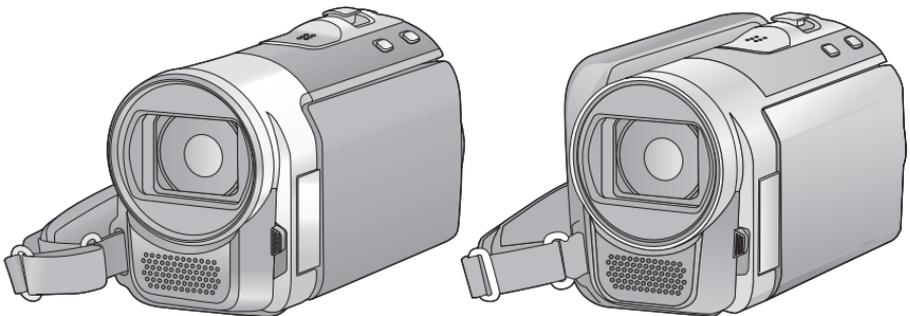# Panasonic®

Operating Instructions

SD Video Camera
Model No. **SDR-S50**
SDR-T50

SD/HDD Video Camera
Model No. **SDR-H85**

Before use, please read these instructions completely.

> **Please also refer to Operating Instructions (PDF format) recorded on the CD-ROM containing the Operating Instructions (supplied).**
> You can learn about advanced operation methods and check the Troubleshooting.

SD
XC™

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

EP

VQT2L26

Information for Your Safety

WARNING:

TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK OR PRODUCT DAMAGE,
- **DO NOT EXPOSE THIS APPARATUS TO RAIN, MOISTURE, DRIPPING OR SPLASHING AND THAT NO OBJECTS FILLED WITH LIQUIDS, SUCH AS VASES, SHALL BE PLACED ON THE APPARATUS.**
- **USE ONLY THE RECOMMENDED ACCESSORIES.**
- **DO NOT REMOVE THE COVER (OR BACK); THERE ARE NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.**

CAUTION!

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

The socket outlet shall be installed near the equipment and easily accessible.
The mains plug of the power supply cord shall remain readily operable.
To completely disconnect this apparatus from the AC Mains, disconnect the power supply cord plug from AC receptacle.

Warning

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

■ EMC Electric and magnetic compatibility

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

Use only the recommended accessories.
- Do not use any other AV cables and USB cables except the supplied one.
- When you use the cable which are sold separately, please make sure to use the one whose length is less than 3 metres.

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

Product Identification Marking is located on the bottom of units.

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

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

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

By disposing of these products and batteries correctly, you will help to save valuable resources and prevent any potential negative effects on human health and the environment which could otherwise arise from inappropriate waste handling.
For more information about collection and recycling of old products and batteries, please contact your local municipality, your waste disposal service or the point of sale where you purchased the items.
Penalties may be applicable for incorrect disposal of this waste, in accordance with national legislation.

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

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

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

■ **Cautions for use**
Keep the SD Video Camera, SD/HDD Video Camera as far away as possible from electromagnetic equipment (such as microwave ovens, TVs, video games etc.).
● If you use the SD Video Camera, SD/HDD Video Camera on top of or near a TV, the pictures and sound on the SD Video Camera, SD/HDD Video Camera may be disrupted by electromagnetic wave radiation.
● Do not use the SD Video Camera, SD/HDD Video Camera near cell phones because

doing so may result in noise adversely affecting the pictures and 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 the SD Video Camera, SD/HDD Video Camera, disturbing the pictures and sound.
● If the SD Video Camera, SD/HDD Video Camera is adversely affected by electromagnetic equipment and stops functioning properly, turn the SD Video Camera, SD/HDD Video Camera off and remove the battery or disconnect AC adaptor. Then reinsert the battery or reconnect AC adaptor and turn the SD Video Camera, SD/HDD Video Camera on.

Do not use the SD Video Camera, SD/HDD Video Camera near radio transmitters or high-voltage lines.
● If you record near radio transmitters or high-voltage lines, the recorded pictures and sound may be adversely affected.
Connecting to a PC
● Do not use any other USB cables except the supplied one.

■ **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/HDD related component).

These operating instructions are designed for use with models SDR-H85, SDR-S50 and SDR-T50. Pictures may be slightly different from the original.
● The illustrations used in these operating instructions show model SDR-S50, 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.

■ 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/motion picture playback are indicated by │ VIDEO │ in these operating instructions.
● Functions that can be used for still picture recording/still picture playback are indicated by │ PHOTO │ in these operating instructions.
● Pages for reference are indicated by an arrow, for example: → 00

■ Handling of built-in memory [SDR-T50]

[SDR-T50]

This unit is equipped with the built-in 4 GB memory. When using this component, pay attention to the following points.

Back up data periodically.
The built-in memory is temporary storage. In order to avoid erasing data due to static electricity, electromagnetic waves, breakage, and failures, back up the data to a PC or DVD disc.

● Access lamp [ACCESS] (→ 8) illuminates while the SD card or built-in memory is being accessed (initialization, recording, playback, deleting etc.). Do not perform the following operations when the lamp illuminates. It may damage the built-in memory or cause a malfunction in the unit.
  – Turn off the power (remove the battery)
  – Insert and remove the USB cable
  – Expose the unit to vibrations or shock
● About disposing of or giving away this unit.

■ Handling of HDD [SDR-H85]

[SDR-H85]

This unit is equipped with the built-in 80 GB HDD. While the HDD is capable of storing a large amount of data, there are a few things to look out for. When using this component, pay attention to the following points.

Do not expose the HDD to vibrations and shocks.
Due to the environment and handling conditions, the HDD may be subject to partial damages or may not be able to read, record, and play back data. Do not expose the unit to vibrations or shock, and do not turn off the power during recording or playback.
If the unit is used in a place with loud sounds, such as a club or venue, the recording may stop due to sound vibrations. Recording data on an SD card is recommended in these places.

Back up data periodically.
The HDD is temporary storage. In order to avoid erasing data due to static electricity, electromagnetic waves, breakage, and failures, back up the data to a PC or DVD disc.

If the HDD experiences any abnormality, back up data immediately.
Failure in the HDD may produce continuous noise or choppy sound during recording or playing back. Continuous use will cause further deterioration, and may eventually disable the HDD. If these phenomena are observed, copy the data on the HDD to a PC, a DVD disc etc. immediately and contact your dealer.
Once the HDD is out of order, data cannot be restored.

