

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

Register online at www.panasonic.com/register (U.S. customers only)

If you have any questions, visit:
USA : www.panasonic.com/support

Panasonic Corporation of North America

Two Riverfront Plaza, Newark, NJ 07102-5490

<http://www.panasonic.com>

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More detailed owner's manual is available in "Owner's Manual for advanced features (PDF format)". To read it, download it from the website.

<http://panasonic.jp/support/dsc/oi/index.html?model=DMC-ZS45&dest=P>

Click the desired language.

You will need Adobe Reader to browse or print the Owner's Manual (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 January 2015)

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



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.



A lithium ion battery that is recyclable powers the product you have purchased. Please call 1-800-8-BATTERY for information on how to recycle this battery.

Information for Your Safety

WARNING:

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

- Do not expose this unit 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

Certification and Compliance

See Camera for the certification and compliance mark specific to that device.

- Select [Wi-Fi Setup] in the [Wi-Fi] menu.
- Press ▲/▼ to select [Approved Regulations], and then press [MENU/SET].

Contains FCC ID: 2AAD3AA2G1J1

This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.

This available scientific evidence does not show that any health problems are associated with using low power wireless devices. There is no proof, however, that these low power wireless devices are absolutely safe. Low power Wireless devices emit low levels of radio frequency energy (RF) in the microwave range while being used. Whereas high levels of RF can produce health effects (by heating issue), exposure of low-level RF that does not produce heating effects causes no known adverse health effects. Many studies of low-level RF exposures have not found any biological effects. Some studies have suggested that some biological effects might occur, but such findings have not been confirmed by additional research. DMC-ZS45 has been tested and found to comply with FCC radiation exposure limits set forth for an uncontrolled environment and meets the FCC radio frequency (RF) Exposure Guidelines in Supplement C to OET65.

FCC Note:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: To assure continued compliance, follow the attached installation instructions and use only shielded interface cables with ferrite core when connecting to computer or peripheral devices.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

Declaration of Conformity

Trade Name: Panasonic
Model No.: DMC-ZS45
Responsible Party: Panasonic Corporation of North America
Two Riverfront Plaza, Newark, NJ 07102-5490
Support Contact: <http://www.panasonic.com/contactinfo>

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.



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.

AC adaptor

This AC adaptor operates on AC between 110 V and 240 V.

But

- In the U.S.A. and Canada, the AC adaptor 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.

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 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 (140 °F) or incinerate.

Cautions for Use

- Do not use any other USB connection cables except the supplied one or a genuine Panasonic USB connection cable (DMW-USBC1; optional).
- 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)
- Do not use any other AC adaptors except the supplied one.
- Always use a genuine Panasonic AV cable (DMW-AVC1; optional).
- Always use genuine Panasonic batteries (DMW-BCM13PP).
- If you use other batteries, we cannot guarantee the quality of this product.
- Keep the Memory Card out of reach of children to prevent swallowing.

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 (supplied). Furthermore, do not subject the camera to vibration, impact or static electricity.
- The data on the built-in memory or the card may be damaged or lost due to electromagnetic waves, static electricity or breakdown of the camera or the card. We recommend storing important data on a PC etc.
- Do not format the card on your PC or other equipment. Format it on the camera only to ensure proper operation.

- The battery is not charged when the camera is shipped. Charge the battery before use.
- Charge the battery only when it is inserted in the camera.
- Do not remove or damage the external label on the battery.
- 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.

Standard Accessories

Check that all the accessories are supplied before using the camera. Product numbers correct as of January 2015. These may be subject to change.

Battery Pack (DMW-BCM13PP)	AC Adaptor (SAE0012A)
USB Connection Cable (K1HY08YY0037)	
Hand Strap (VFC4737-A)	

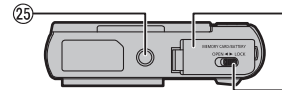
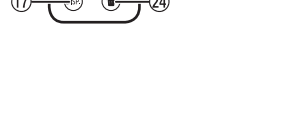
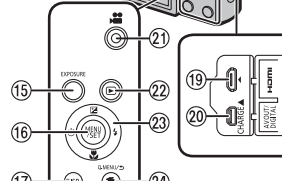
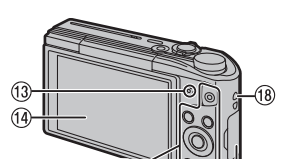
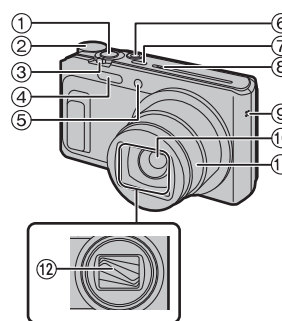
If accessories are lost, customers can visit us at www.panasonic.com/support for further information about obtaining replacement parts.

