, and other details for Self Shot Mode.

Settings	Description of settings
[ON]	If you rotate the monitor, Self Shot Mode is activated.
[OFF]	—
[SET]	Changes the settings of [Soft Skin]/[Defocusing]/[Slimming Mode]/[Shot Count]/[Countdown].

- Refer to P51 for details.

Using the [Motion Picture] Menu

For details on [Motion Picture] menu settings, refer to P41.

- The [Motion Picture] menu is not displayed in the following cases.
 - [Soft Focus]/[Star Filter] (Creative Control Mode)

[Rec Quality]

Applicable modes:  **P** **A** **S** **M** **C1** **C2**  **SCN** 

This sets up the picture quality of motion pictures.

Settings	Size	Frame rate	Bit rate	Aspect ratio
[FHD]	1920×1080	30p	20 Mbps	16:9
[HD]	1280×720		10 Mbps	
[VGA]	640×480		4 Mbps	4:3

• What is bit rate

This is the volume of data for a definite period of time, and the quality becomes higher when the number gets bigger. This unit is using the “VBR” recording method. “VBR” is an abbreviation of “Variable Bit Rate”, and the bit rate (volume of data for definite period of time) is changed automatically depending on the subject to record. Therefore, the recording time is shortened when a subject with fast movement is recorded.

- The setting is fixed to [VGA] in the following case.
 - When recording to the built-in memory

[Continuous AF]

Applicable modes:  **P** **A** **S** **M** **C1** **C2**  

It will continually keep on focusing on a subject for which the focus was once set.

Settings: [ON]/[OFF]

- Set this function to [OFF] if you wish to fix the focus on the position where you started the motion picture recording.
- The setting is fixed to [OFF] in the following case.
 - [Starry Sky] (Scene Mode)

[Wind Cut]

Applicable modes:  **P** **A** **S** **M** **C1** **C2**  








This reduces the wind noise in the audio recording.

Settings: [ON]/[OFF]





- Sound quality will be different than usual when [Wind Cut] is set.
- The setting is fixed to [OFF] in the following case.
 - [Miniature Effect] (Creative Control Mode)

Various methods of playback

You can play back the recorded pictures in various methods.

- 1** Press .
- 2** Press [MENU/SET].
- 3** Press /// to select [Playback Mode], and then press [MENU/SET].
- 4** Press / to select item, and then press [MENU/SET].

- Following items can be selected.

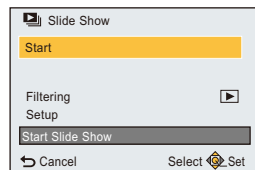
 (All) (P37)
 ([Slide Show]) (P108)
 ([Filtering Play]) (P110)
 ([Calendar]) (P112)

[Slide Show]

You can play back the pictures you have taken in sequence at specified intervals. In addition, you can play back the slideshow of a desired type of images, such as pictures or motion pictures.

This playback method is recommended when you have connected the camera to a TV set to view the pictures you have taken.

Press **▲/▼** to select **[Start]** and then press **[MENU/SET]**.

**■ Operations during slide show**

The cursor displayed during playback is the same as **▲/▼/◀/▶**.

	▲	Play/Pause
	▼	Stop
	◀	Back to previous picture (while pausing)
	▶	Ahead to next picture (while pausing)
	[W]	Reduce volume level
	[T]	Increase volume level

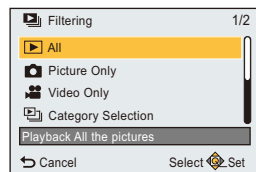
■ To filter images for slide show playback

You can filter images and play them back in a slide show by selecting [Filtering] on the slide show menu screen.

- If you select [All], you can play back all images in a slide show.

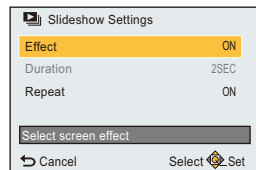
You can also filter images by using the same setting as [Filtering Play].

Refer to P110–111 for the setting.



■ Changing the slide show settings

By selecting [Setup] on the slide show menu screen, you can change the settings such as [Effect] and [Duration] for slide show playback.



Settings	Description of settings
[Effect]	Screen effects can be added to picture transitions. [ON]/[OFF] • When [Filtering] is set to [Video Only], [Effect] is fixed to [OFF].
[Duration]	[1SEC]/[2SEC]/[3SEC]/[5SEC] • [Duration] can be set only when [OFF] has been selected as the [Effect] setting. • When playing back the following pictures, the [Duration] setting is disabled. – Motion pictures – Panorama pictures
[Repeat]	[ON]/[OFF]

[Filtering Play]

You can play back images sorted by category or recording date.

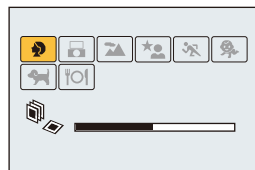
Settings	Description of settings
[Picture Only]	Only still pictures are played back.
[Video Only]	Only motion pictures are played back.
[Category Selection]	This mode allows you to search images by Scene Mode or other categories (such as [Portrait], [Scenery] or [Night Scenery]) and sort the pictures into each of the categories. You can then play back the pictures in each category.
[Select Date]	You can play back pictures taken on each date.

- If you turn off the camera or switch to the Recording Mode, you can cancel the filter.

Sorting by category to play back

- 1 Press **▲/▼** to select [Category Selection] and then press **[MENU/SET]**.
- 2 Press **▲/▼/◀/▶** to select the category and then press **[MENU/SET]** to set.

- You can play back only the category in which an image has been found.



Category	Recording information e.g. Scene Modes
	[Portrait]/[i-Portrait]/[Soft Skin]/[Night Portrait]/[i-Night Portrait]/[Baby1]/[Baby2]
	[Self Shot]
	Panorama Shot Mode/[Scenery]/[i-Scenery]/[Sunset]/[i-Sunset]/[Glass Through]
	[Night Portrait]/[i-Night Portrait]/[Night Scenery]/[i-Night Scenery]/[Handheld Night Shot]/[iHandheld Night Shot]/[Starry Sky]
	[Sports]
	[Baby1]/[Baby2]
	[Pet]
	[Food]

- If you run a Calendar Search, Category Selection will be canceled.

You can play back pictures taken on each date

- 1 Press ▲/▼ to select [Select Date] and then press [MENU/SET].
- 2 Press ▲/▼/◀/▶ to select the date to be played back, and then press [MENU/SET].

- If there were no pictures recorded during a month, that month is not displayed.



- The recording date of the picture selected in the playback screen becomes the date selected when the calendar screen is first displayed.
- You can display the calendar between January 2000 and December 2099.
- If the date is not set in the camera, the recording date is set as January 1st, 2015.
- If you take pictures after setting the travel destination in [World Time], the pictures are displayed by the dates at the travel destination in Calendar Playback.

[Calendar]

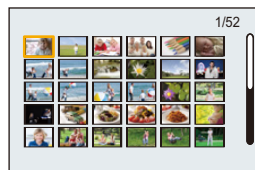
You can search for images by recorded date.

- 1 Press **▲/▼/◀/▶** to select the date you want to search.



- 2 Press **[MENU/SET]** to display a list of pictures.

- Pictures are displayed with Multi Playback (30 screens). The cursor appears on the picture at the beginning of the selected date.



- 3 Press **▲/▼/◀/▶** to select a picture and then press **[MENU/SET]**.

- To continue the search, return to the previous screen by rotating the zoom lever towards [W]. (P38)

- The recording date of the picture selected in the playback screen becomes the date selected when the calendar screen is first displayed.
- You can display the calendar between January 2000 and December 2099.
- If the date is not set in the camera, the recording date is set as January 1st, 2015.
- If you take pictures after setting the travel destination in [World Time], the pictures are displayed by the dates at the travel destination in Calendar Playback.

Having Fun with Recorded Pictures ([Creative Retouch])

You can add your desired effects to the pictures that you have taken.

- The processed pictures are newly generated, so be sure that you have enough space in the built-in memory or on the card. Note also that processing will not be possible if the Write-Protect switch of the card is in the [LOCK] position.
- Effects may be difficult to see depending on the picture.

1 Press ◀/▶ to select a picture, and then press ▲.

2 Press ▲/▼ to select image effects and then press [MENU/SET].

- Image effects that are the same as the ones in Creative Control Mode can be added. (P83–87)
- A brief description of selected image effect appears when you press [DISP].
- To set the color you want to keep by using [One Point Color], move the frame at the center of the screen to the desired color with ▲/▼/◀/▶, and then press [MENU/SET].
- If you select [No Effect], an image with no effect is displayed. To proceed the retouch operation, select another image effect.
If you are not going to add any effect, exit the menu.
- Confirmation screen is displayed.
It is executed when [Yes] is selected.



■ When selecting [Creative Retouch] from the [Playback] menu

1 Select [Creative Retouch] on the [Playback] menu. (P41)

2 Press ◀/▶ to select a picture, and then press [MENU/SET].

3 Press ▲/▼ to select image effects and then press [MENU/SET].

- Confirmation screen is displayed.
It is executed when [Yes] is selected.

- The image effect may appear weak compared to the effect given by the Creative Control Mode.
- The preview display and the image after the retouch operation may differ in the level of effects.
- This function is not available in the following cases:
 - Motion pictures
 - Pictures taken in Panorama Shot Mode

Using the [Playback] Menu

For details on [Playback] menu settings, refer to P41.

You can perform actions like cropping recorded pictures, as well as set up the protection of recorded images, etc.

- With [Creative Retouch], [Text Stamp], [Resize] or [Cropping], a new edited picture is created. A new picture cannot be created if there is no free space on the built-in memory or the card so we recommend checking that there is free space and then editing the picture.
- Images recorded or edited with the camera may not be played back correctly on other devices and applied effects may not appear on the devices. Also, images recorded on other devices may not be played back on the camera and functions of the camera may not be available for the images.

[Location Logging]

The location information (longitude/latitude) acquired by the smartphone/tablet can be sent to the camera and written in images.

- Pictures in the built-in memory cannot store location information. If you want to record location information on them, copy the pictures in the built-in memory to a memory card, then perform [Location Logging].

Preparation:

Sending location information to the camera from the smartphone/tablet. (P135)

- 1 Select [Location Logging] on the [Playback] menu.**
- 2 Press ▲/▼ to select [Add Location Data] and then press [MENU/SET].**
- 3 Press ▲/▼ to select the period you intend to record location information on pictures, then press [MENU/SET].**
 - Confirmation screen is displayed. It is executed when [Yes] is selected.
 - Images with location information are indicated with [GPS].

■ To pause the recording of location information

Press [MENU/SET] while recording of the location information onto pictures is taking place.

- During a suspended period, [O] is displayed. Select the period with [O] to restart the recording process from the picture you left off.

■ To delete the received location information


- 1 Select [Location Logging] on the [Playback] menu.
- 2 Press ▲/▼ to select [Delete Location Data] and then press [MENU/SET].
- 3 Press ▲/▼ to select the period you want to delete, then press [MENU/SET].
 - Confirmation screen is displayed.
 - It is executed when [Yes] is selected.

- This function is not available in the following cases:
 - Images recorded after location information was sent to the camera (P135)
 - Motion pictures
 - Images with location information already written to them
 - Images protected by [Protect]
 - When there is insufficient space left on the card
 - When the Write-Protect switch to the card is set to the [LOCK] position
 - Images recorded with other devices

[Title Edit]

You can add text (comments) to pictures. After text has been registered, it can be stamped in prints using [Text Stamp] (P116).

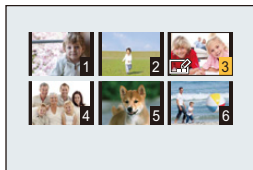
- 1 Select [Title Edit] on the [Playback] menu.
- 2 Press ▲/▼ to select [SINGLE] or [MULTI] and then press [MENU/SET].
- 3 Select the picture, and then press [MENU/SET] to set.

-  is displayed for pictures with titles already registered.

[MULTI] setting

Press [DISP.] to set (repeat), and then press [MENU/SET] to set.

- The setting is canceled when [DISP.] is pressed again.



4 Enter the text. (P90)

- Exit the menu after it is set.

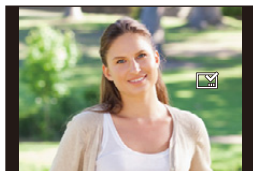
- To delete the title, erase all the text in the text input screen.
- You can set up to 50 pictures at one time in [MULTI].
- This function is not available in the following case:
 - Motion pictures

[Text Stamp]

You can stamp recording dates/times and names on recorded pictures.

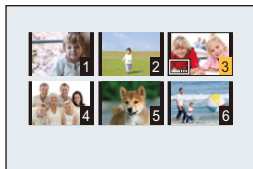
- 1** Select **[Text Stamp]** on the **[Playback]** menu.
- 2** Press **▲/▼** to select **[SINGLE]** or **[MULTI]** and then press **[MENU/SET]**.
- 3** Select the picture, and then press **[MENU/SET]** to set.

- **[☑]** is displayed on pictures already with date or text stamped.

**[MULTI] setting**

Press **[DISP.]** to set (repeat), and then press **[MENU/SET]** to set.

- The setting is canceled when **[DISP.]** is pressed again.



- 4** Press **▲/▼** to select **[Set]**, and then press **[MENU/SET]**.
- 5** Press **▲/▼** to select text stamp items, and then press **[MENU/SET]**.
- 6** Press **▲/▼** to select the settings, and then press **[MENU/SET]**.

