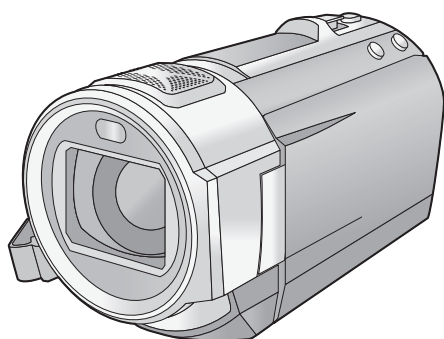


# Panasonic®

## Basic Operating Instructions High Definition Video Camera

Model No. **HC-V720**  
**HC-V727**  
**HC-V720M**  
**HC-V710**



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

This document explains basic operations of the unit. For more detailed explanation, please refer to "Operating Instructions (PDF format)" which is recorded in the enclosed CD-ROM.



**AVCHD™**  
Progressive

**HDMI**



**DOLBY**  
DIGITAL

**DLNA**  
CERTIFIED™

**WiFi**  
CERTIFIED



Model number suffix "EB" denotes UK model.

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

VQT4Q81

**EB** **EP**

# Information for Your Safety

## Dear Customer,

We would like to take this opportunity to thank you for purchasing this Panasonic High Definition Video 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 High Definition Video Camera may look somewhat different from those shown in the illustrations in these Operating Instructions.

## “EB” area code model only

### ■ 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.

## Before use

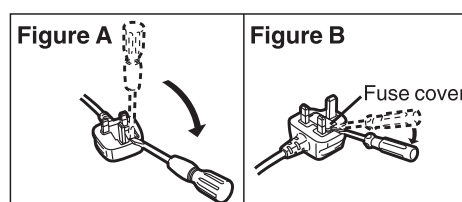
Remove the connector cover.

## How to replace the fuse

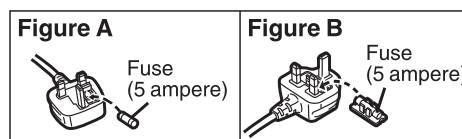
The location of the fuse differ according to the type of AC mains plug (figures A and B). Confirm the AC mains plug fitted and follow the instructions below.

Illustrations may differ from actual AC mains plug.

1. Open the fuse cover with a screwdriver.



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



## **WARNING:**

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

- Do not expose this unit to rain, moisture, dripping or splashing.
- Do not place objects filled with liquids, such as vases, on this unit.
- Use only the recommended accessories.
- Do not remove covers.
- Do not repair this unit by yourself. Refer servicing to qualified service personnel.

## **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.
- Do not obstruct this unit's ventilation openings with newspapers, tablecloths, curtains, and similar items.
- Do not place sources of naked flames, such as lighted candles, on this unit.

The mains plug is the disconnecting device. Install this unit so that the mains plug can be unplugged from the socket outlet immediately.

## **■ Concerning the battery**

### **Warning**

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

## **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.

## **■ EMC Electric and magnetic compatibility**

This symbol (CE) is located on the rating plate.

## **■ Product identification marking**

| Product                      | Location       |
|------------------------------|----------------|
| High Definition Video Camera | Battery holder |
| AC adaptor                   | Bottom         |

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

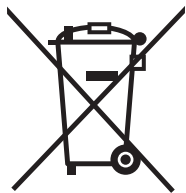


These symbols on the products, packaging, and/or accompanying documents mean that used electrical and electronic products and batteries should not be mixed with general household waste.

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.

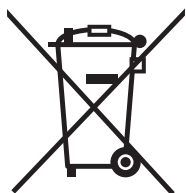


### For business users in the European Union

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.



Cd

### 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.



### 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 for general consumer. (Category 3)

This product on purpose to connect to access point of 2.4 GHz WLAN.

## ■ Cautions for use

**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. 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.

### **About connecting to a PC**

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

### **About connecting to a TV**

- Always use the supplied HDMI mini cable or a genuine Panasonic HDMI mini cable (RP-CDHM15, RP-CDHM30: optional).

## ■ About the recording format for recording motion pictures

You can record motion pictures in either AVCHD<sup>\*1</sup> or iFrame recording formats using this unit.

<sup>\*1</sup> It is compatible with the AVCHD Progressive (1080/50p).

### **AVCHD:**

It is suitable for viewing on a high-definition TV or for saving to disc<sup>\*2</sup>.

<sup>\*2</sup> To save an image recorded in 1080/50p, it is required to copy to a disc using the supplied software HD Writer AE 5.0.

### **iFrame:**

This is a recording format suitable for viewing and editing on a Mac (iMovie'11).

- It is not compatible with motion pictures recorded in AVCHD format.

## ■ Indemnity about recorded content

Panasonic does not accept any responsibility for damages directly or indirectly due to any type of problems that result in loss of recording or edited content, and does not guarantee any content if recording or editing does not work properly. Likewise, the above also applies in a case where any type of repair is made to the unit (including any other non-built-in memory related component).

## ■ About Condensation (When the lens or the LCD monitor is fogged up)

Condensation occurs when there is a change in temperature or humidity, such as when the unit is taken from outside or a cold room to a warm room. Please be careful, as it may cause the lens or LCD monitor to become soiled, moldy, or damaged.

When taking the unit to a place which has a different temperature, if the unit is accustomed to the room temperature of the destination for about one hour, condensation can be prevented. (When the difference in temperature is severe, place the unit in a plastic bag or the like, remove air from the bag, and seal the bag.) When condensation has occurred, remove the battery and/or the AC adapter and leave the unit like that for about one hour. When the unit becomes accustomed to the surrounding temperature, fogginess will disappear naturally.

