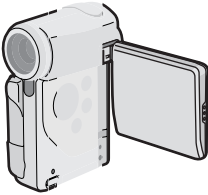


Panasonic®



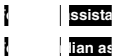
SD Video Camera Operating Instructions

Model No. SV-AV100

D-snap



Before use, please read these instructions completely.



Before opening the CD-ROM package, please read the following.

End User License Agreement

You ("Licensee") are granted a license for the Software defined in this End User License Agreement ("Agreement") on condition that you agree to the terms and conditions of this Agreement. If Licensee does not agree to the terms and conditions of this Agreement, promptly return the Software to Matsushita Electric Industrial Co., Ltd. ("Matsushita"), its distributors or dealers from which you made the purchase.

Article 1 License

Licensee is granted the right to use the Software, including the information recorded or described on the CD-ROM, instruction manuals, and any other media provided to Licensee (collectively "Software"), but all applicable rights to patents, copyrights, trademarks and trade secrets in the Software are not transferred to Licensee.

Article 2 Use by a Third Party

Licensee may not use, copy, modify, transfer or allow any third party, whether free of charge or not, to use, copy or modify the Software, except as expressly provided for in this Agreement.

Article 3 Restrictions on Copying the Software

Licensee may make a single copy of the Software in whole or in part solely for back-up purpose.

Article 4 Termination of License
If Licensee violates any of the terms and conditions of this Agreement, the license granted to Licensee shall be terminated immediately.

Contents

End User License Agreement	2
Information for Your Safety	4
Introduction	7

Preparation

Standard Accessories	8
Optional Accessory	9
Controls and Components	10
Power Supply	12
Fitting the Camera on the AV Cradle	13
Inserting a Memory Card	14
Using the LCD Monitor	15
Turning the Power On/Selecting Operation Modes	17
Using the Menu Screen	18
List of Menus	19
Setting Date and Time	22
Adjusting Brightness and Color Level on the LCD Monitor....	24

Basic Functions

Before Recording operation	25
Clean Up Function	26
Recording Motion Images (MPEG2)	27
Recording Motion Images (MPEG4)	28
Playing Back Motion Images (MPEG2)	29
Playing Back Motion Images (MPEG4)	30
Adjusting the Volume	31
Recording Still Pictures	32
Playing back Still Pictures	33
Play Back All of the Still Pictures One by One (Slide Show)	34

Advanced Functions

Zoom In/Out Functions	35
Backlight Compensation Function	35
Adjusting White Balance	36
Manual Exposure Adjustment	37
Manual Focus Adjustment	37
Recording in Special Situations (Program AE)	38
Digital Electronic Image Stabilizer Function	39
Wind Noise Reduction Function	39
Using the Play Menu Functions	40
Playing Back on an external device	54
Recording pictures supplied from an external device	55
Storing on the PC	56
Using the DVD Video Recorder with a Hard Disk	57

On a Personal Computer

About the supplied software	58
USB Driver	59
MediaStage for AV100	60
Installing MediaStage & USB Driver	61
Installing USB Driver	62
Connecting with the PC	63
Starting the Software	64
Disconnecting the USB Cable safely	64
If you no longer need software (Uninstall)	64
Constructing a Folder when the Memory Card is used with a PC ...	65

Others

Charge the built-in battery for maintaining the date information ...	66
Using the Optional Earphones	66
Using Accessories.....	67
After Use	69
Indications (Recording Mode)	70
Indications (Playback Mode)	72
Notes & Precautions.....	75
Notes and Hints.....	78
Before Requesting Service.....	86
Specifications	89
Limited Warranty (For U.S.A. Only)	91
Customer Services Directory (For U.S.A. Only)	93
Index.....	94

Spanish Quick Use Guide/ Guía española para el uso rápido

Alimentación eléctrica	95
Cómo encajar la cámara en el soporte	96
Inserción de la Tarjeta de memoria	97
Encendido/Selección de los modos de funcionamiento	98
Grabación de imágenes dinámicas/imágenes estáticas	99
Reproducción de imágenes dinámicas/imágenes estáticas	99

Dear Customer,

We would like to take this opportunity to thank you for purchasing this Panasonic SD Video Camera. Please read these Operating Instructions carefully and keep them handy for future reference.

Information for Your Safety

WARNING

TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD AND ANNOYING INTERFERENCE, USE ONLY THE RECOMMENDED ACCESSORIES AND DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE. DO NOT REMOVE THE COVER (OR BACK); THERE ARE NOT USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

Notice:

This product has parts that contain a small amount of mercury. It also contains lead in some components. Disposal of these materials may be regulated in your community due to environmental considerations. For disposal or recycling information please contact your local authorities, or the Electronics Industries Alliance: <<http://www.eiae.org>>

IMPORTANT


Please respect all copyrights. Whatever you have recorded and created can be used for your personal entertainment only. Under copyright laws, other materials cannot be used without obtaining permission from the holders of the copyrights.

- **Injury or material damage resulting from any kind of use that is not in accordance with the operating Instructions are the sole responsibility of the user.**

Extremely high precision technology is employed to produce the LCD Monitor screen featuring a total of approximately 123,000 pixels. The result is more than 99.99% effective pixels with a mere 0.01% of the pixels inactive or always lit. However, this is not a malfunction and does not affect the recorded picture.

- After long operation, this device can get warm. This is not a malfunction. The cautions label is stuck on the surface of the SD Video Camera.
- The manufacturer shall in no event be liable for the loss of recordings due to malfunction or defect of this SD Video Camera, its accessories or Memory Card.

- Please note that the actual controls and components, menu items, etc. of your SD Video Camera may look somewhat different from those shown in the illustrations in these Operating Instructions.

- : SD logo is a trademark.
- The SD Video Camera uses copyright-protected technologies and is protected by the patented technologies and intellectual properties of Japan and the U.S. To use these copyright-protected technologies, authorization of the Macrovision Company is required. It is prohibited to disassemble or modify the SD Video Camera.
- (→ 00) indicates the page to be referred to.
- Note that the SD Video Camera may not play back data recorded or created on another product and another product may not play back data recorded on the SD Video Camera.
- The nameplate of the SD Video Camera is fixed on the bottom of the battery compartment.

U.S. Patent Nos. 4,631,603, 4,577,216, 4,819,098, and 4,907,093.

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 consumer uses only unless otherwise authorized by Macrovision. Reverse engineering or disassembly is prohibited.



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

FCC Note: (U.S. only)

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

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

FCC Caution: To assure continued compliance, follow the attached installation instructions and use only shielded interface cables with ferrite core when connecting to a computer or peripheral devices.
Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

Trade Name: Panasonic
Model No.: SV-AV100
Responsible party: Matsushita Electric Corporation of America One Panasonic Way, Secaucus, NJ 07094
Support Contact: Panasonic Consumer Electronics Company
1-800-211-PANA(7262)

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

This Class B digital apparatus complies with Canadian ICES-003.

Panasonic SV-AV100



Tested To Comply
With FCC Standards

FOR HOME OR OFFICE USE

Introduction

This SD Video Camera can record MPEG2/MPEG4 motion images and still pictures. Additionally, using the viewer software, MediaStage for AV100 (supplied accessory), the MPEG2/MPEG4 motion images data can be edited on the personal computer.

Charging the Battery

Be sure to charge the supplied battery before use.

- Refer to Page 12 for the procedures to attach and charge the battery.

Clock setting

Prior to use the clock in this SD Video Camera needs to be set. Please turn to page 22 for additional information.

About Using an SD Memory Card

This product is capable of recording in the MPEG2 format, producing video quality that is comparable to digital camcorders. To achieve this level of performance, large amounts of data must be written to the SD card in real time.

The read and write speed of the SD card may differ from manufacturer to manufacturer. In MPEG2 motion image recording, SD card with the high-speed transmission rate of 10 MB/s is needed. The use of SD cards other than the above may result in the following error message: [This card cannot record in the MPEG2 mode.]

For additional information on other brand cards that are known to be compatible, please visit this web site:

For USA

<<http://www.panasonic.com/d-snap>>

For Canada

<<http://www.panasonic.ca/english/accessories/storagemedia/>>

Preparation

Standard Accessories

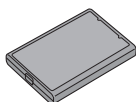
1 AC Adaptor (VSK0617) (→ 12)

- Supplies power to the SD Video Camera.



2 Battery Pack (CGA-S302A) (→ 12)

- Supplies power to the SD Video Camera.



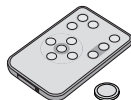
3 AC Cord (K2CA2EA00002) (→ 12)



4 USB Cable (K2KZ4CB00002) (→ 63)



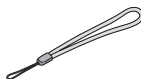
5 Remote Controller (N2QACC000005) and Button-Type-Battery (CR2025) (→ 68)



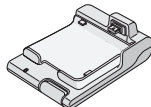
6 AV Cable (K2KC4CB00009) (→ 54, 55)



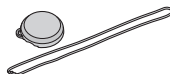
7 Hand Strap (VFC4012) (→ 68)



8 AV Cradle (VSK0653) (→ 13)



9 Lens Cap (VGQ7448) and Lens Cap Cord (VFC4035) (→ 68)



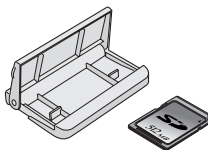
10 CD-ROM (→ 58)

**MediaStage for AV100,
USB Driver, DirectX,
Adobe Acrobat Reader**



- For using the MediaStage, refer to the PDF manual. This manual describes installation only.

11 Card Case/Movie Stand (VFC4032) (→ 69) and SD Memory Card (512 MB) (RP-SDH512VE0) (→ 14)



12 Wearable Carry Case (VFC4020)

- Put the SD Video Camera in the Wearable Carry Case supplied after use or when carrying it.



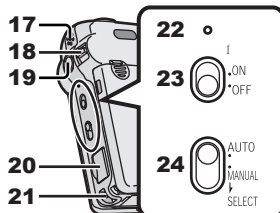
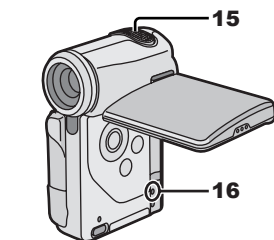
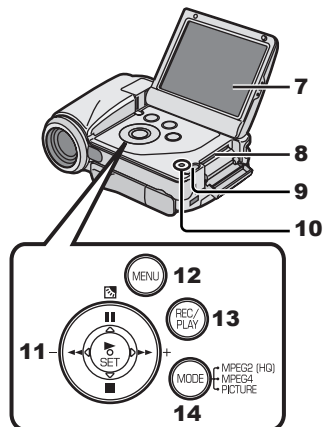
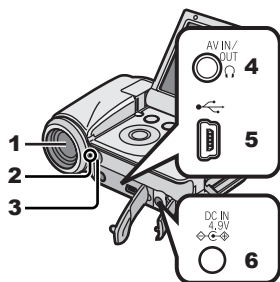
Optional Accessory

1 Battery Pack (CGA-S302A/1B) (→ 12)

- Supplies power to the SD Video Camera.

Controls and Components

- 1 Lens (→ 76)
- 2 Recording Lamp (→ 19)
- 3 Remote Control Sensor (→ 68)
- 4 AV Input/Output Terminal [AV IN/OUT] (→ 54, 55)
- 5 Earphone Terminal [] (→ 66)
- 6 USB Terminal (→ 63)
- 7 DC Input Socket [DC IN 4.9V] (→ 12)
- 8 LCD Monitor (→ 15)
- 9 Memory Card Slot (→ 14)
- 10 Card Slot Cover Open Lever (→ 14)
- 11 Card Access Lamp [ACCESS] (→ 79)
- 12 Multi-function Button
Operating/Select Function
[◀◀/II/▶▶/■/▶ SET] (→ 18, 29, 30, 33)
Backlight Compensation [] (→ 35)
- 13 Menu Button [MENU] (→ 18)
- 14 Recording/Playback Mode Selector Button
[REC/PLAY] (→ 17)
- 15 Mode Selector Button [MODE] (→ 17)
- 16 Microphone (built-in, stereo)
- 17 Reset Button [RESET] (→ 23, 87)
- 18 Speaker
- 19 Zoom Lever [T/W] (→ 35)
- 20 Volume Adjustment Lever [+VOL-] (→ 31)
- 21 Recording Start/Stop Button (→ 27, 28, 32, 55)
- 22 AV Cradle Connector [MULTI] (→ 13)
- 23 Strap Holder (→ 68)
- 24 Power Lamp (→ 12)
- 25 Power Switch [ON/OFF] (→ 17)
- 26 Auto/Manual Selector Switch [AUTO/MANUAL/SELECT] (→ 36, 37)





Power Supply

■ Using AC Adaptor

**THE SOCKET OUTLET SHALL BE
INSTALLED NEAR THE EQUIPMENT AND
SHALL BE EASILY ACCESSIBLE.**

■ Charging the Battery

- 1 While pressing the (A) part, remove the Battery Cover.
 - 2 Press the terminals of the terminals of the battery and set the battery in the battery cover.
 - Fit the battery in the battery cover.
 - Attach the battery cover.
- 2 Lead to the [DC IN] of the SD Video Camera.

- Power Lamp ① flashes, and Charging starts.
- When recharging, turn the power of the SD Video Camera off.

- 5** Wait until Power Lamp **1** goes ~~out~~.

- When recharging is complete, the power goes off.

(or
erm

with

seminar.indd 1

pages 76, 78.

removing a Card.

3 Close the Card Slot Cover securely.

■ Removing the Memory Card

Open the Card Slot Cover and press the center of the Card (A) and then pull it straight out (B).

- After removing the Card, close the Card Slot Cover.
- The SD Video Camera may be damaged if the Card is forced out when the Card is fully inserted.
- Keep the SD Memory Card out of the reach of children to prevent swallowing.
- For other notes, see page 79.

Using the LCD Monitor

Record and play the video image while viewing the LCD Monitor.

1 Put your finger on the groove ① to open the LCD Monitor.

2 Adjust the LCD Monitor angle according to the desired recording/playing angle.

- The LCD Monitor can rotate up to the angles illustrated.

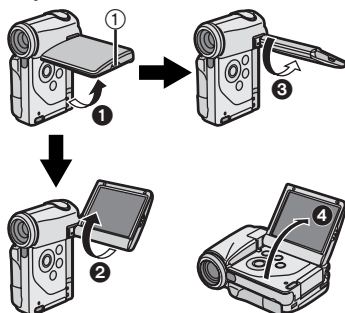
①: Up to 90° maximum

②: Up to 130° maximum

③: Up to 140° maximum

④: Up to 130° maximum

1,2



- Forcefully rotating the LCD Monitor beyond these ranges will damage the SD Video Camera.
- If the position of the LCD Monitor is set to ② or ④, when you select the Recording Mode only the indication which is limited (REC pause [●||], REC [●] or Warning [!]) appears on screen display. If you desired the indication returned to normal, set position of the LCD Monitor to ① or ③.
- The LCD image may appear slightly brighter than the actual recorded image. This is done intentionally to provide better visibility when the camera is used outdoors in bright sunlight.
- For other notes, see page 79.

Vertical Style and Horizontal Style

This SD Video Camera can be used in 2 styles.

- ① Vertical Style: Use mainly when recording.
- ② Horizontal Style: Use mainly when playing back.

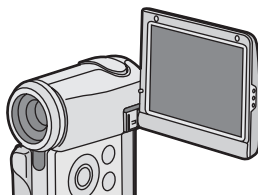
①



Portrait Picture Recording

By opening the LCD Monitor and turning it so that it faces forward (to the lens side), you can let the subject in front of the SD Video Camera monitor the shot while shooting is in progress.

- If you set the LCD Monitor to this position, an image on the LCD Monitor will be reversed when displayed. However, recording images are recorded normally.
- If a general Warning indication [!] appears, return the LCD Monitor to the Vertical style in order to verify contents. (→ 71)

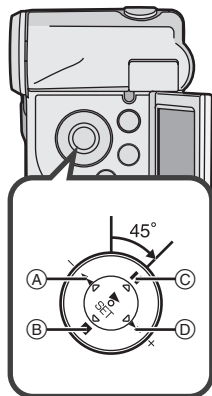


Using the Multi-function Button

In this SD Video Camera, the Multi-function Button is tilted to the right to 45 degrees in order to make it easy to do operation in both the Vertical and Horizontal Style.

Move the cursor and selection of the item on the display by the Multi-function Button of main unit:

- (A): ◀◀ (LEFT)
- (B): ■ (DOWN)
- (C): ■■ (UP)
- (D): ▶▶ (RIGHT)



Turning the Power On/ Selecting Operation Modes

Select a desired mode on the mode selection screen.

1 Set the Power Switch to [ON].

- The SD Video Camera is turned on.

2 Press the [REC/PLAY] Button to select Recording Mode or Playback Mode.

- ①: Recording Mode
- ②: Playback Mode



3 Press the [MODE] Button to select a Operation Mode.

- Every time the [MODE] Button is pressed, the Operation Mode changes as follows.
 - ①: Recording Mode
 - ②: Playback Mode

- For other notes, see page 79.

About the Operation Modes

Six operation modes are provided as follows.

