

SANYO

INSTRUCTION MANUAL

VPC-CA6EX
VPC-CA6

Digital Movie Camera

Xacti



Important note

This manual explains how to safely operate the VPC-CA6EX and VPC-CA6. Any information regarding only one of these products will be labeled as such.

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.

Download from [Www.Somanuals.com](http://www.somanuals.com). All Manuals Search And Download.

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-CA6

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.

FOR EU USERS



Note:

- This symbol mark and recycle system apply only to EU countries and do not apply to countries in other areas of the world.

Your SANYO product is designed and manufactured with high quality materials and components which can be recycled and reused.

This symbol means that electrical and electronic equipment, at their end-of-life, should be disposed of separately from your household waste.

Please dispose of this equipment at your local community waste collection/recycling centre.

In the European Union there are separate collection systems for used electrical and electronic products.

Please help us to conserve the environment we live in!

Symbols used in this manual

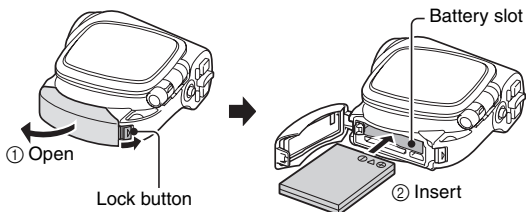
- HINT** Points giving some extended instructions or special points to pay attention to.
- CAUTION** Points that require special attention.
- (page xx)** Refer to the page indicated for detailed information.

You may find the answers to questions or problems concerning camera operation in the sections "COMMONLY ASKED QUESTIONS" (page 149) and "TROUBLESHOOTING" (page 156).

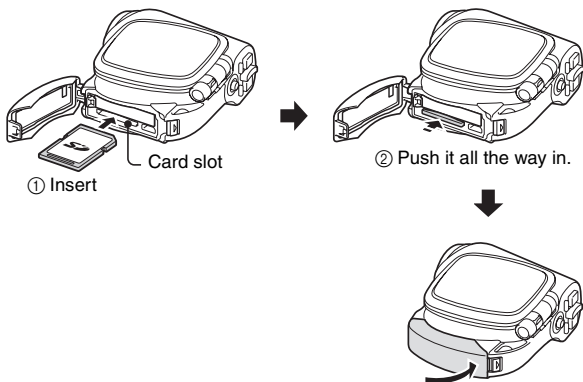
SHOOT, PLAY BACK AND SAVE

Install the battery pack and card

1 Insert the battery pack.




2 Insert the card.

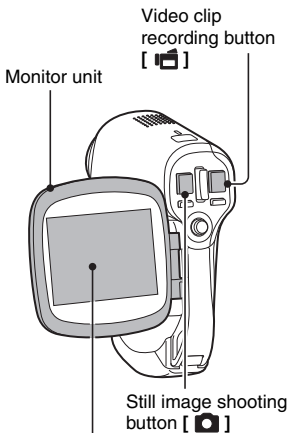


Shooting

Video clip recording


- 1 **Open the monitor unit.**
 - The camera turns on.

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



Still image photography

- 1 **Open the monitor unit.**
 - The camera turns on.

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

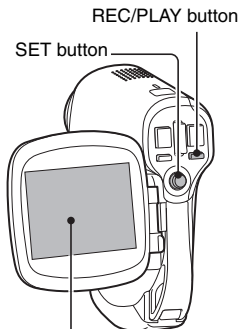


SHOOT, PLAY BACK AND SAVE

Playback

■ Video clip playback

- 1 Press the REC/PLAY button.**
 - The display switches to the Playback Screen.
 - Toggle the SET button to the left or right 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.



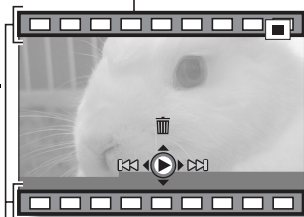
- 2 Press the SET button.**
 - Playback of the selected video clip begins.

■ Still image playback

- 1 Press the REC/PLAY button.**
 - The display switches to the Playback Screen.
 - To view other images, toggle the SET button to the left or right.

<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 power button [] to turn the camera off.

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

Using the supplied CD-ROM (SANYO Software Pack), you can import the captured images to your computer and store them on a DVD. Detailed information about the SANYO Software Pack can be found on page 4 in the SANYO Software Pack INSTRUCTION MANUAL.

Install application programs

- 1** Set the supplied CD-ROM (SANYO Software Pack) in your computer's CD-ROM drive.

- The installation window opens.
-

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

Install the application program with which you can import images to a computer (Photo Explorer).



Install the application program with which you can create DVDs (MovieFactory).

- After clicking on an application program, follow the instructions shown on the monitor to install the program.
- When the installation is complete, the product registration window will appear, but click on the Exit button to close the window.

SHOOT, PLAY BACK AND SAVE

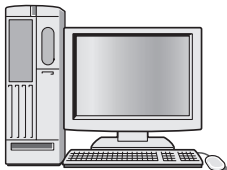
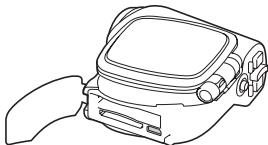
3 In the installation window, click on [Finish] and remove the CD-ROM from the computer's CD-ROM drive.

<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.

Connect your camera to a computer

Use the supplied dedicated USB interface cable to connect your camera to a computer (page 7 in the SANYO Software Pack INSTRUCTION MANUAL).



Copy a video clip to your computer

Run PhotoExplorer, set the location of the camera's data as the copy source, and copy the video clip(s) to your computer (page 17 in the SANYO Software Pack INSTRUCTION MANUAL).

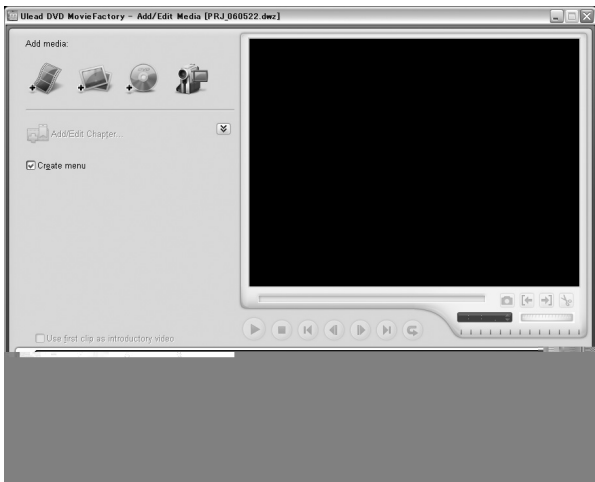
Burn video clips onto a DVD

1

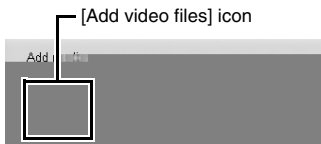
SHOOT, PLAY BACK AND SAVE

2 Click on [Create Video DVD] and then click on [DVD-Video or DVD+VR].

- The [Add/Edit Media] window opens.



3 Click on the [Add video files] icon.



- The [Open Video File] dialog box opens.
- Open the folder that contains the video files (My Documents\SANYO_PEX\datefolder).

4 Select the video clip files to burn onto the DVD.

- Select the files you wish to burn onto the DVD by clicking on them.
- To select multiple files, click on the individual files while holding down the [Ctrl] button. If you select one file, hold down the [Shift] button and click on another file in the list, all the files in between are also selected.

5 Click on the [Open] button.

<When one video clip is selected>

- The [Open Video File] dialog box closes.

<When multiple video clips are selected>

- The [Rearrange clip order] dialog box opens.
- You can drag the clip file names to change the video clip playback order.
- Click on the [OK] button, and the [Rearrange clip order] dialog box closes.
- The file selected in step 4 appears in the [Add/Edit Media] window.

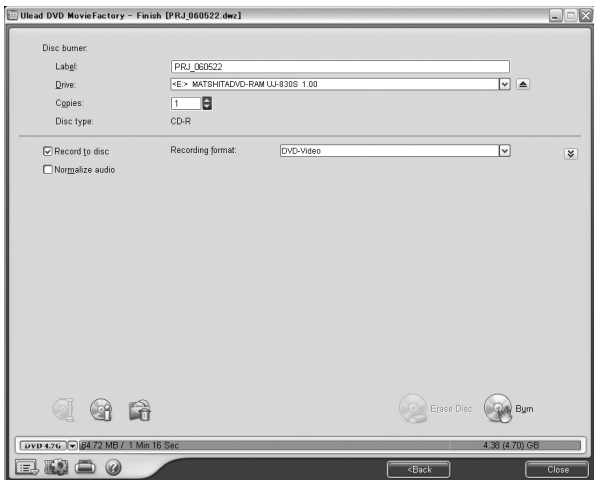


SHOOT, PLAY BACK AND SAVE

- 6** Click on the [Next] button.
- The window to edit the title page of your DVD appears.

- 7** Set your desired title page, and click on the [Next] button.
- The window to confirm the title page appears.

- 8** Click on the [Next] button.
- The window to export the video files to the DVD appears.



- 9** Set a blank DVD in your computer's disc burner, and click on the [Burn] icon.
- A confirmation dialog box appears.



10 Click on the [OK] button.

- Disc writing begins.
- After burning the disc, a dialog box shows that burning is complete.

11 Click on the [OK] button.

- The DVD drive tray opens for you to remove the disc.

<About saving projects>

- After burning a disc, a save project dialog box 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 them.

12 Click on the [OK] button.

- You are returned to the MovieFactory launcher.

13 Click on the exit MovieFactory button [x].

- The DVD is completed.
- MovieFactory is exited.

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 water-resistant feature

Although this camera will stand up to handling with wet hands or being splashed by shower water, it must never be immersed in water. Please take the time to carefully read and heed the following cautions.

- This camera possesses splashproof properties compliant with JIS protection grade 4 standards, but it cannot be used in water or underwater.
- The water-resistant properties are effective only for fresh water; they are not effective against splashes of salt water, cleaning substances or chemicals. In case of a splash, immediately wipe away any moisture.
- Please note that the accessories do not possess water-resistant properties and take appropriate precautions.
- Please note that any malfunction or problems arising from failure to heed the following precautions are not covered by the warranty.

NOTE

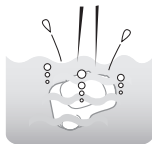
■ Do not wash with water

- Do not sprinkle water on the camera or immerse the camera in water to wash it.
- If the camera becomes dirty, wipe it with a cloth dampened with fresh water.



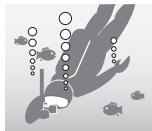
■ Do not drop into water

- If using the camera near water, take care not to drop it into the water.
- In the event that the camera falls in the water, or that water has entered the camera's interior, immediately discontinue using it, and consult your dealer.



■ Not for underwater photography

- This camera's splashproof properties are effective against splashes of fresh water, but not against immersion in water or splashes of salt water.



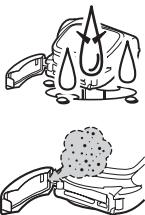
■ Do not expose to seawater or salt water

- If salt water adheres to the camera, it may cause the camera to malfunction.
- Take care to prevent exposing the camera to seawater or other salt water sources.



■ Do not let the interior of the battery/card compartment become wet

- Doing so may result in electric shock or fire.
- When exposing the battery/card compartment (for example, when removing/inserting the card or the battery pack), make sure that your hands are dry.
- When closing the battery/card compartment cover, make sure that no foreign object such as sand, hair, dust, etc. is caught in the seal, and take care to close the cover securely.
- Failure to completely close the battery/card compartment cover may leave it exposed to water. Make sure that the compartment cover is securely closed.



HINT

About "JIS protection grade 4"

This refers to JIS-C09204 grade (JIS=Japanese Industrial Standards), and means that a device will not receive any harmful effect from water that is splashed against the enclosure from any direction.

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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.

