SANYO

INSTRUCTION MANUAL

VPC-E1

Digital Movie Camera

Xacti

SD HC™

Important note

This manual explains how to safely operate the VPC-E1.

Please read these instructions carefully before using the camera.
Make sure to read and understand the separate booklet "SAFETY MANUAL".
Keep this manual in a safe place for later reference.

Warning
TO PREVENT THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

FOR AMERICAN USERS

The following advisory is included in accordance with the laws of the State of California (USA):
WARNING:
This product contains chemicals, including lead, known to the State of California to cause cancer, birth defects or other reproductive harm. **Wash hands after handling.**

- 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.
- Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Declaration of Conformity

Model number: VPC-E1
Trade Name: SANYO
Responsible party: SANYO FISHER COMPANY
Address: 21605 Plummer Street, Chatsworth, California 91311
Telephone No.: (818) 998-7322
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.

FOR CANADIAN USERS

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

Symbols used in this manual

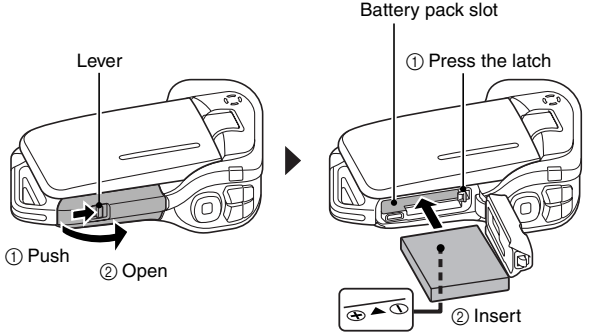
HINT Points giving some extended instructions or special points to pay attention to.
CAUTION Points that require special attention.
(page xx) Refer to the page indicated for detailed information.

You may find the answers to questions or problems concerning camera operation in the sections “COMMONLY ASKED QUESTIONS” (page 159) and “TROUBLESHOOTING” (page 166).

SHOOT, PLAY BACK AND SAVE

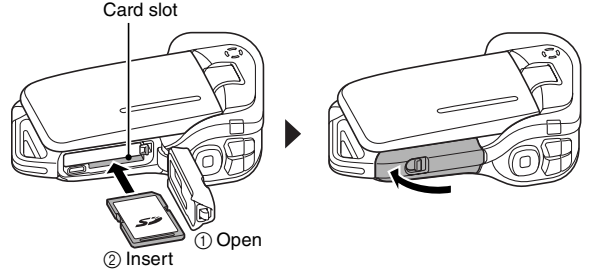
Install the battery pack and card

1 **Insert the battery pack.**



2 **Insert the SD Memory Card.**

- An SD Memory Card is not included with your camera. Please purchase a commercially sold card.
- In this manual, the SD Memory Card is referred to as the “card”.



Before capturing those important shots, be sure to first take a test shot to confirm that your camera is set up and ready to go

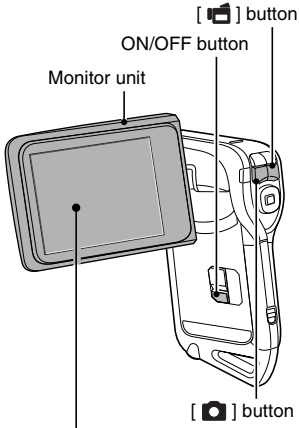
- Sanyo declines any claim for compensation for recorded contents etc. in case of photographing or recording failure due to a chance camera or card flaw.

Shooting

■Video clip recording

1 **Open the monitor unit, and press the ON/OFF button for at least 1 second.**
- The camera turns on.

2 **Press the [ ] button.**
- Recording begins.
- To stop recording, press the [ ] button again.



■Still image photography

1 **Open the monitor unit, and press the ON/OFF button for at least 1 second.**
- The camera turns on.

2 **Press the [ ] button.**
- A still image is captured.

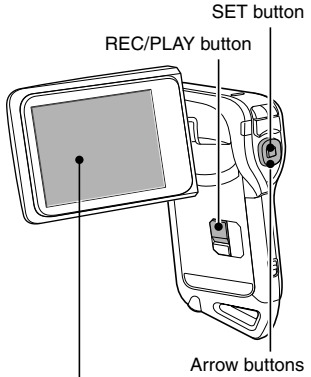
SHOOT, PLAY BACK AND SAVE

Playback

■Video clip playback

1 **Press the REC/PLAY button.**
- The display switches to the Playback Screen.
- Press the [◀] or [▶] button to display the video clip you wish to play back.
- Video clips are indicated by a video clip pattern along the top and bottom of the screen.

2 **Press the SET button.**
- Playback of the selected video clip begins.



■Still image playback

1 **Press the REC/PLAY button.**
- The display switches to the Playback Screen.
- To view other images, press the [◀] or [▶] button.

<To return to the Shooting Screen>
- Press the REC/PLAY button.

<Example: After recording a video clip>

Video clip pattern

When you are finished using the camera...

Press the ON/OFF button for at least 1 second to turn the camera off.

Burn your recorded video clips onto a DVD (Windows XP)

Introduced here is the procedure to use the supplied DVD-ROM (Xacti Software DVD) to burn movies captured with your camera to a DVD, creating your original DVD.

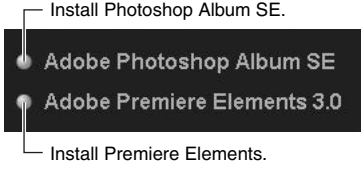
Install the application programs

Install two programs from the Xacti Software DVD to your computer: Adobe Photoshop Album Starter Edition (in this manual, referred to as Photoshop Album SE) and, for creating DVDs, Adobe Premiere Elements 3.0 (in this manual, referred to as Premiere Elements).

1 **Set the supplied DVD-ROM (Xacti Software DVD) in your computer's DVD drive.**

- The installation window opens.

2 **Click on the application program you wish to install.**



- After clicking on an application program, follow the instructions shown on the monitor to install the program.
- When installing Premiere Elements, input the serial number found on the DVD-ROM envelope. It looks similar to the following:
  SERIAL NUMBER: XXXX-XXXX-XXXX-XXXX-XXXX-XXXX
  (↑ input this number)
- When the installation is complete, the product registration window will appear, but click on the Exit button to close the window.

3 **In the installation window, click on [Finish].**
- The installation window closes.
- Remove the DVD-ROM from your computer's DVD drive.

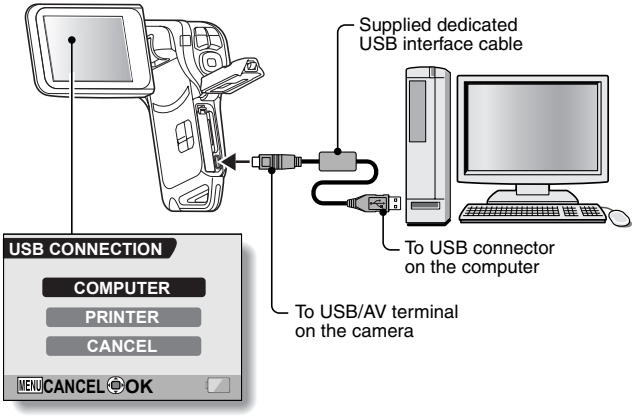
<About the Kodak online service>
- When the installation window closes, a dialog box to connect to the website introducing Kodak's online service appears. Check the [No thanks !] option button, and then click on the [OK] button.

Copy data from your camera to the computer

Connect your camera to a computer, and copy the desired data to the computer.

1 **Turn on the computer, and use the supplied dedicated USB interface cable to connect your camera to the computer.**
- Connect the cable between the camera's USB/AV terminal and the computer's USB connector.

2 **Turn on the camera (page 28).**
- The USB Connection Screen appears on the camera's monitor.



3 **Select [COMPUTER], and press the SET button.**

- The screen to select the computer connection mode appears.
- Select [CARD READER], and press the SET button.
- The screen to import data to the computer appears on your computer's monitor.

4 **Click the [IMPORT] button.**

- Copy the camera data to the following folder:
  My Pictures\Adobe\Digital Camera\Date folder
- When the data has been successfully copied, a dialog box appears to confirm whether or not you wish to delete the original data from the camera.

5 **Click the [YES] button if you wish to delete the data from the camera's memory, or [NO] if you do not wish to delete it.**

- The Photoshop Album SE catalogue screen appears.
- The data you copied appears on the computer monitor. Confirm that the desired data was correctly copied. If it was not copied, from the [Import] menu select [From camera, mobile phone or card reader], and copy the desired data.

6 **Click the close button.**

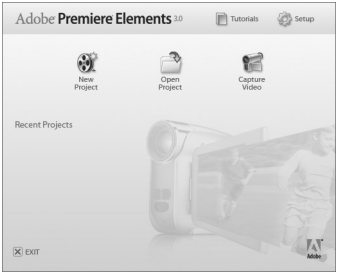
- Photoshop Album SE closes.

SHOOT, PLAY BACK AND SAVE

Burn video clips onto a DVD

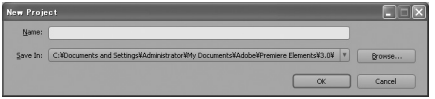
1 **Double-click on your desktop's Premiere Elements icon to run the Premiere Elements program.**

- The Premiere Elements welcome screen appears.



2 **Click on the [New Project] icon.**

- The [New Project] dialog box appears.

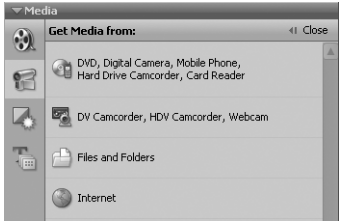


3 **Type a project name in the "Name:" field.**

- Use any name that is easy to understand.

4 **Click the [OK] button.**

- The screen to edit the data you'll burn to the DVD appears.



5 **Click on [Files and folders] in the "Get Media from:" field.**

- The screen to select the data to burn to the DVD appears.
- Specify the folder that contains the files (My Pictures\Adobe\Digital Camera Data\Date folder).

6 **Specify the video clip data you wish to burn to the DVD.**

- Select the desired data by clicking on it.
- To select multiple data, click on the individual files while holding down the [Ctrl] key. If you select one file, hold down the [Shift] key and click on another file in the list, all the files in between are also selected.

7 **Click the [Open] button.**

- The window to select the data closes, and the display returns to the screen to edit the data you'll burn to the DVD.
- The data specified in step **6** appears in the "Available Media:" field.

8 **Double-click on the data you wish to burn to the DVD.**

9 **Drag and drop the data you selected in step 8 to "Drag clip here to add to movie" in the "My Project" field.**

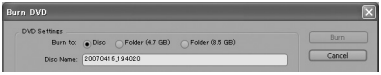
- The data to burn to the DVD appears in the "Scenes" of the "My Project" field.
- To include multiple files, repeat steps **8** and **9** as necessary.

10 **Click the [Create DVD] tab.**

- "DVD menus" appears.

11 **Click the [Burn DVD] button.**

- The dialog box to burn to a DVD appears.
- For "Burn to:" in the "DVD Settings", specify "Disc".



12 **Click the [Burn] button.**

- Burning to DVD begins.

13 **When writing is complete, click the [Close] button.**

14 **Click the close button.**

- The dialog box to confirm whether to save the project appears.
- If you wish to use the settings for the current project in subsequent projects, you should save them. If you will not use the settings in subsequent projects, it is not necessary to save then.

15 **Click the [YES] or [NO] button.**

- Premiere Elements closes.

SHOOT, PLAY BACK AND SAVE

How was that? The convenient accessories not only let you immediately view images captured with the camera, but you can also upload images to your computer and create your original DVDs. Read the following explanations to find out how you can fully enjoy your camera's digital movie feature.

Important! Concerning your camera's waterproof feature

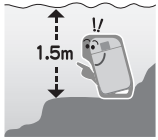
This camera complies with JIS IPX8 (formerly JIS protection grade 8) waterproof standard and can be used in water. Note, however, that failing to heed the following precautions may result in damage or injury that is not covered by the warranty. Please take the time to carefully read and heed the following cautions.

NOTE

■ Before using the camera

- When closing the battery/card compartment cover, make sure that no foreign object such as sand, hair, dust, etc. is caught in the seal.
- Make sure that the battery/card compartment cover is completely and securely closed to prevent water from getting inside the camera and damaging it.
- Please note that the camera accessories are not waterproof.

■ Cautions concerning use in water



- The waterproof properties of the camera apply to fresh water and saltwater only; they do not apply to cleaning substances, chemicals or water from spas, etc. In case of a splash, immediately wipe off any moisture.
- Do not immerse in water at a depth greater than 1.5 m (4.92 ft.).
- Do not subject the camera to high-pressure water.
- Do not immerse in water for longer than 60 minutes. After 60 minutes of use in water, allow it to dry for at least 10 minutes.
- Do not immerse in water that is warmer than 40 ºC (104ºF).
- Do not open and close the battery/card compartment cover when the camera is wet or while it is immersed in water.
- Do not open and close the battery/card compartment cover with wet hands.
- Do not open the battery/card compartment cover on the beach or at the poolside.
- Do not jolt the camera while it is immersed in water. Doing so may cause the battery/card compartment cover to open.

NOTE

■ Storing and maintaining your camera

- Do not leave the camera unwashed after it has been immersed in salt water or if salt water is adhering to it. Doing so may cause corrosion and discoloration of the plating, as well as deterioration of the camera's waterproof capability.
- After the camera has been used in water, use fresh water to wash it. Never use soap or detergent to clean the camera, as doing so will cause deterioration of the camera's waterproof capability.
- After washing the camera, take care to completely drain it, and use a dry cloth to wipe off any drops of water adhering to it (page 60).
- Do not leave the camera in an environment colder than 0 °C (32°F) or warmer than 40 °C (104°F), as doing so may cause deterioration of the camera's waterproof capability.
- Waterproof seals are used in this camera. It is recommended that the waterproof seals be replaced every year with new ones. For replacing the seals, please consult your dealer.
  * Please note that there is a fee for replacing the waterproof seal.

■ Other cautions

- Do not subject the camera to severe jolts, as doing so may deform the battery/card compartment cover or camera body, thus compromising its waterproof capability. If the camera has been subjected to a strong jolt, please consult with your dealer.

HINT

What is "JIS IPX8" (formerly "JIS protection grade 8")?

- "JIS IPX8" specifies that a device is protected against the effects of continuous immersion in water.

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QUICK SEARCH BY OPERATION

Your camera has an abundance of convenient features and functions. From creating precisely the photo you want, to viewing images using various techniques, you can locate the exact operation for your purposes in the following table.

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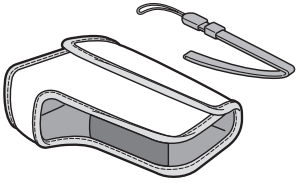
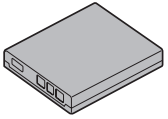
CHECKING THE INCLUDED ACCESSORIES

- **Handstrap and soft case (pages 11 and 12): 1 set**

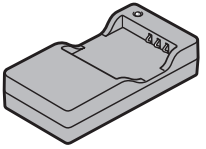


- **Xacti Software DVD (DVD-ROM) (page 4 in the Xacti Software DVD INSTRUCTION MANUAL): 1**

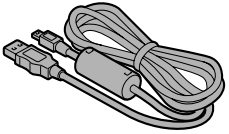
- **Li-ion battery pack (pages 21 and 23): 1**



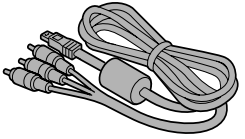
- **Lithium-ion battery pack charger (page 21): 1**



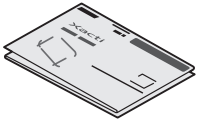
- **Dedicated USB interface cable (page 151, pages 8 and 14 in the Xacti Software DVD INSTRUCTION MANUAL): 1**



- **Dedicated AV interface cable (page 150): 1**



- **QUICK GUIDE**

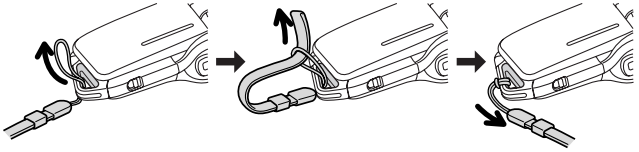


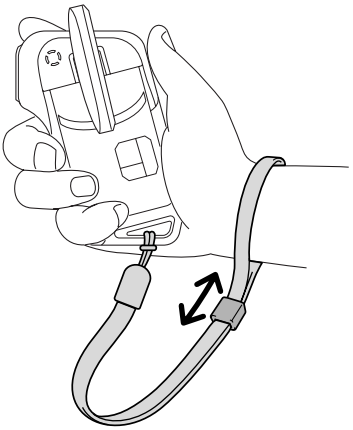
- **SAFETY MANUAL**
  (safety precautions booklet)
  Please read this booklet carefully before using the camera.

CHECKING THE INCLUDED ACCESSORIES

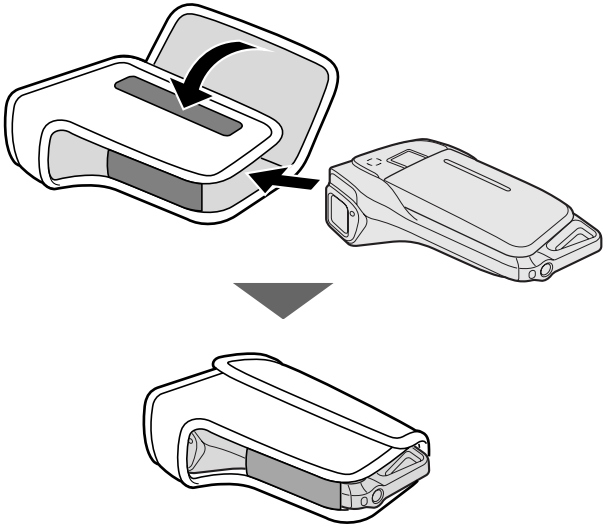
How to use the accessories

■ **Handstrap**





■ **Soft case**

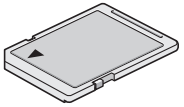


CHECKING THE INCLUDED ACCESSORIES

Media cards that can be used with this camera

The type of card that can be inserted into and used with this camera is:

- SD Memory Card

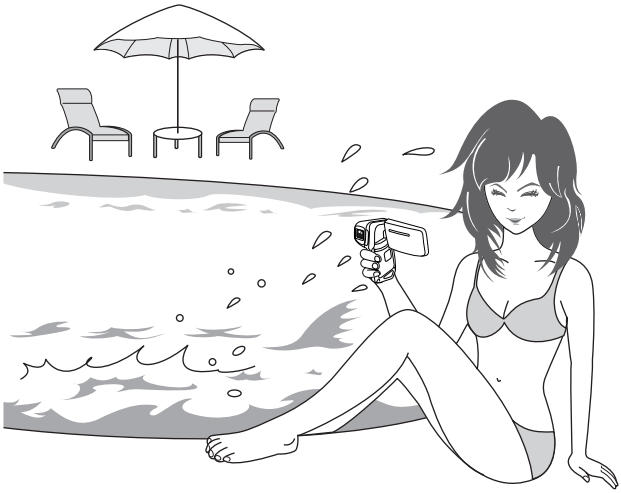


SPECIAL FEATURES

Your movie camera can not only record video clips, you can also take still photos and make audio recordings. For example, you can snap a still image while recording a video clip, or make just an audio recording.

Waterproof capability

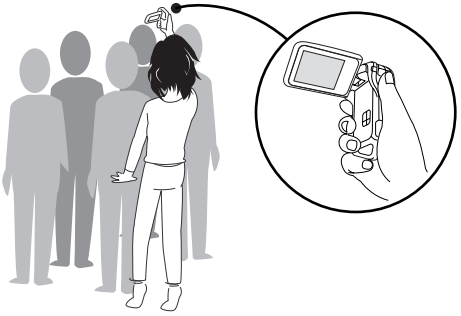
The camera is equipped to safely be used in water at a temperature of less than 40 ºC (104ºF), at a depth of less than 1.5 m (59 in.), for up to approximately 60 minutes. You can enjoy taking pictures at the beach or by the pool.

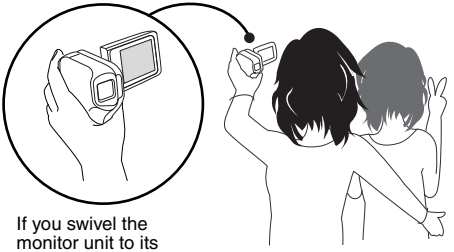


SPECIAL FEATURES

Movable monitor for any shooting angle

The movable monitor lets you shoot from any angle. Hold the camera high to get a great view of a parade, or swivel the monitor around to snap a photo of yourself.

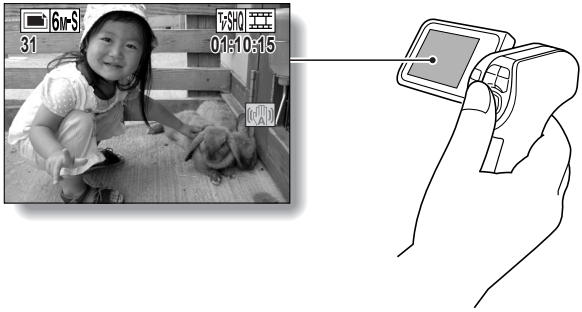




If you swivel the monitor unit to its farthest position, the image on the monitor will be inverted.

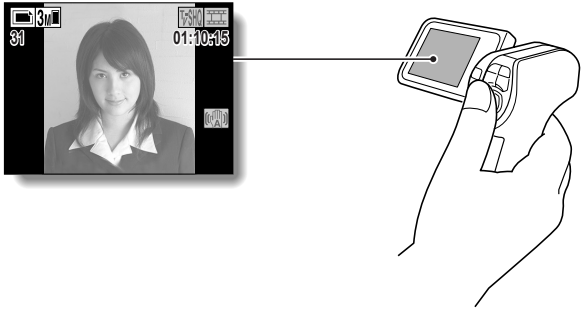
Capture still shots while recording a video clip (page 52)

Suppose that while you're recording a video clip, there's a scene you'd like to keep as a still photo. Your camera makes it possible to record the still photo without interrupting the video clip recording.



Easy to shoot vertically oriented photos (page 68)

A grip-type camera is compact and very easy to hold securely, but trying to take vertically oriented photos by changing the camera angle is a problem. However, your camera features a vertical shooting mode that allows you to take vertical (portrait) mode still images without having to change the camera angle.



