

Panasonic®

Basic Operating Instructions Digital Camera

Model No. DC-FT7/DC-TS7



LUMIX

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

More detailed operating instructions are available in “Operating Instructions for advanced features (PDF format)”. To read it, download it from the website. (P62)

Dear Customer,

We would like to take this opportunity to thank you for purchasing this Panasonic Digital Camera. Please read these Operating Instructions carefully and keep them handy for future reference. Please note that the actual controls and components, menu items, etc. of your Digital Camera may look somewhat different from those shown in the illustrations in these Operating Instructions.

Carefully observe copyright laws.

- Recording of pre-recorded tapes or discs or other published or broadcast material for purposes other than your own private use may infringe copyright laws. Even for the purpose of private use, recording of certain material may be restricted.

Information for Your Safety

WARNING:

To reduce the risk of fire, electric shock or product damage,

- Do not let water or other liquids drip or splash inside the unit.
- Do not expose accessories (battery pack, battery charger, AC adaptor, SD memory card and etc.) to rain, moisture, dripping or splashing.
- Use the recommended accessories.
- Do not remove covers.
- Do not repair this unit by yourself. Refer servicing to qualified service personnel.

The socket outlet shall be installed near the equipment and shall be easily accessible.

■ Product identification marking

| Product | Location |
|----------------|----------|
| Digital camera | Bottom |

For Singapore only

| |
|--|
| Complies with IMDA Standards DB01017 |
|--|

For Thailand only

This telecommunication equipment conforms to NTC/NBTC technical requirement.

■ About the battery pack

CAUTION

- Danger of explosion if battery is incorrectly replaced. Replace only with the type recommended by the manufacturer.
 - When disposing of the batteries, please contact your local authorities or dealer and ask for the correct method of disposal.
-
- Do not heat or expose to flame.
 - Do not leave the battery(ies) in a car exposed to direct sunlight for a long period of time with doors and windows closed.

Warning

Risk of fire, explosion and burns. Do not disassemble, heat above 60 °C or incinerate.

■ About the AC adaptor (supplied)

CAUTION!

To reduce the risk of fire, electric shock or product damage,

- **Do not install or place this unit in a bookcase, built-in cabinet or in another confined space. Ensure this unit is well ventilated.**
-
- The AC adaptor is in the standby condition when the mains plug is connected. The primary circuit is always “live” as long as the mains plug is connected to an electrical outlet.

Cautions for Use

- Do not use any other USB connection cables except the supplied one.
- 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)

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.

-
- **Before cleaning the camera, remove the battery or disconnect the power plug from the outlet.**
 - **Do not press the monitor with excessive force.**
 - **Do not press the lens with excessive force.**
 - **Do not spray the camera with insecticides or volatile chemicals.**
 - **Do not keep rubber or plastic products in contact with the camera for a long period of time.**
 - **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.**
 - **Do not leave the camera with the lens facing the sun, as rays of light from the sun may cause it to malfunction.**
 - **Always use the supplied cords and cables.**
 - **Do not extend the cords or the cables.**
 - **During access (image writing, reading and deleting, formatting etc.), do not turn this unit off, remove the battery, card or disconnect the AC adaptor. Furthermore, do not subject the camera to vibration, impact or static electricity.**
 - **The data on 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.**

-
- **The battery is not charged when the camera is shipped. Charge the battery before use.**
 - **The battery is a rechargeable lithium ion battery. If the temperature is too high or too low, the operating time of the battery will become shorter.**
 - **The battery becomes warm after using and during and after charging. The camera also becomes warm during use. This is not a malfunction.**
 - **Do not leave any metal items (such as clips) near the contact areas of the power plug or near the batteries.**
 - **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)**
 - **Do not store the battery for a long time while fully 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.
-

Contents

| | |
|-----------------------------------|---|
| Information for Your Safety | 2 |
|-----------------------------------|---|

Preparation/Basic

| | |
|--|----|
| Care of the camera | 7 |
| Standard Accessories | 9 |
| About cards that can be used with this unit | 10 |
| (Important) About the Waterproof/ Dustproof and Anti-shock Performance of the Camera | 11 |
| Names and Functions of Components | 17 |
| Preparations before Recording | 19 |
| Basic Operations | 23 |
| Setting menu items | 29 |
| Assigning frequently used functions to the buttons (function buttons) | 30 |
| Using the Compass and Altimeter | 30 |

Recording

| | |
|---|----|
| Taking Pictures using the Automatic Function (Intelligent Auto Mode) | 32 |
| Recording 4K Photos | 34 |
| Controlling Focus After Recording (Post Focus) | 37 |
| Recording Motion Picture/4K Motion Picture | 40 |

Playback

| | |
|-----------------------------|----|
| Playing Back Pictures | 43 |
|-----------------------------|----|

Menu

| | |
|-----------------|----|
| Menu list | 44 |
|-----------------|----|

Wi-Fi

| | |
|---|----|
| What you can do with the Wi-Fi® function | 46 |
| Controlling with a Smartphone/Tablet | 47 |

Others

| | |
|--|----|
| Monitor Display/Viewfinder Display | 52 |
| Troubleshooting | 54 |
| Specifications | 57 |
| Reading the Operating Instructions (PDF format) | 62 |

Care of the camera

Please be sure to read “(Important) About the Waterproof/Dustproof and Anti-shock Performance of the Camera” (P11) before using this unit underwater to prevent the unit from being mishandled, which may cause water to seep in.

- **Do not apply strong shock or vibration by dropping or knocking the camera. Also, do not apply strong pressure to the camera.**
 - Waterproof performance may be impaired.
 - **The lens or the monitor may get damaged.**
If the monitor should get damaged, take care to avoid injury caused by the fragments of broken glass and other damaged components.
 - It may cause malfunction in the performance or the function.
- **After the camera is used underwater, speaker and microphone performance may be temporarily degraded, so motion pictures may be recorded or played back with weak audio.**
 - After underwater use, perform steps **1** through **4** in “Caring of the camera after using it underwater” on P15.

■ When inner side of the viewfinder or monitor is fogged (condensation)
It is not a malfunction or failure of the camera. It may be caused by the environment in which the camera is used.

What to do when inner side is fogged

- Turn off the camera and open the side door in a place with constant ambient temperature, away from high temperatures, humidity, sand and dust. The fog will disappear naturally in approximately 2 hours with the side door open when the temperature of the camera gets close to the ambient temperature.
- Contact Panasonic if the fogging does not disappear.

Conditions in which inner side may be fogged

Condensation may occur and cause the inner side of the lens, viewfinder, and monitor to fog up when the camera is used under conditions with drastic temperature changes or high humidity levels, such as the following:

- **When the camera is used underwater suddenly after being on a hot beach etc.**
- **When the camera is moved to a warm area from a cold area, such as at a ski resort or at high altitude**
- **When the side door is opened in a high-humidity environment**

If you shake the camera while it is turned off, a rattling sound will be heard. This is the sound of the lens moving and not a malfunction.

■ When using in a cold climate or at low temperatures


- The performance of the battery (number of recordable pictures/operating time) may decrease temporarily when using in a temperature between -10°C and 0°C (14°F and 32°F) (cold places such as ski resorts or places at high altitude). (Charge the battery sufficiently before use)
- The battery cannot be recharged in a temperature less than 0°C (32°F). (The charging lamp blinks when the battery cannot be recharged.) Charge it sufficiently in a location where the ambient temperature is between 10°C and 30°C (50°F and 86°F).
- When using the camera in cold places such as ski resorts or places at high altitude, do not leave the camera with snow or water droplets sticking to it. Some parts of the camera may become hard to move or the sound may become dim with snow or water droplets freezing in narrow spaces, such as the gaps of the buttons, dial, speaker, and microphone. This is not a malfunction.
- **When the camera is used at cold temperatures, speaker and microphone performance may be temporarily degraded, so motion pictures may be recorded or played back with weak audio.**
 - Keep the camera warm by placing it in a warm place such as inside your cold protection gear or clothes during use.

How to use this manual

- The screens used in these operating instructions are examples provided to describe operations.
- The product design and specifications described in these operating instructions may differ from the actual product due to improvements.

■ About the symbols in the text

MENU: Indicates that the menu can be set by pressing [MENU/SET] button.