Optional Accessories

Battery Pack: DMW-BCM13
USB Connection Cable: DMW-USBC1
AV Cable: DMW-AVC1

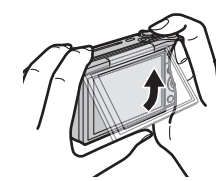
* Accessories and/or model numbers may vary between countries. Consult your local dealer.

Names of Main Parts

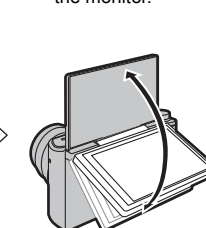


Adjusting the monitor angle

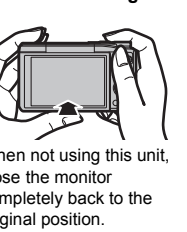
- Flip up the bottom of the monitor lightly to open.



- Adjust the angle of the monitor.



When closing

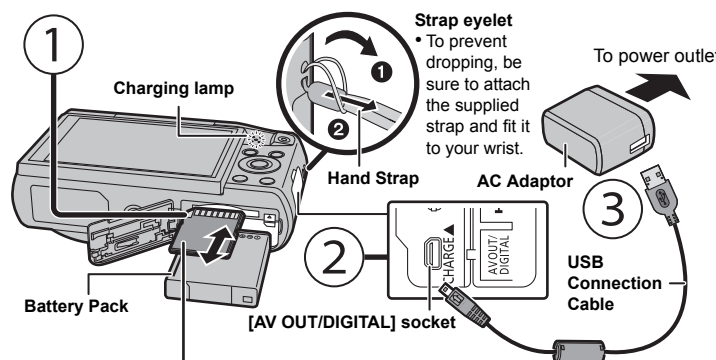


- Be careful not to catch your finger, etc. in the monitor.
- When rotating the monitor, be careful not to apply too much force or drop the camera. This may cause scratches and malfunctions.
- If the monitor is rotated as shown in the illustration, the Self Shot Mode starts.



Preparations

- Check that the camera is turned off.



SD Memory Card (optional)	• The following cards, which conform to the SD standard, can be used with this unit. (These cards are indicated as card in the text.)
SD Memory Card (8 MB to 2 GB)	
SDHC Memory Card (4 GB to 32 GB)	
SDXC Memory Card (48 GB, 64 GB)	

Charging time	Approx. 210 min
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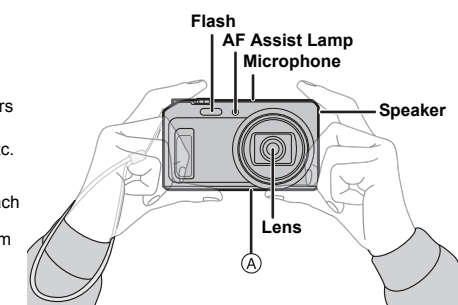
When charging is complete, the charging lamp will go off - then you may disconnect the camera from the power outlet or computer.

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.

- Be careful not to put your fingers on the flash, AF assist lamp, microphone, speaker or lens etc.

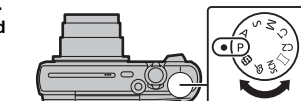
- Tripod mount
It may not be possible to attach and securely fasten a tripod with a screw length of 5.5 mm (0.22 inch) or more to the camera. Doing so may also damage the camera. It may not be possible to attach certain types of tripods properly.



Selecting the Recording Mode

Switching the mode by rotating the mode dial.