Item	Description of settings
[Shooting Date]	[W/O TIME]: Stamp the year, month and day. [WITH TIME]: Stamp the year, month, day, hour and minutes. [OFF]
[Name]	[☑/☒]: Stamps names registered in name settings for [Baby1]/[Baby2] or [Pet] in Scene Mode. [OFF]
[Title]	[ON]: Title input in the [Title Edit] will be stamped. [OFF]

7 Press [→].

8 Press ▲ to select [OK], and then press [MENU/SET].

- Confirmation screen is displayed.
It is executed when [Yes] is selected.
Exit the menu after it is executed.

- When you print pictures stamped with text, the date will be printed over the stamped text if you specify printing of the date at the photo shop or on the printer.
- You can set up to 50 pictures at one time in [MULTI].
- The picture quality may deteriorate when text stamping is carried out.
- Depending on the printer being used, some characters may be cut at printing. Check before printing.
- If you perform [Text Stamp] on an image larger than 3M, the picture size will be fixed to 3M (4:3), 2.5M (3:2), 2M (16:9) or 2.5M (1:1).
- When text is stamped onto the 0.3M pictures, it is difficult to read it.
- This function is not available in the following cases:
 - Motion pictures
 - Pictures taken in Panorama Shot Mode
 - Pictures recorded without setting the clock
 - Pictures with date or text stamped

[Creative Retouch]

You can add the effect of [Creative Retouch] to recorded pictures.

- For details, refer to [P113](#).

[Video Divide]

Recorded motion picture can be divided in two. It is recommended for when you want to divide a part you need with a part you do not need.

It cannot be restored once divided.

1 Select **[Video Divide]** on the **[Playback]** menu.

2 Press **◀/▶** to select the motion picture to divide, and then press **[MENU/SET]**.

3 Press **▲** at the location to divide.

- Motion picture is played back from the same location when **▲** is pressed again.
- You can finely adjust the location for division by pressing **◀/▶** while the motion picture is paused.



4 Press **▼**.

- Confirmation screen is displayed.
It is executed when **[Yes]** is selected.
Exit the menu after it is executed.
- Motion picture may be lost if the card or battery is removed while processing the dividing.

- Motion pictures cannot be divided at a location close to the start or end of the motion picture.
- The order of images will change if motion pictures are divided.
It is recommended to search these motion pictures by using **[Calendar]** or **[Video Only]** in the **[Filtering Play]**.
- Motion pictures with a short recording time cannot be divided.
- You may not be able to divide a motion picture when there is insufficient free space on the card.

[Resize]

To allow easy posting to web pages, attachment to email etc., picture size (number of pixels) is reduced.

- 1 Select **[Resize]** on the **[Playback]** menu.
- 2 Press **▲/▼** to select **[SINGLE]** or **[MULTI]** and then press **[MENU/SET]**.
- 3 Select the picture and size.

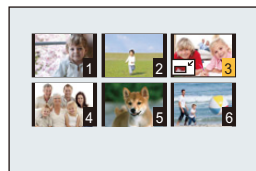
[SINGLE] setting

- 1 Press **◀/▶** to select the picture, and then press **[MENU/SET]**.
- 2 Press **◀/▶** to select the size, and then press **[MENU/SET]**.



[MULTI] setting

- 1 Press **▲/▼** to select the size, and then press **[MENU/SET]**.
- 2 Press **▲/▼/◀/▶** to select the picture, and then press **[DISP.]**.
 - Repeat this step for each picture, and press **[MENU/SET]** to set.



- Confirmation screen is displayed.
It is executed when **[Yes]** is selected.
Exit the menu after it is executed.

- You can set up to 50 pictures at one time in **[MULTI]**.
- The picture quality of the resized picture will deteriorate.
- This function is not available in the following cases:
 - Motion pictures
 - Pictures taken in Panorama Shot Mode
 - Pictures with date or text stamped

[Cropping]

You can enlarge and then clip the important part of the recorded picture.

- 1** Select **[Cropping]** on the **[Playback]** menu.
- 2** Press **◀/▶** to select the picture, and then press **[MENU/SET]**.
- 3** Use the zoom lever and press **▲/▼/◀/▶** to select the parts to be cropped.

Zoom lever (W):	Reduction
Zoom lever (T):	Enlargement
▲/▼/◀/▶:	Move

- 4** Press **[MENU/SET]**.
 - Confirmation screen is displayed.
It is executed when [Yes] is selected.
Exit the menu after it is executed.

- The picture quality of the cropped picture will deteriorate.
- Small size pictures may not be cropped.
- This function is not available in the following cases:
 - Motion pictures
 - Pictures taken in Panorama Shot Mode
 - Pictures with date or text stamped

[Print Set]

DPOF "Digital Print Order Format" is a system that allows the user to select which pictures to print, how many copies of each picture to print and whether or not to print the recording date on the pictures when using a DPOF compatible photo printer or photo printing store. For details, ask at your photo printing store.

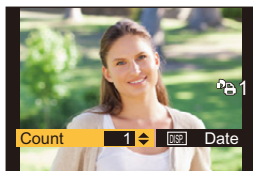
When you want to use a photo printing store to print pictures recorded on the built-in memory, copy them to a card (P124) and then set the print setting.

For more information visit:

http://panasonic.jp/dc/dpof_110/white_e.htm

- 1** Select [Print Set] on the [Playback] menu.
- 2** Press ▲/▼ to select [SINGLE] or [MULTI] and then press [MENU/SET].
- 3** Select the picture, and then press [MENU/SET].

[SINGLE]



[MULTI]



- 4** Press ▲/▼ to set the number of prints, and then press [MENU/SET] to set.

- When [MULTI] has been selected, repeat steps **3** and **4** for each picture.
(It is not possible to use the same setting for a multiple number of pictures.)
- Exit the menu after it is set.

■ Canceling all the [Print Set] settings

- 1** Select [Print Set] on the [Playback] menu.
- 2** Press ▲/▼ to select [CANCEL] and then press [MENU/SET].

- Confirmation screen is displayed.
It is executed when [Yes] is selected.
Exit the menu after it is executed.

■ To print the date

After setting the number of prints, set/cancel printing with the recording date by pressing [DISP.].

- Depending on the photo printing store or the printer, the date may not be printed even if you set to print the date. For further information, ask at your photo printing store or refer to the operating instructions for the printer.
- The date cannot be printed on pictures with date or text stamped.

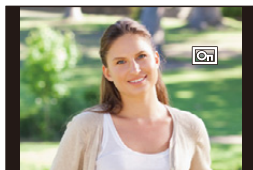
- You can set the number of prints up to 999.
- Depending on the printer, the date print settings of the printer may take precedence so check if this is the case.
- It may not be possible to use the print settings with other equipment. In this case, cancel all the settings, and reset the settings.
- This function is not available in the following cases:
 - Motion pictures
 - File that does not comply with the DCF standard

[Protect]

You can set protection for pictures you do not want to be deleted by mistake.

- 1** Select **[Protect]** on the **[Playback]** menu.
- 2** Press **▲/▼** to select **[SINGLE]** or **[MULTI]** and then press **[MENU/SET]**.
- 3** Select the picture, and then press **[MENU/SET]**.

- The settings are canceled when **[MENU/SET]** is pressed again.
- Exit the menu after it is set.

[SINGLE]**[MULTI]**

■ Canceling all the **[Protect]** settings

- 1** Select **[Protect]** on the **[Playback]** menu.
- 2** Press **▲/▼** to select **[CANCEL]** and then press **[MENU/SET]**.
 - Confirmation screen is displayed.
It is executed when **[Yes]** is selected.
Exit the menu after it is executed.

- Even if you protect pictures in the built-in memory or a card, they will be deleted if the built-in memory or the card is formatted.

[Copy]

You can copy the data of the pictures you have taken from the built-in memory to a card or from a card to the built-in memory.

- 1 Select [Copy] on the [Playback] menu.**
- 2 Press ▲/▼ to select the copy destination and then press [MENU/SET].**

[IN→SD] ((IN→SD)): All the picture data in the built-in memory are copied onto the card at one time.

[SD→IN] ((SD→IN)): One picture at a time is copied from the card to the built-in memory. Press ◀/▶ to select the picture and then press [MENU/SET].

- Confirmation screen is displayed.
It is executed when [Yes] is selected.
Exit the menu after it is executed.
 - Do not turn the camera off at any point during the copying process.
- If a picture exists with the same name (folder number/file number) as the picture to be copied in the copy destination when **[IN→SD]** is selected, a new folder is created and the picture is copied.
If a picture exists with the same name (folder number/file number) as the picture to be copied in the copy destination when **[SD→IN]** is selected, that picture is not copied.
- It may take time to copy the picture data.
 - The settings of [Print Set] and [Protect] will not be copied. Set them again after copying is completed.

Wi-Fi® function

■ Use the camera as a wireless LAN device

When using equipment 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 this camera is presumed to be in countries where this camera is sold

There is the risk that the camera violates the radiowave regulations if used in countries other than those where this camera 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.

We strongly recommend that you set an encryption to maintain information security.

■ 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 the camera utilizes its Wi-Fi function, wireless networks will be searched automatically. When this happens, wireless networks that you are not authorized to use (SSID*) may be displayed, however do not attempt to connect to the network as it may be considered as unauthorized access.

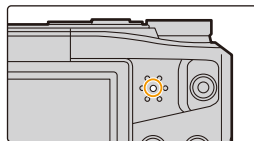
- * SSID refers to the name that is used to identify a network over a wireless LAN connection. If the SSID matches for both devices, transmission is possible.

■ Before Use

- Set the date and time settings in advance. (P22)
- To use the Wi-Fi function on this unit, a wireless access point or a destination device equipped with the wireless LAN function is required.
Use a IEEE802.11b, IEEE802.11g or IEEE802.11n compatible device when using a wireless access point.
- The camera cannot be used to connect to a public wireless LAN connection.
- It is recommended to use a fully charged battery when sending images.
When the battery indicator is flashing red, the connection with other equipment may not start or the connection may be disrupted.
(A message such as [Communication error] is displayed.)
- The camera cannot connect to Wi-Fi networks when an AV cable (optional) is connected to it or when it is in Playback Mode and an HDMI micro cable is connected to it. In these situations, the [Wi-Fi] button is also disabled.

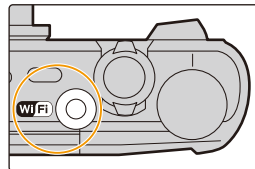
■ About the Wi-Fi connection lamp

- Lit blue: The Wi-Fi connection is on standby
- Blinking blue: Sending/receiving data through the Wi-Fi connection



■ About the [Wi-Fi] button

Pressing and holding [Wi-Fi] before connecting to Wi-Fi
(When connecting to a smartphone/tablet)



- The information required for connecting the smartphone/tablet to this unit (QR code, SSID and password) is displayed. (P129)



Pressing [Wi-Fi] before connecting to Wi-Fi

- Following items can be selected.

[New Connection] (P129)

[History Connection] (P149)

[Favorite Connection] (P149)

[Wi-Fi Setup] (P153)

Pressing [Wi-Fi] when using a Wi-Fi connection

- Following items can be selected.

When the camera is connected using [Remote Shooting & View], a guide explaining how to terminate the Wi-Fi connection is displayed. (P132)

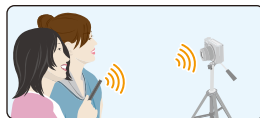
[Terminate the Connection]	Terminates the Wi-Fi connection.
[Change the Destination]	Terminates the Wi-Fi connection, and allows you to select a different Wi-Fi connection.
[Change Settings for Sending Images]	Refer to P152 for details.
[Register the Current Destination to Favorite]	Registering the current connection destination or the connection method, you can easily connect with the same connection method next time.
[Network Address]	Displays the MAC address and IP address of this unit.

- Do not remove the memory card or battery or move to an area without any reception while sending images.**
- The monitor display may become distorted for an instant while connected to the service, however this will not affect the image being sent.

What you can do with the Wi-Fi function

Controlling with a Smartphone/Tablet

Recording images remotely with a smartphone (P133)



Playing back pictures in the camera (P133)

Saving images stored in the camera (P134)

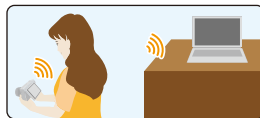


Sending acquired location information to the camera (P135)



When sending images to PC

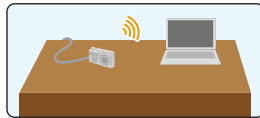
Sending an image each time a recording is made (P140)



Sending selected images (P141)



To transfer images automatically (P142)



This owner's manual refers to both smartphones and tablets as "smartphones" from this point on unless noted otherwise.

- When sending images on a mobile network, high packet communication fees may be incurred depending on the details of your contract.
- Pictures may not be completely sent depending on radio wave conditions. If the connection is terminated while sending pictures, pictures with missing sections may be sent.

Controlling with a Smartphone/Tablet

Using a smartphone, you can record images on the camera and save them.

You need to install “Panasonic Image App” (referred to as “Image App” from this point on) on your smartphone.



Installing the smartphone/tablet app “Image App”


The “Image App” is an application provided by Panasonic.

• OS

App for Android™: Android 2.3.3 or higher

App for iOS: iOS 6.0 or higher

(Please note that the iPhone 3GS is not supported.)

- 1** Connect the smartphone to a network.
- 2** (Android) Select “Google Play™ Store”.
(iOS) Select “App StoreSM”.
- 3** Enter “Panasonic Image App” or “LUMIX” into the search box.
- 4** Select “Panasonic Image App”  and install it.

