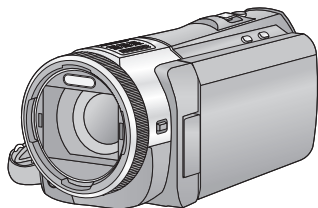


Panasonic®

Basic Operating Instructions High Definition Video Camera

Model No. **HC-X900**
HC-X900M



Before use, please read these instructions completely.

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



AVCHD™
3D / Progressive

HDMI

SD™
XC

LEICA
DICOMAR

VIERA
Link

DOLBY
DIGITAL
5.1 CREATOR

3D
FULL HD

Information for Your Safety

WARNING:

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

- Do not expose this unit to rain, moisture, dripping or splashing.
- 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.

Install this unit so that the AC mains lead can be unplugged from the socket outlet immediately if any problem occurs.

■ Concerning the battery

Warning

Risk of fire, explosion and burns. Do not disassemble.

Do not heat the batteries above the following temperatures or incinerate.

Button-type battery 60 °C

Battery pack 60 °C

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.

Warning

Keep the Button-Type battery out of the reach of children. Never put Button-Type battery in mouth. If swallowed call your doctor.

Button-type battery: CR2025

Use only the recommended accessories.

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

■ Product identification marking

Product	Location
High Definition Video Camera	Battery holder
AC adaptor	Bottom

GC only

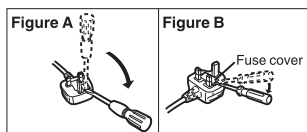
How to replace the fuse

The location of the fuse differ according to the type of AC mains plug (figures A and B).

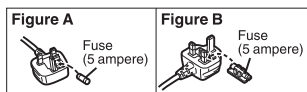
Confirm the AC mains plug fitted and follow the instructions below.

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.



-If you see this symbol-

Information on Disposal in other Countries outside the European Union



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

■ Cautions for use

For Australia and New Zealand

In the event of abnormal operation (e.g. if the unit emits smoke or an unusual smell), immediately stop operating the unit and consult the Panasonic Customer Care Centre on 132600.

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 using a headphone

- Excessive sound pressure from earphones and headphones can cause hearing loss.
- Listening at full volume for long periods may damage the user's ears.

■ About the recording format for recording motion pictures

You can select from AVCHD* or iFrame recording formats to record motion pictures using this unit.

* It is compatible with AVCHD 3D or AVCHD Progressive (1080/50p).

AVCHD 3D:

It is possible to record powerful, life-like 3D full high definition images.

A 3D compatible television compatible to the frame sequential format is required to view the 3D full high definition images.

AVCHD Progressive:

It is possible to record 2D image in the highest quality (1080/50p) for this unit.

iFrame:

This is a recording format suitable for viewing or editing on Mac (iMovie'11). Using iMovie'11, iFrame motion pictures can be imported faster than AVCHD motion pictures. Also, the imported file size of iFrame motion pictures will be smaller than that of AVCHD motion pictures.

- 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, the viewfinder or LCD Monitor is fogged up)






Condensation occurs when the ambient temperature or humidity changes. Be careful of condensation since it causes lens, viewfinder and LCD monitor stains, fungus and camera malfunction.

■ 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”.
- Functions that can be used for Motion Picture Recording Mode: 
Functions 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 picture only): 
Function that can be used for the Playback Mode (still pictures only): 
- Scene(s) recorded in 1080/50p, 1080/50i, AVCHD 3D or side-by-side ([SbS 3D]): AVCHD scene(s)
- Pages for reference are indicated by an arrow, for example: → 00

These operating instructions are designed for use with models **HC-X900** and **HC-X900M**. Pictures may be slightly different from the original.

- The illustrations used in these operating instructions show model **HC-X900**, however, parts of the explanation refer to different models.
- Depending on the model, some functions are not available.
- Features may vary, so please read carefully.
- Not all models may be available depending on the region of purchase.

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Accessories

Check the accessories before using this unit.