Motion image [MPEG2]:

Motion image (MPEG2 format) recording mode
(→ 27)

Motion image (MPEG2 format) playback mode
(→ 29)

Motion image [MPEG4]:

Motion image (MPEG4 format) recording mode
(→ 28)

Motion image (MPEG4 format) playback mode
(→ 30)

Still picture [PICTURE]:

Still picture (JPEG format still picture) recording mode
(→ 32)

Still picture (JPEG format still picture) playback mode
(→ 33)

- When you use the battery to supply the power with the SD Video Camera, it is automatically turned off if you leave it for more than approx. 5 minutes without any operation.

Using the Menu Screen

Allows the functions usable in the selected mode to be set from the menu.

1 Select a desired mode. (→ 17)

2 Press the [MENU] Button.

- The Main Menu in the selected mode is displayed.

3 Press the side of the Multi-function Button to select a desired Main Menu and press the SET] Button.

- The Sub-Menu in the selected mode is displayed.

4 Press the side of the Multi-function Button to select a desired Sub-Menu and then press the SET] Button.

5 Press the side of the Multi-function Button to select a desired item and then press the SET] Button.

6 Press the [MENU] Button.

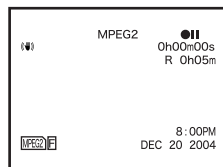
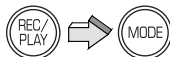
- Menu screen disappears, and the selected item is now being set.

Return to the menu one before

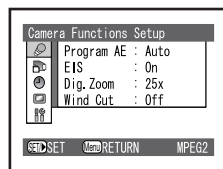
Press the  side of the Multi-function Button.

- Press the [MENU] Button when playing back the motion image or still picture to edit the file being played back.
- When you do not perform operation the menu screen automatically disappears if you leave it for more than approx. 1 minutes.
- For other notes, see page 79.

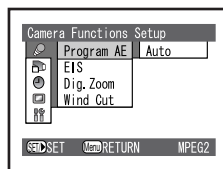
1



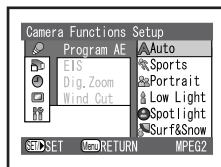
2



3



4,5



6



List of Menus

The menu images used differ slightly from the actual menus. These are offered for simplified illustration purposes.

Recording Mode

Camera Functions Setup

- 1 Auto Exposure Mode [Program AE] (→ 38)
- 2 Image Stabilizer [EIS] (→ 39)
- 3 Digital Zoom [Dig. Zoom] (→ 35)
- 4 Wind Noise Reduction [Wind Cut] (→ 39)
 - This function appears [MPEG2] mode and [MPEG4] mode.

Record Functions Setup

- 5 Picture Quality [Quality] (→ 27, 28, 32)
- 6 Input Source [Input Source] (→ 55)

Date Setup

- 7 Date and Time Indication Mode [Date Mode] (→ 23)
- 8 Date and Time Indication [Indication] (→ 23)
- 9 Date and Time Setting [Date Set] (→ 22)

Display Setup

- 10 OSD Indication [OSD Output] (→ 25)
- 11 LCD Brightness Adjustment [LCD Bright] (→ 24)
- 12 LCD Color Adjustment [LCD Color] (→ 24)

Initial Setup

- 13 Beep Sound [Beep]
 - This SD Video Camera will emit sound when the power switch is changed over, the REC Button is pressed, or other operations are engaged. If you do not need operating sound, you can switch it off.
- 14 Recording LED [Record LED]
 - The Recording Lamp which is on the front of the SD Video Camera lights while recording, and also flashes during remote control receiving. When [Record LED] set to [Off], the Recording Lamp will not light.

Camera Functions Setup		
	Program AE	1
	EIS	2
	Dig. Zoom	3
	Wind Cut	4

Record Functions Setup		
	Quality	5
	Input Source	6

Date Setup		
	Date Mode	7
	Indication	8
	Date Set	9

Display Setup		
	OSD Output	10
	LCD Bright	11
	LCD Color	12

Initial Setup		
	Beep	13
	Record LED	14

■ Playback Mode

[MPEG2/MPEG4] mode

Scene

- 1 Deleting a Scene [Delete] (→ 40)
- 2 Setting the Lock [File Lock] (→ 41)
- 3 Scene Detail [Detail] (→ 41)

PlayList*

- 4 Selecting and switching a Play List [Switch] (→ 43)
- 5 Playing back the Play List [Play] (→ 44)
- 6 Creating the Play List [Create] (→ 43)
- 7 Editing the Play List [Edit] (→ 44)
- 8 Edit a title of the Play List [Title] (→ 46)
- 9 Deleting a Play List [Delete] (→ 47)

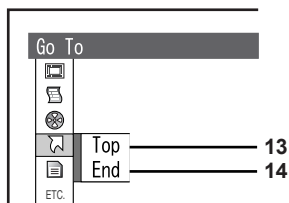
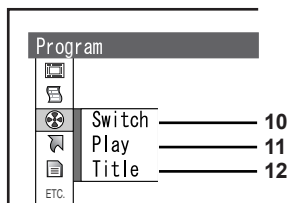
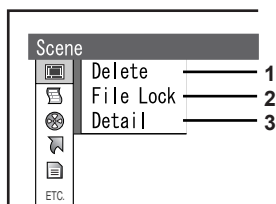
Program*

- 10 Switching a Program [Switch] (→ 48)
- 11 Playing back the Program [Play] (→ 48)
- 12 Edit a title of the Program [Title] (→ 49)

Go To

- 13 Go to Top of List [Top] (→ 50)
- 14 Go to End of List [End] (→ 50)

*[MPEG2] mode only.



Card

15 Capacity of a Card [Capacity] (→ 51)

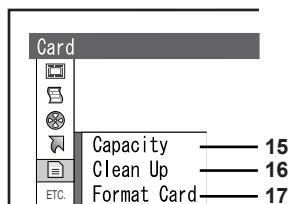
16 Recover writing speed of the data to a Card
[Clean Up] (→ 26)

17 Formatting a Card [Format Card] (→ 51)

Others

18 Setting a Repeat Playback [Repeat Play] (→ 52)

19 Display Mode [Display] (→ 53)



[PICTURE] mode

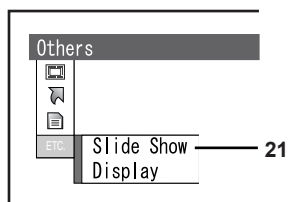
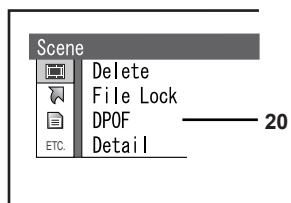
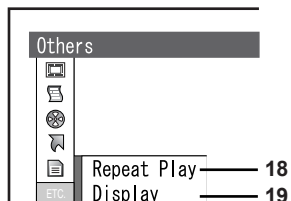
Scene

20 Setting DPOF [DPOF] (→ 42)

Others

21 Setting a Slide Show [Slide Show] (→ 53)

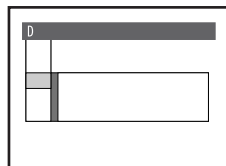
- The other functions of [PICTURE] mode are the same as those of [MPEG4] mode.



...era,
...date
...
...n to select

Recording Mode.

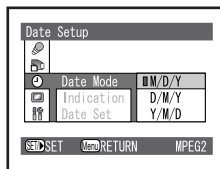
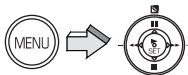
- 2 Press the [MENU] Button and select [Date Setup] and then press the [▶ SET] Button.**
 - 3 Select [Date Set] and press the [▶ SET] Button.**
 - 4 Press the **II/■/◀◀/▶▶** side of the Multi-function Button to set the desired Date and Time.**
 - **◀◀/▶▶** : Select the item
 - **II/■** : Change the value
 - Year will cycle in the order shown below.
2003, 2004, ..., 2079, 2003, ...
 - 5 Press the [▶ SET] Button.**
 - A verification message appears.
 - 6 Select [YES] and press the [▶ SET] Button.**
 - If [NO] is selected, returns to step 4.
- For other notes, see page 79.



Change of the Date Display Mode

Select a desired mode on [Date Mode] in [Date Setup].

Date Mode	Display
M/D/Y	8:00PM DEC 20 2004
D/M/Y	20:00 20. 12. 2004
Y/M/D	20:00 2004. 12. 20

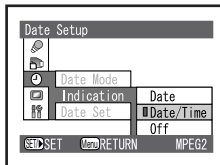
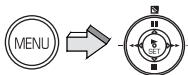


Change of the Date/Time Indication Mode

Select a desired mode on [Indication] in [Date Setup].

- ①: [Date]
- ②: [Date/Time]
- ③: [Off]

- When battery and AC adaptor are not attached and the [RESET] Button is pressed, the date and time will be set to [JAN 1 2003 12:00AM].
- When the built-in battery has been exhausted, set the date and time after the battery has charged.
(→ 66)



- ①
DEC 20 2004
- ②
8:00PM
DEC 20 2004
- ③

Adjusting Brightness and Color Level on the LCD Monitor

LCD Brightness [LCD Bright]

Adjusts the brightness of the image on the LCD screen.

LCD Color Level [LCD Color]

Adjusts the color saturation of the image on the LCD screen.

1 Press the [REC/PLAY] Button to select Recording Mode.


2 Press the [MENU] Button.

3 Select [Display Setup] and press the [► SET] Button.


4 Select [LCD Bright] or [LCD Color] and press the [► SET] Button.

5 Press the ◀◀/▶▶ side of the Multi-function Button for adjustment.

- If [LCD Bright] ① is selected.

[BRIGHT -  +] indication appears, the brightness can be increased by moving the [■] ① to the right.

- If [LCD Color] ② is selected.

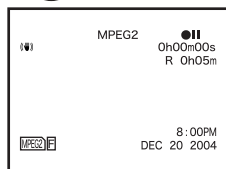
[COLOR -  +] indication appears, the color can become darker by moving the [■] ② to the right.

6 Press the [► SET] Button.

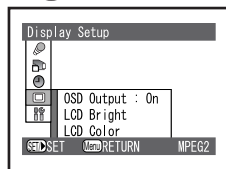
7 Press the [MENU] Button.

- These adjustments do not affect the recorded images.

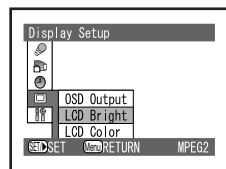
1



2



3,4



5



6



7



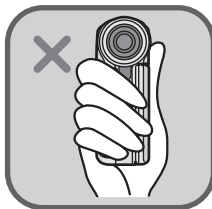
Basic Functions

Before Recording operation

Do not cover the sensor with your hand when using the Remote Control and recording pictures.

- ① Remote Control Sensor
- ② White Balance Sensor

①



②



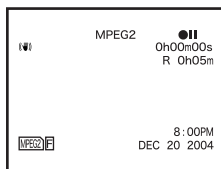
MPEG2/MPEG4 Motion Image

MPEG stands for Moving Picture Experts Group. It is the name of the standard for the compression and extension of a digital motion image and sound enacted by ITU-TS (International Telecommunications Union-Telecommunication Standardization Sector) and ISO (International Standardization Organization).

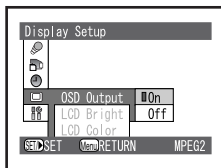
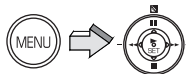
The picture data is transferred at a rate of about 30 frames per 1 second under MPEG2 format. Therefore, you can enjoy a beautiful and smooth motion image.

The picture data of MPEG4 is inferior to those of MPEG 2 in smoothness because the number of the frames transferred in MPEG4 is less than that in MPEG2. However, it is suitable for use in PC because the transfer rate is higher.

1



2



OSD Indication on LCD Monitor

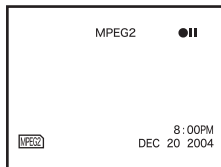
This SD Video Camera can appear or disappear indications on the LCD Monitor. (→ 70)

1 Press the [REC/PLAY] Button to select Recording Mode and set the operation mode.

2 Press the [MENU] Button and select [OSD Output] on [Display Setup] to [On] and press the [▶ SET] Button.

- OSD Indications appears on LCD Monitor.

- If you select [Off] the OSD Indication which is limited appears on LCD Monitor.



Clean Up Function

Generally, if you repeatedly write data on a Memory Card, the data writing speed is decreased by the characteristic of the Memory Card.

To recover the data writing speed on available SD Memory Card, [Clean Up] function is installed in this unit.

When repeating write data on an SD Memory Card, it may be suddenly stopped while recording MPEG2 motion images. In this case, an error message [Record Stopped. Clean up in no data area?] appears. Be sure to use the function. (→ 73)

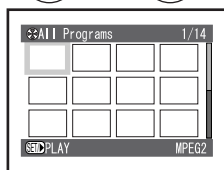
[Clean Up] is a function to recover the writing speed on the free space of the SD Memory Card. It may take time to finish its process.

- Be sure to clean up the SD Memory Card before use.

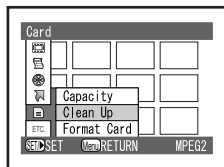
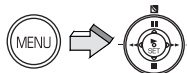
- 1 Press the [REC/PLAY] Button to select Playback Mode and set the operation mode.**
- 2 Press the [MENU] Button and select [Clean Up] on [Card] and press the [► SET] Button.**
- 3 The confirmation screen appears and then select [YES] and press the [► SET] Button.**

- Clean up is carried out.
- Even if the [Clean Up] function is performed, existing data on the card is not erased.
- While card is being cleaned, you **should not** remove the Memory Card or turn off the power.
- [Clean Up] function may be unable to activate according to the kind of card which use. (→ 27)

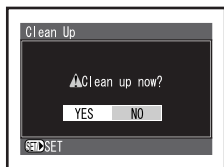
1



2



3





...
...nding.

Card before

... Memory Card,
...ord Functions
... motion image
... message [This card cannot
... mode.] appears on the LCD
... MultiMediaCard, an unavailable
... an 8 MB and 16 MB SD
... when you select the MPEG2 motion
... mode, an error message [This card
... in MPEG2 mode.] appears on the LCD

...er notes, see page 80.

Record (MPEG4)

MPEG4 record.
MPEG2 recording duration is
much smaller than .
needs to be sent as .

1 Press the [REC/PAUSE] Button to enter Recording Mode and select the mode to [MPEG4].

2 Press the [MENU] Button to enter on [Record Functions] screen to select picture quality and the [▶ SET] Button.

- Select one of [S-FINE], [FINE], [NORM], [ECO].
[S-FINE]: Super high image quality 320 × 240 pixels, 15fps
[FINE]: High image quality 320 × 240 pixels, 12fps
[NORM]: Normal image quality 176 × 144 pixels, 12fps
[ECO]: Low image quality 176 × 144 pixels, 12fps
- Press the [MENU] Button after completing the setting.

3 Press the Recording Start/Stop Button

- Recording starts and Recording Lamp lights.
- While recording the motion image, press the Recording Start/Stop Button to stop recording.
- The sounds recorded will be in monaural.
- For other notes, see page 80.



Playing Back Motion Images (MPEG2)

Plays back motion images recorded on the Memory Card.

1 Press the [REC/PLAY] Button to select Playback Mode and set the operation mode to [MPEG2].

- Motion image files recorded on the Memory Card are displayed in the index picture screen.

2 Press the [II/III/◀◀/▶▶] side of the Multi-function Button to select a desired file.

3 Press the [▶ SET] Button.

- A motion image file is played back.
- After playing back continuously from the selected file to the last file, the display will pause at the last scene of the last file.

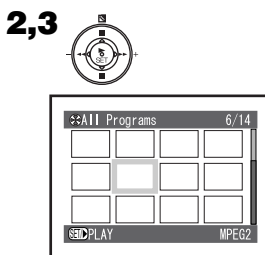
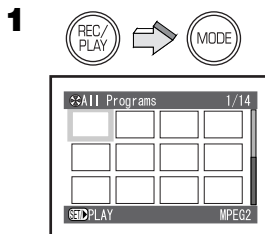
■ Operation during Playback

- [■]: Stop (Reverts to the index picture screen.)
- [II]: Pause (Press during playing.)
- [◀◀], [▶▶]: Finding the beginning of a file (Tap this button.)
- [◀◀], [▶▶]: Rewinding/fast forwarding (Press and hold this button for more than 1 second.)

During pause

- [◀◀], [▶▶]: Go back/advance one frame (Tap this button.)
- Go back: Playback at intervals of 0.5 seconds.
- Advance: Playback at intervals of 0.03 seconds.
- [◀◀], [▶▶]: Backward/forward Slow playback (Press and hold this button for more than 1 second.)
- Backward: Playback at intervals of 0.5 seconds.
- Forward: Playback at intervals of 0.03 seconds.

- You cannot hear sounds other than normal playback.
- For other notes, see page 80.



Playing Back Motion Images (MPEG4)

Plays back motion images recorded on the Memory Card.

1 Press the [REC/PLAY] Button to select Playback Mode and set the operation mode to [MPEG4].

- Motion image files recorded on the Memory Card are displayed in the index picture screen.

2 Press the [II/■/◀◀/▶▶] side of the Multi-function Button to select a desired file.

3 Press the [▶ SET] Button.

- A motion image file is played back.
- After playing back continuously from the selected file to the last file, the display will pause at the last scene of the last file.

- The size of a playback screen changes with recorded quality of image.

■ Operation during Playback

[■]: Stop (Reverts to the index picture screen.)