- Use the latest version.
- Supported OSs are current as of January 2015 and are subject to change.
- Read the [Help] in the “Image App” menu for further details on how to operate.
- The screen differs depending on the OS.
- The screens and procedures described from this point on are those at the time when the model first became available for purchase. The screens and procedures may change with version updates.
- The service may not be able to be used properly depending on the type of smartphone being used. For information on the “Image App”, refer to the support site below.

<http://panasonic.jp/support/global/cs/dsc/>

(This Site is English only.)

- When downloading the app on a mobile network, high packet communication fees may be incurred depending on the details of your contract.

Connecting to a smartphone/tablet

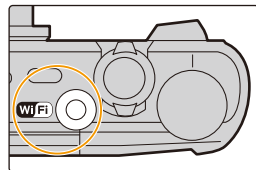
By pressing and holding [Wi-Fi], you can easily connect the camera to a smartphone or tablet.

Preparations

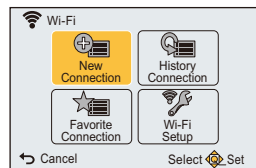
- Install the “Image App” in advance. (P128)

1 Press and hold [Wi-Fi].

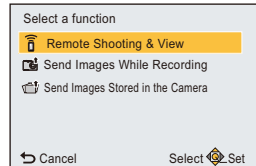
- The information required for connecting the smartphone to this unit (QR code, SSID and password) is displayed.
- If you press and hold [Wi-Fi] when the camera is turned off, you can turn it on.
- You can also set up a Wi-Fi connection to the camera by selecting the following menu items:



- 1 Press [Wi-Fi].
- 2 Press ▲/▼/◀/▶ to select [New Connection], and then press [MENU/SET].



- 3 Press ▲/▼ to select [Remote Shooting & View], and then press [MENU/SET].



2 Operate the smartphone.

- The connection method differs according to your smartphone.
- When the connection is complete, a message indicating that the smartphone is connected is displayed on its screen.

(After this operation, it may take a while for the connection to be completed.)

If you are using an iOS device

When scanning the QR code to set up a connection

(If you are reconnecting the camera, steps ❶ to ❸ are not required)

- ❶ Start "Image App". (P128)



- ❷ Select [QR code], and then select [OK].
- ❸ Using "Image App", scan the QR code displayed on the screen of the camera.



- ❹ Install the profile.
 - A message will be displayed on the browser.
 - If the smartphone is locked with a passcode, enter the passcode to unlock the smartphone.
- ❺ Press the home button to close the browser.
- ❻ Turn on the Wi-Fi function in the setting menu of the smartphone/tablet.



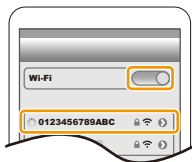
- ❼ Select the SSID displayed on the screen of the camera.



- ❽ Return to the home screen, and then start "Image App". (P128)

When using an SSID and password to set up a connection

- 1 Turn on the Wi-Fi function in the setting menu of the smartphone/tablet.
- 2 Select the SSID displayed on the screen of the camera.



- 3 Enter the password displayed on the screen of the camera.
- (Only when connecting for the first time)
- 4 Start "Image App". (P128)

If you are using an Android device

When scanning the QR code to set up a connection

- 1 Start "Image App". (P128)



- 2 Select [QR code].
- 3 Using "Image App", scan the QR code displayed on the screen of the camera.



When using an SSID and password to set up a connection

- ❶ Start “Image App”. (P128)
 - If a message appears stating that a camera search is in progress, close the message.
- ❷ Select [Wi-Fi].
- ❸ Select the SSID displayed on the screen of the camera.



- ❹ Enter the password displayed on the screen of the camera.
(Only when connecting for the first time)
 - If you mark the box that enables the smartphone to display the password, you can see the password as you enter it.

■ Terminating the connection

After use, terminate the connection to the smartphone. Once turning off the connection, you can perform normal recording and playback.

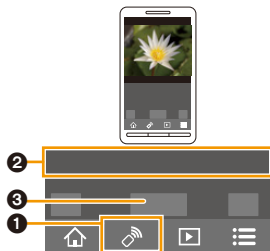
- 1 Press [↵].
 - Confirmation screen is displayed.
It is executed when [Yes] is selected.
- 2 On the smartphone, close “Image App”.
(If you are using an iOS device)
On the screen of “Image App”, press the home button to close the app.
(If you are using an Android device)
On the screen of “Image App”, press the return button twice to close the app.

Taking pictures via a smartphone/tablet (remote recording)

1 Connect to a smartphone. (P129)

2 Operate the smartphone.

- 1 Select [📷].
- 2 Operate the zoom to decide on the composition.
- 3 Release the shutter.
 - The recorded images are saved in the camera.
 - Motion pictures cannot be recorded.
 - Some settings are not available.



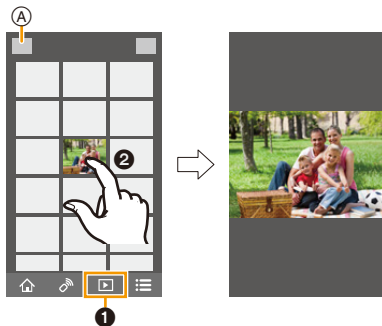
- Remote recording is disabled in the following Recording Modes. If you try to use it, the camera will switch to Program AE Mode.
 - Panorama Shot Mode
 - [Handheld Night Shot]/[HDR] (Scene Mode)
- When you use the remote recording function, the camera's controls other than the camera [ON/OFF] button and the [📷] button are disabled.

Playing back pictures in the camera

1 Connect to a smartphone. (P129)

2 Operate the smartphone.


- 1 Select [▶].
 - You can switch the images to be displayed by selecting the icon (A) on the top left of the screen. To display images stored in the camera, select [LUMIX].
- 2 Touch an image to enlarge it.
 - Motion pictures cannot be played back.

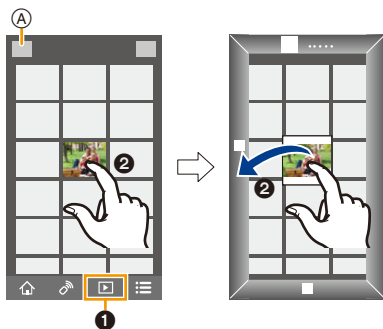


Saving images stored in the camera

1 Connect to a smartphone. (P129)

2 Operate the smartphone.

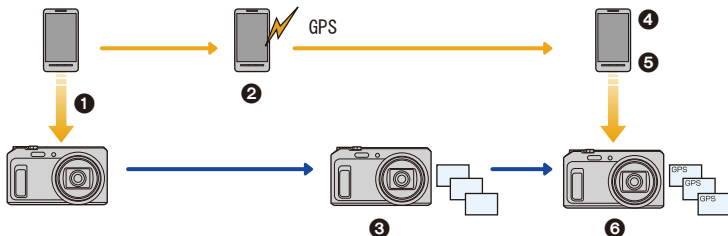
- 1 Select [].
 - You can switch the images to be displayed by selecting the icon (A) on the top left of the screen. To display images stored in the camera, select [LUMIX].
- 2 Touch and hold an image, and drag it to save it.



Sending location information to the camera from a smartphone/tablet


You can acquire location information from a smartphone, and write it on images afterwards.

- You can write location information sent from a smartphone on images by using [Location Logging] in the [Playback] menu of the camera. (P114)





- ❶ Synchronize the times
- ❷ Start recording location information
- ❸ Start recording images
- ❹ Finish recording the location information
- ❺ Send the location information
- ❻ Write the location information using [Location Logging] in the [Playback] menu

■ Operate the smartphone

- 1 Connect to a smartphone. (P129)
- 2 Select [].
- 3 Select [Geotagging].
- 4 Select an icon.



	<p>Starts/stops recording location information.</p> <ul style="list-style-type: none"> • Before you start recording location information, perform [Time sync]. • The smartphone battery drains faster while location information is being recorded. When recording of location information is not necessary, stop it.
	<p>Sends location information.</p> <ul style="list-style-type: none"> • Follow the on-screen messages to operate the smartphone.

• Cautions for Use:

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.

- If you have changed the clock setting of this unit or the smartphone after [Time sync], perform [Time sync] again.
- On the smartphone, you can set the acquisition interval of location information and check the transfer status of location information. Refer to [Help] in the “Image App” menu for details.

Sending images to a smartphone/tablet by controlling the camera

■ Methods for sending and images that can be sent

	JPEG	MP4
Sending an image each time a recording is made ([Send Images While Recording])	○	—
Sending selected images ([Send Images Stored in the Camera])	○	○

- Some images may not be played back or sent depending on the device.
- For information on the playback of images, check the operating instructions of the destination device.
- For details on how to send images, refer to [P151](#).

Preparations

- Install the “Image App” in advance. ([P128](#))

Click the followings to jump to the beginning of each menu.

Sending an image each time a recording is made ([Send Images While Recording]) [P137](#)

Sending selected images ([Send Images Stored in the Camera]) [P138](#)

Sending an image each time a recording is made ([Send Images While Recording])

- 1** Press [Wi-Fi].
 - 2** Press ▲/▼/◀/▶ to select [New Connection], and then press [MENU/SET].
 - 3** Press ▲/▼ to select [Send Images While Recording], and then press [MENU/SET].
- Select a function

 - 📶 Remote Shooting & View
 - 📷 Send Images While Recording**
 - 📷 Send Images Stored in the Camera

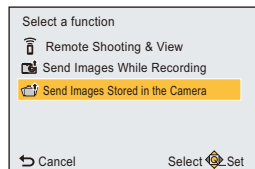
↩ Cancel
Select Set
- 4** Press ▲/▼ to select [Smartphone], and then press [MENU/SET].
 - 5** Press [MENU/SET].
 - 6** Press [MENU/SET].
 - For details on the connection methods, refer to [P130](#), [131](#).
 - 7** Press ▲/▼ to select a device you want to connect, and then press [MENU/SET].
 - 8** Check the send setting, and then press [MENU/SET].
 - To change the send setting, press [DISP.]. ([P152](#))
 - 9** Take pictures.
 - The pictures are sent automatically after taking them.
 - To change the setting or disconnect, press [Wi-Fi]. ([P126](#))

You cannot change the settings while sending pictures. Wait until sending is complete.

• You cannot record motion pictures when the camera is connected using [Send Images While Recording].

Sending selected images ([Send Images Stored in the Camera])

- 1 Press [Wi-Fi].
- 2 Press ▲/▼/◀/▶ to select [New Connection], and then press [MENU/SET].
- 3 Press ▲/▼ to select [Send Images Stored in the Camera], and then press [MENU/SET].



- 4 Press ▲/▼ to select [Smartphone], and then press [MENU/SET].
- 5 Press [MENU/SET].
- 6 Press [MENU/SET].
 - For details on the connection methods, refer to P130, 131.
- 7 Press ▲/▼ to select a device you want to connect, and then press [MENU/SET].
- 8 Check the send setting, and then press [MENU/SET].
 - To change the send setting, press [DISP.]. (P152)
- 9 Press ▲/▼ to select [SINGLE] or [MULTI] and then press [MENU/SET].
 - To change the setting or disconnect, press [Wi-Fi]. (P126)

[SINGLE] setting

- 1 Press ◀/▶ to select the picture.
- 2 Press [MENU/SET].



[MULTI] setting

- 1 Press ▲/▼/◀/▶ to select the picture, and then press [DISP.]. (repeat this step)
 - The setting is canceled when [DISP.] is pressed again.
- 2 Press [MENU/SET].
 - The number of pictures that can be sent by [MULTI] is limited.



- Confirmation screen is displayed. It is executed when [Yes] is selected.

When sending images to PC

You can send pictures and motion pictures recorded with this unit to a PC.

You can also set this unit so that images on it are transferred automatically while it is being charged.

(Smart Transfer) (P142)



■ Methods for sending and images that can be sent

	JPEG	MP4
Sending an image each time a recording is made ([Send Images While Recording])	○	—
Sending selected images ([Send Images Stored in the Camera])	○	○

- When you send a motion picture, we recommend supplying power with the AC adaptor (supplied).
- Some images may not be played back or sent depending on the device.
- For information on the playback of images, check the operating instructions of the destination device.
- For details on how to send images, refer to P151.

Preparations	
(On the camera) <ul style="list-style-type: none"> • If the workgroup of the destination PC has been changed from the standard setting, you also need to change the setting of this unit in [PC Connection]. (P153) 	(On your PC) <ul style="list-style-type: none"> • Turn the computer on. • Prepare folders for receiving images on the PC before sending a picture to the PC. (P140)

Click the followings to jump to the beginning of each menu.

Sending an image each time a recording is made ([Send Images While Recording]) P140

Sending selected images ([Send Images Stored in the Camera]) P141

To create a folder that receives images

- Create a PC user account [account name (up to 254 characters) and password (up to 32 characters)] consisting of alphanumeric characters.
An attempt to create a receive folder may fail if the account includes non-alphanumeric characters.
- The name of a destination folder must consist of 20 or less alphanumeric characters.

(For Windows)

Supported OS: Windows Vista®/Windows® 7/Windows® 8/Windows® 8.1

Example: Windows 7

- 1 Select a folder you intend to use for receiving, then right-click.**
- 2 Select [Properties], then enable sharing of the folder.**
 - For details, refer to the operating instructions of your PC or Help on the OS.