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

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

Battery pack

VW-VBN130



CD-ROM

Software



AC adaptor

VSK0733



CD-ROM

Operating Instructions

VFF0984



AC cable

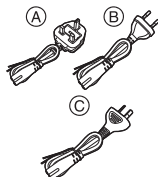
(GC)

(A) K2CT3YY00034

(B) K2CQ2YY00082

(GN)

(C) K2CJ2YY00052



- (A) Hong Kong Special Administrative Region of China and Saudi Arabia
- (B) Areas Other than Hong Kong Special Administrative Region of China, Saudi Arabia
- (C) Australia and New Zealand

Remote control

(Battery built-in)

N2QAEC000024



AV multi cable

K1HY12YY0012 or

K1HY12YY0008



USB cable

K2KYYYY00201



Lens hood

VDW2412



Shoe adaptor


VYC0996



Optional accessories

Some optional accessories may not be available in some countries.

(GC) Battery charger (VW-BC20E/EB)
(GN) Battery charger (VW-BC20GN)
Battery pack (lithium/VW-VBN130)
Battery pack (lithium/VW-VBN260)
HDMI mini cable (RP-CDHM15, RP-CDHM30)
Wide conversion lens (VW-W4907H) ^{*1}
3D Conversion Lens (VW-CLT2) ^{*1}
Filter kit (VW-LF49NE) ^{*1}
Video DC light (VW-LDC103E) ^{*2}
Light bulb for video DC light (VZ-LL10E)
Stereo microphone (VW-VMS2E) ^{*3}
Shoe adaptor (VW-SK12E)
DVD burner (VW-BN01)

^{*1} Remove the lens hood (supplied) and set to the flash setting to  ([OFF]).

^{*2} (GC)

To use the VW-LDC103E, the battery pack/VW-VBG130, VW-VBG260 is required. To charge the battery pack/VW-VBG130, VW-VBG260, the AC adaptor/VW-AD21E/EB-K, VW-AD20E/EB-K is required.

(GN)

To use the VW-LDC103E, the battery pack/VW-VBG130, VW-VBG260 is required. To charge the battery pack/VW-VBG130, VW-VBG260, the AC adaptor/VW-AD21GN-K, VW-AD20GN-K is required.

^{*3} External microphone may intrude into the frame when recording. Set the zoom to wide angle, and tilt the external microphone upward so it will not intrude into the frame. This will not affect the audio being recorded.

Power supply

■ About batteries that you can use with this unit

The battery that can be used with this unit is VW-VBN130/VW-VBN260.

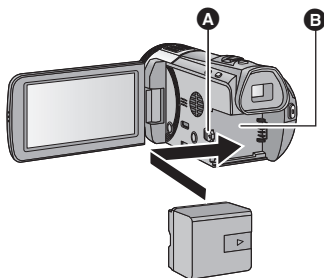
- The unit has a function for distinguishing batteries which can be used safely. The dedicated battery (VW-VBN130/VW-VBN260) supports this function. The only batteries suitable for use with this unit are genuine Panasonic products and batteries manufactured by other companies and certified by Panasonic. (Batteries which do not support this function cannot be used). 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. (→ 15)

Open the LCD monitor and install the battery by inserting it in the direction shown in the figure.

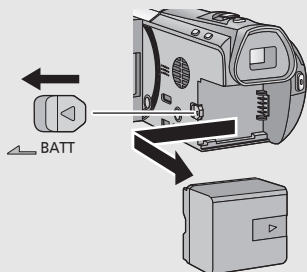


- A** Insert the battery until it clicks and locks.
- B** Battery holder

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.



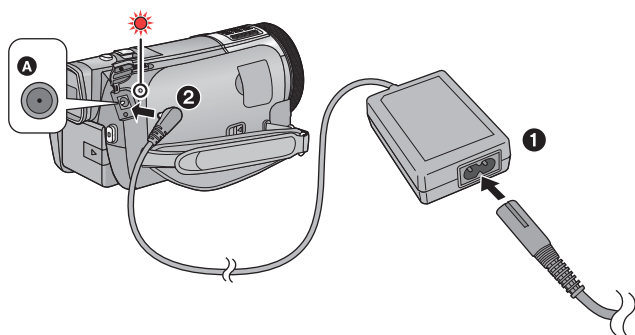
Charging the battery

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:

- Use the supplied AC adaptor. Do not use the AC adaptor of another device.
- 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.
- (GC)
The battery can also be charged using a battery charger (VW-BC20E/EB: optional).
- (GN)
The battery can also be charged using a battery charger (VW-BC20GN: optional).
- 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

- Insert the plugs as far as they will go.

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

If you turn on the unit while connecting with the AC adaptor, you can use the unit with power supplied from the outlet.