: Tips for skilful use and points for recording.

In these operating instructions, steps for setting a menu item are described as follows.

MENU →  [Rec] → [Quality] → 

Applicable modes:        






In Recording Modes shown as black icons, you can select and use indicated menu items and functions.

Standard Accessories

Check that all the accessories are supplied before using the camera.
Product numbers correct as of May 2018. These may be subject to change.

| | |
|---|--|
| 1 | Battery Pack (Indicated as battery pack or battery in the text) • Charge the battery before use. |
| 2 | AC Adaptor • This is used for charging. |
| 3 | USB Connection Cable |
| 4 | Hand Strap |

- Supplied accessories such as battery pack etc. are not waterproof. (excluding hand strap)
- SD Memory Card, SDHC Memory Card and SDXC Memory Card are indicated as **card** in the text.
- **The card is optional.**
- Consult the dealer or Panasonic if you lose the supplied accessories. (You can purchase the accessories separately.)

| | |
|--|--|
| 1  DMW-BCM13E | 3  K1HY04YY0106 |
| 2  SAE0012D | 4  DVPW1015Z |
|  SAE0012F | |

■ Digital Camera Accessory

| | |
|--------------|-----------|
| Battery Pack | DMW-BCM13 |
|--------------|-----------|

- Some optional accessories may not be available in some countries.

About cards that can be used with this unit

| | |
|--|--|
| SD Memory Card (512 MB to 2 GB) | <ul style="list-style-type: none"> This unit is compatible with UHS-I UHS Speed Class 3 standard SDHC/SDXC memory cards. 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 to 128 GB) | |

■ About motion picture/4K photo recording and speed class ratings

Use a card that meets the following ratings of the SD Speed Class or UHS Speed Class.

| Size in [Rec Quality] | Speed class | Label example |
|---|-------------------|---------------|
| 4K | UHS Speed Class 3 | |
| FHD/HD | Class 4 or higher | CLASS |
| When recording in 4K Photo/ [Post Focus] | UHS Speed Class 3 | |

- SD Speed Class and UHS Speed Class are the speed standards regarding continuous writing. To check the class, see the labelled side, etc. of the card.
- Please confirm the latest information on the following website.**
<http://panasonic.jp/support/global/cs/dsc/>
(This Site is English only.)
- Keep the memory card out of reach of children to prevent swallowing.

(Important) About the Waterproof/ Dustproof and Anti-shock Performance of the Camera

Waterproof/Dustproof Performance

This camera's waterproof/dustproof rating complies with the "IPX8" and "IP6X" ratings. Provided the care and maintenance guidelines described in this document are strictly followed, this camera can operate underwater, to a depth not exceeding 31 m (102 feet) for a time not exceeding 60 minutes. (*1)

Anti-shock Performance

This camera also complies with "MIL-STD 810F Method 516.5-Shock". The camera has cleared a drop test from a height of 2 m (6.6 feet) onto 3 cm (0.1 feet) thick plywood. In most cases this camera should not sustain any damage if dropped from a height not exceeding 2 m (6.6 feet). (*2)

Withstand Load Performance

This camera complies with 100 kgf / 220.5 lbf load tests. (*3)

This does not guarantee no destruction, no malfunction, or waterproofing in all conditions.

- *1 This means that the camera can be used underwater for specified time in specified pressure in accordance with the handling method established by Panasonic.
- *2 "MIL-STD 810F Method 516.5-Shock" is the test method standard of the U.S. Defense Department, which specifies performing drop tests from a height of 122 cm (4 feet), at 26 orientations (8 corners, 12 ridges, 6 faces) using 5 sets of devices, and passing the 26 orientation drops within 5 devices. (If failure occurs during the test, a new set is used to pass the drop orientation test within a total of 5 devices) Panasonic's test method is based on the above "MIL-STD 810F Method 516.5-Shock". However, the drop height was changed from 122 cm (4 feet) to 200 cm (6.6 feet) dropping onto 3 cm (0.1 feet) thick plywood. This drop test was passed.
(Disregarding appearance change such as loss of paint or distortion of the part where drop impact is applied.)
- *3 According to the test conditions specified by Panasonic.

■ Handling of the camera

- Waterproofing is not guaranteed if the unit is subject to an impact as a result of being hit or dropped etc. If an impact to the camera occurs, it should be inspected (subject to a fee) by a Panasonic to verify that the waterproofing is still effective.
- When the camera is splashed with detergent, soap, hot spring, bath additive, sun oil, sun screen, chemical, etc., wipe it off immediately.
- Waterproof function of the camera is for sea water and fresh water only.
- Any malfunction caused by customer misuse, or mishandling will not be covered by the warranty.
- Panasonic offers no compensation for any accidents caused by use of the product (including both personal and property damage).
- The inside of this unit is not waterproof. Water leakage will cause malfunction.
- Supplied accessories such as battery pack etc. are not waterproof.
(excluding hand strap)
- Card and battery are not waterproof. Do not handle with a wet hand. Also, do not insert wet card or battery into the camera.
- Do not leave the camera for a long period of time in cold places where the temperature reaches -10°C (14°F) or lower (ski resorts, places at high altitude, etc.) or hot places where the temperature reaches 40°C (104°F) or higher (in particular, places exposed to strong sunlight, inside a sun-heated automobile, near a heater, on a boat or beach, etc.). (Doing so will deteriorate the waterproof performance)

■ About the [Precautions] display

- [Precautions] is displayed when the power is turned on for the first time after purchase, with the side door completely closed.
- Please check beforehand to maintain the waterproof performance.

1 Press ◀ to select [Yes], and press [MENU/SET].

2 Press ◀/▶ to select the picture.

◀: Return to the previous screen

▶: View the next screen

- It can be forcefully ended by pressing [MENU/SET].
- When it is forcefully ended while checking by turning the unit off or pressing [MENU/SET], [Precautions] is displayed every time the power is turned on.

- 3 After the final screen (12/12), press [MENU/SET] to finish.**
- When [MENU/SET] is pressed after the final screen (12/12), [Precautions] is not displayed from the next time the power is turned on.
 - This can also be viewed from [Precautions] in the [Setup] menu.

Check before using underwater

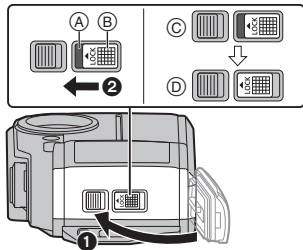
Always wipe the rubber seal on the side door and the area where rubber seal sits with a dry, lint-free cloth.

- 1 Check that there are no foreign objects on the inner side of the side door.**
- If there is any foreign object, such as lint, hair, sand, etc., on the surrounding area, water will leak within a few seconds, causing malfunction.
 - Wipe it off with a soft, dry cloth if there is any liquid.
It may cause water leaks and malfunction if you use the camera with liquid adhered.
 - If foreign objects are present, wipe them off with a dry, lint-free cloth.
 - Be extremely careful to remove the small sand etc. that may adhere to the sides and corners of the rubber seal.
- 2 Check for cracks and deformation of the rubber seal on the side door.**
- The integrity of the rubber seals may decrease after about 1 year, with use and age. To avoid permanently damaging the camera, the seals should be replaced once each year. Please contact Panasonic for related costs and other information.

3 Close the side door securely.

- (A) Red part
- (B) [LOCK] switch
- (C) Released state
- (D) Locked state

- Lock the [LOCK] switch securely until the red part is no longer visible.
- To prevent water intrusion, be careful not to catch foreign objects such as liquids, sand, hair, dust, or the strap cord.



Do not open or close the side door in places with sand and dust, close to water, or with wet hands. Sand or dust adhering may cause water leaks.

Using the camera underwater

- Use the camera underwater to 31 m (102 feet) with the water temperature between 0 °C and 40 °C (32 °F and 104 °F).
- Do not use the camera at a depth of over 31 m (102 feet).
- Do not use it in the hot water over 40 °C (104 °F) (in the bath or hot spring).
- Do not use the camera underwater longer than 60 minutes continuously.
- Do not open or close the side door underwater.
- Do not apply shock to the camera underwater. (Waterproof performance may not be maintained, and there is a chance of water leak.)
- Do not dive into the water holding the camera. Do not use the camera in a location where the water will splash strongly, such as rapid flow or waterfall. It may cause malfunction.
- The camera will sink in the water. Take care not to drop the camera and lose it underwater by securely placing the strap around your wrist or similar measure.