(For Mac)

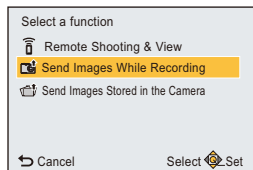
Supported OS: OS X v10.5 to v10.9

Example: OS X v10.8

- 1 Select a folder you intend to use for receiving, then click on the items in the following order.**
[File] → [Get Info]
- 2 Enable sharing of the folder.**
 - For details, refer to the operating instructions of your PC or Help on the OS.

Sending an image each time a recording is made ([Send Images While Recording])

- 1 Press [Wi-Fi].**
- 2 Press ▲/▼/◀/▶ to select [New Connection], and then press [MENU/SET].**
- 3 Press ▲/▼ to select [Send Images While Recording], and then press [MENU/SET].**
- 4 Press ▲/▼ to select [PC], and then press [MENU/SET].**
- 5 Press [MENU/SET].**
 - For details on the connection methods, refer to [P146](#).
- 6 Press ▲/▼ to select the PC you want to connect to, and then press [MENU/SET].**
 - When the PC you want to connect to is not displayed, select [Manual Input], and enter the computer name of the PC (NetBIOS name for Apple Mac computers).
- 7 Press ▲/▼ to select the destinations folder of the PC, and then press [MENU/SET].**
- 8 Check the send setting, and then press [MENU/SET].**
 - To change the send setting, press [DISP.]. ([P152](#))
- 9 Take pictures.**
 - To change the setting or disconnect, press [Wi-Fi]. ([P126](#))
 - You cannot change the settings while sending pictures. Wait until sending is complete.



- You cannot record motion pictures when the camera is connected using [Send Images While Recording].

Sending selected images ([Send Images Stored in the Camera])

- 1** Press [Wi-Fi].
- 2** Press ▲/▼/◀/▶ to select [New Connection], and then press [MENU/SET].
- 3** Press ▲/▼ to select [Send Images Stored in the Camera], and then press [MENU/SET].
- 4** Press ▲/▼ to select [PC], and then press [MENU/SET].
- 5** Press [MENU/SET].
 - For details on the connection methods, refer to P146.
- 6** Press ▲/▼ to select the PC you want to connect to, and then press [MENU/SET].
 - When the PC you want to connect to is not displayed, select [Manual Input], and enter the computer name of the PC (NetBIOS name for Apple Mac computers).
- 7** Press ▲/▼ to select the destinations folder of the PC, and then press [MENU/SET].
- 8** Check the send setting, and then press [MENU/SET].
 - To change the send setting, press [DISP.]. (P152)
- 9** Press ▲/▼ to select [SINGLE] or [MULTI] and then press [MENU/SET].
 - To change the setting or disconnect, press [Wi-Fi]. (P126)

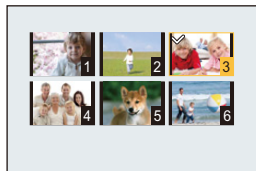
[SINGLE] setting

- 1** Press ◀/▶ to select the picture.
- 2** Press [MENU/SET].



[MULTI] setting

- 1** Press ▲/▼/◀/▶ to select the picture, and then press [DISP.]. (repeat this step)
 - The setting is canceled when [DISP.] is pressed again.
- 2** Press [MENU/SET].
 - The number of pictures that can be sent by [MULTI] is limited.



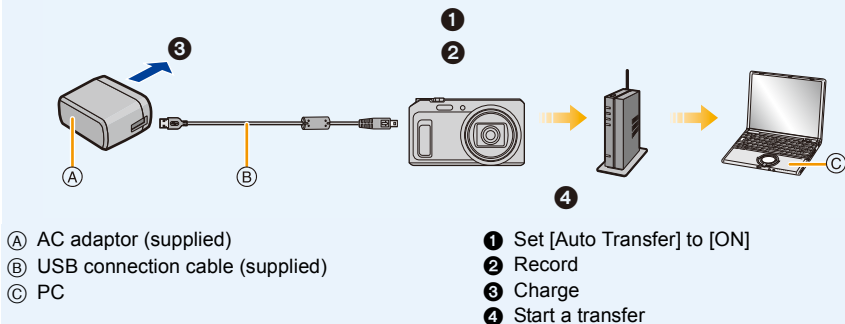
- Confirmation screen is displayed. It is executed when [Yes] is selected.

- Folders sorted by the sent date are created in the specified folder, and pictures are saved in those folders.
 - If the screen for a user account and password entry appears, enter the one you set on your PC.
 - When the computer name (NetBIOS name for Apple Mac computers) contains a space (blank character), etc., it may not be recognized correctly.
- If a connection attempt fails, we recommend that you change the computer name (or NetBIOS name) to the one consisting of only alphanumeric characters, with a maximum of 15 characters.

To transfer images automatically ([Smart Transfer])

Smart Transfer is a function that automatically transfers images in the camera to a PC. The transfer starts when you connect the camera to the AC adaptor (supplied).

Example of [Auto Transfer]



To perform Smart Transfer, follow the steps below:

- 1 Set up Smart Transfer (initial setup). (P143)
- 2 Perform [Auto Transfer]. (P143)

- When [Auto Transfer] is set to [ON], the camera automatically uploads recorded images. For this reason images may be uploaded unintentionally if, for example, you share this unit with other people.
Panasonic assumes no responsibility for any damages caused by uploaded images.
- Panasonic assumes no responsibility for any damages caused by the use of [Smart Transfer].
- When you bring the camera on an airplane or to a hospital, etc., set [Airplane Mode] to [ON], and turn off the camera because electromagnetic waves, etc. emitted by the camera may interfere with gauges. (P45)
- When a charging error occurs, Smart Transfer may not be performed. (P170)
- Smart transfer is not available for images stored in the built-in memory.
- [Smart Transfer] is not available when the memory card is locked.

Configuring [Smart Transfer]

When using Smart Transfer for the first time, follow the steps below to set it up. From the next time on, you can change the settings from [Set Destination] (P144).

- 1** Select [Wi-Fi Setup] in the [Wi-Fi] menu, and press [MENU/SET]. (P41)
- 2** Press ▲/▼ to select [Smart Transfer], and press [MENU/SET].
- 3** Select the method for connecting to a wireless access point, and set.
 - Refer to P146 for details.
- 4** Set the transfer destination.
 - For details about the preparations before the transfer, refer to “When sending images to PC” on P139.
 - ①** Press ▲/▼ to select a PC you want to connect, and then press [MENU/SET].
 - ②** Press ▲/▼ to select the folder you want to send, and then press [MENU/SET].
- 5** Press ▲/▼ to select [Auto Transfer], and press [MENU/SET].
- 6** Press ▲/▼ to select [ON], and press [MENU/SET].
 - Only the images you recorded when [Auto Transfer] is set to [ON] is transferred.

Transferring automatically

You can transfer images while charging the camera.

Preparation:

Configure [Smart Transfer] in advance. (P143)

- 1** Turn off the camera.
- 2** (When using a power outlet)

Connect the AC adaptor (supplied) and this camera with the USB connection cable (supplied), and insert the AC adaptor (supplied) into the power outlet.

(When using a PC)

Connect this unit to a PC by using the USB connection cable (supplied).

 - Smart Transfer will start.
(When the remaining battery power is low, charging may be given the priority.)
 - Depending on the specifications of the PC, [Smart Transfer] may fail.

• If there are images that are not transferred when [Auto Transfer] is set to [OFF], the message that confirms whether to transfer these images is displayed. Select a desired option.

[Set Destination]

Changing the transfer destination or settings of images.

- 1 Select **[Wi-Fi Setup]** in the **[Wi-Fi]** menu, and press **[MENU/SET]**. (P41)
- 2 Press **▲/▼** to select **[Smart Transfer]**, and press **[MENU/SET]**.
- 3 Press **▲/▼** to select **[Set Destination]**, and press **[MENU/SET]**.
- 4 Press **▲/▼** to select the item, and press **[MENU/SET]**.

Item	Description of settings
[Destination]	Changes the wireless access point to be connected. Select the method for connecting to a wireless access point, and set. • Refer to P146 for details.
[Size]	Resizes the image to send. [Original]/[Change] • You can select the picture size from [M] or [S] in [Change]. The aspect ratio does not change.

[Display Log]

You can check the date and details of transferred images.

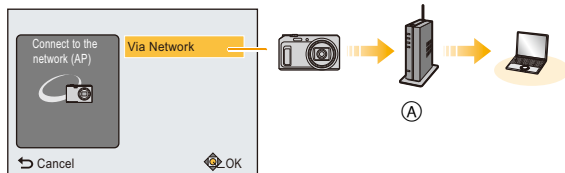
- 1 Select **[Wi-Fi Setup]** in the **[Wi-Fi]** menu, and press **[MENU/SET]**. (P41)
- 2 Press **▲/▼** to select **[Smart Transfer]**, and press **[MENU/SET]**.
- 3 Press **▲/▼** to select **[Display Log]**, and press **[MENU/SET]**.
 - Dates and content of transferred images are displayed.
 Exit the menu when you are done viewing.

About Connections

You can select a connection method after selecting a Wi-Fi function and a destination. When connecting with the same settings as the previous ones, you can use the Wi-Fi function quickly by connecting via [History Connection] or [Favorite Connection].

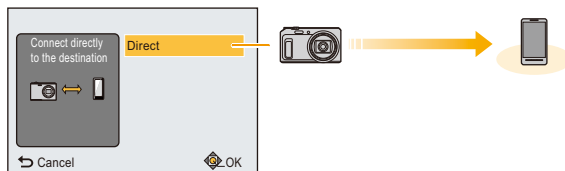
Connecting to a PC ([Via Network]) (P146)

Connects via a wireless access point.



Connecting to a smartphone/tablet ([Direct]) (P148)

Your device connects directly to this unit.



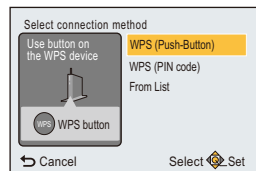
Ⓐ Wireless access point

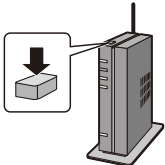
Connecting to a PC (via a network)

You can select the method for connecting to a wireless access point.

* WPS refers to a function that allows you to easily configure the settings related to the connection and security of wireless LAN devices.

To check if the wireless access point you are using is compatible with WPS, refer to the manual of the wireless access point.



Connection method	Description of settings
[WPS (Push-Button)]	<p>Save push button type wireless access point that is compatible with Wi-Fi Protected Setup™ with a WPS mark.</p> <p>Press the wireless access point WPS button until it switches to WPS Mode. e.g.:</p> <ul style="list-style-type: none"> Refer to the wireless access point instruction manual for details. 
[WPS (PIN code)]	<p>Save PIN code type wireless access point that is compatible with Wi-Fi Protected Setup with a WPS mark.</p> <ol style="list-style-type: none"> Press ▲/▼ to select the wireless access point you are connecting to, and press [MENU/SET]. Enter the PIN code displayed on the camera screen into the wireless access point. Press [MENU/SET]. <ul style="list-style-type: none"> Refer to the wireless access point instruction manual for details.
[From List]	<p>Select this option when you are not sure about the WPS compatibility, or when you want to search for and connect to a wireless access point.</p> <ul style="list-style-type: none"> Refer to P147 for details.

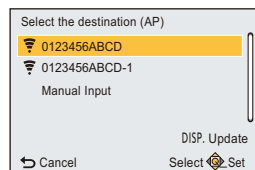
If you are not sure about the WPS compatibility (connecting by [From List])

Search for available wireless access points.

- Confirm encryption key of the selected wireless access point if the network authentication is encrypted.
- When connecting by [Manual Input], confirm SSID, encryption type, encryption key of the wireless access point you are using.

1 Press ▲/▼ to select the wireless access point you are connecting to, and press [MENU/SET].

- Pressing [DISP.] will search for a wireless access point again.
- Wireless access points with non-alphanumeric characters may not be displayed correctly.
- If no wireless access point is found, refer to “When connecting with [Manual Input]” on P147.



2 (If network authentication is encrypted)

Enter the encryption key.

- For details on how to enter characters, refer to “Entering Text” section on P90.
- A maximum of 64 characters can be entered.

■ When connecting with [Manual Input]

1 On the screen displayed in step 1 of “If you are not sure about the WPS compatibility (connecting by [From List])”, select [Manual Input] by pressing ▲/▼, then press [MENU/SET].

2 Enter the SSID of the wireless access point you are connecting to, then select [Set].

- For details on how to enter characters, refer to “Entering Text” section on P90.
- A maximum of 32 characters can be entered.

3 Press ▲/▼ to select the network authentication type, and press [MENU/SET].

- For information on network authentication, see the manual of the wireless access point.

4 Press ▲/▼ to select the encryption type, and press [MENU/SET].

- The type of settings that can be changed may vary depending on the details of network authentication settings.

Network authentication type	Encryption types that can be set
[WPA2-PSK]/[WPA-PSK]	[TKIP]/[AES]
[Common Key]	[WEP]
[Open]	[No Encryption]/[WEP]

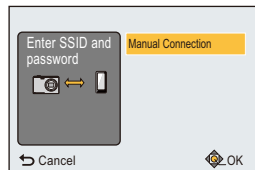
5 (When an option other than [No Encryption] is selected)


Enter the encryption key and select [Set].

- Check the wireless access points instruction manual and settings when saving a wireless access point.
- If no connection can be established, the wireless access point's radio waves may be too weak. Refer to “Message Display” (P167) and “Troubleshooting” (P170) for details.
- Transmission speed may decrease, or may not be usable depending on the environment it is used in.