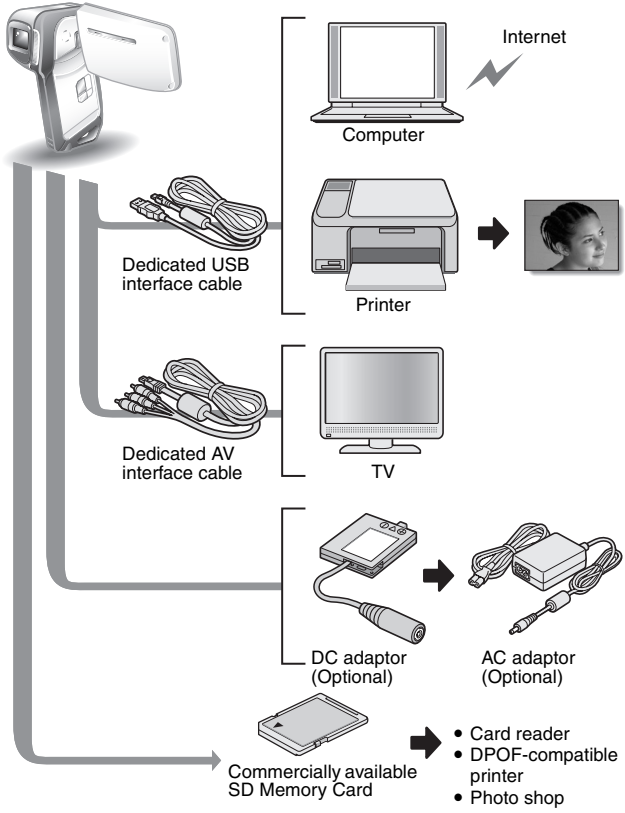
SPECIAL FEATURES

Lots of accessories for optimal use of your captured images (page 18)

Use the accessory cables to view images on a TV or computer. Or connect the camera directly to a printer to make prints of your photos. And with the software in the supplied DVD-ROM (Xacti Software DVD), you can create your original DVDs and CDs.

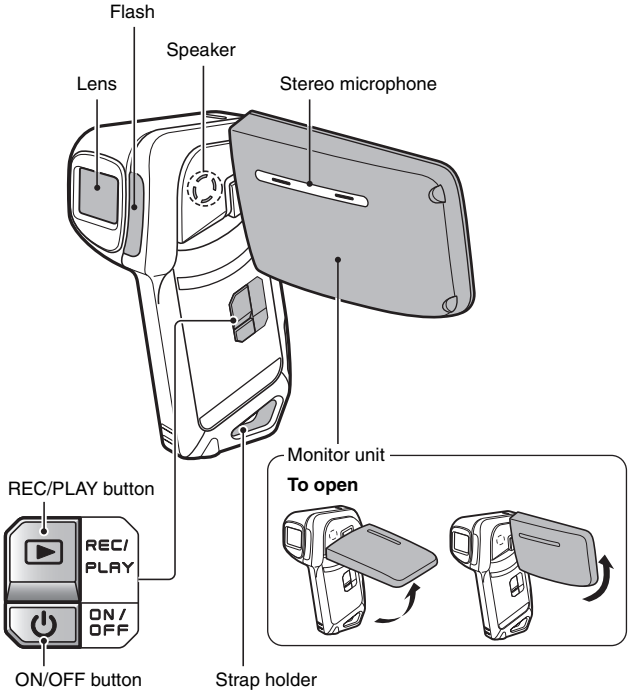
SYSTEM MAP

You can connect the camera to various devices to expand its capabilities.



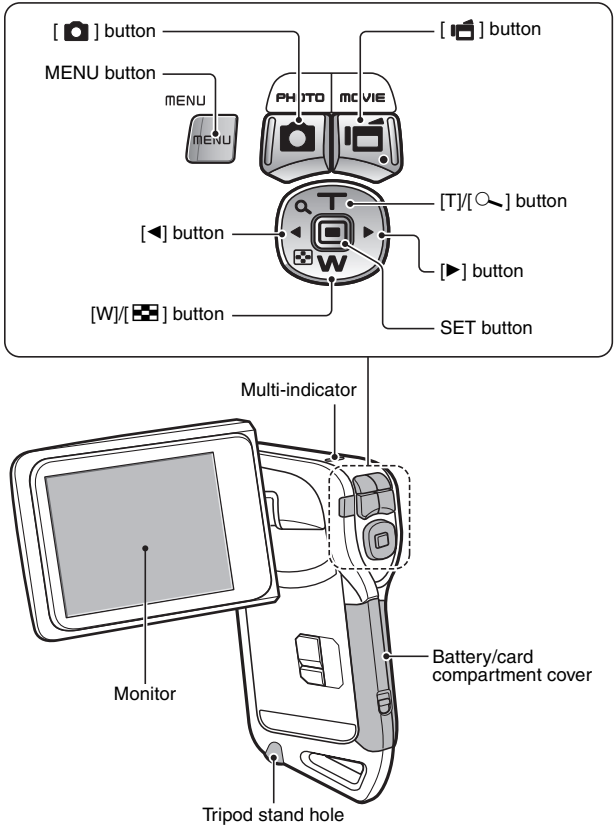
PARTS NAMES

Front



There are places in the camera where water might accumulate, but this will not affect its waterproof properties.
Concerning the drainage holes, see page 60.

Rear


[ ] button
[ ] button
MENU button
MENU
PHOTO
MOVIE
[T]/[ ] button
[◄] button
[►] button
[W]/[ ] button
SET button
Multi-indicator
Monitor
Battery/card compartment cover
Tripod stand hole

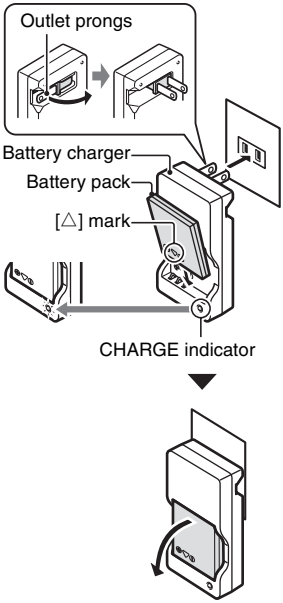
CHARGING THE BATTERY PACK

Please charge the supplied battery pack before using it.

1 **Insert the battery pack in the battery charger.**
- Insert it in the direction indicated by the [△] mark on the battery pack.

2 **Unfold the outlet prongs from the charger body, and plug the charger into a power outlet.**
- Recharging begins.
- During recharging, the CHARGE indicator is lit red.
- The recharge time is approx. 90 minutes.

3 **When the CHARGE indicator turns off, remove the battery pack from the charger.**
- If you are finished using the charger, unplug it from the power outlet.



Recharging the battery pack

Be sure to fully charge the supplied or separately sold battery pack before using it in your camera. For charging the battery pack, use the supplied charger.
Charge the battery pack if it is being used for the first time, and recharge it whenever the remaining charge is low (see "CHECKING THE REMAINING BATTERY PACK CHARGE" on page 148).

If there is interference to your TV or radio during recharging...
- Move the battery pack and charger further away from the TV or radio.

Ambient temperature during recharging
- During recharging, the charger and battery pack will be warm. This is normal and does not indicate a malfunction.
- It is recommended that the ambient temperature during recharging be between about 0 °C and 40 °C (32°F and 104°F). Due to the characteristics of the battery pack, at temperatures below 0 °C (32°F), it may not be possible to sufficiently recharge it.
- When the battery pack temperature is high, it may take longer to recharge it.

Recharge a battery pack in the following cases
- A battery pack which has not been used for a long time
- Newly purchased battery pack

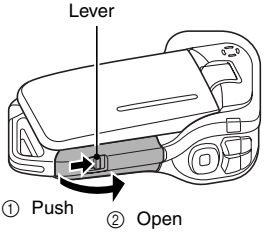
INSTALLING THE BATTERY PACK AND CARD

Make sure that the battery pack and the card orientation are correct.

Install the battery pack

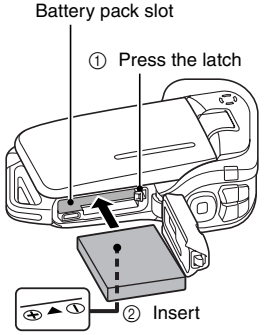
1 **Open the battery/card compartment cover.**

- While gently pressing the lever, open the battery/card compartment cover.



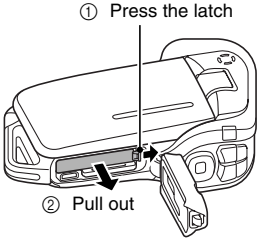
2 **Insert the battery pack.**

- Press the latch, insert the battery pack, and firmly push it all the way in.



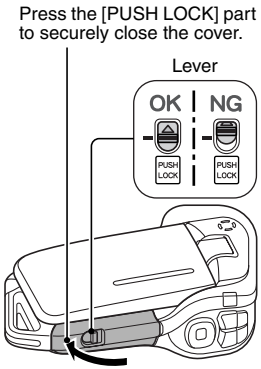
<To remove the battery pack...>

- Press the latch securing the battery pack, and remove the battery pack.



3 Close the battery/card compartment cover.

- Press the [PUSH LOCK] part to close the cover securely.
- Check to confirm that the cover is locked closed by the lever.
- At the time of purchase the battery pack is not charged. Be sure to fully charge the battery pack (page 21).



INSTALLING THE BATTERY PACK AND CARD

CAUTION

Close the battery/card compartment cover securely

- If the battery/card compartment cover is not closed or is not closed completely, the camera will no longer be waterproof. When closing the battery/card compartment cover, make sure that no foreign object such as sand, hair, dust, etc. is caught in the seal.

Do not charge the battery pack immediately after the camera has been in continuous use for a long time

- The battery pack becomes hot when the camera is used continuously for a long time. If you attempt to charge the battery pack in this state, the charge indicator may flash red and it may not be possible to charge the battery pack. Wait until the battery pack has cooled down before attempting to charge it.

Does the battery pack appear swollen?

- The lithium-ion battery used in this camera may expand slightly when stored in a hot environment or repeatedly used, but this is not a safety hazard.

HINT

About the internal backup battery

- This camera's internal battery serves to maintain the date and time settings, as well as the shooting settings. The backup battery will be fully charged when the battery pack is kept in the camera continuously for about 2 days. In the fully charged state, the backup battery will maintain the camera settings for about 7 days.

When not using the camera for a long time, remove the battery pack

- A small amount of power is still used even if the camera is turned off, and it is therefore recommended that the battery pack be removed from the camera if it is not going to be used for a long time. Note that when the battery pack is removed for a long period, the time and date settings may be cleared. Before using your camera again, be sure to confirm that the camera settings are correct.

To prolong the life of the battery pack

- Although the battery pack is an expendable item, you can maximize the life of the battery by heeding the following suggestions.
  - Do not leave the battery under the hot summer sun or exposed to other high-temperature environments.
  - Do not continually recharge the battery when it is already fully charged. After fully charging it once, for example, use it for a while to partially discharge it before recharging it again.
  - When the battery is not to be used for a long time, if possible store the partially charged (not fully charged) battery in a cool environment.

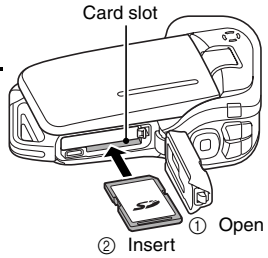
Install the card

The card can be used after it has been formatted with the camera (page 144).

1 **Open the battery/card compartment cover.**

2 **Insert the card.**

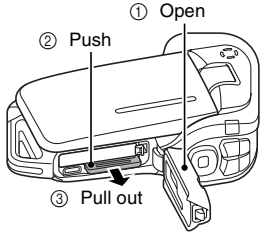
- Firmly insert the card until it clicks into place.



3 **Close the battery/card compartment cover.**

<When removing the card...>

- To remove the card, press it down, and then release. The card will protrude slightly, and you can then pull it out.



INSTALLING THE BATTERY PACK AND CARD

CAUTION

Do not attempt to forcibly remove the card.

- Never remove the card when the multi-indicator is flashing red. In doing so, you risk losing the data stored in the card.

HINT

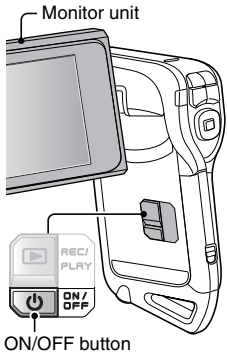
Shooting without a card installed

- When a card is installed, images are recorded to and played back from the card. When no card is installed, images are recorded to and played back from the camera's internal memory. When the camera is turned on with no card installed, the internal memory icon is shown on the monitor to let you know that the images you capture will be saved to the camera's internal memory.

TURNING THE CAMERA ON AND OFF

Turning on the camera

1 **Open the monitor unit, and press the ON/OFF button for at least 1 second.**
- If you press the REC/PLAY button for at least 1 second, the camera turns on in the playback mode.
- If you press the ON/OFF button once, the camera will switch to the power save mode.



Turning on the camera when the power save (sleep) function is active

In order to preserve battery pack power, the power save (sleep) function will automatically turn off the camera after 1 minute of no use during shooting, or 5 minutes of no use during playback (factory-preset setting).

- When the power save function is active, you can restore the power by any of the following methods:
  - **Press the ON/OFF button.**
  - **Press the [ ] or [ ] button.**
  - **Open the monitor unit.**
  - **Press the SET button.**
- The camera will switch to the standby mode after the power save function has been active for about 1 hour, or when you close the monitor unit.
- The power save mode will not be activated while you are recording.
- The user can specify the time elapsed before the power save function is activated (page 139).
- When the camera is connected to a computer or printer using the dedicated USB interface cable, the power save function is disabled, and the camera turns off after about 12 hours.

TURNING THE CAMERA ON AND OFF

Turning off the camera

1 **Press the ON/OFF button for at least 1 second.**
- The camera turns off.
- To turn off the camera while it is in the shooting mode or power save mode, press the ON/OFF button for at least 1 second.

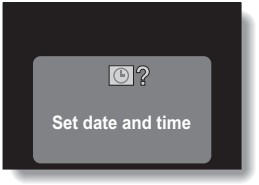
HINT

To immediately activate the power save function
- Press the ON/OFF button briefly to active the power save function.

If the date and time setting has been completed (page 32)...
- The current time is shown on the monitor when the camera is turned on.

CAUTION

If the [?] icon appears...
- When a picture is taken, the date and time it was captured are recorded with it. If the date and time settings have not been completed (page 32), the date and time cannot be recorded with the captured images. For this reason, immediately after the camera is turned on, the “Set date and time” reminder briefly appears, after which the [?] icon is shown on the Shooting Screen. To have the date and time recorded with the images, please complete this setting before capturing images.

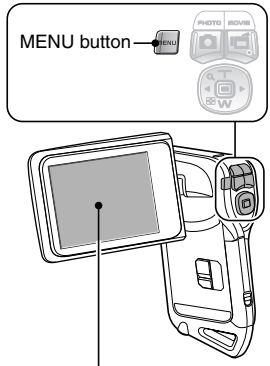


OPERATION BUTTONS

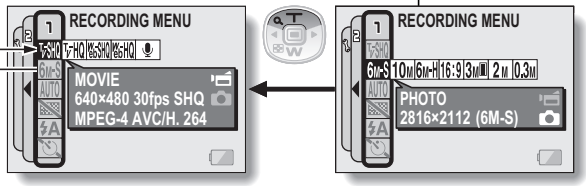
The procedures to change the camera settings, choose images, etc., are performed by using the arrow buttons to control the monitor display. This operation is used very frequently, so it is best to become familiar with it right away.

1 **Turn on the camera (page 28).**

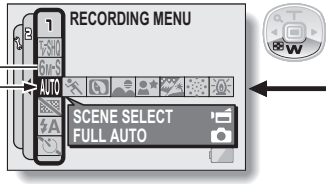
2 **Press the MENU button.**
- The Menu Screen appears.



<Select the icon above or below>
To select the icon above, press the [T] button.

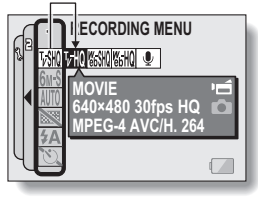


To select the icon below, press the [W] button.

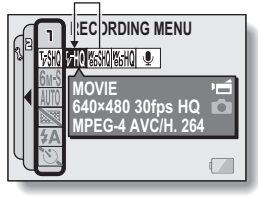


OPERATION BUTTONS

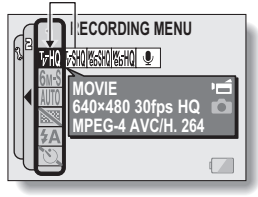
<Select the icon to the left or right>
To select the icon to the right, press the [▶] button.



To select the icon to the left, press the [◀] button.



<Actuate the selected icon>
Press the SET button. The selected icon moves to the left end of the lineup.



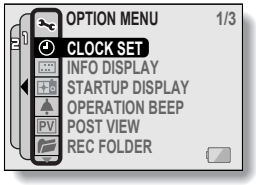
DATE AND TIME SETTING

The camera will record the date and time an image or audio recording is taken so that you can display them during playback. Therefore, before capturing images, make sure the correct date and time are set.

Example: To set the clock to 7:30 p.m. on December 24, 2007

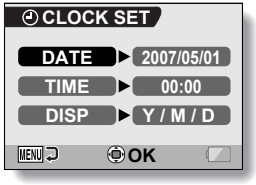
1 **Turn on the camera (page 28), and press the MENU button.**
- The RECORDING MENU or PLAYBACK MENU appears.

2 **Press the [◀] button two times to display the OPTION MENU.**
- The OPTION MENU is canceled if the MENU button is pressed.



<OPTION MENU>

3 **Select the clock set icon [⏲], and press the SET button.**
- The Clock Set Screen appears.
- The current date and time settings are shown.
- Follow the procedures below to enable or disable the date display during playback, to set the display format for the date, and to set the date and time.
- To return to the OPTION MENU, press the MENU button.



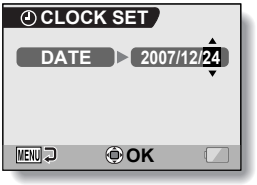
DATE AND TIME SETTING

4 **Set the date.**

① Select “DATE”.
② Press the SET button.
- The Set Date Screen appears.

③ Set the date to “2007/12/24”.
- The date is set in the following order: Set the year → Set the month → Set the day.
- Press the [◀] or [▶] button to select year, month or day. Press the [T] or [W] button to increase or decrease the number.

④ Press the SET button.

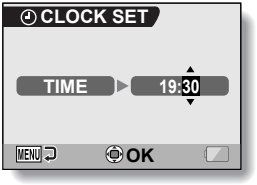


5 **Set the clock.**

① Select “TIME”.
② Press the SET button.
- The Set Time Screen appears.

③ Set the time to “19:30”.
- The time is set in the following order: Set the hour → Set the minute.
- A 24-hour clock is used for the time display.

④ Press the SET button.



6 **Set the order in which the date is displayed during playback.**

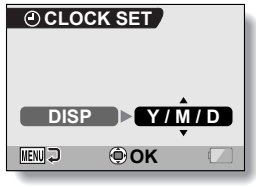
① Select “DISP”.

② Press the SET button.

- The Set Date Format Screen appears.

③ Press the [T] or [W] button.

- Press the [T] button to change the displayed date order as follows:



→ Y / M / D → M / D / Y → D / M / Y →

Press the [W] button to change it in the reverse order.

④ Press the SET button.

7 **Press the MENU button.**

- The date and time setting is completed, and you are returned to the OPTION MENU.
- To return to the Shooting Screen or Playback Screen, press the MENU button.

HINT

About the clock backup

- Under normal conditions, while the battery pack is being replaced, an internal battery will maintain the date and time settings. However, there is a small chance the settings may be lost. (The backup will last for about 7 days.) It is recommended to check that the date and time settings are still correct after replacing the battery pack and before shooting or recording of any type (follow steps **1** through **3**).

To change the date and time settings

- After steps **1** through **3**, select the item that you want to change, and change the value.

SCREEN DISPLAY

Specify what information is displayed on the Playback Screen.

1 **Display the OPTION MENU (page 120).**

2 **Select the info display icon [⌨], and press the SET button.**

- The Screen Display Screen appears.

DATE & TIME:
Set the capture-date display to ON or OFF.
COUNTER:
Set the video clip playback time display to ON or OFF.
SHOW ALL:
Display the capture date and playback time (for video clips).
OFF:
Do not display the capture date and playback time.

3 **Select the desired setting, and press the SET button.**

- This completes the screen display setting.

BEFORE TAKING PICTURES

For best results

Hold the camera securely, keeping your elbows close to your body and making sure the camera is stable.

Correct hold

Incorrect hold

A finger is blocking the lens or flash.

<Holding the camera>

Example 1:
Grip the camera by wrapping the fingers of the right hand, from the little finger to the middle finger, around the camera, and hook the index finger above the lens.

Example 2:
Grip the camera by wrapping the fingers of the right hand, from the little finger to the index finger, around the camera.

Make sure that the lens and flash are not blocked by your fingers or the handstrap.

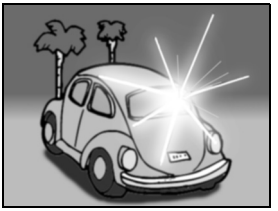
* For shooting vertically oriented still images, you can set the shooting orientation to the vertical (portrait) format (page 68).

Using the autofocus

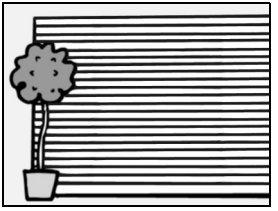
The autofocus will work in almost all situations; however, there are certain conditions that may cause the autofocus function to not work properly. If the autofocus function is not working properly, set the focus range to capture images (page 78).

■ **Conditions that may cause incorrect focus**
The following examples are some of the situations where the autofocus function may not work.

- **Subjects with low contrast, very bright subjects at the center of the image or dark subjects or locations**
  Use the focus-lock function to lock the focus on an object with contrast at the same distance as the desired subject.



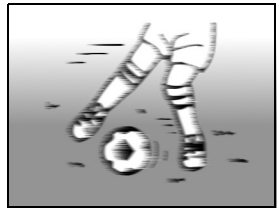
- **Subjects without vertical lines**
  Use the focus-lock function to lock the focus while framing the subject vertically, then re-orient the camera to compose a horizontally framed image.



The following examples are some of the situations where the autofocus function may work, but not as desired.

- **When both near and far objects are present**
  Use the focus-lock function to lock the focus on an object at the same distance as the desired subject, then reposition the camera to compose the picture.

- **Fast-moving subjects**
  Use the focus-lock function to lock the focus on an object at the same distance as the desired subject, then reposition the camera to compose the picture.



HINT

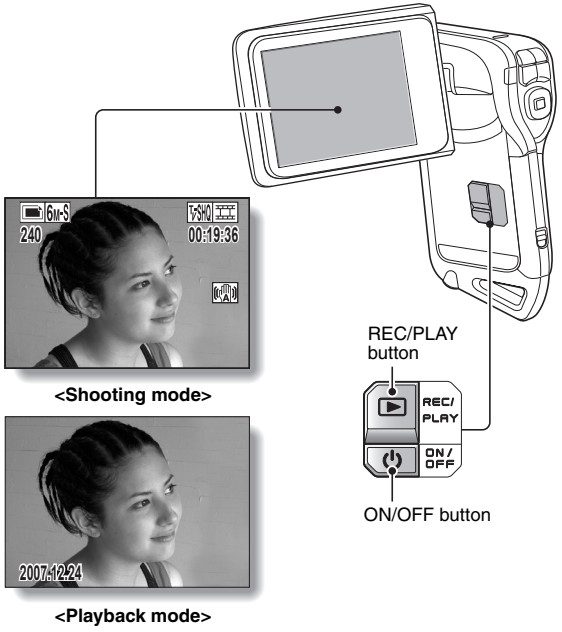
- Images captured in the still image shooting mode can be rotated when they are played back (page 104).
- When the [📷] button is pressed halfway, the image in the monitor may waver vertically. This is the result of internal image processing and is not a malfunction. This wavering is not recorded and will not affect your images in any way.
- When the optical zoom is used or when the autofocus is operating, the image may appear to waver, but this is not a malfunction.

