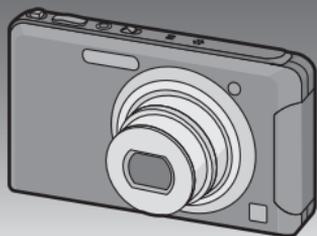# Panasonic®

Basic Operating Instructions
Digital Camera

Model No. DMC-FX90

LUMIX

Before use, please read these instructions completely.

SD XC

3D

b g Wi Fi n
CERTIFIED®

WI-FI PROTECTED SETUP

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

Web Site: http://www.panasonic-europe.com

Model number suffix "EB" denotes UK model.

EB

VQT3S34

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 EXPOSE THIS APPARATUS TO RAIN, MOISTURE, DRIPPING OR SPLASHING AND THAT NO OBJECTS FILLED WITH LIQUIDS, SUCH AS VASES, SHALL BE PLACED ON THE APPARATUS.**
• **USE ONLY THE RECOMMENDED ACCESSORIES.**
• **DO NOT REMOVE THE COVER (OR BACK); THERE ARE NO USER SERVICEABLE PARTS INSIDE. 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

Caution for AC mains lead

For your safety, please read the following text carefully.

This appliance is supplied with a moulded three pin mains plug for your safety and convenience.
A 5-ampere fuse is fitted in this plug.
Should the fuse need to be replaced please ensure that the replacement fuse has a rating of 5-ampere and that it is approved by ASTA or BSI to BS1362.
Check for the ASTA mark ⦸ or the BSI mark ▽ on the body of the fuse.

If the plug contains a removable fuse cover you must ensure that it is refitted when the fuse is replaced.
If you lose the fuse cover the plug must not be used until a replacement cover is obtained.
A replacement fuse cover can be purchased from your local dealer.

CAUTION!
IF THE FITTED MOULDED PLUG IS UNSUITABLE FOR THE SOCKET OUTLET IN YOUR HOME THEN THE FUSE SHOULD BE REMOVED AND THE PLUG CUT OFF AND DISPOSED OF SAFELY.
THERE IS A DANGER OF SEVERE ELECTRICAL SHOCK IF THE CUT OFF PLUG IS INSERTED INTO ANY 13-AMPERE SOCKET.

If a new plug is to be fitted please observe the wiring code as stated below.
If in any doubt please consult a qualified electrician.

■ IMPORTANT

The wires in this mains lead are coloured in accordance with the following code:
Blue: Neutral, Brown: Live.
As these colours may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:
The wire which is coloured Blue must be connected to the terminal which is marked with the letter N or coloured Black or Blue.
The wire which is coloured Brown must be connected to the terminal which is marked with the letter L or coloured Brown or Red.

WARNING: DO NOT CONNECT EITHER WIRE TO THE EARTH TERMINAL WHICH IS MARKED WITH THE LETTER E, BY THE EARTH SYMBOL ⏚ OR COLOURED GREEN OR GREEN/YELLOW.

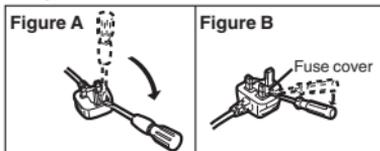**THIS PLUG IS NOT WATERPROOF-KEEP DRY.**

■ Before use

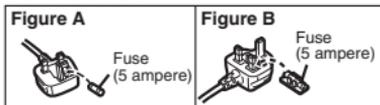Remove the connector cover.

■ How to replace the fuse

The location of the fuse differ according to the type of AC mains plug (figures A and B). Confirm the AC mains plug fitted and follow the instructions below.
Illustrations may differ from actual AC mains plug.
1. Open the fuse cover with a screwdriver.

Figure A	Figure B
	Fuse cover

2. Replace the fuse and close or attach the fuse cover.

Figure A	Figure B
Fuse (5 ampere)	Fuse (5 ampere)

Certification and Compliance
See Camera for the certification and compliance mark specific to that device. To view, choose

[[▶]] in Recording Mode → [[MENU]] → [[📶]] ([Wi-Fi Setup]) →

[Manual Setup] → [[📋]] ([Approved Regulations])

CE 1731 ①

Declaration of Conformity (DoC)
Hereby, *"Panasonic Corporation"* declares that this product is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.
Customers can download a copy of the original DoC to our R&TTE products from our DoC server:
http://www.doc.panasonic.de
Contact to Authorized Representative:
Panasonic Marketing Europe GmbH, Panasonic Testing Centre, Winsbergring 15, 22525 Hamburg, Germany

This product is intended to be used in the following countries.
Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, United Kingdom, Switzerland

In France, this equipment may only be used indoors.

This product is intended for general consumer. (Category 3)
This product on purpose to connect to access point of 2.4 GHz WLAN.