Operation may stop in hot or cold environments.
The unit is disabled in order to protect the HDD.

Do not use the unit in low atmospheric pressures.
The HDD may fail if it is used at altitudes of 3000 m or higher above sea level.

Transportation
When the unit is transported, turn off the power and be careful not to shake, fall, or impact the unit.

Falling detection

[🕒] is indicated on the screen when it detects a falling state (a weightless state). If the falling state is detected repeatedly, the unit may stop the recording or playback operation in order to protect the HDD.

● HDD access lamp [ACCESS HDD] (→ 10) illuminates while the HDD is being accessed (initialization, recording, playback, deleting etc.). Do not perform the following operations when the lamp illuminates. It may damage the HDD or cause a malfunction in the unit.
  − Turn off the power (remove the battery)
  − Insert and remove the USB cable
  − Expose the unit to vibrations or shock
● About disposing of or giving away this unit.

■ 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.

■ 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 15 for more details on SD cards.

■ Licenses
● SDXC Logo is a trademark of SD-3C, LLC.
● U.S. Patent Nos. 6,836,549; 6,381,747; 7,050,698; 6,516,132; and 5,583,936. This product incorporates copyright protection technology that is protected by U.S. patents and other intellectual property rights. Use of this copyright protection technology must be authorized by Macrovision, and is intended for home and other limited viewing uses only unless otherwise authorized by Macrovision. Reverse engineering or disassembly is prohibited.

● Microsoft®, Windows® and Windows Vista® are either registered trademarks or trademarks of the Microsoft Corporation in the United States and/or other countries.
● Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation.
● IBM and PC/AT are registered trademarks of International Business Machines Corporation of the U.S.
● Intel®, Core™, Pentium® and Celeron® are the registered trademarks or trademarks of the Intel Corporation in the United States and other countries.
● iMovie and Mac are trademarks of Apple Inc., registered in the U.S. and other countries.
● PowerPC is a trademark of International Business Machines Corporation.
● YouTube and Picasa are trademarks of Google, Inc.
● 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.

Contents

Accessories

Check the accessories before using this unit.
Product numbers correct as of December 2009. These may be subject to change.

Battery pack
VW-VBL090
(SDR-S50)
(SDR-T50)

Battery pack
VW-VBK180
(SDR-H85)

AC adaptor
VSK0712

AC cable
K2CQ29A00002

AV cable
K2KYYYY00054

USB cable
K1HY04YY0032

CD-ROM
Software

CD-ROM
Operating Instructions
VFF0568

Optional accessories

Some optional accessories may not be available in some countries.

Battery charger (VW-BC10E)
Battery pack (lithium/VW-VBL090) (SDR-S50) (SDR-T50)
Battery pack (lithium/VW-VBK180)
Battery pack (lithium/VW-VBK360)
Video DC light (VW-LDC103E)*
Light bulb for video DC light (VZ-LL10E)
Shoe adaptor (VW-SK12E)
DVD burner (VW-BN2)
Accessory kit (VW-ACK180E)

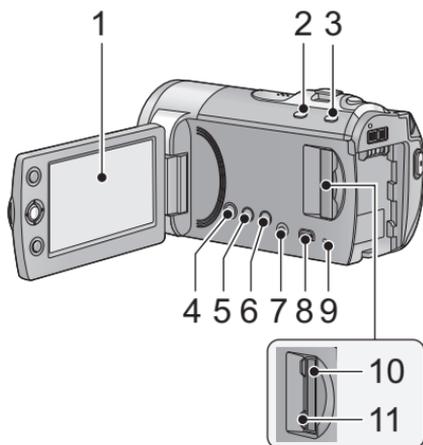* The shoe adaptor VW-SK12E (optional) is necessary.

Preparation

Recording
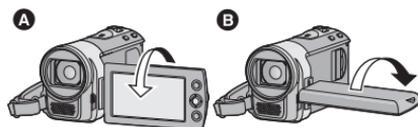
Playback

Others

1 Parts identification and handling

1

2 3

4 5 6 7 8 9

10
11

1 LCD monitor
● Pull the LCD monitor out in the direction of the arrow with your fingers.

● It can open up to 90°.

Ⓐ   Ⓑ

● It can rotate up to 180° Ⓐ towards the lens or 90° Ⓑ towards the opposite direction.
● The brightness and colour level of the LCD monitor can be adjusted.

Due to limitations in LCD production technology, there may be some tiny bright or dark spots on the LCD monitor screen. However, this is not a malfunction and does not affect the recorded picture.

2 Intelligent auto/Manual button [iA/MANUAL] (→ 21)
3 Optical image stabilizer button [((⌂)) , O.I.S.] (→ 25)
4 Power button [⏻/I] (→ 17)
5 Delete button [🗑] (→ 28)
6 Long recording button [LONG REC.]
7 Audio-video output terminal [A/V] (→ 30)
● Use the AV cable (only the supplied cable).
8 USB terminal [↔]
9 Access lamp [ACCESS] (→ 16)
10 SD card slot (→ 16)
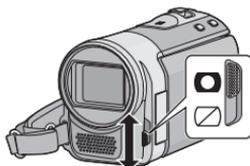**11 SD card cover [SD CARD] (→ 16)**
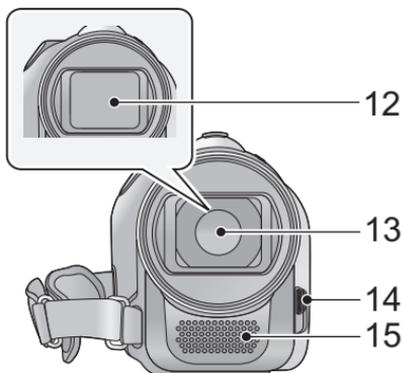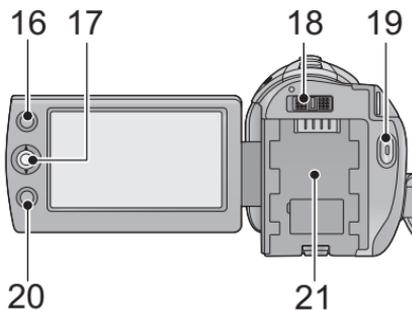
12 Lens cover

13 Lens

14 Open/close switch for the lens cover
For the lens protection, be sure to close the lens cover when not in use.

Slide open/close switch for the lens cover.