## ■ Cards that you can use with this unit

### SD Memory Card, SDHC Memory Card and SDXC Memory Card

- 4 GB or more Memory Cards that do not have the SDHC logo or 48 GB or more Memory Cards that do not have the SDXC logo are not based on SD Memory Card Specifications.
- Refer to page 13 for more details on SD cards.

## ■ For the purposes of these operating instructions

- SD Memory Card, SDHC Memory Card and SDXC Memory Card are referred to as the “SD card”.
- Function that can be used for Motion Picture Recording Mode:   
Function that can be used for Still Picture Recording Mode: 
- Function that can be used for the Playback Mode:   
Function that can be used for the Playback Mode (motion pictures only):   
Function that can be used for the Playback Mode (still pictures only): 
- Scene(s) recorded in 1080/50p or 1080/50i: “AVCHD scene(s)”
- Pages for reference are indicated by an arrow, for example: → 00

These operating instructions are designed for use with models **HC-V720**, **HC-V727**, **HC-V720M** and **HC-V710**. Pictures may be slightly different from the original.

- The illustrations used in these operating instructions show model **HC-V720**, however, parts of the explanation refer to different models.
- Depending on the model, some functions are not available.
- **HC-V720**, **HC-V727** and **HC-V720M** correspond to Wi-Fi® functions.
- Features may vary, so please read carefully.
- Not all models may be available depending on the region of purchase.

# Contents

## ■ How to open the Operating Instructions (PDF format)

When you insert the CD-ROM and open the [INDEX.pdf] in the CD-ROM, the Operating Instructions list will be displayed. Click the document name of the Operating Instructions you would like to open.

- Adobe Reader is required to view the PDF file. Please download it from the homepage of Adobe Systems Incorporated.

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## For United Kingdom and Ireland customers

### ■ Sales and Support Information

#### Customer Communications Centre

- For customers within the UK: 0844 844 3899
- For customers within Ireland: 01 289 8333
- Monday–Friday 9:00 am – 5:00 pm  
(Excluding public holidays).
- For further support on your product, please visit our website:  
[www.panasonic.co.uk](http://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–Friday 9:00 am – 5:00 pm  
(Excluding public holidays).
- Or go on line through our Internet Accessory ordering application at [www.pas-europe.com](http://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.

# Accessories

Check the accessories before using this unit.

Keep the accessories out of reach of children to prevent swallowing.

Product numbers correct as of Dec. 2012. These may be subject to change.

## Battery pack

VW-VBT190



## AC adaptor

VSK0781



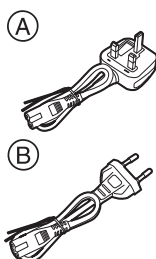
## AC cable

(EB)

(A) K2CT2YY00095

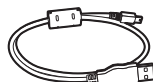
(EP)

(B) K2CQ2YY00117



## USB cable

K2KYYYY00201



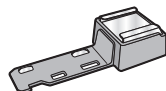
## HDMI mini cable

K1HY19YY0021



## Shoe adaptor

VYC1055



## CD-ROM

Software



## CD-ROM

Operating Instructions

VFF1123



## Optional accessories

Some optional accessories may not be available in some countries.

|                                        |
|----------------------------------------|
| (EB)                                   |
| Battery charger (VW-BC10EB)            |
| (EP)                                   |
| Battery charger (VW-BC10E)             |
| Battery pack (lithium/VW-VBT190)       |
| Battery pack (lithium/VW-VBT380)       |
| HDMI mini cable (RP-CDHM15, RP-CDHM30) |
| Wide conversion lens (VW-W4907H)*      |
| Filter kit (VW-LF46NE)*                |
| Stereo microphone (VW-VMS10E)          |
| Shoe adaptor (VW-SK12E)                |
| (EB)                                   |
| Accessory kit (VW-ACT190EB)            |
| (EP)                                   |
| Accessory kit (VW-ACT190E)             |

\* Set the flash setting to ([OFF]). Set the video light setting to ([OFF]).

# Power supply

## ■ About batteries that you can use with this unit

The battery that can be used with this unit is VW-VBT190/VW-VBT380.

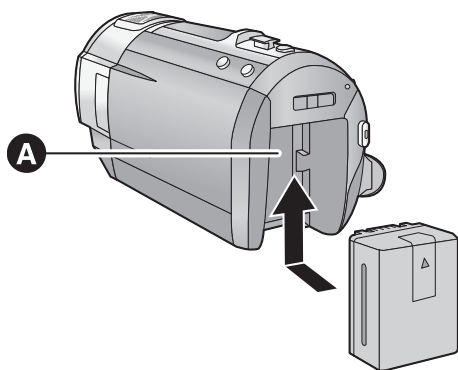
- The unit has a function for distinguishing batteries which can be used safely. The dedicated battery (VW-VBT190/VW-VBT380) supports this function. The only batteries suitable for use with this unit are genuine Panasonic products and batteries manufactured by other companies and certified by Panasonic. Panasonic cannot in any way guarantee the quality, performance or safety of batteries which have been manufactured by other companies and are not genuine Panasonic products.

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.

## Inserting/removing the battery

- Press the power button to turn off the unit. (→ 14)

Install the battery by inserting it in the direction shown in the figure.



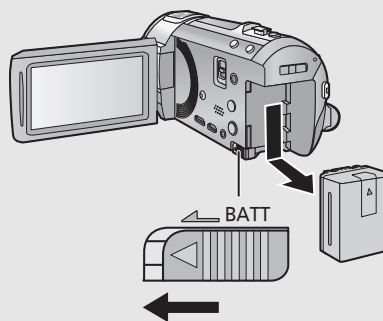
**A** Battery holder

Insert the battery until it clicks and locks.

### Removing the battery

Be sure to hold down the power button until the status indicator goes off. Then remove the battery while supporting the unit to prevent it from dropping.