Caring of the camera after using it underwater

Do not open or close the side door until the sand and dust is removed by rinsing the camera with water.

Make sure to clean the camera after using it.

- Thoroughly wipe off any water droplets, sand, and saline matter on your hands, body, hair, etc.
- It is recommended to clean the camera indoors, avoiding places where water spray or sand may fall.

After using it underwater, always clean the camera rather than leaving it in a dirty state.

- Leaving the camera with foreign objects or saline matter on it may cause damage, discolouration, corrosion, unusual odour, or deterioration of the waterproof performance.

1 Rinse with fresh water with the side door closed.

- After use at the seaside or underwater, soak the unit in fresh water pooled in a shallow container for 10 minutes or less.
- Do not use chemicals such as benzine, thinner, alcohol or cleanser, soap or detergents.
- If the dioptre adjustment dial, shutter button, the camera [ON/OFF] button or other parts are not moving smoothly, there may be trapped foreign objects. As continued use may cause these parts to get stuck or cause other malfunctions, shake the camera in fresh water to wash off any foreign objects. After that, check that the parts of the camera are moving smoothly.
- Bubbles may come out of the drainage hole when you immerse the camera in water, but this is not a malfunction.

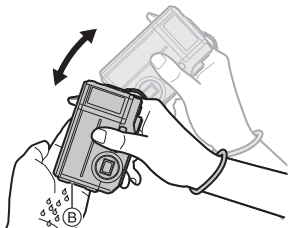
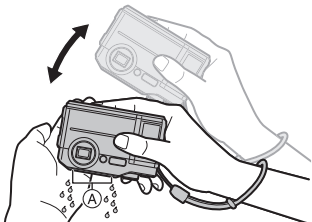


2 Tap the camera lightly against your palm while holding it upside down and then with the illustrated side facing down, and then wipe off the water droplets with a soft, dry cloth.

- Repeat this step a few times if water is left in the microphone (A) or speaker (B) hole.

If water is left in the microphone or speaker hole, weak or distorted audio may be recorded and played back.

- Fasten the strap firmly to your wrist to avoid dropping the camera.



3 Dry the camera by standing it on a dry cloth in a well ventilated shaded area.

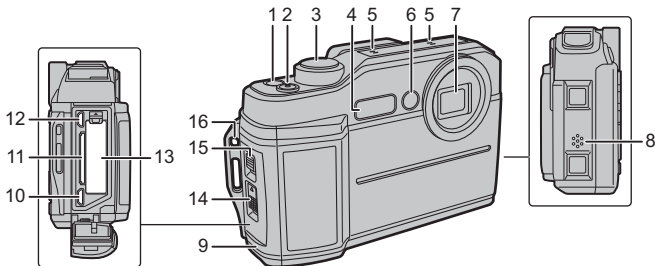
- This unit incorporates drain design, draining water in gaps in the camera [ON/OFF] button and zoom button etc.
- Do not dry the camera with hot air from dryer or similar. Waterproof performance will deteriorate due to deformation.



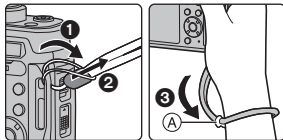
4 Confirm that there are no water droplets, open the side door, and wipe off any water droplets or sand left inside using a soft, dry cloth.

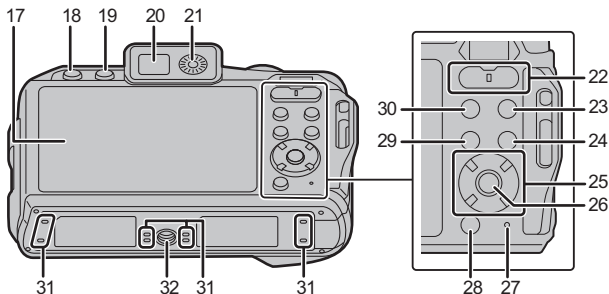
- Water droplets may adhere to the card or battery when the side door is opened without thoroughly drying. Also, water may accumulate in the gap around the card/battery slot or the terminal connector. Be sure to wipe any water off with a soft, dry cloth.
- The water droplets may seep into the camera when the side door is closed while it is still wet, causing condensation or failure.

Names and Functions of Components



| | | | |
|-----------|--|-----------|--|
| 1 | Camera [ON/OFF] button (P22) | 13 | Battery slot (P19) |
| 2 | Motion picture button (P40) | 14 | [LOCK] switch (P14, 19) |
| 3 | Shutter button (P25) | 15 | Release lever (P19) |
| 4 | Flash | | Strap eyelet |
| 5 | Stereo microphone • Be careful not to cover the microphone with your finger. Doing so may make sound difficult to record. | | <ul style="list-style-type: none"> • Be sure to attach the strap when using the camera to ensure that you will not drop it. • After placing the strap around your wrist, slide the adjuster (A) to fasten the strap. • Be sure to attach the strap to the strap eyelet. |
| 6 | Self-timer indicator/AF Assist Lamp/LED light | 16 | |
| 7 | Lens surface | | |
| 8 | Speaker | | |
| 9 | Side door (P13, 19) | | |
| 10 | [USB/CHARGE] socket (P20) | | |
| 11 | Card slot (P19) | | |
| 12 | [HDMI] socket | | |





| | | | |
|-----------|--|-----------|---|
| 17 | Monitor (P52) | 26 | [MENU/SET] button (P26) |
| 18 | [] (Post Focus) button (P37)/[Fn2] button (P30) | 27 | Charging lamp (P21)/ Wi-Fi® connection lamp (P46) |
| 19 | [LVF] button (P23) | 28 | [] (Delete) button (P43)/[] (Cancel) button/[Q.MENU] button |
| 20 | Viewfinder (P23, 52) | 29 | [] (4K Photo Mode) button (P34)/ [Fn1] button (P30) |
| 21 | Dioptr adjustment dial • Adjust until you can see the characters displayed in the viewfinder clearly. | 30 | [MODE] button (P27) |
| 22 | Zoom button (P24) | 31 | Drainage hole |
| 23 | [] (Playback) button (P43) | | Tripod mount • It may not be possible to attach and securely fasten a tripod with a screw length of 5.5 mm (0.22 inch) or more to the camera. Doing so may also damage the camera. |
| 24 | [DISP.] button • Each time this is pressed, the display on the monitor is switched. | 32 | |
| 25 | Cursor buttons (P26) | | |

Preparations before Recording

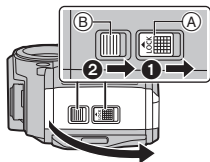
Inserting and Removing the Card (optional)/the Battery

- Check that this unit is turned off.

1 **1**: Slide the [LOCK] switch (A), and release the lock.

2: Slide the release lever (B) and open the side door.

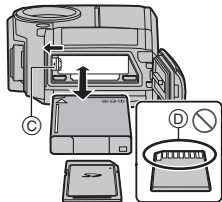
- Always use genuine Panasonic batteries (DMW-BCM13E).
- If you use other batteries, we cannot guarantee the quality of this product.



2 **Battery**: Being careful about the battery orientation, insert all the way until you hear a locking sound and then check that it is locked by lever (C). Pull the lever (C) in the direction of the arrow to remove the battery.

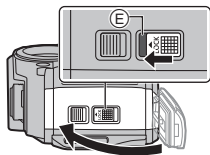
Card: Push it securely all the way until you hear a “click” while being careful about the direction in which you insert it. To remove the card, push the card until it clicks, then pull the card out upright.

- (D): Do not touch the connection terminals of the card.
Check the orientation of the card.



3 **Close the side door until it clicks, and then lock the [LOCK] switch by sliding it toward [◀].**

- Confirm that the red part (E) on the [LOCK] switch is not showing.