Shooting/recording		
Basic operation	Convenient functions	Additional functions
Getting started shooting/recording <ul style="list-style-type: none">• "Recording video clips" on page 36• "Shooting still images" on page 40• "SHOOT A STILL IMAGE WHILE RECORDING A VIDEO CLIP" on page 47• "AUDIO RECORDING AND PLAYBACK" on page 48	Log the date and time of your photos <ul style="list-style-type: none">• "DATE AND TIME SETTING" on page 28• "CAPTURE-DATE DISPLAY" on page 31 Zoom in on the subject <ul style="list-style-type: none">• "USING THE ZOOM" on page 52 Take vertical (portrait) format photos <ul style="list-style-type: none">• "Still image resolution setting" on page 62 Close-up photography <ul style="list-style-type: none">• "FOCUS RANGE" (super macro mode) on page 72	For more accurate focus <ul style="list-style-type: none">• "FOCUS RANGE" (manual focus) on page 73 Set the focus to a narrow range <ul style="list-style-type: none">• "FOCUS AREA SETTING" on page 74
Optimize the photo quality <ul style="list-style-type: none">• "Video clip image quality setting" on page 61• "Still image resolution setting" on page 62	Reduce video clip flicker <ul style="list-style-type: none">• "FLICKER-REDUCTION" on page 121 Set the camera's color/contrast characteristics <ul style="list-style-type: none">• "ADJUST THE IMAGE QUALITY" on page 120	

Shooting/recording		
Basic operation	Convenient functions	Additional functions
Capture fast-moving subjects <ul style="list-style-type: none"> • “SCENE SELECT” (sports mode) on page 63 		
Shoot in bright conditions <ul style="list-style-type: none"> • “EXPOSURE CORRECTION” on page 53 • “SETTING THE FLASH MODE” on page 66 • “SCENE SELECT” (night view portrait mode/fireworks mode/lamp mode) on page 63 		
		Increase the camera’s sensitivity <ul style="list-style-type: none"> • “ISO SENSITIVITY” on page 76
Photographing people <ul style="list-style-type: none"> • “SCENE SELECT” (portrait mode/night view portrait mode) on page 63 • “FILTERS” (cosmetic filter) on page 65 		
Photographing landscapes <ul style="list-style-type: none"> • “SCENE SELECT” (landscape mode) on page 63 		
Take a self-photo <ul style="list-style-type: none"> • “SELF-TIMER” on page 68 		
	Make images lighter or darker <ul style="list-style-type: none"> • “EXPOSURE CORRECTION” on page 53 	Measure the brightness of a specific area <ul style="list-style-type: none"> • “LIGHT-MEASURING MODE SETTING” on page 75 Adjust the camera’s sensitivity <ul style="list-style-type: none"> • “ISO SENSITIVITY” on page 76
	Change the color of the images <ul style="list-style-type: none"> • “FILTERS” (monochrome filter/sepia filter) on page 65 	Make white appear natural <ul style="list-style-type: none"> • “WHITE BALANCE” on page 77

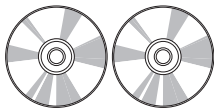
QUICK SEARCH BY OPERATION

Playback		
Basic operation	Convenient functions	Additional functions
Getting started viewing images <ul style="list-style-type: none"> • "Playing back a video clip" on page 37 	Adjust the speaker volume <ul style="list-style-type: none"> • "PLAYBACK VOLUME" on page 87 	Smooth out video clip playback <ul style="list-style-type: none"> • "SMOOTH PLAYBACK" on page 110
<ul style="list-style-type: none"> • "Viewing still images" on page 42 	Search for image/ audio data <ul style="list-style-type: none"> • "9-image display playback" on page 43 • "Art mode playback" on page 44 Magnify an image <ul style="list-style-type: none"> • "Magnifying (zooming in) the image" on page 46 	Change the angle of view <ul style="list-style-type: none"> • "ROTATE IMAGE" on page 98
<ul style="list-style-type: none"> • "Audio data playback" on page 50 	Adjust the speaker volume <ul style="list-style-type: none"> • "PLAYBACK VOLUME" on page 87 	
Continuous playback <ul style="list-style-type: none"> • "PLAYBACK MODE" on page 83 • "SLIDESHOW PLAYBACK" on page 85 		
Adjust the monitor brightness <ul style="list-style-type: none"> • "MONITOR BRIGHTNESS" on page 125 		
Playback on a TV <ul style="list-style-type: none"> • "CONNECTING TO A TV" on page 139 		Set the TV system <ul style="list-style-type: none"> • "TV SYSTEM SETTING" on page 127

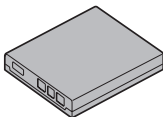
Data managing/processing		
Basic operation	Convenient functions	Additional functions
Search for image/audio data <ul style="list-style-type: none"> • "9-image display playback" on page 43 • "Art mode playback" on page 44 		
Delete data <ul style="list-style-type: none"> • "DELETING DATA" on page 90 	Protect images from accidental erasure <ul style="list-style-type: none"> • "IMAGE PROTECT" on page 88 Format a card <ul style="list-style-type: none"> • "FORMATTING A CARD" on page 133 	
Edit the red-eye phenomenon in photos <ul style="list-style-type: none"> • "RED-EYE CORRECTION" on page 100 		
Delete a part of a video clip and join video clips <ul style="list-style-type: none"> • "EDITING VIDEO CLIPS" on page 103 		
Specify the number of prints, index prints, and date imprinting <ul style="list-style-type: none"> • "PRINTING INSTRUCTIONS" on page 92 		
View the settings that were in effect when the image/audio data was recorded <ul style="list-style-type: none"> • "DISPLAYING IMAGE PROPERTIES (INFORMATION SCREEN)" on page 111 		

CHECKING THE INCLUDED ACCESSORIES

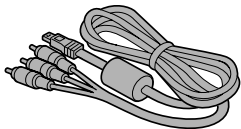
- **SANYO Software Pack (CD-ROM) (page 4 in the SANYO Software Pack INSTRUCTION MANUAL): 2**



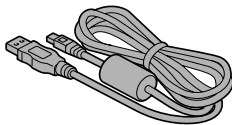
- **Li-ion battery pack (pages 19 and 21): 1**



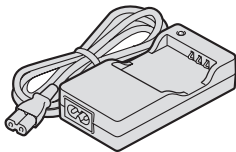
- **Dedicated AV interface cable (page 139): 1**



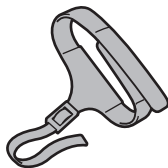
- **Dedicated USB interface cable (page 140, pages 10 and 22 in the SANYO Software Pack INSTRUCTION MANUAL): 1**



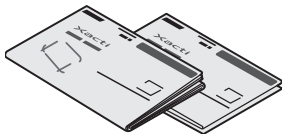
- **Lithium-ion battery pack charger and power cord (page 19): 1**



- **Grip belt (page 11)**



- **QUICK GUIDE**

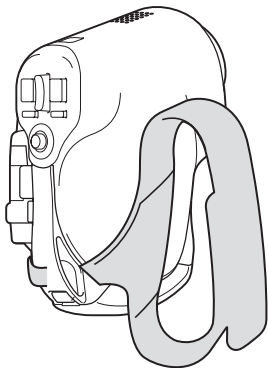


- **“SAFETY MANUAL” (safety precautions booklet)**
Please read this booklet carefully before using the digital camera.



CHECKING THE INCLUDED ACCESSORIES

Attaching the grip belt



Media cards that can be used with this camera

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

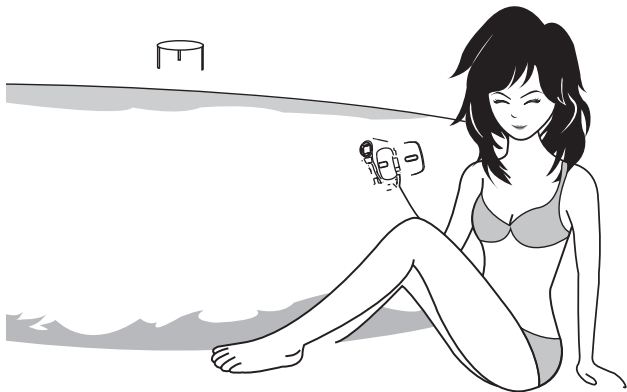
- SD Memory Card

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.

Water-resistant

Your camera can even be operated with wet hands. Thanks to its water-resistant construction, you can safely use it poolside.



Capture still shots while recording a video clip (page 47)

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.



SPECIAL FEATURES

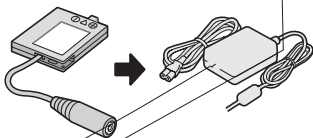
Lots of accessories for optimal use of your captured images (page 16)

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 CD-ROM (SANYO Software Pack), you can create your original DVDs and CDs.



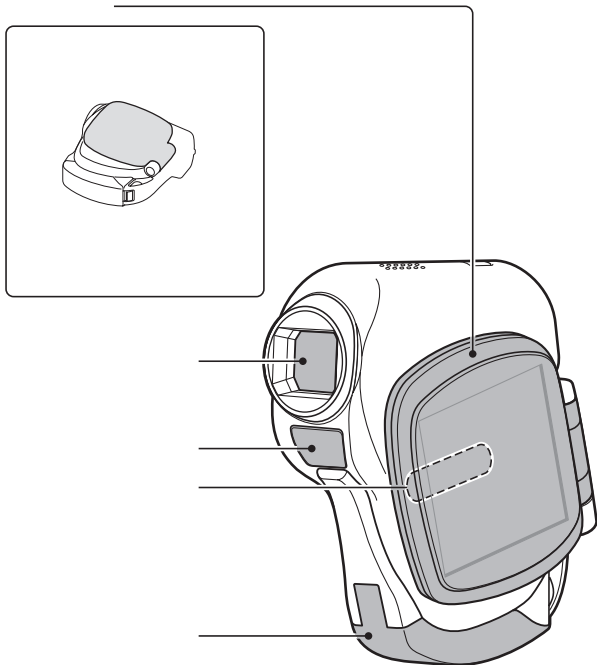
SYSTEM MAP

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

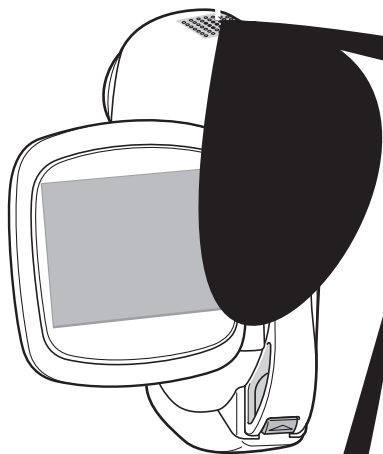


PARTS NAMES

Front



Rear



CHARGING THE BATTERY PACK

Before using the supplied battery pack in the camera, it must be fully charged.

1 Insert the battery pack in the battery charger.

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

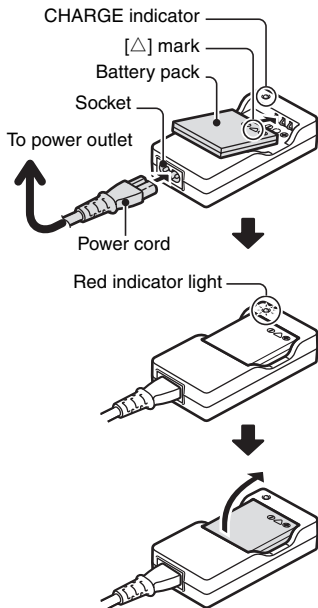
2 Connect the supplied power cord to the socket on the battery pack charger.

- Insert the connector straight and securely.

3 Plug the power plug into a power outlet (AC 100 V to 240 V).

- Recharging begins.
- During recharge, the CHARGE indicator is lit red.

4 When the CHARGE indicator turns off, unplug the power cord from the power outlet, and remove the battery pack from the charger.



HINT

- If the camera becomes wet, after wiping off the moisture with a dry cloth, remove the battery pack and recharge it.
- The recharge time is approx. 90 minutes.

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 137).

- During recharging, the charger and battery pack will be warm. This is normal and does not indicate a malfunction.

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

- 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.

Recharge a battery pack in the following cases

- A battery pack which has not been used for a long time
- Newly purchased battery pack

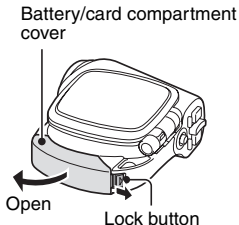
INSTALLING THE BATTERY PACK AND CARD

The card can be used after it has been formatted with the camera (page 133). Make sure that the battery pack and the card orientation are correct.

Install the battery pack

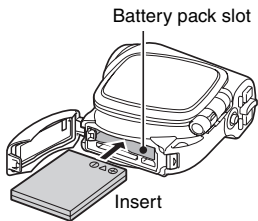
1 Open the battery/card compartment cover.

- Slide the lock button to the side, and open the battery/card compartment cover.



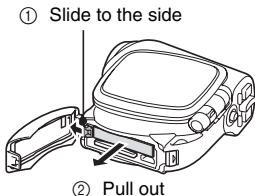
2 Insert the battery pack.

- Insert the battery pack, making sure that it is correctly oriented, and firmly push it in until it is secured by the lock lever.



<To remove the battery pack...>

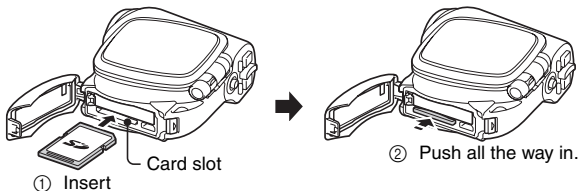
- Slide the lock lever securing the battery pack to the side, and pull out the battery pack.



Install the card

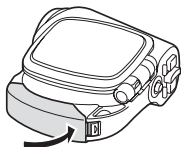
3 Insert the card.

- Firmly insert the card until it clicks into place.



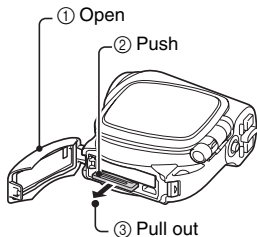
4 Close the battery/card compartment cover.