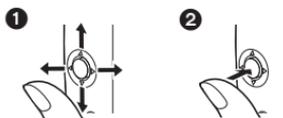**15 Microphone (built-in, stereo)**

16 AF/AE button [AF/AE]

17 Joystick
Use the joystick to select the recording functions and playback operations, and to operate the menu screen.

Move the joystick up, down, left, or right to select a setting or scene and then press the joystick to set it.

❶ Select by moving up, down, left or right.
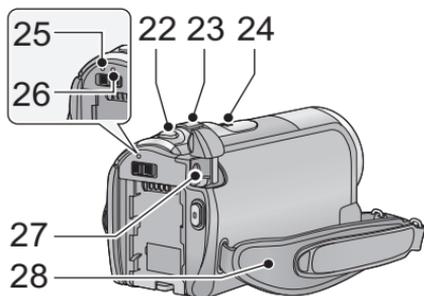
❷ Set by pressing the centre.

● Menu screen operations (➔ 19)

● To select the recording functions

● To adjust manually

● Playback operations (➔ 26, 27)

18 Mode switch (➔ 18)

19 Recording start/stop button (➔ 22)

20 Menu button [MENU] (➔ 19)

21 Battery holder (➔ 11)

22 **Photoshot button [📷] (→ 23)**
23 **When recording: Zoom lever [W/T] (→ 24)**
   When playing back: Thumbnail display switch [🔲 / 🔍]/Volume lever [−VOL+]
24 **Speaker**
25 **Status indicator (→ 17)**
26 **HDD access lamp [ACCESS HDD] (SDR-H85) (→ 5)**
27 **DC input terminal [DC IN] (→ 12)**
● Do not use any other AC adaptors except the supplied one.
28 **Grip belt**
Adjust the belt length and the pad position.
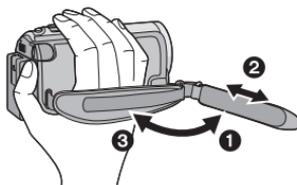
❶ Flip the belt.
❷ Adjust the length.
❸ Replace the belt.
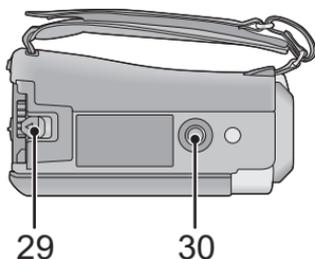
29 **Battery release lever [BATTERY] (→ 11)**
30 **Tripod receptacle**

Power supply

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

SDR-S50 / SDR-T50

The battery that can be used with this unit is VW-VBL090/VW-VBK180/VW-VBK360.

SDR-H85

The battery that can be used with this unit is VW-VBK180/VW-VBK360.

● SDR-H85 **The unit has a function for judging whether the battery can be used safely, and only dedicated batteries (VW-VBK180/VW-VBK360) support this function. Only batteries which are genuine Panasonic products and batteries from other companies certified by Panasonic can be used. (Only batteries which support this function can be used) Note that Panasonic can only guarantee the quality, performance or safety of genuine Panasonic batteries and not those made by other companies.**

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 the battery

● **Press the power button to turn off the power. (→ 17)**
**Install the battery by inserting it in the direction shown in the figure.**
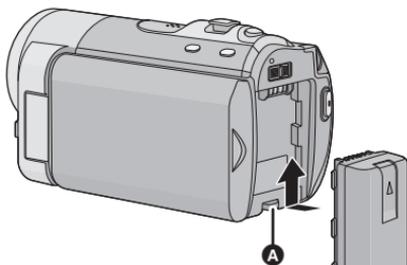
Ⓐ Insert the battery until it clicks and locks.

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.
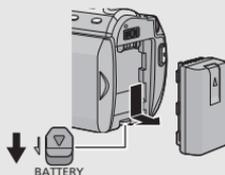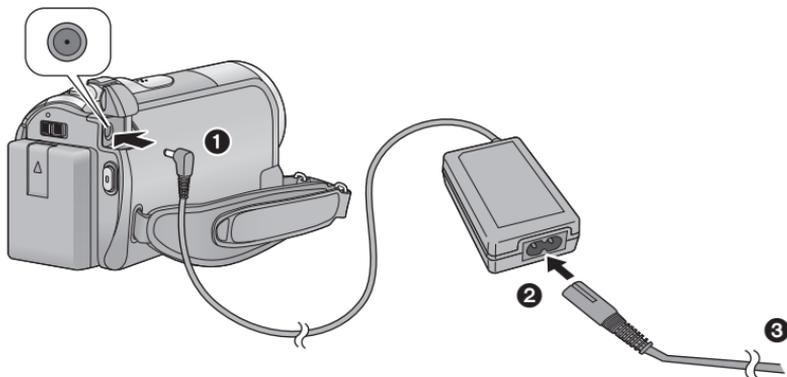
Charging the battery

When this unit is purchased, the battery is not charged. Charge the battery before
using this unit.

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.
● The battery will not be charged if the power is turned on.

1 Connect the AC adaptor to this unit's DC input terminal.

2 Connect the AC cable to the AC adaptor, then the AC outlet.

● For the AC cable, plug in ❷ and then ❸.
● The status indicator will flash red at an interval of 2 seconds, indicating that charging has
begun.

■ Connecting to the AC outlet

If you turn on this unit while charging the battery using the AC adaptor, you can use the
power supplied from the AC outlet to power the unit for use.

● We recommend using Panasonic batteries (→ 7, 13).
● 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 an automobile exposed to direct sunlight for a long period
of time with doors and windows closed.