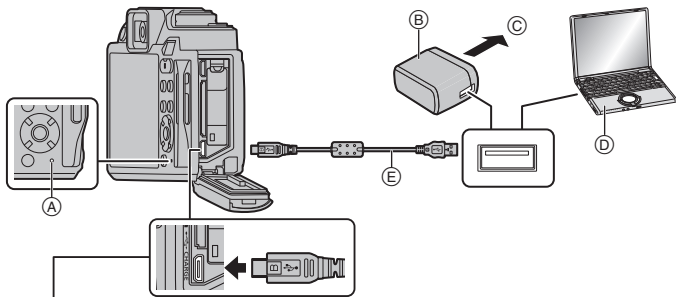
Charging the Battery

The battery that can be used with this unit is DMW-BCM13E.

- 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.

Connect the camera and the AC adaptor (supplied) (B) or a PC (D).



[USB/CHARGE] socket

- Place the camera in an upright position, and find the terminal at the bottom.
- Check the direction of the terminals and plug in/out straight holding onto the plug.
(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.
- The AC adaptor (supplied) and USB connection cable (supplied) are for this camera only. Do not use them with other devices.
- Do not use any other USB connection cables except the supplied one.
- Do not use any other AC adaptors except the supplied one.

- (A) Charging lamp
- (B) AC adaptor (supplied)
- (C) To power outlet
- (D) PC (Turned on)
- (E) USB connection cable (supplied)

■ 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).

■ About the charging lamp

Lit: Charging.

Off: Charging has completed.

(When charging is complete, disconnect the camera from the power outlet or computer.)

• When the charging lamp flashes

- 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.
- If your PC is not capable of supplying sufficient power, charging is not possible.

■ Charging time

When using the AC adaptor (supplied)

| Charging time | Approx. 170 min |
|---------------|-----------------|
|---------------|-----------------|

- The indicated charging time is for when the battery has been discharged completely.

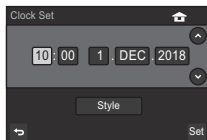
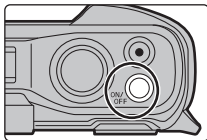
The charging time may vary depending on how the battery has been used.

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.

Setting Date/Time (Clock Set)

- The clock is not set when the camera is shipped.
- 1 Press camera [ON/OFF] button.
 - 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), and press ▲/▼ to set.
 - 6 Press [MENU/SET] to set.
 - 7 When [The clock setting has been completed.] is displayed, press [MENU/SET].
 - 8 When [Please set the home area] is displayed, press [MENU/SET].
 - 9 Press ◀/▶ to select the home area, and then press [MENU/SET].
 - [Precautions] will be displayed. (P12)



Formatting the card (initialisation)

Format the card before recording a picture with this unit.

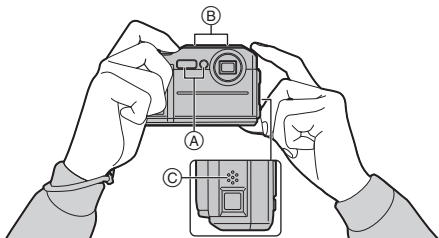
After formatting, all data stored on the card will be deleted and cannot be recovered. Back up necessary data on a PC or similar device first, and then format the card.

MENU →  [Setup] → [Format]

Basic Operations

Tips for taking good pictures

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

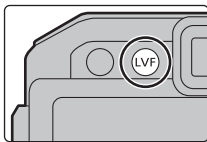


- Before using the camera, be sure to attach the supplied strap and fasten it to your wrist to avoid dropping the camera. (P17)
- Be careful not to put your fingers on the flash, AF assist lamp/LED light (A), microphone (B), speaker (C) or lens etc.
- Make sure your footing is stable and there is no danger of colliding with another person or object in the vicinity while taking pictures.

[LVF] button (Switching the Monitor/Viewfinder)

Press [LVF] to switch between the Monitor and Viewfinder.

Press [LVF].



Zoom button (zoom operations)

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

[W]: To make subjects appear further away use (Wide)

[T]: To make subjects appear closer use (Tele)



Optical Zoom

Zooms in without deteriorating the image quality.

Maximum magnification: 4.6×

Extra Optical Zoom

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

Maximum magnification: 9×

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

Intelligent Zoom

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

MENU →  **[Rec]/ [Motion Picture]** → **[i.Zoom]** → **[ON]/[OFF]**

[Digital Zoom]

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

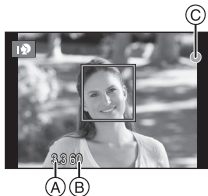
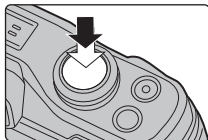
MENU →  **[Rec]/ [Motion Picture]** → **[Digital Zoom]** → **[ON]/[OFF]**

Shutter button (Taking pictures)

1 Press the shutter button halfway to focus.

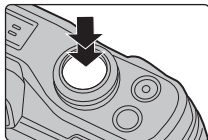
- Aperture value and shutter speed are displayed.
- Once the subject is in focus, the focus indication is displayed. (When the subject is not in focus, the indication flashes.)

- (A) Aperture value
- (B) Shutter speed
- (C) Focus indication



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

- Be careful not to move the camera when you press the shutter button.



■ Check the picture you have taken

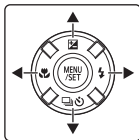
Press [▶] to display the recorded image. (P43)

Cursor buttons/[MENU/SET] button

Pressing the cursor button:

Selection of items or setting of values etc., is performed.

- These operating instructions express the up, down, left, and right of the cursor button as ▲/▼/◀/▶.



Pressing [MENU/SET]:

Confirmation of setting contents, etc., is performed.

■ Pressing the cursor button while recording

▲/[] (Exposure Compensation)

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

▶/[] (Flash Mode)

Set the flash to match the recording.

- If you set the [LED Light] to [ON], and press and hold down ▶ on the recording standby screen, the LED light will come on for 60 seconds.

◀/[] (Macro Mode)

• [AF] ([AF Macro])

- You can take pictures of a subject as close as 5 cm (0.16 feet) from the lens by pressing the zoom button 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 (5 cm (0.16 feet)).

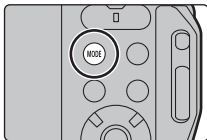
▼/[] (Drive Mode)









You can change what the camera will do when you press the shutter button.

- [Single]/[Burst]/[4K PHOTO] (P34)/[Post Focus] (P37)/[Auto Bracket]/[Self Timer]

[MODE] button (Selecting a Recording Mode)

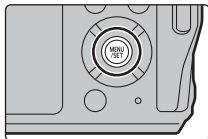
- 1 Press [MODE].
- 2 Press ▲/▼/◀/▶ to select the Recording Mode.
- 3 Press [MENU/SET].



| | |
|--|--|
|  | Intelligent Auto Mode (P32) |
| P | Programme AE Mode Records at the aperture value and shutter speed set by the camera. |
| M | Manual Exposure Mode The exposure is adjusted by the aperture value and the shutter speed which are manually adjusted. |
|  | Creative Control Mode Record while checking the image effect. |
|  | Scene Guide Mode This mode allows you to take pictures that match the scene being recorded. |
|  | Sports Mode Use this mode to take pictures of sporting events, etc. |
|  | Snow Mode This allows you to take pictures that show the snow as white as possible at a ski resort or a snow-covered mountain. |
|  | Beach & Surf Mode This is optimal for recording images underwater at a depth of up to 3 m (9.8 feet) and at the beach. |
|  | Underwater Mode This is optimal for recording images underwater at a depth exceeding 3 m (9.8 feet). |
|  | Panorama Shot Mode This mode allows you to take panorama pictures. |

Setting menu items

- 1 Press [MENU/SET].
- 2 Press ◀.
- 3 Press ▲/▼ to select a menu selector icon, such as [📷].



[📷] [Rec] (P44)

[📺] [Motion Picture] (P44)

[fC] [Custom] (P45)

[🔧] [Setup] (P45)

[▶] [Playback] (P45)



- 4 Press [MENU/SET].
- 5 Press ▲/▼ of the cursor button to select the menu item and press [MENU/SET].
- 6 Press ▲/▼ of the cursor button to select the setting and 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

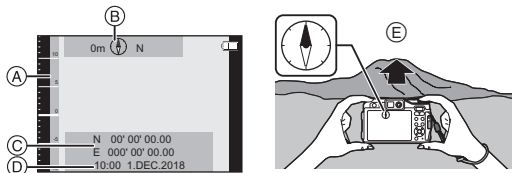
Press [↵] or press the shutter button halfway.