■ **About the battery pack**

CAUTION
Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

• Do not heat or expose to flame.
• Do not leave the battery(ies) in an automobile 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 battery charger**

CAUTION!
• **DO NOT INSTALL OR PLACE THIS UNIT IN A BOOKCASE, BUILT-IN CABINET OR IN ANOTHER CONFINED SPACE. ENSURE THE UNIT IS WELL VENTILATED. TO PREVENT RISK OF ELECTRIC SHOCK OR FIRE HAZARD DUE TO OVERHEATING, ENSURE THAT CURTAINS AND ANY OTHER MATERIALS DO NOT OBSTRUCT THE VENTILATION VENTS.**
• **DO NOT OBSTRUCT THE UNIT'S VENTILATION OPENINGS WITH NEWSPAPERS, TABLECLOTHS, CURTAINS, AND SIMILAR ITEMS.**
• **DO NOT PLACE SOURCES OF NAKED FLAMES, SUCH AS LIGHTED CANDLES, ON THE UNIT.**
• **DISPOSE OF BATTERIES IN AN ENVIRONMENTALLY FRIENDLY MANNER.**

• The battery charger is in the standby condition when the AC power supply cord is connected. The primary circuit is always "live" as long as the power cord is connected to an electrical outlet.

∎ **Cautions for Use**
• Always use a genuine Panasonic AV cable (DMW-AVC1; optional).
• Always use a genuine Panasonic HDMI micro cable (RP-CHEU15; optional).
 Part numbers: RP-CHEU15 (1.5 m) (5 feet)
• Do not use any other USB connection cables except the supplied one.

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-AC5E; 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.

Information for Users on Collection and Disposal of Old Equipment and used Batteries

These symbols on the products, packaging, and/or accompanying documents mean that used electrical and electronic products and batteries should not be mixed with general household waste.

For proper treatment, recovery and recycling of old products and used batteries, please take them to applicable collection points, in accordance with your national legislation and the Directives 2002/96/EC and 2006/66/EC.

By disposing of these products and batteries correctly, you will help to save valuable resources and prevent any potential negative effects on human health and the environment which could otherwise arise from inappropriate waste handling.

For more information about collection and recycling of old products and batteries, please contact your local municipality, your waste disposal service or the point of sale where you purchased the items.

Penalties may be applicable for incorrect disposal of this waste, in accordance with national legislation.

For business users in the European Union
If you wish to discard electrical and electronic equipment, please contact your dealer or supplier for further information.

[Information on Disposal in other Countries outside the European Union]
These symbols are only valid in the European Union. If you wish to discard these items, please contact your local authorities or dealer and ask for the correct method of disposal.

Note for the battery symbol (bottom two symbol examples):
This symbol might be used in combination with a chemical symbol. In this case it complies with the requirement set by the Directive for the chemical involved.

Contents

The camera has wireless LAN (Wi-Fi®), so sharing still pictures and motion pictures is easy.

AV device

You can send images to AV device at home or outdoors, so you can enjoy watching them with your family or show them to family and friends who are elsewhere.

∗ For models that support this function, please see the following support site.
http://panasonic.jp/support/global/cs/dsc/
(This Site is English only.)

Smartphone

Even in places with no wireless access points (broadband router), such as when outdoors, you can instantly copy images to your smartphone and enjoy viewing them on it.

∗ The smartphone application "LUMIX LINK" is required.

You need a smartphone or a wireless access point (broadband router) in order to connect to wireless LAN. Please read the "Easy connection setup guide" for connections and settings.

WEB service

You can instantly upload still pictures or motion pictures to WEB services such as Facebook, and YouTube, etc.

∗ For supported WEB services, go to the "FAQ/Contact us" on the following site.
http://lumixclub.panasonic.net/eng/c/

PC

You can copy only the images you select even if you leave your computer.

∗ The "PHOTOfunSTUDIO 6.4 HD Lite Edition with Wi-Fi" software on the CD-ROM (supplied) must be installed.

■ **Instantly send images displayed on the screen**

Press [Wi-Fi] button.

• Please read "Operating Instructions for advanced features (PDF format)" for the method of sending.

■ **You can send multiple images**

Touch [🛜].

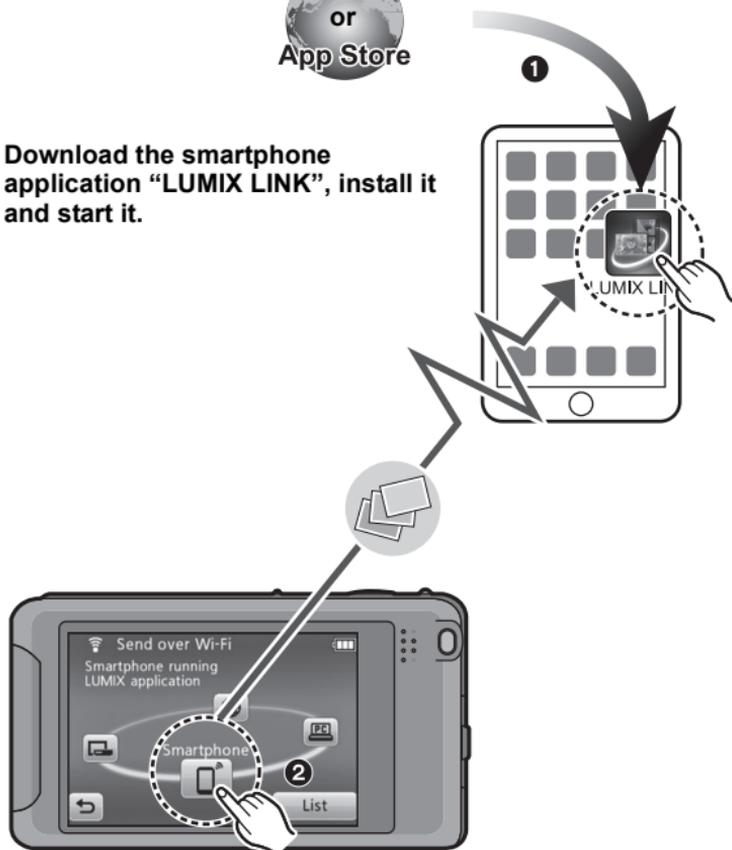• Please read "Operating Instructions for advanced features (PDF format)" for the method of sending.

