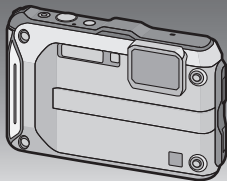# Panasonic®

Basic Owner's Manual
Digital Camera

Model No. DMC-TS4

LUMIX

Before connecting, operating or adjusting this product,
please read the instructions completely.

**More detailed instructions on the
operation of this camera are
contained in "Owner's Manual for
advanced features (PDF format)" in the supplied
CD-ROM. Install it on your PC to read it.**

SDXC

3D

VQT4D90
F0112HY0

PC

Dear Customer,

Thank you for choosing Panasonic!

You have purchased one of the most sophisticated and reliable products on the market today. Used properly, we're sure it will bring you and your family years of enjoyment. Please take time to fill in the information on the below. The serial number is on the tag located on the underside of your camera. Be sure to **retain this manual** as your convenient camera information source.

Date of Purchase	Dealer Phone No.
Dealer Purchased From	Model No.
Dealer Address	Serial No.

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 this Owner's Manual.

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 only 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
Battery Charger	Bottom

This Class B digital apparatus complies with Canadian ICES-003.

■ About the battery pack

CAUTION

Battery pack (Lithium ion battery pack)
- Use the specified unit to recharge the battery pack.
- Do not use the battery pack with equipment other than the specified unit.
- Do not get dirt, sand, liquids, or other foreign matter on the terminals.
- Do not touch the plug terminals ($+$ and $-$) with metal objects.
- Do not disassemble, remodel, heat or throw into fire.

If any electrolyte should come into contact with your hands or clothes, wash it off thoroughly with water.

If any electrolyte should come into contact with your eyes, never rub the eyes. Rinse eyes thoroughly with water, and then consult a doctor.

CAUTION
- Danger of explosion if battery is incorrectly replaced. Replace only with the type recommended by the manufacturer.
- When disposing 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 (140 °F) or incinerate.

■ About the battery charger

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.**

Battery charger
This battery charger operates on AC between 110 V and 240 V.
But
- In the U.S.A. and Canada, the battery charger must be connected to a 120 V AC power supply only.
- When connecting to an AC supply outside of the U.S.A. or Canada, use a plug adaptor to suit the AC outlet configuration.

■ Cautions for Use

- Do not use any other AV cables except the supplied one.
- Do not use any other USB connection cables except the supplied one.
- Always use a genuine Panasonic HDMI micro cable (RP-CHEU15: optional).
  Part number: RP-CHEU15 (1.5 m) (5 feet)

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 generated by microprocessors 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 (DMW-AC5PP: optional). 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.

-If you see this symbol-

Information on Disposal in other Countries outside the European Union

This symbol is only valid in the European Union.
If you wish to discard this product, please contact your local authorities or dealer and ask for the correct method of disposal.
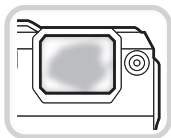
Contents

Before Use

Please be sure to read "(Important) About the Waterproof/Dustproof and Anti-shock Performance of the Camera" (P10) 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.
  - **Lens or LCD monitor may be damaged.**
  - It may cause malfunction in the performance or the function.

∎ When inner side of the lens 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 of the lens is fogged
- Turn off the power 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 10 minutes to 2 hours with the side door open when the temperature of the camera gets close to the ambient temperature.
- Contact Panasonic's Service Center if the fogging does not disappear.

Conditions in which inner side of the lens may be fogged
Condensation may occur and the inner side of the lens may be fogged when the camera is used in areas that undergo a significant change in temperature or in high humidity, such as the following:
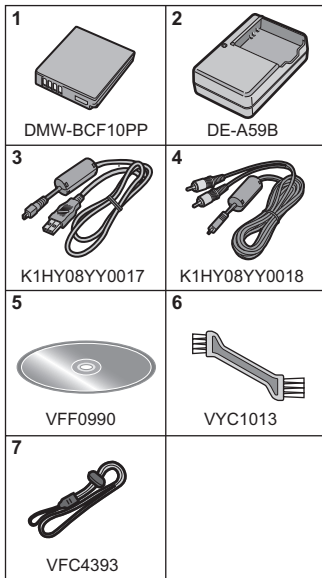- **When the camera is used underwater suddenly after being on a hot beach etc.**
- **When the camera is moved to a warm area from a cold area, such as at a ski resort or at high altitude**
- **When the side door is opened in a high-humidity environment**

Standard Accessories

Check that all the accessories are supplied before using the camera.
Product numbers correct as of January 2012. These may be subject to change.