Switching between the shooting mode and playback mode

1 **Press the ON/OFF button to turn the camera on (page 28).**

2 **Press the REC/PLAY button.**

- Each time the REC/PLAY button is pressed, the camera switches between the shooting mode and the playback mode.



<Shooting mode>

<Playback mode>

Hints for taking pictures

Muting the operation sounds

- The operation sounds that are generated, for example, when the [📷] button, MENU button or SET button is pressed, as well as the audio guidance when you switch the mode, can be muted (page 124).

Where is the image and audio data saved?

- All the image and sound data is recorded in the camera's internal memory or on the card installed in the camera.
- When a card is installed in the camera, the data is recorded on the card. If no card is installed, the data is recorded in the camera's internal memory.

Taking pictures in backlight conditions...

- When taking pictures with the light coming from behind the subject, due to the characteristics of the lens, light lines or ghost patterns (flare phenomenon) may appear in the captured image. In this situation, it is recommended that you avoid taking pictures with the subject lit from behind.

While the image data is being recorded...

- While the multi-indicator is flashing red, the image data is being written to the memory, during which time it is not possible to capture another image. Another image can be captured after the flashing red indicator turns off. However, even when the multi-indicator is flashing red, depending on the camera's internal memory remaining capacity, in some cases the next image can be captured about 2 seconds after shooting.

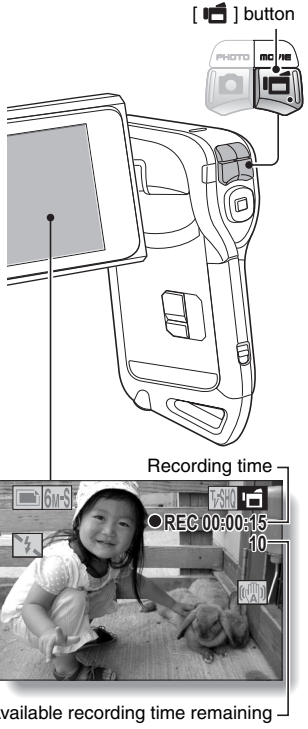
VIDEO CLIP RECORDING AND PLAYBACK

Recording video clips

1 **Turn on the camera (page 28).**

2 **Press the [ ] button.**
- Recording begins.
- It is not necessary to keep the [ ] button pressed while shooting.
- When the remaining recording time available for the currently recording clip becomes little, a countdown of the remaining recording time appears on the display.

3 **End the recording.**
- Press the [ ] button again to stop recording.

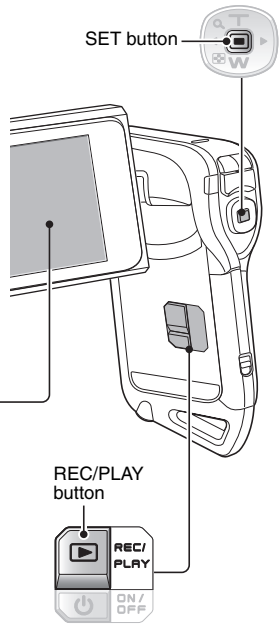


Playing back a video clip

4 **Press the REC/PLAY button.**
- The video clip just recorded is shown on the monitor.

5 **Press the SET button.**
- Playback of the video clip begins.

<To return to the Shooting Screen>
- Press the REC/PLAY button.



VIDEO CLIP RECORDING AND PLAYBACK

To do this...		Do this
Normal forward playback		Press the SET button.
Stop playback		During playback, press the [W] button.
Pause		During playback, press the SET button or press the [T] button. During accelerated playback, press the [T] button.
To play back one image at a time (single-frame step)	During forward playback	After pausing playback, press the [▶] button.
	During reverse playback	After pausing playback, press the [◀] button.*1
Slow playback	During forward playback	After pausing playback, press and hold the [▶] button.*2
	During reverse playback	After pausing playback, press and hold the [◀] button.*1
To accelerate playback	Forward playback	During forward playback, press the [▶] button. * The playback speed changes each time the [▶] button is pressed, as follows: Normal playback → 2× → 5× → 10× → 15× Press the [◀] button to resume normal playback speed.
	Reverse playback	During forward playback, press the [◀] button. * The playback speed changes each time the [◀] button is pressed, as follows: 15× ← 10× ← 5× Press the [▶] button to resume normal playback speed.
Return to normal playback speed		Press the SET button.

*1 Compared to forward playback, frame increments are larger for reverse playback.
*2 Slow playback begins from a point slightly before the pause point.

When you are finished using the camera...

- **Press the ON/OFF button for at least 1 second to turn the camera off.**

HINT

You can play audio and video clips on your iPod

- Audio files and video clips that were recorded with your camera can be played back on an iPod. (Video clips that were recorded in the [iSHQ] or [iHQ] mode will need to be converted.)

Adjusting the monitor brightness

- While the Shooting Screen is active, you can quickly access the screen for adjusting the brightness of the monitor by pressing the MENU button for at least 1 second.

The focus can be locked

- By assigning an operation shortcut to an arrow button (page 134), you can set the autofocus to a fixed focus. When the autofocus is fixed, the [AF] icon appears on the monitor.
- When the focus range setting (page 78) is changed, the focus lock is released.

The data for a video clip is very large

- Therefore, be aware that if the video clip is uploaded to a computer to be played back, the computer may not be able to play back the video fast enough, making it appear jerky. (The video will always be displayed properly on the monitor or a television.)

Display the video clip playback point

- During video clip playback, press the MENU button for at least 1 second to display a bar showing the current playback point in the video clip.
- Press the MENU button for about 1 second to cancel the bar.

CAUTION

During video clip playback, the sound of a motor is audible...

- During recording, the sound of the optical zoom movement or autofocus movement may be recorded. This is not a malfunction.

If no audio is heard...

- The audio is not played back when the video clip is played back in the frame-by-frame, fast playback or reverse playback mode.

CAPTURING AND PLAYING BACK STILL IMAGES

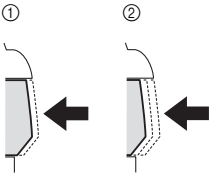
Shooting still images

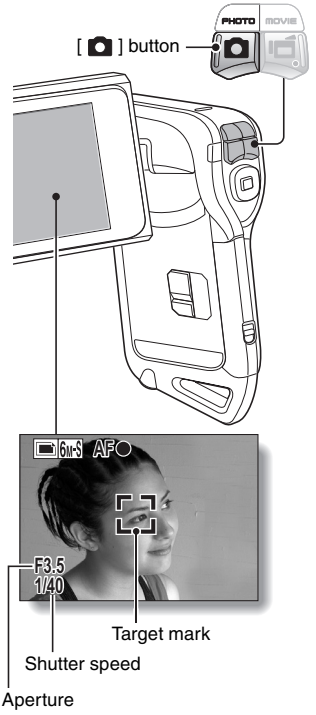
1 **Turn on the camera (page 28).**

2 **Press the [ ] button.**

① **Press the [ ] button halfway.**
- The autofocus operates, and the image is focused (focus lock).

② **Continue to gently press the [ ] button all the way.**
- The shutter releases and the image is captured.
- You can view the captured image on the monitor by keeping the [ ] button depressed when you capture the image (post-view [page 127]).





HINT

What is the camera focusing on?

- If the focus range (page 78) is set to a setting other than manual [MF], a target mark [ ] on the monitor shows the area the camera is focusing on.
- The camera automatically determines the correct focus by measuring from 9 different focus points within the shooting area. If the target mark is at a position that is different from the point you wish to focus on, you can refocus, for example, by changing the shooting angle.
- The large target mark appears when the camera focuses on a wide area in the center of the screen.

About the focus indicator

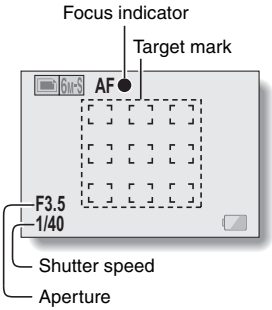
- A green focus indicator appears when the subject is successfully focused, or a red focus indicator when the camera was not able to focus the subject.

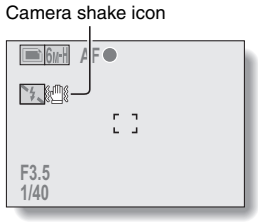
The shutter speed and aperture are displayed

- When the camera focuses and the target mark appears, at the same time, the shutter speed and aperture settings are also displayed. You can use them as a reference when shooting.

If the camera shake icon appears...

- During still image shooting, if the shutter speed is slow and the possibility that the image may be blurred due to camera shake becomes high, the camera shake icon may appear on the monitor. In this case, stabilize the camera when shooting, or set the flash operation mode to automatic (page 72).
- When shooting with the scene select function set to the fireworks [ ] mode, the camera shake icon always appears, but this is normal.



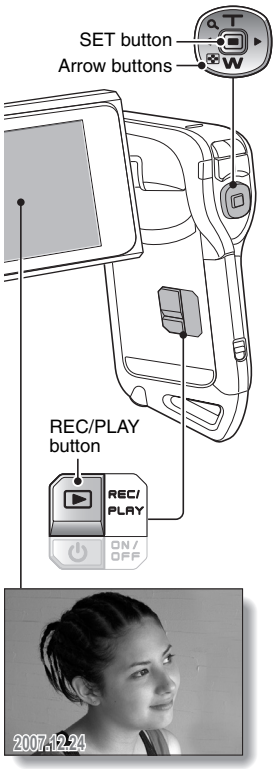


Viewing still images

3 **Press the REC/PLAY button.**
- The image just captured is shown on the monitor.

4 **Select the image you wish to view.**
To display the previous image, press the [◄] button.
To display the next image, press the [►] button.
- Display the desired image.

<To return to the Shooting Screen>
- Press the REC/PLAY button.

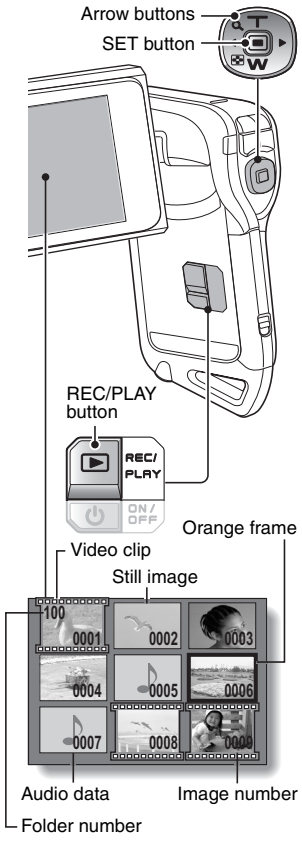


9-image display playback

1 **Press the REC/PLAY button to display the Playback Screen.**

2 **Press the [W] button.**
- The 9-image display appears.

3 **Select the image to play back.**
- Press the [◀] or [▶] buttons to move the orange frame to the desired image, and press the SET button or [T] button to switch to normal (full-screen) playback of the selected image.
- If the [W] button is pressed while the 9-image display is shown, the camera changes to the art mode playback (page 49).



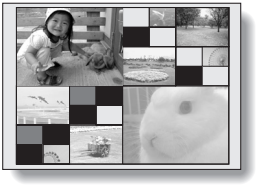
Art mode playback

Art mode playback displays all 22 images that immediately follow the image currently shown on the normal display, or the framed image on the 9-image display.

1 **In normal playback, display an image (pages 42 and 47), or on the 9-image playback display, move the orange frame to select an image (page 48). This will be the largest image in the art mode playback display.**

2 **If switching to the art mode playback from normal playback, press the [W] button two times. Push it one time if switching from the 9-image playback display.**

- The screen changes to art mode playback.
- When the number of images is less than 22, the blank frames are filled in with color.



<Art mode playback screen operation>

Press the [T] button:
The screen changes to the 9-image display.

Press the SET button:
The upper-left image is now displayed full-screen.

Press the MENU button:
The upper-left image is displayed full-screen, and the PLAYBACK MENU appears.

Press the [◄] or [►] button:
The images before and after are displayed in random order.

Press the [W] button:
The display changes to the screen to select the playback folder (page 50).

Press the [📷] button:
The current art mode playback screen is saved as a still image.

Selecting the playback folder

If the card contains multiple folders, you can select from which folder you would like to play back.

1 **Press the REC/PLAY button to display the Playback Screen.**

2 **Press the [W] button three times.**
- The screen to select the playback folder appears.
- If the [T] button is pressed, the camera changes to the art mode playback (page 49).

3 **Press the [◄] or [►] button to move the orange frame to the desired folder, and press the SET button.**
- The data in the selected folder is displayed in the Playback Screen.

Magnifying (zooming in) the image

1 **Display the still image.**

2 **Press the [T] button.**
- Magnification is enabled.
- The image is magnified, and the central portion of image is displayed.

To magnify:
Magnification increases each time the [T] button is pressed.

To return to normal size:
Magnification decreases each time the [W] button is pressed.
- You can press the SET button to switch to the scan operation. Use the arrow buttons to see different parts of the image.
- Press the SET button again to switch to the magnify/reduce operation.
- Press the MENU button to return to the normal (100%) view.

HINT

The magnified portion of the image can be saved as a separate image
- Press the [📷] button. The magnified portion is saved as a new still image.

SHOOT A STILL IMAGE WHILE RECORDING A VIDEO CLIP

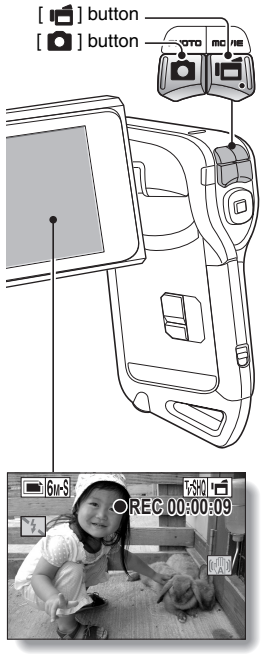
You can capture a still image while recording a video clip.

1 **Turn on the camera (page 28).**

2 **Press the [ ] button.**
- Recording begins.

3 **When you see a scene you'd like to capture as a still image, press the [ ] button.**
- A still image is captured.

4 **End the recording.**
- Press the [ ] button to stop recording.



SHOOT A STILL IMAGE WHILE RECORDING A VIDEO CLIP

HINT

- When shooting a still image while recording a video clip, the flash does not operate.

Why does recording stop?

- When you capture a still image during video clip recording, recording briefly stops while the image is being saved. Video clip recording resumes after the still image is saved.
- If the still image resolution is set to 10M or 3M, it automatically changes to 6M-S and the image is captured.
- When the remaining video recording time becomes approximately 50 seconds, it will no longer be possible to capture a still image while recording a video clip. The exact remaining recording time at which this occurs will differ depending on the subject and on the video clip mode setting (page 67). If you intend to capture a still image while recording a video clip, it is suggested that you take note of the remaining video recording time.

AUDIO RECORDING AND PLAYBACK

Your camera can make audio recordings and play them back.

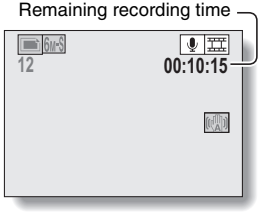
Audio recording

1 **Turn on the camera (page 28).**

2 **Press the MENU button.**
- The menu display appears.

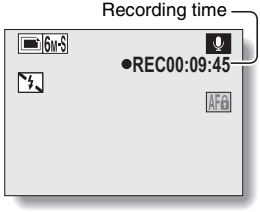
3 **From the video clip mode menu, select the audio memo icon [ ], and press the SET button.**

4 **Press the MENU button.**
- The menu display is canceled.
- The audio recording mode is enabled.
- Audio recording is not possible while the menu display is shown.



5 **Press the [ ] button.**

- Audio recording begins. During recording, appears in the monitor.
  It is not necessary to continue pressing the [ ] button while recording.



6 **End the recording.**

- Press the [ ] button again to stop recording.

HINT

You can capture a still image during an audio recording

- Note, however, that if the resolution in the still image mode is set to 10M or 3M, it automatically changes to 6M-S and the image is captured.

Audio data playback

7 **Press the REC/PLAY button.**
- The playback screen for the audio track that was just recorded appears.

8 **Play back the recording.**

Start forward playback:
Press the SET button.

Pause:
During playback, press the SET button or the [T] button. During fast forward or fast reverse press the [T] button.

Stop playback:
During playback, press the [W] button.

Fast forward/fast reverse:
- Fast forward/fast reverse playback is possible at 2× (forward only), 5×, 10× and 15×.
- Press the [◄] or [►] button during playback to activate fast forward/fast reverse.
- The playback speed changes each time the [◄] or [►] button is pressed.

Fast forward (press the [►] button)
2× → 5× → 10× → 15×
* Press the [◄] button to return to normal speed.

Fast reverse (press the [◄] button)
15× ← 10× ← 5×
* Press the [►] button to return to normal speed.

<To return to the Audio Recording Screen>
- Press the REC/PLAY button.

CAUTION

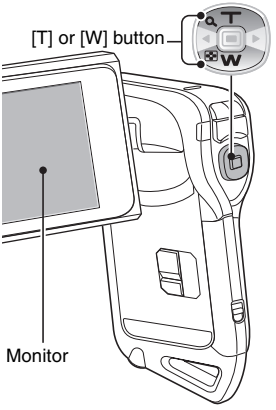
If no audio is heard...
- The audio is not played back when the recording is played back in the fast playback or fast reverse mode.

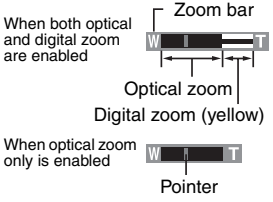
USING THE ZOOM

Your camera has two zoom functions: optical zoom and digital zoom.
You can specify whether or not the digital zoom is enabled (page 133).

1 **Point the camera lens at the subject.**

2 **Press the [T] or [W] button to compose the desired image.**
[T]: Zoom in on the subject.
[W]: Zoom out.
- When zooming in or out, the zoom bar appears on the monitor.
- When the optical zoom factor is at maximum, zooming stops temporarily. When the [T] button is pressed again, the mode changes to the digital zoom mode and zooming continues.





3 **Take the picture.**
For video clip recording, see page 41.
For shooting still images, see page 45.

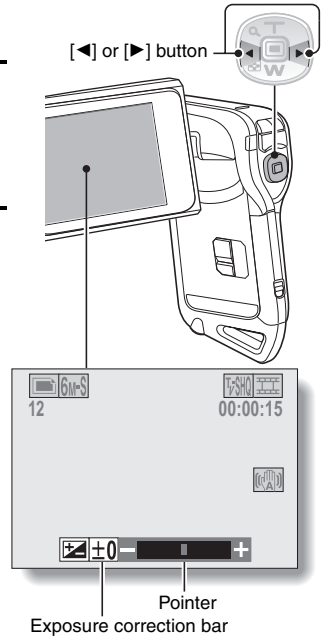
EXPOSURE CORRECTION

By assigning the exposure correction operation shortcut to the arrow buttons (page 134), you can make the image lighter or darker when capturing images.

1 **Assign the operation shortcut to an arrow button (page 134).**

2 **Press the arrow button to which the operation shortcut was assigned.**
- The exposure correction bar appears.

3 **Press the [◀] or [▶] button to adjust the exposure.**
- The exposure setting numerical value is shown at the left end of the exposure bar.
- The exposure can be set to a value from –1.8 EV to +1.8 EV.
- The exposure correction bar is canceled when the MENU button or the SET button is pressed.



EXPOSURE CORRECTION

HINT

The exposure correction setting is canceled in the following cases:

- When the pointer is set to the center position.
- When the camera is set to the playback mode.
- When the standby mode or sleep mode is activated.
- After the power is turned off.

AFTER USING THE CAMERA IN WATER

After using the camera in water, wash it with fresh water and dry it completely.

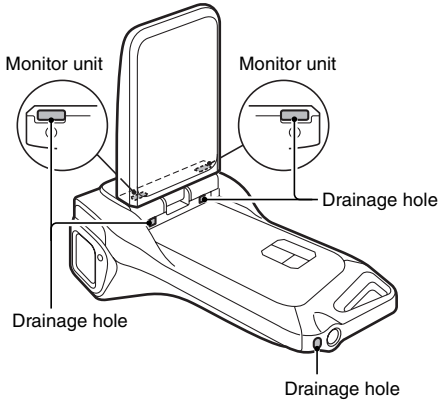
1 **Turn off the camera, and close the battery/card compartment cover securely.**

2 **Wash the camera with fresh water.**

- Fill a shallow basin with fresh water, and immerse the closed camera for about 5 minutes. Rotate the monitor unit several times to clean it completely.

3 **Allow the water to drain out through the drainage holes.**

- Drain the water through the five drainage holes.



4 **Dry the camera.**

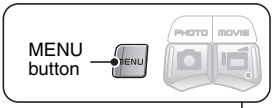
- Use a dry cloth to wipe off any drops adhering to the camera, and leave it to dry completely in a well-ventilated place away from direct sunlight.
- Water may seep out from the drainage holes if the camera is not completely dry inside. Take special care not to let water get inside the battery/card compartment.
- Do not use a hair dryer or the like to dry the camera. Exposing the camera to high temperatures may cause the camera and/or waterproof seal to become deformed.

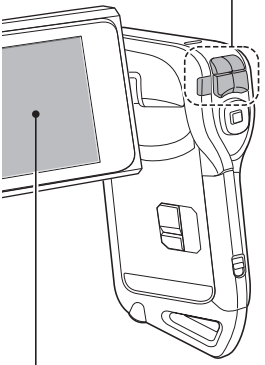
DISPLAYING THE RECORDING MENU

The RECORDING MENU is used to adjust your camera's shooting settings. The RECORDING MENU is organized into two displays: **PAGE 1** and **PAGE 2**. You can also access the RECORDING MENU from the camera settings screen (OPTION MENU [page 120]).

1 **Turn on the camera (page 28).**
- Turn the camera on in the shooting mode.

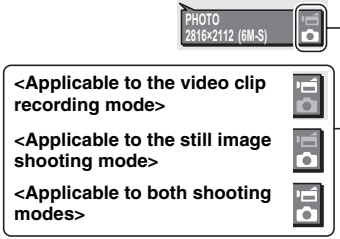
2 **Press the MENU button.**
- The RECORDING MENU appears.
- Pressing the MENU button again will cancel the RECORDING MENU.

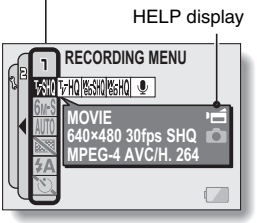




About the HELP display

When a RECORDING MENU icon is selected, the HELP display appears, showing the function of the selected icon and the shooting mode(s) for which it is effective.





Switching the page

Switch to **PAGE 1** or **PAGE 2**.