📖 Note

• Images may contain information such as a title, the time and date when the picture was taken, and the location where the picture was taken on a camera with a GPS function. Please carefully check these before uploading images to WEB services.

■ You can send images to smartphone

Android Market or **App Store**

❶ Download the smartphone application "LUMIX LINK", install it and start it.

Send over Wi-Fi
Smartphone running LUMIX application

Smartphone

List

❷ Carry out the operation to send the image to the smartphone.
• This will make the connection to the smartphone and send the image.

Care of the camera

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

- The lens, LCD monitor, or external case may be damaged if used in following conditions.
  It may also malfunction or image may not be recorded.
  – Drop or hit the camera.
  – Sit down with the camera in your trousers pocket or forcefully insert it into a full or tight bag, etc.
  – Attach any items such as accessories to the strap attached to the camera.
  – Press hard on the lens or the LCD monitor.

This camera is not dust/splash/water proof.
Avoid using the camera at location with a lot of dust, water, sand, etc.

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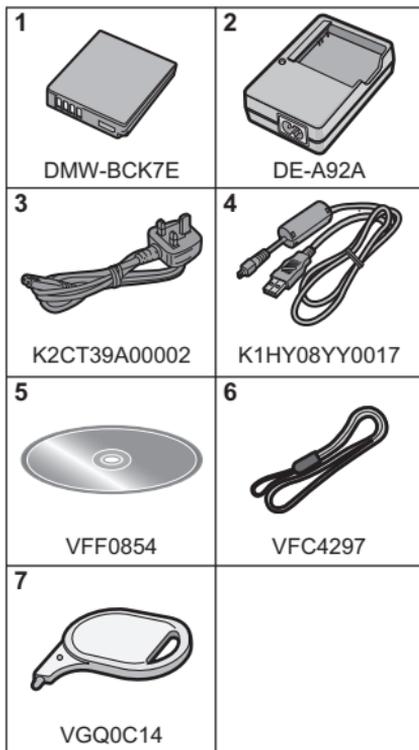
Accessories

Check that all the accessories are supplied before using the camera.
Product numbers correct as of August 2011. 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 AC Mains Lead
4 USB Connection Cable
5 CD-ROM
   • Software:
     Use it to install the software to your PC.
   • Operating Instructions
6 Hand Strap
7 Stylus Pen

• 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.
• Consult the dealer or your nearest Service Centre if you lose the supplied accessories. (You can purchase the accessories separately.)

1	2
DMW-BCK7E	DE-A92A
3	**4**
K2CT39A00002	K1HY08YY0017
5	**6**
VFF0854	VFC4297
7	
VGQ0C14	

Sales and Support Information

Customer Communications Centre
- For customers within the UK: 0844 844 3899
- For customers within Ireland: 01 289 8333
- For further support on your product, please visit our website:
  www.panasonic.co.uk

Direct Sales at Panasonic UK
- Order accessory and consumable items for your product with ease and confidence by phoning our Customer Communications Centre Monday – Thursday 9:00 a.m. – 5:30 p.m., Friday 9:30 a.m. – 5:30 p.m. (Excluding public holidays)
- Or go on line through our Internet Accessory ordering application at www.pas-europe.com.
- Most major credit and debit cards accepted.
- All enquiries transactions and distribution facilities are provided directly by Panasonic UK.
- It couldn't be simpler!
- Also available through our Internet is direct shopping for a wide range of finished products. Take a browse on our website for further details.
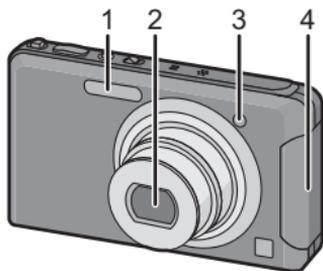
■ Optional Accessories

Battery Pack	DMW-BCK7
AV Cable	DMW-AVC1
HDMI micro cable	RP-CHEU15
Class 10 64 GB SDXC Memory Card	RP-SDU64GE1K
Class 10 32 GB SDHC Memory Card	RP-SDA32GE1K/RP-SDU32GE1K
Class 10 16 GB SDHC Memory Card	RP-SDA16GE1K/RP-SDU16GE1K
Class 10 8 GB SDHC Memory Card	RP-SDA08GE1K/RP-SDU08GE1K
Class 10 4 GB SDHC Memory Card	RP-SDU04GE1K
Class 6 32 GB SDHC Memory Card	RP-SDQ32GE1K
Class 6 16 GB SDHC Memory Card	RP-SDQ16GE1K
Class 6 8 GB SDHC Memory Card	RP-SDQ08GE1K
Class 6 4 GB SDHC Memory Card	RP-SDQ04GE1K
Class 4 16 GB SDHC Memory Card	RP-SDN16GE1A
Class 4 8 GB SDHC Memory Card	RP-SDN08GE1A
Class 4 4 GB SDHC Memory Card	RP-SDN04GE1A
Class 4 2 GB SD Memory Card	RP-SDL02GE1K/RP-SDN02GE1A