**Move the battery release lever in the direction indicated by the arrow and remove the battery when unlocked.**



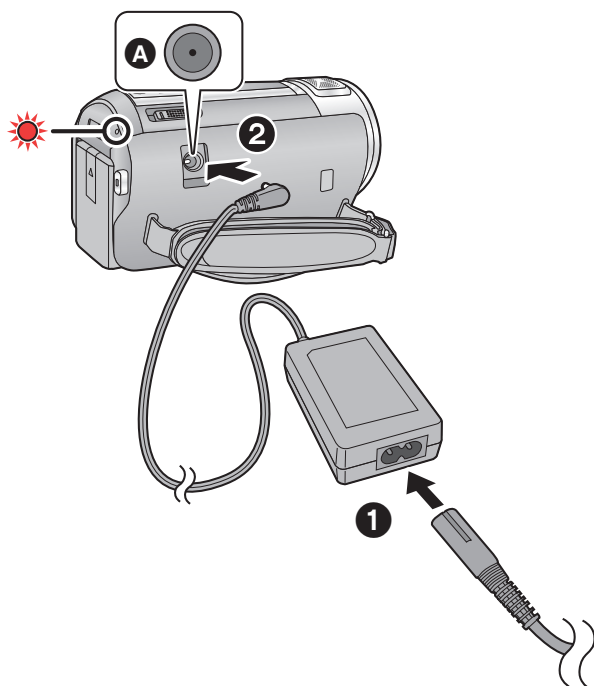
# Charging the battery

**When this unit is purchased, the battery is not charged. Charge the battery fully before using this unit for the first time.**

The unit is in the standby condition when the AC adaptor is connected. The primary circuit is always "live" as long as the AC adaptor is connected to an electrical outlet.

**Important:**

- Do not use the AC cable with any other equipment as it is designed only for this unit. Also, do not use the AC cable from other equipment with this unit.
- The battery will not be charged if the unit is turned on.
- It is recommended to charge the battery in a temperature between 10 °C and 30 °C. (The battery temperature should also be the same.)



**A** DC input terminal

**1** Connect the AC cable to the AC adaptor, then the AC outlet.

**2** Connect the AC adaptor to the DC input terminal.

- The status indicator will flash red at an interval of 2 seconds (approximately 1 second on, 1 second off), indicating that charging has begun. It will turn off when the charging is completed.

## ■ Connecting to the AC outlet

It is possible to use this unit with power supplied from the AC outlet by turning on the unit with the AC adaptor connected. When recording for a long time, keep the AC adaptor connected and use it together with the battery.

## ■ To charge by connecting to other device

It is possible to charge by connecting to other device with the USB cable (supplied).

- Do not use any other AC adaptors except the supplied one.
- We recommend using Panasonic batteries (→ 9).
- If you use other batteries, we cannot guarantee the quality of this product.
- 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.

# Charging and recording time

## ■ Charging/Recording time

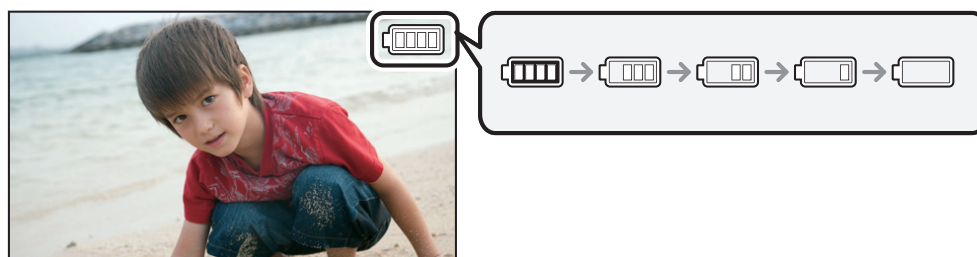
- Temperature: 25 °C/humidity: 60%RH
- Charging times in parentheses are when charging from the USB terminal.

| Battery model number<br>[Voltage/Capacity<br>(minimum)]       | Charging<br>time           | Recording<br>mode   | Maximum continuous<br>recordable time | Actual<br>recordable<br>time |
|---------------------------------------------------------------|----------------------------|---------------------|---------------------------------------|------------------------------|
| Supplied battery/<br>VW-VBT190 (optional)<br>[3.6 V/1940 mAh] | 2 h 20 min<br>(5 h 20 min) | [1080/50p]          | 1 h 30 min                            | 45 min                       |
|                                                               |                            | [PH], [HA],<br>[HG] | 1 h 35 min                            | 50 min                       |
|                                                               |                            | [HE]                | 1 h 40 min                            |                              |
|                                                               |                            | [iFrame]            | 1 h 45 min                            | 55 min                       |

- These times are approximations.
- **The indicated charging time is for when the battery has been discharged completely. Charging time and recordable time vary depending on the usage conditions such as high/low temperature.**
- The actual recordable time refers to the recordable time when repeatedly starting/stopping recording, turning the unit on/off, moving the zoom lever etc.

## ■ Battery capacity indication

The battery capacity indication is displayed on the LCD monitor.



- If there is less than 3 minutes remaining, then  will become red. If the battery discharges, then  will flash. Recharge the battery or replace it with a fully charged battery.

# Recording to a card

The unit can record still pictures or motion pictures to an SD card or built-in memory. To record to an SD card, read the following.

## Cards that you can use with this unit

**Use SD cards conforming to Class 4 or higher of the SD Speed Class Rating for motion picture recording.**

Please confirm the latest information about SD Memory Cards/SDHC Memory Cards/SDXC Memory Cards that can be used for motion picture recording on the following website.