1 **Display the RECORDING MENU (page 61).**

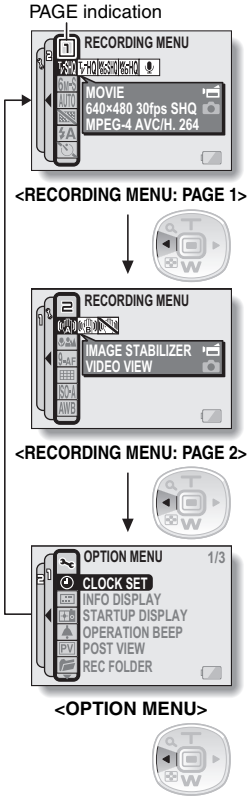
2 **Press the [◄] button.**

- The RECORDING MENU PAGE changes.
- Each time the [◄] button is pressed, the display changes as follows:

→ PAGE 2 → OPTION MENU → PAGE 1

To cancel the RECORDING MENU

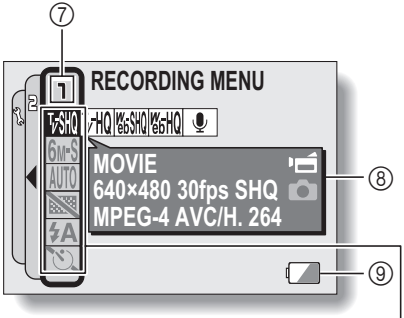
- Press the MENU button.
- It is not possible record images while the RECORDING MENU is shown.

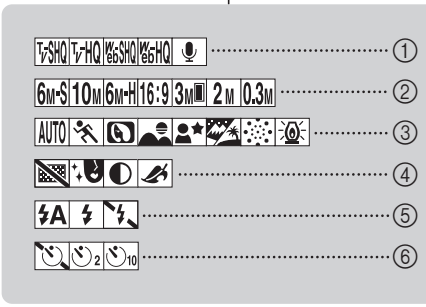


DISPLAYING THE RECORDING MENU

Overview of the RECORDING MENU

PAGE 1





① **Video clip menu (page 67)**

- [TV-SHQ]: Record at 640 × 480 pixels, 30 frames per second, high bit rate
- [TV-HQ]: Record at 640 × 480 pixels, 30 frames per second, standard bit rate
- [16:9SHQ]: Record at 320 × 240 pixels, 30 frames per second
- [16:9HQ]: Record at 320 × 240 pixels, 15 frames per second
- [ ]: Make an audio recording

② **Still image resolution menu (page 68)**

- [6M-S]: Shoot at 2816 × 2112 resolution (6 million pixels), standard compression
- [10M]: Shoot at 3680 × 2760 resolution (10 million pixels)
- [6M-H]: Shoot at 2816 × 2112 resolution (6 million pixels), low compression
- [16:9]: Shoot at 2816 × 1584 resolution (4.46 million pixels)
- [3M]: Shoot at 1536 × 2048 resolution (3 million pixels, vertical position)
- [2M]: Shoot at 1600 × 1200 resolution (2 million pixels)
- [0.3M]: Shoot at 640 × 480 resolution (300,000 pixels)

③ **Scene select menu (page 69)**

- [AUTO]: Full auto mode
- [ ]: Sports mode
- [ ]: Portrait mode
- [ ]: Landscape mode
- [ ]: Night view portrait mode
- [ ]: Snow and beach mode
- [ ]: Fireworks mode
- [ ]: Lamp mode

④ **Filter menu (page 71)**

- [ ]: No filter
- [ ]: Cosmetic filter
- [ ]: Monochrome filter
- [ ]: Sepia filter

⑤ **Flash menu (page 72)**

- [ ]: Automatic flash mode
- [ ]: Forced flash mode
- [ ]: Flash off mode

⑥ **Self-timer menu (page 74)**

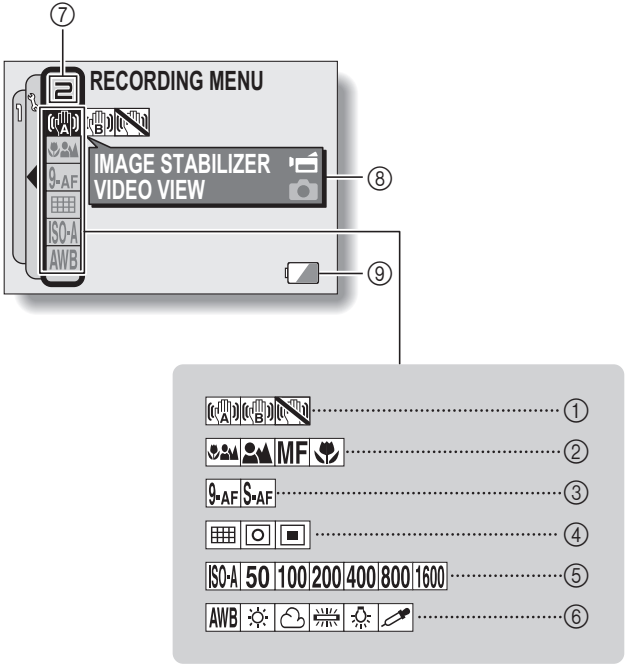
- [ ]: Self-timer off
- [ ]: Shooting begins 2 seconds after the [ ] button or [ ] button is pressed.
- [ ]: Shooting begins 10 seconds after the [ ] button or [ ] button is pressed.

⑦ **PAGE display (page 62)**
⑧ **HELP display (page 61)**
⑨ **Remaining battery power (page 148)**

- When you specify multiple functions that cannot be simultaneously enabled, the function which was last set becomes the active setting, and the other settings accordingly change automatically.

DISPLAYING THE RECORDING MENU

PAGE 2



① **Image stabilizer menu (page 76)**

: Shoot using the video clip field of view display.

: Shoot using the still image field of view display.

: Image stabilizer function off

② **Focus range menu (page 78)**

: All ranges mode

: Normal mode

MF: Manual mode

: Super macro (close-up) mode

③ **Focus mode menu (page 80)**

9-AF: 9-point range finder focus

S-AF: Spot focus

④ **Light-measuring mode (EXP MEASURE) menu (page 81)**

: Multi-section light-measuring

: Center-weighted light-measuring

: Spot light-measuring

⑤ **ISO sensitivity menu (page 82)**

ISO-A: Sets the ISO sensitivity automatically (ISO 50 to 400 [video clip recording mode: corresponds to ISO 450 to 3600]).

50: Sets the sensitivity to ISO 50 (video clip recording mode: corresponds to ISO 450).

100: Sets the sensitivity to ISO 100 (video clip recording mode: corresponds to ISO 900).

200: Sets the sensitivity to ISO 200 (video clip recording mode: corresponds to ISO 1800).

400: Sets the sensitivity to ISO 400 (video clip recording mode: corresponds to ISO 3600).

800: Sets the sensitivity to ISO 800 (video clip recording mode: corresponds to ISO 3600).

1600: Sets the sensitivity to ISO 1600 (video clip recording mode: corresponds to ISO 3600).

* The indicated ISO value is the standard output sensitivity.

⑥ **White balance menu (page 84)**

AWB: White balance is automatically adjusted depending on ambient lighting.

: For photography in fair weather (sunny) conditions

: In overcast conditions

: Under fluorescent lighting

: Under incandescent lighting

: For setting the most accurate white balance

⑦ **PAGE display (page 62)**

⑧ **HELP display (page 61)**

⑨ **Remaining battery power (page 148)**

- When you specify multiple functions that cannot be simultaneously enabled, the function which was last set becomes the active setting, and the other settings accordingly change automatically.

IMAGE QUALITY

Video clip image quality setting

When it comes to video clips, a larger number of pixels and a higher frame rate means better image quality and smoother playback. On the other hand, the file size becomes large and uses more memory. Set the image quality to a setting that's right for your purpose.

1 **Display PAGE 1 of the RECORDING MENU (page 62).**

2 **Select the video clip menu.**

- : Record at 640 × 480 pixels, 30 frames per second, high bit rate.
- : Record at 640 × 480 pixels, 30 frames per second, standard bit rate.
- : Record at 320 × 240 pixels, 30 frames per second.
- : Record at 320 × 240 pixels, 15 frames per second.
- : Make an audio recording.

3 **Select the desired icon from the video clip menu, and press the SET button.**

- This completes the video clip image quality setting.

CAUTION

When editing video clips...

- In order for video clips to be joined (pages 110 and 115), they must have been recorded in the same mode.
- Video clips that were recorded in different modes cannot be joined.

Still image resolution setting

By setting the still image resolution (pixels) to a higher setting, image detail is enhanced for a smoother, finer picture. However, the file size also becomes large and uses more memory. Select the resolution setting that suits your purpose.

1 **Display PAGE 1 of the RECORDING MENU (page 62).**

2 **Select the still image resolution menu.**

- 6M-S: Shoot at 2816 × 2112 resolution (6 million pixels), standard compression.
- 10M: Shoot at 3680 × 2760 resolution (10 million pixels).
- 6M-H: Shoot at 2816 × 2112 resolution (6 million pixels), low compression.
- 16:9: Shoot at 2816 × 1584 resolution (4.46 million pixels).
- 3M: Shoot at 1536 × 2048 resolution (3 million pixels, vertical position).
- 2M: Shoot at 1600 × 1200 resolution (2 million pixels).
- 0.3M: Shoot at 640 × 480 resolution (300,000 pixels).

3 **Select the desired icon from the still image resolution menu, and press the SET button.**

- This completes the still image resolution setting.

SCENE SELECT

You can select from various preset settings (aperture, shutter speed, etc.) for specific shooting conditions.

1 **Display PAGE 1 of the RECORDING MENU (page 62).**

2 **Select the scene select menu.**

- AUTO: The camera automatically makes the optimum settings suitable for the surrounding conditions (full auto).
- : Capture a split-second image of a fast-moving subject (sports mode).
- : Enhance the 3D feeling of the subject by blurring the background (portrait mode).
- : For beautiful shots of distant scenery (landscape mode).
- : Photograph the subject while keeping the background night scenery (night view portrait mode).
- : For photographing bright scenes, such as on a ski slope or at the beach (snow & beach mode).
- : For capturing fireworks at night (fireworks mode).
- : Photograph in low-light conditions (lamp mode).

3 **Select the desired icon from the scene select menu, and press the SET button.**

- This completes the scene select function setting.

4 **Take the picture.**

For video clip recording, see page 41.
For still image shooting, see page 45.

- To return to normal photography, select AUTO from the scene select menu, and press the SET button.

HINT

- When capturing images using the fireworks, lamp or night view portrait setting, stabilize the camera.
- A table showing the limitations for settings corresponding to scene select icons other than AUTO is on page 174.

FILTERS

The filter feature changes image characteristics such as color tones, to apply unique effects to the photographed image.

1 **Display PAGE 1 of the RECORDING MENU (page 62).**

2 **Select the filter menu.**

: No filter is used (none).

: Skin tones are enhanced in close-up shots (cosmetic filter).

: Snap black-and-white photos (monochrome filter).

: Create a sepia-tone photo (sepia filter).

3 **Select the desired icon from the filter menu, and press the SET button.**

- This completes the filter setting.

4 **Take the picture.**

For video clip recording, see page 41.
For still image shooting, see page 45.

- To return to normal photography, select from the filter menu, and press the SET button.

HINT

- A table showing the limitations for settings corresponding to filter icons other than is on page 175.

SETTING THE FLASH MODE

The flash is used not only for taking pictures where there is insufficient light, but also when the subject is in shade or in backlight conditions. Your camera's flash has three modes of operation (automatic flash mode, forced flash mode and flash off mode). Select the flash mode that is appropriate for the surrounding conditions. The flash can be enabled only when capturing still images.

1 **Display PAGE 1 of the RECORDING MENU (page 62).**

2 **Select the flash menu.**

- [ϟA]: The camera will detect the subject brightness and use the flash only when required. In a backlight situation, if only the center of the image is very dark, the flash will operate to compensate (auto flash).
- [ϟ]: The flash will operate with every image captured regardless of the conditions. Use this setting under backlight conditions, when the subject is in shade, under fluorescent lighting conditions, etc. (forced flash).
- [ϟ]: The flash will not operate even in dark situations. Use this setting when capturing an image in a location where flash photography is prohibited, or when shooting a night landscape scene (flash off).

3 **Select the desired icon from the flash menu, and press the SET button.**

- The selected flash mode is set.

4 **Take the picture.**

- Still image shooting → page 45

HINT

Caution when using the flash underwater

- Light from the flash may reflect on debris in the water, resulting in an image that is not as clear as you expected.

SETTING THE FLASH MODE

CAUTION

Do not touch the flash unit when shooting

- The flash unit becomes very hot and may cause a burn. Avoid touching the flash unit when shooting.

HINT

- The flash cannot be used during video clip recording.
- By assigning an operation shortcut to an arrow button (page 134), you can change the flash mode from the Shooting Screen.

SELF-TIMER

1 **Display PAGE 1 of the RECORDING MENU (page 62).**

2 **Select the self-timer menu.**

: Turns off the self-timer function.

: The image is captured about 2 seconds after the [ ] button or [ ] button is pressed.

: The image is captured about 10 seconds after the [ ] button or [ ] button is pressed.

3 **Select the desired icon from the self-timer menu, and press the SET button.**

- This completes the self-timer setting.

4 **Take the picture.**

For video clip recording, see page 41.
For still image shooting, see page 45.

SELF-TIMER

HINT

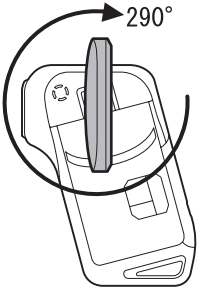
- By assigning an operation shortcut to an arrow button (page 134), you can set the self-timer from the Shooting Screen.

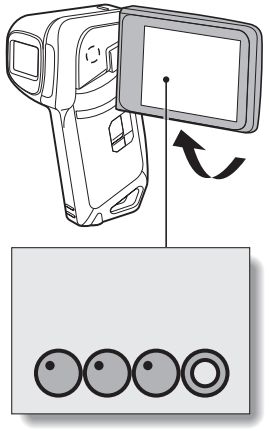
To pause or cancel the self-timer function...

- If the [ ] button or [ ] button is pressed again before the shutter is released, the self-timer countdown temporarily stops. Press the [ ] button or [ ] button one more time to restart the self-timer.
- To cancel self-timer photography, select the icon from the self-timer menu, and press the SET button.
- The self-timer is automatically reset to off after the power save mode is activated and the camera turned off.

When is selected...

- When the [ ] button or [ ] button is pressed, the multi-indicator will blink for about 10 seconds, and then the image is captured. Also, 4 seconds before the shutter releases, the indication shown in the illustration appears on the monitor.





If you swivel the monitor unit to its farthest position, the image on the monitor will be inverted.

MOTION COMPENSATION (IMAGE STABILIZER)

Your camera can minimize a jittery picture by compensating for unintentional hand motion (video clips only).

1 **Display PAGE 2 of the RECORDING MENU (page 62).**

2 **Select the image stabilizer menu.**

: Compensate for unintentional camera motion during video clip recording. The field of view (see page 77) does not change when the [ ] button is pressed, so this setting is convenient when shooting mostly video clips (video clip field of view display).

: Compensate for unintentional camera motion during video clip recording. The field of view does not change when the [ ] button is pressed, so this setting is convenient when shooting mostly still images (still image field of view display).

: Disengages the motion compensation function (OFF).

3 **Select the desired icon from the image stabilizer menu, and press the SET button.**

- This completes the image stabilizer setting.

HINT

If the motion compensation does not seem to be working...

- Due to the mechanical characteristics of this function, it may not be possible for the camera to compensate for violent motion.
- If the digital zoom (page 133) is being used, the large magnification factor may make it difficult for the motion compensation function to work correctly.
- When stabilizing the camera, please turn the motion compensation function off . If the motion compensation function is enabled when it is not actually needed, it may result in an image that appears unnatural.

MOTION COMPENSATION (IMAGE STABILIZER)

<Concerning the changing field of view when motion compensation is enabled>

- When the motion compensation is set to ON, the field of view during recording standby differs from the recordable field of view as shown below.
- When set to the motion compensation [iA] setting, the video clip recording range is as shown in the recording standby screen.

- When the still image shooting resolution is set to [0.3M] and the scene select function to [AUTO], [🏃], [🔄], [🏔] or [🌄] (page 69), a still image captured during video clip recording will have the same field of view as the video clip.

FOCUS RANGE

If you set the focus range to match the distance from the camera to the subject, it's easy to bring the subject into focus.

1 **Display PAGE 2 of the RECORDING MENU (page 62).**

2 **Select the focus menu.**

[icon]: Wide end: 10 cm (3.94 in.) to infinity
Tele end: 80 cm (31.50 in.) to infinity (total range mode)

[icon]: 80 cm (31.50 in.) to infinity (normal mode)

[MF]: The focus can be manually set to any distance from 1 cm (0.39 in.) to 8 m (26.25 ft.), as well as to infinity (manual focus).

[icon]: 1 cm (0.39 in.) to 80 cm (31.50 in.) (super macro mode: wide end only)

- If manual focus [MF] is selected, please see "How to use the manual focus" (page 79).

3 **Select the desired icon from the focus menu, and press the SET button.**
- The focus range setting is completed.

4 **Take the picture.**
- Video clip recording → page 41
- Still image shooting → page 45

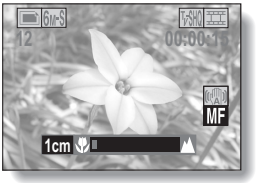
HINT
- By assigning an operation shortcut to an arrow button (page 134), you can change the focus range setting or lock the focus from the Shooting Screen.
- When the focus range is set to super macro [icon], the zoom is temporarily set to the wide end.

FOCUS RANGE

How to use the manual focus

1 **Select the manual focus icon [MF] from the focus menu (page 78), and press the SET button 2 times.**
- The focus distance adjustment bar appears.

2 **Press the [◄] or [►] button to select the desired focus distance, and press the SET button.**
- The focus distance is set, and you are returned to the Shooting Screen.



HINT
- When shooting a subject at a medium to far distance, by setting the focus range to [▲], you will find it both easier and faster to focus.

About the focus range
- The focus distance indication shows the distance between the lens surface and the subject.
- In some cases there may be a slight variance between the distance (numerical figure) you set in the manual focus mode and the actual distance.

About zoom movement when using the manual focus
- If the focus distance is set to 70 cm (27.56 in.) or less, the zoom changes to the largest setting that is suitable for that focus distance.
- When the focus distance is set to 70 cm (27.56 in.) or less, the zoom will function only within the range at which the image is focused.

FOCUS AREA SETTING

You can choose from the following 2 types of autofocus (still image shooting only):

9-point range finder focus:
The distance to the subject is detected by sampling from multiple areas of the entire shooting screen.

Spot focus:
The camera focuses on the subject in the center of the monitor.

1 **Display PAGE 2 of the RECORDING MENU (page 62).**

2 **Select the desired focus method from the focus mode menu, and press the SET button.**

9-AF: 9-point range finder focus is selected.

S-AF: Spot focus is selected.

- When the spot focus setting is selected, the focus mark + appears in the center of the monitor.

Focus mark

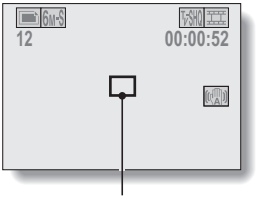
LIGHT-MEASURING MODE SETTING

You can select from 3 types of light-measuring modes.
Multi-section light-measuring:
The exposure is adjusted after sampling from multiple areas of the entire shooting screen.
Center-weighted light-measuring:
The exposure is adjusted after light is measured from the entire image, but with emphasis on the center area.
Spot light-measuring:
You can compose the picture and capture the image after first measuring the light only at the center spot of the monitor.

1 **Display PAGE 2 of the RECORDING MENU (page 62).**

2 **Select the desired light-measuring mode from the light-measuring mode (EXP MEASURE) menu.**
[▦]: Multi-section light-measuring
[⊙]: Center-weighted light-measuring
[▪]: Spot light-measuring

3 **Press the SET button.**
- This completes the light-measuring mode setting.
- When spot light-measuring is selected, the light-measuring spot mark [□] appears in the center of the monitor.



Light-measuring spot mark

ISO SENSITIVITY

With the initial settings, the ISO sensitivity is automatically set according to the brightness of the subject. However, the ISO sensitivity can be set to a fixed setting.

1 **Display PAGE 2 of the RECORDING MENU (page 62).**

2 **Select the ISO sensitivity menu.**

- [ISO-A]: Sets the ISO sensitivity automatically (ISO 50 to 400 [video clip recording mode: corresponds to ISO 450 to 3600]).
- [50]: Sets the sensitivity to ISO 50 (video clip recording mode: corresponds to ISO 450).
- [100]: Sets the sensitivity to ISO 100 (video clip recording mode: corresponds to ISO 900).
- [200]: Sets the sensitivity to ISO 200 (video clip recording mode: corresponds to ISO 1800).
- [400]: Sets the sensitivity to ISO 400 (video clip recording mode: corresponds to ISO 3600).
- [800]: Sets the sensitivity to ISO 800 (video clip recording mode: corresponds to ISO 3600).
- [1600]: Sets the sensitivity to ISO 1600 (video clip recording mode: corresponds to ISO 3600).

* The indicated ISO value when capturing still images is the standard output sensitivity.

3 **Select the desired icon from the ISO sensitivity menu, and press the SET button.**

- This completes the ISO sensitivity setting.

ISO SENSITIVITY

HINT

- By setting a higher ISO sensitivity, you can set higher shutter speeds and capture images in darker locations, but noise in the captured images may increase.
- By assigning an operation shortcut to an arrow button (page 134), you can change the ISO setting from the Shooting Screen.

CAUTION

Does the image appear to flicker when recording a video clip?

- If recording a video clip under fluorescent lights with the ISO sensitivity set to 400 or higher, a noticeable flicker may appear in the image.

WHITE BALANCE

This camera automatically adjusts the white balance under most lighting conditions. However, if you want to specify the lighting conditions or change the overall tone of the image, the white balance can be manually set.

1 **Display PAGE 2 of the RECORDING MENU (page 62).**

2 **Select the white balance menu.**

AWB: The camera will make the white balance adjustment automatically based on the natural and artificial light conditions. This is the setting used in the auto mode.

: For shooting outside on a sunny day.

: For shooting outside on a cloudy day.

: For shooting inside under fluorescent lighting.

: For shooting inside under incandescent lighting.

: This setting is used for a more accurate white balance using the existing light source (one push). Please use it when the light source cannot be identified, for example.

Setting procedure

① Select the icon and press the SET button.
- The icon moves to the left end of the line.

② Fill the entire screen with a plain white card (or piece of paper, etc.), and press the SET button.
- This completes the white balance setting.
- It is not necessary to proceed to step **3**.

3 **Select the desired icon from the white balance menu, and press the SET button.**
- This completes the white balance setting.
- Once the white balance setting is programmed for the icon, it is retained even if another white balance setting (AWB, , , , or) is selected. If you changed to another setting, whenever you select the icon and press the SET button, the previously programmed setting is recalled.

HINT

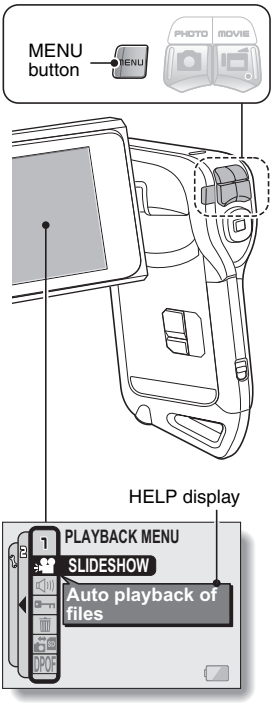
To cancel the white balance setting
- Perform step **1**, select AWB, and then press the SET button.