1   Battery Pack
    (Indicated as **battery pack** or **battery** in the text)
    Charge the battery before use.
2   Battery Charger
    (Indicated as **battery charger** or **charger** in the text)
3   USB Connection Cable
4   AV Cable
5   CD-ROM
    • Software
    • Owner's Manual for advanced features
    Install on your PC before use.
6   Brush
7   Hand Strap

• Supplied accessories are not waterproof (excluding Hand Strap).
• Keep the Brush out of reach of children to prevent swallowing.
• 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.**
• For information about optional accessories, refer to the "Digital Camera Accessory System".

1	2
DMW-BCF10PP	DE-A59B
3	**4**
K1HY08YY0017	K1HY08YY0018
5	**6**
VFF0990	VYC1013
7	
VFC4393	

• If any accessories are lost, customers should contact Panasonic's parts department at 1-800-833-9626 for further information about obtaining replacement parts.

(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 12 m (40 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)

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 plyboard. This drop test was passed.

(Disregarding appearance change such as loss of paint or distortion of the part where drop impact is applied.)

■ 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's Service Center 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.
- The inside of this unit is not waterproof. Water leakage will cause malfunction.
- Supplied accessories 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 places where temperature is very low (at ski resorts or at high altitude etc.) or very high [above 40 °C (104 °F)], inside a car under strong sunlight, close to a heater, on the beach, etc. Waterproof performance may be degraded.

■ About the [Precautions] demonstration display ([Requirements for Underwater use])

- [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].**
- It will automatically skip to the clock setting screen if [No] is selected before it starts.

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.
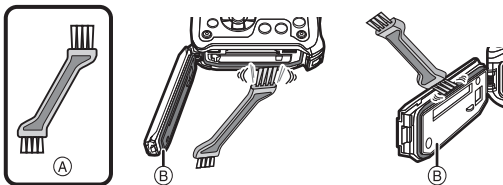
Check before using underwater

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.

1 Check that there are no foreign objects on the inner side of the side door.
   - Ⓐ Brush (supplied)
   - Ⓑ 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 there is any foreign material, remove with supplied brush.
   - Be extremely careful to remove the small sand etc. that may adhere to the sides and corners of the rubber seal.
   - Remove large foreign objects, wet sand, etc., using the shorter (harder) side of the brush.

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's Service Center for related costs and other information.
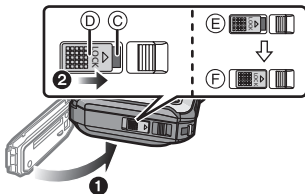
3 Close the side door securely.
   - Ⓒ Red part
   - Ⓓ [LOCK] switch (gray part)
   - Ⓔ Released state
   - Ⓕ Locked state

   - Lock the [LOCK] switch securely until the red part is no longer visible.
   - To prevent water seeping into the camera, be careful not to trap foreign objects such as liquids, sand, hair or dust, etc.

Using the camera underwater

- Use the camera underwater to 12 m (40 feet) with the water temperature between 0 °C and 40 °C (32 °F and 104 °F).
- Do not use for scuba diving (Aqualung).
- Do not use the camera at a depth of over 12 m (40 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. (Strong water pressure may be applied, and 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.
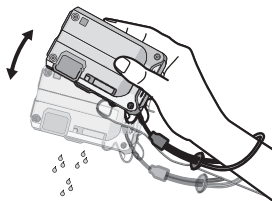
1 **Rinse with water with the side door closed.**
- After use at the seaside or underwater, soak the unit in fresh water pooled in a shallow container for 10 minutes or less.
- If the zoom button or camera [ON/OFF] button do not move smoothly, it may be caused by an adhesion of foreign objects. Using in such a state may cause malfunctions, such as locking up, so wash off any foreign objects by shaking the camera in fresh water.
- Bubbles may come out of the drainage hole when you immerse the camera in water, but this is not a malfunction.