When recording for a long time, keep the AC adaptor connected and use it together with the battery.

- Do not use any other AC adaptors except the supplied one.
- We recommend using Panasonic batteries (→ 7, 8).
- 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
- When using the viewfinder (times in parentheses are when using the LCD monitor)

Battery model number [Voltage/Capacity (minimum)]	Charging time	Recording mode	Maximum continuous recordable time	Actual recordable time
Supplied battery/ VW-VBN130 (optional) [7.2 V/1250 mAh]	2 h 30 min	[1080/50p], [AVCHD 3D]*	1 h 25 min (1 h 15 min)	55 min (45 min)
		[HA], [HG], [HX], [HE]	1 h 30 min (1 h 20 min)	55 min (50 min)
		[iFrame], [SbS 3D]*	1 h 35 min (1 h 20 min)	55 min (50 min)



- * This will be the recording mode when the 3D Conversion Lens (optional) is attached.
- 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.
- The batteries heat up after use or charging. This is not a malfunction.

Battery capacity indication

- The display changes as the battery capacity reduces.



If there is less than 3 minutes remaining, then  will become red. If the battery discharges, then  will flash.

- Screen display will disappear when no touch operation is performed. However, it will be constantly displayed when the remaining battery time becomes less than 30 minutes.
- The remaining battery capacity is displayed when using the Panasonic battery that you can use for this unit. The actual time can vary depending on your actual use.
- When using the AC adaptor or batteries made by other companies, the remaining battery capacity will not be shown.

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.

This unit (an SDXC compatible device) is compatible with SD Memory Cards, SDHC Memory Cards and SDXC Memory Cards. When using an SDHC memory card/SDXC memory card with other equipment, check the equipment is compatible with these memory cards.

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.

Card type	Capacity
SD Memory Card	512 MB/1 GB/2 GB
SDHC Memory Card	4 GB/6 GB/8 GB/12 GB/16 GB/24 GB/32 GB
SDXC Memory Card	48 GB/64 GB

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

e.g.:

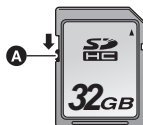


- Please confirm the latest information about SD Memory Cards/SDHC Memory Cards/SDXC Memory Cards that can be used for motion picture recording on the following website.

http://panasonic.jp/support/global/cs/e_cam

(This website is in English only.)

- Operation of the SD Memory Card 256 MB or less is not guaranteed. Also, the SD Memory Card 32 MB or less cannot be used for the motion picture recording.
- 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.
- The operation of Memory Cards exceeding 64 GB cannot be guaranteed.
- When the write-protect switch **A** on SD card is locked, no recording, deletion or editing will be possible on the card.
- Keep the Memory Card out of reach of children to prevent swallowing.

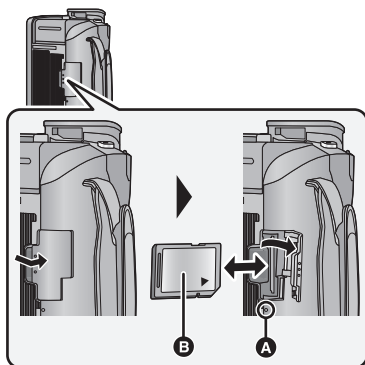


Inserting/removing an SD card

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. (→ 24) 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.



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

- Face the label side **B** 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 Press the **C** part of the SD card cover and close the SD card cover.



- Securely close it until it clicks.

Access lamp [ACCESS] **A**

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

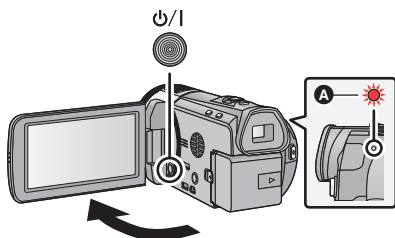
- Do not touch the terminals on the back of the SD card.
- Do not apply strong shocks, bend, or drop the SD card.
- Electrical noise, static electricity or the failure of this unit or the SD card may damage or erase the data stored on the SD card.
- When the card access lamp is lit, do not:
 - Remove the SD card
 - Turn the unit off
 - Insert and remove the USB cable
 - Expose the unit to vibrations or shockPerforming the above while the lamp is on may result in damage to data/SD card or this unit.
- Do not expose the terminals of the SD card to water, garbage or dust.
- Do not place SD cards in the following areas:
 - In direct sunlight
 - In very dusty or humid areas
 - Near a heater
 - Locations susceptible to significant difference in temperature (condensation can occur.)
 - Where static electricity or electromagnetic waves occur
- To protect SD cards, return them to their cases when you are not using them.
- About disposing of or giving away the SD card.
(Refer to the Operating Instructions (PDF format))

Turning the unit on/off

You can turn the unit on and off using the power button, the LCD monitor or the viewfinder.