DISPLAYING THE PLAYBACK MENU

The PLAYBACK MENU is used to adjust your camera's playback settings. The PLAYBACK MENU is organized into two displays: **PAGE 1** and **PAGE 2**. You can also access the PLAYBACK MENU from the camera settings screen (OPTION MENU [page 120]).

1 **Turn on the camera (page 28).**
- Turn the camera on in the playback mode.

2 **Press the MENU button.**
- The PLAYBACK MENU appears.
- Pressing the MENU button again will cancel the PLAYBACK MENU.



About the HELP display

When a PLAYBACK MENU icon is selected, the HELP display appears, showing the function of the selected icon.

Switching the page

Switch to **PAGE 1** or **PAGE 2**.

1 **Display the PLAYBACK MENU (page 85).**

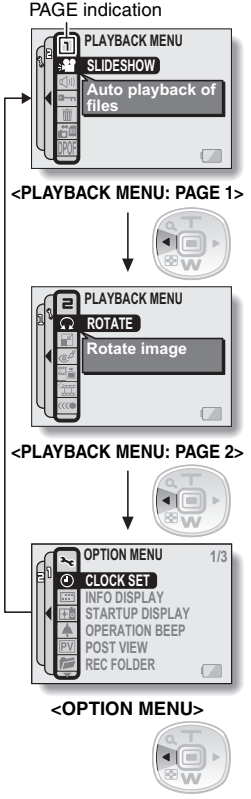
2 **Press the [◀] button.**

- The PLAYBACK MENU changes to the other PAGE.
- Each time the [◀] button is pressed, the display changes as follows:

→ PAGE 2 → OPTION MENU → PAGE 1 →

To cancel the PLAYBACK MENU

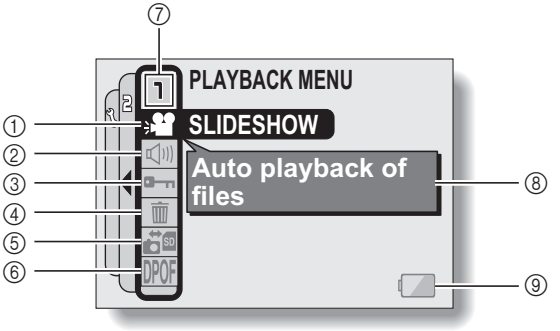
- Press the MENU button.



DISPLAYING THE PLAYBACK MENU

Overview of the PLAYBACK MENU

PAGE 1



① **Slideshow (page 89)**
- Select the slideshow settings and initiate playback.

② **Playback volume control (page 91)**
- Adjust the playback volume for video clips and audio data.

③ **Data protect setting (page 92)**
- Protect data from accidental erasure.

④ **Delete (page 94)**
- Delete images from the card memory.

⑤ **Copy (page 96)**
- Copy files from the card to the internal memory, or vice versa.

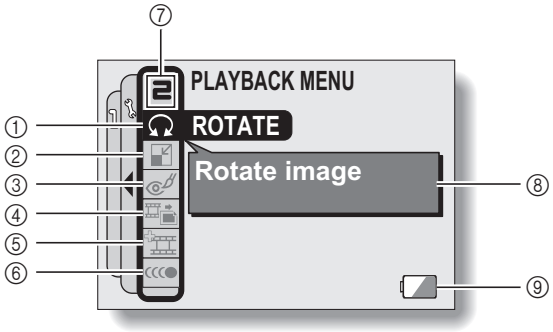
⑥ **Printing instructions (page 98)**
- Specify the printing instructions (DPOF settings).

⑦ **PAGE display (page 86)**

⑧ **HELP display (page 85)**

⑨ **Remaining battery power (page 148)**

PAGE 2



① **Rotate image (page 104)**
- Rotate still images.

② **Resize (page 105)**
- Reduce the resolution of a still image.

③ **Red-eye correction (page 106)**
- Repair the red-eye effect to make eyes look more natural.

④ **Extract still image (page 108)**
- Extract a still image from a video clip.

⑤ **Video clip edit (page 109)**
- Edit video clips.

⑥ **Smooth playback (page 118)**
- Smooth out the movement when playing back video clips.

⑦ **PAGE display (page 86)**

⑧ **HELP display (page 85)**

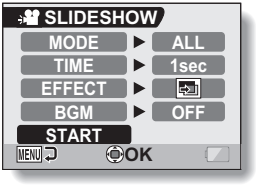
⑨ **Remaining battery power (page 148)**

SLIDESHOW PLAYBACK

Specify the settings for playing back still images and video clips continuously in a “slideshow” format. In a slideshow of still images, you can set the transition time and transition effects.

1 **Display PAGE 1 of the PLAYBACK MENU (page 86).**

2 **Select the slideshow icon [ ], and press the SET button.**



- The Slideshow Screen appears.

MODE:
Specify the file type to play back.

ALL:
Play back all files.

MOVIE:
Play back video clips and audio files.

PHOTO:
Play back still image files.

TIME:
Adjust the transition speed (the period that an image is displayed before it changes to the next image).

EFFECT:
Select a transition effect as an image changes to the next image.

BGM:
Specify the settings for playing background music during slideshow playback.

START:
Begin slideshow playback.

<Changing a setting>

① Select the item you wish to change, and press the SET button.
② Press the [T] or [W] button to change the setting.
③ Press the SET button.

3 **Select "START" and press the SET button.**

- Slideshow playback begins.
- To stop slideshow playback, press the SET button or MENU button.

■ **About BGM audio files**

In addition to the three BGM melodies stored in your camera, you can import audio files to the camera's internal memory to use. Imported audio files can be selected from the slideshow screen in the same manner as the camera's internal BGM melodies.

HINT

BGM for video clips?

- When video clips are played back in a slideshow, the recorded audio track is played back; the BGM is not played.

Did the BGM change?

- If you delete an audio file that was set for the BGM, and if a newly recorded audio is then assigned the same audio number as the deleted file, the newly recorded audio file will be played as the BGM.

Did you delete a BGM audio file from the camera?

- The three BGM audio files that were stored in your camera's internal memory at the time of purchase can be recovered by formatting the internal memory.

What kind of audio files can be set for the BGM?

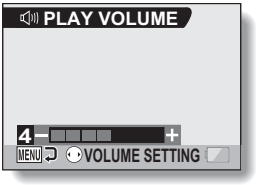
- Audio files that were recorded with the camera can be set as background music. The maximum playback time is about 30 seconds.

PLAYBACK VOLUME

Adjust the playback volume for video clips and audio data.

1 **Display PAGE 1 of the PLAYBACK MENU (page 86).**

2 **Select the playback volume icon [🔊], and press the SET button.**
- The volume control bar appears.



3 **Press the [◄] or [►] button to adjust the volume, and press the SET button.**
- The volume is set, and you are returned to the PLAYBACK MENU.

DATA PROTECT

Prevent accidental erasure of image and audio data.

1 **Display the data that you want to protect from accidental erasure, and display PAGE 1 of the PLAYBACK MENU (page 86).**

2 **Select the protect icon , and press the SET button.**
- The Protect Screen appears.

3 **Press the [T] or [W] button to select "LOCK", and press the SET button.**
- The protect mode is set for the data.
- The protect mark indicates that the data is locked.
- To return to the PLAYBACK MENU, press the MENU button.

DATA PROTECT

CAUTION

- Even if the protect mode is set for certain data files, they will be deleted if the card is reformatted (page 144).

HINT

To select a different image in steps 2 and 3...

- Press the [◄] or [►] button.

To cancel the protect mode for a file...

- Display the desired data, repeat steps **1** and **2**, select “UNLOCK” in step **3**, and press the SET button. The protect mark will disappear and the protect mode is canceled.

DELETING DATA

You can delete data that is stored on the card if you no longer need it. You can delete the data one at a time, or all at once.

1 **To delete data from the card, perform the delete procedure with the card installed in the camera. To delete data from the camera's internal memory, remove the card before performing the delete procedure.**

2 **Display PAGE 1 of the PLAYBACK MENU (page 86).**

3 **Select the delete icon [🗑], and press the SET button.**
- The Delete Mode Screen appears.

DELETE SINGLE:
Deletes one data at a time.
DELETE ALL:
Deletes all the data.

4 **Press the [T] or [W] button to select the desired delete mode, and press the SET button.**
- The Delete Confirmation Screen appears.

<DELETE SINGLE>
- Press the [◄] or [►] button to select the data you wish to delete.
- There is no confirmation screen when deleting single files. Please make sure that the displayed image is one you wish to delete.

<DELETE ALL>
- Press the [◄] or [►] button to confirm the data to delete.

5 **Press the [T] button to select “DELETE”, and press the SET button.**
<DELETE SINGLE>
- The currently displayed image is deleted.
- To delete other data, select the data, select “DELETE” and press the SET button.

<DELETE ALL>
- The Delete Confirmation Screen again appears. To delete the data, select “YES”, and press the SET button. When data delete is completed, “No image” is shown.

CAUTION
- Data that is protected from accidental delete cannot be deleted. To delete protected data, set the protect setting for the data to off (page 92), and then follow the data delete procedure.

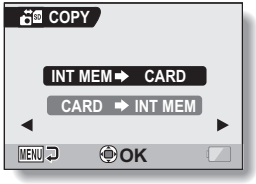
COPY DATA

Images and audio files recorded in the camera's internal memory can be copied to the card, and likewise from the card to the internal memory.

1 **Insert the card in the camera (page 26).**

2 **Display PAGE 1 of the PLAYBACK MENU (page 86).**

3 **Select the copy icon , and press the SET button.**
- The screen to copy files appears.



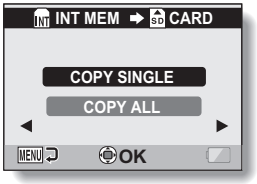
4 **Select the copy direction.**
INT MEM ➡ CARD:
Copy data from the internal memory to the card.
CARD ➡ INT MEM:
Copy data from the card to the internal memory.

* If no card is set in the camera, you cannot copy data.

5 **Press the SET button.**

- The screen to select the type of copy appears.
- The copy source image is shown in the background on the screen.

COPY SINGLE:
Copy the data for one image.
COPY ALL:
Copy all the data from the copy source to the copy destination.



6 **Select the desired type of copy.**

<When selecting "COPY SINGLE">
① Press the [◀] or [▶] button to display the image you wish to copy.
② Press the [T] or [W] button to select "COPY SINGLE".
<When selecting "COPY ALL">
① Press the [T] or [W] button to select "COPY ALL".

7 **Press the SET button.**

- The files are copied.

PRINTING INSTRUCTIONS

In addition to using your printer to print out still images captured with your camera, as with conventional film, you can have prints made at shops offering digital print services. Moreover, this camera is DPOF-compatible, so you can use the camera to specify the number of prints, whether or not the date is displayed on the print, and also to request an index print.

Display the Printing Instructions Screen

1 **Display PAGE 1 of the PLAYBACK MENU (page 86).**

2 **Select the printing instructions icon DPOF, and press the SET button.**

- The Printing Instructions Screen appears.

ALL IMAGES:
The specified printing instructions apply to all the images.
EACH IMAGE:
The printing instructions are specified for each individual image.
INDEX:
All the still images are printed as miniature images (thumbnail images), several images on one print.
ALL CLEAR:
Clear all the printing instructions. This cannot be selected if no printing instructions have been specified for the image.

HINT

Printing a single frame from a video clip

- To print with a printer or have the digital print service shop print out a still image from a video clip, you must first save it (extract still) as a still image (page 108).

About the DPOF format

- DPOF (Digital Print Order Format) is a print order format. You can connect your camera to a DPOF-compatible printer to produce your prints. You can also set the printing instructions for the desired images, and then have the requested images printed automatically (page 156).

About the finished prints

- Rotated images (page 104) will be printed in their original orientation.
- The quality of the print output will differ depending on the print service and printer used.

Specifying date imprinting and print quantities

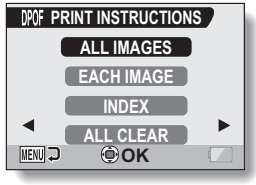
You can specify printing instructions for each individual image (EACH IMAGE), or apply the printing instructions to all the images (ALL IMAGES).

1 **Display the Printing Instructions Screen (page 98).**

2 **Select "ALL IMAGES" or "EACH IMAGE".**

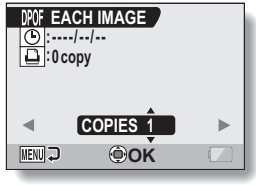
ALL IMAGES:
The printing instructions are applied to all the images.

EACH IMAGE:
The printing instructions are applied only to the image currently displayed.

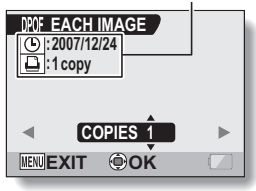


3 **Press the SET button.**

- The Date/Copies Print Screen appears.
- If "EACH IMAGE" was selected, press the [◀] or [▶] button to display the desired image to print.
- The printing instructions that are currently active for the displayed image are shown. You can press the [◀] or [▶] button to confirm the printing instructions for each image.



Printing instructions

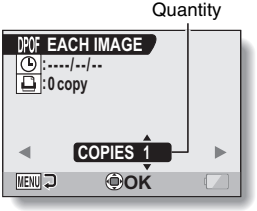


<Completed printing instructions>

4 **Specify whether the date is displayed on the print, and the number of prints.**

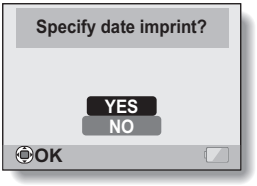
<Specify the number of prints>

- Press the [T] or [W] button.
  - The quantity indication changes.
  - Display the desired number of prints.
- Press the SET button.
  - The number of prints is set.



<Specify dated prints>

- From the screen on which the number of prints is set, press the MENU button.
  - The screen to confirm dated prints appears.
    YES: Print the date on the photo.
    NO: Do not print the date.
- Press the [T] or [W] button to indicate your selection.



5 **Press the SET button.**

- The printing instructions for the requested print quantities and dated prints are stored.
- The display returns to the Printing Instructions Screen.

HINT

If the message “Date not set for photo” appears...

- Dated prints are not possible for photos that were captured before the camera’s date and time setting was completed.
- After the message “Date not set for photo” appears, you are returned to the PLAYBACK MENU.

Index print

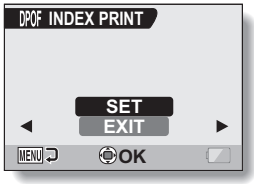
Printing out many small images on one sheet is called an "index print". This is convenient for use as a list of the images you have captured.

1 **Display the Printing Instructions Screen (page 98).**

2 **Select "INDEX".**

3 **Press the SET button.**
- The Index Print Screen appears.

SET:
Specify an index print copy.
EXIT:
Discontinue the setting procedure, and return to the Printing Instructions Screen.



4 **Select "SET", and press the SET button.**
- This completes the setting for the index print. You are returned to the Printing Instructions Screen.

HINT

To cancel the index print setting

- Follow steps **1** and **2**, select "CLEAR" in step **3**, and press the SET button.

Clearing all the printing instructions

Delete the printing instructions for all images.

1 **Display the Printing Instructions Screen (page 98).**

2 **Select “ALL CLEAR”.**

3 **Press the SET button.**
- The Confirm All Clear Screen appears.

CANCEL:
Clear the printing instructions for all images.
EXIT:
Cancel the clear procedure and return to the Printing Instructions Screen.

4 **Select “CANCEL”, and press the SET button.**
- All the printing instructions are cleared and you are returned to the Printing Instructions Screen.

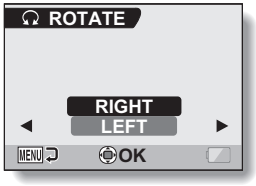
ROTATE IMAGE

Captured still images can be rotated to the correct orientation for viewing.

1 **Display the still image you wish to rotate, and display PAGE 2 of the PLAYBACK MENU (page 86).**

2 **Select the rotate icon [↻], and press the SET button.**
- The Rotate Screen appears.

RIGHT:
Rotates image clockwise 90 degrees.
LEFT:
Rotates image counterclockwise 90 degrees.



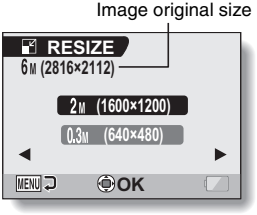
3 **Select "RIGHT" or "LEFT", and press the SET button.**
- Each time the SET button is pressed, the image is rotated another 90 degrees.

CHANGING IMAGE SIZE (RESIZE)

The size of a still image that has already been captured at a resolution higher than [2M] can be changed to 1600 × 1200 pixels or 640 × 480 pixels. The resized image is saved as a separate image.

1 **Display the still image whose size you want to change, and display PAGE 2 of the PLAYBACK MENU (page 86).**

2 **Select the resize icon [⧉], and press the SET button.**
- The Resize Screen appears.



3 **Press the [T] or [W] button to select the new image size.**

2M (1600 × 1200): The saved image will be 1600 × 1200 pixels.
0.3M (640 × 480): The saved image will be 640 × 480 pixels.

4 **Press the SET button.**
- Resizing begins.

HINT
Why can't the image be resized?
- An image can be resized only to a smaller (or the same) size, not to a larger size.
- A still image that was captured with a resolution setting of [16:9] cannot be resized.

RED-EYE CORRECTION

If you photograph your subjects at night using the flash, they may appear in the image with glowing red eyes (red-eye phenomenon). Now you can amend the image so that the subjects' eyes appear more natural (red-eye correction).

1 **Display the image to be modified, and display PAGE 2 of the PLAYBACK MENU (page 86).**

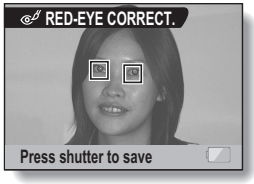
2 **Select the red-eye correction icon , and press the SET button.**

- The Red-Eye Correction Screen appears.

RED-EYE CORRECT.:
Proceed with the red-eye correction.
EXIT:
Return to the PLAYBACK MENU.

3 **Select "RED-EYE CORRECT." and press the SET button.**

- Red-eye correction is executed.
- During the red-eye correction process, "Processing" is shown on the screen.
- When the correction is completed, the modified image is shown. Check the image to see if the post-processing result is satisfactory.



RED-EYE CORRECTION

4 **Press the [📷] button.**

- A screen appears for you to specify whether or not to save the original image.

SAVE AS NEW:
The corrected image is saved as a separate image, and the original image is preserved.
OVERWRITE FILE:
The original file is deleted, and only the corrected image is saved.

5 **Select the desired method to save the corrected image, and press the SET button.**

- The corrected image is saved, and you are returned to the Red-Eye Correction Screen.

HINT

If the "Red-eye correction not successful" message appears…

- The camera was not able to successfully correct the red-eye phenomenon.
- The red-eye correction function works to automatically edit the red-eye phenomenon that the camera detects in captured images. In some cases, the camera may fail to correctly detect the red-eye phenomenon, or it may incorrectly identify the red-eye phenomenon where it does not exist.

Concerning the date and time information for the saved image

- When an image is corrected and saved, the recorded date and time of capture (Exif information) remains unchanged from the original image. However, the file date shown on the computer changes to the date and time the image was revised.

EXTRACTING A STILL IMAGE FROM A VIDEO CLIP

You can select one image (scene) from a video clip, copy it, and save it as a still image (the original data remains unchanged).

1 **Play back a video clip, and pause at the point you wish to copy and save.**

2 **Display PAGE 2 of the PLAYBACK MENU (page 86).**

3 **Select the extract still icon , and press the SET button.**

- The screen to extract an image appears.

SAVE:
The image is copied and saved as a still image (the original data is left unchanged).
EXIT:
You are returned to the PLAYBACK MENU.

4 **Select "SAVE" and press the SET button.**

- The image is extracted.

HINT
To select a different image (frame) in step 3...

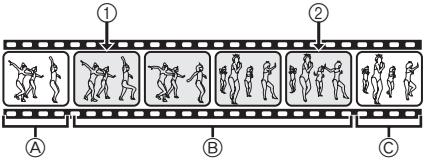
- Press the MENU button two times to return to the pause display, and use the [◀] and [▶] buttons to select a different image.

EDITING VIDEO CLIPS

You can trim away unwanted portions from a video clip and save it as a new video clip (video clip cutting [extracting]). You can also join two video clips together and save the result as a new video clip file.

Procedure to cut (extract) a portion of a video clip

Specify the frames (①, ②) where the video clip is to be cut.



▼

Extract the specified portion.

[Two ways to cut the video clip]

- Trim away portions Ⓐ and Ⓒ, and save portion Ⓑ.

- Delete portion Ⓑ, and join portions Ⓐ and Ⓒ.

- The original video clip is not affected.

(You can also choose to erase the original video clip when the new clip is saved.)

Procedure to join video clips

Specify the video clip that will come first.

▼

Specify the video clip that you wish to append (join).

▼

Join the video clips.

- The two video clips are saved together as a separate video clip.

- The original video clips are not affected. (You can also choose to erase the original video clips when the new clip is saved.)

EDITING VIDEO CLIPS

CAUTION

Caution when editing video clips

- When editing video clips, do not turn off the camera. If you turn off the camera while editing video clips, not only will the editing not be properly completed, but the original video clip may also be erased.
- As the number or size of the video clips increases, the card memory may become full, making it impossible to edit the video clips. In this case, you will need to free some of the memory on the card, either by deleting data that are no longer necessary (page 94), or by selecting “OVERWRITE FILE” when saving edited video clips (pages 114 and 116).
- The operation sounds for the camera’s buttons are disabled during video clip editing.

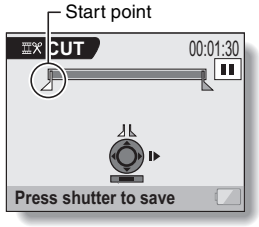
Video clip cutting (extracting)

1 **Display the video clip from which you wish to extract a segment.**

2 **Display PAGE 2 of the PLAYBACK MENU (page 86).**

3 **Select the edit video icon [icon], and press the SET button.**
- The Edit Video Screen appears.

4 **Select "CUT" and press the SET button.**
- The Cutting Screen appears.



5 **Specify the start point of the extract.**

- Use the procedure below to specify the frame from which the video clip extract will start.
- Play the video clip until approximately the desired point, pause the video clip, then play the video clip one frame at a time, stopping at the start point of the extract. This will be the first frame of the extract.
- If the start point of the video clip is also the start point of the extract, proceed to step **6**.

<Procedure>

Play:
After pausing playback, press and hold the [▶] button for about 2 seconds for forward playback, or the [◀] button for reverse playback.

Pause:
During playback, press the SET button.

Accelerated playback:
During playback, press the [◀] or [▶] button to change the playback speed.

Single frame:
After pausing playback, press the [▶] button to move forward one frame, or the [◀] button to move back one frame.

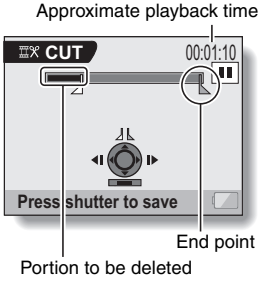
6 **Press the [T] button.**

- The start point of the video clip extract is set, and the screen to specify the end point appears.
- Specify the end point of the extract by following the same procedure as in step **5**.

<When joining the first and latter portions>

① Press the [W] button.
- Each time the [W] button is pressed, the sections to delete and the sections to save are reversed.