[II]: Pause (Press during playing.)

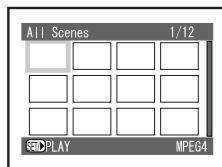
[◀◀], [▶▶]: Finding the beginning of a file (Tap this button.)

[◀◀], [▶▶]: Rewinding/fast forwarding (Press and hold this button for more than 1 second.)

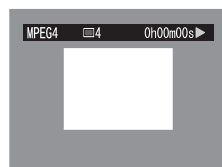
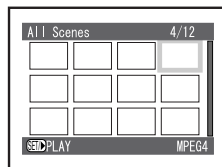
- When you keep rewinding/fast forwarding, it becomes the beginning of a file/next file and returns to normal playback. If you continue rewinding/fast forwarding again, press the [◀◀]/[▶▶] Button.

- For other notes, see page 81.

1



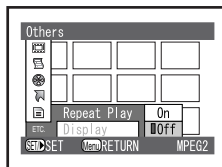
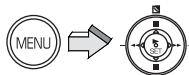
2,3



■ For Repeat Playback (→ 52)

Set [Repeat Play] on [Others] to [On].

- Select [Off] to cancel Repeat Play setting.
- To cancel Repeat Playback midway, press the [■] Button. However, the Repeat Play setting will not be cancelled.

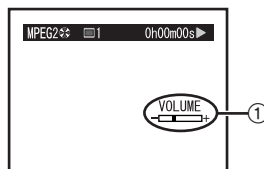
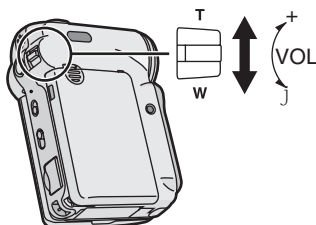


Adjusting the Volume

During playback, the zoom control is used to adjust the volume.

1 Press [+ (T)] or [– (W)] of the [VOL] Lever.

- The [VOLUME] indication ① appears.
- Push the [VOL] Lever towards [+ (T)] to increase the volume.
- Push the [VOL] Lever towards [– (W)] to decrease the volume.
- If the volume buttons are left unoperated for 1 second, the [VOLUME] indication will automatically disappear.

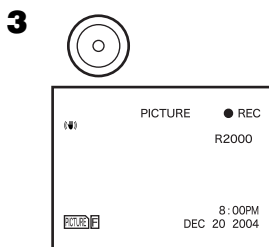
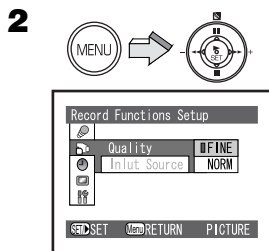
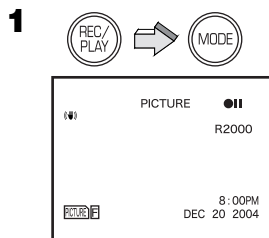


Recording Still Pictures

Records still pictures.

- 1 Press the [REC/PLAY] Button to select Recording Mode and set the operation mode to [PICTURE].**
- 2 Press the [MENU] Button and set [Quality] on [Record Functions Setup] to desired picture quality and then press the [▶ SET] Button.**
 - Select one of [FINE] or [NORM].
 - Press the [MENU] Button after completing the setting.
- 3 Press the Recording Start/Stop Button.**
 - The still image is recorded on the Memory Card.

- The sound cannot be recorded.
- For other notes, see page 81.



Playing back Still Pictures

Plays back still pictures recorded on the Memory Card.

1 Press the [REC/PLAY] Button to select Playback Mode and set the operation mode to [PICTURE].

- Still picture files recorded on the Memory Card are displayed in the index picture screen.

2 Press the [II/■/◀◀/▶▶] side of the Multi-function Button to select a desired file.

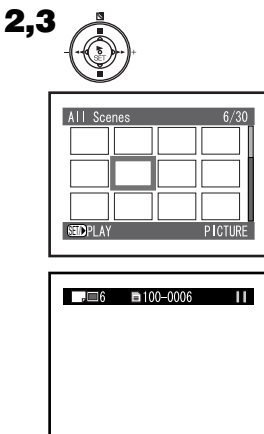
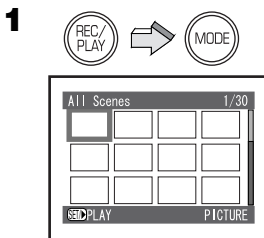
3 Press the [▶ SET] Button.

- A still picture file is played back.

■ Operation during Playback

- [■]: Stop (Reverts to the index picture screen.)
- [◀◀]: Displays the previous screen.
- [▶▶]/[▶ SET]: Displays the next screen.

- Only JPEG images that were created by this product will be displayed correctly. Files that are copied to the SD card may not be displayed properly, or not at all.
- For other notes, see page 81.



being recorded
the light that shines

Button.

Button (A) is displayed
Button again
mode.
notes, see page

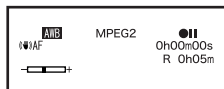
1

(4) [AF] Indications
R 0h05m

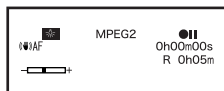
2



[AF] Indications



3



Press the [▶ SET] Button and select [AWB].

Press the [▶ SET] Button and set a desired White Balance Mode.

- Automatic White Balance Adjustment [AWB]
- Indoor Mode (recording under incandescent light) [☀]
- Outdoor Mode [☀]
- Fluorescent light Mode [☀]
- The white balance setting that was previously set manually [☀]

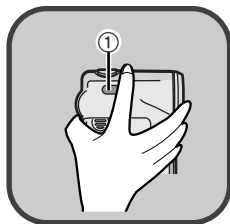
To Resume Automatic Adjustment

- Press the [▶ SET] Button and set [AWB]. Or, set the Auto/Manual Selector Switch to [AUTO].
- For other notes, see page 82.

White Balance Sensor

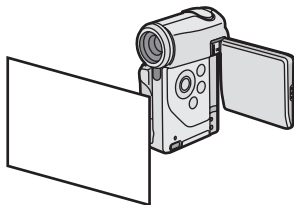
The White Balance Sensor ① determines the nature of the light source during recording.

- Do not cover the White Balance Sensor with your hand during recording, otherwise, White Balance will not function normally.



Adjusting White Balance Manually

Point the SD Video Camera at a full screen white object. The actual lighting you will be photographing in should illuminate the white object. Press the [▶ SET] Button until the [☀] Indication stops flashing.



Manual Exposure Adjustment

Exposure can be adjusted manually for recording in a situation where auto exposure may not function well.

Set the Recording Mode

1 Set the Auto/Manual Selector Switch to [MANUAL].

- The [AWB], [—□□+] and [AF] Indications are displayed.

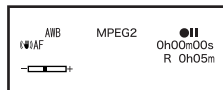
2 Slide the Auto/Manual Selector Switch to [SELECT] and select [—□□+].

3 Press the ◀◀/▶▶ side of the Multi-function Button to adjust the exposure level.

To Resume Automatic Adjustment

- Set the Auto/Manual Selector Switch to [AUTO].
- For other notes, see page 82.

1



2



3



Manual Focus Adjustment

Focus can be adjusted manually for recording in a situation where auto focus may not function well.

Set the Recording Mode

1 Set the Auto/Manual Selector Switch to [MANUAL].

- The [AWB], [—□□+] and [AF] Indications are displayed.

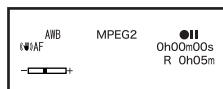
2 Slide the Auto/Manual Selector Switch to [SELECT] and select [AF].

3 Press the ► [SET] Button to set [MF] and press the ◀◀/▶▶ side of the Multi-function Button to adjust the focus.

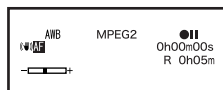
To Resume Automatic Adjustment

- Press the ► [SET] Button and set [AF]. Or, set the Auto/Manual Selector Switch to [AUTO].
- For other notes, see page 82.

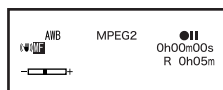
1



2



3



Recording in Special Situations (Program AE)

Select optimal automatic exposures under specific recording situations.

Set the Recording Mode

1 Press the [MENU] Button and select [Program AE] on [Camera Functions Setup] to set a desired mode.

- The indication ① of the selected mode is displayed.

[] Sports Mode

For recording scenes involving quick movements, such as sports scenes.

[] Portrait Mode

Focuses on the main subject of the image and leaves the background slightly out of focus.

[] Low Light Mode

Preserves the mood of dim light settings without altering picture brightness.

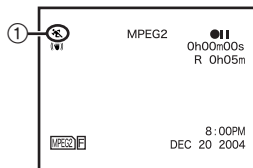
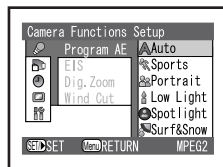
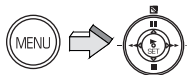
[] Spotlight Mode

Neutralizes the additional brightness created by a spotlight.

[] Surf & Snow Mode

Compensates for excessive illumination from sun glare to produce a clear picture.

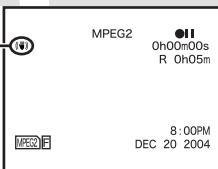
1



Cancelling the Program AE Function

- Set [Program AE] on [Camera Functions Setup] to [Auto].
- For other notes, see page 82.

①

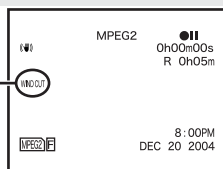


Camera Options Setup

Program AE
EIS
Dig. Zoom
Wind Cut On
Off

SET RETURN MPEG2

Ⓐ



■ Locking Scenes (File Lock)

Precious scene recorded on the Memory Card can be locked to prevent accidental erasure.

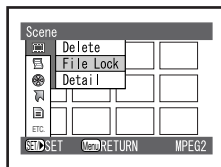
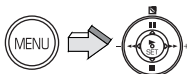
1 Press the [MENU] Button and select [File Lock] on [Scene] and press the [► SET] Button.

2 Select the scene to lock set and then press the [► SET] Button.

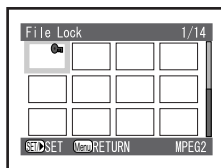
- The selected scene is locked and the [On] Indication is attached to the selected scene.

Unlock the scene

- Select the locked scene and then use the foresaid procedure to unlock the scene. The [On] indication will disappear and locking will be released.
- For other notes, see page 83.



2



■ Displaying Information Using Menu Screen (Detail)

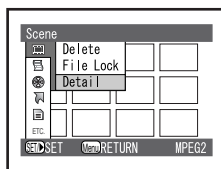
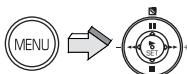
You can display various information for a including scene number, picture quality, recording date/time and length and File Lock/DPOF settings.

1 Press the [MENU] Button and select [Detail] in [Scene] and press the [► SET].

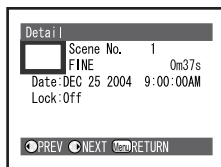
2 Select the scene you would like more information on and then press the [► SET] Button.

- The scene detail information will be displayed.

1



2



es to be Printed

1 (DPOF Setting), such as
e printed, can be written to

t Order Format.

**Button and select
to [Select] and then
Button.**

**DPOF setting and
ET] Button.**

antity is displayed under
d picture.

**of the Multi-function
desired number of
the [► SET] Button.
played and attached to**

for one scene.

Settings

Button and

Cancel any

Button.

on screen appears and

[YES] and press the [► SET]

**Check the DPOF Settings in Slide Show
Press the [MENU] Button and select
[Slide Show] on [Others] to set [DPOF]
and then press the [► SET] Button.**

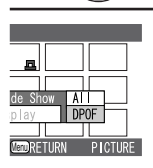
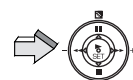
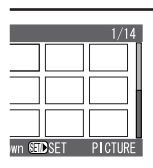
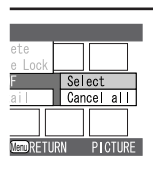
- DPOF set images are displayed one by one for approx. 5 seconds each
- Press [■] to stop.
- Press [II] to par

- For other notes page 83

2

3

1



PlayList (MPEG2 Mode only)

You can create a play list on this SD Video Camera by gathering your favorites from the recorded scenes.

■ Creating New Play List (Create)

You can create a play list on this SD Video Camera by gathering your favorite MPEG2 motion images from the recorded scenes.

- 1** Press the [MENU] Button and set [Create] on [PlayList] and press [▶ SET] Button.
- 2** Select the scenes to be added, then press the [▶] Button.
 - The added scene is displayed on the screen.
- 3** Repeat steps 1 and 2 for each scene.
- 4** The [▶] Button is displayed on the screen.
 - Press the [▶] Button to start the playback.

Multiple play

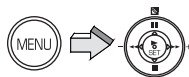
and select
and press the

to display and then
Button.

... of all programs (all recorded
... [All programs].

■ Playing back a Play List (Play)

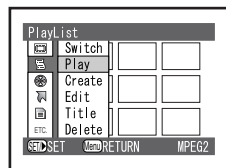
1



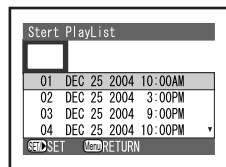
- 1 Press the [MENU] Button and select [Play] on [PlayList] and press the [► SET] Button.

- 2 Select the play list to play back and then press the [► SET] Button.

- The selected play list will be played back from the first scene. To cancel playback midway, press the [■] Button.



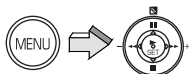
2



■ Adding/Deleting Scenes from Play List (Edit)

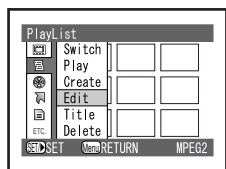
You can later add/delete scenes to the play list.

- 1 Press the [MENU] Button and select [Edit] on [PlayList] and press the [► SET] Button.

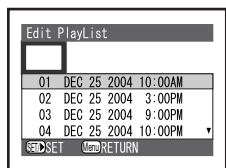


- 2 Select the play list to edit and then press the [► SET] Button.

- The scenes of the program will appear in the upper row, and the scenes of selected play list will appear in the lower row.



2



Adding scenes

Follow steps 1–2 of “Adding/Deleting Scenes from Play List (Edit)”.

- 3** Press the **■** side of the Multi-function Button down to move the cursor to the lower row, and press the **◀◀/▶▶** side of the Multi-function Button to select the point where the scene is to be inserted.

●①: Insertion position

- 4** Press the **■** side of the Multi-function Button up to move the cursor to the upper row, and press the **◀◀/▶▶** side of the Multi-function Button to point the cursor to the scene to be added, and press the **[▶ SET]** Button.

●②: Scene to be added

- 5** Repeat step 4 in order to add the desired scene and then press the **[MENU]** Button.

- 6** The confirmation screen appears then select **[YES]** and press the **[▶ SET]** Button.



Deleting scenes

Follow steps 1–2 of “Adding/Deleting Scenes from Play List (Edit)”.

- 3** Press the **■** side of the Multi-function Button down to move the cursor to the lower row, and press the **◀◀/▶▶** side of the Multi-function Button to place the cursor on the scene to be deleted, and press the **[▶ SET]** Button.

●Ⓐ: Scene to be deleted

- 4** Repeat step 3 in order to delete the desired scene and then press the **[MENU]** Button.

- 5** The confirmation screen appears then select **[YES]** and press the **[▶ SET]** Button.

■ Changing Title of Play List (Title)

Selections in the play list will be numbered in the order you select them. The title of play list can be changed at any time.

You can change the recording date/time to desired title.

1 Press the [MENU] Button and select [Title] on [PlayList] and press the [▶ SET] Button.

2 Select the play list of which title to be changed and then press the [▶ SET] Button.

- The screen for setting a title will appear.

3 Select a character and then press the [▶ SET] Button.

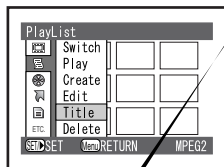
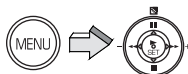
- Select [Delete] to erase a character.
- When you put in a space, move cursor to desired position of title input frame (A), and press the [▶ SET] Button.
- You can give titles of up to 20 characters.

4 Repeat step 3 in order to enter the desired character and after entering the title select [Enter] and then press the [▶ SET] Button.

- If you cancel the setting of [Title], select [Cancel] and the confirmation screen appears and then select [YES].

5 The confirmation screen appears and then select [YES] and press the [▶ SET] Button.

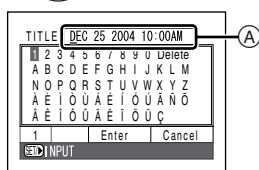
- The title inputted with this SD Video Camera may not be displayed by other devices.
- Do not change the title inputted by other devices with this SD Video Camera.



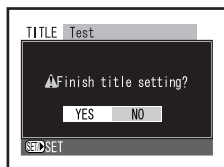
2



3,4



5



Program (MPEG2 Mode only) 1

Program refers to an assembly of scenes recorded on the same date.

■ Switching to Thumbnail Display of Specific Date (Switch)

Since the scenes recorded on this SD Video Camera are collected as “programs” for each recording date, selecting a program will allow you to display only scenes from a specific date.

- You cannot record more than 99 programs on a card.

1 Press the [MENU] Button and select [Switch] on [Program] and press the [▶ SET] Button.

2 Select the program to display and then press the [▶ SET] Button.

- To display scenes of all programs (all recorded scenes), select [All programs].