- Close the battery/card compartment cover firmly until the lock button secures the 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.

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 water resistant. When closing the cover, make sure that no hair or dust is caught between the cover and the body.

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.

When the dedicated USB interface cable or dedicated AV interface cable is connected...

- The construction of the camera is such that when the USB cable or AV cable is connected, it may be difficult to replace the battery pack. If it becomes necessary to replace the battery pack in this case, please do so after disconnecting the USB cable or AV cable from the camera.


TURNING THE CAMERA ON AND OFF

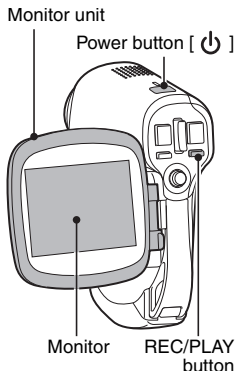
Turning on the camera

For recording (shooting mode)

- 1 Open the monitor unit or press the power button [].


For playing back (playback mode)

- 1 Press the REC/PLAY button for about 1 second.
 - After opening the monitor unit or pressing the power button [], you can also access the playback mode by pressing the REC/PLAY button.



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 one minute of no use during shooting, or five 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 power button [].
 - Press the still image shooting/video clip recording button.
 - Open the monitor unit, etc.
 - 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 128).
- 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 power button [] for about 1 second.

- The camera turns off.
- To turn off the camera while it is in the shooting mode or power save mode, close the monitor unit or press the power button for at least 1 second.

HINT

To immediately activate the power save function

- Press the power button briefly to activate the power save function.


If the date and time setting has been completed (page 28)...

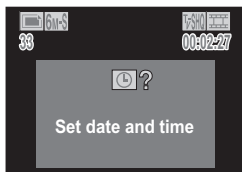
- The current time is shown on the monitor when the camera is turned on.



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 28), 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.

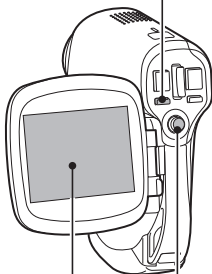


OPERATION BUTTONS

The procedures to change the camera settings, choose images, etc., are performed by using the SET button 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 24).

MENU button



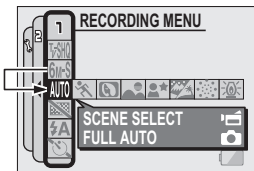
2 Press the MENU button.
• The Menu Screen appears.

<Select the icon above or below>

To select the icon above, toggle the SET button up.



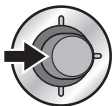
To select the icon below, toggle the SET button down.



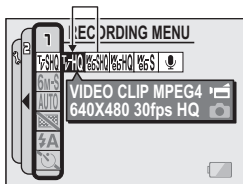
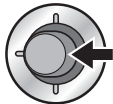
OPERATION BUTTONS

<Select the icon to the left or right>

To select the icon to the right, toggle the SET button to the right.

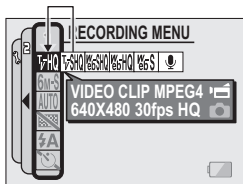


To select the icon to the left, toggle the SET button to the left.



<Actuate the selected icon>

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



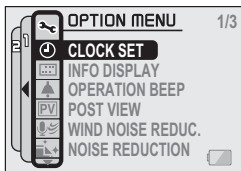
DATE AND TIME SETTING

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, 2006

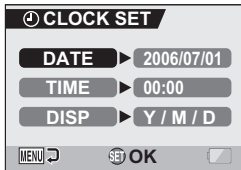
- 1 Turn on the camera (page 24), and press the MENU button.**
 - The RECORDING MENU or PLAYBACK MENU appears.

- 2 Toggle the SET button to the left two times to display the OPTION MENU.**
 - The OPTION MENU is canceled if the MENU button is pressed.



<OPTION MENU>

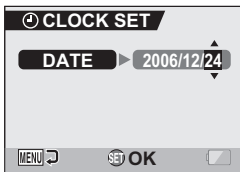
- 3 Select the clock set icon , and press the SET button.**
 - The Clock Set Screen appears.
 - The current date and time settings are shown.
 - Follow the procedures below to enable or disable the date display during playback, to set the display format for the date, and to set the date and time.
 -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



DATE AND TIME SETTING

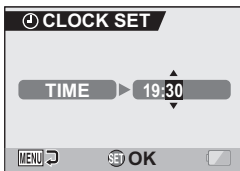
4 Set the date.

- ① Select "DATE".
- ② Press the SET button.
 - The Set Date Screen appears.
- ③ Set the date to "2006/12/24".
 - The date is set in the following order: Set the year → Set the month → Set the day.
 - Toggle the SET button left or right to select year, month or day. Toggle the SET button up or down 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.



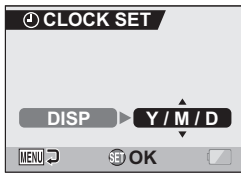
6 Set the order in which the date is displayed during playback.

- ① Select "DISP".
- ② Press the SET button.
 - The Set Date Format Screen appears.
- ③ Toggle the SET button up or down.
 - Toggle the SET button up to change the displayed date order as follows:

_____ → year/month/day → month/day/year → day/month/year _____

Toggle the SET button down 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 correct the date and time settings

- After steps 1 through 3, select the line of the setting that you want to change, press the SET button, and follow the steps in the respective paragraphs above to change the setting.

CAPTURE-DATE DISPLAY

Select whether or not the date that images were captured is shown on the screen during playback.

- 1 Display the OPTION MENU.**
 - Follow steps 1 and 2 on page 28.
-

- 2 Select the info display icon , and press the SET button.**
 - The Info Display Screen appears.
-

- 3 Toggle the SET button up or down to select the desired setting.**

DATE: The date of capture appears on the screen. The date of capture is always shown during video clip playback.

OFF: The date of capture is not shown.
-

- 4 Press the SET button.**
 - This completes the capture-date display setting.
-

HINT

- If the info display is set to "DATE", the date will be shown during playback.
- If the date and time have not been set (page 28), the date will not be shown during playback even when the info display is set to "DATE".

Ensure that the lens and flash are not blocked by your hand or fingers.

For shooting vertically oriented still images, you can rotate the camera orientation to the vertical (portrait) format (page 62).

BEFORE TAKING PICTURES

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 72).

■ 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 98).
- When the still image shooting 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.

BEFORE TAKING PICTURES

Hints for taking pictures

Muting the operation sounds

- The operation sounds that are generated, for example, when the still image shooting button, MENU button or SET button is pressed, as well as the audio guidance when you switch the mode, can be muted (page 115).

Where is the image and audio data saved?

- All the image and sound data is recorded on the card installed in the camera.

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.

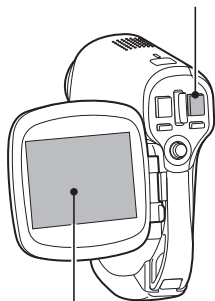
VIDEO CLIP RECORDING AND PLAYBACK

Recording video clips

- 1 Turn on the camera**
(page 24).

Video clip recording button []

- 2 Press the video clip recording button [].**
 - Recording begins.
 - It is not necessary to keep the shutter release 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 video clip recording button again to stop recording.

Recording time



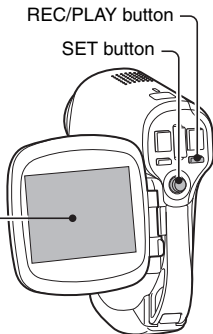
Available recording time remaining

VIDEO CLIP RECORDING AND PLAYBACK

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 delete a video clip>

- Display the video clip you wish to delete, and toggle the SET button up. A screen to confirm the delete appears. Select "DELETE" and press the SET button to delete the video clip.

<To return to the Shooting Screen>

- Press the REC/PLAY button.

To do this...		Do this
Normal forward playback		Press the SET button.
Stop playback		During playback, toggle the SET button down.
Pause		During playback, press the SET button or toggle the SET button up. During accelerated playback, toggle the SET button up.
To play back one image at a time (single-frame step)	During forward playback	After pausing playback, toggle the SET button to the right.
	During reverse playback	After pausing playback, toggle the SET button to the left.
Slow playback	During forward playback	After pausing playback, press and hold the SET button to the right.
	During reverse playback	After pausing playback, press and hold the SET button to the left.
To accelerate playback	Forward playback	During forward playback, toggle the SET button to the right. * The playback speed changes each time the SET button is toggled to the right, as follows: Normal playback → 2x → 5x → 10x → 15x Toggle the SET button to the left to resume normal playback speed.
	Reverse playback	During forward playback, toggle the SET button to the left. * The playback speed changes each time the SET button is toggled to the left, as follows: 15x ← 10x ← 5x Toggle the SET button to the right to resume normal playback speed.
Return to normal playback speed		Press the SET button.
Adjusting the volume		Louder: During playback, push the zoom switch toward the [T] side. Softer: During playback, push the zoom switch toward the [W] side.

When you are finished using the camera...

- Press the power button to turn the camera off.

VIDEO CLIP RECORDING AND PLAYBACK

HINT

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 the SET button (page 123), 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 72) 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 was 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 24).

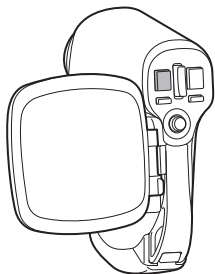
2 Press the still image shooting button [].

① **Press the still image shooting button halfway.**

- The autofocus operates, and the image is focused (focus lock).

② **Continue to gently press the still image shooting button all the way.**


- The shutter releases and the image is captured.
- You can view the captured image on the monitor by keeping the still image shooting button depressed when you capture the image (post-view [page 117]).



CAPTURING AND PLAYING BACK STILL IMAGES

HINT


What is the camera focusing on?

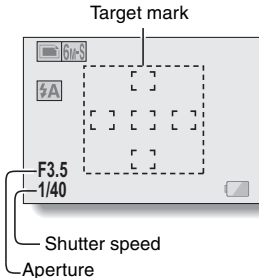
- A target mark  on the monitor shows the area the camera is focusing on.
- The camera automatically determines the correct focus by measuring from 5 different focus points within the shooting area. If the target mark is at a position that is different from the point you wish to focus on, you can refocus, 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.

The shutter speed and aperture are displayed

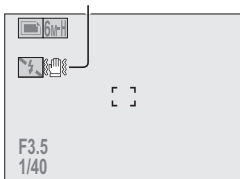
- When the camera focuses and the target mark appears, at the same time, the shutter speed and aperture settings are also displayed. You can use them as a reference when shooting.

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 66).
- When shooting with the scene select function set to the fireworks  mode, the camera shake icon always appears, but this is normal.





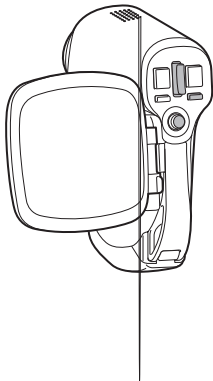
Camera shake icon



CAPTURING AND PLAYING BACK STILL IMAGES

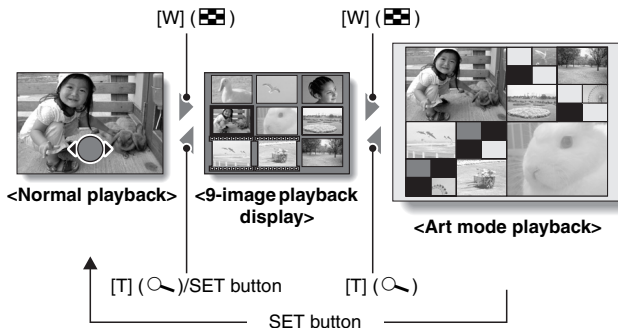
9-image display playback

- 1** Press the REC/PLAY button to display the Playback Screen.
- 2** Push the zoom switch toward the [W] ([]) side.
 - The 9-image display appears.
- 3** Select the image to play back.
 - Toggle the SET button up, down, left or right to move the orange frame to the desired image, and press the SET button to switch to normal (full-screen) playback of the selected image.
 - If the zoom switch is pushed toward the [W] ([]) side, the camera changes to the art mode playback (page 44).

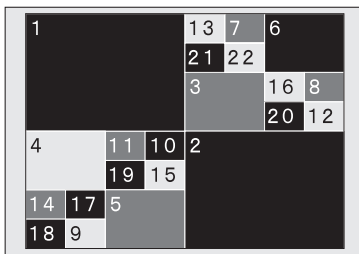


Art mode playback

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. When you switch to art mode playback, the current image and the image immediately following are shown in the largest size, and subsequent images are shown in increasingly smaller sizes.




The order in which the images are displayed is as follows.



- * When the number of images is less than 22, the blank frames are filled in with color.

CAPTURING AND PLAYING BACK STILL IMAGES

- 1** In normal playback, display an image (pages 37 and 42), or on the 9-image playback display, move the orange frame to select an image (page 43). This will be the largest image in the art mode playback display.