**[http://panasonic.jp/support/global/cs/e\\_cam](http://panasonic.jp/support/global/cs/e_cam)**

(This website is in English only.)

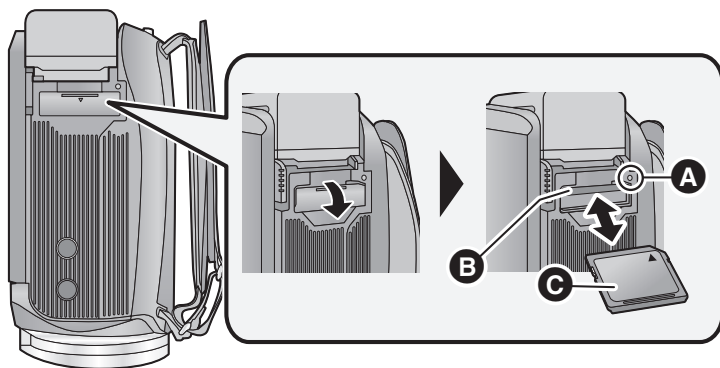
- Keep the Memory Card out of reach of children to prevent swallowing.

## Inserting/removing an SD card

When using an SD card not from Panasonic, or one previously used on other equipment, for the first time on this unit, format the SD card. (→ 21) When the SD card is formatted, all of the recorded data is deleted. Once the data is deleted, it cannot be restored.

### Caution:

**Check that the access lamp has gone off.**



### Access lamp [ACCESS] (A)

- When this unit is accessing the SD card or built-in memory, the access lamp lights up.

### 1 Open the SD card cover and insert (remove) the SD card into (from) the card slot (B).

- Face the label side (C) in the direction shown in the illustration and press it straight in as far as it will go.
- Press the centre of the SD card and then pull it straight out.

### 2 Securely close the SD card cover.

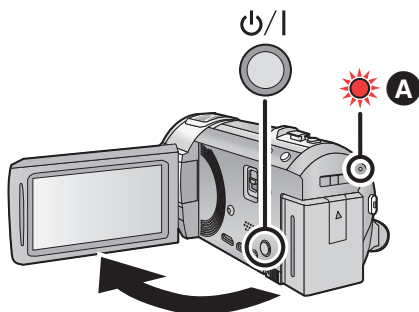
- Securely close it until it clicks.

## Turning the unit on/off

You can turn the unit on and off using the power button or by opening and closing the LCD monitor.

### Turning the unit on and off with the power button

Open the LCD monitor and press the power button to turn on the unit.



#### To turn off the unit

Hold down the power button until the status indicator goes off.

**A** The status indicator lights on.

The unit is turned on when the LCD monitor is opened, and unit is turned off when it is closed.

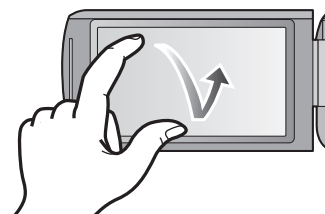
## How to use the touch screen

You can operate by directly touching the LCD monitor (touch screen) with your finger.

### ■ Touch

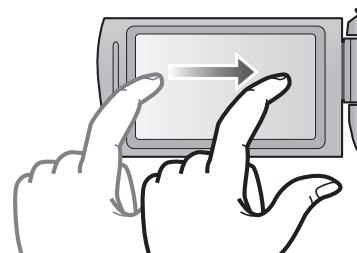
Touch and release the touch screen to select icon or picture.

- Touch the centre of the icon.
- Touching the touch screen will not operate while you are touching another part of the touch screen.



### ■ Slide while touching

Move your finger while pressing on the touch screen.



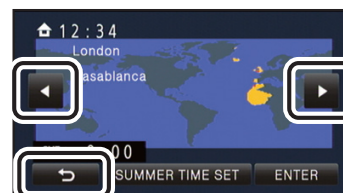
## ■ About the operation icons

▲ / ▼ / ◀ / ▶ :

Touch when changing a page or performing settings.



Touch to return to the previous screen.



## About the Touch Menu

Touch ◀ (left side)/▶ (right side) of  on the Touch Menu to switch the operation icons.

- It is also possible to switch the operation icons by sliding the Touch Menu right or left while touching it.



## ■ To display the Touch Menu



Display of the Touch Menu will disappear when no touch operation is performed for a specific period of time during recording of motion picture/still picture. To display it again, touch .

# Setting date and time

The clock is not set at the time of purchase. Make sure to set the clock.

## 1 Select the menu. (→ 21)

MENU : [SETUP] → [CLOCK SET]

## 2 Touch the date or time to be set, then set the desired value using ▲ / ▼.

### A Displaying the World Time setting:

 [HOME]/  [DESTINATION]

- The year can be set between 2000 and 2039.

## 3 Touch [ENTER].

- A message prompting for World Time setting may be displayed. Perform the World Time setting by touching the screen.

- Touch [EXIT] to complete the setting.

- **[HC-V720]/[HC-V727]/[HC-V720M]**

At the time of purchase, the confirmation screen for the Wi-Fi setup is displayed after setting the world time.

Exit the screen if the setup is not necessary.

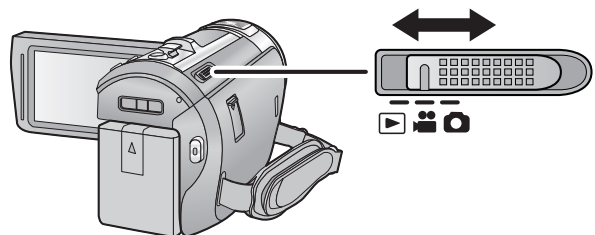


- When the unit is turned on for the first time, a message asking you to set the date and time will appear. Select [YES] and perform Steps 2 to 3 to set the date and time.