CAUTION

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

Charging and recording time

■ **Charging/Recording time**

● Temperature: 25 °C/humidity: 60%

SDR-S50/SDR-T50			
Battery model number [Voltage/Capacity (minimum)]	**Charging time**	**Maximum continuously recordable time**	**Actual recordable time**
Supplied battery/ VW-VBL090 (optional) [3.6 V/895 mAh]	2 h 20 min	1 h 20 min	40 min
VW-VBK180 (optional) [3.6 V/1790 mAh]	2 h 50 min	2 h 55 min	1 h 30 min
VW-VBK360 (optional) [3.6 V/3580 mAh]	4 h 50 min	6 h	3 h 10 min

SDR-H85					
Battery model number [Voltage/ Capacity (minimum)]	**Charging time**	**Recording destination**	**Recording mode**	**Maximum continuously recordable time**	**Actual recordable time**
Supplied battery/ VW-VBK180 (optional) [3.6 V/1790 mAh]	2 h 50 min	HDD	XP	2 h 30 min	1 h 15 min
			SP/LP/LXP/ LSP/LLP	2 h 30 min	1 h 20 min
		SD	XP/SP	2 h 35 min	1 h 20 min
			LP/LXP/ LSP/LLP	2 h 40 min	1 h 25 min
VW-VBK360 (optional) [3.6 V/3580 mAh]	4 h 50 min	HDD	XP	5 h	2 h 40 min
			SP	5 h 5 min	2 h 40 min
			LP/LXP/ LSP/LLP	5 h 10 min	2 h 45 min
		SD	XP	5 h 15 min	2 h 45 min
			SP	5 h 20 min	2 h 50 min
			LP/LXP/ LSP/LLP	5 h 25 min	2 h 50 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.**
- VW-VBL090 is not available for SDR-H85 .

- 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.
  $\boxed{\square\square\square} \rightarrow \boxed{\square\square} \rightarrow \boxed{\blacksquare\square} \rightarrow \boxed{\blacksquare\blacksquare} \rightarrow \boxed{\blacksquare\blacksquare\blacksquare}$ If there is less than 3 minutes remaining, then $\boxed{\blacksquare\blacksquare\blacksquare}$ will become red. If the battery discharges, then ($\boxed{\blacksquare\blacksquare\blacksquare}$) will flash.

  SDR-H85

- The remaining battery capacity is displayed when using the Panasonic battery that you can use for this unit. It may take time to display the remaining battery capacity. The actual time can vary depending on your actual use.
- If the actual remaining time exceeds 9 hours 59 minutes, the indication will stay green and will not change until the remaining time falls below 9 hours 59 minutes.
- When using the AC adaptor or batteries made by other companies, the remaining battery capacity will not be shown.

2 Recording to a card

The unit can record still pictures or motion pictures to an SD card, built-in memory, or HDD. 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 2 or higher of the SD Speed Class Rating* for motion picture recording.

Card type	Capacity	Motion picture recording	Still picture recording
SD Memory Card	8 MB/16 MB	Cannot be used.	Can be used.
	32 MB/64 MB/ 128 MB/256 MB	Cannot be guaranteed in operation. The recording may suddenly stop during motion picture recording depending on the SD card you use.	
	512 MB/1 GB/2 GB	Can be used.	
SDHC Memory Card	4 GB/6 GB/8 GB/ 12 GB/16 GB/ 24 GB/32 GB		
SDXC Memory Card	48 GB/64 GB		

* The SD Speed Class Rating is the speed standard for successive writes.

● 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.)

● 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.

● When the write-protect switch Ⓐ 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. (→ 29) 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.
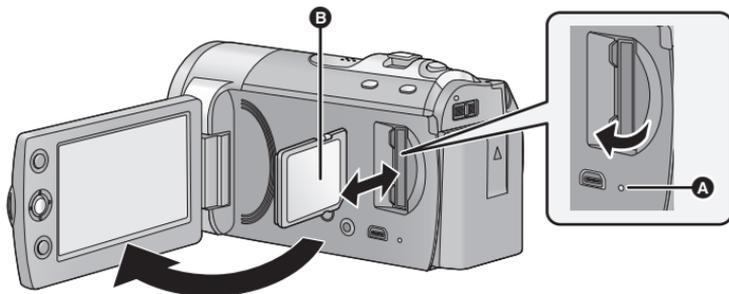
Access lamp [ACCESS] Ⓐ
● When this unit is accessing the SD card or built-in memory, the access lamp lights up.

1 Open the LCD monitor.

2 Open the SD card cover and insert (remove) the SD card into (from) the card slot.
● Face the label side Ⓑ 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.

3 Securely close the SD card cover.
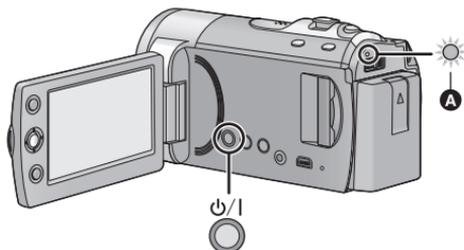
● Do not touch the terminals on the back of the SD card.

3 Turning the unit on/off

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

Turning the power on and off with the power button

Press the power button to turn on the power.

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

Ⓐ The status indicator lights.

Turning the power on and off with the LCD monitor

Power is turned on when the LCD monitor is opened, and power is turned off when it is closed.
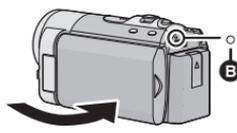**During normal use, opening and closing of the LCD monitor can be conveniently used to turn the power on/off.**

■ **To turn on the power**

■ **To turn off the power**

Ⓐ The status indicator lights.   Ⓑ The status indicator goes off.

● In the following cases, opening the LCD monitor does not turn on the power. Press the power button to turn on the power.
   − When the unit is purchased
   − When you have turned off the power using the power button
● The power will not turn off while recording motion pictures even if the LCD monitor is closed.

17
(ENG) VQT2L26

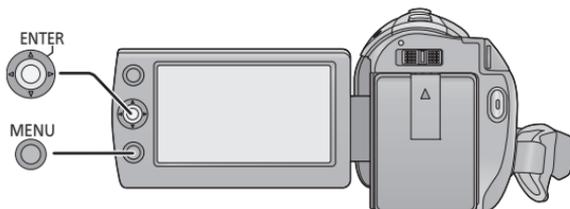Setup

4

Selecting a mode

Change the mode to recording or playback.