Connecting to a smartphone/tablet (direct connection)

You can directly connect your device and the camera.



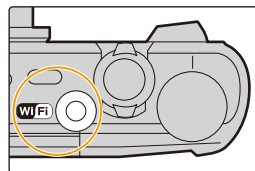
Connection method	Description of settings
<p>[Manual Connection]</p>	<p>Enter the SSID and password into the device. The SSID and password are displayed on the connection waiting screen of this unit.</p> <ul style="list-style-type: none"> You can also set up a connection by scanning a QR code with a smartphone. (P130, 131) 

Connecting quickly with the same settings as the previous ones ([History Connection]/[Favorite Connection])

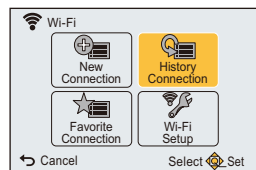
When the Wi-Fi function is used, a record is saved in the history. You can register records as favorites.

Connecting from the history or favorites allows you to easily connect with the same settings as the previous ones.

1 Press [Wi-Fi].



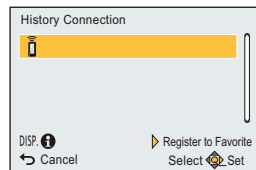
2 Press ▲/▼/◀/▶ to select [History Connection] or [Favorite Connection], and then press [MENU/SET].



[History Connection]	Connects with the same settings as the previous ones.
[Favorite Connection]	Connects with settings registered as favorites.

3 Select the desired connection setting with ▲/▼, and then press [MENU/SET].

- If the smartphone is connected to a wireless access point other than the camera, it cannot connect to the camera. Change the wireless access point to connect to in the Wi-Fi settings of the smartphone to the camera. You can also select [New Connection] and reconnect the devices. (P129)



Registering records as favorites

- 1 Press [Wi-Fi].
- 2 Press ▲/▼/◀/▶ to select [History Connection], and then press [MENU/SET].
- 3 Select the item you want to register to favorites with ▲/▼, and then press ▶.
- 4 Enter a registration name.

- For details on how to enter characters, refer to "Entering Text" section on P90.
- A maximum of 30 characters can be entered.

Editing the items registered to favorites

- 1 Press [Wi-Fi].
- 2 Press ▲/▼/◀/▶ to select [Favorite Connection], and then press [MENU/SET].
- 3 Select the favorite item you want to edit with ▲/▼, and then press ▶.
- 4 Press ▲/▼ to select the item, and press [MENU/SET].

Item	Description of settings
[Remove from Favorite]	—
[Change the Order in Favorite]	Select the destination with ▲/▼, and then press [MENU/SET].
[Change the Registered Name]	<ul style="list-style-type: none"> • For details on how to enter characters, refer to “Entering Text” section on P90. • A maximum of 30 characters can be entered.

Save frequently-used Wi-Fi connection settings as favorites

The number that can be saved in the history is limited.

We recommend that you save frequently-used Wi-Fi connection settings by registering them as favorites. (P149)

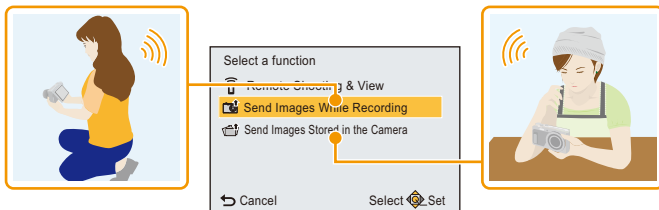
Checking the connection detail of the history or favorite

If [DISP.] is pressed when selecting an item in the history or favorites, the detail of the connection can be displayed.

- Performing [Reset Wi-Fi Settings] clears the history and the contents saved in [Favorite Connection].
- When connecting to a network to which many PCs are connected by using [History Connection] or [Favorite Connection], a connection attempt may fail because the previously-connected device will be identified from among many devices.
If a connection attempt fails, reconnect by using [New Connection].

About settings for sending images

To send images, select [New Connection], and select the method for sending them. Even after completing the connection, you can still change the size of the images to be sent.



Images that can be sent

Destination	JPEG	MP4*
[Smartphone]	○	○
[PC]	○	○

* Sending by [Send Images While Recording] is not available.

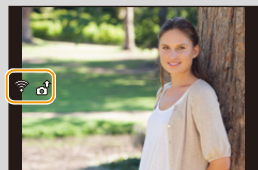
- Some images may not be played back or sent depending on the device.
- For information on the playback of images, check the operating instructions of the destination device.

Send Images While Recording

A picture can be automatically sent to a specified device every time you take it.

- Since the camera gives priority to recording, sending may take longer during the recording.

- When connected with [Send Images While Recording], [Wi-Fi] is displayed on the recording screen, and [Send] is displayed while sending a file.
- If you turn off this unit or the Wi-Fi connection before sending is complete, unsent pictures will not be resent.
- You may not be able to delete files or use the playback menu while sending.
- Motion pictures cannot be sent.



Send Images Stored in the Camera

Images can be selected and sent after recording.

- Details of the playback menu [Print Set] settings will not be sent.
- Some images taken with a different camera may not be able to be sent.
- Images that have been modified or edited with a computer may not be able to be sent.

Changing the settings for sending images

If you press [DISP.] after completing a connection, you can change the size of the images to be sent.

[Size]	Resize the image to send.	
	[Original]:	Send the image without changing the size.
	[Change]:	You can select the picture size from [M] or [S]. The aspect ratio does not change.

- The size in which motion pictures will be sent cannot be changed.
Divide the motion picture using [Video Divide] (P118).

[Wi-Fi Setup] Menu

For details on how to select the [Wi-Fi] menu settings, refer to [P41](#).

Configure the settings required for the Wi-Fi function.
[Wi-Fi Setup] cannot be changed when connected to Wi-Fi.

- 1 Select [Wi-Fi Setup] in the [Wi-Fi] menu, and press [MENU/SET].
- 2 Press ▲/▼ to select item, and press [MENU/SET].

[Smart Transfer]	—
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• Refer to [P142](#) for details.

[PC Connection]	You can set the workgroup. To send images to a PC, a connection to the same workgroup as the destination PC is required. (The default setting is "WORKGROUP".)
	<p>[Change Workgroup Name]: Enter the workgroup of the connecting PC.</p> <p>[Restore to Default]: Restores the default state.</p>

• For details on how to enter characters, refer to "Entering Text" section on [P90](#).

• If you are using the PC with standard settings, you do not need to change the workgroup.

[Device Name]	You can change the name of this unit.
	<ol style="list-style-type: none"> 1 Press [DISP]. 2 Enter the desired device name. <ul style="list-style-type: none"> • For details on how to enter characters, refer to "Entering Text" section on P90. • A maximum of 32 characters can be entered.

[Wi-Fi Password]	To prevent incorrect operation or use of the Wi-Fi function by a third party and to protect saved personal information, it is recommended that you protect the Wi-Fi function with a password. Setting a password will automatically display the password input screen when the Wi-Fi function is used.
	[Setup]: Enter any 4-digit numbers as the password. [Delete]

• For details on how to enter characters, refer to “Entering Text” section on [P90](#).

• Make a copy of password.

If you forget the password, you can reset it with [Reset Wi-Fi Settings] in the [Setup] menu, however other settings will also be reset.

[Network Address]	Displays the MAC address and IP address of this unit.
--------------------------	---

• A “MAC Address” is a unique address that is used to identify network equipment.

• “IP Address” refers to a number that identifies a PC connected to a network such as the Internet. Usually, the addresses for homes are automatically assigned by the DHCP function such as a wireless access point. (Example: 192.168.0.87)

[Approved Regulations]*	The technical compliance standard authentication number is displayed.
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* [Approved Regulations] is only available on the version DMC-ZS45P.

[Regulations]*	Displays the regulations.
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* [Regulations] is only available on the version DMC-ZS45PC.

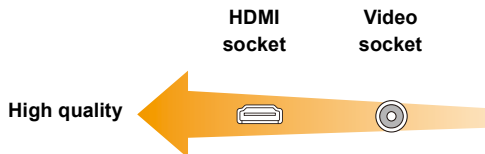
Playing Back Pictures on a TV Screen

Pictures recorded with this unit can be played back on a TV screen.

Preparations:

Turn this unit and the TV off.

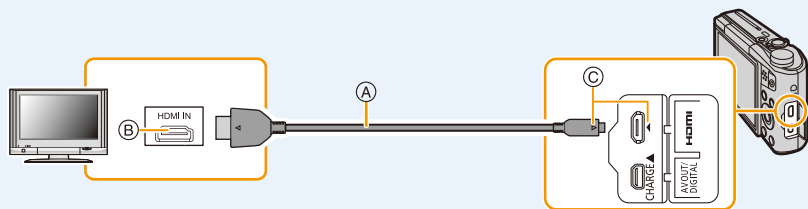
- Confirm the terminals on your TV and use a cable compatible with the terminals.
Image quality may vary with the connected terminals.



1 Connect the camera and a TV.

- Check the directions of the connectors, and plug them straight in or unplug them straight out. (It may result in malfunction by the deforming of the terminal if it is plugged in obliquely or in wrong direction.)
Do not connect devices to incorrect terminals. Doing so may cause malfunction.

To connect with an HDMI micro cable

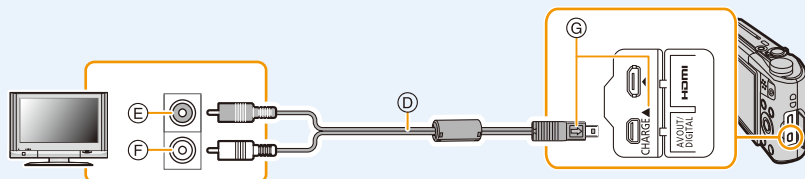


(A) HDMI micro cable

(B) HDMI socket

(C) Align the marks, and insert.

- Use a "High Speed HDMI micro cable" with the HDMI logo.
Cables that do not comply with the HDMI standards will not work.
"High Speed HDMI micro cable" [Type D–Type A plug, up to 2 m (6.6 feet) long]
- Some playback functions are restricted.
- [Playback] menu, [Setup] menu, and [Wi-Fi] menu cannot be used.
- [Creative Retouch] cannot be used.

To connect with an AV cable (optional)

Ⓓ AV cable (optional)

Ⓔ Yellow: to the video input socket

Ⓕ White: to the audio input socket

Ⓖ Insert the AV cable so that its [➔] mark will face the [◀] mark side of the camera.

- Always use a genuine Panasonic AV cable (DMW-AVC1: optional).
- Check the [TV Aspect]. (P49)
- [Wi-Fi] menu cannot be used.

- 2 Turn on the TV and select the input to match the terminal in use.**
- 3 Turn the camera on and then press [▶].**

- Depending on the [Picture Size], black bands may be displayed on the top and bottom or the left and right of the pictures.
- Change the screen mode on your TV if the picture is displayed with the top or bottom cut off.
- Output from the HDMI micro cable has priority when both AV cable (optional) and HDMI micro cable are connected.
- The connection with the USB connection cable (supplied) will take priority when you connect the USB connection cable (supplied) simultaneously with the HDMI micro cable.
- When you play back a picture vertically, it may be blurry.
- When pictures are displayed, they may not be displayed properly depending on the type of TV.
- If you perform Multi Playback or Playback Zoom on a TV screen with an aspect ratio of 16:9, images may appear distorted when you play them back.
- No sound is output from the camera speakers. Also, pictures are not displayed on the monitor.
- When the camera is connected to the TV with an AV cable, motion pictures recorded in [FHD] or [HD] are not displayed in the FHD or HD picture quality.
- Read the operating instructions for the TV.

The recorded still pictures can be played back on a TV with an SD Memory Card slot.

- Depending on the TV model, pictures may not be displayed on the full screen.
- The file format of the motion pictures that can be played back differs depending on the TV model.
- In some cases, panorama pictures cannot be played back. Also, auto-scroll playback of panorama pictures may not work.
- For cards compatible with playback, refer to the operating instructions of the TV.

Saving still pictures and motion pictures on your PC

You can transfer the pictures in the camera to a PC by connecting the camera and the PC.

- Some PCs can read directly from the card removed from the camera. For details, refer to the operating instructions of your PC.
- **If the computer being used does not support SDXC Memory Cards, a message prompting you to format may appear.**
(Doing so will cause recorded images to be erased so do not choose to format.)
If the card is not recognized, please refer to the below support site.
<http://panasonic.net/avc/sdcard/information/SDXC.html>

■ PC that can be used (OS)

The unit can be connected to any PC capable of recognizing a mass storage device.

- Windows support: Windows Vista/Windows 7/Windows 8/Windows 8.1
- Mac support: OS X v10.5 to v10.10

■ Playback and editing on a PC

Software for image playback or editing is not supplied with this product.

To play back or edit still pictures or to play back motion pictures, use the following software:

Software for still pictures

- For Windows: Microsoft® Windows Photo Viewer/Windows Photo Gallery/
Windows Live® Photo Gallery (online service)
- For Mac: iPhoto, provided by Apple

Software for motion pictures

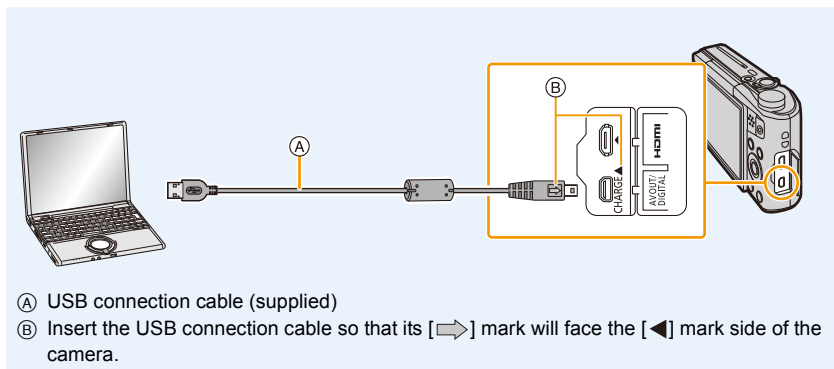
- For Windows and Mac: QuickTime/iTunes, provided by Apple
(Software supporting MP4 format is required.)