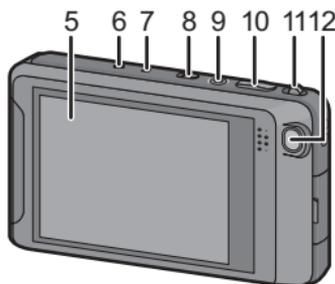Some optional accessories may not be available in some countries.

Names and Functions of Main Parts

1 Flash
2 Lens
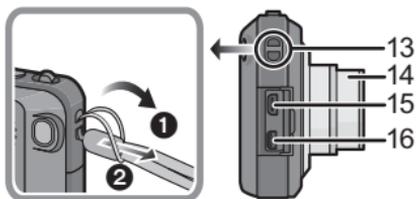3 Self-timer indicator
  AF Assist Lamp
4 Wi-Fi® Transmitter

5 Touch panel/LCD monitor
6 Speaker
7 Microphone
8 Camera ON/OFF switch
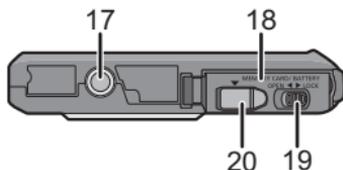9 Motion picture button
10 Shutter button
11 Zoom lever
12 [Wi-Fi] button

13 Strap eyelet
   • Be sure to attach the strap when using the camera to ensure that you will not drop it.
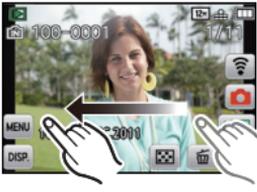14 Lens barrel
15 [HDMI] socket
16 [AV OUT/DIGITAL] socket

17 Tripod receptacle
18 Card/Battery door
19 Release lever

20 DC coupler cover
   • When using an AC adaptor, ensure that the Panasonic DC coupler (DMW-DCC10; For shop display purpose only) and AC adaptor (DMW-AC5E; optional) are used.
   • Always use a genuine Panasonic AC adaptor (DMW-AC5E; optional).
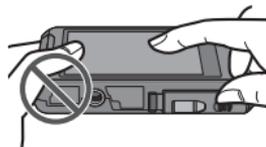   • When using an AC adaptor, use the AC mains lead supplied with the AC adaptor.

How to Use the Touch Panel

This touch panel is a type that detects pressure.

Touch the screen	**Drag**
To touch and release the touch panel.	A movement without releasing the touch panel.
Use this to perform tasks such as selecting icons or images displayed on the touch panel. • It may not operate properly when multiple icons are touched simultaneously, so try to touch the centre of the icon.	This is used when performing tasks such as moving to the next image by dragging horizontally, or changing the range of the displayed image. This can also be used to perform tasks such as switching the screen by operating the slide bar.

Note

• If you use a commercially available liquid crystal protection sheet, please follow the instructions that accompany the sheet. (Some liquid crystal protection sheets may impair visibility or operability.)
• **Apply a little extra pressure** when touching if you have a commercially available protection sheet affixed or if you feel it is not responding well.
• Touch panel will not operate properly when the hand holding this unit is pressing on the touch panel.
• Do not press using anything with a sharp tip or anything hard, except for the supplied stylus pen.
• Do not operate with your fingernails.
• Do not scratch or press the LCD monitor too hard.
• Wipe the LCD monitor with dry soft cloth when it gets dirty with finger prints and others.

Charging the Battery

■ **About batteries that you can use with this unit**
The battery that can be used with this unit is DMW-BCK7E.

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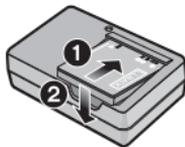
• Use the dedicated charger and battery.

Charging

• The battery is not charged when the camera is shipped. Charge the battery before use.
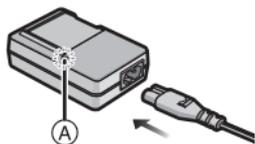• Charge the battery with the charger indoors.

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

2 **Connect the AC mains lead.**

• The [CHARGE] indicator Ⓐ lights up and charging begins.

∎ About the [CHARGE] indicator

The [CHARGE] indicator turns on:
The [CHARGE] indicator is turned on during charging.

The [CHARGE] indicator turns off:
The [CHARGE] indicator will turn off once the charging has completed without any problem. (Disconnect the charger from the electrical socket and detach the battery after charging is completed.)

• **When the [CHARGE] indicator flashes**
  – The battery temperature is too high or too low. It is recommended to charge the battery again in an ambient temperature of between 10 °C and 30 °C (50 °F and 86 °F).
  – The terminals of the charger or the battery are dirty. In this case, wipe them with a dry cloth.