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

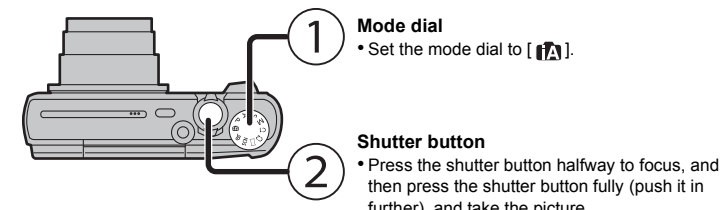


List of Recording Modes

IA Intelligent Auto Mode	The subjects are recorded using settings automatically selected by the camera.
P Program AE Mode	The subjects are recorded using your own settings.
A Aperture-Priority AE Mode	The shutter speed is automatically determined by the aperture value you set.
S Shutter-Priority AE Mode	The aperture value is automatically determined by the shutter speed you set.
M Manual Exposure Mode	The exposure is adjusted by the aperture value and the shutter speed which are manually adjusted.
C1C2 Custom Mode	Use this mode to take pictures with previously registered settings.
Panorama Shot Mode	This mode allows you to take panorama pictures. This mode allows you to select any of the 13 image effects including [Old Days], [High Key], and [Dynamic Monochrome].
SCN Scene Mode	This mode allows you to take pictures that match the scene being recorded. This mode allows you to select any of the 16 scenes including [Portrait], [Scenery], and [Starry Sky].
Creative Control Mode	Record while checking the image effect. This mode allows you to select any of the 15 image effects including [Old Days], [High Key], and [Dynamic Monochrome].

Taking pictures using the automatic function (Intelligent Auto Mode)

We recommend this mode for beginners or those who want to leave the settings to the camera and record casually.



Scene Detection

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

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

Using the Zoom

To make subjects appear further away use (Wide):
Rotate the zoom lever towards Wide.

To make subjects appear closer use (Tele):
Rotate the zoom lever towards Tele.



Optical Zoom

Zooms in without deteriorating the image quality.

Maximum magnification: 20x

Extended Optical Zoom (EZ)

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

Maximum magnification: 45x

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

Intelligent Zoom

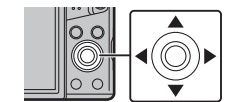
Enabled when [iZoom] in the [Rec] menu is set to [ON]. You can zoom in up to twice the original zoom magnification while minimizing the deterioration of the image quality.

Digital Zoom

This function works when [Digital Zoom] in the [Rec] menu is set to [ON]. Although the image quality deteriorates every time you zoom in further, you can zoom in up to four times the original zoom magnification.

Changing Functions and Settings

Functions and settings can be changed using ▲/▼/◀/▶ and [MENU/SET]. (Some functions and settings will not be available for selection depending on the Recording Mode.)



▲/☒	The exposure compensation or Auto Bracket setting screen is displayed. The macro setting screen is displayed.
▼/☒	[AF]([AF Macro])/[i]([Macro Zoom])/[OFF]
◀/☒	The Self-Timer setting screen is displayed. [i]([10sec.])/[i]([2sec.])/[OFF]
▶/☒	The flash setting screen is displayed. [iA]([Auto])/[iA]([iAuto])/[iA]([Auto/Red-Eye])/[i]([Forced Flash On])/[i]([Slow Sync./Red-Eye])/[i]([Forced Flash Off])
☒	The menu screen is displayed. This operation is also available during playback.

Menus convenient for taking pictures

Picture Size

A picture taken with the camera is saved as picture data of up to approximately 16 million pixels. The smaller the number of pixels is, the greater the number of recordable pictures will be.

Quality []

Save location	16 M (4:3)	3 M (4:3)	0.3 M (4:3)
Built-in Memory (Approx. 78 MB)	14	50	155
Card (8 GB)	1300	5700	15400

Quality

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

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

Sensitivity

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

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

Date Stamp

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

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

Recording Motion Pictures

This unit can record motion pictures in MP4 format.

- Mode dial**
 - You can record motion pictures fitting each Recording Mode. (Motion pictures cannot be recorded in Panorama Shot Mode.)
- Motion picture button**
 - The recording state indicator (red) will flash while recording motion pictures.
 - Stop the recording by pressing the motion picture button again.

Still pictures can be taken during motion picture recording by pressing the shutter button. (Simultaneous recording)

- Simultaneous recording is not possible in the following cases:
 - When [Rec Quality] is set to [VGA]
 - [Miniature Effect] (Creative Control Mode)

About the recording quality setting

The recording quality for motion pictures can be changed in [Rec Quality] of the [Motion Picture] menu.