- 2** If switching to the art mode playback from normal playback, push the zoom switch toward the [W] ([,]) side two times. Push it one time if switching from the 9-image playback display.

- The screen changes to art mode playback.

<Art mode playback screen operation>

Press the SET button:


The [1] image is displayed full-screen.

Press the MENU button:

The [1] image is displayed full-screen, and the PLAYBACK MENU appears.

Toggle the SET button to the left or right:

The images before and after are displayed in random order.

Push the zoom switch toward the [T] ([,]) side:

The screen changes to the 9-image display.



Magnifying (zooming in) the image

- 1 Display the image that you want to magnify.**
 - For a video clip, pause playback at the place you want to magnify.

- 2 Push the zoom switch toward the [T] ([🔍]) side.**

- Magnification is enabled.
- The image is magnified, and the central portion of image is displayed.
- Toggle the SET button to view different parts of the magnified image.

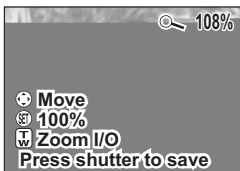
To magnify:

Magnification increases each time the zoom switch is pushed toward the [T] ([🔍]) side.

To return to normal size:

Magnification decreases each time the zoom switch is pushed toward the [W] ([📐]) side.

- Press the SET button to return to the normal (100%) view.



HINT

The magnified portion of the image can be saved as a separate image.


- Press the still image shooting 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.

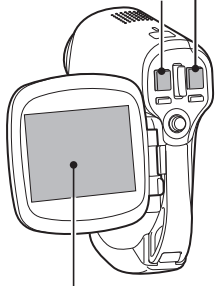
1 Turn on the camera (page 24).

2 Press the video clip recording button [].

3 When you see a scene you'd like to capture as a still image, press the still image shooting button [].

4 End the recording.
• Press the video clip recording button to stop recording.

Video clip recording button []
Still image shooting button []



HINT

- When shooting a still image while recording a video clip, the flash does not operate.
- When shooting a still image while recording a video clip, the display briefly pauses, and then returns to the video clip display after the still image is captured.
- If the still image resolution is set to **10M** or **3M**, it automatically changes to **6M-S** and the image is captured.
- It is not possible to shoot a still image while recording a video clip when the remaining video clip recording time is 10 seconds or less.

AUDIO RECORDING AND PLAYBACK

Your camera can make audio recordings and play them back.


Audio recording

1 Turn on the camera (page 24).

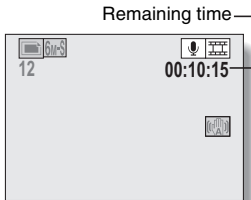
2 Press the MENU button.

- The menu display appears.




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

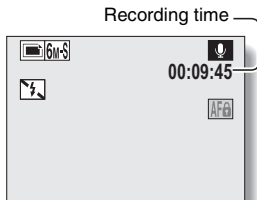
- The audio recording mode is enabled.
- The menu display is canceled if the MENU button is pressed.



AUDIO RECORDING AND PLAYBACK

4 Press the video clip recording button [].

- Audio recording begins. During recording,  appears in the monitor.
It is not necessary to continue pressing the video clip recording button while recording.
- The maximum time for recording a continuous audio memo is about 13 hours.



5 End the recording.

- Press the video clip recording button again to stop recording.

HINT

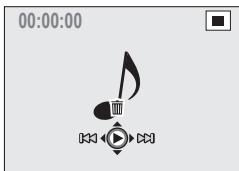
You can capture a still image during an audio recording.

- 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

6 Press the REC/PLAY button.

- The playback screen for the audio track that was just recorded appears.



7 Play back the recording.

Start forward playback:

Press the SET button.

Pause: During playback, press the SET button, or toggle the SET button up. During fast forward or fast reverse, toggle the SET button up.

Stop playback:

During playback, toggle the SET button down.

Fast forward/fast reverse:

- Fast forward/fast reverse playback is possible at 2x (forward only), 5x, 10x and 15x.
- Toggle the SET button to the left or right during playback to activate fast forward/fast reverse.
- The playback speed changes each time the SET button is toggled to the left or right.

Fast forward (toggle the SET button to the right)

2x → 5x → 10x → 15x

* Toggle the SET button to the left to return to normal speed.

Fast reverse (toggle the SET button to the left)

15x ← 10x ← 5x

* Toggle the SET button to the right to return to normal speed.

Volume adjustment:

- * Louder: During playback, push the zoom switch toward the [T] side.
- * Softer: During playback, push the zoom switch toward the [W] side.

<To delete audio data>

- Display the audio data you wish to delete, and toggle the SET button up. A screen to confirm the delete appears. Select "DELETE" and press the SET button to delete the audio data.

AUDIO RECORDING AND PLAYBACK

<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 audio memo 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 122).

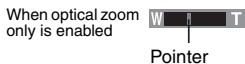
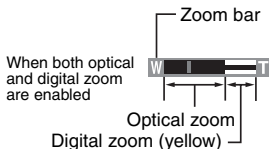
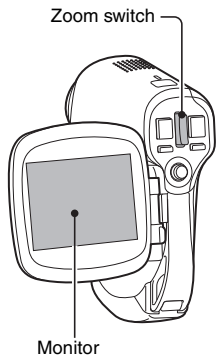
1 Point the camera lens at the subject.

2 Push the zoom switch toward the [T] or [W] side to compose the desired image.

[T]: Zoom in on the subject.

[W]: Zoom out.

- When the zoom switch is moved, the zoom bar appears on the monitor.
- When the optical zoom factor is at maximum, zooming stops temporarily. When the zoom switch is pressed toward the [T] side again, the mode changes to the digital zoom mode and zooming continues.



3 Take the picture.

For video clip recording, see page 36.

For shooting still images, see page 40.

EXPOSURE CORRECTION

By assigning the exposure correction operation shortcut to the SET button (page 123), you can make the image lighter or darker when capturing images.

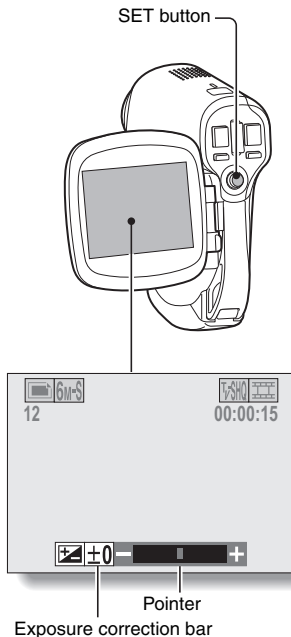
1 Assign the operation shortcut to the SET button (page 123).

2 Toggle the SET button in the direction for which the operation shortcut was assigned.

- The exposure correction bar appears.

3 Toggle the SET button to the left or right 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 -1.8EV to $+1.8\text{EV}$.
- The exposure correction bar is canceled when the MENU button or the SET button is pressed.



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.
- After the power is turned off.

DISPLAYING THE RECORDING MENU

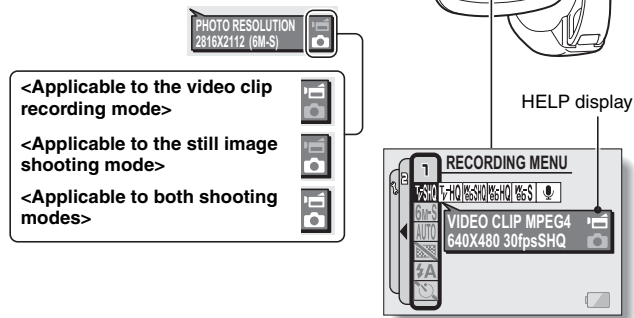
The RECORDING MENU is used to adjust your camera's shooting settings. The RECORDING MENU is organized into two displays: **PAGE 1** and **PAGE 2**. You can also access the RECORDING MENU from the camera settings screen (OPTION MENU [page 112]).

- 1 Turn on the camera (page 24).**
 - 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 the 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

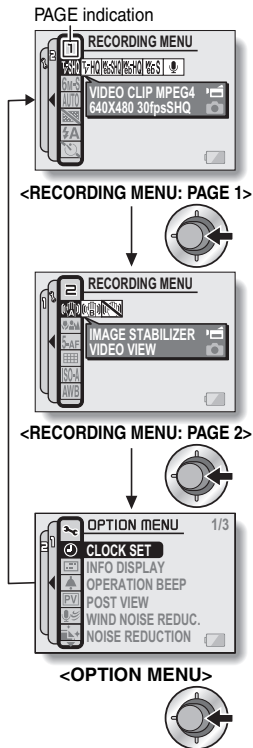
Switch to PAGE 1 or PAGE 2, depending on how you wish to use your camera.

1 Display the RECORDING MENU (page 55).

2 Toggle the SET button to the left.

- The RECORDING MENU PAGE changes.
- Each time the SET button is toggled to the left, the display changes as follows:

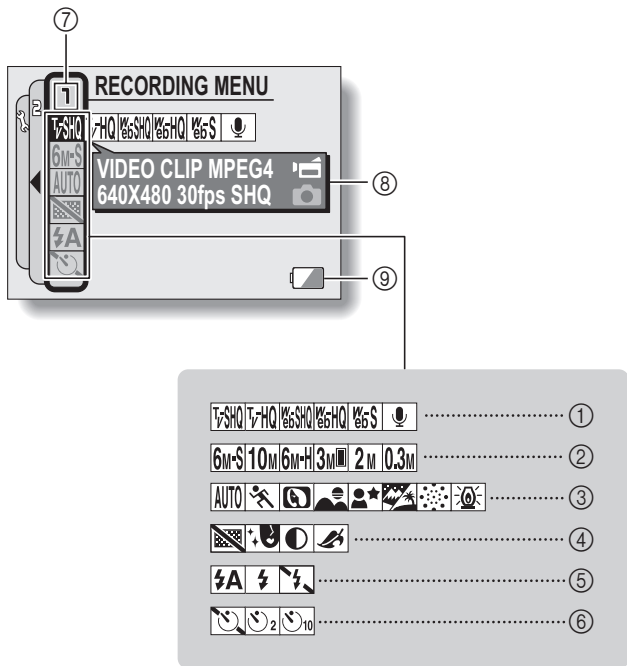
→ PAGE 2 → OPTION MENU → PAGE 1



DISPLAYING THE RECORDING MENU

Overview of the RECORDING MENU

PAGE 1



① **Video clip menu (page 61)**

: 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

: Record at 176 × 144 pixels, 15 frames per second

: Make an audio recording

② **Still image resolution menu (page 62)**

: Shoot at 2,816 × 2,112 resolution (6 million pixels), standard compression

: Shoot at 3,680 × 2,760 resolution (10 million pixels)

: Shoot at 2,816 × 2,112 resolution (6 million pixels), low compression

: Shoot at 1,536 × 2,048 resolution (3 million pixels, vertical position)

: Shoot at 1,600 × 1,200 resolution (2 million pixels)

: Shoot at 640 × 480 resolution (300,000 pixels)

③ **Scene select menu (page 63)**

: Full auto photography

: Sports photography

: Portrait photography

: Landscape photography

: Night view photography

: Snow and beach photography

: Fireworks photography

: Lamp photography

④ **Filter menu (page 65)**

: No filter

: Cosmetic filter selected

: Monochrome filter selected

: Sepia filter selected

⑤ **Flash menu (page 66)**

: Automatic flash mode

: Forced flash mode

: Flash off mode

⑥ **Self-timer menu (page 68)**

: Self-timer off

: Shooting begins 2 seconds after the still image shooting button or video clip recording button is pressed.

: Shooting begins 10 seconds after the still image shooting button or video clip recording button is pressed.

⑦ **PAGE display (page 56)**

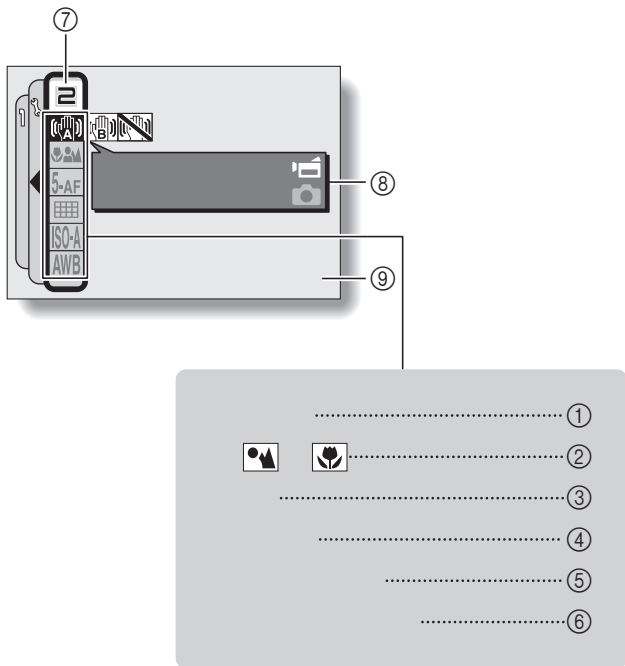
⑧ **HELP display (page 55)**

⑨ **Remaining battery power (page 137)**


- 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 70)**

: 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 72)**


: All ranges mode


: Normal mode

: Manual mode


: Super macro (close-up) mode


③ **Focus mode menu (page 74)**

: 5-point range finder focus

: Spot focus on


④ **Light-measuring mode (EXP MEASURE) menu (page 75)**


: Multi-section light-measuring


: Center-weighted light-measuring


: Spot light-measuring


⑤ **ISO sensitivity menu (page 76)**

: Sets the ISO sensitivity automatically (equivalent to ISO50 to 200 [video clip shooting mode: ISO450 to 3,600]).