- The software information above is current as of January 2015.
The software specifications are subject to changes without prior notice, and do not guarantee that the software will continue to operate in the future.
- If software is not installed on your PC, download it from the website of the software provider.
- For information on how to use software, contact the software provider.

Transferring images to a PC

1 Connect the computer and camera with the USB connection cable (supplied).

- Please turn this unit on and your PC before connecting.
- Check the directions of the connectors, and plug them straight in or unplug them straight out. (Otherwise the connectors may bend out of shape, which may cause malfunction.)
- Do not use any other USB connection cables except the supplied one or a genuine Panasonic USB connection cable (DMW-USBC1: optional).



2 Press ▼ to select [PC], and then press [MENU/SET].

- For Windows: A drive ([LUMIX]) is displayed in [Computer]
- For Mac: A drive ([LUMIX]) is displayed on the desktop

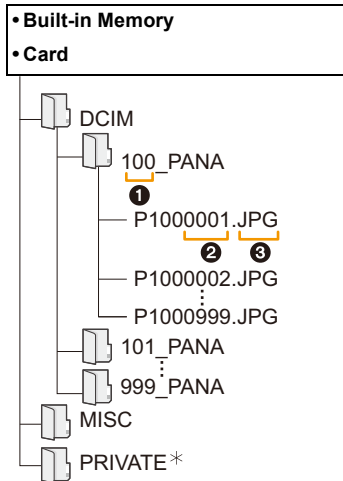
3 Drag and drop files and folders in the camera to the PC.

- When the image transfer is complete, disconnect the USB connection cable safely.

- If the remaining battery power becomes low while the camera and the PC are communicating, the alarm beeps.
Disconnect the USB connection cable safely. Otherwise, data may be destroyed.
- Before inserting or removing a card, turn the camera off and disconnect the USB connection cable. Otherwise, data may be destroyed.

About the folder structure of the camera

The content (folder structure) of the built-in memory of the camera/the card is displayed on a PC as follows:



DCIM: Images

① Folder number

② File number

③ JPG: Still pictures

MP4: Motion pictures

MISC: DPOF print

* Cannot be created in the built-in memory.

• A new folder is created when pictures are taken in the following situations.

- When a card containing a folder with the same folder number has been inserted (Such as when pictures were taken using another maker of camera)
- When there is a picture with file number 999 inside the folder

Connection in the PTP Mode

Select [PictBridge(PTP)] when connecting USB connection cable.

• When there are 1000 or more pictures on a card, the pictures may not be imported in the PTP Mode.

Printing the Pictures

If you connect the camera to a printer supporting PictBridge, you can select the pictures to be printed out and instruct that printing be started on the camera's monitor.

- Some printers can print directly from the card removed from the camera. For details, refer to the operating instructions of your printer.

Preparations:

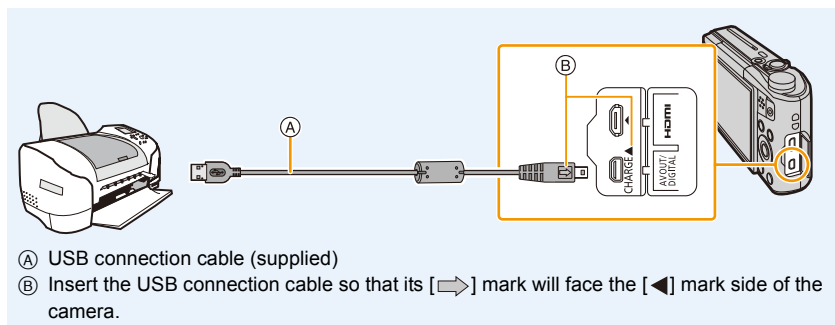
Turn on the camera and the printer.

Remove the card before printing the pictures from the built-in memory.

Check print quality and other settings on the printer before printing the pictures.

1 Connect the printer and camera with the USB connection cable (supplied).

- Check the directions of the connectors, and plug them straight in or unplug them straight out. (Otherwise the connectors may bend out of shape, which may cause malfunction.)
- Do not use any other USB connection cables except the supplied one or a genuine Panasonic USB connection cable (DMW-USBC1: optional).



2 Press ▲ to select [PictBridge(PTP)], and then press [MENU/SET].

- If the remaining battery power becomes low while the camera and the printer are connected, the alarm beeps. If this happens during printing, stop printing at once. If not printing, disconnect the USB connection cable.
- Disconnect the USB connection cable only after you turn off the camera.
- Do not disconnect the USB connection cable while [🚫] (Cable disconnect prohibit icon) is displayed. (May not be displayed depending on the type of printer used)
- Before inserting or removing a card, turn the camera off, and disconnect the USB connection cable.
- Motion pictures cannot be printed out.

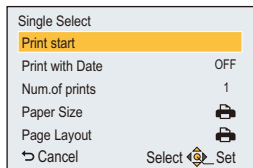
Selecting a single picture and printing it

- 1 Press **◀/▶** to select the picture and then press **[MENU/SET]**.



- 2 Press **▲** to select **[Print start]** and then press **[MENU/SET]**.

- Refer to [P162](#) for the items which can be set before starting to print the pictures.
- Disconnect the USB connection cable after printing.



Selecting multiple pictures and printing them

- 1 Press **▲**.
- 2 Press **▲/▼** to select an item and then press **[MENU/SET]**.


[Multi Select]	<p>Multiple pictures are printed at one time.</p> <ul style="list-style-type: none"> • Press ▲/▼/◀/▶ to select the pictures, and then press [DISP.]. (When [DISP.] is pressed again, the setting is canceled.) • After the pictures have been selected, press [MENU/SET].
[Select All]	<p>Prints all the stored pictures.</p> <ul style="list-style-type: none"> • When 481 or more images are stored, 480 images will be printed, starting with the oldest one. • To print the 481st and subsequent images, select images in [Multi Select].
[Print Set (DPOF)]	Prints the pictures set in [Print Set] only. (P121)

- 3 Press **▲** to select **[Print start]** and then press **[MENU/SET]**.

- If the print check screen has appeared, select **[Yes]**, and print the pictures.
- Refer to [P162](#) for the items which can be set before starting to print the pictures.
- Disconnect the USB connection cable after printing.

Print Settings

Select and set the items both on the screen in step 2 of the “Selecting a single picture and printing it” and in step 3 of the “Selecting multiple pictures and printing them” procedures.

- When you want to print pictures in a paper size or a layout which is not supported by the camera, set [Paper Size] or [Page Layout] to  and then set the paper size or the layout on the printer. (For details, refer to the operating instructions of the printer.)
- When [Print Set (DPOF)] has been selected, the [Print with Date] and [Num.of prints] items are not displayed.

[Print with Date]

[ON]	Date is printed.
[OFF]	Date is not printed.

- If the printer does not support date printing, the date cannot be printed on the picture.
- Depending on the printer, the date print settings of the printer may take precedence so check if this is the case.
- When printing images with [Date Stamp] or [Text Stamp], please remember to set [Print with Date] to [OFF] or the date will print on top.


When asking the photo shop to print the pictures

- By stamping the date using [Date Stamp] (P104) or [Text Stamp] (P116) or setting date printing at the time of the [Print Set] (P121) setting before going to a photo shop, the dates can be printed at the photo shop.

[Num.of prints]






You can set the number of prints up to 999.

[Paper Size]

	Settings on the printer are prioritized.
[L/3.5"×5"]	89 mm×127 mm
[2L/5"×7"]	127 mm×178 mm
[POSTCARD]	100 mm×148 mm
[A4]	210 mm×297 mm
[A3]	297 mm×420 mm
[10×15cm]	100 mm×150 mm
[4"×6"]	101.6 mm×152.4 mm
[8"×10"]	203.2 mm×254 mm
[LETTER]	216 mm×279.4 mm
[CARD SIZE]	54 mm×85.6 mm


• Paper sizes not supported by the printer will not be displayed.

[Page Layout] (Layouts for printing that can be set with this unit)


	Settings on the printer are prioritized.
	1 picture with no frame on 1 page
	1 picture with a frame on 1 page
	2 pictures on 1 page
	4 pictures on 1 page


- An item cannot be selected if the printer does not support the page layout.

■ Layout printing**When printing a picture several times on 1 sheet of paper**

For example, if you want to print the same picture 4 times on 1 sheet of paper, set [Page Layout] to  and then set [Num.of prints] to 4 for the picture that you want to print.

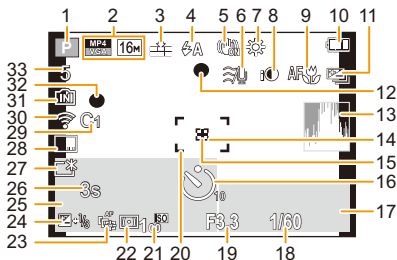
When printing different pictures on 1 sheet of paper

For example, if you want to print 4 different pictures on 1 sheet of paper, set [Page Layout] to  and then set [Num.of prints] to 1 for each of the 4 pictures.

- The camera is receiving an error message from the printer when the  indication lights orange during printing. After finishing printing, make sure there are no problems with the printer.
- If the number of prints is high, the pictures may be printed several times. In this case, the remaining number of prints indicated may differ from the number set.

Screen Display

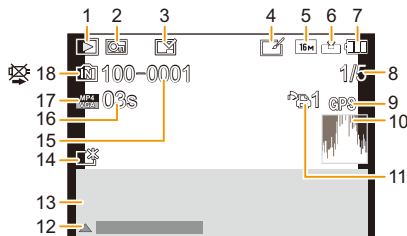
In recording



- | | | | |
|----|--|----|---|
| 1 | Recording Mode | 19 | Aperture value (P31) |
| 2 | Recording Quality (P105) | 20 | AF area (P32) |
| | Picture Size (P91) | 21 | ISO sensitivity (P93) |
| 3 | Quality (P92) | 22 | Metering Mode (P99) |
| 4 | Flash (P62) | 23 | AF Tracking (P99) |
| 5 | Optical Image Stabilizer (P103) | 24 | Exposure compensation (P68) |
| | Jitter alert (P24): | | AF assist lamp (P102): AF* |
| 6 | Wind Cut (P106) | 25 | Name (P80) |
| 7 | White Balance (P94) | | Age (P80) |
| | Creative control adjustment display (P82): | | Current date and time |
| | | | World Time (P44): |
| | Motion Deblur (P30): | | Zoom (P59): |
| 8 | Intelligent Exposure (P100) | 26 | Elapsed recording time (P34): 8m30s* |
| 9 | AF Macro Mode (P66) | 27 | Monitor Luminance (P46) |
| | Macro Zoom Mode (P66): | | Monitor power save (P47): |
| 10 | Battery indication (P14) | 28 | Date Stamp (P104) |
| 11 | Auto Bracket (P69) | 29 | Custom Settings (P89) |
| | Burst (P101): | 30 | Connected to Wi-Fi |
| 12 | Focus (P32) | 31 | Built-in memory (P19) |
| 13 | Histogram (P46) | | Card (P19) (displayed only during recording): |
| 14 | Spot AF area (P97) | 32 | Recording state (P34) |
| 15 | Spot Metering Target (P99) | 33 | Number of recordable pictures (P21) |
| 16 | Self-timer (P67) | | Available recording time (P21, 34): 8m30s* |
| 17 | AF tracking operation (P99) | | |
| 18 | Shutter speed (P31) | | |

* m: minute, s: second

In playback



- | | |
|---|---|
| <ul style="list-style-type: none"> 1 Playback Mode (P107) 2 Protected picture (P123) 3 Date/Text stamped display (P104, 116) 4 After Creative Retouch (P113) 5 Picture Size (P91) 6 Quality (P92) 7 Battery indication (P14) 8 Picture number
Total pictures
Elapsed playback time (P37): 08m30s* 9 Location Information display (P114, 135) 10 Histogram (P46) 11 Number of prints (P121) | <ul style="list-style-type: none"> 12 Creative Retouch (P113)
Motion picture playback (P37)
Play panorama (P75) 13 Recorded date and time
World Time (P44): 🌐 Recording information (P58)
Name (P80)
Age (P80) 14 Power Monitor (P46)
Monitor power save (P47): 📶 15 Folder/File number (P159) 16 Motion picture recording time
(P37): 08m30s* 17 Recording Quality (P105) 18 Built-in memory (P19)
Cable disconnect prohibit icon (P160) |
|---|---|

* m: minute, s: second

- The information of images recorded with other devices, such as their icons or recording information, may not be displayed correctly. In addition, the functions of the camera may not be available for them.

Message Display

Confirmation messages or error messages will be displayed on the screen in some cases. The major messages are described below as examples.

[This picture is protected]

- Delete the picture after canceling the protect setting. (P123)

[Some pictures cannot be deleted]/[This picture cannot be deleted]

- Pictures not based on the DCF standard cannot be deleted.
Perform formatting (P50) on this unit after saving necessary data on a PC, etc.