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

- When recording to the built-in memory, [Rec Quality] is fixed to [VGA].
- The maximum continuous recordable time of a motion picture is 29 minutes and 59 seconds, which is equivalent to a file size of approximately 4 GB. You can check the recordable time on the screen. (With [FHD], the file size becomes larger, causing the recordable time to become shorter than 29 minutes and 59 seconds)

About zooming while recording motion pictures

- The Extended Optical Zoom and Intelligent Zoom cannot be used during the motion picture recording.
- If you use Extended Optical Zoom or Intelligent Zoom, the angle of view may change drastically when you start or finish recording a motion picture.

Playback

- [] (Playback) button**
 - Use this to play back pictures.
- Cursor buttons**
 - Use to select the picture
- [] (Delete/Cancel) button**
 - Use to delete the displayed picture

Setting the Menu

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

- Press [MENU/SET].
- Press []/ [] to select menu and then press [MENU/SET].

Menu	Description of settings
[Rec]	The menu lets you set the Coloring, Sensitivity or Number of pixels, etc. of pictures you are recording.
[Motion Picture]	This menu lets you set the setting for motion pictures such as recording quality.
[Playback Mode]	This menu lets you select the playback method. The options include slideshow playback.
[Playback]	This menu lets you make changes to the pictures taken. For example, you can set protection for the pictures taken, or crop them.
[Setup]	This menu lets you perform the clock settings, beep tone settings and other settings which make it easier for you to operate the camera.
[Wi-Fi]	This menu lets you make the settings necessary to connect to Wi-Fi or use the Wi-Fi function.

- Press []/ [] to select the menu item and then press [MENU/SET].

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

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

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

Close the menu

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

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

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

What you can do with the Wi-Fi® function

- Set the date and time settings in advance.
- The camera is not capable of connecting to a wireless network via public wireless LAN.

Controlling with a Smartphone/Tablet

- Recording images remotely with a smartphone
- Saving images stored in the camera

Install the dedicated smartphone/tablet app "Panasonic Image App"™ on your smartphone/tablet.

- OS
 - App for Android™: Android 2.3.3 or higher
 - Search the Google Play™ Store for "Panasonic Image App" or "LUMIX", and install the app.
 - App for iOS: iOS 6.0 or higher (Please note that the iPhone 3GS is not supported.)
 - Search the App Store™ for "Panasonic Image App" or "LUMIX", and install the app.
- Use the latest version.
- Supported OSs are current as of January 2015 and are subject to change.
- Read the [Help] in the "Image App" menu for further details on how to operate.
- The screen differs depending on the OS.
- The screens and procedures described from this point on are those at the time when the model first became available for purchase. The screens and procedures may change with version updates.
- Some smartphones/tablets may not work correctly. For information on the "Image App", refer to the support site below. <http://panasonic.jp/support/global/cs/dsc/>
- In this manual, the app is referred to as "Image App".

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

When sending images to PC

- Sending an image each time a recording is made
- Sending selected images

Connecting to a smartphone/tablet

Using the QR code to set up a connection (If you are using an iOS device [iPhone®/iPod touch®/iPad®])

- Press and hold [Wi-Fi].
 - The QR code will be displayed on the camera screen.
- Start "Image App" on your smartphone.
- Select [QR code], and then select [OK].
- Using "Image App", scan the QR code displayed on the screen of the camera.
- Install the profile.
 - A message will be displayed on the browser.
 - If the smartphone is locked with a passcode, enter the passcode to unlock the smartphone.

- Press the home button to close the browser.
- Turn on the Wi-Fi function in the setting menu of the smartphone.

- Select the SSID displayed on the screen of the camera.
- Return to the home screen, and then start "Image App".
 - Steps 2 through 6 are not required from the second time on.

Using the QR code to set up a connection (If you are using an Android device)

- Press and hold [Wi-Fi].
 - The QR code will be displayed on the camera screen.
- On the smartphone, start "Image App".
- Select [QR code].
- Using "Image App", scan the QR code displayed on the screen of the camera.

Entering a password to set up a connection

- Press and hold [Wi-Fi].
 - The Password will be displayed on the camera screen.
- Turn on the Wi-Fi function in the setting menu of the smartphone.
- Select the SSID displayed on the screen of the camera.
- Enter the password displayed on the screen of the camera.
 - If you are using an Android device, marking the box for password display will allow the device to display the password as you enter it.
- On the smartphone, start "Image App".

Controlling the camera with the smartphone/tablet

Recording images with the smartphone/tablet (remote recording)

- Connect to a smartphone.
- Select [] on the screen of "Image App".
 - The recorded images are saved in the camera.
 - Motion pictures cannot be recorded.