: Sets the sensitivity to ISO50 equivalent (video clip shooting mode: ISO450).


: Sets the sensitivity to ISO100 equivalent (video clip shooting mode: ISO900).

: Sets the sensitivity to ISO200 equivalent (video clip shooting mode: ISO1,800).

: Sets the sensitivity to ISO400 equivalent (video clip shooting mode: ISO3,600).


⑥ **White balance menu (page 77)**


: 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 56)**

⑧ **HELP display (page 55)**

⑨ **Remaining battery power (page 137)**

- 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 56).

- 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
- : Record at 176 × 144 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

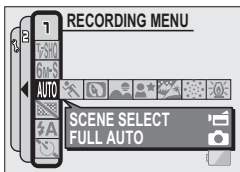
When editing video clips...

- In order for video clips to be joined (pages 104 and 108), they must have been photographed in the same mode.
- Video clips that were photographed in different modes cannot be joined.

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 56).



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.

: Enhance the 3D feeling of the subject by blurring the background.

: For beautiful shots of distant scenery.

: Photograph the subject while keeping the background night scenery.

: For photographing bright scenes, such as on a ski slope or at the beach (snow & beach mode).

: For capturing fireworks at night.

: Photograph in low-light conditions.

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 36.

For still image shooting, see page 40.

- 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 164.

FILTERS

The filter feature changes image characteristics and unique effects to the photographed image.

1 Display **PAGE 1** of the **RECORDING MENU** (page 56).

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.

3 Select the desired icon from the **filter** button.

- This completes the filter selection.


4 Take the picture.

For video clip recording:

For still image shooting:

- To return to normal shooting, press the SET button.

HINT

- A table showing icons other than  is

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.

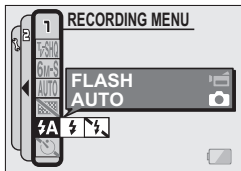
1 Display **PAGE 1** of the **RECORDING MENU** (page 56).

2 Select the flash menu.

: 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).

: 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).

: 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).



SETTING THE FLASH MODE

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 40

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 the SET button (page 123), you can change the flash mode from the Shooting Screen.


SELF-TIMER

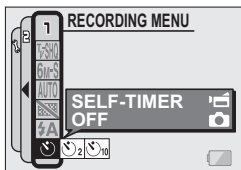
- 1** Display PAGE 1 of the RECORDING MENU (page 56).

- 2** Select the self-timer menu.

: Turns off the self-timer function.

: Turns on the self-timer function. The image is captured about 2 seconds after the still image shooting button or video clip recording button is pressed.

: Turns on the self-timer function. The image is captured about 10 seconds after the still image shooting button or video clip recording 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 36.



For still image shooting, see page 40.

SELF-TIMER

HINT

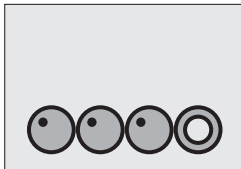
- By assigning an operation shortcut to the SET button (page 123), you can set the self-timer from the Shooting Screen.

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

- If the video clip recording button or still image shooting button is pressed again before the shutter is released, the self-timer countdown temporarily stops. Press the video clip recording button or still image shooting 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.
- After the self-timer picture is snapped, the self-timer is automatically reset to off .

When is selected...

- When the still image shooting button or video clip recording 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.





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 56).

2 Select the image stabilizer menu.

: Compensate for unintentional camera motion during video clip recording. The field of view does not change when the video clip recording 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 still image recording 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 122) 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  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 selection function to **AUTO**, ,  or  (page 63), 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 56).

2 Select the focus menu.

- : Wide end: 10 cm (3.94 in.) to infinity
Tele end: 80 cm (31.50 in.) to infinity (total range mode)
 - : 80 cm (31.50 in.) to infinity (standard mode)
 - : 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).
 - : 1 cm (0.39 in.) to 80 cm (31.50 in.) (super macro mode: wide end only)
- If manual focus  is selected, please see “How to use the manual focus” (page 73).


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 36
- Still image shooting → page 40

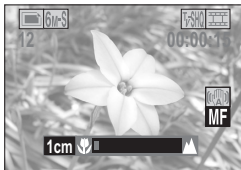
HINT

- By assigning an operation shortcut to the SET button (page 123), you can change the focus range setting or lock the focus from the Shooting Screen.
- When the focus range is set to super macro , 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 72), and press the **SET** button 2 times.
 - The focus distance adjustment bar appears.
- 2** Toggle the **SET** button to the right or left 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):


5-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.

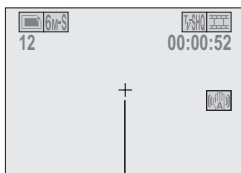
1 Display PAGE 2 of the RECORDING MENU (page 56).

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

: 5-point range finder focus is selected.

: 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.

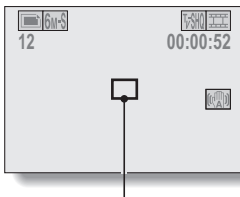
1 Display PAGE 2 of the RECORDING MENU (page 56).

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 56).

2 Select the ISO sensitivity menu.

[ISO-A]: Sets the ISO sensitivity automatically (equivalent to ISO50 to 200 [video clip shooting mode: ISO450 to 3,600]).

[50]: Sets the sensitivity to ISO50 equivalent (video clip shooting mode: ISO450).

[100]: Sets the sensitivity to ISO100 equivalent (video clip shooting mode: ISO900).

[200]: Sets the sensitivity to ISO200 equivalent (video clip shooting mode: ISO1,800).

[400]: Sets the sensitivity to ISO400 equivalent (video clip shooting mode: ISO3,600).

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

- This completes the ISO sensitivity setting.
-

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.
-

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]**, 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 56).

2 Select the white balance menu.


: 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.

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 (, , , , 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 , and then press the SET button.

DISPLAYING THE PLAYBACK MENU

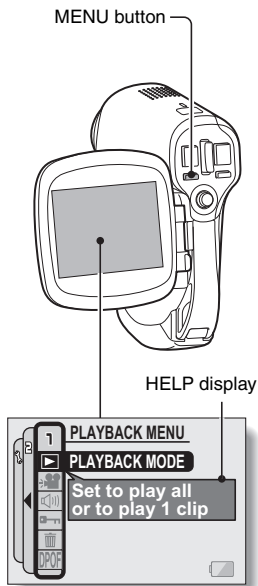
The **PLAYBACK MENU** is used to adjust your camera's playback settings. The **PLAYBACK MENU** is organized into two displays: **PAGE 1** and **PAGE 2**. You can also access the **PLAYBACK MENU** from the camera settings screen (**OPTION MENU** [page 112]).

- 1 Turn on the camera (page 24).**
 - 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 the **PLAYBACK MENU** icon is selected, the **HELP** display appears, showing the function of the selected icon.



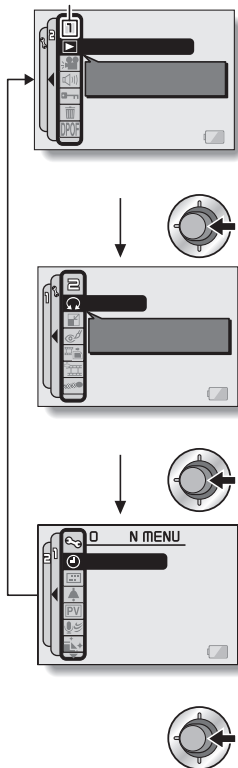
Switching the page

Switch to PAGE 1 or PAGE 2.

1 Display the **PLAYBACK MENU** (page 79).

2 Toggle the **SET** button to the left.

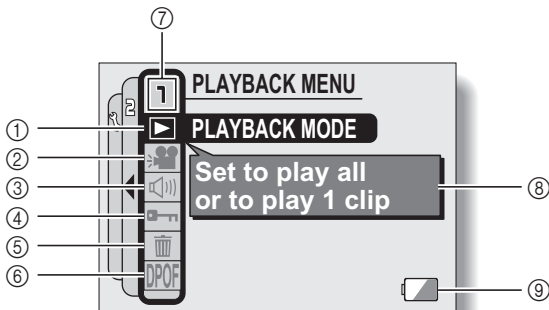
- The **PLAYBACK MENU** changes to the other **PAGE**.
- Each time the **SET** button is toggled to the left, the display changes as follows:



DISPLAYING THE PLAYBACK MENU

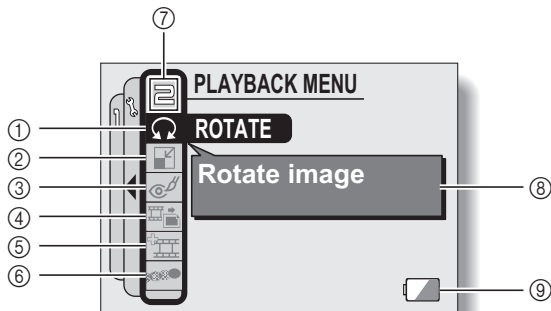
Overview of the PLAYBACK MENU

PAGE 1



- ① **Playback mode (page 83)**
 - Select continuous playback or single-frame playback.
- ② **Slideshow (page 85)**
 - Select the slideshow settings and initiate playback.
- ③ **Playback volume control (page 87)**
 - Adjust the playback volume for video clips and audio data.
- ④ **Data protect setting (page 88)**
 - Protect data from accidental erasure.
- ⑤ **Delete (page 90)**
 - Delete images from the card memory.
- ⑥ **Printing instructions (page 92)**
 - Specify the printing instructions (DPOF settings).
- ⑦ **PAGE display (page 80)**
- ⑧ **HELP display (page 79)**
- ⑨ **Remaining battery power (page 137)**

PAGE 2



① **Rotate image (page 98)**

- Rotate still images.

② **Resize (page 99)**

- Reduce the resolution of a still image.

③ **Red-eye correction (page 100)**

- Repair the red-eye effect to make eyes look more natural.

④ **Extract still image (page 102)**

- Extract a still image from a video clip.

⑤ **Video clip edit (page 103)**

- Edit video clips.

⑥ **Smooth playback (page 110)**

- Smooth out the movement when playing back video clips.

⑦ **PAGE display (page 80)**

⑧ **HELP display (page 79)**

⑨ **Remaining battery power (page 137)**

PLAYBACK MODE

You can choose to have data played back successively (continuous playback) or have only selected data played back (clip playback).

1 Display PAGE 1 of the PLAYBACK MENU (page 80).

2 Select the playback mode icon , and press the SET button.

- The Playback Mode Screen appears.

PLAY ALL: Have data played back in a continuous stream.

1 CLIP: Display only the selected image (pages 37, 42, 50).



3 Select the desired playback mode. <When PLAY ALL is selected>

- ① Toggle the SET button to the right to select playback time.
- ② Toggle the SET button up or down to specify the time that each image is shown.
- ③ Press the SET button.

4 Press the SET button.

- The display time is set, and you are returned to the PLAYBACK MENU.

HINT

How to initiate continuous playback

- Set the camera to the playback mode, and press the SET button. Continuous playback starts.

How is continuous playback different from slideshow playback (page 85)?

- With continuous playback, the available operations include pause (for continuous playback) and pause, fast forward and fast reverse (for video clip playback). In the continuous playback mode, the guidance display for key (button) operation and the capture date are shown on the playback screen, and playback operations (pause, accelerated playback, etc.) are possible. With slideshow playback, on the other hand, stop playback is the only operation available. Because the guidance display for key operation and the capture date are not shown, however, the images are easier to view. In addition, with continuous playback, only the current image and all subsequent images are played back; with slideshow playback, all of the images in the memory are played back, starting with the currently displayed image. Select the type of playback suitable for your purposes.

SLIDESHOW PLAYBACK

Specify the settings for playing back still images and audio files 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 80).

2 Select the slideshow icon , and press the SET button.

- The Slideshow Screen appears.

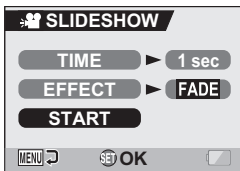
TIME: Adjust the transition speed (the period that an image is displayed before it changes to the next image).

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

START: Begin slideshow playback.