# Selecting a media to record [HC-V720M]

The card and built-in memory can be selected separately to record motion pictures or still pictures.

## 1 Change the mode to or .



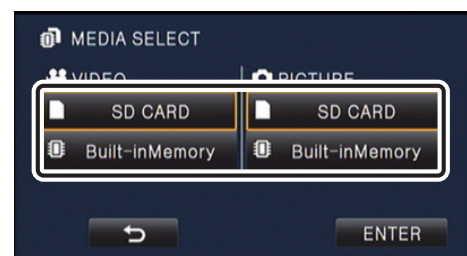
## 2 Select the menu. (→ 21)

MENU : [MEDIA SELECT]

## 3 Touch the media to record motion pictures or still pictures.

- The media is selected separately to motion pictures or still pictures is highlighted in yellow.

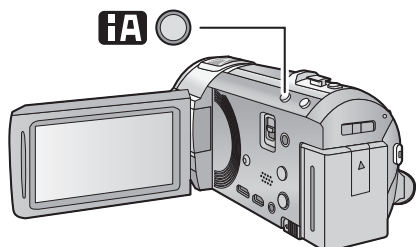
## 4 Touch [ENTER].



# Changing the Recording Mode

## ■ Intelligent Auto Mode

The modes (appropriate for the condition) are set just by pointing the unit to what you want to record.



### Intelligent auto button

Pressing the Intelligent auto button can change the Recording Mode.

- Pressing the Intelligent auto button when other Recording Modes are set will change to Intelligent Auto Mode.

## ■ To change to the other Recording Modes

**1** Touch the Recording Mode button icon.



**2** Touch the desired Recording Mode button icon.



| Mode                                                                                | Effect                                                                                                                                              |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>Intelligent Auto</b><br>You can switch the mode to the Intelligent Auto Mode, which optimises settings to the recording environment you are in.  |
|  | <b>Intelligent Auto Plus</b><br>You can add manually-adjusted brightness and colour balance settings to the Intelligent Auto Mode, and record.      |
|  | <b>Creative Control*</b><br>You can record motion pictures with added effects.                                                                      |
|  | <b>Scene Mode</b><br>This option allows this unit to automatically adjust the shutter speed and aperture according to the scene you want to record. |
|  | <b>Manual</b><br>You can set the shutter speed, focus, White Balance, and brightness (iris/gain).                                                   |

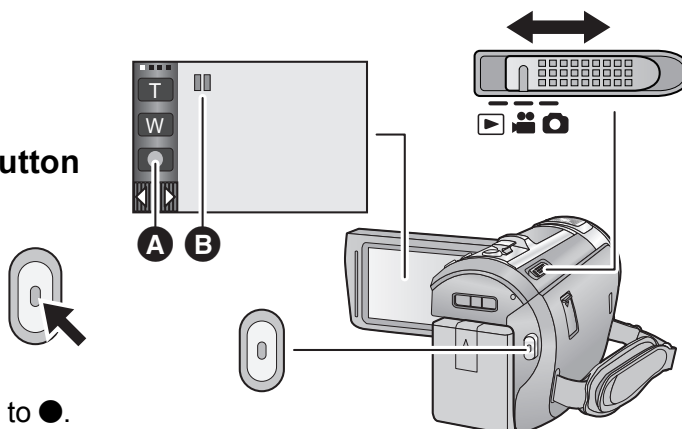
\* In Motion Picture Recording Mode only

- Pressing the Intelligent auto button while in Intelligent Auto Mode can also change the Recording Mode.



# Recording motion pictures

- 1** Change the mode to .
- 2** Open the LCD monitor.
- 3** Press the recording start/stop button to start recording.



- A** Recording button icon  
**B** When you begin recording, changes to .

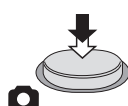
- 4** Press the recording start/stop button again to pause recording.

- Recording can also be started/stopped by touching the recording button icon.

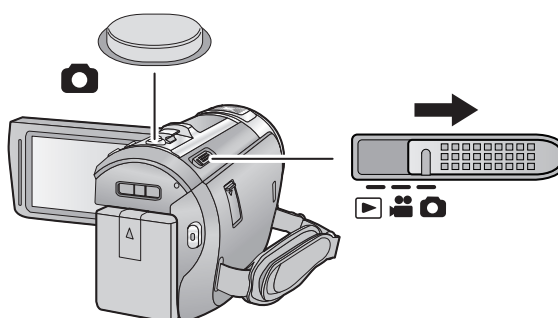
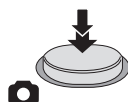


# Recording still pictures

- 1** Change the mode to .
- 2** Open the LCD monitor.
- 3** Press the button halfway. (For Auto Focus only)

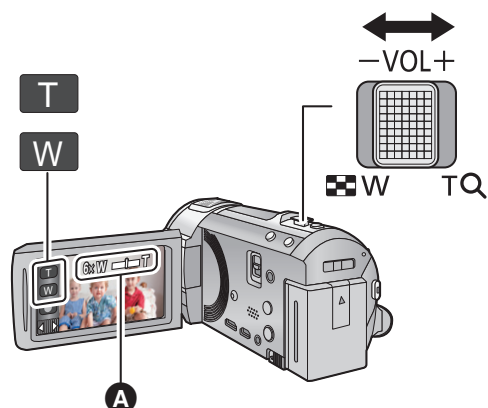


- 4** Press the button fully.