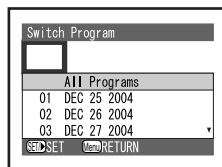
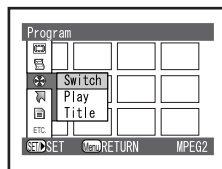
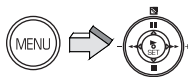
■ Playing Back Program (Play)

You can play back only the selected program.

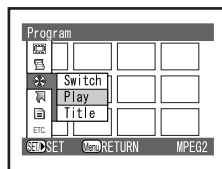
1 Press the [MENU] Button and select [Play] on [Program] and press the [▶ SET] Button.

2 Select the program to play back and then press the [▶ SET] Button.

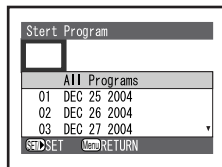
- The selected program will be played back from the first scene. To cancel playback midway, press the [■] Button.



1



2

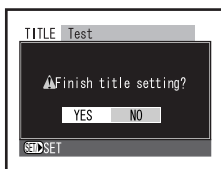
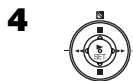
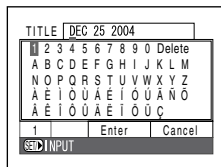
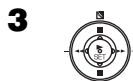
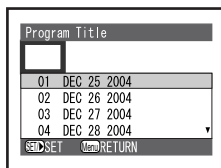
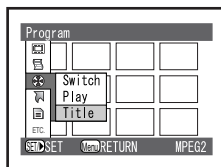
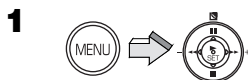


■ Changing Title of Program (Title)

The recording date has initially been titled to any program.

You can change the recording date to desired title.

- 1 Press the [MENU] Button and select [Title] on [Program] and press the [▶ SET] Button.**
- 2 Select the program of which title to be changed and then press the [▶ SET] Button.**
 - The screen for setting a title will appear.
 - See “Changing Title of Play List (Title)” for how to enter a title (→46).
- 3 After entering the title, select [Enter] and then press the [▶ SET] Button.**
 - If you cancel the setting of [Title], select [Cancel] and the confirmation screen appears and then select [YES].
- 4 The confirmation screen appears and then select [YES] and press the [▶ SET] Button.**



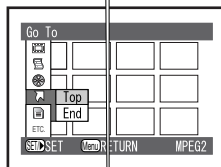
Jump to the first or last scene (Top/End)

1

From the Playback Mode screen, you can jump to the first scene or last scene.

1 Press the [MENU] Button and select desired item on [Go To] and then press the [▶ SET] Button.

- [Top]: To go to first scene.
- [End]: To go to last scene.



Jump to the first, end of last, or specification scene (Top/End/Specify)

While playing back a scene, you can jump to the specification scene.

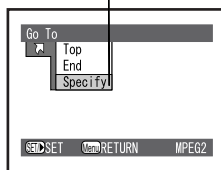
Follow step 1 of “Go to the first or last scene (Top/End)” while playing back scene.

- [Top]: To go to the start.
- [End]: To go to the end of last scene.
- [Specify]: To go to a specified point.

Select [Specify]

2 Press the [II]/[■]/[◀◀]/[▶▶] side of the Multi-function Button and select desired point ② and then press the [▶ SET] Button.

- ①: The present playback point
- ②: The select point
- [◀◀]/[▶▶] (Tap this button)
 - [MPEG2]: Move the point to every 10 seconds.
 - [MPEG4]/[PICTURE]: Move the point to every scene.
- [◀◀]/[▶▶] (Press and hold this button)
 - [MPEG2]: Move the point to every 1 minute.
 - [MPEG4]/[PICTURE]: Move the point to every 10 scenes.
- [II]: Move the point to start
- [■]: Move the point to end of last scene
- Go to the specified point and enter the playback pause status.



Verifying Remaining Free Space on Card (Capacity)

You can find out how long you will be able to record on card.

- 1 Press the [MENU] Button and select [Capacity] on [Card] and press the [▶ SET] Button.

- [Capacity] screen is displayed. ①
- If write-protect switch is set to [LOCK] on SD Memory Card, remaining capacity is displayed as "0". ②

Cleaning up the contents of Card (Clean Up)

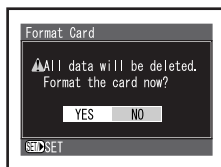
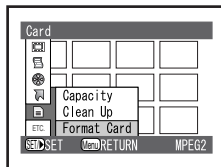
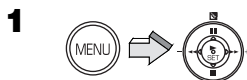
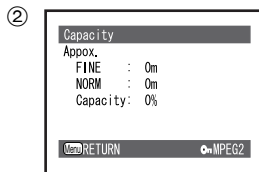
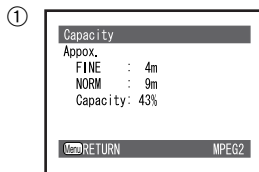
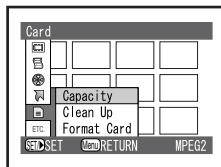
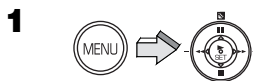
Recover writing speed of the data to a Card. (→ 26)

- Be sure to clean up the SD Memory Card before use.

Formatting the Memory Card (Format Card)

If a Memory Card becomes unreadable by the SD Video Camera, formatting it may make it reusable. Formatting erases all the data recorded on the Memory Card.

- 1 Press the [MENU] Button and select [Format Card] on [Card] and press the [▶ SET] Button.
- 2 The confirmation screen appears and then select [YES] and press the [▶ SET] Button.
 - Formatting is carried out.
 - For other notes, see page 83.



■ Playing Back Scenes Repeatedly (Repeat Play)

When playback of the last scene is finished, playback of all scenes will repeat from the first scene.

● Play List/Program:

Playback of the scenes in that range will be repeated.

MPEG2/MPEG4 Mode only

1 Press the [REC/PLAY] Button to select Playback Mode and set the operation mode to [MPEG2] or [MPEG4].

2 Press the [MENU] Button and set [Repeat Play] on [Others] to [On] and then press the [▶ SET] Button.

● Select [Off] to cancel Repeat Play setting.

3 Press the [▶ SET] Button.

● Playback will start.

● The [] indication ① appears.

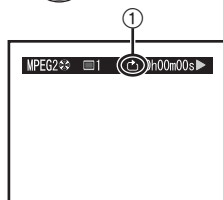
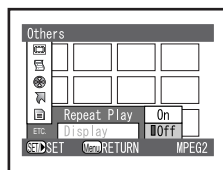
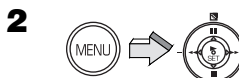
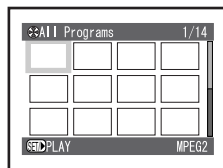
● To cancel playback midway, press the [■] Button. However, the Repeat Play setting will not be cancelled.

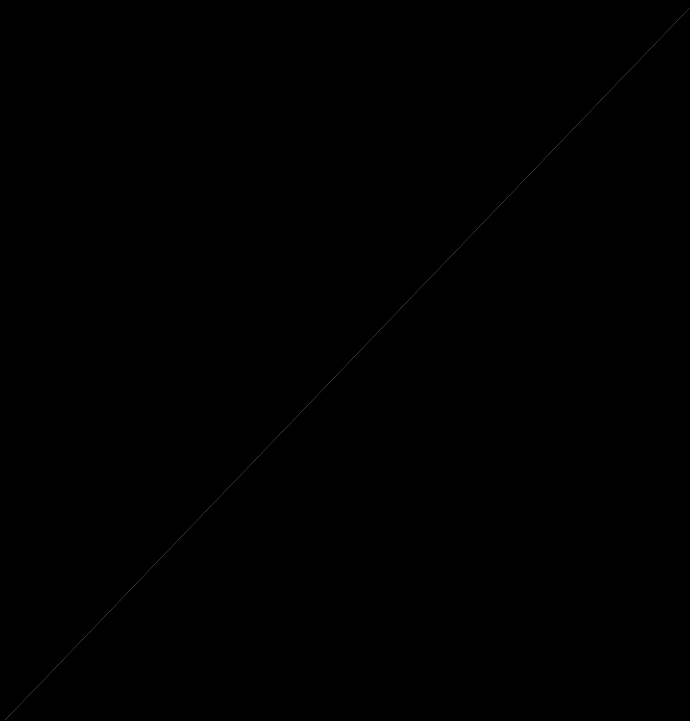
To release Repeat Play

Use one of the following 2 methods to release

● Set [Repeat Play] on [Others] to [Off].

● Turn the SD Video Camera off once.





Recording pictures supplied from an external device

1 Put the SD Video Camera in the AV Cradle and connect with the AC Adaptor (A).
(→ 13)

2 Connect the [AV IN/OUT] socket of the AV Cradle to the AV Output Sockets of the external device **2** using supplied AV Cable **1**.

- ①: When not using the AV cradle.
- Turn off the SD Video Camera before connecting the AV Cable.

3 Press the [REC/PLAY] Button to select Recording Mode and set the operation mode.

4 Select desired image quality.
(→ 27, 28, 32)

5 Press the [MENU] Button and select [Input Source] on [Record Functions Setup] to [LINE] and then press the [▶ SET] Button.

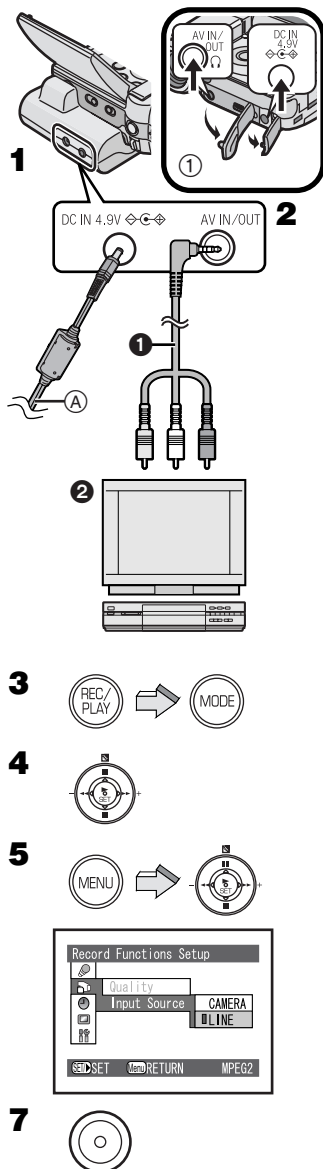
6 Set up the external device.

- Turn on the SD Video Camera.
- Confirm that the image or sound signal is input into the SD Video Camera.
- If the image or sound signal is input, image is displayed on the LCD Monitor and sound comes from the speaker on the SD Video Camera.

7 Press the Recording Start/Stop Button.

- Recording starts.
- When the motion image is being recorded, press the Recording Start/Stop Button again to stop recording.

- If turning the power off, [LINE] change to [CAMERA].
- For other notes, see page 84.



Storing on the PC

If a card has reached its capacity limit, or if you want to prevent accidental erasure of recorded pictures, you should store the files inside the card in a PC.

- **Connect the USB cable after the USB driver is installed. (→ 61, 62)**
- **Use both the AC adaptor and the battery. Either one alone does not allow the SD Video Camera to be used with a personal computer.**

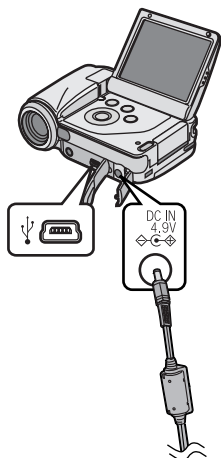
1 Open the AV Input/Output and USB Terminal Cover and the DC Input Socket Cover.

- When using AV Cradle, put the SD Video Camera in the AV Cradle after opening AV Input/Output and USB Terminal Cover.

2 Connect with the AC Adaptor ①. (→ 12)

3 Connect the [USB] Terminal ② of the SD Video Camera to the USB Terminal of the personal computer ③ using supplied USB Cable ④.

- While connecting the PC and SD Video Camera, do not delete the data inside a card or format a card with the PC.
- Do not use any other USB Cables except the supplied one.



Using the DVD Video Recorder with a Hard Disk

■ Recording to a Hard Disk on DVD Video Recorder

If you have a DVD Video Recorder with a Hard Disk (DMR-E100H), you can save the pictures recorded by the SD Video Camera on the hard disk or DVD-RAM of the device.

When the capacity of the Memory Card becomes full, save the files in the Memory Card to DMR-E100H.

1 Remove the recorded Memory Card.

(→ 14)

- Turn off the SD Video Camera before removing a Card.

2 Insert the Memory Card into the card slot of DMR-E100H and then save the files on the hard disk or DVD-RAM.

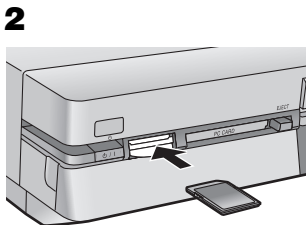
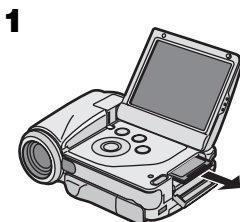
- For details, refer to the operating instructions of DMR-E100H.

- Play list cannot be saved.

Playing back motion images that were recorded with the DVD Video Recorder.

When a program recorded with MPEG4 format using DMR-E100H is copied on an SD Memory Card, it can be played back on this SD Video Camera.

- For details, refer to the operating instructions of DMR-E100H.
- For other notes, see page 84.



On a Personal Computer

About the supplied software

■ About the supplied software

The SD Video Camera comes with MediaStage for AV100, DirectX 8.1 and a USB driver to allow the SD Video Camera to be used on a personal computer. By using these software packages, you can arrange the pictures on a Memory Card, and cut and edit motion images (MediaStage for AV100). Please read the PDF-format instructions installed with the software for how to use the software. These Operating Instructions describe only how to install and start up the software and how to connect the SD Video Camera to a personal computer. **Install the USB driver before connecting the SD Video Camera to a personal computer.**

- While every attempt is made to create software that will operate properly in most personal computers, previously installed software and unique hardware in the PC may occasionally cause an operating problem.
- USB Driver, MediaStage for AV100 and DirectX 8.1 cannot be used on Microsoft Windows 3.1, Windows 95, Windows 98, Windows NT and Macintosh.
- Operation on an upgraded OS is not guaranteed.
- Operation on an OS other than the one pre-installed is not guaranteed.
- Dual CPUs or Multi-boot environments are not supported.
- Only users having system administrator (Administrator) authority can use these software applications.
- The software is available in English.
- Even if you operate a personal computer in French, the application and PDF manual installed is the English version. Please refer to the PDF manual of the French version in the supplied CD-ROM.
- A USB hub or USB card used for connection does not guarantee a normal operation. Use the attached USB cable for direct connection to the personal computer.
- **Before installing (or uninstalling), quit all other applications and installation of the other applications. If the launcher for installation is not activated automatically when the CD-ROM is inserted in the personal computer's CD-ROM drive, double-click the CD-ROM icon in [My Computer].**
- **For operating instructions, please read the PDF manual on the CD-ROM. To read the PDF Manual, you must have Adobe Acrobat Reader 5.0 or higher. If Adobe Acrobat Reader is not installed on the Personal Computer, please install it from the launcher.**

- Microsoft®, Windows®, Windows Media™, Windows NT® and DirectX® are either trademarks or registered trademarks of Microsoft Corporation in the United States and/or other countries.
- Intel®, Pentium® and Celeron® are trademarks or registered trademarks of Intel Corporation in the United States and/or other countries.
- Adobe®, the Adobe logos and Acrobat® are trademarks or registered trademarks of Adobe Systems Incorporated in the United States and/or other countries.
- CDDDB is a registered trademark and Gracenote is a trademark of CDDDB, Inc. (dba Gracenote)
- Other names of systems and products mentioned in these Operating Instructions are usually the registered trademarks or trademarks of the manufacturers who developed the systems or products concerned.
- The contents or complete reproduction or copy of these Operating Instructions could be changed without notice.
- When installing or using this software, specify the user name to [Administrator (computer administrator)] or any other user name having the equivalent right. Then log on with that user name to install this software. (For Windows XP/2000 Professional) (If you do not have such a right, consult with your system administrator.)

USB Driver

■ System Requirements for USB Driver

OS:

Microsoft Windows 98SE, Windows Me, Windows 2000 Professional, Windows XP Home Edition/Professional

Drive: CD-ROM Drive

MediaStage for AV100

■ Features of MediaStage for AV100

- MPEG2 motion images, MPEG4 motion images (ASF-format files) and still pictures (JPEG pictures) recorded on the SD Video Camera are displayed in thumbnail form and can be easily played back on a personal computer.
- MPEG2 motion images and MPEG4 motion images (ASF-format files) can be cut-edited.
- E-mails with motion images attached can be easily sent.

■ System Requirements for MediaStage for AV100

OS:

Microsoft Windows 98SE, Windows Me, Windows 2000 Professional, Windows XP Home Edition/Professional

CPU:

Intel Celeron 800 MHz or higher

Intel Pentium III 600 MHz or higher

HDD:

400 MB or more

RAM:

256 MB or more

Display:

High Color (16 bit) or more with a resolution of 800 × 600 pixels or more

Drive: CD-ROM Drive

I/F: USB terminal

Others:

Pointing device such as a mouse or equivalent to mouse. The following software except for the above environment motions are installed;

Windows Media Player 6.4 or later, Internet Explorer 5.01 or later, DirectX 8.1 or later.