<Changing the transition speed or transition effect>

- ① Select “TIME” or “EFFECT”, press the SET button.
- ② Toggle the SET button up or down to select the setting you wish to change.
- 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.

PLAYBACK VOLUME

Adjust the playback volume for video clips and audio data.

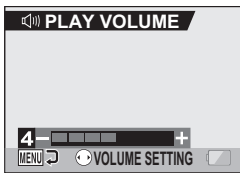
1 Display PAGE 1 of the PLAYBACK MENU (page 80).

2 Select the playback volume icon , and press the SET button.

- The volume control bar appears.

3 Toggle the SET button left or right to adjust the volume, and press the SET button.

- The volume is set, and you are returned to the PLAYBACK MENU.



HINT

- During video clip or audio memo playback, if you move the zoom switch, the volume control bar will appear, allowing you to adjust the volume.

IMAGE 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 80).

- 2** Select the protect icon , and press the SET button.

- The Protect Screen appears.



- 3** Toggle the SET button up or down 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.

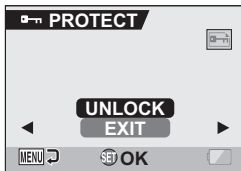


IMAGE PROTECT

CAUTION


- Even if the protect mode is set for certain data files, they will be deleted if the card is reformatted (page 133).

HINT

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

- Toggle the SET button to the left or right.

To cancel the protect mode for an image...

- 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 Display PAGE 1 of the PLAYBACK MENU (page 80).

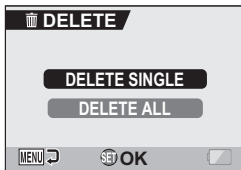
-
- ## 2 Select the delete icon , and press the SET button.
- The Delete Mode Screen appears.

DELETE SINGLE:

Deletes one data at a time.

DELETE ALL:

Deletes all the data.



-
- ## 3 Toggle the SET button up or down to select the delete mode, and press the SET button.

- The Delete Confirmation Screen appears.

<DELETE SINGLE>

- Toggle the SET button to the left or right to select the data you wish to delete.

<DELETE ALL>

- Toggle the SET button to the left or right confirm the data to delete.

DELETING DATA

4 Toggle the SET button up 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 which is protected from accidental delete cannot be deleted. To delete protected data, set the protect setting for the data to off (page 88), and then follow the data delete procedure.

HINT

- You can also access the Delete Single Confirmation Screen from the Playback Screen by toggling the SET button up.

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 80).

- 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 still images on the card.

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.



PRINTING INSTRUCTIONS

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 (save frame) as a still image (page 102).

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 146).

About the finished prints

- Rotated images (page 98) 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 on the card (**ALL IMAGES**).

1 Display the Printing Instructions Screen (page 92).

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

ALL IMAGES:

The printing instructions are applied to all the still images on the card.

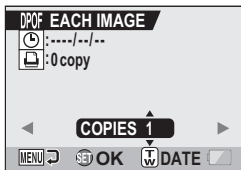
EACH IMAGE:

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, toggle the SET button to the left or right to display the desired image to print.
- The printing instructions that are currently active for the displayed image are shown. You can toggle the SET button to the left or right to confirm the printing instructions for each image.

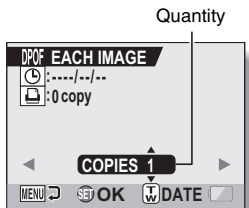


PRINTING INSTRUCTIONS

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

<Specify the number of prints>

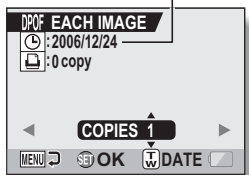
- Toggle the SET button up or down.
 - The quantity indication changes.
 - Display the desired number of prints.



<Specify dated prints>

- Push the zoom switch toward the [T] or [W] side.
 - Each time the zoom switch is moved, the date indication is switched on or off.
 - For images that were captured when the camera's clock was not set (page 28), the date display appears as [--/--/--], and dated prints are not possible.

Dated prints



Dated prints:

Turn the date indication on.

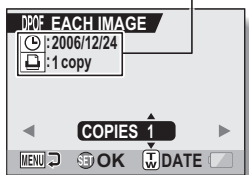
Undated prints:

Turn the date indication off.

5 Press the SET button.

- The printing instructions for the requested print quantities and dated prints are stored.

Printing instructions



6 Press the MENU button.

- The display returns to the Printing Instructions Screen.

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 92).

2 Select “INDEX”.

3 Press the SET button.

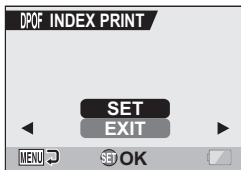
- The Index Print Screen appears.

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.

PRINTING INSTRUCTIONS

Clearing all the printing instructions

Delete the printing instructions for all images.

1 Display the Printing Instructions Screen (page 92).

2 Select “ALL CLEAR”.

3 Press the **SET** button.

- The Confirm All Clear Screen appears.

CANCEL:

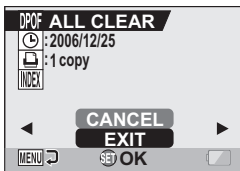
Clear the printing instructions for all images.

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.

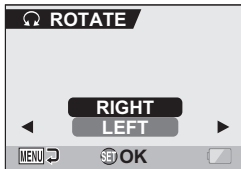
- 1** Display the still image you wish to rotate, and display PAGE 2 of the PLAYBACK MENU (page 80).

- 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.

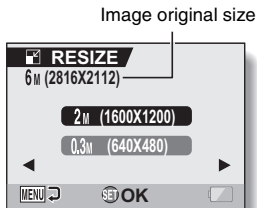
CHANGING IMAGE SIZE (RESIZE)

The size of a still image that has already been captured at a resolution of **2M** or more can be changed to 1,600 × 1,200 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 80).

2 Select the resize icon , and press the **SET** button.

- The Resize Screen appears.



3 Toggle the **SET** button up or down to select the new image size.

2M (1,600 × 1,200): The saved image will be 1,600 × 1,200 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.

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 80).
-

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

- The Red-Eye Correction Screen appears.

CORRECTION:

Proceed with the red-eye correction.

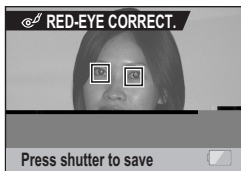
EXIT:

Return to the **PLAYBACK MENU**.



- 3** Select "**CORRECTION**" 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 still image shooting 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 80).

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...

- Toggle the SET button to the left or right.

EDITING VIDEO CLIPS

You can delete (“cut”) the first part or the last part of a video clip. You can choose anywhere in the video clip as the cutting point. You can also join two video clips together and save them as one separate clip (“joining”).

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.

Procedure to save part of a video clip as a separate clip

Play the video clip, and pause playback at the point you want to cut.



▼

Select whether to delete the portion before the cut point or after the cut point.

▼

Delete the specified portion.

- The specified portion is deleted.

- The original video clip is not affected.

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

Procedure to join two video clips

Display the video clip that will come first.



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



Join the video clips. (Press the SET button.)

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



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



CAUTION

Caution when editing video clips

- When editing video clips, do not turn the camera off. 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 deleted.
- By repeating the clipping and joining procedures, you can create exactly the video clip you like. Note, however, that 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 90), or by overwriting the original file with the edited file (pages 107, 109).
- The date display that is shown when an edited video clip is played back is the date that the video clip was saved after it was edited.

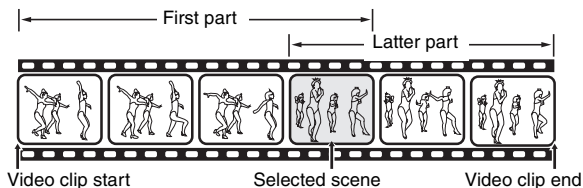
EDITING VIDEO CLIPS

Deleting part of a video clip

1 Display the video clip you wish to edit.


2 Display the scene you wish to delete.

- In step 5 you will specify whether you wish to delete the portion from the beginning of the video clip up to the selected scene, or the portion from the selected scene to the end of the video clip.



- To select the desired scene quickly, you can use a combination of the fast-forward (or reverse) playback, pause, and image-by-image playback functions (page 38).
- The actual cut point may be slightly before or after the displayed scene.

3 Display PAGE 2 of the PLAYBACK MENU (page 80).

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

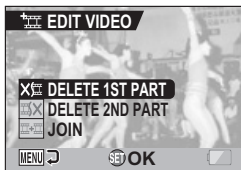
-
- 5** Toggle the SET button up or down to select the portion you wish to delete.

DELETE 1ST PART:

Delete the first part of the video clip.

DELETE 2ND PART:

Delete the latter part of the video clip.



-
- 6** Press the SET button.

- A screen appears for you to select whether to save the edited video clip as a new file or delete the original file and save only the edited video clip.



EDITING VIDEO CLIPS

7 Select whether you want the original video clip to be deleted when clipping is executed.

SAVE AS NEW:

Save the edited video clip as a new file.

OVERWRITE FILE:

Delete the original file and save only the edited video clip.

8 Press the **SET** button.

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

HINT

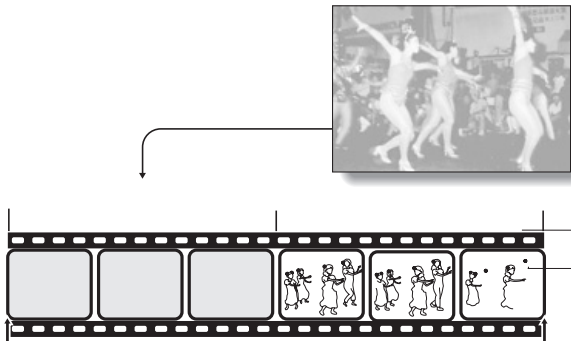
- If the original video clip is protected, even if you select “OVERWRITE FILE” in steps **7** and **8** and press the **SET** button, the original video clip will not be deleted. If you want it to be deleted, you will need to first remove the protection (page 88).

Joining two video clips

CAUTION

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

1 Display the first video clip.



2 Display PAGE 2 of the PLAYBACK MENU (page 80).

3 Select the edit video icon , and press the SET button.

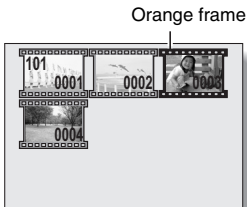
- The Edit Video Screen appears.

4 Select the join icon .

EDITING VIDEO CLIPS

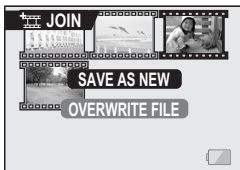
- 5** Press the **SET** button.
- The 9-image playback display for video clips appears.

- 6** Toggle the **SET** button to move the orange frame to the video clip that you wish to join.



- 7** Press the **SET** button.

- 8** Select whether you want the original video clip to be deleted when clipping is executed.
- SAVE AS NEW:**
Save the edited video clip as a new file.
- OVERWRITE FILE:**
Delete the original file and save only the edited video clip.



- 9** Press the **SET** button.
- Editing starts.
 - The two video clips are saved together as a separate video clip.
 - 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 deleted. If you want it to be deleted, you will need to first remove the protection (page 88).

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 80).

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)

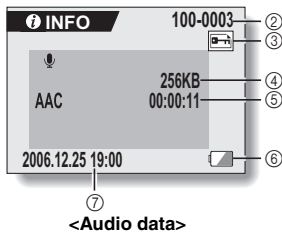
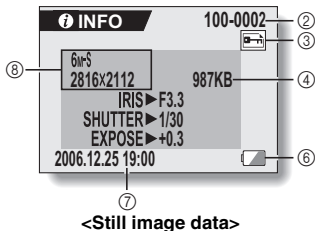
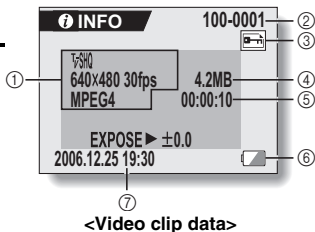
On the Information Screen you can check what the settings were when an image was captured.

1 Display the desired image.

2 Press the MENU button for about 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

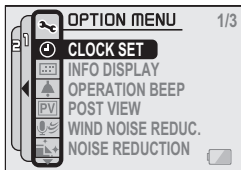


DISPLAYING THE OPTION MENU

The OPTION MENU is used to adjust various camera settings.

- 1 Turn on the camera (page 24), and press the MENU button.**
 - The RECORDING MENU or PLAYBACK MENU appears.
-

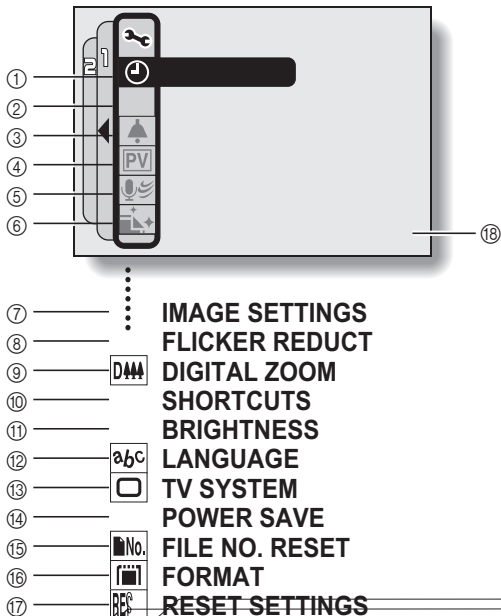
- 2 Toggle the SET button to the left two times to display the OPTION MENU.**
 - The OPTION MENU is canceled if the MENU button is pressed.