■ Display the compass and altimeter

The current bearing and altitude are displayed during recording, while the bearing and altitude at the time of recording are displayed during playback.

To switch the environment information screen, press **[DISP.]** several times.



(A) Altimeter

You can check the altitude of the current location.

Altimeter is not adjusted at the time of purchase.

- Displaying range is -500 m (-1640 feet) to 9000 m (29530 feet).
- The displayed altitude is a relative altitude. The altitude is a value calculated by converting an atmospheric pressure within the unit to an altitude with 0 m (0 feet) (sea level) = 1013 hPa as a reference.
- Altitude value may show errors depending on the change in atmospheric pressure compared to areas such as locations with altimeter reference signs. Adjust frequently with [Altimeter Adjust].
- For details, refer to the "Operating Instructions for advanced features (PDF format)".

(B) Compass

- 16 bearings are displayed based on the direction the lens of the camera is pointing in.
- The coloured portion of the needle points north.

(C) Location information (only during playback)

- Location information added from the smartphone is displayed. (P51)


(D) Recording date (only during playback)

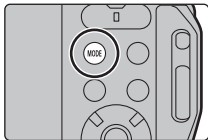
(E) North

Taking Pictures using the Automatic Function (Intelligent Auto Mode)

Recording Mode: 

In this mode, the camera makes the optimal settings for the subject and scene, so we recommend it when you wish to leave the settings to the camera and record without thinking about them.

- 1 Press [MODE].
- 2 Press $\blacktriangle/\blacktriangledown/\blacktriangleleft/\blacktriangleright$ to select , and then press [MENU/SET].











- 3 Hold the camera with the lens facing toward the subject.

- When the camera identifies the optimum scene, the icon of the scene concerned will change.
(Automatic Scene Detection)



■ Scene Detection





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 \blacksquare A].


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

When recording motion pictures

| | | |
|------|--|---|
| iA → |  [i-Portrait] |  [i-Scenery] |
| |  [i-Macro] |  [i-Low Light] |

- [iA] is set if none of the scenes are applicable, and the standard settings are set.

■ Face Detection

The Auto Focus Mode is automatically set to .



■ Flash

When [~~iA~~] is selected, [~~iA~~], [~~iA~~Ⓞ], [~~iS~~Ⓞ] or [~~iS~~] is set depending on the type of subject and brightness.

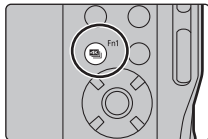
Recording 4K Photos

Applicable modes:          

The camera allows you to take burst pictures of 8 million pixels (approx.) at 30 frames/second. After taking these pictures, you can save the desired moment extracted from their burst file.


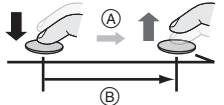


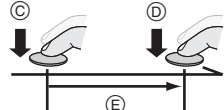

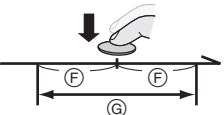
- Use a UHS Speed Class 3 card.
- The angle of view may become narrower during recording.

1 Press [].



2 Select the recording method with ◀/▶, and then press [MENU/SET].





| | | |
|---|--|---|
|  [4K Burst] | <p>For capturing the best shot of a fast-moving subject</p> <p>Burst recording is performed while the shutter button is pressed and held.</p> <p>(A) Press and hold (B) Recording is performed</p> |  |
|  [4K Burst(S/S)] "S/S" is an abbreviation of Start/Stop. | <p>For capturing unpredictable photo opportunities</p> <p>Burst recording starts when the shutter button is pressed and stops when pressed again.</p> <p>(C) Start (First) (D) Stop (Second) (E) Recording is performed</p> <p> Adding markers to select and save pictures You can add markers if you press [Fn1] during recording. (Up to 40 markers per recording) When selecting and saving pictures from a 4K burst file, you can skip to the positions where you added markers.</p> |  |
|  [4K Pre-Burst] | <p>For recording as needed whenever a photo opportunity arises</p> <p>Burst recording is performed for approximately 1 second before and after the moment that the shutter button is pressed.</p> <p>(F) Approximately 1 second (G) Recording is performed</p> |  |

3 Press the shutter button to perform recording.

- The camera will perform burst recording of a 4K photo and saves it as a 4K burst file in MP4 format.
- When [Auto Review] is enabled, the picture selection screen will be displayed automatically.

■ Cancelling 4K Photo

In step 2, select [].

- When [] ([4K Pre-Burst]) is set, the battery drains faster and the camera temperature rises. Select [] ([4K Pre-Burst]) only when recording.
- Recording stops when the continuous recording time exceeds 29 minutes and 59 seconds.

When using an SDHC memory card, you can continue the recording of a 4K photo without interruption even if the file size exceeds 4 GB, but the 4K photo will be recorded and played back in separate burst files.

With an SDXC memory card, you can save a 4K photo with a burst file size exceeding 4 GB as a single file.

Selecting pictures from 4K burst file and saving

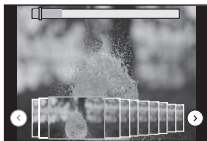
1 Select an image with the [] icon on the playback screen, and press ▲.

- The slide view screen, where you select pictures, is displayed.



2 Press ◀/▶ to select the frame to be saved as a picture.

- Select [**<**] [**>**] and press [MENU/SET] to switch to the previous or next slide view.
- Press [Fn1] to switch to marker operation. You can press ◀/▶ to skip to the next marker position. ([4K Burst(S/S)] only)
- You can also select scenes on the 4K burst playback screen by pressing [Fn2]. ([4K Burst]/[4K Burst(S/S)] only)
For details, refer to the “Operating Instructions for advanced features (PDF format)”.



3 Press [MENU/SET] to save the picture.

- The picture will be saved in JPEG format.






You can save pictures taken during a 5 second period at once by using [4K PHOTO Bulk Saving] in the [Playback] menu.

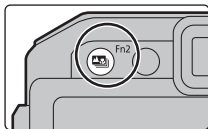
Controlling Focus After Recording (Post Focus)

Applicable modes: 

The camera allows you to take 4K burst pictures while shifting the focus to different areas. After taking these pictures, you can select the desired focus area. This function is suited for recording still objects.

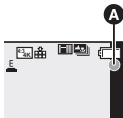
- Use a UHS Speed Class 3 card.
- The angle of view may become narrower during recording.

- 1 Press [].
- 2 Press  /  to select [ON] and press [MENU/SET].



- 3 **Decide on the composition, and press the shutter button halfway.**

- Auto Focus will detect focus areas on the screen. (Excluding the edges of the screen)
- If no areas on the screen can be brought into focus, the focus display (A) will flash. Recording is not possible in this case.



- 4 **Press the shutter button fully to start recording.**

- The focus point changes automatically while recording. When the icon (B) disappears, recording automatically ends.




From the time you press the shutter button halfway until the end of recording:

- Maintain the same distance to the subject and the same composition.
- A motion picture in MP4 format will be recorded. (Audio will not be recorded.)
- When [Auto Review] is enabled, a screen that lets you select the desired focus area will be displayed. (P39)




■ Cancelling [Post Focus]

Select [OFF] in step 2.

Selecting the desired focus area and saving a picture

- 1 **Select an image with the [] icon on the playback screen, and press **▲**.**
- 2 **Press **▲/▼/◀/▶** to select the focus area.**
 - If a picture that is in focus is not available for the selected area, a red frame will be displayed. You cannot save a picture in this case.
 - You cannot select the edges of the screen.



| Description of operation | |
|---|--|
|  | Selects a focus area. • It cannot be selected during enlarged display. |
|  | Enlarges the display. |
|  | Reduces the display (during enlarged display). |
| [Fn2] | In-focus portions are highlighted with colour. (Peaking) • Switches in order of [OFF] → [PEAK L] ([LOW]) → [PEAK H] ([HIGH]). |
| [MENU/SET] | Saves the picture. |

- You can fine-adjust the focus by pressing **◀/▶** during enlarged display.



- 3 **Press [MENU/SET] to save the picture.**
 - The picture will be saved in JPEG format.