[Cannot be set on this picture]

- [Title Edit], [Text Stamp] or [Print Set] cannot be set for pictures not based on the DCF standard.

[Built-in memory full. Please Insert Memory Card]/[Memory card full]/ [Not enough space on built-in memory]/[Not enough memory on the card]

- There is no space left on the built-in memory or the card.
- When you copy pictures from the built-in memory to the card (batch copy), the pictures are copied until the capacity of the card becomes full.

[Some pictures cannot be copied]/[Copy could not be completed]

- The following pictures cannot be copied.
 - When a picture with the same name as the picture to be copied exists in the copy destination.
(Only when copying from a card to the built-in memory.)
 - Pictures not based on the DCF standard.

[Built-In Memory Error]/[Format built-in memory?]

- This message will be displayed when you format the built-in memory on a PC.
Format the built-in memory on the camera again. (P50)
The data on the built-in memory will be deleted.

[Memory card error.

This card cannot be used in this camera.

Format this card?]

- It is a format that cannot be used with this unit.
 - Insert a different card and try again.
 - Reformat on this unit (P50) after saving necessary data using a PC, etc.
Data will be deleted.

[Please turn camera off and then on again]/[System Error]

- This is displayed when the lens has stopped operating normally due to being pressed on by a hand etc.
Turn the camera off and on. If the message persists, contact the dealer or Panasonic.

[Memory Card Error]/[This memory card cannot be used]

- Use a card compatible with this unit. (P19)

[Insert SD card again]/[Try another card]

- An error has occurred accessing the card.
Insert the card again.
- Insert a different card.

**[Read Error/Write Error
Please check the card]**

- It has failed to read or write data.
Remove the card after turning this unit off. Insert the card again, turn this unit on, and try to read or write the data again.
- The card may be broken.
- Insert a different card.

[Motion recording was cancelled due to the limitation of the writing speed of the card]

- Use a card with SD Speed Class with "Class 4" or higher when recording motion pictures.
- In the event that it stops even after using a "Class 4" card or higher, the data writing speed has deteriorated so it is recommended to make a backup and then format (P50).
Depending on the type of the card, motion picture recording may stop in the middle.

[A folder cannot be created]

- A folder cannot be created because there are no remaining folder numbers that can be used.
Format the card on this unit after saving necessary data on a PC etc. (P50)

[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 or Panasonic.
- If the battery terminal is dirty, clean it and remove any objects.

[Failed to connect wireless access point]/[Connection failed]/[No destination found]

- Check following regarding the wireless access point.
 - The wireless access point information set on this unit is wrong.
Check the authentication type, encryption type, and encryption key. (P147)
 - Power of the wireless access point is not turned on.
 - Setting of the wireless access point is not supported by this unit.
- Check the network setting of the destination.
- Radio waves from other devices may block the connection to a wireless access point.
Check other devices that are connected to the wireless access point and devices that use the 2.4 GHz band.

[No picture to send]

- This is displayed when there is no image to transmit due to the restriction of the destination.
Check the file type of the image to transmit. (P151)

[Connection failed. Please retry in a few minutes.]/[Network disconnected. Transfer stopped.]

- Radio waves from the wireless access point are getting weak.
Perform the connection closer to the wireless access point.
- There is no reply from the server or it has exceeded the communication processing time.
Try again after a while.
- Depending on the wireless access point, connection may be automatically disconnected after specific time has passed.
Reconnect the connection again.

[Connection failed]

- Check following regarding the smartphones you intend to connect.
 - The smartphone does not operate.
 - Change the access point to connect to in the smartphone Wi-Fi settings to this camera.
 - There is no free storage space on the smartphone.

[Cannot get IP address. Please set wireless AP's IP address setting to DHCP.]

- Turn on DHCP settings of the IP address of the connected wireless access points.

[Cannot connect to server]

- If a message is displaying asking to update the root certificate, agree to update the root certificate.

Troubleshooting

First, try out the following procedures (P170–181).

If the problem is not resolved, **it may be improved by selecting [Reset] (P48) on the [Setup] menu.**

Battery and power source

**The camera cannot be operated even when it is turned on.
The camera turns off immediately after it is turned on.**

- The battery is exhausted.
 - Charge the battery.
- If you leave the camera on, the battery will be exhausted.
 - Turn the camera off frequently by using the [Economy]. (P47)

**The camera does not turn off.
The camera has stopped responding during use.**

- If the camera should stop responding or stop working correctly in other ways, remove the battery, re-insert it, and turn on the camera again.
- We recommend that you keep the following points in mind when using the camera:
 - Before using the card, format (P50) it on the camera.
(Save all necessary data on the card to a PC or other device in advance.)
 - Before using the camera, set the clock. (P22)
 - Operate the buttons and other controls slowly and carefully.
(If you press a button repeatedly in quick succession or press multiple buttons simultaneously, the camera may stop responding.)
 - Perform the next recording or operation only after the access indication (P19) disappears.
(If you operate the camera while the access indication is displayed, the image being recorded may not be saved correctly.)

The charging lamp blinks.

- This phenomenon occurs when charging in a location where the temperature is very high or very low.
 - Reconnect the USB connection cable (supplied) in a location where the ambient temperature (and the temperature of battery) is in a 10 °C to 30 °C (50 °F to 86 °F) range, and try charging again.

Cannot charge the battery.

- Disconnect the USB connection cable (supplied) and connect it again.
- If your PC is not capable of supplying sufficient power, charging is not possible.

Card/battery door does not close.

- Insert the battery securely all the way in. (P12)

Recording

The picture cannot be recorded.

- Is the mode dial correctly set?
- Is there any memory remaining on the built-in memory or the card?
→ Delete the pictures which are not necessary to increase available space in the memory. (P40)
- You may not be able to record for a short while after turning this unit on when using a large capacity card.

The recorded picture is whitish.

- The picture can become whitish if there is dirt, e.g. fingerprints on the lens.
→ If the lens is dirty, turn on the camera, eject the lens barrel and gently wipe the lens surface with a soft, dry cloth.

The recorded picture is too bright or dark.

- Check that the exposure is correctly compensated. (P68)

Multiple pictures are taken at one time.

- Set [Auto Bracket] (P69) or [Burst Shooting] (P101) of the [Rec] menu to [OFF].

The subject is not focused properly.

- The focus range varies depending on the Recording Mode.
→ Set to the proper mode for the distance to the subject.
- The subject is beyond the focus range of the camera. (P32)
- There is camera shake (jitter) or the subject is moving slightly. (P24)

The recorded picture is blurred.

The Optical Image Stabilizer is not effective.

- The shutter speed becomes slower when pictures are taken in dark places so hold the camera firmly with both hands to take the pictures. (P24)
- When taking pictures at a slow shutter speed, use the Self-timer. (P67)

Taking pictures using Auto Bracket is not possible.

- Is there any memory remaining on the built-in memory or the card?

The recorded picture looks rough.

Noise appears on the picture.

- Is the ISO sensitivity high or the shutter speed slow?
(ISO sensitivity is set to [AUTO] when the camera is shipped. Therefore, when taking pictures indoors etc. noise will appear.)
→ Decrease the ISO sensitivity. (P93)
→ Take pictures in bright places.
- Have you set [High Sens.] in Scene Mode, or [Burst Shooting] in [Rec] menu to [☐H] or [☐I]?
If so, the resolution of the recorded picture decreases slightly because of high sensitivity processing, but this is not a malfunction.

Striping or flicker may appear under lighting such as fluorescent lighting and LED lighting fixture.

- This is characteristic of MOS sensors which serve as the camera's pickup sensors.
This is not a malfunction.



The brightness or the hue of the recorded picture is different from the actual scene.

- When recording under fluorescent or LED lighting fixture etc., increasing the shutter speed may introduce slight changes to brightness and color. 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 fluorescent lighting, LED lighting fixture, mercury lamp, sodium lighting etc., the colors and screen brightness may change or horizontal striping may appear on the screen.

Reddish horizontal streaks appear on the monitor during recording.

- This is characteristic of MOS sensors which serve as the camera's pickup sensors. It appears when the subject has a bright part. Some unevenness may occur in the surrounding areas, but this is not a malfunction.
It is recorded in still pictures or motion pictures.
- It is recommended that when you take pictures you take care not to expose the screen to sunlight or any other source of strong light.



Motion picture recording stops in the middle.

- Use a card with SD Speed Class with "Class 4" or higher when recording motion pictures.
- Depending on the type of the card, recording may stop in the middle.
→ If motion picture recording stops during use of a card of at least "Class 4" or if you use a card that has been formatted on a PC or other equipment, the data-writing speed is lower. In such cases, we recommend that you make a backup of the data and then format (P50) the card in this unit.

**Subject cannot be locked.
(AF tracking not possible)**

- Set the AF area to the distinctive color of the subject if there is a part that is different from the surrounding color. (P99)

Recording by Panorama Shot Mode is ended before finishing.

- If the camera is moved too slowly, the camera assumes that camera motion was stopped and ends the still picture recording.
- If there is a lot of camera shake in the recording direction while moving the camera, recording ends.
 - When recording in Panorama Shot Mode, try to trace a small half-circle parallel to the recording direction, taking about 4 seconds to complete the half-circle (approximate).
 - When recording panorama pictures in Self Shot Mode, swivel the camera around its center at a speed of about 2 seconds per quarter revolution (approximate).

The Burst speed is slow.

- Depending on the operating conditions, it may take time to take the next picture if you repeat the recording of pictures.
- It may take time to save pictures taken in Burst Mode on the card. If you take pictures continuously while saving, the maximum number of recordable pictures decreases. For continuous shooting, use of a high speed memory card is recommended.
- The burst speed (pictures/second) may become slower depending on the recording environment. For example, it may become slower in dark locations.

Monitor

The monitor becomes darker or brighter for a moment.

- This phenomenon appears when you press the shutter button halfway to set the aperture value and does not affect the recorded pictures.
- This phenomenon also appears when the brightness changes when the camera is zoomed or when the camera is moved. This is because of operation of the automatic aperture of the camera, and it is not a malfunction.

The monitor flickers indoors.

- The monitor may flicker for a few seconds after turning this unit on. This is an operation to correct flicker caused by lighting such as fluorescent lights, LED lights etc. and is not a malfunction.

The monitor is too bright or dark.

- Is [Monitor Luminance] active? (P46)
- Perform [Monitor Display]. (P45)

Black, red, blue and green dots appear on the monitor.



- This is not a malfunction. These pixels do not affect the recorded pictures.

Noise appears on the monitor.


- In dark places, noise may appear to maintain the brightness of the monitor. This does not affect the pictures you are recording.

Flash

The flash is not activated.

- Is the flash setting set to ?
 - Change the flash setting. (P62)
- The flash cannot be used in the following cases:
 - When a setting other than [OFF] is selected for [Defocusing] in Self Shot Mode
 - When using Auto Bracket (P69)
 - Panorama Shot Mode (P73)
 - [Scenery]/[Night Scenery]/[Handheld Night Shot]/[HDR]/[Sunset]/[Starry Sky]/[Glass Through] (Scene Mode) (P76)
 - Creative Control Mode (P82)
 - When recording in [Burst Shooting] (except for ) (P101)

Flash is activated several times.

- The flash is activated twice when Red-Eye Reduction (P63) has been set.
- Has [Burst Shooting] (P101) in the [Rec] menu been set to ?

Playback

The picture being played back is rotated and displayed in an unexpected direction.

- [Rotate Disp.] (P49) is set to  or .

The picture is not played back.

The recorded pictures are not displayed.

- Is there a picture on the built-in memory or the card?
 - The pictures on the built-in memory appear when a card is not inserted. The picture data on the card appears when a card is inserted.
- Is this a folder or picture which was processed in the PC?
 - If it is, it cannot be played back by this unit.
- Are you playing back filtered images by using [Slide Show] or [Filtering Play]?
 - Cancel the filter. (P110)

The folder number and the file number are displayed as [—] and the screen turns black.

- Is this a non-standard picture, a picture which has been edited using a PC or a picture which was taken by another maker of digital cameras?
- Did you remove the battery immediately after picture-taking or did you take the picture using a battery with a low remaining charge?
 - Format the data to delete the pictures mentioned above. (P50)
 - (Other pictures will be deleted as well and it will not be possible to restore them. Therefore, check well before formatting.)

With a Calendar Search, pictures display dates differing from the actual dates on which the pictures were taken.

- Is the clock in the camera set properly? (P22)
- When pictures edited using a PC or pictures taken by other equipment are searched, they may display dates differing from the actual dates on which the pictures were taken.

White round spots like soap bubbles appear on the recorded picture.

- If you take a picture with the flash in a dark place or indoors, white round spots may appear on the picture caused by the flash reflecting off of particles of dust in the air. This is not a malfunction.



Red part of the recorded image has changed color to black.

- When Red-Eye Removal ([~~⊗~~], [~~⊗~~]) is in operation, if you take a picture of a subject with red color surrounded by a skin tone color, that red part may be corrected to black by the Red-Eye Removal function.
 - It is recommended to take a picture with the flash setting set to [~~⊗~~], [~~⊗~~] or [~~⊗~~], or [Red-Eye Removal] on the [Rec] menu set to [OFF]. (P103)

[Thumbnail is displayed] appears on the screen.

- Is it a picture that has been recorded with other equipment?
In such cases, these pictures may be displayed with a deteriorated picture quality.

A clicking sound is recorded in the motion pictures.