- As an IEEE1394 terminal is not provided on the SD Video Camera, transfer or editing of pictures using the IEEE1394 terminal is not supported.

Installing MediaStage & USB Driver

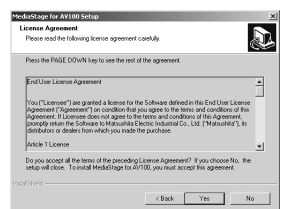
Do not connect the USB cable until the USB driver has been installed.

- 1** Insert the supplied CD-ROM into the personal computer's CD-ROM drive.
 - The launcher for the installation is activated automatically.
- 2** Click [MediaStage & USB Driver].
 - When [MediaStage & USB Driver] screen appears, click [Next].
- 3** Read License Agreement carefully, and click [Yes], if you accept the terms of the agreement.
- 4** Complete the installation according to the message.
 - The USB Driver is installed automatically.
 - If you use other than Windows XP, when the DirectX 8.1 setup screen appears, install it according to the message. (Failure to install DirectX 8.1 disables you from using MediaStage for AV100.)
 - After rebooting the computer, the MediaStage for AV100 is enabled.

2



3



Installing USB Driver

When the USB driver is installed, the SD Video Camera will be recognized by the personal computer. Do not connect the USB cable until the USB driver has been installed.

- When [MediaStage & USB Driver] is already installed, you do not need to install [USB Driver].

1 Insert the supplied CD-ROM into the personal computer's CD-ROM drive.

- The launcher for installation is activated automatically.

2 Click [USB Driver].

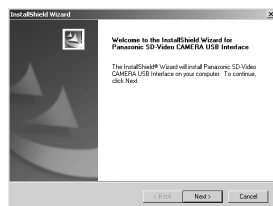
3 Click [Next].

4 Click [Finish].

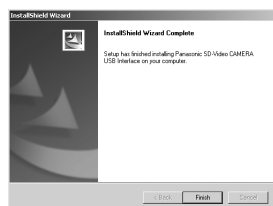
2



3



4



Connecting with the PC

- Connect the USB cable after the USB driver is installed.
- Use both the AC adaptor and the battery. Either one alone does not allow the SD Video Camera to be used with a personal computer.

1 Open the AV Input/Output and USB Terminal Cover and DC Input Socket Cover.

- When using AV Cradle, put the SD Video Camera in the AV Cradle after opening AV Input/Output and USB Terminal Cover.

2 Connect with AC Adaptor ①. (→ 12)

3 Connect the [USB] Terminal ② of the SD Video Camera to the USB Terminal of the personal computer ③ using supplied USB Cable ④.

- The SD Video Camera works as a personal computer peripheral. (Operation of the SD Video Camera is disabled.)
- The [Removable disk] icon appears in [My Computer].

- Do not use any other USB Cables except the supplied one.
- For other notes, see page 84.

When the SD Video Camera is connected for the first time.

- [Found New Hardware Wizard] screen appears.

For Windows Me/98SE Users:

① Click [Next].

② Click [Finish].

For Windows XP Users:

① Click [Next].

- When the supplied CD-ROM is inserted, click [Next] again.

② Click [Continue Anyway].

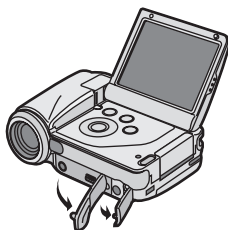
③ Click [Finish].

- Since [Found New Hardware Wizard] screen appears again after this, repeat steps.

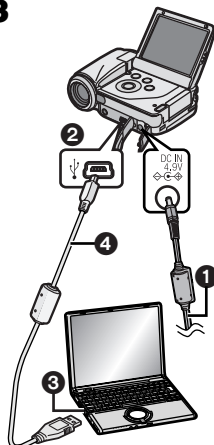
For Windows 2000 Users:

① Click [Yes].

1

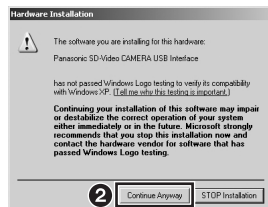


2,3



PC ACCESSING

Windows XP



Windows 2000



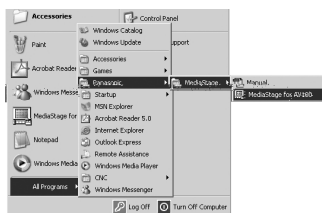
Starting the Software

■ Starting the MediaStage for AV100

- 1 Select [Start]>> [All programs (programs)]>> [Panasonic]>> [MediaStage]>> [MediaStage for AV100].

• For other notes, see page 85.


1



Disconnecting the USB Cable safely

If you use Windows XP/2000, remove the USB Cable using the following method.

If you use Windows Me/98SE, check that the Card Access Lamp is out, then remove the USB Cable. (Keep the SD Video Camera turned on.)

- 1 Double click the  in task tray.
 - Hardware disconnect dialog box appears.
- 2 Select [Panasonic SD-Video CAMERA USB Interface] and click [Stop].
- 3 Click [OK].
 - Click [OK], and you can safely disconnect the cable.

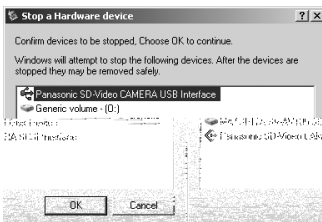
1



2



3



If you no longer need software (Uninstall)

- 1 Select [Start] (>>[Settings]) >>[Control Panel].
- 2 Double-click [Add/Remove Programs].
- 3 Select the software to be uninstalled and click [Change/Remove].

• Uninstalling steps may vary depending on the OS. Please refer to the user manual of your OS.

Constructing a Folder when the Memory Card is used with a PC

- When the Memory Card with data recorded by the SD Video Camera is inserted into a personal computer, folders will be displayed as in the figure.
- Use the MediaStage for AV100 for operating files in the Memory Card. (→ 85)



[DCIM]: The images (IMGA0001.JPG etc.) in this folder are recorded in the JPEG format. ([100-0001] or similar indication is displayed on the SD Video Camera.)

[MISC]: Files in which DPOF Data has been set to the image are in this folder. Slide show data created by MediaStage for AV100 are in this folder. (AUTPLAY0.MRK etc.)

[SD_VIDEO]: MPEG2 motion images (MOV001.MOD etc.) and MPEG4 motion image is recorded in ASF format (MOL001.ASF etc.).

- For other notes, see page 86.

Others

Charge the built-in battery for maintaining the date information

This built-in battery is used for the memory of date and time. If [⌚] indicator is displayed when the power is on, the built-in battery may be exhausted. Charge using the following procedure:

- 1 Take the battery out and plug in the AC adaptor. (→ 12)
- 2 Turn the power off and leave the SD Video Camera as it is for approx. 12 hours.

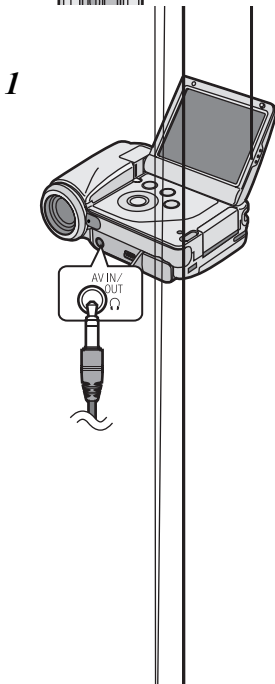
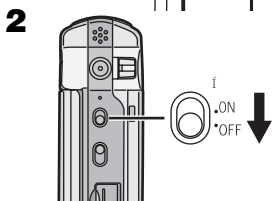
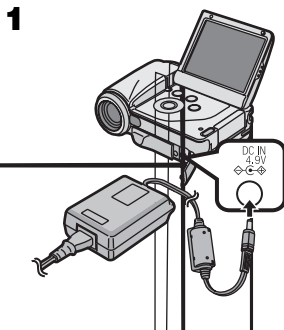
- The built-in battery can be used for about 6 months by 1 charge. (It changes with operating.)
- After recharging the built-in battery, adjust the date and time. (→ 22)

Using the Optional Earphones

While recording or playing back on an SD Video Camera, the sound can be heard using optional earphones.

- 1 Plug the Earphone terminal in to the [Ω] Terminal.

- If the volume while playing back is loud or soft, you can adjust the volume by using the Volume Adjustment Lever on the SD Video Camera, or the Volume Adjustment Button on the Remote Controller. (Adjustment of volume cannot be performed while recording.) (→ 31)
- If you use earphones be sure they have a length of cord less than 3 meters.



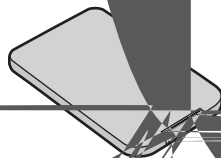
Using Batteries

■ Inserting the Button-Type Battery

Before using the remote controller, insert the battery in the battery compartment supplied with the remote controller.

- 1** While holding the remote controller properly **①**, pull out the Battery Cover.
- 2** Insert the CR2025 battery with the imprint of the remote controller.
- 3** Insert the remote controller into the Remote Control Receiver.

- When the battery becomes weak, replace it with a CR2025 battery. (A battery is normally used for about one year, however, the use time varies with the operation frequency.)
- Be sure to insert the battery properly when inserting the battery.



Warning

Danger of explosion. Do not use or replace the battery incorrectly. Replace the battery with an equivalent type recommended by the equipment manufacturer. Discard used batteries according to manufacturer's instructions.

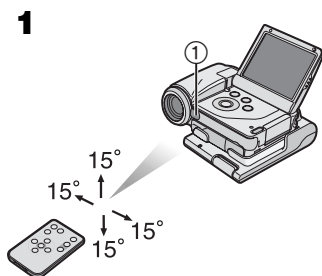
Risk of fire, explosion and burns. Do not recharge, disassemble, heat above 212°F (100°C) or incinerate. Keep the Button-Type battery out of the reach of children. No Button-Type battery in mouth. If swallowed, consult your doctor.

Replace battery with Panasonic PART NUMBER CR2025 only. Use of other battery may present a risk of fire or explosion.
Caution: Battery may be hot after use.
Dispose of used batteries properly.
Do not recharge.

■ Using the Remote Controller

1 Direct the Remote Controller at the Remote Controller Sensor ① on the SD Video Camera and press the desired button.

- Distance from the SD Video Camera: Within approx. 15 feet (5 meters).
- Angle: Within approx. 15 degrees in all directions from the central axis.



- The above operative ranges are for indoor use. Outdoors or under strong light, the SD Video Camera may not operate properly even within the above ranges.

■ Attaching the Hand Strap/Lens Cap

To protect the Lens surface, attach the Lens Cap.

1 Pass the end of Lens Cap Cord through the hold ① in the Lens Cap.

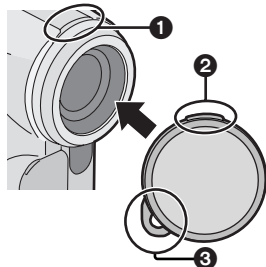
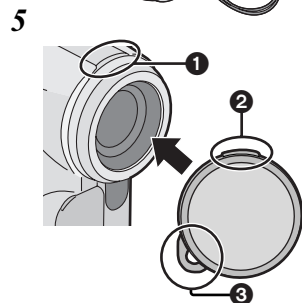
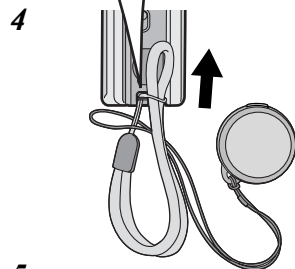
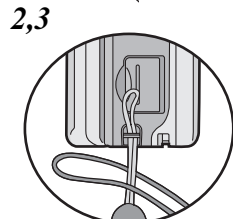
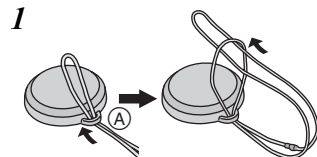
2 Pass the Hand Strap through the Lens Cap Cord.

3 Pass the shorter loop of the Hand Strap through the Strap Holder.

4 Pass the longer loop of the Strap through the shorter loop.

5 Attach the Lens Cap on the SD Video Camera.

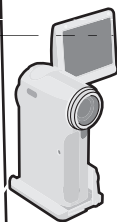
- Fit the part ② of the Lens Cap to the part ① of the SD Video Camera.
 - When you remove the Lens Cap, hook a finger into ③ and remove it.
- Keep the Lens Cap out of the reach of children to prevent swallowing.



■ Using the Stand

The Card Case can be used as a Movie Stand. It can be used for Portrait Picture Recording etc., or whenever you do not want to record with the SD Video Camera in your hand.

- 1 Open the Card Case.**
- 2 Fit the leading protrusions ① of the Stand and the grooves ② of the SD Video Camera, and place the SD Video Camera on the Stand.**



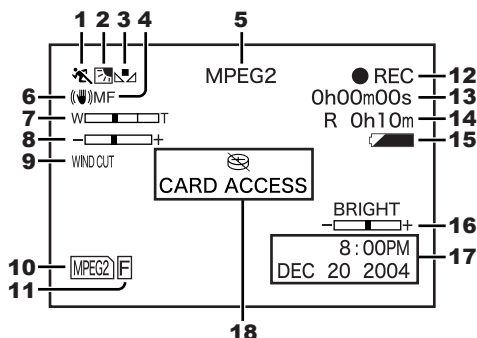
After Use

- 1 Turn off the SD Video Camera. (→ 17)**
- 2 Take out the Memory Card. (→ 14)**
- 3 Retract the LCD Monitor.**
- 4 Attach the Lens Cap on the SD Video Camera. (→ 68)**

If you do not use for a long time:

- 1 Remove the AC Adaptor and take the battery out. (→ 12)**
- 2 Attach the Lens Cap on the SD Video Camera. (→ 68)**
- 3 Put the SD Video Camera into the Wearable Case.**

Indications (Recording Mode)



1 Program AE Mode (→ 38)

- : Sports Mode
- : Portrait Mode
- : Low Light Mode
- : Spotlight Mode
- : Surf & Snow Mode

2 Backlight Mode (→ 35)

3 White Balance Mode (→ 36)

- AWB: Auto White Balance Adjustment
- : Indoor Mode (recording under incandescent light)
- : Outdoor Mode
- : Fluorescent light Mode
- : The white balance setting that was previously set manually

4 Focus Setting (→ 37)

- AF: Auto Focus
- MF: Manual Focus

5 Operation Mode (→ 27, 28, 32)

- MPEG2: MPEG2 Motion Image Mode
- MPEG4: MPEG4 Motion Image Mode
- PICTURE: Still Picture Mode

6 Electronic Image Stabilizer (→ 39)

7 Zoom/D.Zoom Magnification (→ 35)

8 Manual Exposure Adjustment (→ 37)

9 Wind Noise Reduction (→ 39)

10 Card Mode

- (Blue): MPEG2 Motion Image is ready to record
- (Red): MPEG2 Motion Image is recording
- (Red): SD Memory Card is not inserted/SD Memory Card is locked
- (Blue): MPEG4 Motion Image is ready to record
- (Red): MPEG4 Motion Image is recording
- (Red): SD Memory Card is not inserted/SD Memory Card is locked
- (Blue): Still Picture is ready to record
- (Red): Still Picture is recording
- (Red): SD Memory Card is not inserted/SD Memory Card is locked


11 Picture Quality (→ 27, 28, 32)

MPEG2/PICTURE (→ 27, 32)

: Fine

: Normal

MPEG4 (→ 28)

: Super Fine

: Fine

: Normal

: Economy

12 Recording Mode

●REC: Record

●II: Recording pause

13 Elapsed time indication

14 Indication of recordable time and recordable number of images


R 0h10m:

Remaining recordable time for motion images (Lights up in red when it reaches 0h00m.)

R 10:

Number of remaining recordable still pictures (Lights in red when it reaches zero.)

15 Remaining Battery Power []

When the battery power becomes low, the indication changes. When the battery level indicator indicates  (Red) flashes, the battery will run out in a few minutes. Recharge the battery.

(→ 12)

16 Adjusting Brightness and Color Level on the LCD Monitor (→ 24)

BRIGHT: LCD Brightness

COLOR: LCD Color Level

17 Date/Time Indication (→ 23)

18 Warning

:

The built-in battery may be exhausted. Recharge the built-in battery.

:

Warning has appeared in the portrait picture recording. Return the LCD monitor and verify contents. (→ 16)

[CARD ACCESS]:

While checking a Card.

[CARD ERROR]:

Error occurred when the recording starts, or while recording. Turn on power again. If a card is not corresponding, the SD Video Camera cannot recognize the card. Perform format with this SD Video Camera.

[CARD LOCKED]:

The write-protect switch of the SD Memory Card is set to [LOCK]. (→ 77)

[PROGRAM NO. FULL]:

The number of programs of an MPEG2 motion image which can be recorded to 1 card has filled. Delete all files in the unnecessary program, or insert the new card.

[NO CARD]:

The Memory Card is not inserted, or the Memory Card may not be inserted correctly.

[CARD FULL]:

The memory capacity is fully utilized. Erase any unnecessary files or replace it with a new Memory Card.