Recording Motion Picture/4K Motion Picture

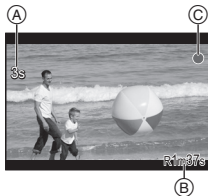
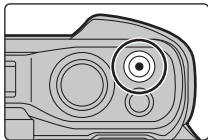
Applicable modes:          

You can record motion pictures and 4K motion pictures in MP4 recording format. Audio is recorded in stereo.

1 Start recording by pressing the motion picture button.

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

- Recording of motion picture appropriate for each mode is possible.
- The recording state indicator (red) (C) will flash while recording motion pictures.
- Release the motion picture button right after you press it.



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

- Still picture recording is also possible during the motion picture recording by fully pressing the shutter button. (Excluding during 4K motion picture recording)
- When recording motion pictures in 4K, use a card rated as UHS Speed Class 3.
- The angle of view of motion pictures in 4K is narrower than those of motion pictures in other sizes.
- To ensure highly accurate focus, 4K motion pictures are recorded at reduced Auto Focus speeds. It may be difficult to focus on the subject with Auto Focus, but this is not a malfunction.

• Continuous motion picture recordable times

| [Rec Quality] | Continuous recordable time | Size interval for dividing files |
|---------------|----------------------------|---|
| 4K | 29 minutes and 59 seconds | When an SDHC card is used: Files exceeding 4 GB in size will be divided into smaller files for recording and playback.*1 When an SDXC card is used: Files are not divided for recording. |
| FHD HD | | Files exceeding 4 GB in size will be divided into smaller files for recording and playback.*1 |

*1 You can continue recording without interruption.

■ Setting the size and recording frame rate

MENU →  [Motion Picture] → [Rec Quality]

| Item | Size | Recording frame rate | Sensor output | Bit rate |
|-----------------|-----------|----------------------|------------------|----------|
| [4K/100M/30p]*2 | 3840×2160 | 30p | 30 frames/second | 100 Mbps |
| [4K/100M/25p]*2 | 3840×2160 | 25p | 25 frames/second | 100 Mbps |
| [4K/100M/24p]*2 | 3840×2160 | 24p | 24 frames/second | 100 Mbps |
| [FHD/28M/60p] | 1920×1080 | 60p | 60 frames/second | 28 Mbps |
| [FHD/28M/50p] | 1920×1080 | 50p | 50 frames/second | 28 Mbps |
| [FHD/20M/30p] | 1920×1080 | 30p | 30 frames/second | 20 Mbps |
| [FHD/20M/25p] | 1920×1080 | 25p | 25 frames/second | 20 Mbps |
| [HD/10M/30p] | 1280×720 | 30p | 30 frames/second | 10 Mbps |
| [HD/10M/25p] | 1280×720 | 25p | 25 frames/second | 10 Mbps |

*2 4K motion picture

Recording slow motion pictures ([High Speed Video])

You can record motion pictures in approximately 1/4× slow motion by performing high-speed recording at 100 frames/second. The motion is displayed slower during playback.

- Recording will be performed at [HD/10M/25p].

1 Select the menu.

MENU →  **[Motion Picture]** → **[High Speed Video]** → **[ON]**

2 Start recording by pressing the motion picture button.

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

- Audio is not recorded.
- You can continuously record a High Speed Video up to 7 minutes and 29 seconds or the file size of 4 GB.
- Under fluorescent lighting, flicker or horizontal bars may be seen.

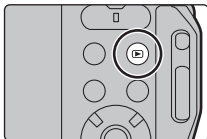
Playing Back Pictures

1 Press [▶].

2 Press ◀/▶.

◀: Play back the previous picture

▶: Play back the next picture



■ To finish playback

Press [▶] again or press the shutter button halfway.

- When the camera is turned off, press and hold [▶]. If you turn it on this way, the playback screen will be displayed automatically.

■ Playing Back Motion Pictures

This unit was designed to play motion pictures using the MP4 format.

- Motion pictures are displayed with the motion picture icon ([▶]).

Press ▲ to play back.

(A) Motion picture recording time

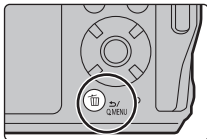


■ Deleting Pictures

Once deleted, pictures cannot be recovered.

1 In Playback Mode, select the picture to delete and then press [⏏].

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



Menu list

- The description of each menu or setting item is displayed on the menu screen.



[Rec] menu

[Photo Style]

[4K PHOTO] (P34)

[Shutter Type]

[Aspect Ratio]

[Auto Bracket]

[Red-Eye Removal]

[Picture Size]

[Self Timer]

[ISO Limit Set]

[Quality]

[i.Dynamic]

[Extended ISO]

[Sensitivity]

[i.Handheld Night Shot]

[i.Zoom]

[White Balance]

[i.HDR]

[Digital Zoom]

[AF Mode]

[HDR]

[Stabilizer]

[Metering Mode]

[Time Lapse Shot]

[Burst Rate]

[Panorama Settings]

[Motion Picture] menu

[Photo Style]

[Continuous AF]

[Digital Zoom]

[Rec Quality] (P41)

[Metering Mode]

[Wind Cut]

[High Speed Video] (P42)

[i.Dynamic]

[AF Mode]

[i.Zoom]

[Custom] menu

| | | |
|------------------|-------------------|-----------------------|
| [AF Assist Lamp] | [Rec Area] | [Fn Button Set] (P30) |
| [Histogram] | [Remaining Disp.] | |
| [Guide Line] | [Auto Review] | |

[Setup] menu

| | | |
|-------------------------|------------------------------------|------------------------|
| [Precautions] (P12) | [Beep]* | [Version Disp.] |
| [Online Manual] | [Live View Mode] | [Exposure Comp. Reset] |
| [Clock Set] (P22) | [Monitor Display]/ [Viewfinder] | [Self Timer Auto Off] |
| [World Time] | [Monitor Luminance] | [No.Reset] |
| [Wi-Fi] (P48) | [LED Light] | [Reset] |
| [Sensor Settings] (P30) | [Economy] | [Reset Wi-Fi Settings] |
| [Altimeter Adjust] | [TV Connection] | [Format] (P22) |
| [Calibrate compass] | [Language] | |

- * This allows you to set the volume for electronic sound and the electronic shutter sound.

[Playback] menu

| | | |
|------------------------|--------------------|------------|
| [Slide Show] | [Title Edit] | [Resize] |
| [Playback Mode] | [Text Stamp] | [Cropping] |
| [Location Logging] | [Video Divide] | [Protect] |
| [4K PHOTO Bulk Saving] | [Time Lapse Video] | |

What you can do with the Wi-Fi[®] function

- The camera cannot be used to connect to a public wireless LAN connection.

Controlling with a Smartphone/Tablet (P47)

- Recording with a smartphone (P49)
- Playing back or saving images stored on the camera, or uploading them on social media sites (P50)
- Writing location information on images stored in the camera (P51)

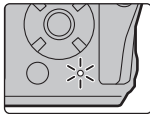


When sending images to PC

- For details, refer to the “Operating Instructions for advanced features (PDF format)”. These operating instructions refer to both smartphones and tablets as “smartphones” from this point on unless noted otherwise.

■ About the Wi-Fi connection lamp

- Lit: When the Wi-Fi function is ON or connected by Wi-Fi
- Blinking: When sending image data by operating the camera



■ About the [Wi-Fi] button

In these operating instructions, a function button to which [Wi-Fi] is assigned is referred to as the [Wi-Fi] button.


- For information about the function button, refer to P30

Controlling with a Smartphone/Tablet

Installing the smartphone/tablet app “Image App”

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

- **OS** App for Android™: Android 4.2 or higher
 App for iOS: iOS 9.0 or higher

- 1** **Connect the smartphone to a network.**
- 2** **(Android) Select “Google Play™ Store”.**
 (iOS) Select “App Store”.
- 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 May 2018 and are subject to change.
- Read the [Help] in the “Image App” menu for further details on how to operate.
- When you operate the “Image App” on the smartphone that is connected to the camera via Wi-Fi, [Help] in the “Image App” may not be displayed depending on the smartphone. In this case, after terminating the connection to the camera, reconnect the smartphone to a mobile phone network such as the 3G or LTE network or to a Wi-Fi router, and then display [Help] in the “Image App”.
- Some of the screens and information provided in these operating instructions may differ from your device depending on the supported OS and “Image App” version.
- 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

Connecting without using the password

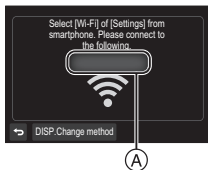
You can easily set up a direct connection to your smartphone without entering a password.