# Using the zoom



## Zoom lever/Zoom button icons

### T side:

Close-up recording (zoom in)

### W side:

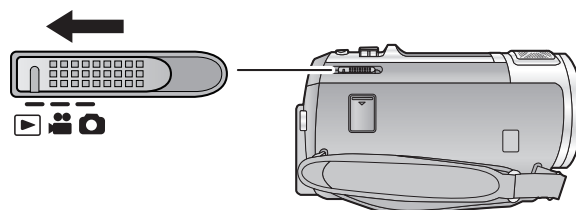
Wide-angle recording (zoom out)

- The zoom speed varies depending on the range over which the zoom lever is moved.

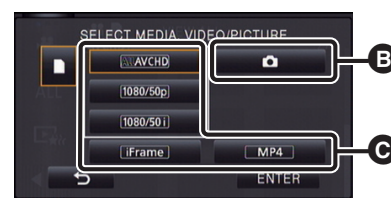
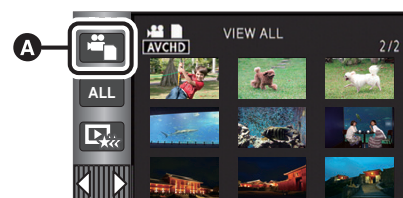
### A Zoom bar

The zoom bar is displayed during the zoom operation.

# Motion picture/Still picture playback



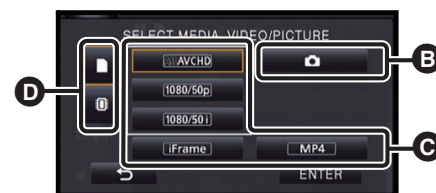
- 1 Change the mode to .
- 2 Touch the play mode select icon **A**.
  - You can also set by touching **MENU** , selecting [VIDEO SETUP] or [PHOTO SETUP] → [MEDIA, VIDEO/PICTURE]. (→ 21)
- 3 **HC-V720** / **HC-V727** / **HC-V710**  
 Select the still picture **B** or the recording format of the motion picture **C** you wish to play back.



### HC-V720M

Select the media type **D** and then select the still picture **B** or the recording format of the motion picture **C** you wish to play back.

- Touch [ENTER].



- The icon is displayed in the thumbnail display when the item for motion picture is touched.  
( **AVCHD** , **1080/50p** , **1080/50i** , **i Frame** and **MP4** )
- **50p** is displayed in the 1080/50p scene when [ALL AVCHD] is touched.

#### 4 Touch the scene or the still picture to be played back.

- To display the next (previous) page:
  - Slide the thumbnail display upward (downward) while touching it.
  - Switch the touch menu, and then touch ▲ (up) / ▼ (down) on the thumbnail scroll lever.



#### 5 Select the playback operation by touching the operation icon.



E

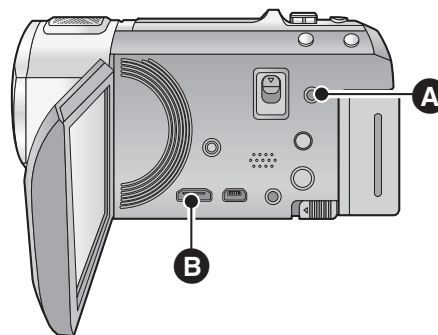
##### E Operation icon

- Operation icons and screen display will disappear when no touch operation is performed for a specific period of time. To display them again, touch the screen.
- Touch ►/|| to start/pause playback of motion pictures.

## Watching Video/Pictures on your TV



Connect this unit to a TV using an HDMI mini cable (supplied) or an AV cable (commercially-available).



- A A/V connector [A/V]
- B HDMI mini connector [HDMI]

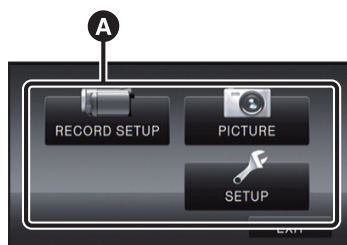
# Using the menu screen

- Touch ◀ (left side)/▶ (right side) of  on the Touch Menu to display  . (→ 15)

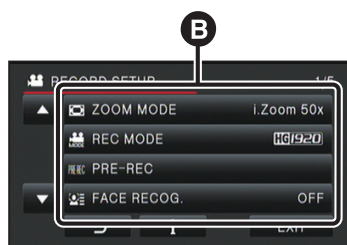
**1** Touch  .



**2** Touch the top menu .



**3** Touch the submenu .



- Next (previous) page is displayed by touching  / .

**4** Touch the desired item to enter the setting.

**5** Touch [EXIT] to exit the menu setting.

## About guide display

After touching , touching the submenus and items will cause function descriptions and settings confirmation messages to appear.

- After the messages have been displayed, the guide display is cancelled.

## Language selection

You can select the language on the screen display and the menu screen.

 : [SETUP] → [LANGUAGE] → desired language

## Formatting

Please be aware that if a medium is formatted, then all the data recorded on the medium will be erased and cannot be restored. Back up important data on a PC, DVD disc etc.

 : [SETUP] → [FORMAT MEDIA] → desired media

[Built-inMemory]<sup>\*1</sup>/[SD CARD]/[HDD]<sup>\*2</sup>

\*1 **HC-V720M** only

\*2 Displayed when connecting a USB HDD. (Refer to the Operating Instructions (PDF format))

-  /  / 

Media selection screen is not displayed when the USB HDD is not connected. Touch [YES].

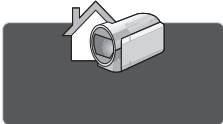
# What you can do with the Wi-Fi<sup>®</sup> function

By linking with Wi-Fi compatible devices, you can use the Wi-Fi functions of **[Remote Ctrl]**, **[DLNA Play]**, **[Live Cast]** and **[Hom.Monitor]**.

Before using the respective Wi-Fi functions, check and prepare your device.

To use the Wi-Fi function, connect this unit to a wireless access point or smartphone via Wi-Fi.