<OPTION MENU>

DISPLAYING THE OPTION MENU

Overview of the OPTION MENU



- ① **Date and time setting (page 28)**
 - Set the camera's internal clock.
- ② **Screen display (page 31)**
 - Specify whether the time/date the image was captured is displayed.
- ③ **Operation sounds setting (page 115)**
 - Select the operation sounds that are produced when the camera's buttons are pressed, and adjust the operation sound volume.
- ④ **Post-view (page 117)**
 - Specify how long the captured image is displayed on the monitor after the still image shooting button is pressed.
- ⑤ **Wind noise reduction setting (page 118)**
 - Set the wind noise reduction function on or off.
- ⑥ **Noise-reduction menu (page 119)**
 - Set the noise-reduction function on or off.
- ⑦ **Image quality adjustment (page 120)**
 - Adjust the image quality during shooting.
- ⑧ **Flicker-reduction menu (page 121)**
 - Set the flicker-reduction function on or off.
- ⑨ **Digital zoom setting (page 122)**
 - Enable or disable the digital zoom.
- ⑩ **Shortcuts (page 123)**
 - Assign functions to the SET button operation when the Shooting Screen is displayed.
- ⑪ **Monitor brightness (page 125)**
 - Adjust the brightness of the monitor.
- ⑫ **Screen language (page 126)**
 - Select the language in which the monitor messages are displayed.
- ⑬ **TV system settings (page 127)**
 - Select the type of video signal that is output from the camera's USB/AV terminal.
- ⑭ **Power save function (page 128)**
- ⑮ **File number reset (page 130)**
 - Select the file number reset function.
- ⑯ **Card format (page 133)**
 - Use the camera to format the memory card.
- ⑰ **Settings reset (page 135)**
 - Reset the camera to the factory-preset settings.
- ⑱ **Remaining battery power (page 137)**

* Icons ⑦ through ⑱ are displayed when you toggle the SET button up or down to scroll.

OPERATION SOUNDS

Use this menu to set the confirming audio signals when the camera is turned on/off or when the operation buttons (still image shooting 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 112).

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.

TURN ON/OFF:

Mute or enable the sound that is produced when the power is turned on or off.

SHUTTER:

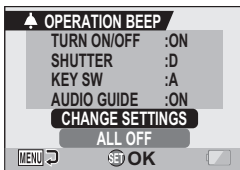
Select the sound that is produced when the still image shooting button is pressed, or when a photo is taken using the self-timer.

KEY SW:

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

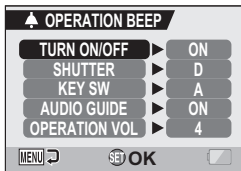
AUDIO GUIDE:

Mute or enable the camera's audio help guide.



3 Select “CHANGE SETTINGS”, and press the SET button.

- The screen to change the settings appears.



4 Toggle the SET button up or down 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.
- Toggle the SET button up or down 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 still image shooting button to preview the selected operation sound.
- If “OFF” is selected, no sound is produced.
- Toggle the SET button up or down 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).
- Toggle the SET button up or down 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 still image shooting button is pressed.

1 Display the OPTION MENU (page 112).

2 Select the post-view icon , and press the SET button.

- The Post-view Screen appears.

1 sec:

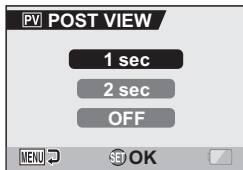
The post-view image is displayed for 1 second.

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.

WIND NOISE REDUCTION

This feature reduces the ambient sound of the wind when you are recording a video clip or making an audio recording in a strong wind environment. Set the function to on or off.

1 Display the **OPTION MENU** (page 112).

2 Select the wind noise reduction icon , and press the **SET** button.

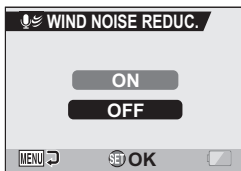
- The Wind Noise Reduction Screen appears.

ON:

The wind noise reduction function is turned on.

OFF:

The wind noise reduction function is turned off.



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

- This completes the wind noise reduction setting.
-

HINT

- For normal shooting, set the wind noise reduction to "OFF". If the function is enabled when there is no wind, the audio during shooting and recording sounds unnatural.

NOISE-REDUCTION FUNCTION

Use this setting to minimize noise in still images and produce a clear image.

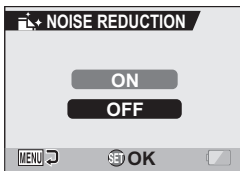
1 Display the **OPTION MENU** (page 112).

2 Select the noise-reduction icon , and press the **SET** button.

- The Noise Reduction Screen appears.

ON: The noise-reduction function is enabled.

OFF: The noise-reduction function is disabled.



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

- This completes the noise-reduction setting.

HINT

- The noise-reduction 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 112).

2 Select the image quality icon , and press the **SET** button.

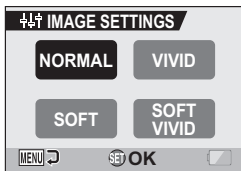
- The Image Settings Screen appears.

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 112).

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 112).

2 Select the digital zoom icon , 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 .

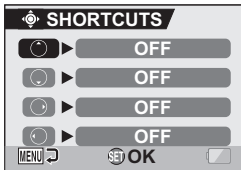
ASSIGN SET BUTTON FUNCTIONS

Assign functions (operation shortcuts) to the SET button when it is toggled up, down, left or right when the Shooting Screen is displayed.

1 Display the OPTION MENU (page 112).

2 Select the shortcuts icon , and press the SET button.

- The Shortcuts Screen appears.
 - : Assign the function when the SET button is toggled up.
 - : Assign the function when the SET button is toggled down.
 - : Assign the function when the SET button is toggled to the right.
 - : Assign the function when the SET button is toggled to the left.




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


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


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


 **AF LOCK:**

Lock the focus (page 39).

 **FOCUS:** Set the focus range (page 72). (Operation shortcuts can be assigned only to .)

 **FLASH:** Set the flash operation (page 66).

 **EXPOSURE:** Adjust the exposure (page 53).

 **SELF-TIMER:** Set the self-timer (page 68).

4 Toggle the SET button up or down.

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

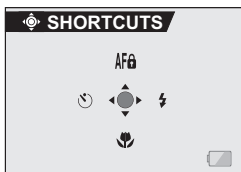
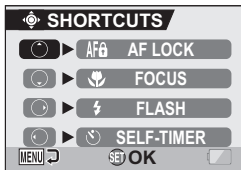


5 Press the SET button.

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

<To confirm the assigned shortcuts>

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



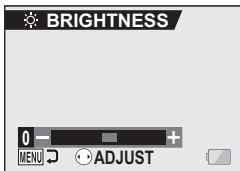
MONITOR BRIGHTNESS

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 112).

2 Select the brightness icon , and press the **SET** button.

- The brightness control display appears.



3 Toggle the **SET** button to the left or right 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

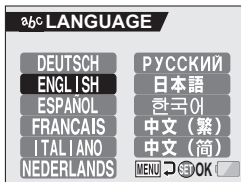
You can set the monitor of your camera to display the messages in any one of several languages.

1 Display the OPTION MENU (page 112).

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

- The Language Screen appears.

DEUTSCH:	German
ENGLISH:	English
ESPAÑOL:	Spanish
FRANCAIS:	French
ITALIANO:	Italian
NEDERLANDS:	Dutch
РУССКИЙ:	Russian
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 USB/AV terminal.

1 Display the **OPTION MENU** (page 112).

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 139)

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 112).

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

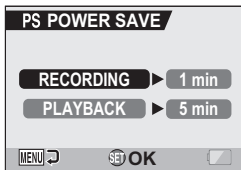
- The Power Save Setting Screen appears.

RECORDING:

Set the standby time for the shooting modes.

PLAYBACK:

Set the standby time for the playback modes.



POWER SAVE FUNCTION

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

- The Set Standby Time Screen appears.

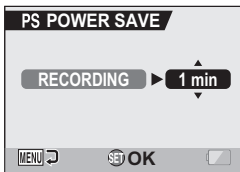
4 Toggle the SET button up or down to set the standby time.

Up:

Increases the standby time.

Down:

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. RESET 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 reset function is set to "ON", and consequently it results in more than one card containing images with the same numbers. By setting the file number reset function to "OFF", 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 reset function "ON">

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

⋮
Replace card

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

<File number reset function "OFF">

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

⋮
Replace card

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

FILE NO. RESET FUNCTION

- 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.

Card A	0001, 0002 0012, 0013
--------	-----------------------------

:
Replace card

Card B	0001, 0002, 0014, 00150025, 0026
--------	--

Previously recorded images

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.

Card A	0001, 0002 0012, 0013
--------	-----------------------------

:
Replace card

Card B	0020, 0021, 0022, 00230025, 0026
--------	--

Previously recorded images

1 Display the **OPTION MENU** (page 112).

2 Select the file number reset icon .

3 Press the **SET** button.

- The File Number Reset Screen appears.

ON:

The file number reset function is on.

OFF:

The file number reset function is off.



4 Select **“OFF”**, and press the **SET** button.

- The file number reset function is deactivated.

HINT

- Until the file number reset function is turned **“ON”**, consecutive file names are assigned. It is recommended that the file number reset function be returned to **“ON”** at the end of each photography session.

FORMATTING A CARD

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 Display the OPTION MENU (page 112).

2 Select the format icon , and press the SET button.

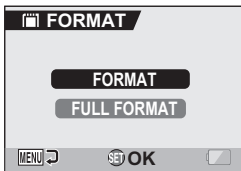
- The Format Screen appears.
- In normal use, a full format is not necessary. However, in case a card error occurs even after normal formatting, executing a full format may resolve the problem.

FORMAT:

A normal formatting is executed.

FULL FORMAT:

The entire card is scanned and formatted. (When there is little battery power remaining, this setting cannot be selected.)



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

- A confirmation screen appears.

4 Select “YES”, and press the SET button.

- Formatting begins.
- During formatting, “Foramattig” and “do not power off” are shown on the monitor.

CAUTION

Caution during formatting

- Do not turn off the power to the camera or eject the card during formatting.

Formatting deletes the data

- When a card is formatted, all data recorded on the card is deleted. Protected data (page 88) is also deleted, so before formatting a card, 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 deleted 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 deleted 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 deleting card data. Managing data is the responsibility of the user.

HINT

To cancel formatting

- In step 4, 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 112).

2 Select the reset settings icon , 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 Screen.



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

CHECKING THE REMAINING CARD MEMORY

You can check how many images can be captured and how much recording time is available on the card. For a table showing the maximum number of images and recording time for specific cards, please see “Possible No. of Images/Possible Shooting Time/Possible Recording Time” on page 170.

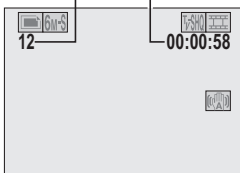
Checking the remaining number of images and video recording time

1 Turn on the camera (page 24).

- 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 90) 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 61), or selecting a different image quality setting.

Remaining number of images

Remaining video recording time

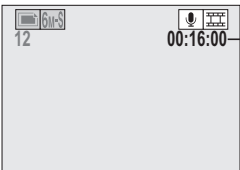


For audio data

1 Set the camera to the audio recording mode (page 48).

- The remaining audio recording time is shown.


Remaining time



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 capturing an image. For an indication of the possible length of time for battery pack operation, see page 169.

1 Display the RECORDING MENU or PLAYBACK MENU (pages 55 and 79).

- 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

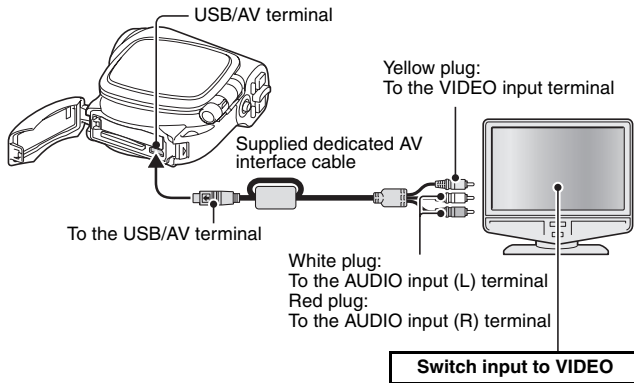
Battery pack remaining charge indicator	Battery remaining charge
	Approx. full.
	Power is low.
	It will soon be impossible to capture or play back images.
	If this icon flashes when the still image shooting button or video clip recording button is pressed, images cannot be captured. Recharge the battery pack.