2 **Drain water by holding the camera upside down and shaking it lightly a few times.**
   - After using the camera at the seaside or under water, or after washing it, water will remain at the speaker site of the camera for a while and it may cause lower sound or sound distortion.
   - Fasten the strap firmly to prevent the camera from dropping.

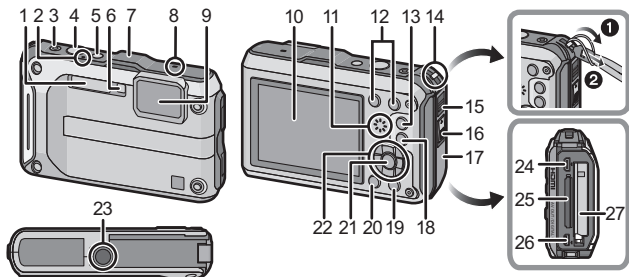3 **Wipe off water drops on the camera with a soft, dry cloth and dry the camera in a shaded area that is well ventilated.**
   - Dry the camera by standing it on a dry cloth. This unit incorporates drain design, draining water in gaps in the camera [ON/OFF] button and zoom button etc.
   - Do not dry the camera with hot air from dryer or similar. Waterproof performance will deteriorate due to deformation.
   - Do not use chemicals such as benzine, thinner, alcohol or cleanser, soap or detergents.

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.
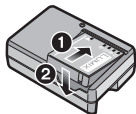
Names and Functions of Main Parts

1 Flash
2 GPS status indicator
3 Motion picture button
4 Shutter button
5 Camera [ON/OFF] button
6 Self-timer indicator/
  AF Assist Lamp/
  LED light
7 GPS antenna
8 Microphone
9 Lens
10 LCD monitor
11 Speaker
12 Zoom button
13 [▶] (Playback) button
14 Strap eyelet
  • Be sure to attach the strap when
    using the camera to ensure that you
    will not drop it.
15 Release lever
16 [LOCK] switch
17 Side door
18 [MODE] button
19 [Q.MENU]/[🗑/⤺] (Delete/Cancel)
  button

20 [DISP.] button
21 [MENU/SET] button
22 Cursor buttons
23 Tripod receptacle
24 [HDMI] socket
  • Do not connect with any cable other
    than an HDMI micro cable
    (RP-CHEU15: optional). Doing so
    may cause malfunction.
25 Card slot
26 [AV OUT/DIGITAL] socket
27 Battery slot
  • When using an AC adaptor, ensure
    that the Panasonic DC coupler
    (DMW-DCC4: optional) and AC
    adaptor (DMW-AC5PP: optional) are
    used.
  • Always use a genuine Panasonic AC
    adaptor (DMW-AC5PP: optional).

Charging the Battery
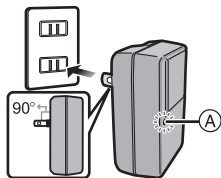
Use the dedicated charger and battery.
- **The battery is not charged when the camera is shipped. Charge the battery before use.**
- **Charge the battery with the charger indoors [10 °C to 30 °C (50 °F to 86 °F)].**

1 Attach the battery, paying attention to the direction of the battery.

2 Connect the charger to the electrical outlet.
- The [CHARGE] indicator Ⓐ lights up and charging begins.

■ About the [CHARGE] indicator

On: Charging.

Off: Charging has completed. **(Charging time: Approx. 130 min)**

■ About batteries that you can use with this unit
The battery that can be used with this unit is DMW-BCF10PP.