Operate the mode switch to change the mode to ▲ or ▶.
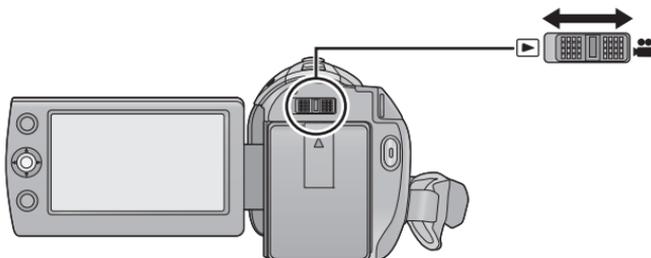
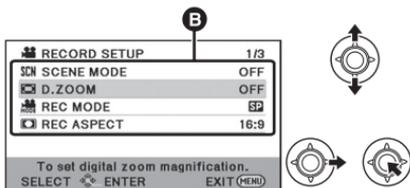
▲	**Recording mode (➔ 22, 23)**
▶	**Playback mode (➔ 26, 27)**

ENTER

MENU

1 **Press the MENU button.**

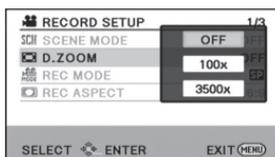*2* **Select the desired top menu Ⓐ, then move the joystick right or press the joystick.**

Ⓐ

| RECORD SETUP |
| PICTURE |
| SETUP |

SELECT ◆ ENTER   EXIT (MENU)
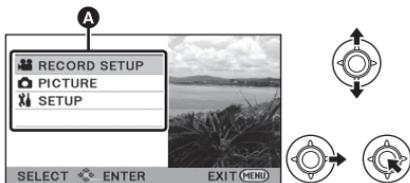
3 **Select the submenu item Ⓑ, then move the joystick right or press the joystick.**

Ⓑ

RECORD SETUP	1/3
SCENE MODE	OFF
D.ZOOM	OFF
REC MODE	SP
REC ASPECT	16:9

To set digital zoom magnification.
SELECT ◆ ENTER   EXIT (MENU)

● Descriptions of submenus and current settings on menus are displayed scrolling at the bottom of the screen.

4 **Select the desired setting, then press the joystick to enter the selection.**

RECORD SETUP	1/3
SCENE MODE	OFF
D.ZOOM	100x
REC MODE	
REC ASPECT	3500x

SELECT ◆ ENTER   EXIT (MENU)

To get back to the previous screen
Move the joystick left.

To exit the menu screen
Press the MENU button.

Language selection

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

1 **Press the MENU button, then select [SETUP] → [LANGUAGE] and press the joystick.**

2 **Select [English] and press the joystick.**

6 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.

◇ **Change the mode to** 🎥 **.**

1 Select the menu. (→ 19)

[SETUP] → [CLOCK SET]

2 Select the date or time, then adjust the desired value with the joystick.

Ⓐ **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 Press the joystick to enter the selection.

● The clock function starts at [00] seconds.
● A message may be displayed prompting you to set the world time.
● Press the MENU button to complete the setting.

Changing the date and time display mode
Select the menu. (→ 19)
[SETUP] → [DATE/TIME] → [OFF]/[D/T]/
[DATE]

*Changing the date format*
Select the menu. (→ 19)
[SETUP] → [DATE FORMAT] → [Y/M/D]/
[M/D/Y]/[D/M/Y]

● The date and time function is driven by a built-in lithium battery.
● When this unit is purchased, the clock is set. 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 power is off.)

1

Before recording

Intelligent auto mode

The following modes appropriate for the condition are set just by pointing the unit to what you want to record.
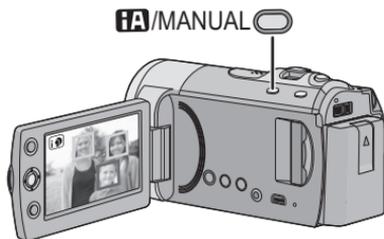
iA/MANUAL

Intelligent auto/Manual button [iA/MANUAL]
**Press this button to change the mode to Intelligent auto mode or manual mode.**

Mode	Scene	Effect
Portrait	**When the object is a person**	Faces are detected and focused automatically, and the brightness is adjusted so it is recorded clearly.
Scenery	**Recording outdoors**	The whole landscape will be recorded vividly without whiting out the background sky, which may be very bright.
Spotlight	**Under a spotlight**	Very bright object is recorded clearly.
Low light	**Dark room or twilight**	It can record very clearly even in a dark room or twilight.
Normal	**Other situations**	Contrast is adjusted automatically for clear image.

● Depending on the recording conditions, the unit may not enter the desired mode.
● In the portrait mode, one that is bigger and close to centre of the screen will be surrounded by an orange frame.
● Image stabilizer function (→ 25) is set to Active mode/ON in all modes.
● Faces cannot be detected depending on the recording conditions, such as when faces are of certain sizes or at certain tilts or when digital zoom is used.

Recording motion pictures

VIDEO

● Open the lens cover before turning the unit on. (→ 9)
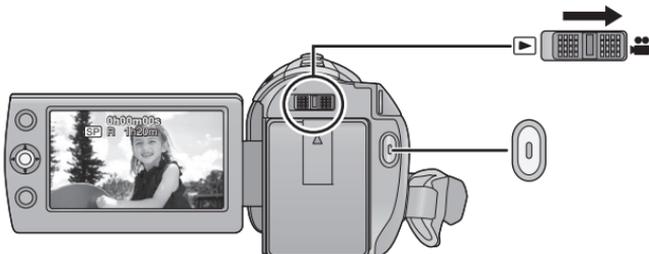
1 Change the mode to 🎥 and open the LCD monitor.

2 Press the recording start/stop button to start recording.

● When you begin recording, ❙❙ changes to ●.
● While recording is in progress, the recording will not stop even if the LCD monitor is closed.

3 Press the recording start/stop button again to pause recording.

■ Screen indications in the motion picture recording mode

ⓐ **Recording mode**

ⓑ **Remaining time left for recording**
(When the remaining time is less than 1 minute, [R 0h00m] flashes red.)

ⓒ **Recording time elapsed**
Each time the unit is put into recording pause, the counter display will be reset to "0h00m00s".

● **Still pictures can be recorded while recording the motion picture.**
● The images recorded between pressing the recording start/stop button to start recording and pressing it again to pause recording become one scene.
The scene is automatically divided when the recorded data exceeds 1.9 GB. (The recording will continue.)

Normal recording mode:
SD CARD
Maximum number of recordable scenes: 9801
Maximum number of different dates: 99
(In the case of SD cards it is the maximum number of recordable scenes per card.)
Built-in Memory/HDD

SDR-T50 / SDR-H85

Maximum number of recordable scenes: 98901
Maximum number of different dates: 999

Long recording mode:
Maximum number of recordable scenes: 89100
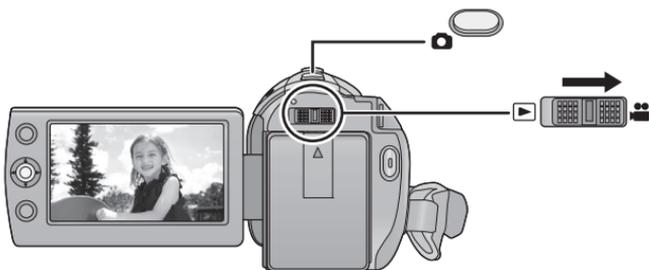Maximum number of different dates: 99
When either of them reaches to the maximum limit, additional scenes cannot be recorded.