- Please refer to the Operating Instructions (PDF format) for details about the Wi-Fi connection.
- **For the operations and settings of your device such as the smartphone, please read the operating instructions of the device.**

| Feature                                                                                                         | Description of functions                                                                                                                                                                     |
|-----------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <p><b>[Remote Ctrl]</b></p>   | Using a smartphone, you can perform record/playback operations from a remote location or upload motion pictures and still pictures recorded in this unit on SNS (Social Networking Service). |
|  <p><b>[DLNA Play]</b></p>    | Connecting this unit to a DLNA-compatible TV via Wi-Fi, you can play back scenes and still pictures on the TV.                                                                               |
|  <p><b>[Live Cast]</b></p>   | You can broadcast motion pictures of this unit live by setting up a link between the "LUMIX CLUB" and USTREAM.                                                                               |
|  <p><b>[Hom.Monitor]</b></p> | You can confirm the recording screen of this unit from outside using a smartphone.                                                                                                           |

## If the Wi-Fi connection cannot be established

| Problem                                                                                                         | Check points                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-----------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>It cannot connect to the wireless access point.</b><br><br><b>The wireless access point is not detected.</b> | <b>(General)</b> <ul style="list-style-type: none"><li>• Turn ON the wireless access point.</li><li>• Approach the wireless access point and reconnect.</li><li>• If it takes time to complete the connection, the Wi-Fi connection will be aborted.<br/>Reset the connection settings.</li><li>• Check how to connect to the wireless access point and how to set the security settings.</li><li>• Make sure the wireless access point is registered in this unit.</li><li>• The device may be unable to locate the wireless access point due to problems with the signal. Use [Manual Connection].</li></ul> <b>(Easy Connection)</b> <ul style="list-style-type: none"><li>• Make sure the wireless access point is in the correct WPS standby mode.</li><li>• Make sure the PIN code has been correctly input.</li></ul> <b>(Manual Connection)</b> <ul style="list-style-type: none"><li>• Make sure the SSID and password have been correctly input.</li><li>• Check the Authentication method, Encryption type, and Encryption key (Password).</li></ul> |
| <b>Radio waves of the wireless access point get disconnected.</b>                                               | <ul style="list-style-type: none"><li>• The condition may improved by moving the location or changing the angle of the wireless access point.</li><li>• If you use another 2.4 GHz band device such as a microwave oven or cordless telephone nearby, you may interrupt the signal. Keep a sufficient distance from these types of devices.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

| Problem                                                                          | Check points                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>The Wi-Fi connection is not possible between this unit and a smartphone.</b>  | <p><b>(Wireless Access Point Connection)</b></p> <ul style="list-style-type: none"> <li>• Make sure the smartphone is properly connected to the wireless access point by checking the Wi-Fi settings of the smartphone.</li> <li>• Make sure this unit and the smartphone are connected to the same wireless access point.</li> <li>• Make sure the wireless access point is registered in this unit.</li> </ul> <p><b>(Direct Connection)</b></p> <ul style="list-style-type: none"> <li>• Make sure the smartphone is properly connected to this unit by checking the Wi-Fi settings of the smartphone.</li> <li>• Make sure the SSID and password have been correctly input.</li> <li>• Make sure the smartphone is not connected to the wireless access point. If it is connected to the wireless access point, change the Wi-Fi access point using the smartphone's Wi-Fi set up.</li> </ul> |
| <b>It takes long time every time to connect to a smartphone.</b>                 | <ul style="list-style-type: none"> <li>• It may take longer time to connect depending on the Wi-Fi connection setting of the smartphone, but it is not a malfunction.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>This unit is not displayed in the Wi-Fi setting screen of the smartphone.</b> | <ul style="list-style-type: none"> <li>• Try switching the ON/OFF of the Wi-Fi function in the Wi-Fi settings of the smartphone.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>The Wi-Fi connection is disconnected immediately.</b>                         | <ul style="list-style-type: none"> <li>• If there is a setting for avoiding poor connections in the Wi-Fi setting menu of the Android™ device 4.0 or later version, turn it off.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Cannot be connected using NFC.</b>                                            | <ul style="list-style-type: none"> <li>• Make sure your smartphone is compatible with NFC. This unit can be used with NFC-compatible terminals via Android (OS version 2.3.3 or later).</li> <li>• Make sure the NFC function of your smartphone is ON.</li> <li>• Make sure this unit is not turned off with the power button.</li> <li>• Some smartphones cannot be easily checked simply by touching. If this unit is not recognised even after touching, change positions and try again by touching slowly.</li> <li>• Touch again if it does not connect after touch.</li> </ul>                                                                                                                                                                                                                                                                                                             |

# Specifications

## High Definition Video Camera

Information for your safety

### Power source:

DC 5.0 V (When using AC adaptor)

DC 3.6 V (When using battery)

### Power consumption:

Recording; 6.7 W

Charging; 7.7 W

### Motion picture recording format:

[AVCHD]; AVCHD format version 2.0 compliant (AVCHD Progressive)

[iFrame]; MPEG-4 AVC file format compliant (.MP4)

### Motion picture compression:

MPEG-4 AVC/H.264

### Audio compression:

[AVCHD]; Dolby® Digital/5.1 ch (built-in microphone), 2 ch (built-in microphone/external microphone)

[iFrame], [MP4]; AAC/2 ch

### Recording mode and transfer rate:

[1080/50p]; Maximum 28 Mbps (VBR)

[PH]; Maximum 24 Mbps (VBR)

[HA]; Average 17 Mbps (VBR)

[HG]; Average 13 Mbps (VBR)

[HE]; Average 5 Mbps (VBR)

[iFrame]; Maximum 28 Mbps (VBR)

Refer to the operating instructions (PDF format) for the picture size and recordable time of a motion picture.