[COPY INHIBITED]:

The motion image has the copy-protect signal (copy guard), so cannot record this data.

[LOW BATTERY]:

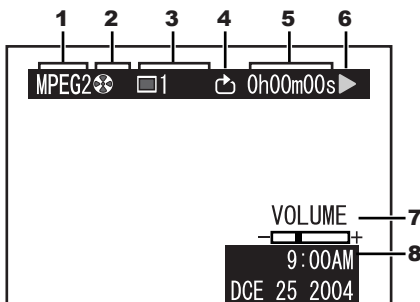
The battery may be exhausted. Replace it with a fully charged battery or recharge the supplied battery.

[UNFORMAT CARD]:

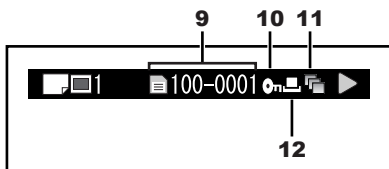
This card is not formatted, or formatted by device other than this SD Video Camera. Perform format with this SD Video Camera.

Indications (Playback Mode)

MPEG2/MPEG4



PICTURE



1 Operation Mode (→ 29, 30, 33)

MPEG2: MPEG2 Motion Image Mode

MPEG4: MPEG4 Motion Image Mode

: Still Picture Mode

2 Program/Play List

: All programs

01: Program Playback

01: Play List Playback

3 Scene Number

4 Repeat play (→ 52)

5 Elapsed time indication

6 Playback Mode (→ 29, 30, 33)

: Playback (→ 29, 30, 33)

: Pause (→ 29, 30, 33)

: Review Playback/Cue Playback (→ 29, 30, 33)

: Backward/Forward finding the beginning of a file.

: Go back/Advance one frame.

: Backward/Forward Slow Playback

: Start/End of last scene pause.

7 Volume indication

8 Date/Time indication

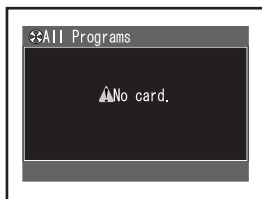
9 File Name

10 File Lock (→ 41)

11 Slide Show (→ 34, 42, 53)

12 DPOF setting (→ 42)

■ Displayed by the text



[No card.]

Card is not inserted.

[Card door opened.]

The Card Door is opened. Close it.

[Write protected. Check card.]

The write protect tab of SD Memory Card is set to [LOCK].

[Card error.]

This card is incompatible with the SD Video Camera. Format it.

[Card is not formatted. Format the card now?]

This card is formatted by other equipment. Format with the SD Video Camera.

[This card cannot record in MPEG2 mode.]

You cannot record MPEG2 motion images on some cards. (→ 27)

[This card cannot record in MPEG2 FINE mode.]

You cannot record MPEG2 motion images in [FINE] mode on some cards. (→ 27)

[This card cannot record in MPEG4 S-FINE mode.]

When recording on a MultiMediaCard, you cannot record MPEG4 motion images in [S-FINE] mode.

[Record Stopped. Clean up in no data area?]

The recording of MPEG2 motion image is aborted. Activate [Clean Up] function.

[Error has occurred. Please restart.]

To recover from the error, turn the unit off and then turn it on again.

[No File.]

Motion images and still pictures are not recorded on the card.

[Cannot delete scene.]

You tried to delete the locked files.

[DPOF is not set to a scene.]

You tried to select [DPOF] in SlideShow but the card has no scenes with DPOF setting.

[Card has no PlayList.]

You cannot select [Switch] or [Play] on [Playlist] because no play lists are created.

[Cannot lock scene in PlayList mode.]

When activating the playback screen for each play list, you cannot lock scenes.

[Cannot lock scene in PlayList mode.]

File Lock cannot be performed at the index screen of a play list.

[Same scene on PlayList will be deleted. Delete scene?]

If you delete a scene which is included in play lists, the same scene in play lists is also deleted.

[No more scenes. PlayList was deleted.]

If you delete all scenes in a play list, the play list is deleted.

[Scenes over limit. Cannot add scenes.]

You cannot record more than 99 scenes on a play list.

[PlayLists over limit.]

There are already 99 play lists on the card. When you create a new play list, delete unneeded play lists.

[Please connect both AC adapter and battery.]

When connecting the SD Video Camera to a PC, be sure to use both AC adaptor and battery.

■ About Recovery

When you access to a card in MPEG2 mode and faulty control information or play list information is found, the following messages may appear. (When activating the recovery function, it may take time depending on the error.)

Recovery of control information:

[Found error in control information.

Recommend to connect AC adapter.]

After the above message, the confirmation screen [Repair data now?] appears.

[Yes]

When connecting to AC adaptor or the remaining capacity of the battery is enough:

→ The management information is recovered properly.

When the remaining capacity of the battery is low:

→ [Please connect AC adapter or change battery.]

[No]

→ [Control information error. Cannot use this card in MPEG2 mode.]

Deletion of PlayList:

[Found error in PlayList. Delete error

PlayList now?] or [Found error in PlayList. Delete all PlayList now?]

[Yes]

When connecting to AC adaptor or the remaining capacity of the battery is enough:

→ The play lists with errors or all play lists are deleted.

When the remaining capacity of the battery is low:

→ [Please connect AC adapter or change battery.]

[No]

→ [PlayList error. Cannot use this card in MPEG2 mode.]

- When you recover files, you can record or play MPEG2 motion images again. Therefore, be sure to follow the instruction. However, when the recording time is less than 1 second in Fine or 1.5 second in Normal, the movie files cannot be recovered.
- When you delete error play lists or all play lists, you can record or play MPEG 2 motion images again. Be sure to delete them.
- If you recover the data recorded by other equipment on the SD Video Camera, the data may not be played on other equipment.

Notes & Precautions

■ Cautions for Use

When you use your SD Video Camera on a rainy or snowy day or on a beach, make sure that no water or moisture enters the SD Video Camera.

- Water may cause the SD Video Camera or Memory Card to malfunction. (Irreparable damage may occur.)
- If sea water splashes onto the SD Video Camera, wet a soft cloth with tap water, wring it well, and use it to wipe the camera body carefully. Then, wipe it again thoroughly with a soft dry cloth.

Keep the SD Video Camera away from magnetized equipment (such as a microwave oven, TV, video game equipment, etc.).

- If you use the SD Video Camera on or near a TV, images or sounds may be disturbed due to electromagnetic wave radiation.
- Do not use near a cell phone because doing so may cause noise to adversely affect the picture and sound.
- Recording on the Memory Card may be damaged, or images may be distorted by strong magnetic fields created by speakers or large motors.
- Electromagnetic wave radiation generated by a microprocessor may adversely affect the SD Video Camera, causing the disturbance of images and sounds.
- If the SD Video Camera is affected by magnetically charged equipment and does not function properly, turn off the SD Video Camera and detach the Battery or AC Adaptor and then connect the Battery or AC Adaptor again. Thereafter, turn on the SD Video Camera.

Do not use your SD Video Camera near radio transmitters or high-voltage lines.

- If you record pictures near radio transmitters or high-voltage lines, recorded images or sounds may be adversely affected.

Do not use the SD Video Camera for surveillance purposes or other business use.

- If you use the SD Video Camera for a long period of time, the internal temperature increases and, consequently, this may cause malfunction.
- The SD Video Camera is not intended for business use.

When you use your SD Video Camera on a beach or similar place, do not let sand or fine dust get into the SD Video Camera.

- Sand or dust may damage the SD Video Camera. (Extra care should be taken when inserting and removing the Memory Card.)

Do not spray insecticides or volatile chemicals onto the SD Video Camera.

- If the SD Video Camera is sprayed with such chemicals, its body may be deformed and the surface finish may peel off.
- Do not keep rubber or plastic products in contact with the SD Video Camera for a long period of time.

Do not use benzine, thinner or alcohol for cleaning the SD Video Camera.

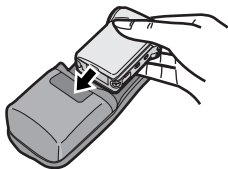
- The camera body may be deformed and the surface finish may peel off.
- Before cleaning, detach the Battery or pull out the AC Cord from the AC Main socket.
- Wipe the SD Video Camera with a soft dry cloth. To remove stubborn stains, wipe with a cloth that is soaked in detergent diluted with water, and afterward, finish wiping with a dry cloth.

After use, be sure to take the Memory Card out and detach the Battery from the SD Video Camera or pull out the AC Cord from AC Main socket.

If the Battery is used in an extremely cold environment, the Battery may only operate for approx. 5 minutes. If the Battery becomes extremely hot, a protective function may operate, and the Battery may become unusable for a while.

■ About the Lens

- Do not touch the lens. Wipe the SD Video Camera with a soft dry cloth when the lens becomes unclear.
- When condensation has taken place, set the power switch to [OFF] and leave the SD Video Camera in this condition for about 1 hour. When the camera becomes close to ambient temperature, the fog disappears naturally.
- Be careful not to touch the lens when picking up the SD Video Camera from the supplied Wearable Carry Case.



■ About the AC Adaptor

- If the Battery is warm, charging takes longer than usual.
- If you use the AC Adaptor near a radio, radio reception may be disturbed. Keep the AC Adaptor 1 meter or more away from a radio.
- After use, be sure to pull out the AC Cord from the AC Main socket.
- Keep the electrodes of the AC Adaptor and Battery clean at all times.
- Remove the battery if the device is left unused for a long time.

- The temperature of the SD Video Camera and the battery may rise while charging the battery. Such rise of temperature does not indicate a fault.
- Do not install, remove, plug or unplug the battery or power cord while the power is on.

■ About the LCD Monitor

- In a place with drastic temperature changes, condensation may form on the LCD Monitor. Wipe it with a soft dry cloth.
- If your SD Video Camera is extremely cold when you turn its power on, the image on the LCD Monitor will be slightly darker than usual at first. However, as the internal temperature increases, it goes back to the normal brightness.

Extremely high precision technology is employed to produce the LCD Monitor screen featuring a total of approximately 123,000 pixels. The result is more than 99.99% effective pixels with a mere 0.01% of the pixels inactive or always lit. However, this is not a malfunction and does not affect the recorded picture.

■ Optimal Use of the Battery

Battery Characteristics

A lithium ion battery is a small-sized battery with large capacity. However, when it is cooled down due to the low temperature (10 °C or less), the operating time becomes short by its characteristics and it may not operate properly. In this case, warm the battery moderately (e.g. in a pocket) and then insert it just before you use the Camera. (When using a body warmer, be careful not to directly make the battery touched to it.)

Battery may be warm

The Battery may be warm after charge or use. This is not a malfunction.

Be Sure to Detach the Battery after Use

Be sure to detach the Battery from the SD Video Camera. (If it is left attached to the SD Video Camera, a minute amount of current is consumed even when the SD Video Camera power is off.) If the Battery is left attached to the SD Video Camera for a long time, over discharge takes place. The Battery may become unusable after it is charged.

Have spare batteries on hand when you use this unit outdoors.

In a cold place, the recordable time will be shorter.

When you travel, be sure to bring the supplied AC adaptor for charging in the place you are visiting.

Self-discharge of the Battery

Leaving the Battery for a long time may cause self-discharge of the Battery. Charge it before use.

Store the Battery

Store the battery in a cool and dry place with a relatively stable temperature. If it is stored in a place with extremely high or low temperature, the life of the battery may be shortened.

Battery will not be used for a long time

If the Battery is not used for a long time, it may not be charged sufficiently. Or the operating time may be shortened.

Disposing of an Unusable Battery

●The Battery has a limited life.

If the operating time is drastically shortened even after charging, the life has expired. Replace it with a new battery.

- Do not throw the Battery into fire because it may cause an explosion.

Always Keep the Terminals of the Battery Clean

- Prevent the terminals from getting clogged with dirt, dust, or other substances.
- If you drop the Battery accidentally, check to see if the Battery body and terminals are damaged.
- Attaching a deformed Battery to the SD Video Camera may damage the SD Video Camera.

Notes on the SD Memory Card Write-Protect Switch

- The SD Memory Card has a write-protect switch. Sliding the switch to [LOCK] prevents the contents in the Memory Card from deleting accidentally.



Cautions for Storage

Before storing the SD Video Camera, take the Memory Card out and detach the Battery.

Store all the components in a dry place with a relatively stable temperature. (Recommended Temperature: 59 to 77°F (15 to 25°C), Recommended Humidity: 40 to 60%)

SD Video Camera

- Do not leave the SD Video Camera in places that expose it to high temperature.

Battery

- Extremely high temperatures or low temperatures will shorten the life of the Battery.
- If the Battery is kept in smoky or dusty places, the terminals may rust and cause malfunctions.
- Do not allow the Battery terminals to come in contact with metal objects (such as necklaces, hairpins, etc.). This can result in a short circuit or heat generation and, if you touch the Battery in this condition, you may be badly burned.

- Store the Battery in a completely discharged state. To store the Battery for a long period of time, we recommend you charge it once every year and store it again after you completely use up the charged capacity.

Memory Card

- When the Memory Card is being read, do not remove the Memory Card, turn off the power, or subject it to vibration or impact.
- Do not leave the Memory Card in places where there is high temperature or direct sunlight, or where electromagnetic waves or static electricity are easily generated.
- Do not bend or drop the Memory Card. The Memory Card or the recorded content may be damaged.
- After use, be sure to remove the Memory Card from the SD Video Camera.
- After use, store the supplied SD Memory Card in the Card Case.
- Do not touch the terminals on the back of the Memory Card with your fingers. Do not allow dirt, dust or water to enter it.
- Keep the Memory Card out of reach of children to prevent swallowing.

■ State of Power Lamp while charging

The Power Lamp flashes while charging. (Flashes approx. every 2 seconds when charging is normal.)

When the Power Lamps flashes more quickly or slowly (or turns off), some abnormality may have occurred. The flashing speed suggests the following states.

Flashing approx. every 0.5 seconds:

- The SD Video Camera, battery or AC adaptor may be defective. Contact your nearest Panasonic dealer.

Flashing approx. every 6 seconds:

- The ambient temperature or that of the battery itself is too high or too low. Charging proceeds, but will take a longer time.


Turning off:

Charging is completed.

- If the Power Lamp turns off when charging is not completed, the AC Adaptor or the battery is probably defective. Contact your nearest Panasonic dealer.

Notes and Hints

■ Power Supply (→ 12)

- When the Battery Level Indicator indicates [ (Red)] flashes, the battery will run out in a few minutes. **Recharge the battery.**
- It takes approx. 145 minutes, maximum for full-charging. (The charging times are for normal ambient temperature (68°F (20°C) /60%). If the Battery is charged at a higher or lower temperature, the charging time may be longer.)
- The capacities of the recording time/ playback time/still picture storage with a supplied, full-charged battery are as follows (68°F (20°C) /60%):

Maximum Continuous Recording Time (MPEG2)	60 min.
Maximum Continuous Recording Time (MPEG4)	60 min.
Number of Recordable Still Pictures (PICTURE)	600*

*In this case a record at intervals of 6 seconds.

The times/number of images listed in the above table are approximate.

- If you disconnect the DC Input Lead or the AC Cord while charging the Battery, Power Lamp flashes several times and goes off. For continuing Battery charge, wait for approx. 1 minute, and then connect the AC Cord and the DC Input Lead.
- It is recommended to set the battery even when using the AC adaptor.
- The main unit becomes hot when it is being charged or used. This is normal.
- When removing the battery, take care not to drop it.

- When the SD Video Camera is turned on, do not attach or remove the battery, or plug the power cord in or out.

■ Fitting the Camera on the AV Cradle (→ 13)

- To fit the SD Video Camera on the AV Cradle, turn the SD Video Camera [OFF].
- When the SD Video Camera is connected to the AV Cradle, the SD Video Camera cannot record through-the-lens images.
- When the AC adaptor is connected to this SD Video Camera, the SD Video Camera cannot be fitted on the AV Cradle.

■ Inserting a Memory Card (→ 14)

- An SD Memory Card can be used for this SD Video Camera.
- While the Card Access Lamp [ACCESS] is on, the following operations **should not** be attempted: (Such action will damage the Memory Card, cause loss of recorded data and cause the SD Video Camera to malfunction.)
 - Remove or insert the Memory Card.
 - Remove the battery or unplug the power cable.
 - Apply vibration or shock.
- Close a Card Slot Cover after checking whether the Memory Card is inserted correctly.
- Do not touch the terminals on the back of the Memory Card with your fingers.
- Electrical noise, static electricity or failure of the SD Video Camera or the Memory Card may damage the Memory Card or erase the data stored on the Memory Card. It is recommended to save important data onto a personal computer.
- Some cards may pop out when they are removed.
- Cannot guarantee the contents of recording when pictures are recorded on a MultiMediaCard.

■ Using the LCD Monitor (→ 15)

- Forcefully rotating the LCD Monitor beyond ranges described in these operating instructions will damage the SD Video Camera.
- When the LCD Monitor is closed with its display section facing outward, operation with the Multi-function Button or [MENU] Button is disabled. You can perform the function such as playing back, recording and adjusting the volume, etc. with the remote controller.

■ Turning the Power On/Selecting Operation Modes (→ 17)

- If the SD Video Camera is not used for 5 minutes or longer, the power is automatically turned off. Set the Power/Mode Switch to [OFF] and turn it back on.