On the camera

MENU →  **[Setup]** → **[Wi-Fi]** → **[Wi-Fi Function]** → **[New Connection]** → **[Remote Shooting & View]**

Ⓐ SSID

- When the camera is ready to be connected to the smartphone, the SSID is displayed.
- You can also display the information by pressing [Wi-Fi] on the camera.



On your smartphone

- 1 Turn on the Wi-Fi function in the setting menu.
- 2 On the Wi-Fi setting screen, select the SSID displayed on the camera.
- 3 Start "Image App".
 - When the connection confirmation screen is displayed on the camera, select [Yes] to connect. (For first time connection only)



At the time of purchase, [Wi-Fi Password] is set to [OFF].


Before connecting to a Wi-Fi network, ensure that the device displayed on the connection confirmation screen is the one you actually want to connect to. When a wrong device is displayed, if you select [Yes], the camera will automatically connect to that device.

We recommend that you set [Wi-Fi Password] to [ON] if, for example, there is another Wi-Fi device nearby.

Terminating the connection

- 1 **Press any button on the camera, and press [MENU/SET].**
 - Confirmation screen is displayed. It is executed when [Yes] is selected.
- 2 **On the smartphone, close “Image App”.**

Taking images via a smartphone (remote recording)

- 1 **Connect to a smartphone. (P48)**
- 2 **Operate the smartphone.**
 - 1 Select [].
 - 2 Record an image.
 - The recorded images are saved in the camera.
 - Some settings are not available.



Playing back/saving images stored on the camera, or uploading them on social media sites

1 Connect to a smartphone. (P48)

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].

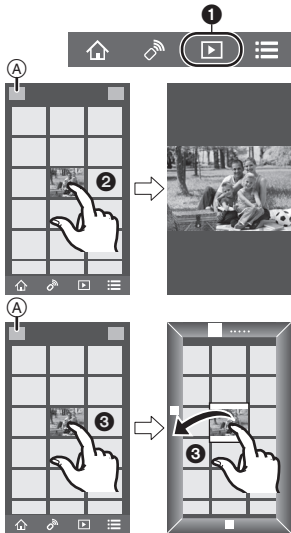
(To play back the image)

2 Touch the image to enlarge it.

(To save the image or upload it on a social media site or other web service)

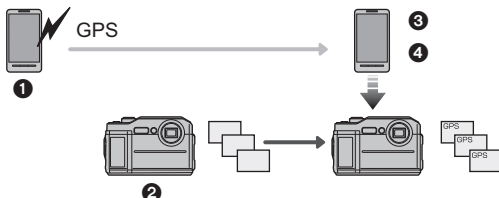
3 Touch and hold an image, and drag it to save it.

- When you play a motion picture, image quality differs from that of the actual recorded motion picture. The image quality may deteriorate or the sound may skip during motion picture or picture playback.
- You cannot save the following types of images:
 - When the MP4 motion picture size is set to [4K] in [Rec Quality]
 - 4K burst files
 - Images recorded with the Post Focus function




Adding location information to images stored in the camera from a smartphone

You can send location information acquired with a smartphone to the camera. **After sending the information, you can also write it on images stored in the camera.**





- ❶ Start recording location information
- ❷ Start recording images
- ❸ Finish recording the location information
- ❹ Sending and writing location information

■ Operate the smartphone

- 1 **Connect to a smartphone. (P48)**
- 2 **Select [].**
- 3 **Select [Geotagging].**
- 4 **Select an icon.**

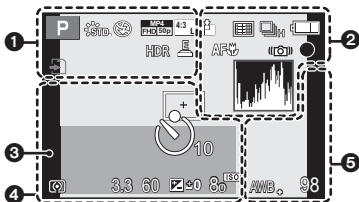


| | |
|---|---|
|  | <p>Start/stop recording location information.</p> <ul style="list-style-type: none"> • The smartphone battery drains faster while location information is being recorded. When recording of location information is not necessary, stop it. |
|  | <p>Sending and writing location information.</p> <ul style="list-style-type: none"> • Follow the on-screen messages to operate the smartphone. • Images with location information are indicated with [GPS]. |

Monitor Display/Viewfinder Display

- The descriptions in this section use the monitor screen as examples.

In recording



1

| | |
|--|---------------------------|
| | Recording Mode (P27) |
| | Photo Style |
| | Flash Mode |
| | LED light |
| | Recording quality (P41) |
| | Picture size/Aspect Ratio |

| | |
|--|--|
| | Image size (Panorama Shot Mode) |
| | Image effect (filter) adjustment display |
| | Image effect (filter) setting |
| | Card (displayed only during recording) |
| | Elapsed recording time ^{*1} (P40) |
| | Simultaneous recording indicator |
| | HDR/iHDR |
| | Electronic shutter |
| | Overheat indicator |

| | | |
|----------|--------|--|
| 2 | | Quality |
| | | AF Mode |
| | | Post Focus (P37) |
| | | Burst |
| | | 4K Photo (P34) |
| | | Auto Bracket |
| | | Self-timer |
| | | Battery indication |
| | | Macro recording |
| | 100fps | High Speed Video (P42) |
| | | Image Stabiliser |
| | | Jitter alert |
| | | Recording state (Flashes red.)/Focus (Lights green.) (P25, 40) |
| | | Focus (Under low illumination) |
| | | Connected to Wi-Fi |
| | | Histogram |

| | |
|----------|---|
| 3 | Current date and time/Travel destination setting*2: |
| | Exposure meter |
| | Zoom |

| | | |
|----------|-------------------|-----------------------------|
| 4 | | AF area |
| | + | Spot metering target |
| | | Self-timer |
| | | Metering Mode |
| | 3.3 | Aperture value (P25) |
| | 60 | Shutter speed (P25) |
| | | Exposure compensation value |
| | | Manual Exposure Assistance |
| | 80 ^{ISO} | ISO sensitivity |

| | | |
|----------|--------|----------------------------------|
| 5 | AWB | White Balance Fine Adjustment |
| | | White Balance |
| | 98 | Number of recordable pictures |
| | R8m30s | Available recording time*1 (P40) |

*1 m: minute, s: second

*2 This is displayed for about 5 seconds when the camera is turned on, after setting the clock and after switching from Playback Mode to Recording Mode.

Troubleshooting

First, try out the following procedures.

If the problem is not resolved, it may be improved by selecting [Reset] on the [Setup] menu.

- Please also refer to the “Operating Instructions for advanced features (PDF format)”, which describes more detailed information.

Multiple pictures are taken at one time.

- Is the drive mode set to a mode other than [Single]? (P26)

The subject is not focused properly.

- The subject is beyond the focus range of the camera.

The subject appears distorted on the picture.

- If you record a moving subject when using the electronic shutter or recording motion picture or a 4K photo, the subject may appear distorted on the picture. This is characteristic of MOS sensors which serve as the camera’s pickup sensors. 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 flash is not activated.

- Is the flash setting set to [☺]?
→ Change the flash setting.
- When the electronic shutter is used, the flash is not activated.
→ Set [Shutter Type] to [MSHTR]. (P44)

**A Wi-Fi connection cannot be established.
Radio waves get disconnected.
Wireless access point is not displayed.**

- 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.
- 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.

[Precautions] is displayed repeatedly whenever this unit is turned on.

- Press [MENU/SET] after viewing the last screen (12/12). For details, refer to P12.

A rattling or similar sound is heard from the camera.

- This is the sound of the lens moving and not a malfunction in the following cases:
→ A rattling sound is heard when you shake the camera while the camera is turned off or in Playback Mode.
→ A rattling or similar sound is heard when you turn on or off the camera or switch between Recording Mode and Playback Mode.

The sound from the speaker is weak. Difficult to hear the recorded sound.

- Water is left in the speaker or microphone hole. Drain the water. (P16)

The side door will not close.