∎ Charging time

Charging time	Approx. 120 min

Approximate operating time and number of recordable pictures

Number of recordable pictures	Approx. 200 pictures
Recording time	Approx. 100 min

Recording conditions by CIPA standard
• CIPA is an abbreviation of [Camera & Imaging Products Association].
• Normal Picture Mode
• Temperature: 23 °C (73.4 °F)/Humidity: 50%RH when LCD monitor is on.
• Using a Panasonic SD Memory Card (32 MB).
• Using the supplied battery.
• Starting recording 30 seconds after the camera is turned on. (When the Optical Image Stabilizer function is set to [On].)
• **Recording once every 30 seconds** with full flash every second recording.
• Changing the zoom magnification from Tele to Wide or vice versa in every recording.
• Turning the camera off every 10 recordings and leaving it until the temperature of the battery decreases.

Playback time	Approx. 150 min

About the Built-in Memory/the Card

Built-in Memory

- **Memory size: Approx. 70 MB**
- The access time for the built-in memory may be longer than the access time for a card.

Card

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

	Remarks
SD Memory Card (8 MB to 2 GB)	• **Use a card with SD Speed Class✳ with "Class 4" or higher when recording motion pictures.**
SDHC Memory Card (4 GB to 32 GB)	• SDHC Memory Card can be used with SDHC Memory Card or SDXC Memory Card compatible equipment. • SDXC Memory Card can only be used with SDXC Memory Card compatible equipment.
SDXC Memory Card (48 GB, 64 GB)	• Check that the PC and other equipment are compatible when using the SDXC Memory Cards. **http://panasonic.net/avc/sdcard/information/SDXC.html** • Only the cards with capacity listed left can be used.

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

e.g.:

CLASS④   ④

- Please confirm the latest information on the following website.
  http://panasonic.jp/support/global/cs/dsc/
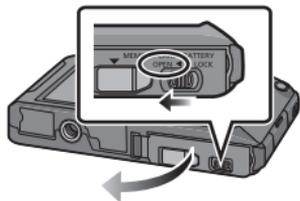 (This Site is English only.)

📖 Note

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

Inserting and Removing the Card (optional)/the Battery

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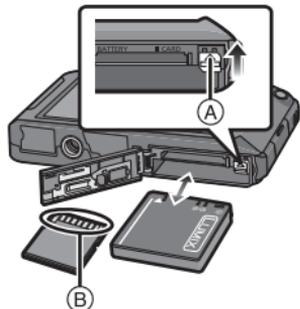• We recommend using a Panasonic card.

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

- **Always use genuine Panasonic batteries (DMW-BCK7E).**
- **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 Ⓐ.**
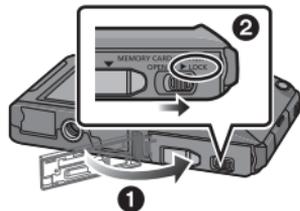**Pull the lever Ⓐ in the direction of the arrow to remove the battery.**

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.

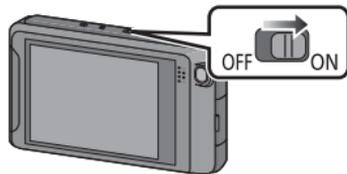3 ❶:**Close the card/battery door.**
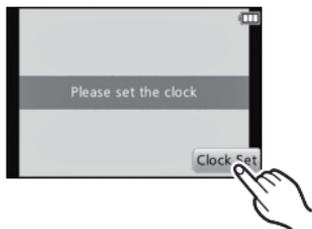
❷:**Slide the release lever in the direction of the arrow.**

Setting Date/Time (Clock Set)

• **The clock is not set when the camera is shipped.**

1 Turn the camera on.

2 Touch [Clock Set].

Please set the clock

Clock Set

3 Touch the items you wish to set (Year/Month/Day/Hours/Minutes), and set using [▲]/[▼].

• Touch [⤺] to cancel the date and time settings without setting a date and time.

4 Touch [Set] to set.

5 Touch [Set] in the confirmation screen.

Changing the Clock Setting

Select [Clock Set] in the [Rec] or [Setup] menu.

• The clock can be reset as shown in steps **3** and **4**.

Selecting the [Rec] Mode

1 In Recording Mode touch [◀ ▢].

2 Touch the Recording Mode icon.

■ **List of [Rec] Modes**

▢	**Normal Picture Mode**
The subjects are recorded using your own settings.	
🄐	**Intelligent Auto Mode**
The subjects are recorded using settings automatically selected by the camera.	
SCN	**Scene Mode**
This allows you to take pictures that match the scene being recorded.	
3D	**3D Photo Mode**
Takes a 3D picture.	
🅢	**Cosmetic Mode**
Takes a picture adjusting the skin texture.	

[Rec] Mode: 🄸🄰

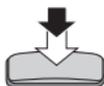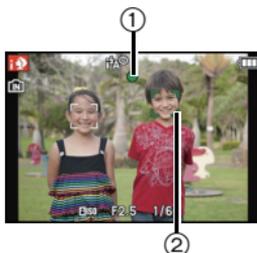# Taking Pictures Using the Automatic Function (Intelligent Auto Mode)

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

1 **In Recording Mode touch [🔘].**

2 **Touch [🄸🄰].**

3 **Press the shutter button halfway to focus.**

- The focus indication ① (green) lights when the subject is focused.
- The AF area ② is displayed around the subject's face by the Face Detection function. In other cases, it is displayed at the point on the subject which is in focus.