② Specify the end point of the extract. The frame following the end point of the extract will be the start point of the latter portion to be joined.



7 **Press the [ ] button.**

- A screen appears for you to select either to save the edited video clip as a new (separate) file, or to delete the original video clip and replace it with the edited video clip.

SAVE AS NEW:
The edited video clip will be saved as a new file. The original video clip remains unchanged.
OVERWRITE FILE:
The original video clip will be deleted. Only the edited video clip will be saved.
REVIEW CLIP:
Play back the edited video clip before saving it.

8 **Select the desired option, and press the SET button.**

- Editing starts.
- When editing ends, you are returned to the PLAYBACK MENU.

HINT

- If the original video clip is protected, even if you select “OVERWRITE FILE” in step **8** and press the SET button, the original video clip will not be erased. If you want it to be erased, you will need to first remove the protection (page 92).
- If the “Card full” message appears, you will need to free some of the memory by deleting data that you do not need to keep.

CAUTION

Warning concerning the battery pack remaining charge

- During the editing of lengthy video clips, the time to process the large amount of data can become quite long. To avoid problems caused by the battery pack becoming depleted in the middle of video clip editing, before starting to edit be sure that a sufficiently charged battery pack is installed in the camera.
- It is recommended that a computer be used to edit long video clips.

EDITING VIDEO CLIPS

Joining two video clips

CAUTION

- Video clips that were recorded in different modes cannot be joined.

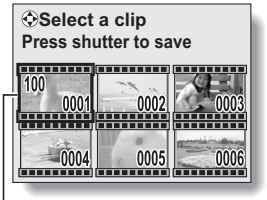
1 **Display PAGE 2 of the PLAYBACK MENU (page 86).**

2 **Select the edit video icon [ ], and press the SET button.**

- The Edit Video Screen appears.

3 **Select "JOIN" and press the SET button.**

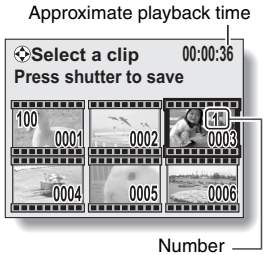
- The 6-image playback display for video clips appears.



Orange frame

4 **Move the orange frame to the video clip you wish to join, and press the SET button.**

- The specified video clip is labeled with a number.
- Up to 9 video clips can be selected.
- To cancel a selection and remove the number label from a video clip, select the video clip and press the SET button.



5 **Press the [📷] button.**

- A screen appears for you to select either to save the joined video clip as a new (separate) file, or to delete the original video clips and replace them with the joined video clip.

SAVE AS NEW:
The joined video clip will be saved as a new file. The original video clips remain unchanged.

OVERWRITE FILE:
The original video clips will be deleted. Only the joined video clip will be saved.

REVIEW CLIP:
Play back the joined video clip before saving it.

6 **Select the desired option, and press the SET button.**
- Editing starts.
- When editing ends, you are returned to the PLAYBACK MENU.

HINT
- If the original video clip is protected, even if you select “OVERWRITE FILE” in step **6** and press the SET button, the original video clip will not be erased. If you want it to be erased, you will need to first remove the protection (page 92).
- If the “Card full” message appears, you will need to free some of the memory by deleting data that you do not need to keep.

CAUTION
Warning concerning the battery pack remaining charge
- During the editing of lengthy video clips, the time to process the large amount of data can become quite long. To avoid problems caused by the battery pack becoming depleted in the middle of video clip editing, before starting to edit be sure that a sufficiently charged battery pack is installed in the camera.
- It is recommended that a computer be used to edit long video clips.

SMOOTH PLAYBACK

Suppress the video flicker that occurs when playing back video clips that were recorded with the camera moving fast.

1 **Display PAGE 2 of the PLAYBACK MENU (page 86).**

2 **Select the smooth playback icon, and press the SET button.**
- The Smooth Playback Screen appears.

ON:
Activate smooth playback.
OFF:
Deactivate smooth playback.

3 **Select "ON", and press the SET button.**
- This completes the smooth playback setting.

HINT
- Depending on the recording conditions, the smooth playback effect may be insignificant in some cases.

DISPLAYING IMAGE PROPERTIES (INFORMATION SCREEN)

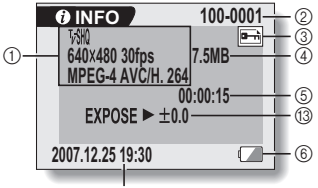
On the Information Screen you can check what the settings were when an image was captured.

1 **Display the desired image.**

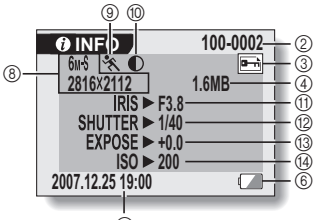
2 **Press the MENU button for at least 1 second.**

- The Information Screen appears.
- If the MENU button is pressed again, the Information Screen is canceled.

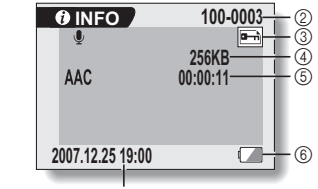
① **Video clip mode settings**
② **Image or sound number**
③ **Protect setting**
④ **File size**
⑤ **Shooting or recording time**
⑥ **Remaining battery charge**
⑦ **Date and time of image**
⑧ **Still image resolution settings**
⑨ **Scene select function**
⑩ **Filters**
⑪ **Aperture**
⑫ **Shutter speed**
⑬ **Exposure correction**
⑭ **ISO sensitivity**



<Video clip data>



<Still image data>



<Audio data>

DISPLAYING THE OPTION MENU

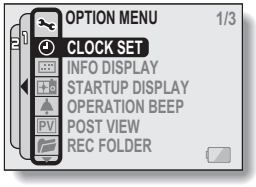
The OPTION MENU is used to adjust various camera settings.

1 **Turn on the camera (page 28), and press the MENU button.**
- The RECORDING MENU or PLAYBACK MENU appears.

2 **Press the [◄] button two times to display the OPTION MENU.**

To cancel the OPTION MENU

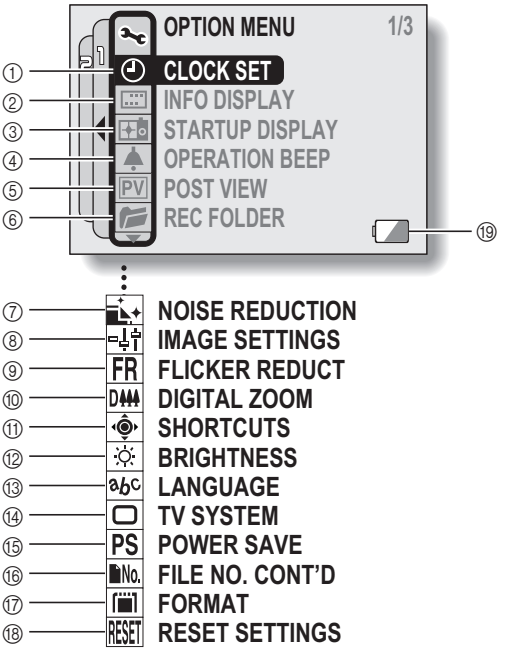
- Press the MENU button.



<OPTION MENU>

DISPLAYING THE OPTION MENU

Overview of the OPTION MENU



① **Date and time setting (page 32)**
- Set the camera's internal clock.

② **Screen display (page 35)**
- Specify whether the time/date the image was captured is displayed.
- Specify what information is displayed on the Playback Screen.

③ **Startup display (page 123)**
- Select the screen display that appears when the camera is turned on.

④ **Operation sounds setting (page 124)**
- Select the operation sounds that are produced when the camera's buttons are pressed, and adjust the operation sound volume.

⑤ **Post-view (page 127)**
- Specify how long the captured image is displayed on the monitor after the [📷] button is pressed and released.

⑥ **Recording folder (page 128)**
- Create/select a folder in which to store the recorded files.

⑦ **Noise-reduction menu (page 129)**
- Select the settings to reduce the noise that is generated during audio or still image recording.

⑧ **Image quality adjustment (page 131)**
- Adjust the image quality during shooting.

⑨ **Flicker-reduction menu (page 132)**
- Set the flicker-reduction function on or off.

⑩ **Digital zoom setting (page 133)**
- Enable or disable the digital zoom.

⑪ **Shortcuts (page 134)**
- Assign operation functions to the [◀] and [▶] buttons when the Shooting Screen is active.

⑫ **Monitor brightness (page 136)**
- Adjust the brightness of the monitor.

⑬ **Screen language (page 137)**
- Select the language in which the monitor messages are displayed.

⑭ **TV system settings (page 138)**
- Select the type of video signal that is output from the camera's AV terminal.

⑮ **Power save function (page 139)**

⑯ **File number memory (page 141)**
- Select the file number memory function.

⑰ **Format (page 144)**
- Reformat the camera's internal memory or the card installed in the camera.

⑱ **Settings reset (page 146)**
- Reset the camera to the factory-preset settings.

⑲ **Remaining battery power (page 148)**

* Icons ⑦ through ⑱ are displayed when you press the [T] or [W] button to scroll.

SELECT THE STARTUP DISPLAY

The startup display is the display that appears on the monitor when the camera is turned on.

1 **Display the OPTION MENU (page 120).**

2 **Select the startup display icon [icon], and press the SET button.**

- The Startup Display Setting Screen appears.

DATE & TIME:
The camera's date and time setting is shown.
Xacti:
The Xacti logo is shown.
PENGUIN:
An animated character is shown.
OFF:
No startup display.

<When "PENGUIN" is selected>
An animated character also appears on the Menu Screen to introduce the functions.

3 **Select the desired setting, and press the SET button.**

- The selected startup display is set.

OPERATION SOUNDS

Use this menu to set the confirming audio signals when the camera is turned on/off or when the operation buttons ([📷] button, SET button, MENU button, etc.) are pressed, to adjust the operation sound volume, and to enable/disable the audio guide.

1 **Display the OPTION MENU (page 120).**

2 **Select the operation beep icon [🔔], and press the SET button.**

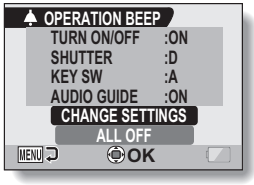
- The Operation Beep Setting Screen appears.
- The current settings are shown on the screen.
- If “ALL OFF” is selected and the SET button pressed, all the operation sounds are muted.
- When “ALL OFF” is selected, the “CHANGE SETTINGS” indication changes to “ON”. If “ON” is then selected and the SET button is pressed, “ON” changes to “CHANGE SETTINGS”.

TURN ON/OFF:
Mute or enable the sound that is produced when the power is turned on or off.

SHUTTER:
Select the sound that is produced when the [📷] button is pressed.

KEY SW:
Select the sound that is produced when the SET button, MENU button, etc. are pressed.

AUDIO GUIDE:
Mute or enable the camera’s audio help guide.

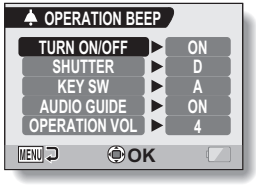


<“ALL OFF” is selected>

OPERATION SOUNDS

3 **Select "CHANGE SETTINGS", and press the SET button.**

- The screen to change the settings appears.



4 **Press the [T] or [W] button to select the desired setting, and press the SET button.**

- The screen to select operation sounds appears.

<If "TURN ON/OFF" or "AUDIO GUIDE" is selected>

- The respective screen to enable or disable the sound appears.
- Press the [T] or [W] button to select the desired setting, and press the SET button.
  ON: Activates the sound.
  OFF: Deactivates the sound.

<If "SHUTTER" or "KEY SW" is selected>

- The screen to select the operation sounds appears.
- Select from 8 different sounds (A to H).
- You can press the [▶] button to preview the selected operation sound.
- If "OFF" is selected, no sound is produced.
- Press the [T] or [W] button to select the desired setting, and press the SET button.

<If "OPERATION VOL" is selected>

- The screen to select the volume for the operation sounds appears.
- You can select an operation sound volume from 1 (minimum) to 7 (maximum).
- Press the [T] or [W] button to select the volume, and press the SET button.

5 **Press the MENU button.**

- The operation sound settings are completed.

HINT

- If you keep the MENU button pressed and turn on the power, the screen to turn the operation sounds ON/OFF appears at once. You may find this a convenient procedure to disable the operation sounds in places you do not want them to be audible.

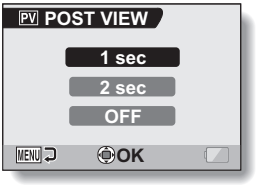
POST-VIEW SETTING

Specify the duration that the captured image appears on the monitor (post-view) after the [📷] button is pressed and released.

1 **Display the OPTION MENU (page 120).**

2 **Select the post-view icon [PV], and press the SET button.**
- The Post-view Screen appears.

1 sec:
The post-view image is displayed for 1 second.
2 sec:
The post-view image is displayed for 2 seconds.
OFF:
The post-view image is not displayed.



3 **Select the desired setting, and press the SET button.**
- This completes the post-view setting.

CREATE/SELECT A RECORDING FOLDER

Create or select a recording folder (a folder in which to store recorded files).

1 **Display the OPTION MENU (page 120).**

2 **Select the recording folder icon , and press the SET button.**
- The Recording Folder Screen appears.

<Create a new folder>
- Use the arrow buttons to select NEW.

<Select an existing folder>
- Use the arrow button to select the desired folder number.

3 **Press the SET button.**
- This completes the create/select folder setting.
- If you created a new folder, it automatically becomes the selected recording folder.

CAUTION

When an existing folder cannot be selected or a new one created...
- A folder cannot be selected if it was created using a different device, or if it already contains the maximum number of files.
- You cannot select a folder or create a new folder while the internal memory is used for recording and playback.

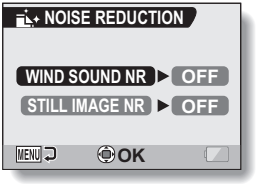
NOISE-REDUCTION FUNCTION

Use this setting to minimize the aural wind noise during video clip or audio recording (wind sound NR) and the visual noise during still image recording (still image NR).

1 **Display the OPTION MENU (page 120).**

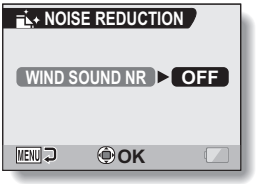
2 **Select the noise-reduction icon , and press the SET button.**
- The Noise Reduction Screen appears.

WIND SOUND NR:
Turn ON/OFF the wind noise reduction function during video clip/audio recording.
STILL IMAGE NR:
Turn ON/OFF the image noise reduction function during still image shooting.



3 **Select the desired function and press the SET button.**
- The screen to select ON or OFF appears.

ON:
Noise is reduced.
OFF:
Noise is not reduced.



<"WIND SOUND NR" is selected>

4 **Press the [T] or [W] button to select the desired setting, and press the SET button.**

- This completes the noise reduction setting.

HINT

- The wind sound NR setting should normally be set to OFF when it is not necessary. If it is used when recording a video clip or audio file in an environment where there is no noise, the recording will sound unnatural.
- The still image NR function is effective when the shutter speed is 1/4 second or less.
- Compared to normal shooting, the image processing time after shooting is slightly longer.

ADJUST THE IMAGE QUALITY

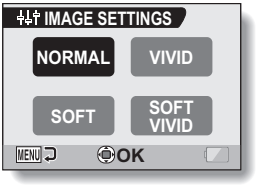
The camera can adjust the image quality as the image is captured.

1 **Display the OPTION MENU (page 120).**

2 **Select the image quality icon [IMAGE SETTINGS], and press the SET button.**

- The Image Settings Screen appears.

NORMAL:
Shoot with image quality at normal.
VIVID:
Color saturation is increased.
SOFT:
The sharpness is subdued for a softer image.
SOFT VIVID:
The sharpness is softened and color saturation is increased.



3 **Select the desired setting, and press the SET button.**

- This completes the image quality setting.

FLICKER-REDUCTION

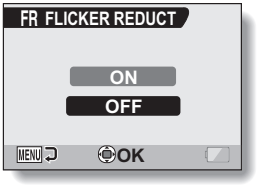
The flicker-reduction setting reduces the flicker that results when filming video clips under fluorescent lights and the like where the background lighting pulsates at the frequency of the power supply. The flicker-reduction setting is set to a frequency of 50 Hz.

1 **Display the OPTION MENU (page 120).**

2 **Select the flicker-reduction icon [FR], and press the SET button.**

- The Flicker Reduction Screen appears.

ON:
Turns on the flicker-reduction setting.
OFF:
Turns off the flicker-reduction setting.



3 **Select the desired setting, and press the SET button.**

- This completes the flicker-reduction setting.

HINT

- If the flicker-reduction setting is used outdoors on a very bright day, a halation effect, which produces diffused rings of light around bright light areas, may occur.

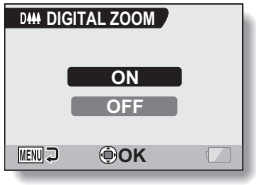
DIGITAL ZOOM SETTING

This setting allows you to specify whether or not the digital zoom is enabled during zoom shooting.

1 **Display the OPTION MENU (page 120).**

2 **Select the digital zoom icon [D⇔], and press the SET button.**
- The Digital Zoom Screen appears.

ON:
Digital zoom can be used.
OFF:
Digital zoom cannot be used.



3 **Select the desired setting, and press the SET button.**
- This completes the digital zoom setting.

HINT

If the digital zoom does not seem to be working…
- The digital zoom is disabled when the still image shooting mode is set to [10M].

ASSIGN FUNCTIONS TO THE ARROW BUTTONS

Assign functions (operation shortcuts) to the [◀] and [▶] buttons when they are pressed when the Shooting Screen is displayed.

1 **Display the OPTION MENU (page 120).**

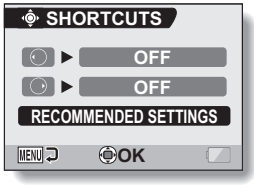
2 **Select the shortcuts icon [⊕], and press the SET button.**

- The Shortcuts Screen appears.

◁: Assign the function when the [◀] button is pressed.

▷: Assign the function when the [▶] button is pressed.

RECOMMENDED SETTINGS: The most commonly used settings are automatically assigned.



3 **Select the button to which you wish to assign the function, and press the SET button.**

- The screen to assign a function to the button appears.

[OFF]: No operation shortcut is assigned to the button.

AF LOCK: Lock the focus (page 44).

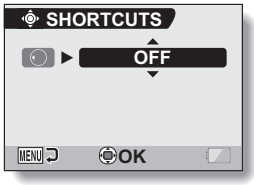
FOCUS: Set the focus range (page 78) (except for [MF]).

FLASH: Set the flash operation (page 72).

EXPOSURE: Adjust the exposure (page 58).

ISO: Set the ISO sensitivity (page 82).

SELF-TIMER: Set the self-timer (page 74).

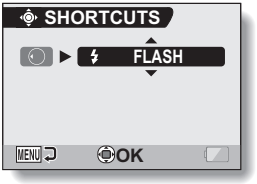


<When ◁ is selected>

ASSIGN FUNCTIONS TO THE ARROW BUTTONS

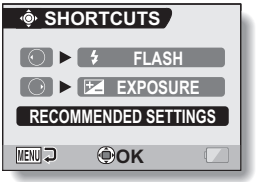
4 **Press the [T] or [W] button.**

- Display the function you wish to assign to the button.



5 **Press the SET button.**

- The selected function is assigned to the button, and you are returned to the Shortcuts Screen.
- To assign functions to the other button, repeat steps **3** through **5**.



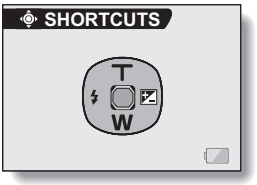
<When "RECOMMENDED SETTINGS" is selected>

6 **Press the MENU button.**

- The screen to confirm the shortcut settings appears, and then you are returned to the OPTION MENU.
- This completes the shortcuts setting.

<To confirm the assigned shortcuts>

- On the screen in step **2**, press the MENU button, and the screen to confirm the shortcut settings appears.

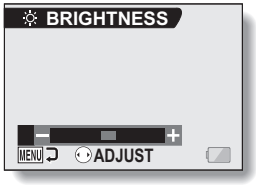


MONITOR BRIGHTNESS

Adjust the brightness of the camera's monitor display. Use this adjustment when the monitor image is difficult to view because of ambient lighting.

1 **Display the OPTION MENU (page 120).**

2 **Select the brightness icon [☼], and press the SET button.**
- The brightness control display appears.



3 **Press the [◄] or [►] button to set the brightness, and press the SET button.**
- The monitor brightness is set.

HINT
- The display in step **2** can also be accessed from the Shooting Screen. Press the MENU button for at least 1 second; the brightness control display will appear, and you can then adjust the monitor brightness.

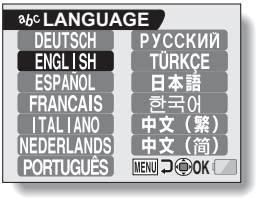
SCREEN LANGUAGE

You can set the monitor of your camera to display the messages in any one of several languages.

1 **Display the OPTION MENU (page 120).**

2 **Select the language icon abc, and press the SET button.**

- The Language Screen appears.



DEUTSCH:	German
ENGLISH:	English
ESPAÑOL:	Spanish
FRANCAIS:	French
ITALIANO:	Italian
NEDERLANDS:	Dutch
PORTUGUÊS:	Portuguese
РУССКИЙ:	Russian
TÜRKÇE:	Turkish
日本語:	Japanese
한국어:	Korean
中文(繁):	Chinese (traditional)
中文(简):	Chinese (simplified)

3 **Select the desired language, and press the SET button.**

- The selected display language is set.

TV SYSTEM SETTING

Specify the type of image signal that is output from your camera's AV terminal.

1 **Display the OPTION MENU (page 120).**

2 **Select the TV system icon [▭], and press the SET button.**
- The TV System Screen appears.

NTSC:
Outputs NTSC video signals.
PAL:
Outputs PAL video signals.

3 **Select the desired setting, and press the SET button.**
- The selected TV system is set.

HINT

If no image appears on the TV...

- If the TV system setting is not correct for the connected equipment, no image will appear on the TV.

When set to "PAL" and connected to a TV using the included AV interface cable (page 150)

Shooting: Images are displayed on the monitor only and do not appear on the TV.
Playback: Images are displayed on the TV only and do not appear on the monitor.

POWER SAVE FUNCTION

Your camera has a “power save” function whereby the power automatically turns off after a specified period of inactivity. The power save function works to conserve the battery pack power when the camera is not being used, or to prevent the battery pack from dying if the camera has accidentally been left on. You can specify the elapsed time (standby time) before the power save function is activated.

1 **Display the OPTION MENU (page 120).**

2 **Select the power save icon [PS], and press the SET button.**

- The Power Save Setting Screen appears.

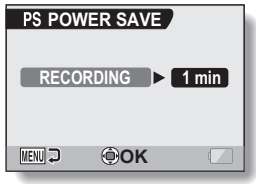
RECORDING:
Set the standby time for the shooting modes.
PLAYBACK:
Set the standby time for the playback modes.

3 **Select the desired option, and press the SET button.**

- The Set Standby Time Screen appears.

4 **Press the [T] or [W] button to set the standby time.**

[T]:
Increases the standby time.
[W]:
Decreases the standby time.