Recording still pictures

PHOTO

● Open the lens cover before turning on the power. (➔ 9)
Still pictures can also be recorded while recording motion pictures.

1 **Change the mode to 📹 and open the LCD monitor.**
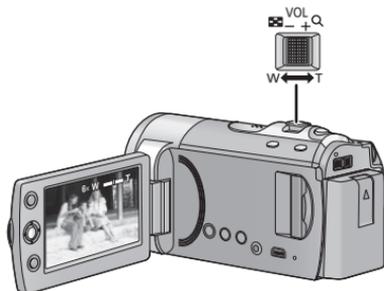
2 **Press the 🔘 button.**

● Because of slower shutter speeds, it is recommended that you use a tripod when recording in low light.

■ **About the screen indications in still picture recording**

R3000: Remaining number of still pictures
(Flashes in red when [0] appears.)

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Recording functions

VIDEO   PHOTO

◇ **Change the mode to 🎥 .**

Zoom lever
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.

Enhanced optical zoom

It is possible to enhance the zoom magnification up to 78× without degrading the image quality when recording.

● If you take your finger off the zoom lever during zoom operation, the operation sound may be recorded. When returning the zoom lever to the original position, move it quietly.
● When distant subjects are brought closer, they are focused at about 1.5 m or more.
● When the zoom magnification is 1×, this unit can focus on a subject approx. 2 cm away from the lens.

Digital zoom function

If the zoom magnification exceeds 78× , then the digital zoom function will be activated. The maximum magnification provided by the digital zoom can be switched.

Select the menu. (➜ 19)

[RECORD SETUP] → [D.ZOOM] → desired setting

[OFF]:   Optical zoom only (Up to 78×)
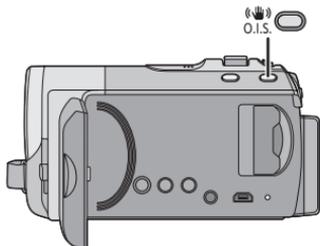**[100×]:**   Up to 100×
[3500×]:   Up to 3500×
● If [100×] or [3500×] is selected, the digital zoom range is displayed in blue while zooming.

● The larger the digital zoom magnification, the more the image quality is degraded.

Image stabilizer function

Optical image stabilizer can stabilize the image without decreasing the image quality as much.

◇ **Change the mode to 📹 .**

Optical image stabilizer button
Pressing the button changes the optical image stabilizer setting.

〔⦅🖐⦆〕 → ⦅🖐⦆ → **OFF**

● Set the manual mode before setting the Optical Image Stabilizer function to off.
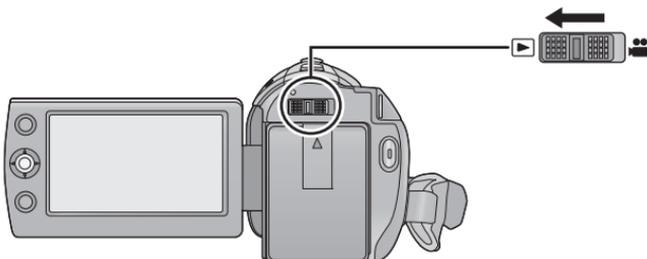
〔⦅🖐⦆〕 **: Active mode**
This setting gives more stabilization and is suitable for recording when walking.
⦅🖐⦆ **: ON**
This setting is suitable for recording in a stable state such as scenery.

● Stabilization may not be possible under strong shaking.
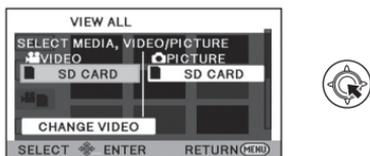● When a tripod is used, we recommend that you turn the image stabilizer off.

1

Motion picture playback

VIDEO

1 **Change the mode to [▶].**

2 **Use the joystick to select the play mode select icon Ⓐ, then press the centre of the joystick.**

3 **Select the media you wish to play back, then press the centre of the joystick.**

SDR-S50

Select [VIDEO/SD CARD] to play back the SD card.

SDR-T50
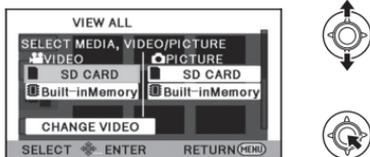
Select [VIDEO/Built-inMemory] to play back the built-in memory.
Select [VIDEO/SD CARD] to play back the SD card.

SDR-H85
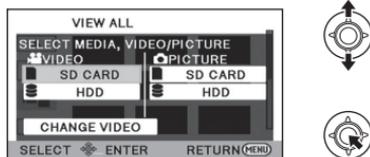
Select [VIDEO/HDD] to play back the HDD.
Select [VIDEO/SD CARD] to play back the SD card.

4 **Select the scene to be played back, then press the joystick.**
● The operation icon will be displayed or hidden each time the centre of the joystick is pressed.
● Next (previous) page can be displayed by selecting [▲]/[▼].

5 **Select the playback operation with the joystick.**

▶/❙❙ : Playback/Pause
◀◀ : Rewind playback
▶▶ : Fast forward playback
■ : Stops the playback and shows the thumbnails.

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VQT2L26 (ENG)

Still picture playback

PHOTO

1 **Change the mode to ▶ .**

2 **Use the joystick to select the play mode select icon Ⓐ, then press the centre of the joystick.**


3 **Select the media you wish to play back, then press the centre of the joystick.**

SDR-S50

Select [PICTURE/SD CARD] to play back the SD card.

SDR-T50
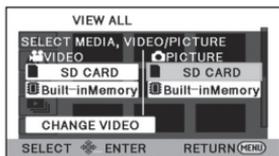
Select [PICTURE/Built-inMemory] to play back the built-in memory.
Select [PICTURE/SD CARD] to play back the SD card.