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

Applicable modes: 🅸🅰 🄾 🆂🄲🄽 3D 🅖

Recording Motion Pictures

1 **Start recording by pressing the motion picture button.**

- Ⓐ Available recording time
- Ⓑ Elapsed recording time
- You can record motion pictures fitting each Recording Mode.
- Release the motion picture button right after you press it.
- The recording state indicator (red) Ⓒ will flash while recording motion pictures.

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

Note
- Maximum time to record motion pictures continuously with [AVCHD] is 29 minutes 59 seconds.
- Maximum time to record motion pictures continuously with [MP4] is 29 minutes 59 seconds. Also, motion picture recorded continuously in [MP4] is up to 4 GB. The maximum available recording time continuously is displayed on the screen.

Playing Back Pictures ([Normal Play])
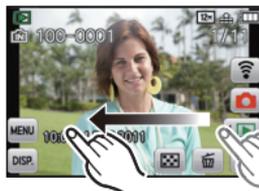
1 **In Recording Mode touch [▶].**
- The display switches to normal playback.

2 **Drag the screen horizontally.**
- After selecting the motion picture, touch [▶] to start playback.
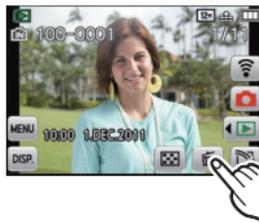
Deleting Pictures

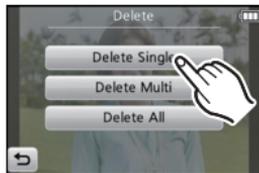**Once deleted, pictures cannot be recovered.**
- Pictures on the built-in memory or the card, that are being played back will be deleted.

1 **In Playback Mode, select the picture to delete and touch [🗑].**

2 **Touch [Delete Single].**
- Confirmation screen is displayed. Picture is deleted by selecting [Yes].

Delete Single
Delete Multi
Delete All

Setting the Menu

Example: In the [Rec] menu, change [AF Mode] from [[■]] (1-area-focusing) to [[😊]] (Face Detection)

1 **Touch [MENU].**

2 **Touch the menu icon.**

3 **Touch the menu item.**

4 **Touch the Settings.**

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

■ **Close the menu**
Touch [5] several times or press the shutter button halfway.

About the supplied software

The supplied CD-ROM includes the following software.
Install the software on to your computer before use.

- **PHOTOfunSTUDIO 6.4 HD Lite Edition with Wi-Fi (Windows XP/Vista/7)**
  Load pictures, and motion pictures recorded with [AVCHD] or [MP4] on to your computer, and categorise and organise the loaded pictures by the date of recording or digital camera equipment name. Motion pictures recorded with [AVCHD] can be used to create normal, standard quality DVD videos.
  You can also write pictures to DVD, combine multiple pictures to create a single panoramic picture, or create a slide show by adding your favourite audio and/or music. These pictures can then be saved onto a DVD.

- **QuickTime (Windows XP/Vista/7)**
  This software is required for creating panorama pictures and for replay in "PHOTOfunSTUDIO 6.4 HD Lite Edition with Wi-Fi".
  You can also play back motion pictures (.MP4/.MOV extension) recorded on a digital camera.

- **Super LoiLoScope 30 day full trial version (Windows XP/Vista/7)**
  Super LoiLoScope is a video editing software where that draws out the full power of your PC. Creating videos is as easy as organizing cards on top of a desk. Use your music, picture and video files to create videos to share with your friends and family by burning it to a DVD, uploading it to websites, or simply share your videos with your friends via e-mail.
  – This will only install a shortcut to the trial version download site.

  For more information on how to use Super LoiLoScope, read the Super LoiLoScope manual available for download at the link below.
  Manual URL: http://loilo.tv/product/20

Installing supplied software

• Before inserting the CD-ROM, close all running applications.

1 Check the environment of your PC.

• **Operating environment of "PHOTOfunSTUDIO 6.4 HD Lite Edition with Wi-Fi"**
– OS:

Windows® XP (32bit) SP2/SP3,

Windows Vista® (32bit) SP1/SP2,

Windows® 7 (32bit/64bit)

– CPU:

Pentium® III 500 MHz or higher (Windows® XP),

800 MHz or higher (Windows Vista®),

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 6.4 HD Lite Edition with Wi-Fi" (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 6.4 HD Lite Edition with Wi-Fi" is not compatible with Mac.

Message Display

Confirmation messages or error messages will be displayed on the screen in some cases.
The major messages are described below as examples.

[Some pictures cannot be deleted]/[This picture cannot be deleted]

- Pictures not based on the DCF standard cannot be deleted.
  - → If you want to delete some pictures, format the card after saving necessary data on a PC etc.

[Not enough space on built-in memory]/[Not enough memory on the card]

- There is no space left on the built-in memory or the card.
- When you copy pictures from the built-in memory to the card (batch copy), the pictures are copied until the capacity of the card becomes full.

[Memory card error.
This card cannot be used in this camera.
Format this card?]