Inserting and Removing the Card (optional)/the Battery

- Check that this unit is turned off.
- **Confirm that there is no foreign object.**
- We recommend using a Panasonic card.

1
❶:Slide the [LOCK] switch Ⓐ, and release the lock.

❷:Slide the release lever Ⓑ and open the side door.

- **Always use genuine Panasonic batteries (DMW-BCF10PP).**
- **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 Ⓒ. Pull the lever Ⓒ 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.

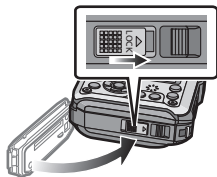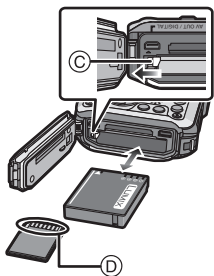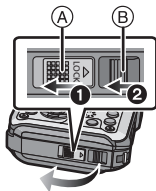Ⓓ: Do not touch the connection terminals of the card.

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

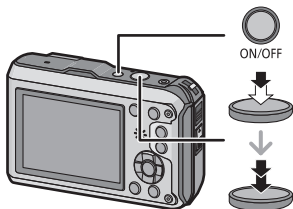- Confirm that the red part on the [LOCK] switch is not showing.

Note
- Keep the Memory Card out of reach of children to prevent swallowing.

Sequence of operations

1 **Press camera [ON/OFF] button.**
- The clock is not set when the camera is shipped. Set the date and time before using the camera.

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

∎ Selecting the Recording Mode

Press [MODE] to select the Recording Mode.

fA: Take pictures with automatic settings.

P: Take pictures with your own settings.

M: The exposure is adjusted by the aperture value and the shutter speed that are manually adjusted.

🏃: This mode is optimal for taking pictures of sporting events, etc.

❄: This mode is optimal for taking pictures that show the snow as white as possible at a ski resort or a snow-covered mountain.

🏖: This mode is optimal for taking pictures underwater and at the beach.

📷: This is optimal for taking pictures underwater deeper than 12 m (40 feet) by the use of the marine case (DMW-MCFT3: optional).

📷: Take pictures to make them look like a diorama. (also known as Tilt Shift Focus)

SCN: Take pictures according to scene.

3D: Takes a 3D picture.

∎ Recording Motion Pictures

Start recording by pressing the motion picture button.
• Stop the recording by pressing the motion picture button again.
• Maximum time to record motion pictures continuously with [GFS]/[FSH] in [AVCHD] is 29 minutes 59 seconds.
• Maximum time to record motion pictures continuously with [MP4] is 29 minutes 59 seconds. Also, motion pictures recorded continuously in [MP4] is up to 4 GB. Given this constraint, the maximum length of continuous recording in [FHD] is approximately 24 minutes 48 seconds. The maximum available recording time continuously is displayed on the screen.

∎ Setting the Menu

Press [MENU/SET] to display the menu screen to change the recording function, camera settings, and other settings.

∎ Playing Back Pictures ([Normal Play])

Press [▶].
• Press ◀ or ▶ to select the picture.

∎ Deleting Pictures

Select the picture, and then press [🗑 / ↰].
• Confirmation screen is displayed. Picture is deleted by selecting [Yes].

∎ About the [LED Light] ([Setup])

If you set to [≡🗓], and press and hold down ▶ (⚡) on the recording standby screen, the LED light will come on for 60 seconds.

Recording using the GPS function

■ About the "GPS"

GPS is an abbreviation of [Global Positioning System], which is a system that allows you to check your position utilizing GPS satellites.
Calculating the current position by receiving radio waves including orbit information and clock information from multiple GPS satellites is called positioning.
The unit can record location name information and latitude/longitude for the recorded image and automatically correct the time.

■ Receiving signals from GPS satellites

- **It is recommended to use by holding the camera still for a while at an outdoor location clear to the sky, with the antenna pointed upward.**
- Radio waves from GPS satellites cannot be received properly at the following locations, so the positioning may not be possible or a significant error may occur.
  - Indoor/underground or underwater/in the woods/traveling in a train or a car etc./close to or between buildings/close to high voltage lines/inside a tunnel/close to mobile phones working on 1.5 GHz band etc.
- Do not cover the GPS antenna with your hands etc.
- Do not carry the unit inside a metallic case or similar when positioning. Positioning is not possible when the unit is covered by metal etc.