SDR-H85
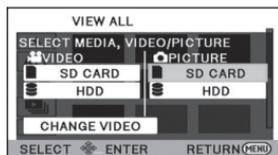
Select [PICTURE/HDD] to play back the HDD.
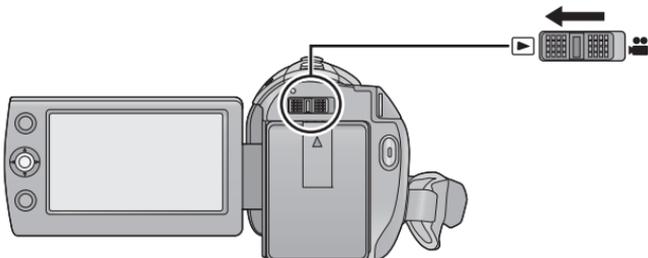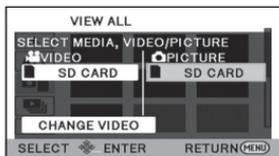Select [PICTURE/SD CARD] to play back the SD card.

4 **Select the still picture to be played back, then press the joystick.**
● The operation icon will be displayed or hidden each time the centre of the joystick is pressed.
● Next (previous) page can be displayed by selecting ▲/ ▼ .

5 **Select the playback operation with the joystick.**

▶/❙❙: **Slide show (playback of the still pictures in numerical order) start/pause.**
◀❙❙: **Plays back the previous picture.**
❙❙▶: **Plays back the next picture.**
■: **Stops the playback and shows the thumbnails.**

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1 Deleting scenes/still pictures

VIDEO   PHOTO

Deleted scenes/still pictures cannot be restored, so perform appropriate confirmation of the contents before proceeding with deletion.

◇ **Change the mode to ▶ .**

To delete by confirming images being played back

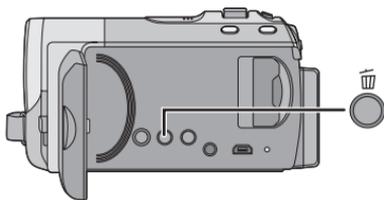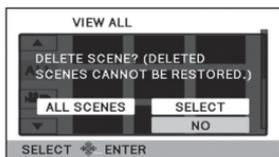Press the 🗑 button while scenes or still pictures to be deleted are being played back.

■ **Deleting multiple scenes/still pictures from the thumbnail display**

1 **Press the 🗑 button while the thumbnail view screen is displayed.**

2 **Select [SELECT] or [ALL SCENES] and press the joystick.**

VIEW ALL

DELETE SCENE? (DELETED
SCENES CANNOT BE RESTORED.)

ALL SCENES   SELECT
                 NO

SELECT ◈ ENTER

● When [ALL SCENES] is selected, all the scenes or still pictures on the selected media will be deleted.
(In case of playing back scenes or still pictures by date, all the scenes or still pictures on the selected date will be deleted.)
● Protected scenes/still pictures cannot be deleted.

3 (Only when [SELECT] is selected in step 2)

Select the scene/still picture to be deleted, then press the joystick.

● A scene or still picture will be selected, and 🗑 will be displayed. Press the centre of the joystick again to deselect.
● Up to 99 scenes can be selected to be deleted.

4 (Only when [SELECT] is selected in step 2)

Select [Delete] and press the joystick or press the 🗑 button.

● To continuously delete other scenes/still pictures, repeat steps 3-4

When you stop deleting halfway
Press the MENU button while deleting.

● The scenes or still pictures that have already been deleted when the deletion is cancelled cannot be restored.

To complete editing
Press the MENU button.

2 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. (→ 19)

SDR-S50

[SETUP] → [FORMAT CARD]

Select [YES], then press the joystick.

● After formatting is complete, press the MENU button to close the message screen.

SDR-T50 / SDR-H85

[SETUP] → [FORMAT MEDIA]

1 Select [SD CARD], [Built-inMemory] or [HDD] and press the joystick.

2 Select [YES], then press the joystick.

● After formatting is complete, press the MENU button to close the message screen.

SDR-T50 / SDR-H85

● Perform a physical formatting of the built-in memory/HDD when this unit is to be disposed/ transferred.

● Do not turn this unit off or remove the SD card, while formatting. Do not expose the unit to vibrations or shock.

Use this unit to format media.
Formatting built-in memory or HDD is only available with this unit.
Do not format an SD card using any other equipment such as a PC. The card may not be used on this unit.

1

Watching Video/Pictures on your TV

VIDEO   PHOTO

The motion pictures and still pictures recorded by this unit can be played back on a TV.

● Use the AC adaptor to free you from worrying about the battery running down.

● If you have a TV with an SD card slot, the motion pictures and still pictures recorded on an SD card may be played back on the TV. (Refer to the operating instructions of the TV for details about TV compatibility.)
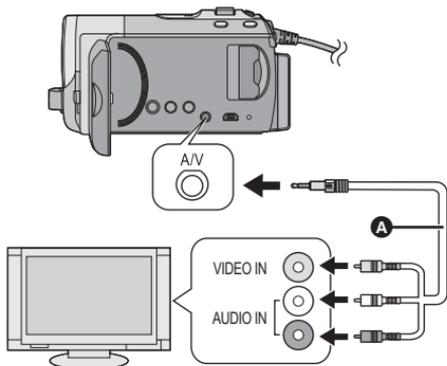
A AV cable (supplied)
● Insert the plugs as far as they will go.
● Do not use any other AV cables except the supplied one.
● Select the video input on the TV that this unit is connected to.

1 **Connect this unit and a TV.**

2 **Turn on this unit, and change the mode to ▶ .**

3 **Start playback on this unit.**

■ **If the image or audio from this unit does not appear on the TV**

● Check the connections.

● Check that the plugs are inserted as far as they go.