- It is a format that cannot be used with this unit.
  - → Insert a different card.
  - → Format the card again with the camera after saving necessary data on a PC etc. Data will be deleted.

[Please turn camera off and then on again]/[System Error]

- This message appears when the camera is not operating properly.
  - → Turn the camera off and on. If the message persists, contact the dealer or your nearest Service Centre.

[Insert SD card again]/[Try another card]

- An error has occurred accessing the card.
  - → Insert the card again.
  - → Insert a different card.

[This battery cannot be used]

- Use a genuine Panasonic battery. If this message is displayed even when a genuine Panasonic battery is used, contact the dealer or your nearest Service Centre.
- If the battery terminal is dirty, clean it and remove any objects.

**[Failed to connect wireless access point]/[Connection failed]/
[No destination found]**

- Check following regarding the wireless access point (broadband router).
  - → The wireless access point (broadband router) information set on this unit is wrong. Check the authentication type, encryption type, and encryption key.
  - → Power of the wireless access point (broadband router) is not turned on.
  - → Setting of the wireless access point (broadband router) is not supported by this unit.
- Check the network setting of the destination.

Troubleshooting

First, try out the following procedures.
- Check "Troubleshooting" in the "Operating Instructions for advanced features (PDF format)".

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

Battery and power source

**The camera cannot be operated even when it is turned on.
The camera turns off immediately after it is turned on.**

- The battery is exhausted. Charge the battery.
- If you leave the camera on, the battery will be exhausted.
  - → Turn the camera off frequently by using the [Economy] etc.

Card/battery door does not close.

- Insert the battery securely all the way in.

Recording

The picture cannot be recorded.

- Is the mode set to [Rec] Mode?
- Is there any memory remaining on the built-in memory or the card?
  - → Delete the pictures which are not necessary to increase the available memory.
- You may not be able to record for a short while after turning the power [ON] when using a large capacity card.

The subject is not focused properly.

- The focus range varies depending on the Recording Mode.
  - → Set to the proper mode for the distance to the subject.
- The subject is beyond the focus range of the camera.
- There is camera shake (jitter) or the subject is moving slightly.

The recorded picture is blurred.
The Optical Image Stabilizer is not effective.

- → The shutter speed becomes slower when pictures are taken in dark places so hold the camera firmly with both hands to take the pictures.
- → When taking pictures at a slow shutter speed, use the self-timer.

The brightness or the hue of the recorded picture is different from the actual scene.

- When recording under fluorescent or LED lighting fixture etc., increasing the shutter speed may introduce slight changes to brightness and colour. These are a result of the characteristics of the light source and do not indicate a malfunction.

Motion picture recording stops in the middle.

- Use a card with SD Speed Class with "Class 4" or higher when recording motion pictures.
- Depending on the type of the card, recording may stop in the middle.
  - → If motion picture recording stops during use of a card of at least "Class 4" or if you use a card that has been formatted on a PC or other equipment, the data-writing speed is lower. In such cases, we recommend that you make a backup of the data and then format the card in this unit.

LCD monitor

The LCD monitor becomes darker or brighter for a moment.

- This phenomenon appears when you press the shutter button halfway to set the aperture value and does not affect the recorded pictures.
- This phenomenon also appears when the brightness changes when the camera is zoomed or when the camera is moved. This is because of operation of the automatic aperture of the camera, and it is not a malfunction.

Black, red, blue and green dots appear on the LCD monitor.

- This is not a malfunction.
  These pixels do not affect the recorded pictures.

Playback

The picture is not played back. There are no recorded pictures.

- Is the mode set to [Playback] Mode?
- Is there a picture on the built-in memory or the card?
  - → The pictures on the built-in memory appear when a card is not inserted. The picture data on the card appears when a card is inserted.
- Is this a folder or picture which was processed in the PC? If it is, it cannot be played back by this unit.
  - → It is recommended to use the "PHOTOfunSTUDIO 6.4 HD Lite Edition with Wi-Fi" software in the CD-ROM (supplied) to write pictures from PC to card.
- Has [Filtering Play] been set for playback?
  - → Change to [Normal Play].

About the Wi-Fi function

It cannot connect to the wireless LAN. Radio waves get disconnected.

- Use within the communication range of the wireless LAN network.
- Connection types and security setting methods are different depending on the wireless access point (broadband router).
  - → Refer to the instructions of the wireless access point (broadband router).
- When the radio waves are interrupted, the condition may improve by moving the location or changing the angle of the wireless access point (broadband router).
- It may not automatically connect when the network SSID of the wireless access point (broadband router) is set not to broadcast.
  - → Set the network SSID of the wireless access point (broadband router) to broadcast.
- 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.
- Is the 5 GHz/2.4 GHz switchable wireless access point (broadband router) connected to other equipment using the 5 GHz band?
  - → The use of a wireless access point (broadband router) that can use 5 GHz/ 2.4 GHz simultaneously is recommended. It cannot be used simultaneously with this camera if it is not compatible.
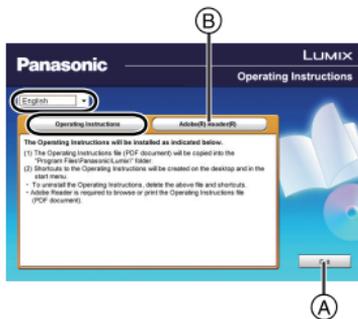
Others

The clock is reset.