Acquiring of the GPS information

When [GPS Setting] is set to [ON], positioning is performed at regular intervals. When the positioning is successful, location name information and latitude/longitude are acquired.
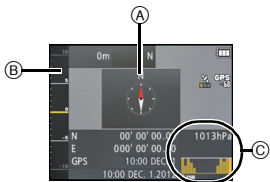
1 Press [MENU/SET].

2 Press ▲/▼/◄/► to select [GPS/Sensor] menu, and then press [MENU/SET].

3 Press ▲/▼ to select [GPS Setting], and then press [MENU/SET].

4 Press ▲/▼ to select [ON], and then press [MENU/SET].
  - Exit the menu after it is set.

■ About the Icon indicating positioning status

Positioning is performed by this unit when radio waves from 3 or more GPS satellites are received.

• The bar moves up the scale according to the number of GPS satellites from which signals are being received.
When the bar has filled the scale and positioning has been successful, the indicator goes blue.

Update the GPS information

When the displayed location name information is different from the current location or when the positioning is not successful, move to a location where the radio waves from GPS satellites can be received better and perform the positioning update.

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

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

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

• Positioning is started and the current location information is updated once the positioning is successful.

When used during overseas travel etc.
• The GPS may not operate in China or close to the Chinese border in neighbouring countries. (As of December 2011)
• The usage of GPS, etc., may be restricted depending on the country or the region. This camera has a GPS function, so check with the embassies or travel agencies etc. prior to your overseas travel regarding any restrictions on cameras with a built-in GPS function.

Sensors (compass/altimeter/barometer) are operated

The direction, altitude, and atmospheric pressure can be measured and recorded in the recorded images.

- **Information measured on this unit is only a rough indication. Do not use it for technical purposes.**
- **When using this unit for full-scale mountain climbing, trekking, or underwater, use the measured information (direction, altitude, depth, atmospheric pressure) only as a rough indication, and always carry a map and purpose-built measurement tools.**

1 Press [MENU/SET].

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

3 Press ▲/▼ to select [Sensor Settings], and then press [MENU/SET].

4 Press ▲/▼ to select [ON], and then press [MENU/SET].
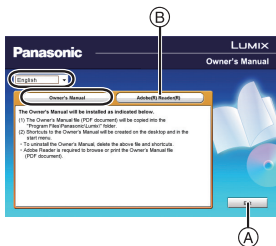- Exit the menu after it is set.
- To switch the environment information screen, press [DISP.] several times.

Ⓐ **Compass**
8 bearings are measured based on the direction the lens of the camera is pointing in.
- The colored portion of the compass needle points north.

Ⓑ **Altimeter**
You can check the altitude of the current location.
- Displaying range is −600 m (−2000 feet) to 9000 m (30000 feet).

Ⓒ **Barometer**
With the current atmospheric pressure as a reference, it is displayed on the graph within the range of −10 hPa to +10 hPa.
(Atmospheric pressure out of range cannot be displayed in details)

Restricting the GPS/sensor functions

When [GPS Setting] or [Sensor Settings] is set to [ON], the GPS and sensor continue working when the power is turned off. Set [Airplane Mode] to [ON] to prevent GPS positioning and acquisition of direction/altitude/atmospheric pressure information when the power is turned off.

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

2 **Press ▲/▼/◄/► to select [GPS/Sensor] menu, and then press [MENU/SET].**

3 **Press ▲/▼ to select [Airplane Mode], and then press [MENU/SET].**

4 **Press ▲/▼ to select [ON], and then press [MENU/SET].**
  • Exit the menu after it is set.

Note
• When both [GPS Setting] and [Sensor Settings] are set to [OFF], [Airplane Mode] is fixed to [OFF].