Playing back the camera's images on the smartphone/tablet

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

Saving the camera's images in the smartphone/tablet

- Connect to a smartphone.
- Select [] on the screen of "Image App".
- Touch and hold an image, and drag it to save it.

Setting up a connection to a PC

Creating a destination folder for images

You can connect the camera to a PC via a wireless access point and send pictures and motion pictures recorded with the camera to the PC.

- Create a PC user account (account name (up to 254 characters) and password (up to 32 characters)) consisting of alphanumeric characters. An attempt to create a receive folder may fail if the account includes non-alphanumeric characters.

(For Windows)

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

- Select a destination folder, then right-click.
- Select [Properties], then enable sharing of the folder.
 - For details, refer to the operating instructions of your PC or Help on the OS.

(For Mac)

Supported OS: OS X v10.5 to v10.9
Example: OS X v10.8

- Select a destination folder, then click the following items: [File] → [Get Info]
- Enable sharing of the folder.
 - For details, refer to the operating instructions of your PC or Help on the OS.

Sending images to the PC

You can send pictures and motion pictures recorded with this unit to a PC. The connection methods described in this manual are examples. For details on other connection methods, refer to "Owner's Manual for advanced features (PDF format)".

Preparations:

- If the workgroup of the destination PC has been changed from the standard setting, you also need to change the setting of this unit in [PC Connection].

- Press [Wi-Fi].

- Press []/ [] to select [New Connection], and then press [MENU/SET].
- Press []/ [] to select the sending method.

Sending an image each time you record it ([Send Images While Recording])
Available file format: JPEG

Sending selected images ([Send Images Stored in the Camera])
Available file format: JPEG/MP4

- Press []/ [] to select [PC], and then press [MENU/SET].
- Select the connection method.

Example: Selecting [WPS (Push-Button)] to set up a connection

- Press [MENU/SET].
- Select [WPS (Push-Button)].

- Press and hold the WPS button of the wireless access point until it switches to WPS mode.

- On the camera, perform the operation that matches your purpose.

[Send Images While Recording]

- Select the PC you want to connect to and the destination folder.
- Take a picture with the camera.

[Send Images Stored in the Camera]

- Select the PC you want to connect to and the destination folder.
- Select [SINGLE] or [MULTI], and then select the images you want to send.

- When the PC you want to connect to is not displayed, select [Manual Input], and enter the computer name of the PC (NetBIOS name for Apple Mac computers).

- Folders sorted by the sent date are created in the specified folder, and pictures are saved in those folders.

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

Transferring images to a PC by using the USB connection cable (supplied)

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

- [AV OUT/DIGITAL] socket
 - This socket is also used when charging the battery.
- USB Connection Cable

- Press [] to select [PC], and then press [MENU/SET].
- Drag and drop files and folders in the camera to the PC.
 - When the image transfer is complete, disconnect the USB connection cable safely.

Playback and editing on a PC

Software for image playback or editing is not supplied with this product.

- To play back or edit still pictures, use standard software.
- To play back motion pictures, use the following software:
 - QuickTime/Tunes, provided by Apple (Software supporting MP4 format is required.)
 - If software is not installed on your PC, download it from the website of the software provider.
 - For information on how to use software, contact the software provider.

Troubleshooting

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

The charging lamp blinks.

- This phenomenon occurs when charging in a location where the temperature is very high or very low.
 - Reconnect the USB connection cable (supplied) in a location where the ambient temperature (and the temperature of battery) is in a 10 °C to 30 °C (50 °F to 86 °F) range, and try charging again.

Stripping 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.

Reddish horizontal streaks appear on the monitor during recording.

- This is characteristic of MOS sensors which serve as the camera's pickup sensors. It appears when the subject has a bright part. Some unevenness may occur in the surrounding areas, but this is not a malfunction. It is recorded in still pictures or motion pictures.

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

- (General tips for using a Wi-Fi connection)
 - Try [Reset Wi-Fi Settings] in the [Setup] menu.
 - Use within the communication range of the device to be connected.
 - Is any device, such as microwave oven, cordless phone, etc., that uses 2.4 GHz frequency operated nearby?
 - Radio waves may get interrupted when used simultaneously. Use them sufficiently away from the device.
 - When the battery indicator is flashing red, the connection with other equipment may not start or the connection may be disrupted. (A message such as [Communication error] is displayed.)
 - If you place the camera on a metal table or shelf, the radio waves may be adversely affected. In such cases, you may not be able to establish a connection. Move the camera away from the metal surface.