■ Using the Menu Screen (→ 18)

- While a Menu is displayed, you cannot record or play back.
- The menu screen does not appear during recording.

■ Setting Date and Time (→ 22)

- The built-in battery sustains the operation of the clock.
- The clock might cause a deviation from the correct date and/or time, so be sure to check the current date and/or time before recording.
- If the [⌚] indicator is displayed, set the date and time after the battery has charged. (→ 66)

■ Recording Motion Images (MPEG2) (→ 27)

- If you disconnect the battery or the AC adaptor while recording MPEG2 motion images, or if you pull out a card while the Card Access lamp [ACCESS] is lit, a message for recovery appears when you turn the unit on or insert a card again. When you recover files, you can record or play MPEG2 motion images again. Therefore, be sure to follow the instruction. However, when the recording time is less than 1 second in Fine or 1.5 second in Normal, the movie files cannot be recovered.
- If the motion image is recorded again after stopping recording, it will be saved as another file.
- The sounds recorded will be in stereo.
- The capacities of the recording time for MPEG2 files are as follows:

	FINE	NORM
8 MB	—	—
16 MB	—	—
32 MB	—	1 min.
64 MB	—	2 min.
128 MB	—	5 min.
256 MB	5 min.	10 min.
512 MB	10 min.	20 min.

The times listed in the above table are approximate.

■ Recording Motion Images (MPEG4) (→ 28)

- If the motion image is recorded again after stopping recording, it will be saved as another file.

- The MPEG4 motion images can be recorded in any mode, but motion images recorded in the [S-FINE], [FINE] or [NORM] mode may not be played on other Panasonic digital video cameras. The message [PUSH THE RESET SWITCH] may be displayed on some Panasonic digital video cameras in such a case. This is not a fault of the SD Video Camera.
- The sounds recorded will be in monaural.
- Playing back MPEG4 motion images recorded in the [S-FINE] mode is not guaranteed for digital devices other than this SD Video Camera.
- MPEG4 motion images of the [S-FINE] mode cannot be recorded in the MultiMediaCard.
- The capacities of the recording time for MPEG4 files are as follows:

	S-FINE	FINE	NORM	ECO
8 MB	40 sec.	1 min 30 sec.	2 min.	7 min.
16 MB	1 min 30 sec.	4 min.	5 min.	15 min.
32 MB	3 min.	8 min.	10 min.	35 min.
64 MB	7 min.	17 min.	25 min.	1 h 10 min.
128 MB	15 min.	35 min.	50 min.	2 h 30 min.
256 MB	30 min.	1 h 10 min.	1 h 40 min.	5 h 00 min.
512 MB	1 h 00 min.	2 h 20 min.	3 h 30 min.	10 h 10 min.

The times listed in the above table are approximate.

■ Playing Back Motion Images (MPEG2) (→ 29)

- If you select [NORM] on [Quality], the quality of image will deteriorate.
- Files are numbered hexadecimally.
- When a motion image is played back, a mosaic may appear or some frames may be missing; but this is normal.
- If there are 12 files or more on the index picture screen, each press of the left (or right) of the multi-function button makes the previous (or next) page appear.

- Fast forward or fast backward will be reset to normal playback on the next file.
- In the index picture screen, the first frame for the pictures is displayed. (For example, if the first frame is painted in black as a whole, a black screen will be displayed.)
- Files recorded by another device or another application may not be played back. Files recorded on the SD Video Camera may not be played back on another movie camera or the file size may not be displayed correctly.
- When playing back a picture recorded by other equipment, picture size may differ.

■ Playing Back Motion Images (MPEG4) (→ 30)

- If you select [NORM] or [ECO] on [Quality], the quality of image will deteriorate.
- Files are numbered hexadecimally.
- The file format supported by this SD Video Camera is ASF. (Some ASF formatted files may not be played back.)
- When a motion image is played back, a mosaic may appear or some frames may be missing; but this is normal.
- If there are 12 files or more on the index picture screen, each press of the left (or right) of the multi-function button makes the previous (or next) page appear.
- Fast forward or fast backward will be reset to normal playback on the next file.
- In the index picture screen, the first frame for the pictures is displayed. (For example, if the first frame is painted in black as a whole, a black screen will be displayed.)
- Files recorded by another device or another application may not be played back. Files recorded on the SD Video Camera may not be played back on another movie camera or the file size may not be displayed correctly.
- When playing back a picture recorded by other equipment, picture size may differ.

■ Recording Still Pictures (→ 32)

- The image size is 640 × 480 (VGA).

- If [NORM] is selected for recording, mosaic-pattern noise may appear on a playback image depending on the image content.
- If there are 12 files or more to be displayed in the index picture screen, each press of the left (or right) multi-function button makes the previous (or next) page appear.
- The following table shows still image storage capacity for each image quality settings:

	FINE	NORM
8 MB	45	95
16 MB	100	200
32 MB	220	440
64 MB	440	880
128 MB	880	1760
256 MB	1760	3520
512 MB	3520	7040

The numbers shown in the above table are approximate and may vary depending on picture content.

■ Playing back Still Pictures (→ 33)

- The image data files recorded on the Memory Card with the SD Video Camera conform to the DCF (Design rule for Camera File system) universal standard stipulated by JEITA (Japan Electronics and Information Technology industries Association).
- The file format supported by this SD Video Camera is JPEG. (Some JPEG formatted files may not be played back.)

■ Play Back All of the Still Pictures One by One (Slide Show) (→ 34)

- The playback time of the Slide Show may become longer than usual depending on the file, such as still pictures recorded by other equipment.


■ Zoom In/Out Functions (→ 35)

- When recording pictures using the Zoom In function, we recommend using the Digital Electronic Image Stabilizer (EIS) Function. (→ 39)
- During considerably fast zooming, the image may become out of focus temporarily.
- When the zoom magnification is 1×, the SD Video Camera can focus on a subject that is as close as approximately 1.6 inches (4 cm) from the Lens.
- When pushing the Zoom Lever, the zoom speed will be changed depending on the pressure applied.
- When using the Remote Controller, zoom speed is not changed.

■ Backlight Compensation Function (→ 35)

- When the Backlight Compensation Function is activated, the entire screen becomes brighter.
- Turning the power off will release this function.
- The backlight may not be sufficiently compensated for in dark places.

■ Adjusting White Balance (→ 36)

- You may not be able to achieve correct White Balance adjustment manually under weak illumination. (In this case, the [] Indication flashes.)
- This mode cannot be set or released while recording.
- The White Balance may not be adjusted in dark places.
- Adjustment of White Balance is effective under the following conditions.
 - When recording under reddish lighting (halogen light bulb, incandescent light bulb, etc.).
 - When recording a picture of mono-tone color.
 - When recording under multiple light sources.
- White Balance cannot be set in the digital zoom range.

■ Manual Exposure Adjustment (→ 37)


- The brightness of the LCD monitor may differ from that of the actual recorded pictures.

■ Manual Focus Adjustment (→ 37)

- If you focus on the subject by pushing the zoom lever to “W”, the focus may be faulty when you push the zoom lever to “T”. To focus on the subject sharply, push the zoom lever to “T” first and then adjust the focus.
- Manually focus the following objects, which may not be automatically focused.
 - Objects that are far and near at the same time.
 - Glare objects.
 - Objects behind glass with dirt on it.
 - Objects moving rapidly.
 - Objects with little variation in brightness, such as white wall.
 - Dark objects.

■ Recording in Special Situations (Program AE) (→ 38)

Sports Mode

- During pause or slow playback, the image movement may appear smooth.
- During normal playback, the image movement may not appear smooth.
- Because the color and brightness of the playback image may change, avoid recording under fluorescent light, mercury light or sodium light.
- If you record a subject illuminated with strong light or a highly reflective subject, vertical lines or light may appear.
- If the light is insufficient, the [] indication flashes.
- If these modes are used for indoor recording, playback images may flicker.

Portrait Mode

- If these modes are used for indoor recording, playback images may flicker.

Low Light Mode

- Extremely dark scenes may not be able to be made brighter to a satisfactory degree.

Spotlight Mode

- With this Mode, recorded images may turn out to be extremely dark.
- If the recording subject is extremely bright, its recorded image may turn out to be washed out.

Surf & Snow Mode

- If the recording subject is extremely bright, its recorded image may turn out to be washed out.

Deleting Scenes (Delete) (→ 40)

- Erased files cannot be restored.
- A locked file cannot be erased. Release the lock to erase them.
- No files can be erased if the write protect switch on the SD Memory Card is set to [LOCK].
- If a file is erased on the SD Video Camera, the DPOF information set by another camera may also be erased.
- A still picture file (other than JPEG) that cannot be played back on the SD Video Camera may be erased.
- Erasing many files may take a little time. Wait until the Card Access Lamp goes out.
- Do not turn the power off or remove the Memory Card while a file is being deleted. Otherwise, the Memory Card may be damaged.

Locking Scenes (File Lock) (→ 41)

- Even if files are locked, the files will be deleted when the Memory Card is formatted.
- The File Protection carried out by this SD Video Camera is only effective for this SD Video Camera.
- The SD Memory Card has a write protection switch on it. If the switch is moved to the [LOCK] side, you cannot write to or format the Memory Card. If it is moved back, you can.
- Locking/Unlocking many files may take a little time. Wait until the Card Access Lamp goes out.

Designating Scenes to be Printed (DPOF) (→ 42)

- DPOF is the abbreviation of Digital Print Order Format. DPOF is used to select images you want to print. DPOF can only be used with products that support this feature.
- The number of prints can be set from 0 to 99.
- This SD Video Camera may not recognize the DPOF set by another type of device.
- DPOF-setting many files may take a little time. Wait until the Card Access Lamp goes out.

Formatting the Memory Card (Format Card) (→ 51)

- Normally, it is not necessary to format the Memory Card.
- If the Memory Card performance becomes unstable (recording or playback fails, etc.), try to format it.
- If a message to prompt you to check the Memory Card comes up, it will be necessary to format it in order to use it on the SD Video Camera.
- By formatting, all data stored in the Memory Card (e.g., MPEG2 motion images, MPEG4 motion images, still pictures) are erased.
- Format the Memory Card on the SD Video Camera. A Memory Card formatted on a machine other than the SD Video Camera may not be used. A Memory Card formatted on the SD Video Camera may not be used on other machines. Format a Memory Card on the machine on which it is used.
- Do not use the personal computer (Explorer) to format it. Otherwise, it may not be recognized by the SD Video Camera.
- If the write protection switch of the SD Memory Card is set to [LOCK], data cannot be erased.
- When the Memory Card is formatted, the files will be deleted, even if files are locked.

- As formatting erases all the data, save the necessary data on a personal computer, etc. beforehand.
- Format may take a little time. Wait until the Card Access Lamp goes out.

■ **Playing Back on an external device (→ 54)**

- Read the Operating instructions of an external device before connecting SD Video Camera.
- When connecting, turn the power [OFF].
- Part of the characters may be clipped on the screen, depending on the type of TV.

■ **Recording pictures supplied from an external device (→ 55)**

- Pictures containing the copy-protect signal (copy guard) cannot be recorded.
- A wide-format picture (picture of 16:9) cannot be recorded properly.
- For audio of MPEG4 motion image recording, the signals from the L (left) channel and the R (right) channel for stereo are mixed for recording in monaural.
- Do not plug in or pull out the video or audio cord during recording. The recording may not be performed correctly.
- For pictures containing both the main audio and sub audio to MPEG4 motion image recording, select either channel before recording. Otherwise, you will not be able to select on TV either of the main audio or sub audio. (Both audio channels are mixed for recording.)
- If pictures are recorded when TV broadcasting signals are weak or pictures are affected by noise, they may be distorted or may not even be played back.
- When recording pictures from other than an external device, select [Input Source] on [Record Functions Setup] to [CAMERA].

■ **Using the DVD Video Recorder with a Hard Disk (→ 57)**

- You can save files on the Hard Disk by connecting to the DVD Video Recorder with the supplied AV cable. However, the picture quality is deteriorated.

■ **Connecting with the PC (→ 63)**

- To erase pictures that you recorded on the Memory Card by using the SD Video Camera, be sure to erase them on the SD Video Camera or by the MediaStage for AV100 (supplied), not on a personal computer (the explorer, etc.).
- You may not be able to properly play back on the SD Video Camera after editing the recorded data or changing the image data on a personal computer.
- Motion Image format (MPEG4) that can be played back on the SD Video Camera is ASF. (Depending on the file, it may not be able to be played back even if it is in ASF format.)
- When you operate the SD Video Camera using its buttons, pull out the USB cable. (The SD Video Camera cannot be operated in the [PC ACCESSING] mode.)
- Use only the supplied USB cable.
- Do not remove the AC adaptor when the SD Video Camera is connected to the personal computer.
- If the SD Video Camera's personal computer peripheral mode ([PC ACCESSING] is displayed) is not cancelled when the personal computer is turned OFF, remove the USB cable.
- If the personal computer switches to the suspend mode when the SD Video Camera is connected to it, the personal computer may not recognize the SD Video Camera when it reverts to normal mode. In this case, restart the personal computer.
- While MediaStage for AV100 (supplied) is accessing a CD, the CD may not work properly in other applications.

- When an NTFS-formatted Memory Card is inserted into the SD Video Camera and the Device is connected to the personal computer, the Memory Card Access lamp [ACCESS] keeps lighting. In this case, log on with [Administrator (computer administrator)] (or any other user name having equivalent rights), right-click the Removable Disk icon in [My Computer], and select [Remove]. Check that the Card Access Lamp [ACCESS] goes off, then remove the Memory Card.

- When the USB Driver is installed and the SD Video Camera is connected to the personal computer for the first time, the [Found New Hardware Wizard] screen may appear. Complete the operation in the following procedure, and the personal computer will recognize the SD Video Camera.

① Click [Next].

② Confirm whether your device is configured to the optimal driver detection setting and click [Next].

③ Insert the supplied CD-ROM into the CD-ROM drive.

④ Enter the path as “D:\USB Driver\files”. (example of D drive assigned as CD-ROM drive)

⑤ Click [Next].

⑥ Click [Next].

⑦ Click [Finish].

- When playing MPEG2 motion pictures directly from the SD Memory Card with MediaStage for AV100 (included in the supplied CD-ROM), frame drop may occur or the sound may be interrupted. In this case, copy the data in the SD Memory Card to the hard disc of the PC with MediaStage for AV100 before playing. You can reduce the frame drop or interruption of the sound.

Copy to the InnerHDD



①: Select the SD Memory Card icon.

②: Drag and drop a file to the InnerHDD.

Playing back a file in the InnerHDD



③: Click the InnerHDD icon.

④: Double click the desired file.

■ Constructing a Folder when the Memory Card is used with a PC (→ 65)

- [DCIM], [SD_VIDEO] etc. are necessary items in the folder structure. They have nothing to do with actual operations.
- The memory capacity indicated on the SD Memory Card label corresponds to the total amount of the capacity to protect and manage the copyright and of the capacity available as a conventional memory for a SD Video Camera, Personal Computer or others.
- Do not delete any folders located on the Memory Card. If this is done, the Memory Card may not be recognized on your SD Video Camera.
- The MPEG4 motion image file (ASF format) can be played on the Windows Media Player 6.4 or later. If it cannot be played back, download the appropriate software (G.726). (G.726 is installed at the same time as the supplied software, MediaStage for AV100.)
- When formatting a Memory Card, format it on the SD Video Camera.
- When a motion image is played back on a personal computer, a black belt may be present along the top and bottom of the picture.
- If data not supported by the SD Video Camera is recorded on a personal computer, it cannot be recognized by the SD Video Camera.

Before Requesting Service

Power

- 1: The SD Video Camera power cannot be turned on.**
 - 1-1: Is the power source connected correctly?
 - 1-2: Is the Battery fully charged? Charge it with the AC Adaptor.
- 2: The SD Video Camera power shuts off automatically.**
 - 2: If you do not use the SD Video Camera for more than 5 minutes, the power shuts off automatically to save the Battery power.
- 3: The SD Video Camera power does not stay on long enough.**
 - 3: Is the Battery low? Charge the Battery or attach a fully charged Battery.

Battery

- 1: Battery runs down quickly.**
 - 1-1: Is the Battery fully charged? Charge it with the AC Adaptor.
 - 1-2: Are you using the Battery in an extremely cold place? In cold places, the operating time of the Battery becomes shorter.
 - 1-3: Has the Battery worn out? If the operating time is still short even after the Battery is fully charged, the Battery has worn out.

Recording

- 1: Recording does not start although power is supplied to the SD Video Camera and the Memory Card is correctly inserted.**
 - 1-1: Is the SD Video Camera turned on?
 - 1-2: Is the write-protect switch set to [LOCK]? Being set to [LOCK], the Memory Card cannot be recorded.
 - 1-3: Does the Memory Card have enough free space? Check the [Capacity] of a card, and when there is little free space available, delete unnecessary data in the Memory Card. (→ 51)

1-4: Please check the capacity of a card, and when there are few capacities, delete unnecessary data.

2: MPEG2 motion image recording does not start although power is supplied to the SD Video Camera and the Memory Card is correctly inserted.

2: You cannot record MPEG2 motion images on some cards. (→ 27)

Playback

1: Recorded MPEG4 motion images are not clear.