Reading the Owner's Manual (PDF format)

More detailed instructions on the operation of this camera are contained in "Owner's Manual for advanced features (PDF format)" in the supplied CD-ROM. Install it on your PC to read it.

■ For Windows

1 Turn the PC on and insert the CD-ROM containing the Owner's Manual (supplied).

2 Click the [Owner's Manual].

3 Select the desired language and then click [Owner's Manual] to install.

Ⓐ To return to the install menu.

4 Double-click the "Owner's Manual" shortcut icon on the desktop.

■ When the Owner's Manual (PDF format) will not open

You will need Adobe Acrobat Reader 5.0 or later, or Adobe Reader 7.0 or later to browse or print the Owner's Manual (PDF format).

Insert the CD-ROM containing the Owner's Manual (supplied), click Ⓑ and then follow the messages on the screen to install.

(Compatible OS: Windows XP SP3/Windows Vista SP2/Windows 7)

• You can download and install a version of Adobe Reader that you can use with your OS from the following website.
http://get.adobe.com/reader/otherversions/

Installing supplied software

- The supplied CD-ROM includes the following software.
  – PHOTOfunSTUDIO 8.1 AE (Windows XP/Vista/7)
  – LoiLoScope 30-day full-trial version (Windows XP/Vista/7)
    (This will only install a shortcut to the trial version download site.)
- Before inserting the CD-ROM, close all running applications.

1 **Check the environment of your PC.**

- **Operating environment of "PHOTOfunSTUDIO 8.1 AE"**
  – OS:
    Windows® XP (32bit) SP3,
    Windows Vista® (32bit) SP2,
    Windows® 7 (32bit/64bit) and SP1
  – CPU:
    Pentium® III 500 MHz or higher (Windows® XP),
    Pentium® III 800 MHz or higher (Windows Vista®),
    Pentium® III 1 GHz or higher (Windows® 7)
  – Display:
    1024×768 pixels or more (1920×1080 pixels or more recommended)
  – RAM:
    512 MB or more (Windows® XP/Windows Vista®),
    1 GB or more (Windows® 7 32bit),
    2 GB or more (Windows® 7 64bit)
  – Free hard disk space:
    450 MB or more for installing software
- Refer to the operating instructions of "PHOTOfunSTUDIO" (PDF) for further operating environment.

2 **Insert the CD-ROM with the supplied software.**

- When you insert the supplied CD-ROM, the install menu will start.

3 **Click on the [Applications] on the install menu.**

4 **Click on the [Recommended Installation].**

- Proceed with installation according to messages appearing on the screen.

 Note
- The software compatible with your PC will be installed.
- "PHOTOfunSTUDIO" is not compatible with Mac.

Specifications

Digital Camera:
Information for your safety

Power Source:	DC 5.1 V
Power Consumption:	1.4 W (When recording) 0.7 W (When playing back)

Camera effective pixels	12,100,000 pixels	
Image sensor	1/2.33″ CCD, total pixel number 12,500,000 pixels, Primary color filter	
Lens	Optical 4.6×zoom, f=4.9 mm to 22.8 mm (35 mm film camera equivalent: 28 mm to 128 mm)/F3.3 (Wide) to F5.9 (Tele)	
Image stabilizer	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 ∞
	Scene Mode	There may be differences in the above settings.
Shutter system	Electronic shutter+Mechanical shutter	
Minimum Illumination	Approx. 12 lx (when i-low light is used, the shutter speed is 1/30th of a second)	
Shutter speed	60 seconds to 1/1300th of a second	
Exposure	Program AE (P)/Manual Exposure (M)	
Metering mode	Multiple	
LCD monitor	2.7″ TFT LCD (4:3) (Approx. 230,000 dots) (field of view ratio about 100%)	
Microphone	Monaural	
Speaker	Monaural	
Recording media	Built-in Memory (Approx. 20 MB)/SD Memory Card/ SDHC Memory Card/SDXC Memory Card	