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.

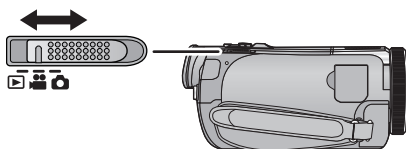
A The status indicator lights on.




Opening the LCD monitor or extending the viewfinder turns on the unit. Closing the LCD monitor/viewfinder turns off the unit.

Selecting a mode

Change the mode to recording or playback.

Operate the mode switch to change the mode to ,  or .



	Motion Picture Recording Mode (→ 20)
	Still Picture Recording Mode (→ 20)
	Playback Mode (→ 21)

Preparation of the LCD monitor/Viewfinder

The viewfinder is turned off and the LCD monitor is turned on when the LCD monitor is opened.

The viewfinder is turned on when the LCD monitor is closed and the viewfinder is extended.

- Live image recording or 3D recordings can be viewed in 3D on the LCD monitor.

There are differences in the way that different people experience 3D images. Check from a position directly in front of and at around 25 cm from the LCD monitor, where you can easily see picture.

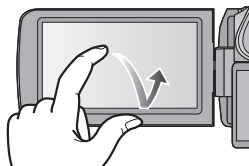
How to use the touch screen

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

■ Touch

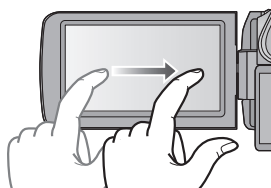
Touch and release the touch screen to select icon or picture.

- 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




These icons are used to switch the menu and thumbnail display page, for item selection and setting etc.



Touch to return to the previous screen such as when setting menus.

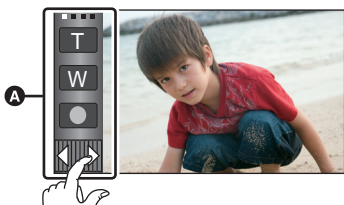


About the Touch Menu

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

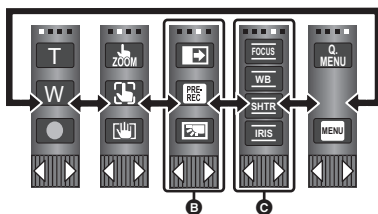
Touch ◀ (left side)/▶ (right side) of  on the Touch Menu.

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

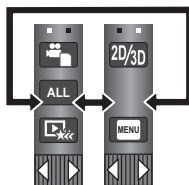


A Touch Menu

Recording mode




Playback mode



- B** Operation icons to display can be changed.
- C** Displayed only during the Manual Mode.

■ To display the Touch Menu



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

- Do not touch on the LCD monitor with hard pointed tips, such as ball point pens.

Setting date and time

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 below to set the date and time.

1 Select the menu. (→ 23)

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.
- The 24-hour system is used to display the time.



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.

-
- The date and time function is driven by a built-in lithium battery.
 - If the time display becomes [- -], the built-in lithium battery needs to be charged. To recharge the built-in lithium battery, connect the AC adaptor or attach the battery to this unit. Leave the unit as it is for approx. 24 hours and the battery will maintain the date and time for approx. 6 months. (The battery is still being recharged even if the unit is off.)

For Australia and New Zealand

WARNING

THE LITHIUM BATTERY IN THIS UNIT MUST ONLY BE REPLACED BY QUALIFIED PERSONNEL. IF THIS IS NECESSARY, CONTACT THE PANASONIC CUSTOMER CARE CENTRE ON 132600 FOR YOUR NEAREST AUTHORIZED SERVICE CENTRE.

Selecting a media to record [HC-X900M]

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

1 Change the mode to  or .

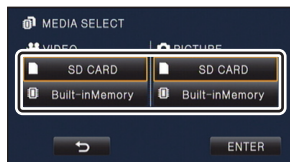
2 Select the menu. (→ 23)

 : [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].