1: Is [Quality] on the menu set to [NORM] or [ECO]? If recording is done with it set to [NORM] or [ECO], images with fine details may include a mosaic-like pattern. Set [Quality] to [FINE] or [S-FINE].

2: Playback images do not look normal.

2: The picture may be damaged. In order to prevent the loss of image data, backing up on a personal computer is recommended.

3: Actual recording time/still image storage capacity in the Memory Card is different from those described in these Operating Instructions drastically.

3-1: Actual recording time/still image storage capacity depends on the kind of the image.

3-2: When motion image data and still picture data are recorded in the Memory Card, less capacity in the Memory Card can be used.

4: Even if a Memory Card is formatted, it cannot be used.

4: Either the SD Video Camera or the Memory Card may be damaged. Please consult your Panasonic dealer.

5: Playing back or recording do not function and the screen has frozen.

5: Set the Power Switch to [OFF]. If the SD Video Camera is not turned off after setting to [OFF], unplug the AC Adaptor and remove the battery.

6: Sound is not heard while a still picture is played back.

6: Sound is not presented in the Still Picture mode (recording or playing back of still pictures).

7: No images are displayed on TV, although the SD Video Camera is connected to a TV.

7-1: Connect the SD Video Camera to the TV correctly.

7-2: Use the supplied AV cable.

7-3: When the SD Video Camera is set to Recording mode.

Others

1: Something is wrong with the SD Video Camera's operation. The SD Video Camera is turned on but no functions operate.

1: Press the [RESET] Button on the SD Video Camera with a pointed object. (Camera reverts back to factory settings, but the date/time setup is retained.) If this does not solve the problem, first disconnect the power supply and wait for a minute or so, and then reconnect the power supply to turn the power back on. (If the above operation is performed when the Access Lamp of Memory Card Slot is lit, the data on the Card may be damaged.)

- 2: How do I send an MPEG4 motion image recorded as e-mail?**
- 2: Capture the motion image data recorded on the SD Video Camera onto a personal computer and attach it to an e-mail to send it. In this case, it is recommended to make a file size 1 MB or less. The recording time of 1 MB MPEG4 motion image is approx. 8 seconds (S-FINE), 15 seconds (FINE), 20 seconds (NORM) or 60 seconds (ECO). (The capacity limit of the file which is attachable to an e-mail differs depending on the environment used.) If the file is played back on the personal computer, Windows Media Player 6.4 or later is required. If the file is played back on Macintosh, use the Windows Media Player for Macintosh. (Mac OS® 8.0 or later) The Windows Media Player for Macintosh can be downloaded from Microsoft's Web site.
- 3: Red, blue, green or white dots appear on the screen.**
- 3: 0.01% or less of the pixels of some LCD Monitors may remain turned on or off.
- 4: When the USB cable is connected, a green [?] mark is indicated in [USB Mass Storage Device] in [Device Manager] of the Windows OS.**
- 4: If the USB cable is connected without installing the USB Driver (supplied), [?] will be indicated on some OSs. Remove the USB cable from the SD Video Camera and install the USB Driver according to the procedure shown on page 62, and [?] will disappear.
- 5: When the USB cable is removed when Windows Me is used, Device removal warning appears.**
- 5: If the USB cable is connected without installing the USB Driver (supplied) when you use Windows Me, the warning message will appear as soon as the USB cable is pulled out. Install the USB Driver, and the warning

Specifications

SD Video Camera (Panasonic SV-AV100) Information for your safety

Power Source:	DC 4.9 V (AC Adaptor) DC 3.7 V (Battery)
Power Consumption:	Recording (When recording the MPEG2 motion image with Camera Input) 3.7 W (When using the AC Adaptor) 3.5 W (When using the battery) Recording (When recording the MPEG4 motion image with Camera Input) 3.7 W (When using the AC Adaptor) 3.5 W (When using the battery)
Image Sensor:	1/6-inch CCD Image Sensor
Lens:	F1.8–2.3, Focal Length; 2.3–23.0 mm Shortest Image Distance; Approx. 1-3/8-inch (35 mm) from Lens
Zoom:	10:1 Power Zoom
Monitor:	2.5-inch LCD
Microphone:	Stereo
Standard Illumination:	1400 lx
Minimum Required Illumination:	12 lx
Recording Media:	SD Memory Card
Video Compression:	MPEG2 Fine: 704 × 480 pixels (6 Mbps, 30fps) Normal: 352 × 480 pixels (3 Mbps, 30fps) MPEG4 Super Fine: 320 × 240 pixels (QVGA) (1 Mbps, 15fps) Fine: 320 × 240 pixels (QVGA) (420 kbps, 12fps) Normal: 176 × 144 pixels (QCIF) (300 kbps, 12fps) Economy: 176 × 144 pixels (QCIF) (100 kbps, 6fps) JPEG (Exif2.2/DCF) MPEG2: MPEG1-Layer2 MPEG4: G.726
Image Compression:	EIA Standard: 525 lines, 60 Fields NTSC color signal
Voice Compression:	1.0 Vp-p, 75 ohm (AV mini jack) Line: 316 mV, 10 kohm or more (AV mini jack) Mic: Stereo Microphone
Television System:	Line: 316 mV, 10 kohm or more (AV mini jack)
Video Input/Output Level:	Card reader/writer function, (No copyright protection support)
Audio Input Level:	USB 2.0 compliant (max. 12 Mbps)
Audio Output Level:	Approx. 1-5/16" × 3-9/16" × 2-9/16" (33.2 (W) × 89.8 (H) × 64.9 (D) mm)
USB:	Approx. 5.5 oz. (156 g) (without Battery, Memory Card and Lens Cap) Approx. 6.7 oz. (190 g) (with Battery, Memory Card and Lens Cap)
Dimensions:	32°F–104°F (0 °C–40 °C)
Weight:	10%–80%
Operating Temperature:	
Operating Humidity:	

AC Adaptor (Panasonic VSK0617) Information for your safety

Input:	AC 110–240 V, 50/60 Hz 0.2 A
Output:	DC 4.9 V, 1.4 A

Dimensions: Approx. $2\text{-}3/8" \times 1\text{-}1/4" \times 3\text{-}13/16"$
(59 (W) \times 31 (H) \times 96 (D) mm)

Weight: Approx. 4.59 oz. (130 g)

Battery Pack (Panasonic CGA-S302A) Information for your safety

Nominal Voltage:	3.7 V
Nominal Capacity:	1050 mAh

Dimensions: Approx. $1\text{-}7/16" \times 5/16" \times 2\text{-}1/8"$
(36 (W) \times 7 (H) \times 53 (D) mm)

Weight: Approx. 1 oz. (28 g)

Limited Warranty Limits And Exclusions

This warranty **ONLY COVERS** failures due to defects in materials or workmanship, and **DOES NOT COVER** normal wear and tear or cosmetic damage. The warranty **ALSO DOES NOT COVER** damages which occurred in shipment, or failures which are caused by products not supplied by the warrantor, or failures which result from accidents, misuse, abuse, neglect, mishandling, misapplication, alteration, faulty installation, set-up adjustments, misadjustment of consumer controls, improper maintenance, power line surge, lightning damage, modification, or commercial use (such as in a hotel, office, restaurant, or other business), rental use of the product, service by anyone other than a Factory Servicenter or other Authorized Servicer, or damage that is attributable to acts of God.

THERE ARE NO EXPRESS WARRANTIES EXCEPT AS LISTED UNDER “ LIMITED WARRANTY COVERAGE”. THE WARRANTOR IS NOT LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OF THIS PRODUCT, OR ARISING OUT OF ANY BREACH OF THIS WARRANTY. (As examples, this excludes damages for lost time, travel to and from the servicer, loss of media or images, data or other memory content. The items listed are not exclusive, but are for illustration only.) **ALL EXPRESS AND IMPLIED WARRANTIES, INCLUDING THE WARRANTY OF MERCHANTABILITY, ARE LIMITED TO THE PERIOD OF THE LIMITED WARRANTY.** Some states do not allow the exclusion or limitation of incidental or consequential damages, or limitations on how long an implied warranty lasts, so the exclusions may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state. If a problem with this product develops during or after the warranty period, you may contact your dealer or Servicenter. If the problem is not handled to your satisfaction, then write to the warrantor's Consumer Affairs Department at the addresses listed for the warrantor.

PARTS AND SERVICE WHICH ARE NOT COVERED BY THIS LIMITED WARRANTY ARE YOUR RESPONSIBILITY.

Customer Services Directory (For U.S.A. Only)

For Product Information, Operating Assistance, Literature Request, Dealer Locations, and all Customer Service inquiries please contact:

1-800-211-PANA(7262), Monday-Friday 9am-9pm Saturday-Sunday 9am-7pm, EST.
or send e-mail: consumerproducts@panasonic.com

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

You can purchase parts, accessories or locate your nearest servicenter by visiting our Web Site.

Accessory Purchases:

1-800-332-5368 (Customer Orders Only)

Panasonic Services Company 20421 84th Avenue South, Kent, WA 98032

(6 am to 5 pm Monday - Friday; 6 am to 10:30 am Saturday; PST)

(Visa, MasterCard, Discover Card, American Express, Check)

Product Repairs

Centralized Factory Servicenter

Panasonic Services Company

MAIL TO :

1705 N. Randall Road,

Elgin, IL 60123-7847

Attention: SD Products Repair

Please carefully pack and ship, prepaid and insured, to the Elgin Centralized Factory Servicenter.

Customer's in Puerto Rico, please ship or carry in to location below ("Service in Puerto Rico").

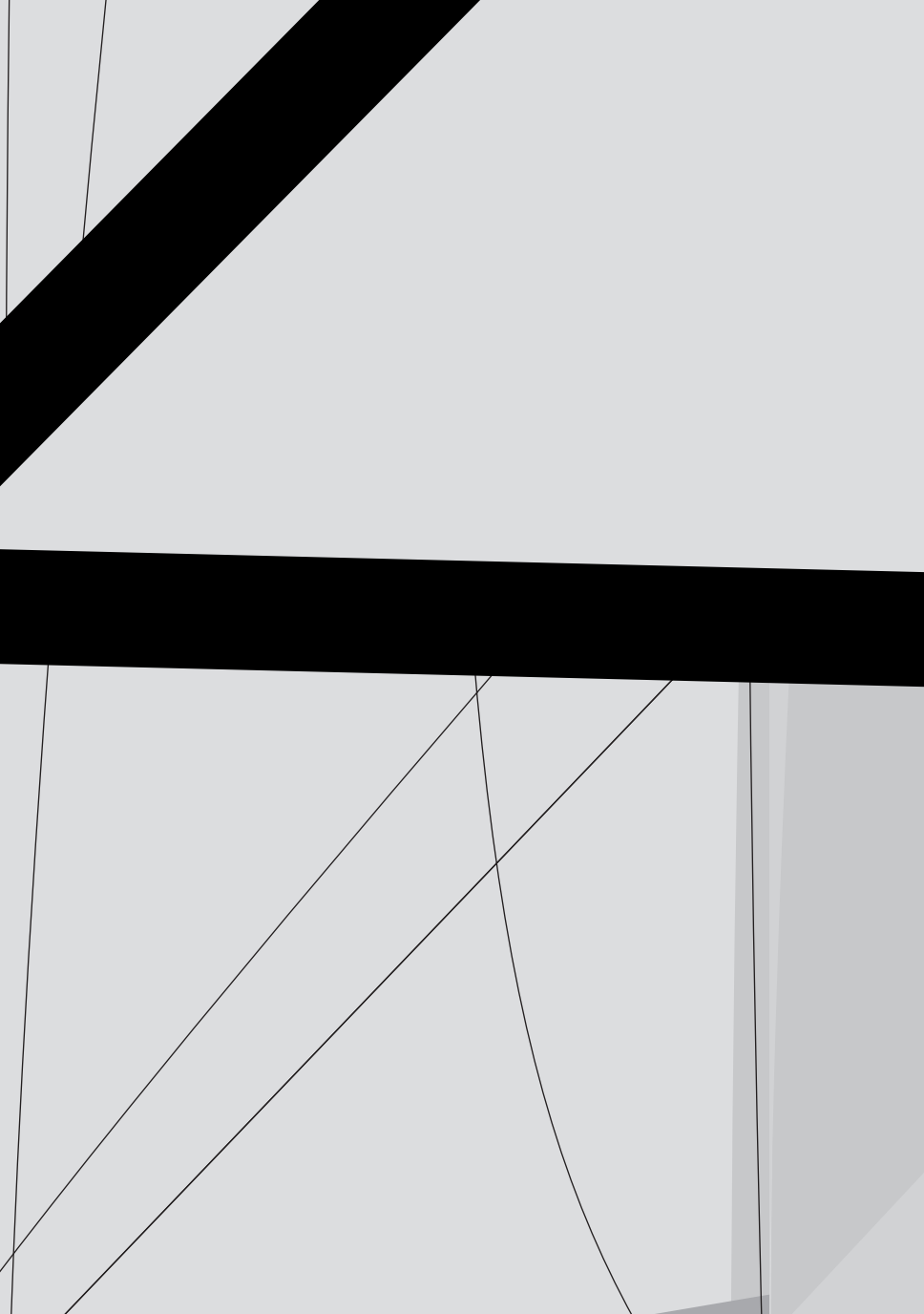
Service in Puerto Rico

Matsushita Electric of Puerto Rico, Inc. Panasonic Sales Company/ Factory Servicenter:

Ave. 65 de Infantería, Km. 9.5, San Gabriel Industrial Park, Carolina, Puerto Rico 00985

Phone (787) 750-4300 Fax (787) 768-2910

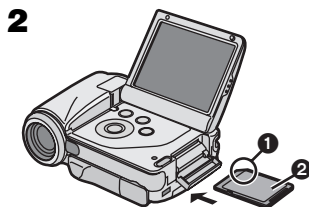
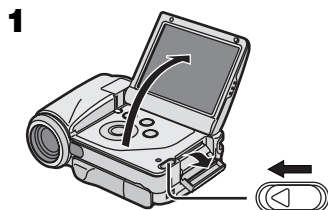
As of January 2002



Inserción de la Tarjeta de memoria

En esta Videocámara SD, sólo se puede utilizar una tarjeta de memoria SD.

- 1** Abrir el monitor LCD y deslizar la palanca para abrir la tapa del compartimento de la tarjeta.
- 2** Sujetar la tarjeta de memoria colocando el ángulo cortado **1** de frente con la etiqueta **2** en la parte delantera, e insertarla totalmente en el compartimento de la tarjeta de memoria horizontalmente.
 - Apagar la Videocámara SD antes de insertar/quitar la tarjeta.
- 3** Cerrar bien la tapa del compartimento de la tarjeta.



1

Imágenes

Modo de grabación de imágenes estáticas

(formato JPEG de imágenes estáticas)

Modo de reproducción de imágenes dinámicas

(formato MPEG4)

Imágenes dinámicas

Modo de grabación de imágenes dinámicas

(formato MPEG4)

Modo de reproducción de imágenes

(formato MPEG4)

Imágenes estáticas [PICTURE]:

Modo de grabación de imágenes estáticas

(formato JPEG de imágenes estáticas)

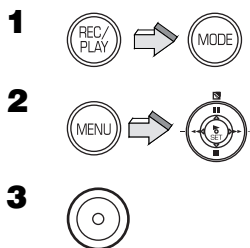
Modo de reproducción de imágenes estáticas

(formato JPEG de imágenes estáticas)

- Cuando se usa la batería para alimentar la Videocámara SD, se apaga automáticamente si no se utiliza durante más de aprox. 5 minutos.

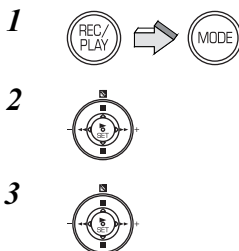
Grabación de imágenes dinámicas/imágenes estáticas

- 1** Pulsar el botón [REC/PLAY] para seleccionar el modo grabación y poner el modo de funcionamiento.
- 2** Pulsar el botón [MENU] y configurar la [Quality] en [Record Functions Setup] con la calidad de imagen deseada y luego pulsar el botón [► SET].
- 3** Pulsar el botón de grabación Start/Stop.
 - Durante la grabación de la imagen dinámica, pulsar el botón de grabación Start/Stop para detener la grabación.



Reproducción de imágenes dinámicas/imágenes estáticas

- 1** Pulsar el botón [REC/PLAY] para seleccionar el modo reproducción y poner el modo de funcionamiento.
- 2** Pulsar el lado [II/■/◀◄/▶▶] del botón Multifunción para seleccionar el archivo deseado.
- 3** Pulsar el botón [► SET].



**Panasonic Consumer Electronics Company,
Division of Matsushita Electric Corporation of America**
One Panasonic Way, Secaucus, NJ 07094

**Panasonic Sales Company ("PSC")
Division of Matsushita Electric of Puerto Rico, Inc.**
Ave. 65 de Infantería, Km. 9.5, San Gabriel Industrial Park, Carolina, Puerto Rico 00985

Panasonic Canada Inc.
5770 Ambler Drive, Mississauga, Ontario, L4W 2T3



VQT0F57
S0803Ah0 (7000 Ⓐ)

© 2003 Matsushita Electric Industrial Co., Ltd.