- Have foreign objects become trapped?
→ Remove the foreign objects. (P13)
- When closing, do not set the [LOCK] switch to the locked side. Doing so may cause damage or leaks.
→ Release the lock. (P19)

Cannot move some parts of the camera, such as the buttons, dial, and side door.

- When using the camera in cold places such as ski resorts or places at high altitude, do not leave the camera with snow or water droplets sticking to it. Some parts of the camera may become hard to move with snow or water droplets freezing in narrow spaces, such as the gaps of the buttons, dial, and side door. This is not a malfunction. When the camera returns to normal temperature it will function as normal.
- When using the camera in places with large amounts of sand or dust, some parts of the camera may become hard to move with foreign objects getting in narrow spaces, such as the gaps of the dioptre adjustment dial, shutter button, and camera [ON/OFF] button. Wipe off with a dry, lint-free cloth or rinse with fresh water.

Specifications

Specifications are subject to change without notice.

Digital Camera:

Information for your safety

| | | |
|--------------------------------|--|---|
| Power source: | 5 V=== | |
| Power consumption: | 4.4 W (When recording with Monitor) 4.4 W (When recording with Viewfinder) 2.0 W (When playing back with Monitor) 2.0 W (When playing back with Viewfinder) | |
| Camera effective pixels | 20,400,000 pixels | |
| Image sensor | 1/2.3" MOS sensor, total pixel number 21,100,000 pixels, Primary colour filter | |
| Lens | Optical 4.6× zoom, f=4.9 mm to 22.8 mm (35 mm film camera equivalent: 28 mm to 128 mm) Wide: F3.3/F10 Tele: F5.9/F18 | |
| Image stabiliser | Optical method | |
| Focus range | Normal | 30 cm (0.98 feet) to ∞ |
| | Macro / Intelligent auto / Motion Picture | 5 cm (0.16 feet) (Wide) / 30 cm (0.98 feet) (Tele) to ∞ |
| Shutter system | Electronic shutter+Mechanical shutter | |
| Minimum illumination | Approx. 12 lx (when i-Low light is used, the shutter speed is 1/25th of a second) | |

| | |
|------------------------------|--|
| Shutter speed | Still picture: 4 seconds to 1/1300th of a second (Mechanical shutter), 1 second to 1/16000th of a second (Electronic shutter) Motion picture: 1/25th of a second to 1/16000th of a second |
| Exposure (AE) | Programme AE (P) / Manual Exposure (M) |
| Exposure compensation | 1/3 EV Step, -5 EV to +5 EV |
| Light metering mode | Multiple / Centre weighted / Spot |
| Monitor | 3.0" TFT LCD (3:2) (Approx. 1,040,000 dots) (field of view ratio about 100%) |
| Viewfinder | Live Viewfinder (4:3) (Approx. 1,170,000 dots equivalent) (field of view ratio about 100%) (Magnification approx. 2.53×, 0.45× (35 mm film camera equivalent)) (with dioptre adjustment -4 to +4 dioptre) |
| Flash | AUTO / AUTO/Red-Eye Reduction / Forced ON / Forced ON/Red-Eye Reduction / Slow Sync. / Slow Sync./Red-Eye Reduction / Forced OFF |
| Microphone | Stereo |
| Speaker | Monaural |
| Recording media | SD Memory Card / SDHC Memory Card / SDXC Memory Card • This unit is compatible with UHS-I UHS Speed Class 3 standard SDHC/SDXC memory cards. |

| | |
|------------------------------|---|
| Recording file format | |
| Still picture | JPEG (based on “Design rule for Camera File system”, based on “Exif 2.31” standard) |
| Motion picture | MP4 |
| Audio compression | AAC (2 ch) |
| Interface | |
| [HDMI] | microHDMI Type D |
| [USB/CHARGE] | USB 2.0 (High Speed) Micro-B |
| Dimensions | Approx. 116.7 mm (W)×76.1 mm (H)×37.3 mm (D) [4.59" (W)×2.99" (H)×1.46" (D)] |
| Mass | Approx. 319 g / 0.70 lb (with card and battery) Approx. 293 g / 0.65 lb (excluding card and battery) |
| Operating temperature | −10 °C* to 40 °C (14 °F* to 104 °F) * The performance of the battery (number of recordable pictures/operating time) may decrease temporarily when using in a temperature between −10 °C and 0 °C (14 °F and 32 °F) (cold places such as ski resorts or places at high altitude). |
| Operating humidity | 10%RH to 80%RH |
| Bearing sensor | 16 bearing detection |

| | |
|-------------------------------------|--|
| Altitude sensor | Convert atmospheric pressure to altitude using "ISA (International Standard Atmosphere)", accuracy: ± 25 m (82 feet) |
| Waterproof performance | Equivalent to IEC 60529 "IPX8". (Usable for 60 minutes in 31 m (102 feet) water depth) |
| Crash resistance performance | <p>The test method of the camera is in compliance with "MIL-STD 810F Method 516.5-Shock"*.</p> <p>* "MIL-STD 810F Method 516.5-Shock" is the test method standard of the U.S. Defense Department, which specifies performing drop tests from a height of 122 cm (4 feet), at 26 orientations (8 corners, 12 ridges, 6 faces) using 5 sets of devices, and passing the 26 orientation drops within 5 devices. (If failure occurs during the test, a new set is used to pass the drop orientation test within a total of 5 devices)</p> <ul style="list-style-type: none">• Panasonic's test method is based on the above "MIL-STD 810F Method 516.5-Shock". However, the drop height was changed from 122 cm (4 feet) to 200 cm (6.6 feet) dropping onto 3 cm (0.1 feet) thick plyboard. This drop test was passed. <p>(Disregarding appearance change such as loss of paint or distortion of the part where drop impact is applied.)</p> <p>There is no guarantee of not breaking or malfunctioning under all conditions.</p> |
| Withstand load performance | 100 kgf / 220.5 lbf (According to the test conditions specified by Panasonic) |
| Dustproof performance | Equivalent to IEC 60529 "IP6X". |

Wireless transmitter

| | |
|---|--|
| Compliance standard | IEEE 802.11b/g/n (standard wireless LAN protocol) |
| Frequency range used (central frequency) | 2412 MHz to 2462 MHz (1 to 11ch) |
| Encryption method | Wi-Fi compliant WPA TM / WPA2 TM |
| Access method | Infrastructure mode |

AC adaptor (Panasonic SAE0012D / SAE0012F):

Information for your safety


| | |
|-------------------------------|-----------------------------------|
| Input: | 110 V–240 V \sim 50/60 Hz 0.2 A |
| Output: | 5 V $===$ 1.0 A |
| Operating temperature: | 0 °C to 40 °C (32 °F to 104 °F) |

Battery pack (lithium-ion) (Panasonic DMW-BCM13E):

Information for your safety

| | |
|--------------------------|------------------|
| Voltage/capacity: | 3.6 V / 1250 mAh |
|--------------------------|------------------|

The symbols on this product (including the accessories) represent the following:

| | |
|---|---|
| \sim | AC |
| $===$ | DC |
|  | Class II equipment (The construction of the product is double-insulated.) |

Reading the Operating Instructions (PDF format)

More detailed operating instructions are available in “Operating Instructions for advanced features (PDF format)”. To read it, download it from the website.

DC-FT7

<http://panasonic.jp/support/dsc/oi/index.html?model=DC-FT7&dest=GA>



DC-TS7

<http://panasonic.jp/support/dsc/oi/index.html?model=DC-TS7&dest=GH>



- Click the desired language.

■ To check the URL and QR code on the camera

MENU →  **[Setup]** → **[Online Manual]**

| | |
|--------------------------|--|
| [URL display] | Displays the URL of the website on the camera's monitor. |
| [QR Code display] | Displays the QR code on the camera's monitor. |

- You will need Adobe Reader to browse or print the “Operating Instructions for advanced features (PDF format)”.

You can download and install a version of Adobe Reader that you can use with your OS from the following website. (As of May 2018)

<http://www.adobe.com/products/acrobat/readstep2.html>

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Contact Information: oss-cd-request@gg.jp.panasonic.com

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See <http://www.mpegla.com>

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Web Site: <http://www.panasonic.com>

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