- If you do not use the camera for a long time, the clock may be reset.
  - → [Please set the clock] message will be displayed; please re-set the clock.

Reading the Operating Instructions (PDF format)

More detailed instructions on the operation of this camera are contained in "Operating Instructions 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 Operating Instructions (supplied).**

2. **Click the [Operating Instructions].**

3. **Select the desired language and then click [Operating Instructions] to install.**

   Ⓐ To return to the install menu.

4. **Double click the "Operating Instructions" shortcut icon on the desktop.**

■ When the Operating Instructions (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 Operating Instructions (PDF format).

Insert the CD-ROM containing the Operating Instructions (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 Web Site.
 http://get.adobe.com/reader/otherversions

■ To uninstall the Operating Instructions (PDF format)

Delete the PDF file from the "Program Files\Panasonic\Lumix\" folder.

■ For Mac

1. **Turn the PC on and insert the CD-ROM containing the Operating Instructions (supplied).**

2. **Open the "Manual" folder in the CD-ROM and then copy the PDF file with the desired language inside the folder.**

3. **Double click the PDF file to open it.**

Specifications

Digital Camera:
Information for your safety

Power Source:	DC 5.1 V
Power Consumption:	1.6 W (When recording) 0.9 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 colour filter	
Lens	Optical 5× zoom, f=4.3 mm to 21.5 mm (35 mm film camera equivalent: 24 mm to 120 mm)/F2.5 (Wide) to F5.9 (Tele)	
Image stabilizer	Optical method	
Digital zoom	Max. 4×	
Extra optical zoom	Max. 9.8× (When set to 3,000,000 pixels [3M] or less)	
Focus range	Normal	50 cm (1.64 feet) (Wide)/1 m (3.28 feet) (Tele) to ∞
	Macro/ Intelligent auto/ Motion Picture	3 cm (0.10 feet) (Wide)/1 m (3.28 feet) (Tele) to ∞
	Scene Mode	There may be differences in the above settings.
Shutter system	Electronic shutter+Mechanical shutter	

Burst recording	
Burst speed	Approx. 3.7 pictures/second
Number of recordable pictures	Max. 7 pictures
Hi-speed burst	
Burst speed	Approx. 10 pictures/second (Speed priority) Approx. 6 pictures/second (Image priority)
	[3M (4:3), 2.5M (3:2), 2M (16:9) or 2.5M (1:1) is selected as the picture size.]
Number of recordable pictures	Approx. 15 to 100 pictures
Minimum Illumination	Approx. 6 lx (when i-low light is used, the shutter speed is 1/25th of a second)
Shutter speed	8 seconds to 1/4000th of a second [Starry Sky] Mode: 15 seconds, 30 seconds, 60 seconds
Exposure (AE)	Programme AE Exposure compensation (1/3 EV Step, −2 EV to +2 EV)
Metering mode	Multiple
LCD monitor	3.0″ TFT LCD (3:2) (Approx. 461,000 dots) (field of view ratio about 100%) Touch panel
Flash range	Approx. 60 cm (1.97 feet) to 5.9 m (19.4 feet) (Wide, [ISO AUTO] is set)
Microphone	Monaural

Speaker	Monaural
Recording media	Built-in Memory (Approx. 70 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: AC3 (2ch) MP4: AAC (2ch)
Interface	
Digital	"USB 2.0" (High Speed) ✳ Data from the PC can not be written to the camera using the USB connection cable.
Analogue video Audio	NTSC/PAL Composite (Switched by menu) Audio line output (monaural)
Terminal	
[AV OUT/ DIGITAL]	Dedicated jack (8 pin)
[HDMI]	MicroHDMI TypeD
Dimensions (excluding the projecting parts)	Approx. 102.2 mm (W)×56.3 mm (H)×21.6 mm (D) [4.02″(W)×2.22″(H)×0.85″(D)]
Mass	Approx. 149 g/0.33 lb (with card and battery) Approx. 132 g/0.29 lb (excluding card and battery)
Operating temperature	0 °C to 40 °C (32 °F to 104 °F)
Operating humidity	10%RH to 80%RH

Wireless transmitter

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

Battery Charger (Panasonic DE-A92A):
Information for your safety

Input:	AC ∼ 110 V to 240 V, 50/60 Hz, 0.2 A
Output:	DC ⎓ 4.2 V, 0.43 A

Battery Pack (lithium-ion) (Panasonic DMW-BCK7E):
Information for your safety

Voltage/capacity:	3.6 V/680 mAh

This product incorporates the following software:
(1) the software developed independently by or for Panasonic Corporation,
(2) the software owned by third party and licensed to Panasonic Corporation and/or,
(3) open sourced software including the software developed by the OpenSSL Project for use in the OpenSSL Toolkit (http://www.openssl.org/), and the software written by Eric Young (eay@cryptsoft.com).

For the software categorized as (3), please refer to the applicable license terms in the following "Operating Instructions for advanced features (PDF format)".

AVCHD ™

VIERA Link

HDMI

DOLBY DIGITAL CREATOR

QuickTime

EU

VQT3S34
F0811MR0