- This unit automatically adjusts the aperture during motion picture recording. At such times, a clicking sound is heard, and this sound may be recorded on the motion pictures. This is not a malfunction.
- The operational sound of the zoom or button operation may be recorded when it is operated during the recording of a motion picture.

Motion pictures recorded with this model cannot be played back on other equipment.

- Even if a compatible MP4 playback device is used, the video or sound quality of the recorded motion pictures may be poor, or they may not be able to be played. The recorded data may also not be displayed properly in certain cases.

About the 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)

- Try [Reset Wi-Fi Settings] in the [Setup] menu.
- Use within the communication range of the device to be connected.
- Is any device, such as microwave oven, cordless phone, etc., that uses 2.4 GHz frequency operated nearby?
 - Radio waves may get interrupted when used simultaneously. Use them sufficiently away from the device.
- When the battery indicator is flashing red, the connection with other equipment may not start or the connection may be disrupted.
 - (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.

(About a wireless access point)

- Check if the wireless access point to connect is in operating state.
- The camera may not display or connect to a wireless access point depending on the radio wave condition.
 - Move this unit closer to the wireless access point
 - Remove the obstacles between this unit and the wireless access point
 - Change the direction of this unit
 - Change the location and orientation of the wireless access point.
 - Perform the [Manual Input]. (P147)
- It may not display even if the radio waves exist depending on the setting of the wireless access point.
 - Check the settings of the wireless access point.
 - When the network SSID of the wireless access point is set not to broadcast, the wireless access point may not be detected. Enter the network SSID to start the connection (P147) or enable the SSID broadcast of the wireless access point.
- Connection types and security setting methods are different depending on the wireless access point. (Refer to the operating instructions of the wireless access point.)
- Is the 5 GHz/2.4 GHz switchable wireless access point connected to other equipment using the 5 GHz band?
 - The use of a wireless access point that can use 5 GHz/2.4 GHz simultaneously is recommended. It cannot be used simultaneously with this camera if it is not compatible.

It takes long time every time to connect to a smartphone.

- It may take longer time to connect depending on the Wi-Fi connection setting of the smartphone, but it is not a malfunction.

This unit is not displayed in the Wi-Fi setting screen of the smartphone.

- From the Wi-Fi setting menu on the smartphone, turn off and then on the Wi-Fi function.

Images cannot be transmitted to a PC.

- When the firewall of the OS, security software, etc. is enabled, connecting to the PC may not be possible.

When I try to set up a Wi-Fi connection with a Windows 8 PC, my user name and password are not recognized, so I cannot connect to the PC.

- Some OS versions, including Windows 8, use two types of accounts: a local account and a Microsoft account.
→ Be sure to use the user name and password for the local account.

**The PC is not recognized when I use a Wi-Fi connection.
The camera cannot be connected to PC via Wi-Fi connection.**

- The default workgroup name is set to "WORKGROUP". If you changed the workgroup name, the PC will not be recognized.
→ In [Change Workgroup Name] in [PC Connection] of the [Wi-Fi Setup] menu, change the workgroup name to that of the PC you are connecting to.
Refer to [P153](#) for details.
- Please confirm login name and password are correctly typed.
- When the system time of Mac computer or Windows PC connected to a camera differs severely from that of the camera, the camera cannot be connected to the computer or PC in some OSs.
→ Please confirm [Clock Set] and [World Time] of the camera matches with time, date and time zone in Windows PC or Mac computer. When both settings do not match severely, please match them.

Settings were deleted after I sent the camera in to be repaired.

- The settings stored in the camera may be deleted depending on the type of repair.
→ Always make a copy of important settings.

I have forgotten the password for the Wi-Fi.

- Execute the [Reset Wi-Fi Settings] in the [Setup] menu. ([P48](#))
→ Be aware that all the information you have set in the [Wi-Fi Setup] menu will also be reset.

**Transmission of the image fails midway.
Some images cannot be transmitted.**

- Image cannot be transmitted when the battery indicator is flashing red.
- Is the size of the image too large?
→ Transmit after dividing the motion picture with [Video Divide] ([P118](#)).
→ Reduce the size of the still picture, then transmit ([P144](#), [152](#)).

TV, PC and printer

The picture does not appear on the television.

- Is the camera connected to the TV correctly?
→ Set the TV input to External Input Mode.

The display areas on the TV screen and the camera's monitor are different.

- Depending on the TV model, the pictures may be elongated horizontally or vertically or they may be displayed with their edges cut off.

The motion pictures cannot be played back on a TV.

- Are you trying to play back the motion pictures by directly inserting the card in the card slot of the TV?
→ Connect the camera to the TV with the AV cable (optional), or with the HDMI micro cable, and then play back the motion pictures on the camera. (P155)

The picture is not displayed fully on the TV.

- Check [TV Aspect] setting. (P49)

Cannot communicate with the PC.

- Is the camera connected to the PC correctly?
- Is the camera recognized by the PC correctly?
→ Select [PC] when connecting. (P158)
→ Turn this unit off and on.

The card is not recognized by the PC. (The built-in memory is recognized.)

- Disconnect the USB connection cable. Connect it again while the card is inserted in the camera.
- If there are two or more USB terminal on a single PC, try connecting the USB connection cable to another USB terminal.

The card is not recognized by the PC. (SDXC memory card is used)

- Check if your PC is compatible with SDXC memory cards.
<http://panasonic.net/avc/sdcard/information/SDXC.html>
- A message prompting to format the card may be displayed when connecting, but do not format.
- If the [Access] displayed on the monitor does not disappear, disconnect the USB connection cable after turning this unit off.

The picture cannot be printed when the camera is connected to a printer.

- Pictures cannot be printed using a printer that does not support PictBridge.
→ Select [PictBridge(PTP)] when connecting. (P160)


The ends of the pictures are cut at printing.

- When using a printer with a Cropping or borderless printing function, cancel this function before printing.
(For details, refer to the operating instructions for the printer.)
- When you order photo studios to print pictures, ask the photo studio if the 16:9 pictures can be printed.

The panorama picture is not printing correctly.

- Since aspect ratio of a panorama picture differs from normal pictures, it may not always be possible to print it correctly.
→ Please use a printer that supports panorama pictures.
(For details, refer to the operating instructions for the printer.)

Others**An unreadable language was selected by mistake.**

- Press [MENU/SET], select the [Setup] menu icon [].
Then press [MENU/SET], and then select the [(00)] icon to set the desired language. (P50)

A red lamp sometimes turns on when the shutter button is pressed halfway.

- In dark places, the AF Assist Lamp lights red to make it easier to focus on a subject.

The AF Assist Lamp does not turn on.

- Is [AF Assist Lamp] on the [Rec] menu set to [ON]? (P102)
- The AF Assist Lamp does not turn on in bright places.

The camera becomes warm.

- The surface of the camera may become warm during use. This does not affect the performance or quality of the camera.

The lens clicks.

- When the brightness changes due to zoom or camera movement, etc., the lens may click and the picture on the screen may drastically change. However, the picture is not affected. The sound is caused by the automatic adjustment of the aperture. This is not a malfunction.

The clock is reset.

- If you do not use the camera for a long time, the clock may be reset.
→ [Please set the clock] message will be displayed; please reset the clock. (P22)

When pictures are taken using the zoom, they are slightly distorted and the areas around the subject contain colors which are not actually present.

- It is possible that the subject may be warped slightly, or the borders get colored, depending on the zoom magnification, due to the characteristics of the lens, but this is not a malfunction.

Zooming stops instantaneously.

- When using the Extended Optical Zoom, the zooming action will stop temporarily. This is not a malfunction.

Zoom does not go up to maximum magnification.

- Is the camera set to Macro Zoom Mode? (P66)
Maximum zoom during Macro Zoom Mode is 3× digital zoom.

The file numbers are not recorded consecutively.

- When you perform an operation after taking a certain action, the pictures may be recorded in folders with different numbers from the ones used prior to the operation.

The file numbers are recorded with previously used numbers.

- If you insert or remove the battery before turning off this unit, the folder and file numbers for the pictures taken will not be stored in the memory. When this unit is turned on again and pictures are taken, they may be stored under file numbers which should have been assigned to previous pictures.

The card cannot be formatted.

- Formatting is not available in Intelligent Auto Mode. Switch the Recording Mode to another one. (P25)

Cautions for Use

Optimal use of 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.

Always use the supplied cords and cables.

If you use optional accessories, use the cords and the cables supplied with them.

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 rubber or plastic products in contact with the camera for a long period of time.

Cleaning

Before cleaning the camera, remove the battery or disconnect the power plug from the 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, thinner, alcohol, kitchen detergents, etc., to clean the camera, since it may deteriorate the external case or the coating may peel off.
- When using a chemical cloth, be sure to follow the accompanying instructions.

About the monitor

- Do not press the monitor with excessive force. Uneven colors may appear on the monitor and it may malfunction.
- If the camera is cold when you turn it on, the picture on the monitor will be slightly darker than usual at first. However, the picture will return to normal brightness when the internal temperature of the camera increases.

Extremely high precision technology is employed to produce the monitor screen. However, there may be some dark or bright spots (red, blue, or green) on the screen. This is not a malfunction. The monitor screen has more than 99.99% effective pixels with a mere 0.01% of the pixels inactive or always lit. The spots will not be recorded on pictures on the built-in memory or a card.

About the lens

- If there is liquid or sand on the lens, wipe it with a soft, dry cloth.
- If the lens is dirty, turn on the camera, eject the lens barrel and gently wipe the lens surface with a soft, dry cloth.
- Do not force open the lens barrier.
- Do not press the lens with excessive force.
- 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. Its ability to generate power comes from the chemical reaction that takes place inside it. If the surrounding temperature is too high or too low, the operating time of the battery may become shorter.

Always remove the battery after use.

- Place the removed battery in a plastic bag, and store or carry away from metallic objects (clips, etc.).

If you drop the battery accidentally, check to see if the body of the battery and the terminals are damaged.

- Inserting a damaged battery in the camera will damage the camera.

Do not remove or damage the external label on the battery.

- Using a battery with part or all of the external label removed or using the one with a torn label may result in malfunctions.

Bring charged spare batteries when going out.

- Be aware that the operating time of the battery becomes shorter in low temperature conditions such as at a ski resort.
- When you travel, do not forget to bring the AC adaptor (supplied) and USB connection cable (supplied) so that you can charge the battery in the country that you are traveling in.

Dispose of unusable battery.

- The battery has a limited life.
- Do not throw the battery into fire because it may cause an explosion.
- The unusable battery should be discarded in accordance with battery recycling laws. Call the RBRC hotline at 1-800-822-8837 for information.

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.

AC adaptor (supplied)

- If you use the AC adaptor (supplied) near a radio, the radio reception may be disturbed. Keep the AC adaptor (supplied) 1 m (3.3 feet) or further away from radios.
- The AC adaptor (supplied) may generate whirring sounds when it is being used. This is not a malfunction.
- After use, be sure to disconnect the power supply device from the electrical outlet. (A very small amount of current is consumed if it is left connected.)

Card

Do not leave the card where the temperature is high, where electromagnetic waves or static electricity are easily generated or exposed to direct sunlight.

Do not bend or drop the card.

- The card may be damaged or the recorded content may be damaged or deleted.
- Put the card in the card case or the storage bag after use and when storing or carrying the card.
- Do not allow dirt, dust, or water to get into the terminals on the back of the card and do not touch the terminals with your fingers.

Notice for when transferring to another party, or disposing of the memory card “Format” or “delete” using the camera or a PC will only modify the file management information, it will not erase the data in the memory card completely.

It is recommended to physically destroy the memory card or use the commercially available computer data deletion software to completely erase the data in the memory card before transferring to another party or disposing.

Management of data in the memory card is the responsibility of the user.

About the personal information

When you set a name or birthday in Baby Mode, the personal information will be saved in the camera and the recorded image.

Setting a Wi-Fi password is recommended to protect personal information. (P154)

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, transferring to another party, or disposing

- Reset the settings to protect the personal information. (P48)
- After making a copy of personal information, always delete information such as personal information and wireless LAN connection settings that you have saved within the camera with [Reset Wi-Fi Settings] (P48).
- If there are pictures stored in the built-in memory, copy them onto the memory card (P124) before formatting the built-in memory (P50) as needed.
- Remove the memory card from the camera when requesting a repair.
- Built-in memory and 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.

When transferring to another party, or disposing of the memory card, please refer to “Notice for when transferring to another party, or disposing of the memory card” above.

When uploading images on web services

- Images may contain information that can be used for identifying individuals such as titles, recording dates, and location information. When uploading images on web services, check carefully, and then upload.

When not using the camera for a long period of time

- 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]
- Always remove the battery and the card from the camera.
- If the battery is left inserted in the camera, it will discharge even if the camera is turned off. If the battery continues to be left in the camera, it will discharge excessively and may become unusable even if charged.
- When storing the battery for a long period of time, we recommend charging it once a year. Remove the battery from the camera and store it again after it has completely discharged.
- We recommend storing the camera with a desiccant (silica gel) when you keep it in a closet or a cabinet.

About the picture 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 suffered due to loss of recorded data.

About tripods or unipods

- When you use a tripod, make sure the tripod is stable when this unit is attached to it.
- You may not be able to remove the card or the battery when using a tripod or unipod.
- Make sure that the screw on the tripod or unipod is not at an angle when attaching or detaching the camera. You may damage the screw on the camera if you use excessive force when turning it. Also, the camera body and the rating label may be damaged or scratched if the camera is attached too tightly to the tripod or unipod.
- Read the operating instructions for the tripod or unipod carefully.

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