Recording file format		
	Still Picture	JPEG (based on "Design rule for Camera File system", based on "Exif 2.3" standard, DPOF corresponding)/MPO
	Motion pictures	AVCHD/MP4
Audio compression format		AVCHD: Dolby Digital MP4: AAC
Interface		
	Digital	"USB 2.0" (High Speed)
	Analog video	NTSC
	Audio	Audio line output (monaural)
Terminal		
	[AV OUT/DIGITAL]	Dedicated jack (8 pin)
	[HDMI]	MicroHDMI TypeD
Dimensions (excluding the projecting parts)		Approx. 103.5 mm (W)×64 mm (H)×26.5 mm (D) [4.07″(W)×2.52″(H)×1.04″(D)]
Mass (weight)		Approx. 197 g/0.434 lb (with card and battery) Approx. 175 g/0.386 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		8 bearing detection (with angular position correction function by the 3 axes acceleration sensor, with automatic declination correction, and with automatic offset adjustment function)
Atmospheric pressure/altitude sensor		
	Atmospheric pressure	Measurement range 300 hPa to 1100 hPa, with 24 hour memory function in 1 hPa unit (every 1.5 hours)
	Altitude	Convert atmospheric pressure to altitude using ISA [International Standard Atmosphere], accuracy: -5 m (-16 feet) to $+5$ m (16 feet)
	Depth	Displays in 3 levels [displays 0 m (0 feet) to 12 m (40 feet) in 3 levels]

GPS	Reception frequency: 1575.42 MHz (C/A code) Geographical coordinate system: WGS84
Waterproof performance	Equivalent to IEC 60529 "IPX8". [Usable for 60 minutes in 12 m (40 feet) water depth]
Crash resistance perfomance	The test method of the camera is in compliance with "MIL-STD 810F Method 516.5-Shock"$\ast$. $\ast$ "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 plyboard. This drop test was passed. (Disregarding appearance change such as loss of paint or distortion of the part where drop impact is applied.) **There is no guarantee of not breaking or malfunctioning under all conditions.**
Dustproof performance	Equivalent to IEC 60529 "IP6X".

Battery Charger (Panasonic DE-A59B):
Information for your safety

Input:	110 V to 240 V $\sim$ 50/60 Hz, 0.2 A
Output:	4.2 V $=\!=\!=$ 0.65 A
Operating temperature:	0 °C$\ast$ to 40 °C (32 °F$\ast$ to 104 °F) $\ast$ The battery cannot be recharged in a temperature less than 0 °C (32 °F). (The [CHARGE] indicator blinks when the battery cannot be recharged.)

Equipment mobility:
Movable

Battery Pack (lithium-ion) (Panasonic DMW-BCF10PP):
Information for your safety

Voltage/capacity:	3.6 V/940 mAh

Digital Camera Accessory System

Accessory#	Illustration	Description
DMW-BCF10		Battery Pack
DMW-AC5		AC Adaptor∗
DMW-DCC4		DC Coupler∗
RP-CHEU15		HDMI micro Cable
DMW-MCFT3		Marine Case
RP-SDU64GE1K RP-SDU32GU1K RP-SDU16GU1K RP-SDU08GU1K RP-SDU04GU1K		Class 10 64 GB SDXC Memory Card Class 10 32 GB SDHC Memory Card Class 10 16 GB SDHC Memory Card Class 10 8 GB SDHC Memory Card Class 10 4 GB SDHC Memory Card
RP-SDL16GU1K RP-SDL08GU1K RP-SDL04GU1K RP-SDL02GU1K		Class 4 16 GB SDHC Memory Card Class 4 8 GB SDHC Memory Card Class 4 4 GB SDHC Memory Card Class 4 2 GB SD Memory Card

Product numbers correct as of January 2012. These may be subject to change.
∗ The AC Adaptor (optional) can only be used with the designated Panasonic DC Coupler (optional). The AC adaptor (optional) cannot be used by itself.
• NOTE: Accessories and/or model numbers may vary between countries. Consult your local dealer.

Panasonic®

Printed in Japan