● **Check the TV's input setting (input switch). (For more information, please read the operating instructions for the TV.)**

Specifications

SD Video Camera ⌊ SDR-S50 ⌋/⌊ SDR-T50 ⌋
SD/HDD Video Camera ⌊ SDR-H85 ⌋

Information for your safety

Power source:	DC 5.0 V (When using AC adaptor) DC 3.6 V (When using battery)
Power consumption:	Recording: ⌊ SDR-S50 ⌋/⌊ SDR-T50 ⌋ 2.9 W ⌊ SDR-H85 ⌋ 3.5 W Charging: ⌊ SDR-S50 ⌋/⌊ SDR-T50 ⌋ 7.7 W ⌊ SDR-H85 ⌋ 7.7 W

Signal system		CCIR: 625 lines, 50 fields PAL colour signal	
Recording format	SD card	Normal recording mode: Based on the SD-Video standard	
	Built-in memory	⌊ SDR-T50 ⌋	Normal recording mode: Independent standard
	HDD	SDR-H85	Normal recording mode: Independent standard
		Long recording mode: Independent standard	
Image sensor		1/8″ CCD image sensor Total: 800 K Effective pixels:520 K (4:3), 470 K (16:9)	
Lens		Auto Iris, F1.9 to F5.7 Focal length: 1.48 mm to 104 mm Macro (Wide range AF) 35 mm equivalent: Optical zoom: 37.4 mm to 2625 mm (4:3) 36.5 mm to 2571 mm (16:9) Enhanced optical zoom: 33.5 mm to 2625 mm (4:3) 32.8 mm to 2571 mm (16:9) Minimum focus distance: Approx. 2 cm (Wide)/Approx. 1.5 m (Tele)	

Zoom	70× optical zoom, 78× enhanced optical zoom, 100×/3500× digital zoom	
Monitor	2.7″ wide LCD monitor (approx. 123 K dots)	
Microphone	Stereo (with a zoom function)	
Speaker	1 round speaker	
White balance adjustment	Auto tracking white balance system	
Standard illumination	1,400 lx	
Minimum required illumination	Approx. 5 lx (1/25 in low light mode) Approx. 2 lx with the colour night view function	
AV terminal video output level	1.0 Vp-p, 75 Ω, PAL system	
AV terminal audio output level (Line)	316 mV, 600 Ω	
USB	SD card	Read only (No copyright protection support)
	Built-in memory	SDR-T50 Read only
	HDD	SDR-H85 Read only
		Hi-Speed USB (USB 2.0), USB terminal Type Mini AB
Dimensions	SDR-S50 / SDR-T50	54.9 mm (W)×64 mm (H)×107.3 mm (D) (excluding projecting parts)
	SDR-H85	55.1 mm (W)×64 mm (H)×107.3 mm (D) (excluding projecting parts)
Mass	SDR-S50	Approx. 212 g [without battery (supplied) and an SD card (optional)]
	SDR-T50	Approx. 213 g [without battery (supplied)]
	SDR-H85	Approx. 273 g [without battery (supplied)]
Mass in operation	SDR-S50	Approx. 239 g [with battery (supplied) and an SD card (optional)]
	SDR-T50	Approx. 238 g [with battery (supplied)]
	SDR-H85	Approx. 317.5 g [with battery (supplied)]
Operating temperature	0 °C to 40 °C	

Operating humidity	10% to 80%
Battery operation time	See page 13

Motion pictures

<table>
<tr>
<td rowspan="3">Recording media</td>
<td>SD card</td>
<td>SD Memory Card:
512 MB, 1 GB, 2 GB (FAT12 and FAT16 system compliant)
SDHC Memory Card:
4 GB, 6 GB, 8 GB, 12 GB, 16 GB, 24 GB, 32 GB (FAT32 system compliant)
SDXC Memory Card:
48 GB, 64 GB (exFAT system compliant)</td>
</tr>
<tr>
<td>Built-in memory</td>
<td>SDR-T50   4 GB</td>
</tr>
<tr>
<td>HDD</td>
<td>SDR-H85   80 GB</td>
</tr>
<tr>
<td colspan="2">Compression</td>
<td>Normal recording mode: MPEG-2
Long recording mode: MPEG-4 AVC/H.264</td>
</tr>
<tr>
<td colspan="2">Recording mode and transfer rate</td>
<td>XP: Approx. 10 Mbps (VBR)
SP: Approx. 5 Mbps (VBR)
LP: Approx. 2.5 Mbps (VBR)
LXP: Approx. 5 Mbps (VBR)
LSP: Approx. 2.5 Mbps (VBR)
LLP: Approx. 1.25 Mbps (VBR)</td>
</tr>
<tr>
<td colspan="2">Picture size</td>
<td>640×480 (4:3), 640×360 (16:9)</td>
</tr>
<tr>
<td colspan="2">Audio compression</td>
<td>Normal recording mode: MPEG-1 Audio Layer 2
Long recording mode: AAC
16 bit (48 kHz)</td>
</tr>
</table>

Still pictures

Recording media	SD card	SD Memory Card: 8 MB, 16 MB, 32 MB, 64 MB, 128 MB, 256 MB, 512 MB, 1 GB, 2 GB (FAT12 and FAT16 system compliant) SDHC Memory Card: 4 GB, 6 GB, 8 GB, 12 GB, 16 GB, 24 GB, 32 GB (FAT32 system compliant) SDXC Memory Card: 48 GB, 64 GB (exFAT system compliant)	
	Built-in memory	⌈SDR-T50⌉	4 GB
	HDD	SDR-H85	80 GB
Compression		JPEG (Design rule for Camera File system, based on Exif 2.2 standard), DPOF corresponding	
Picture size		640×480 (4:3), 640×360 (16:9)	

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 (Unit operation)

Dimensions	46 mm (W)×25 mm (H)×75.5 mm (D)
Mass	Approx. 115 g

Specifications may change without prior notice.

Reading the Operating Instructions (PDF format)

● You have practised the basic operations introduced in these operating instructions and want to progress to advanced operations.
● You want to check the Troubleshooting.

In these kinds of situations refer to Operating Instructions (PDF format) recorded on the CD-ROM containing the Operating Instructions (supplied).

■ **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)
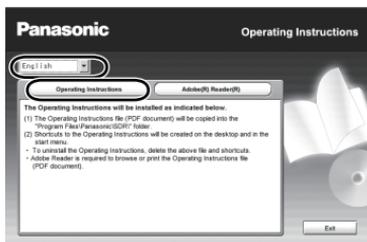
3 **Double click the "S50_T50_H85 Operating Instructions" shortcut icon on the desktop.**

■ **When the Operating Instructions (PDF format) will not open**

You will need Adobe Acrobat Reader 4.0 or later or Adobe Reader 6.0 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://www.adobe.com/products/acrobat/readstep2_allversions.html
If using the following OS

- Windows 2000 SP4
- Windows XP SP2/SP3
- Windows Vista SP1/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\SDR\" 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 "VFF0568" and then copy the PDF file with the desired language inside the folder.**

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

EU

Panasonic Corporation
Web site: http://panasonic.net