<Example: When "RECORDING" is selected>

5 **Press the SET button.**

- The standby time is set, and you are returned to the Power Save Setting Screen.

FILE NO. MEMORY FUNCTION

If a newly formatted card is used, the file name (image number) of the captured image automatically begins from 0001. If the card is subsequently reformatted, or if a different reformatted card is used, the file names again begin from 0001. This is because the file number memory function is set to “OFF”, and consequently it results in more than one card containing images with the same numbers. By setting the file number memory function to “ON”, even if the card is reformatted or the card is replaced with another card, the consecutive numbering of file names continues from the last number recorded by the camera.

<File number memory function “OFF”>

	File name (image number)
Card A	0001, 0002.....0012, 0013

⋮
Replace card
▼

Card B	0001, 0002.....0012, 0013

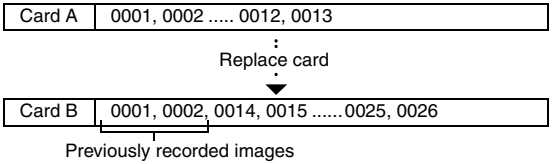
<File number memory function “ON”>

	File name (image number)
Card A	0001, 0002.....0012, 0013

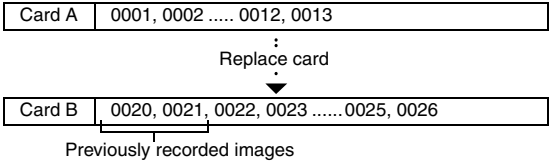
⋮
Replace card
▼

Card B	0014, 0015..... 0025, 0026

- If Card B already has image data in it when it replaces Card A, file names are assigned as follows.
  When the highest image number on Card B (before replacing) is lower than the highest image number on Card A: the file name of the next recorded image continues from last file name recorded on Card A.



  When the highest image number on Card B (before replacing) is higher than the highest image number on Card A: the file name of the next recorded image continues from last file name recorded on Card B.



HINT

What about the internal memory?

- The file number memory function is always set to “OFF” for the internal memory; it cannot be set to “ON”.

FILE NO. MEMORY FUNCTION

1 **Display the OPTION MENU (page 120).**

2 **Select the file number memory icon [No.].**

3 **Press the SET button.**
- The File Number Memory Screen appears.

ON:
The file number memory function is on.
OFF:
The file number memory function is off.

4 **Press the [T] or [W] button to make your selection, and press the SET button.**
- The selected file number memory function is set.

HINT
- Until the file number memory function is turned "OFF", consecutive file names are assigned. It is recommended that the file number memory function be returned to "OFF" at the end of each photography session.

INITIALIZING THE CARD MEMORY AND INTERNAL MEMORY

A card must be formatted with this camera:
- After purchasing, when used for the first time, or
- If it was formatted using a personal computer or another digital camera.

The card cannot be formatted if the lock switch is set to the “LOCK” position. Proceed with the format procedure after setting the lock switch to the unlocked position.

1 **To reformat a card, install it in the camera. To reformat the camera’s internal memory, remove the card from the camera.**

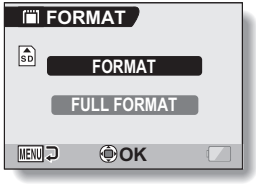
2 **Display the OPTION MENU (page 120).**

3 **Select the format icon [ ], and press the SET button.**

<Card format>
- The screen to select the type of format appears.
- Follow steps **4** to **6**.

FORMAT:
A normal formatting is executed.

FULL FORMAT:
The entire card is scanned and reformatted. It is not possible to select this when there is no card installed, or when the remaining battery charge is low.



<Internal memory format>
- The screen to confirm formatting appears.
- Follow steps **5** and **6**.

4 **Select the desired format option, and press the SET button.**
- The screen to confirm formatting appears.

5 **Select “YES”.**

6 **Press the SET button.**

- Formatting begins.
- During formatting, “Formatting” and “do not power off” are shown on the monitor.
- The three BGM audio files that were stored in your camera’s internal memory at the time of purchase can be recovered by formatting the internal memory.

CAUTION

Caution during reformatting

- Please do not turn off the camera or insert/remove the card while the card is being formatted.

Reformatting erases the data

- When the card or internal memory is initialized, all the recorded data is erased. Protected data is also erased, so before reformatting or internal memory, any data you want to keep should be copied to your personal computer’s hard disk or other storage medium.

Caution regarding disposing/transferring the card (recovering data from a reformatted card)

- If a card is reformatted or the data is erased from the card using the camera or a computer, the card's control data may be merely modified and the data itself may not be completely erased from the card.
- In some cases it may be possible to recover the data from a reformatted card using special software for that purpose. However, if the camera is used to execute a full format, it will be impossible to recover the data even by the use of data recovery software.
- If you are disposing of a card, it is recommended that you physically destroy it. If you are transferring the card to someone else to use, it is recommended that you use the camera’s full format function to reformat the card, or use commercially available software for erasing card data. Managing data is the responsibility of the user.

HINT

To cancel reformatting

- In step **5**, select “NO”, and press the SET button.

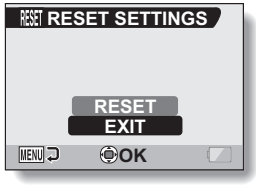
RESETTING THE CAMERA SETTINGS

Reset the camera to the factory-preset settings.

1 **Display the OPTION MENU (page 120).**

2 **Select the reset settings icon [RESET], and press the SET button.**
- The Reset Settings Screen appears.

RESET:
Reset to the factory-preset settings.
EXIT:
Do not change the settings, and return to the OPTION MENU.



3 **Select "RESET", and press the SET button.**
- The camera settings are reset to the factory-preset settings.

HINT
- Note that the following settings do not change with this procedure:
  Date and time setting
  Language setting
  TV system setting

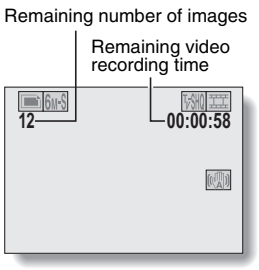
CHECKING THE REMAINING INTERNAL AND CARD MEMORY

You can check how many images can be captured and how much audio and video recording time is available in the internal memory and on the card. For a table showing the maximum number of images and recording time for the internal memory and for specific cards, please see “Possible No. of Images/Possible Shooting Time/Possible Recording Time” on page 181.

Checking the remaining number of images and video recording time

1 **Turn on the camera (page 28).**

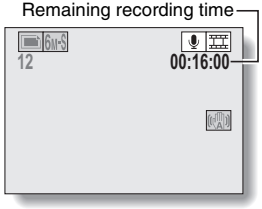
- The remaining number of images appears in the upper left of the monitor.
- The remaining video recording time appears in the upper right of the monitor.
- The remaining number of images and video recording time will differ depending on the resolution and compression settings.
- When the remaining number of images or the remaining video recording time is “0”, you cannot capture any more images. To capture more images, either install a new card, or save the images to a computer and then delete them (page 94) from the card.
- When the remaining number of images or the remaining video recording time is “0”, it may be possible to capture a few more images by setting a lower resolution setting (page 67), or selecting a different image quality setting.



For audio data

1 **Set the camera to the audio recording mode (page 54).**

- The remaining audio recording time is shown.

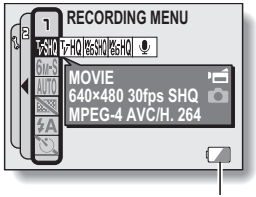


CHECKING THE REMAINING BATTERY PACK CHARGE

When using the battery pack, the remaining battery pack charge can be checked on the monitor. Make sure to check this indicator before recording. For an indication of the possible length of time for battery pack operation, see page 180.

1 **Display the RECORDING MENU or PLAYBACK MENU (pages 61 and 85).**

- The battery pack remaining charge indicator appears in the lower right corner of the monitor.
- Due to the battery pack characteristics, when the ambient temperature is low, [ ] may appear early for an incorrect indication of the remaining charge. Also, depending on the conditions of use of the camera or the ambient conditions (temperature, etc.), the indicated remaining charge may change. Therefore, this indication can only be used as a general approximation of the remaining charge.



Battery pack remaining charge indicator

Battery pack remaining charge indicator	Battery remaining charge
[ ]	Approx. full.
[ ]	Power is low.
[ ]	It will soon be impossible to record or play back.
[ ]	If this icon flashes when the [ ] button or [ ] button is pressed, recording is not possible. Recharge the battery pack.

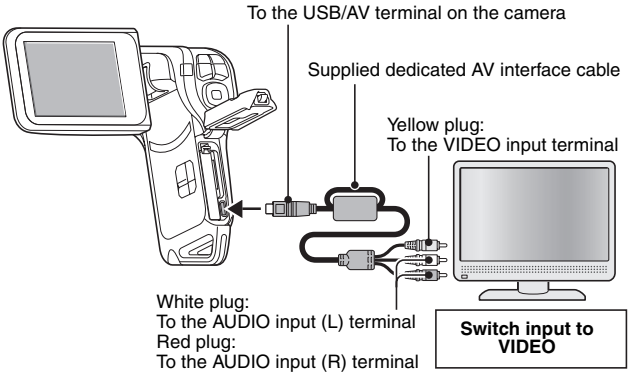
CHECKING THE REMAINING BATTERY PACK CHARGE

HINT

- If any data is present, you can also check the remaining battery pack charge on the Information Screen (page 119).
- Battery life may differ even among battery packs of the same type.
- Depending on the usage of the camera (such as the number of times the flash is used, the type of card, etc.) or the ambient temperature (temperatures below 10 °C [50°F]) the number of images that can be saved on a fully charged battery pack will vary greatly.
- It is recommended that you prepare an extra battery pack(s) when taking pictures at a wedding or while traveling, for example, so you don't miss capturing images of important moments due to the battery pack power running out. The same is recommended for taking photos in cold environments. (In a ski area, for example, the battery pack can be kept warm in your pocket until ready to use.)

CONNECTING TO A TV

Use the supplied AV interface cable to connect the camera to a TV.



Playback

- After connecting the camera to the television, set the TV input switch to VIDEO input.
- When the dedicated AV interface cable is connected, no image appears on the camera's monitor.
- The playback method is the same as when viewing images on the camera's monitor.
- The same playback procedure as when playing back with the camera is used to play back audio recordings as well.
  Audio playback: see page 56

CAUTION

Insert and pull out the cable carefully

- When connecting the cables, make sure that the cable plugs are correctly oriented and that they match the shapes of the terminal sockets on the devices. Push the plugs in straight when connecting them. If undue force is used to connect a cable, it may permanently damage the connector pins in the terminal socket.
- Do not use excessive force when connecting and disconnecting cables.

DIRECT PRINTING

Your camera supports the PictBridge function. By connecting the camera directly to a PictBridge-enabled printer, the camera's monitor can be used to select images and initiate printing (PictBridge printing).

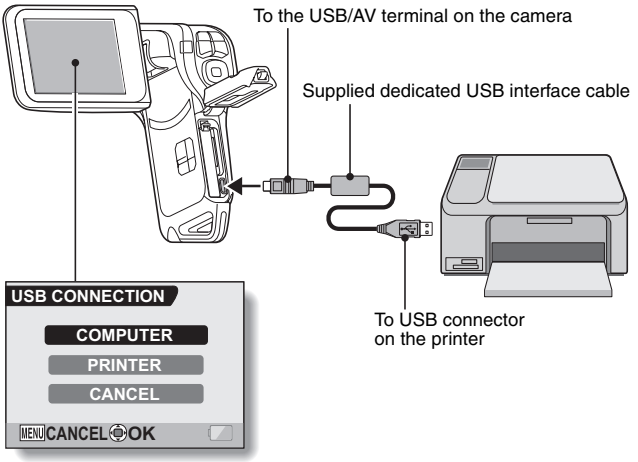
Print preparations

1 **Turn the printer on, and use the supplied USB interface cable to connect the camera to the printer.**

- Connect the camera's USB/AV terminal to the printer's USB connector.

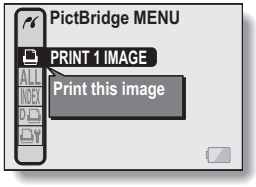
2 **Turn on the camera (page 28).**

- The USB Connection Screen appears on the camera's monitor.



3 **Select "PRINTER", and press the SET button.**

- The camera changes to the PictBridge mode, and the PictBridge MENU appears.



CAUTION

Insert and pull out the cable carefully

- When connecting the cables, make sure that the cable plugs are correctly oriented and that they match the shapes of the terminal sockets on the devices. Push the plugs in straight when connecting them. If undue force is used to connect a cable, it may permanently damage the connector pins in the terminal socket.
- Do not use excessive force when connecting and disconnecting cables.

Caution when connecting a printer

- If the power to the printer is turned off while it is connected, the camera may not operate correctly. If the camera does not operate correctly, disconnect the USB interface cable, turn off the camera, and then reconnect the cable.
- During PictBridge printing, the camera's button operation response is slower.
- If the camera is powered by the battery pack for printing, make sure that the remaining battery charge is sufficient.

DIRECT PRINTING

To select one image and print it (one image)

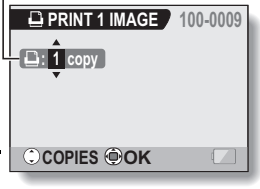
Procedure to select one image and print it.

1 **Complete the print preparations (page 151).**

2 **Select the print 1 image icon [🖨], and press the SET button.**
- The screen to select images for printing appears.

3 **Press the [◄] or [►] button to display the image you wish to print.**
- Specify the image to print.

4 **Specify the number of prints.**
① Press the [T] button to select "COPIES", and press the SET button.
② Press the [T] or [W] button to specify the number of prints.
③ Press the SET button.
- "PRINT" is selected.



5 **Press the SET button.**
- Printing begins.

HINT

To cancel printing

① During printing, press the [W] button.
- The Confirm Cancel Printing Screen appears.

② Select "CANCEL", and press the SET button.
- If "EXIT" is selected and the SET button is pressed, printing resumes.

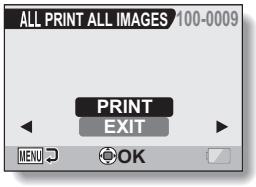
To print all the images (all images)

Print all of the images.

1 **Complete the print preparations (page 151).**

2 **Select the all images icon [ALL], and press the SET button.**
- The Print All Images Screen appears.

3 **Select "PRINT", and press the SET button.**
- Printing begins.



CAUTION

Printing is not possible if there are more than 999 still images in the card

- Delete unwanted images before printing.

DIRECT PRINTING

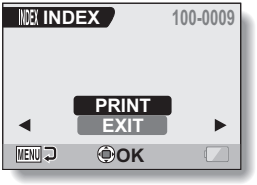
Thumbnail prints (index)

Make an index print of all the images.

1 **Complete the print preparations (page 151).**

2 **Select the index print icon [INDEX], and press the SET button.**
- The Index Print Screen appears.

3 **Select "PRINT", and press the SET button.**
- Printing begins.



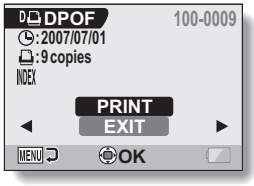
To print images according to the printing instructions (print requested images)

Procedure to print all the ordered images.

1 **Complete the print preparations (page 98), and complete the print preparations (page 151).**

2 **Select the DPOF icon [DPOF], and press the SET button.**
- The Print Requested Images Screen appears.

3 **Select "PRINT", and press the SET button.**
- Printing begins.
- Printing begins about 1 minute after the SET button is pressed.



HINT
- In step **2**, if you press the [◀] or [▶] button, you can view each image and confirm its printing instructions.

CAUTION
- Requested images printing [DPOF] is not possible if a printer is used that does not support your camera's DPOF function.

To change the printer settings and print images (change printer settings)

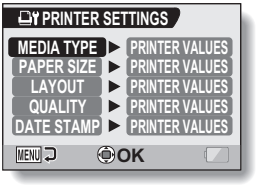
Images are printed according to settings specified by the camera, such as paper type, size, layout, printing quality, etc.

1 **Complete the print preparations (page 151).**

2 **Select the printer settings icon , and press the SET button.**

- The Printer Settings Screen appears.

MEDIA TYPE:
Specify the type of paper used for printing.
PAPER SIZE:
Specify the size of paper used for printing.
LAYOUT:
Specify how the images are to be arranged on the paper.
QUALITY:
Select the print quality for the images.
DATE STAMP:
Print the date the photo was taken.

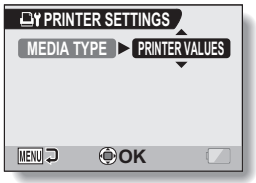


3 **Adjust the printer settings.**

① **Press the [T] or [W] button to select a printer setting parameter, and press the SET button.**
- The screen to set the selected parameter appears.

② **Press the [T] or [W] button to adjust the setting, and press the SET button.**
- The selected parameter is set, and you are returned to the Printer Settings Screen.
- Follow the same procedure to adjust the other parameters, as desired.
- The contents of the settings that can be made for each parameter will differ depending on the printer.

<When "PRINTER VALUES" is selected>
- The images will be printed according to the settings specified on the printer side.



<When "MEDIA TYPE" is selected>

4 **Press the MENU button.**
- You are returned to the PictBridge MENU.

HINT
- The printer setting parameters will differ depending on the printer that is connected.
- To use printer functions which do not appear on your camera's Printer Settings Screen, select "PRINTER VALUES".
- If a function set by the camera is not available in the printer, the camera's printer settings will automatically change to "PRINTER VALUES".

COMMONLY ASKED QUESTIONS

If you have a question about the camera operation, you might find the answer in this compilation of commonly asked questions.

	Question	Answer	Action
Power	Why doesn't the power turn on?	Due to cold temperatures, the battery pack temporarily lost its power.	Place the camera in your pocket to warm it up before using it.
	Why is the battery pack consumed so quickly even after it was fully recharged?	The ambient temperature is very low.	Keep the battery pack in an environment of 10 to 40 °C (50 to 104°F).
	Why doesn't recharging end?	The battery pack life has expired.	Replace with a new battery pack. If this is not effective, consult your dealer.
	Why does the icon appear?	The remaining battery pack power is low.	Replace the battery pack with a fully charged one.

	Question	Answer	Action
Shooting	Why does the multi-indicator flash red?	Recorded data is being saved on the card.	Not a malfunction. Wait until the multi-indicator turns off.
	Why doesn't the flash operate?	The camera has determined that the image is bright enough and the flash is not necessary.	Not a malfunction. Capture the image; the camera will determine when the flash is necessary.
	Are the settings retained even after the camera is turned off?	—	All settings except the self-timer and the exposure correction are retained even after the camera is turned off.
	Which resolution setting should I use?	—	Select the resolution setting according to the intended use: [6M-S] or higher: Appropriate for printing letter-size or larger, and for printing a close-up of part of a photo (trimming). [2M], [3M▣]: For printing standard photo (photo service) sizes. [0.3M]: For photos displayed on a web page, or sent as e-mail attachments.

COMMONLY ASKED QUESTIONS

	Question	Answer	Action
Shooting	What is the difference between the digital zoom and the optical zoom?	—	Because shooting with the optical zoom uses the optics of a physical lens, you can shoot without losing minute details in the image. The digital zoom, on the other hand, works by magnifying a portion of the image that hits the CCD sensor and may produce a coarser image.
	How can I get the distant view into focus?	—	Set the scene select function to the landscape mode when photographing. Or, set the focus range setting to manual focus MF, and set the distance to ∞.
	The video clip I shot outdoors is completely white.	—	Set the flicker-reduction setting to off.

	Question	Answer	Action
Monitor	When used in cold weather, why does the image seem to leave traces as it moves?	Phenomenon due to the nature of the monitor.	Not a malfunction. Spots that appear in the monitor only appear in the monitor and will not be recorded with the images.
	Why does the displayed image contain some red, blue and green dots, or why are black spots visible?		
Viewing images	Why is the image too bright?	The subject was too bright.	When capturing an image, devise a way to compensate for a bright subject, for example, by changing the shooting angle.
	Why is the image out of focus?	The focus is not locked properly.	Hold the camera correctly and slowly press the [📷] button halfway to lock the focus. Then press the [📷] button all the way to capture the image.
	Why is there no image ([?] is shown)?	This may happen when trying to play back images stored on a card from a different digital camera.	Play back images that were recorded on a card using this camera.

COMMONLY ASKED QUESTIONS

	Question	Answer	Action
Viewing images	Why do vertical stripes appear?	If a bright subject is shot in the video clip recording mode, vertical stripes may appear on the monitor or in the image.	Not a malfunction.
	Why isn't the magnified image clear?	Due to the characteristics of the camera, magnified images appear less clear.	Not a malfunction.
	Why isn't the captured image clear?	The image was captured using the digital zoom.	Not a malfunction.
	Can I play back image and sound data that I edited using my computer?	—	We cannot guarantee the accurate playback of data that has been edited using a computer.
	Why is there a motor-like sound during video clip playback?	The sound of the camera's mechanical action was recorded.	Not a malfunction.
Connecting to a TV	Why is there no sound?	The volume on the TV is set to the minimum.	Adjust the volume on the TV.

	Question	Answer	Action
Printing	Why does a message appear during PictBridge printing?	There is a problem with the printer.	Please refer to the instruction manual for your printer.
Misc.	The “Cannot edit video” message appears.	You have attempted to join video clips that were recorded in different modes.	Select video clips that were recorded in the same mode.
	Why is a noise heard from a nearby TV or radio during battery recharging?	Electromagnetic waves are emitted from the battery charger.	Move the battery charger further away from the TV or radio when recharging the battery pack.
	Why does the “Card full” or “Internal memory full” message appear?	There is no more available memory on the card or in the camera’s internal memory.	Erase unnecessary data, or use a card that has more memory available.
	Why does the “Card is protected” message appear?	The lock switch on the card is in the locked (protect) position.	Move the lock switch to the unlocked position.
	Why can’t the camera be operated?	A temporary internal circuitry problem may be the cause.	Remove the battery pack from the camera, wait a few minutes, then reinstall the battery pack and try again.
	A problem such as inability to record or play back occurs.	The card contains files that were saved using a device other than this camera.	After saving your files to a different medium, format the card.

COMMONLY ASKED QUESTIONS

	Question	Answer	Action
Misc.	Can I use my camera abroad?	—	When the camera is connected to a TV, you can switch the camera's video output to NTSC or PAL.
	Why does the "System error" message appear?	A problem has occurred within the camera or card.	Check the following items: ① Remove the card and then install it again. ② Remove the battery pack and then install it again. ③ Install a different card. If "System error" still appears after performing the above steps, then take the camera to the dealer for service.

TROUBLESHOOTING

Before taking your camera to the repair shop, check the following table for a possible solution to the problem.