HINT

- If any data is present, you can also check the remaining battery pack charge on the Information Screen (page 111).
- 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

Connect the supplied AV interface cable from the USB/AV terminal on the digital camera to the AUDIO and VIDEO input terminals on the TV.



Playback

- After connecting the digital camera to the television, set the TV input switch to VIDEO input.
- When an 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 50

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** Insert the card containing the images you wish to print in the camera.
- 2** 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.
 - The USB Connection Screen appears on the camera's monitor.



DIRECT PRINTING

3 Select “PictBridge”, and press the SET button.

- 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 prerf69ten2T29.4(a)8.373mera does

To select one image and print it (one image)

Procedure to select one still image and print it.

1 Complete the printing setup (page 140).

2 Select the print 1 image icon , and press the SET button.

- The screen to select images for printing appears.

3 Toggle the SET button to the left or right to display the image you wish to print.

- Specify the image to print.



DIRECT PRINTING

4 Specify the number of prints.

- ① Toggle the SET button up to select "COPIES", and press the SET button.
- ② Toggle the SET button up or down 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, toggle the SET button down.
 - The Confirm Cancel Printing Screen appears.
- ② Select "YES", 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 on the card.

1 Complete the printing setup (page 140).

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 on the card.

1 Complete the printing setup (page 140).

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 printing instructions (page 92), and complete the print preparations (page 140).

- 2 Select the DPOF icon , 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 toggle the SET button to the left or right, you can view each image and confirm its printing instructions.

CAUTION

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

DIRECT PRINTING

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 printing setup (page 140).

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:

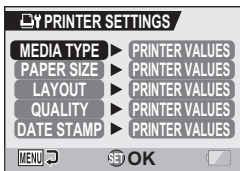
Specify how the images are to be arranged on the paper.

QUALITY:

Select the print quality for the images.

DATE STAMP:


Print the date the photo was taken.






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.
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.

	Question	Answer	Action
Shooting	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 : 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.
	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.

COMMONLY ASKED QUESTIONS

	Question	Answer	Action
Shooting	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.
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?		

	Question	Answer	Action
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 still image shooting button halfway to lock the focus. Then press the still image shooting 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.
	Why do vertical stripes appear?	If a bright subject is shot in the video clip shooting mode, vertical stripes may appear on the monitor or in the image.	Not a malfunction.

COMMONLY ASKED QUESTIONS

	Question	Answer	Action
Viewing images	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.
		The playback volume of the camera is set to 0.	Increase the playback volume of the camera.
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.

	Question	Answer	Action
Misc.	The "Cannot edit video" message appears.	You have attempted to join video clips having different resolutions or frame rates.	Select video clips that have the same resolution or frame rates.
	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" message appear?	There is no more available memory on the card.	Delete 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. If you have questions about using the battery charger and power cord abroad, please consult with a dealer near you for advice.
	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.	19, 21
		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.	24
Shooting	An image is not captured when the still image shooting button or video clip recording button is pressed.	The power is not turned on.	Turn on the camera.	24

TROUBLESHOOTING

	Problem	Cause	Action	Reference page
Shooting	An image is not captured when the still image shooting button or video clip recording 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.	22
			Delete the images that are not necessary.	90
	The flash does not operate.	The flash off mode is selected.	Set the flash to automatic flash mode or forced flash mode.	66
		The battery pack is dead.	Recharge the battery pack, or replace with a new battery pack.	19, 21
	The digital zoom does not work.	The still image mode is set to [10M] .	Set the still image mode to [6M+H] .	62
		The digital zoom setting is set to "OFF".	Set the digital zoom setting to "ON".	122
	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.	19, 21


	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 zoom switch, and press it again.	52
	There is noise in the captured image.	The ISO sensitivity setting is too high.	Set the ISO sensitivity to a lower setting.	76
	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 400 or less.	76
Monitor	No playback image appears.	The camera is not in the playback mode.	Press the REC/PLAY button to switch to the playback mode.	37, 42, 50

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.	32
		The subject was too far away.	Capture the image in the range of operation of the flash.	168
		The subject was lit from behind.	Set the flash to the forced flash mode, and take the picture.	66
			Use the exposure correction function.	53
			Use the spot light-measuring mode.	75
		There is not enough light.	Adjust the ISO sensitivity setting.	76

	Problem	Cause	Action	Reference page
Viewing images	The video clip picture is flickering.	The video clip was filmed under fluorescent lighting.	Set the flicker-reduction setting to on.	121
	The image is too bright.	The forced flash mode is selected.	Select a different flash mode.	66
		The subject was too bright.	Use the exposure correction function.	53
		The ISO sensitivity setting is incorrect.	Set the ISO sensitivity to [ISO-A] .	76
	Red-eye correction was not successful.	The red-eye effect area could not be recognized.	Not a malfunction.	100
	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.	72
		The focus setting is not correct.		
		The camera moved when the still image shooting button was pressed (camera shake).	Hold the camera correctly and slowly press the still image shooting button halfway to lock the focus. Then press the still image shooting button all the way to capture the image.	32, 40
		The focus is not locked properly.		
		The lens is dirty.	Clean the lens.	—

TROUBLESHOOTING

	Problem	Cause	Action	Reference page
Viewing images	The colors of the images captured indoors are not correct.	This is due to ambient lighting.	Capture the image using the forced flash mode.	66
		The white balance setting is incorrect.	Set the white balance setting correctly.	77
	A part of the image is missing.	The grip belt or a finger was blocking the lens.	Hold the camera correctly, and make sure the lens is not obstructed.	32
	"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.	87













	Problem	Cause	Action	Reference page
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.	127
	No image or sound.	The digital camera is not correctly connected to the TV.	Follow the instructions to make the connection correctly.	139
		The TV input is not set correctly.	Set the input on the TV to "VIDEO".	
	There is no sound.	The playback volume setting on the camera is too low.	Adjust the playback volume.	87
	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.	88

TROUBLESHOOTING

	Problem	Cause	Action	Reference page
Misc.	The "No card" message appears.	No card is inserted.	Turn off the power and insert a card.	22
	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.	88
	The audio guide does not sound.	The audio guide setting is set to "OFF".	Set the audio guide setting to "ON".	115
	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.	170






Notes regarding the Scene Select feature and filters

Scene Select







Setting	Remarks
Sports 	Focus range:  cannot be selected.
Portrait 	
Landscape 	
Night view portrait 	
Snow & beach 	
Fireworks 	Focus range: Fixed at  . Flash: Fixed at  .
Lamp 	Resolution: Fixed at 0.3M . Flash: Fixed at  . Focus range:  cannot be selected. ISO sensitivity: Fixed at ISO-A . Noise reduction: Fixed at "OFF".

TROUBLESHOOTING

Filter

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

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 format Audio: MPEG-4 audio (AAC compression) 48 kHz sampling rate, 16-bit stereo format
Data storage media	SD Memory Card (corresponds to a 4 GB SDHC Memory Card)
Camera effective number of pixels	Approx. 6 million pixels
Image sensor	1/2.5-inch CCD Virtual number of pixels: Approx. 6.37 million pixels, interlace scan, primary color filter
Still image shooting mode (recording resolution)	10M : 3,680 × 2,760 pixels 6M-H : 2,816 × 2,112 pixels (low compression) 6M-S : 2,816 × 2,112 pixels (standard compression) 3M : 1,536 × 2,048 pixels (vertical position) 2M : 1,600 × 1,200 pixels 0.3M : 640 × 480 pixels

SPECIFICATIONS

Video clip shooting mode (recording resolution, frame rate, bit rate)	 : 640 × 480 pixels, 30 fps 3 Mbps  : 640 × 480 pixels, 30 fps 2 Mbps  : 320 × 240 pixels, 30 fps 640 kbps  : 320 × 240 pixels, 15 fps 384 kbps  : 176 × 144 pixels, 15 fps 256 kbps * 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 5.0x zoom lens	f=6.3 mm to 31.7 mm (35 mm film camera conversion f=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) Smallest F=8.0 (Wide) to 10.7 (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) Standard 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: 1x to approx. 12x For playback: 1x to approx. 57.5x (varies with resolution)	
Shutter speed	Still image shooting mode: 1/2 to 1/2,000 sec. (Maximum approx. 4 seconds when scene select function 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: Auto (equivalent to ISO50 to 200)/equivalent to ISO50, ISO100, ISO200, and ISO400 (switchable from the RECORDING MENU) (Maximum ISO sensitivity up to 3,600 variation: when scene select function is set to lamp ) Video clip recording mode: Auto (equivalent to ISO450 to 3,600)/equivalent to ISO450, ISO900, ISO1,800, and ISO3,600 (switchable from the RECORDING MENU)	
Image stabilizer	Electronic (video clip recording mode only)	
Monitor	2.0-inch amorphous silicon TFT color liquid crystal display, transparent Approx. 86,000 pixels (Frame coverage: Approx. 100%)	
Flash working range	GN = 3 Approx. 10 cm (3.94 in.) to 1.2 m (3.94 ft.) (Wide) Approx. 80 cm (31.50 in.) to 90 cm (2.95 ft.) (Tele)	
Flash modes	Auto-flash, forced flash, flash off	
Focus	TTL-type AF (5-spot metering AF: Still image shooting mode; Continuous AF: Video clip recording mode), manual focus	
Self-timer	Approx. 2-second delay, 10-second delay	
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 4 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	3.1W (When using the Li-ion battery during recording)	
Dimensions (excluding protrusions)	77 (W) × 100 (H) × 36 (D) mm 3.03 (W) × 3.94 (H) × 1.42 (D) in. (Maximum dimensions) Volume: Approx. 163 cc	
Weight	Approx. 155 g (5.5 oz.) (Only the camera [without battery pack and card])	

SPECIFICATIONS

Camera connectors

USB/AV (communication/ sound and image output) terminal	Regrouped jack	
	Audio output	265 mVrms (-9 dBs), 12 k Ω or less, 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	170 images: CIPA standard (when a Toshiba 128 MB SD Memory Card is used)
	Video clip recording mode	80 minutes: Recorded in TV-SHQ mode (640 \times 480 pixels, 30 fps)
Playback		200 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 a commercially available SD Memory Card (512 MB, 2 GB, 4 GB).

Shooting/ recording mode	Resolution setting	SD Memory Card		
		512 MB	2 GB	4 GB
Still image mode		151 images	596 images	1,190 images
		171 images	674 images	1,340 images
		257 images	1,010 images	2,030 images
		483 images	1,870 images	3,760 images
		766 images	2,950 images	5,900 images
		3,920 images	15,500 images	31,000 images
Video clip mode		20 min. 59 sec.	1 hr. 22 min.	2 hr. 45 min.
		30 min. 34 sec.	2 hr.	4 hr.
		1 hr. 20 min.	5 hr. 17 min.	10 hr. 36 min.
		1 hr. 56 min.	7 hr. 39 min.	15 hr. 18 min.
		2 hr. 29 min.	9 hr. 50 min.	18 hr. 3 min.
Sound recording mode		8 hr. 32 min.	33 hr. 40 min.	67 hr. 24 min.

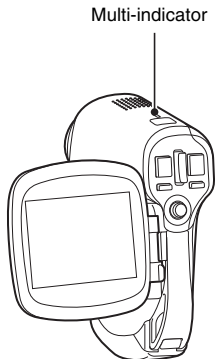
- The maximum continuous shooting time at the  setting is 5 hours 30 minutes. The maximum continuous shooting time at the  and  settings is 7 hours.
- Up to 13 hours of continuous audio recording is possible.
- 2 GB, 4 GB: when an SD Memory Card by Sandisk is used.
- Even with cards of the same capacity, 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.).

SPECIFICATIONS

Concerning the multi-indicator

The camera's multi-indicator will light, flash, or be off, 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 photography
		Fast	Accessing data
Orange	Lit		Connected to TV/VIDEO (AV)



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) × 91 (D) mm 1.81" (W) × 0.83" (H) × 3.58" (D)
Weight (without power cord)		Approx. 55 g (1.9 oz.)
Power cord rated value	VPC-CA6	AC 125 V, 7 A
	VPC-CA6EX	AC 250 V, 2.5 A

- When using the supplied battery pack charger abroad, the power cord may need to be replaced in accordance with local requirements. Please contact your local dealer for details.

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, recharged) -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.)

SPECIFICATIONS

Others

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- 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 still images shooting button is gently pressed halfway. Press the still images shooting 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 still images shooting 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 still images shooting 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 still images shooting button halfway.
- ③ Wait for the target mark to appear in the monitor, and holding the camera steady, gently continue to press the still images shooting button all the way down.

Following these steps for a gentle but firm pressing of the still images shooting 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 still images shooting 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 still images shooting 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 73])

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 still images shooting 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 still images shooting 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 still images shooting 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 still images shooting 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 still images shooting 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.

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