### Still picture recording format:

JPEG (Design rule for Camera File system, based on Exif 2.2 standard)

Refer to the operating instructions (PDF format) for picture size of a still picture and number of recordable pictures.

### Recording media:

SD Memory Card

SDHC Memory Card

SDXC Memory Card

Refer to the operating instructions (PDF format) for details on SD cards usable in this unit.

### HC-V720M

Built-in memory; 16 GB

### Image sensor:

1/2.33 type (1/2.33") 1MOS image sensor

Total; 17520 K

Effective pixels;

Motion picture; 4140 K (16:9)\*

Still picture; 3240 K (4:3), 3240 K (3:2),

4140 K (16:9)

\* When Level shot is set to off

### Lens:

Auto Iris, 21× optical zoom, F1.8 to F3.5

Focal length;

2.82 mm to 59.2 mm

Macro (Full range AF)

35 mm equivalent;

Motion picture;

28 mm to 729.6 mm (16:9)

Still picture;

33.9 mm to 712.6 mm (4:3),

33.2 mm to 697.6 mm (3:2),

28 mm to 729.6 mm (16:9)

Minimum focus distance;

Normal; Approx. 3.0 cm (Wide)/

Approx. 1.5 m (Tele)

Tele Macro; Approx. 60 cm (Tele)

Intelligent Auto Macro;

Approx. 1 cm (Wide)/Approx. 60 cm (Tele)

### Filter diameter:

46 mm

### Zoom:

i.Zoom OFF 26×, 50× i.Zoom, 60×/1500× digital zoom

(Using image sensor effective area)

**Image stabilizer function:**

Optical (Hybrid Optical Image Stabilizer, Active Mode (Rotation correction), Optical Image Stabilizer Lock, Tilt correction function)

**Creative Control:**

[Miniature Effect]/[Silent movie]/[8mm movie]/[Time Lapse Rec]

**Monitor:**

7.5 cm (3.0") wide LCD monitor (Approx. 460 K dots)

**Microphone:**

5.1 channel surround microphone/  
Zoom microphone/Focus microphone/  
Stereo microphone

**Minimum required illumination:**

Approx. 3 lx (1/25 with Low Light Mode in the Scene Mode)

Approx. 1 lx with the Colour Night View function

**AV connector video output level:**

1.0 Vp-p, 75  $\Omega$ , PAL system

**HDMI mini connector video output level:**

HDMI™ (x.v.Colour™) 1080p/1080i/576p

**AV connector audio output level (Line):**

316 mV, 600  $\Omega$ , 2 ch

**HDMI mini connector audio output level:**

[AVCHD]; Dolby Digital/Linear PCM  
[iFrame], [MP4]; Linear PCM

**MIC input:**

−60 dBV (Mic sensitivity −40 dB equivalent,  
0 dB=1 V/Pa, 1 kHz)  
(Stereo mini jack)

**USB:**

Reader function

SD card; Read only (No copyright protection support)

**HC-V720M**

Built-in memory; Read only

Hi-Speed USB (USB 2.0), USB terminal Type Mini AB

USB host function (for USB HDD)

Battery charging function (Charges from USB terminal when the main unit is off)

**Flash:**

Available range; Approx. 1.5 m or less

**Dimensions:**

60.1 mm (W)×69.3 mm (H)×124.4 mm (D)  
(including projecting parts)

**Mass:**

**HC-V720**/ **HC-V727**

Approx. 277 g

[without battery (supplied) and an SD card (optional)]

**HC-V720M**

Approx. 278 g

[without battery (supplied)]

**HC-V710**

Approx. 273 g

[without battery (supplied) and an SD card (optional)]

**Mass in operation:**

**HC-V720**/ **HC-V727**

Approx. 322 g

[with battery (supplied) and an SD card (optional)]

**HC-V720M**

Approx. 321 g

[with battery (supplied)]

**HC-V710**

Approx. 318 g

[with battery (supplied) and an SD card (optional)]

**Operating temperature:**

0 °C to 40 °C

**Operating humidity:**

10%RH to 80%RH

**Battery operation time:**

See page 12

**HC-V720**/ **HC-V727**/ **HC-V720M**

**Wireless transmitter:**

Compliance standard; IEEE802.11b/g/n

Frequency range used;

Central frequency 2412 MHz to 2462 MHz [11ch]

Encryption method; Wi-Fi compliant WPA™/  
WPA2™/WEP

Access method; Infrastructure mode

**AC adaptor**

Information for your safety

**Power source:**

AC 110 V to 240 V, 50/60 Hz

**Power consumption:**

12 W

**DC output:**

DC 5.0 V, 1.6 A

**Dimensions:**

49 mm (W)×24 mm (H)×79 mm (D)

**Mass:**

Approx. 91 g

# About copyright

## ■ 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.**

## ■ Licenses

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- “AVCHD”, “AVCHD Progressive” and the “AVCHD Progressive” logo are trademarks of Panasonic Corporation and Sony Corporation.
- Manufactured under license from Dolby Laboratories. Dolby and the double-D symbol are trademarks of Dolby Laboratories.
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- iMovie, Mac and Mac OS are trademarks of Apple Inc. registered in the U.S. and other countries.
- Android and Google Play are trademarks or registered trademarks of Google Inc.
- The Wi-Fi CERTIFIED Logo is a certification mark of the Wi-Fi Alliance.
- The Wi-Fi Protected Setup Mark is a mark of the Wi-Fi Alliance.
- “Wi-Fi”, “Wi-Fi Protected Setup”, “WPA” and “WPA2” are marks or registered marks of the Wi-Fi Alliance.
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Pursuant to at the directive 2004/108/EC, article 9(2)  
**Panasonic Testing Centre**  
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