Camera

	Problem	Cause	Action	Reference page
Power	No power.	The battery pack is dead.	Recharge the battery pack, or replace with a new battery pack.	21, 23
		The battery pack has not been inserted correctly.	Reinsert the battery pack, making sure to orient it correctly.	
	The camera turns off by itself.	The power save function is operating.	Turn on the camera again.	28
Shooting	An image is not captured when the [ ] button or [ ] button is pressed.	The power is not turned on.	Turn on the camera.	28

TROUBLESHOOTING

	Problem	Cause	Action	Reference page
Shooting	An image is not captured when the [📷] button or [🎥] button is pressed.	The maximum number of images that can be captured or the maximum video clip recording time has been reached.	Install a new card.	26
			Delete the images that are not necessary.	94
	The flash does not operate.	The flash off mode is selected.	Set the flash to automatic flash mode or forced flash mode.	72
		The battery pack is dead.	Recharge the battery pack, or replace with a new battery pack.	21, 23
	The digital zoom does not work.	The still image mode is set to 10M.	Set the still image mode to 6M-H or lower.	68
		The digital zoom setting is set to “OFF”.	Set the digital zoom setting to “ON”.	133
	A warning tone (beep-beep-beep) sounds, and it is not possible to take a picture using the self-timer.	The battery pack is consumed.	Recharge the battery pack, or replace with a new battery pack.	21, 23

	Problem	Cause	Action	Reference page
Shooting	When zooming in or out, the zoom movement stops momentarily.	The optical zoom has moved to the maximum magnification position.	Not a malfunction. Release the [T] button, and press it again.	57
	There is noise in the captured image.	The ISO sensitivity setting is too high.	Set the ISO sensitivity to a lower setting.	82
	When recording a video clip under fluorescent lights, a noticeable flicker appears in the image.	This occurs when the shutter speed is too fast.	Set the ISO sensitivity to 200 or less.	82
	During video clip recording, recording momentarily stops.	You captured a still image during video clip recording.	Not a malfunction. When a still image is captured during video clip recording, recording briefly stops while the image is being saved. Video clip recording resumes after the still image is saved.	52
Monitor	No playback image appears.	The camera is not in the playback mode.	Press the REC/PLAY button to switch to the playback mode.	42, 47, 56

TROUBLESHOOTING

	Problem	Cause	Action	Reference page
Viewing images	The image is too dark.	The flash was blocked by a finger or other object.	Hold the camera correctly, and make sure the flash is not obstructed.	36
		The subject was too far away.	Capture the image in the range of operation of the flash.	178
		The subject was lit from behind.	Set the flash to the forced flash mode, and take the picture.	72
			Use the exposure correction function.	58
			Use the spot light-measuring mode.	81
		There is not enough light.	Adjust the ISO sensitivity setting.	82
	The video clip picture is flickering.	The video clip was filmed under fluorescent lighting.	Set the flicker-reduction setting to on.	132

	Problem	Cause	Action	Reference page
Viewing images	The image is too bright.	The forced flash mode is selected.	Select a different flash mode.	72
		The subject was too bright.	Use the exposure correction function.	58
		The ISO sensitivity setting is incorrect.	Set the ISO sensitivity to [ISO-A].	82
	Red-eye correction was not successful.	The red-eye effect area could not be recognized.	Not a malfunction.	106
	The video clip playback stops momentarily.	A still image was captured during video clip recording.	Not a malfunction. When the still image was captured during video clip recording, recording briefly stopped while the image was being saved. Video clip recording resumed after the still image was saved.	52

TROUBLESHOOTING

	Problem	Cause	Action	Reference page
Viewing images	The image is not in focus.	The subject is too close to the camera.	Capture the image with the subject within the photographable range. Select the correct focus setting for your needs.	78
		The focus setting is not correct.		
		The camera moved when the [📷] button was pressed (camera shake).	Hold the camera correctly and slowly press the [📷] button halfway to lock the focus. Then press the [📷] button all the way to capture the image.	36, 45
		The focus is not locked properly.		
		The lens is dirty.	Clean the lens.	—
	The colors of the images captured indoors are not correct.	This is due to ambient lighting.	Capture the image using the forced flash mode.	72
		The white balance setting is incorrect.	Set the white balance setting correctly.	84
	A part of the image is missing.	The handstrap or a finger was blocking the lens.	Hold the camera correctly, and make sure the lens is not obstructed.	36

	Problem	Cause	Action	Reference page
Viewing images	“No image” is shown.	There is no recorded data for the selected playback mode.	Play back after capturing images or making audio recordings.	—
	During audio playback, there is no sound.	The playback volume setting on the camera is too low.	Select the playback volume icon [🔊] and adjust the volume.	91
Connecting to a TV	There is no color in the image. The image is distorted.	The TV system setting is not correct.	Select the correct TV system setting.	138
	No image or sound.	The camera is not correctly connected to the TV.	Follow the instructions to make the connection correctly.	150
		The TV input is not set correctly.	Set the input on the TV to “VIDEO”.	
	There is no sound.	The volume setting on the TV is too low.	Adjust the TV volume.	91
	The edge of the image is cut off.	This is a characteristic of the TV.	Not a malfunction.	—
Image editing	You cannot edit or rotate an image.	The protect mode is set.	Cancel the protect mode.	92

	Problem	Cause	Action	Reference page
Misc.	The “Image is protected” message appears and the data cannot be deleted.	You have attempted to delete data that is protected from accidental erasure.	Set the protect setting for the data to “UNLOCK”.	92
	The audio guide does not sound.	The audio guide setting is set to “OFF”.	Set the audio guide setting to “ON”.	124
	The recording capacity is less than that indicated in the section “Possible No. of Images/ Possible Shooting Time/ Possible Recording Time”.	The recording capacity is less than the value specified for the card.	Depending on the card, the capacity may be less than the specified value. Please refer to the instructions that accompanied the card.	181
	The battery pack appears to be swollen.	Normal change occurring with battery use. Even with normal correct use of the lithium-ion battery, it has a tendency to swell as the number of charge and discharge cycles adds up and it gradually approaches the end of its service life.	Not a safety hazard. If the battery quickly becomes depleted, for example, it has reached the end of its service life. Replace it with a new battery pack.	25

Notes regarding the Scene Select feature and filters

Scene Select

Setting	Remarks
Sports	Focus range: [macro] cannot be selected.
Portrait	
Landscape	
Night view portrait	
Snow & beach	
Fireworks	Focus range: Fixed at [landscape]. Flash: Fixed at [flash off].
Lamp*	Resolution: Fixed at [0.3M]. Flash: Fixed at [flash off]. Focus range: [macro] cannot be selected. ISO sensitivity: Fixed at [ISO-A]. Still image NR: Fixed at “OFF”.

* When recording a video clip in dark surroundings, the shutter speed automatically decreases to the following values in order to produce a sufficiently bright image.

Video clip mode setting (page 67)	Shutter speed
15 fps	1/15 sec
30 fps	1/30 sec

Note that when playing back video clips recorded at these settings, the movement will be somewhat jerky.

Filter

Setting	Remarks
Cosmetic	Focus range: cannot be selected.
Monochrome	Resolution: 10M cannot be selected. Focus range: cannot be selected.
Sepia	

About the scene select function and focus range settings

- The scene select function changes to AUTO when the focus range is set to .
- Even if you set the focus range to , , or MF, it changes to when the scene select function is set to anything other than AUTO.
- When the scene select is set to , the focus range setting changes to .

SPECIFICATIONS

Camera

Type	Digital movie (recording and playback)
Recorded image file format	**Still images:** JPEG format (DCF, DPOF, Exif 2.2 compliant) Note: Designed mainly by the Japan Electronics and Information Technology Industries Association (JEITA), DCF (Design rules for Camera File system) is standard for digital still camera image files to provide interoperability between digital photography devices for the images stored on removable memory cards. However, it is not guaranteed that all devices will support the DCF standard. **Video clips:** Conforms to ISO-standard MPEG-4 AVC/H.264 **Audio:** MPEG-4 audio (AAC compression) 48 kHz sampling rate, 16-bit stereo format
Data storage media	Internal memory: Approx. 18 MB SD Memory Card (equivalent to a maximum 8 GB SDHC Memory Card)
Camera effective number of pixels	Approx. 6 million pixels
Image sensor	1/2.5-inch (1 cm) CCD Virtual number of pixels: Approx. 6.37 million pixels, interlace scan, primary color filter
Still image shooting mode (recording resolution)	10M: 3680 × 2760 pixels 6M-H: 2816 × 2112 pixels (low compression) 6M-S: 2816 × 2112 pixels (standard compression) 16:9: 2816 × 1584 pixels 3M: 1536 × 2048 pixels (vertical position) 2M: 1600 × 1200 pixels 0.3M: 640 × 480 pixels

SPECIFICATIONS

Video clip recording mode (recording resolution, frame rate, bit rate)	[TV-SHQ]: 640 × 480 pixels, 30 fps 3 Mbps [TV-HQ]: 640 × 480 pixels, 30 fps 1.5 Mbps [16:9SHQ]: 320 × 240 pixels, 30 fps [16:9HQ]: 320 × 240 pixels, 15 fps * The 30 fps frame rate of this camera is 29.97 fps, and the 15 fps frame rate is 14.985 fps.	
White balance	Full-auto TTL, manual setting possible	
Lens	Optical 5.0× zoom lens	f = 6.3 mm to 31.7 mm (35 mm film camera conversion 38 mm to 190 mm) Autofocus, 9 groups, 12 elements (including three with five aspheric surfaces) Galvanometer iris Internal ND filter
Aperture	Open F = 3.5 (Wide) to 4.7 (Tele)	
Exposure control type	Programmable AE Exposure correction available (0±1.8 EV in 0.3 EV steps)	
Light-measuring mode	Multi-section measuring, center-weighted measuring, spot measuring	
Range	Total mode: 10 cm (3.94 in.) to infinity (Wide end) 80 cm (31.50 in.) to infinity (Tele end) Normal mode: 80 cm (31.50 in.) to infinity Super macro mode: 1 cm (0.39 in.) to 80 cm (31.50 in.) (Wide end only)	
Digital zoom	For shooting: 1× to approx. 12× For playback: 1× to approx. 58× (varies with resolution)	

Shutter speed	Still image shooting mode: 1/2 to 1/2,000 sec. (Approx. 4 sec. max. when scene select function is set to lamp) (During flash: 1/30 to 1/2,000 sec.) Video clip recording mode: 1/30 to 1/10,000 sec.
Sensitivity	Still image shooting mode (Standard output sensitivity*): Auto (ISO 50 to 400)/ISO 50, ISO 100, ISO 200, ISO 400, ISO 800 and ISO 1600 (switchable from the RECORDING MENU) (Maximum ISO sensitivity increases up to 7200: when scene select function is set to lamp) * Sensitivity measured in compliance with the ISO standard (ISO 12232:2006). Video clip recording mode: Auto (equivalent to ISO 450 to 3600)/equivalent to ISO 450, ISO 900, ISO 1800 and ISO 3600 (switchable from the RECORDING MENU) (Maximum ISO sensitivity up to 7200 variation: when scene select function is set to lamp)
Minimum subject illumination	Approx. 7 lux (when scene select is set to full auto mode AUTO and shutter speed is 1/30 sec) Approx. 2 lux (when scene select is set to lamp mode and shutter speed is 1/15 sec)
Image stabilizer	Electronic (video clip recording mode)
Monitor	2.5-inch (6.4 cm) low-temperature poly-silicon TFT color liquid crystal display, transparent Approx. 150,000 pixels (Frame coverage: Approx. 100%)
Flash working range	GN = 3 Approx. 10 cm (3.94 in.) to 1.7 m (5.58 ft.) (Wide) Approx. 80 cm (31.50 in.) to 1.3 m (4.27 ft.) (Tele)
Flash modes	Auto-flash, forced flash, flash off
Focus	TTL-type AF (9-point range finder/spot metering AF: Still image shooting mode; Continuous AF/area: Video clip recording mode), manual focus
Self-timer	Approx. 2-second delay, 10-second delay

SPECIFICATIONS

Ambient environment	Temperature	0 to 40 °C (32 to 104°F) (operation), –20 to 60 °C (–4 to 140°F) (storage)
	Humidity	30 to 90% (operating, no condensation) 10 to 90% (storage, no condensation)
Water-resistant	Compliant with JIS protection grade 8 standards (according to tests conducted in-house by Sanyo)	
Power supply	Battery	Lithium-ion (Li-ion) battery (DB-L20: supplied) ×1
	AC adaptor (sold separately)	VAR-G8 For use with DC adaptor VAR-A2 (sold separately)
Power consumption	3.2 W (When using the Li-ion battery during recording)	
Dimensions (excluding protrusions)	70.4 (W) × 111.4 (H) × 40.5 (D) mm 2.77 (W) × 4.39 (H) × 1.59 (D) in. (Maximum dimensions) Volume: Approx. 192 cc	
Weight	Approx. 217 g (7.65 oz.) (Only the camera [without battery pack and card])	

Camera connectors

USB/AV (communications/ audio-video output) terminal	Audio output	310 mVrms (–8 dBs), 47 kΩ, stereo
	Video output	1.0 Vp-p, 75 Ω unbalanced, sync negative, composite video NTSC color TV system/PAL TV system (switchable from the OPTION MENU)
	USB	USB 2.0 High-speed

Battery life

Shooting	Still image shooting mode	160 images: CIPA standard (when a Hagiwara Sys-Com 512 MB SD Memory Card is used)
	Video clip recording mode	80 minutes: Recorded in TV-SHQ mode (640 × 480 pixels, 30 fps)
Playback		190 minutes: Monitor on, continuous playback

- Until battery pack runs out when using a fully charged battery pack at a 25 °C (77°F) ambient temperature.
- The operation time may vary depending on the conditions of the battery pack and the conditions of use. Especially when used at temperatures below 10 °C (50°F), the battery pack operation time is drastically reduced.

Possible No. of Images/Possible Shooting Time/ Possible Recording Time

The table shows the possible number of captured images and the possible recording time for the internal memory and for a commercially available SD Memory Card (1 GB, 4 GB).

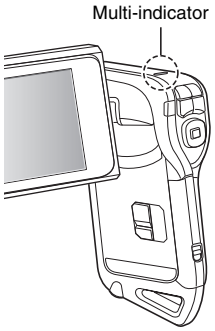
Shooting/ recording mode	Resolution setting	Internal memory	SD Memory Card	
			1 GB	4 GB
Still image mode	10M	5 images	297 images	1,190 images
	6M-H	5 images	338 images	1,340 images
	6M-S	8 images	507 images	2,030 images
	16:9	11 images	673 images	2,690 images
	3M	16 images	953 images	3,760 images
	2M	26 images	1,510 images	5,900 images
	0.3M	135 images	7,740 images	31,000 images
Video clip mode	VGA SHQ	37 sec.	41 min. 18 sec.	2 hr. 45 min.
	VGA HQ	1 min. 15 sec.	1 hr. 18 min.	5 hr. 13 min.
	640 SHQ	2 min. 39 sec.	2 hr. 38 min.	10 hr. 35 min.
	640 HQ	3 min. 52 sec.	3 hr. 49 min.	15 hr. 18 min.
Sound recording mode		16 min. 42 sec.	16 hr. 11 min.	64 hr. 53 min.

- The maximum continuous shooting time at the 640 SHQ setting is 5 hours 30 minutes. The maximum continuous shooting time at the 640 HQ setting is 7 hours.
- Up to 12 hours of continuous audio recording is possible.
- When recording a video clip using an 8 GB card, recording terminates when the data size of the file currently being recorded reaches approx. 4 GB.
- The figures indicate the capacity when an SD Memory Card by Sandisk is used.
- Even with cards of the same capacity, the amount of data that can actually be stored may differ depending on the card brand, etc.
- The continuous shooting time for each video clip will differ depending, for example, on the card capacity, environmental conditions (temperature and shooting conditions, etc.).

Concerning the multi-indicator

The camera's multi-indicator will light or flash depending on the different camera operations.

Color	Multi-indicator status		Camera status
Green	Lit		Connected to computer or printer (USB)
	Flashing		Power save mode activated
Red	Flashing	Slow	During self-timer operation
		Fast	Accessing internal memory/card data
Orange	Lit		Connected to TV/ VIDEO (AV)



SPECIFICATIONS

Supplied battery pack charger

Part No.		VAR-L20N
Power source		AC 100 to 240 V, 50 to 60 Hz, 10 VA, MAX: 0.1 A
Rated output		DC 4.2 V, 650 mA
Compatible batteries		Supplied or separately sold Lithium-ion battery pack (DB-L20)
Ambient environment	Temperature	0 to 40 °C (32 to 104°F) (recharge), –20 to 60 °C (–4 to 140°F) (storage)
	Humidity	10 to 90% (no condensation)
Dimensions		46 (W) × 21.2 (H) × 92 (D) mm 1.81 (W) × 0.83 (H) × 3.62 (D) in.
Weight		Approx. 55 g (1.9 oz.)

Supplied Li-ion battery pack

Part No.		DB-L20
Voltage		3.7 V
Rated output		720 mAh
Ambient environment	Temperature	0 to 40 °C (32 to 104°F) (during use, recharging) –10 to 30 °C (14 to 86°F) (storage)
	Humidity	10 to 90% (no condensation)
Dimensions		39.4 (W) × 6.0 (H) × 35.5 (D) mm 1.55 (W) × 0.24 (H) × 1.40 (D) in.
Weight		Approx. 19 g (0.7 oz.)

Others

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CAUTION

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- All images and illustrations given in this manual are for explanation purposes and may differ slightly from that of the actual product. Also, actual specifications are subject to change without prior notice and therefore may differ from the contents of this manual.

SPECIFICATIONS

Before capturing those important shots, be sure to first take a test shot to comfirm that your camera is set up and ready to go

- Sanyo Electric shall not be held responsible for any problems resulting from the use of this camera.
- Sanyo Electric declines all responsibility for damages due to improper use of the camera, failure to adhere to the instructions given in this manual, or repairs or changes done by those other than a technician authorized by the manufacturer.
- Sanyo Electric shall not be held responsible for any damage caused by optional devices or consumable items used with the camera other than those supplied with the camera or those specified by Sanyo Electric.
- Sanyo Electric shall not be held responsible for any losses or loss of revenue resulting from the loss of data caused by the malfunction, or the repairing of a malfunction, of the camera.
- The images captured with this camera will differ in quality from pictures taken with a standard film camera.

HINTS FOR TAKING PICTURES

Taking great pictures in difficult surroundings is easier than you might think. By keeping a few points in mind and choosing the correct settings, you can create photos that you'll be proud to display and share.

If images are blurred even when the autofocus is used

Your camera employs an autofocus function. When you snap a picture using the autofocus, the camera automatically adjusts the settings so that the image will be in focus. If you are getting blurred images even when using the autofocus, one or more of the following might be the reason.

■ How the autofocus works

The autofocus is activated when the [📷] button is gently pressed halfway. Press the [📷] button slightly, and the target mark will appear on the monitor to indicate that the autofocus has been activated. Next, continue to gently press the [📷] button all the way to snap the picture. This two-step method is the way to ensure that your photos are perfectly focused.

■ Reasons for unfocused images

① The [📷] button was pressed all the way in one step.
② After the image was focused, the subject moved.
- Even if camera focuses the subject once, if the distance between the camera and the subject is changed, the subject may become out of focus.

③ The focus setting is not set for the correct distance.
- If you shoot a close-up subject with the camera set to the normal focus mode, or if you shoot a subject at normal distance with the camera set to the super macro (close-up) mode, the image will not be in focus.

■ Preventing blurred images

① Confirm that the camera is set to the correct focus mode for your subject.
② Hold the camera correctly, and press the [📷] button halfway.
③ Wait for the target mark to appear in the monitor, and holding the camera steady, gently continue to press the [📷] button all the way down.

Following these steps for a gentle but firm pressing of the [📷] button will ensure that you get beautifully focused photos.

HINTS FOR TAKING PICTURES

Photographing a moving subject

Situation: You would like to snap an action shot of a moving child or pet. The autofocus is activated, but because the subject is moving, the image may be blurred. In particular, when the distance between the camera and the subject is changing, it is difficult to lock the focus on the subject. Here are some hints for successfully capturing images of moving subjects.

■ **Reasons for unfocused images**

When the [📷] button is gently pressed halfway, the camera's autofocus works by determining the distance between the camera and the subject. Once the subject is in focus, if it then moves before the picture is snapped, the image may be out of focus. This often happens when you once lock the focus on a subject and then wait for the right moment to snap the picture. And, conversely, a blurred image may result if you press the [📷] button all the way in one step in an attempt to quickly capture an action scene, thus failing to activate the autofocus in time.

■ **Preventing blurred images (How to use the manual focus [page 79])**

In addition to the autofocus, a manual focus mode is also incorporated in your camera. In the autofocus mode, the distance between the camera and the subject is automatically determined when you press the [📷] button halfway. In contrast to this, with the manual focus mode, you manually set the focus by specifying the correct distance between the camera and the subject before taking the picture.

■ **How to photograph a moving subject**

① Set the camera's focus mode to the manual focus. Set the focus distance to the correct distance between the camera and the subject.
② When the subject is at the set focus distance, gently press the [📷] button all the way down.

<Advantage of using the manual focus>

- Images can be quickly captured without waiting for the autofocus to activate.
- Because you are presetting the focus distance, the focus can be more accurate.

<Using the manual focus effectively>

- When photographing a moving subject, press the [📷] button just before the subject reaches the focus distance, and the shutter will be released when the subject is at the correct distance.
- Use manual focus to avoid incorrectly focused images when there is an object between the camera and the subject you wish to focus on.

Shooting portraits (portrait mode)

Points:

- Choose a background that doesn't detract from your subject.
- Move in close to your subject.
- Pay attention to lighting and how it affects your subject.

NOTE

- If the background is distracting, it will not show your subject to his best advantage. Move in closer to your subject or zoom in so that the background does not compete with the subject.
- In portrait photography your subject is clearly the central figure, so try techniques that allow the subject to stand out.
- If light is coming from behind your subject (backlit), his face will appear dark. You can get a better picture by using the flash, for example, or changing the exposure setting.

Photographing moving subjects (sports mode)

Points:

- Match the camera's movement with that of the subject.
- Set the zoom to the Wide end (wide-angle).
- Don't be too hesitant to press the [ ] button, or you'll miss the action.

NOTE

- Tips to not missing those great action shots: Make sure you're holding the camera correctly. Keep the subject in the lens at all times, moving the camera with him while waiting for the right shot. Move your whole body–not just your arms–with the camera while shooting.
- Blurred images are more likely when the zoom is set to the Tele end than the Wide end. Set the zoom as close as possible to the Wide end.
- Learn to press the [ ] button quickly yet smoothly the instant your photo chance occurs.

HINTS FOR TAKING PICTURES

Night photography (night view portrait mode)

Points:

- Avoid camera shake.
- Increase the ISO sensitivity.

NOTE

- Camera shutter speed during night photography is considerable slower, so there is a much greater chance that your photographed images will be blurry. Stabilize the camera when shooting.
- You can photograph your subject with the night scene in the background by using the flash. Be careful not to shoot too close to the subject, however, or your subject's face will appear too bright.
- After the flash operates, keep the camera and the subjects motionless for about 2 seconds.

Photographing scenery (landscape mode)

Points:

- Shoot using a high resolution.
- For zoom photography, use the optical zoom.
- Pay attention to picture composition.

NOTE

- When shooting with a wide-angle setting, or if you intend to enlarge the photo, the higher the resolution, the better.
- To zoom in on distant scenery, it's better to use the optical zoom. Using the digital zoom produces a coarser image. Hold the camera securely, keeping your elbows close to your body and making sure the camera is stable. Taking care to stabilize the camera will increase the likelihood of getting a clear photo.
- Don't forget to pay attention to picture composition; note perspective and be aware of how the placement of objects affects the scene.

SANYO Electric Co., Ltd.