(About a wireless access point)

- Check if the wireless access point to connect is in operating state.
- The camera may not display or connect to a wireless access point depending on the radio wave condition.
 - Move this unit closer to the wireless access point.
 - Remove the obstacles between this unit and the wireless access point.
 - Change the direction of this unit.
 - Change the location and orientation of the wireless access point.
 - Perform the [Manual Input].
- It may not display even if the radio waves exist depending on the setting of the wireless access point.
 - Check the settings of the wireless access point.
 - When the network SSID of the wireless access point is set not to broadcast, the wireless access point may not be detected. Enter the network SSID to start the connection or enable the SSID broadcast of the wireless access point.
- Connection types and security setting methods are different depending on the wireless access point. (Refer to the operating instructions of the wireless access point.)
- Is the 5 GHz/2.4 GHz switchable wireless access point connected to other equipment using the 5 GHz band?
 - The use of a wireless access point that can use 5 GHz/2.4 GHz simultaneously is recommended. It cannot be used simultaneously with this camera if it is not compatible.

It takes long time every time to connect to a smartphone.

- It may take longer time to connect depending on the Wi-Fi connection setting of the smartphone, but it is not a malfunction.

Transmission of the image fails midway.

- Is the size of the image too large?
 - Reduce the size of the still picture, then transmit.
 - Image cannot be transmitted when the battery indicator is flashing red.

Please refer to "Owner's Manual for advanced features (PDF format)" for details.

Specifications

Specifications are subject to change without notice.

Digital Camera: Information for your safety

Power Source:	DC 5 V (==5 V)
Power Consumption:	1.5 W (When recording) 1.0 W (When playing back)
Camera effective pixels	16,000,000 pixels
Image sensor	1/2.33" MOS sensor, total pixel number 17,500,000 pixels, Primary color filter
Lens	Optical 20× zoom, f=4.3 mm to 86.0 mm (35 mm film camera equivalent: 24 mm to 480 mm) Wide: F3.3 to F8.0 Tele: F6.4 to F8.0
Image stabilizer	Optical method
Focus range	Normal 50 cm (1.6 feet) (Wide)/2.0 m (6.6 feet) (Tele) to ∞ Macro/ Intelligent auto/ Motion picture 3 cm (0.098 feet) (Wide)/1.0 m (3.3 feet) (Tele) to ∞ Scene Mode [5× to 8× is 2.0 m (6.6 feet) to ∞]
Shutter system	Electronic shutter+Mechanical shutter

Minimum Illumination	Approx. 10 lx (when low light is used, the shutter speed is 1/30th of a second)
Shutter speed	4 seconds to 1/2000th of a second (Starry Sky) Mode: 15 seconds, 30 seconds
Exposure (AE)	Program AE (P)/Aperture-Priority AE (A)/ Shutter-Priority AE (S)/Manual Exposure (M)
Metering mode	Multiple/Center weighted/Spot
Monitor	3.0" TFT LCD (3:2) (Approx. 1,040,000 dots) (field of view ratio about 100%)
Microphone	Monaural
Speaker	Monaural
Recording media	Built-in Memory (Approx. 78 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
Motion pictures	MP4
Audio compression format	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 type D
Dimensions (excluding the projecting parts)	Approx. 107.9 mm (W)×59.9 mm (H)×32.1 mm (D) [4.25"(W)×2.36"(H)×1.26"(D)]
Mass (weight)	Approx. 249 g/0.55 lb (with card and battery) Approx. 223 g/0.49 lb (excluding card and battery)
Operating temperature	0 °C to 40 °C (32 °F to 104 °F)
Operating humidity	10%RH to 80%RH
Language select	[ENGLISH]/[ESPAÑOL]

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™/WPA2™
Access method	Infrastructure mode

AC Adaptor (Panasonic SAE0012A):

Input:	110 V~240 V ~ 50/60 Hz 0.2 A
Output:	5 V== 1.0 A

Battery Pack (lithium-ion) (Panasonic DMW-BCM13PP):

Voltage/capacity:	3.6 V/1250 mAh
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The symbols on this product (including the accessories) represent the following:

~	AC
==	DC
□	Class II equipment (The construction of the product is double-insulated.)

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(1) the software developed independently by or for Panasonic Corporation,
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