Intelligent Auto Mode

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



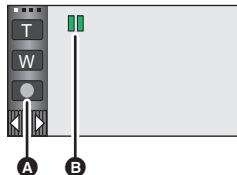
Intelligent auto/Manual button
Press this button to switch Intelligent Auto Mode/Manual Mode.



Recording motion pictures

- 1 Change the mode to . (→ 15)
- 2 Open the LCD monitor or extend the viewfinder.

- 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. This icon functions in the same manner as the recording start/stop button.



Recording still pictures

- 1 Change the mode to . (→ 15)
- 2 Open the LCD monitor or extend the viewfinder.
- 3 Press the button halfway.
(For Auto Focus only)



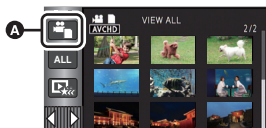
- 4 Press the button fully.



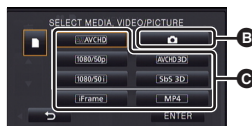
Motion picture/Still picture playback



- 1 Change the mode to . (→ 15)
- 2 Touch the play mode select icon **A**. (→ 17)

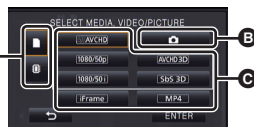


- 3 **[HC-X900]**
Select the still picture **B** or the recording format of the motion picture **C** you wish to play back.



[HC-X900M]

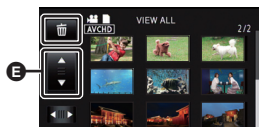
Select the media type **D** and then select the still picture **B** or the recording format of the motion picture **C** you wish to play back.



- Touch [ENTER].
- The icon is displayed in the thumbnail display when the item for motion picture is touched.
(AVCHD, 1080/50p, 1080/50i, iFrame, MP4, AVCHD 3D, Sbs 3D)
- 50p is displayed on the 1080/50p scene, 3D (Blue) is displayed on the AVCHD 3D scene and 3D is displayed on the side-by-side scene by touching [ALL AVCHD].

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

- It will switch to the screen displaying and thumbnail scroll lever **E** when no operation is performed for approximately 5 seconds on the thumbnail display screen.
- To display the next (previous) page:
 - Slide the thumbnail display upward (downward) while touching it.
 - Touch ▲ (up)/ ▼ (down) on the thumbnail scroll lever.



5 Select the playback operation by touching the operation icon.



F Operation icon

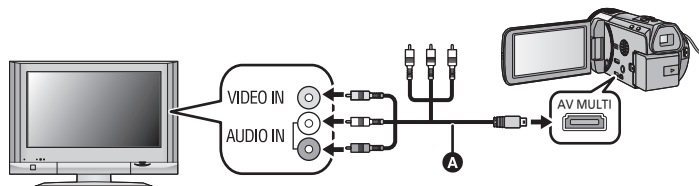
- Operation icons and screen display will disappear when no touch operation is performed for a specific period of time. To display them again, touch the screen.

Motion picture playback	Still picture playback
<p>▶/II: Playback/Pause</p> <p>◀◀: Rewind playback</p> <p>▶▶: Fast forward playback</p> <p>■: Stops the playback and shows the thumbnails.</p>	<p>▶/II: Slide show (playback of the still pictures in numerical order) start/pause.</p> <p>◀II: Plays back the previous picture.</p> <p>II▶: Plays back the next picture.</p> <p>■: Stops the playback and shows the thumbnails.</p>

Watching Video/Pictures on your TV



1 Connect this unit to a TV.



A AV multi cable (supplied)

- Check that the plugs are inserted as far as they go.
- Do not use any other AV multi cables except the supplied one.
- When connecting to the component terminal of the TV, the yellow plug of the AV multi cable is not required.
- When connecting to the AV terminal of the TV, do not connect the component terminal plug of the AV multi cable. Image may not display when the component terminal plug is connected simultaneously.

2 Select the video input on the TV.

3 Change the mode to to play back.

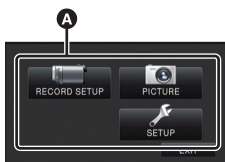
Using the menu screen

- Touch ◀ (left side)/▶ (right side) of  on the Touch Menu to display . (→ 17)

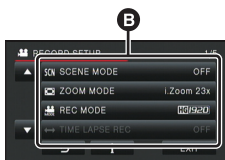
1 Touch .





2 Touch the top menu .



3 Touch the submenu .




- Next (previous) page can be 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.

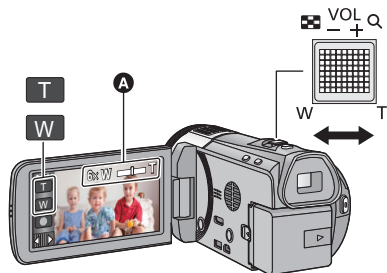
- After the messages have been displayed, the guide display is cancelled.

Language selection

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

 : [SETUP] → [LANGUAGE] →
desired setting

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.

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.

Select the menu.

HC-X900

MENU : [SETUP] → [FORMAT CARD]

HC-X900M

MENU : [SETUP] → [FORMAT MEDIA] → [SD CARD] or [Built-inMemory]

Specifications

High Definition Video Camera

Information for your safety

Power source:	DC 9.3 V (When using AC adaptor) DC 7.2 V (When using battery)	
Power consumption:	Recording; 8.9 W	Charging; 10.3 W

Motion picture recording format:

[AVCHD]; AVCHD format version 2.0 compliant (AVCHD 3D/Progressive)
[iFrame]; MPEG-4 AVC file format compliant (.MP4)

Motion picture compression:

MPEG-4 AVC/H.264

MPEG-4 MVC/H.264 (AVCHD 3D)

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)

[HA]; Average 17 Mbps (VBR)

[HG]; Average 13 Mbps (VBR)

[HX]; Average 9 Mbps (VBR)

[HE]; Average 5 Mbps (VBR)

[iFrame]; Maximum 28 Mbps (VBR)

[AVCHD 3D]; Maximum 28 Mbps (VBR)

[SbS 3D]; Average 17 Mbps (VBR)

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

Still picture recording format:

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

MPO format compatible (3D still picture)

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

Recording media:

SD Memory Card (FAT12 and FAT16 system compliant)

SDHC Memory Card (FAT32 system compliant)

SDXC Memory Card (exFAT system compliant)

Refer to page 13 for details on SD cards usable in this unit.

HC-X900M

Built-in memory; 32 GB

Image sensor:

1/4.1 type (1/4.1") 3MOS image sensor

Total; 3050 K×3

Effective pixels;

Motion picture; 2190 K to 2070 K ×3 (16:9)

Still picture; 2290 K×3 (4:3), 2370 K×3 (3:2), 2190 K to 2070 K ×3 (16:9)

Lens:

Auto Iris, 12× Optical Zoom, F1.5 to F2.8

Focal length; 2.84 mm to 34.1 mm

Macro (Full range AF)

35 mm equivalent;

Motion picture; 29.8 mm to 368.8 mm (16:9)

Still picture; 31 mm to 372 mm (4:3), 29.8 mm to 357.7 mm (3:2), 29.8 mm to 368.8 mm (16:9)

Minimum focus distance;

Normal; Approx. 3.5 cm (Wide)/Approx. 1.2 m (Tele)

Tele Macro; Approx. 95 cm (Tele)

Intelligent Auto Macro; Approx. 1 cm (Wide)/Approx. 95 cm (Tele)

Filter diameter:

49 mm

Zoom:

12× optical zoom, 23× i.Zoom, 30×/700× digital zoom

Image stabilizer function:

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

Monitor:

8.8 cm (3.5") wide LCD monitor (Approx. 1152 K dots)

Viewfinder:

0.61 cm (0.24") wide EVF (Approx. 263 K dots equivalent)

Microphone:

5.1 channel surround microphone (with a zoom microphone/focus microphone functions)/Stereo microphone

Speaker:

1 round speaker, dynamic type

White balance adjustment:

Auto tracking white balance system

Standard illumination:

1,400 lx

Minimum required illumination:

Approx. 1.6 lx (1/25 with Low Light mode in the Scene Mode)

Approx. 1 lx with the Colour Night View function

AV multi connector video output level:

Component video out put level;

Y; 1.0 Vp-p, 75 Ω

Pb; 0.7 Vp-p, 75 Ω

Pr; 0.7 Vp-p, 75 Ω

AV video output level;

1.0 Vp-p, 75 Ω, PAL system

HDMI mini connector video output level:

HDMI™ (x.v.Colour™) 1080p/1080i/576p

AV multi connector audio output level (Line):

316 mV, 600 Ω , 2 ch

Headphone output:

77 mV, 32 Ω (Stereo mini jack)

HDMI mini connector audio output level:

[AVCHD]; Dolby Digital/Linear PCM

[iFrame], [MP4]; Linear PCM

MIC input:

—70 dBV (Mic sensitivity —50 dB equivalent, 0 dB=1 V/Pa, 1 kHz)
(Stereo mini jack)

USB:

Reader function

SD card; Read only (No copyright protection support)

HC-X900M

Built-in memory; Read only

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

USB host function (for DVD burner)

Flash:

Available range; Approx. 1.0 m to 2.5 m

Dimensions:

67 mm (W)×72 mm (H)×150 mm (D) (including projecting parts)

Mass:

HC-X900

Approx. 425 g [without battery (supplied) and an SD card (optional)]

HC-X900M

Approx. 425 g [without battery (supplied)]

Mass in operation:

HC-X900

Approx. 485 g [with battery (supplied) and an SD card (optional)]

HC-X900M

Approx. 485 g [with battery (supplied)]

Operating temperature:

0 °C to 40 °C

Operating humidity:

10%RH to 80%RH

Battery operation time:

See page 11

AC adaptor

Information for your safety

Power source:	AC 110 V to 240 V, 50/60 Hz
Power consumption:	16 W
DC output:	DC 9.3 V, 1.2 A

Dimensions:

52 mm (W)×26 mm (H)×86.3 mm (D)

Mass:

Approx. 115 g

■ 3D Conversion Lens (optional)

Lens:

F2.0 ($f = 1.64$ mm)

35 mm equivalent; 33 mm

Minimum recording distance; Approx. 1.2 m

Minimum illumination:

Approx. 12 lx (1/25 with Low Light Mode in the Scene Mode)

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

- SDXC Logo is a trademark of SD-3C, LLC.
- “AVCHD”, “AVCHD 3D”, “AVCHD Progressive”, “AVCHD 3D/Progressive” and the “AVCHD 3D/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.
- HDMI, the HDMI Logo, and High-Definition Multimedia Interface are trademarks or registered trademarks of HDMI Licensing LLC in the United States and other countries.
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- LEICA is a registered trademark of Leica Microsystems IR GmbH and DICOMAR is a registered trademark of Leica Camera AG.
- Microsoft®, Windows® and Windows Vista® are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.
- iMovie, Mac and Mac OS are trademarks of Apple Inc. registered in the U.S. and other countries.
- Other names of systems and products mentioned in these instructions are usually the registered trademarks or trademarks of the manufacturers who developed the system or product concerned.

This product is licensed under the AVC patent portfolio license for the personal and non-commercial use of a consumer to (i) encode video in compliance with the AVC Standard (“AVC Video”) and/or (ii) decode AVC Video that was encoded by a consumer engaged in a personal and non-commercial activity and/or was obtained from a video provider licensed to provide AVC Video. No license is granted or shall be implied for any other use. Additional information may be obtained from MPEG LA, LLC. See <http://www.mpegla.com>.

Reading the Operating Instructions (PDF format)

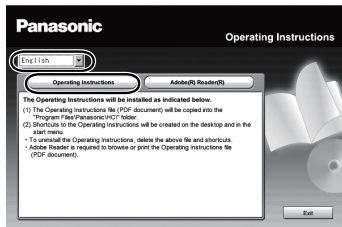
More detailed instructions on the operation of this unit are contained in “Operating Instructions (PDF format)” in the supplied CD-ROM. Install it on your PC to read it.

■ For Windows

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

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

(Example: When an English language OS)



3 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).

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/othersversions>

If using the following OS

- Windows XP SP3
- Windows Vista SP2
- Windows 7

Insert the CD-ROM containing the Operating Instructions (supplied), click [Adobe(R) Reader(R)] and then follow the messages on the screen to install.

■ To uninstall the Operating Instructions (PDF format)

Delete the PDF file from the “Program Files\Panasonic\HC\” folder.

- When the contents in the Program Files folder cannot be displayed, click the [Show the contents of this folder] to display them.

■ 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.

[illegible]

Panasonic Corporation

Web site: <http://panasonic.net>

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