JVC

LYT2046-001A-M

GZ-MS90U

EN SP FR
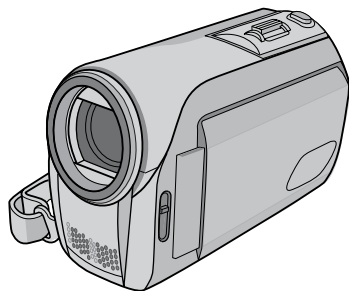
INSTRUCTIONS
CAMCORDER

MANUAL DE INSTRUCCIONES
VIDEOCÁMARA

MANUEL D'UTILISATION
CAMÉSCOPE

Dear Customer
Thank you for purchasing this camcorder. Before use, please read the safety information and precautions contained in pages 2 and 3 to ensure safe use of this product.

Contents

For Future Reference:
Enter the Model No. (located on the bottom of the camcorder) and Serial No. (located on the battery pack mount of the camcorder) below.

Model No.

Serial No.

SD HC

DOLBY
DIGITAL
STEREO
CREATOR

Safety Precautions

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

NOTES:
● The rating plate and safety caution are on the bottom and/or the back of the main unit.
● The serial number plate is on the battery pack mount.
● The rating information and safety caution of the AC adapter are on its upper and lower sides.

For USA-California Only
This product contains a CR Coin Cell Lithium Battery which contains Perchlorate Material – special handling may apply.
See www.dtsc.ca.gov/hazardouswaste/perchlorate

When the equipment is installed in a cabinet or on a shelf, make sure that it has sufficient space on all sides to allow for ventilation (10 cm (3-15/16 ") or more on both sides, on top and at the rear). Do not block the ventilation holes.
(If the ventilation holes are blocked by a newspaper, or cloth etc. the heat may not be able to get out.)
No naked flame sources, such as lighted candles, should be placed on the apparatus.
When discarding batteries, environmental problems must be considered and the local rules or laws governing the disposal of these batteries must be followed strictly.
The apparatus shall not be exposed to dripping or splashing.
Do not use this equipment in a bathroom or places with water.
Also do not place any containers filled with water or liquids (such as cosmetics or medicines, flower vases, potted plants, cups etc.) on top of this unit.
(If water or liquid is allowed to enter this equipment, fire or electric shock may be caused.)

Do not point the lens directly into the sun. This can cause eye injuries, as well as lead to the malfunctioning of internal circuitry. There is also a risk of fire or electric shock.

CAUTION!
The following notes concern possible physical damage to the camcorder and to the user.
Carrying or holding the camcorder by the LCD monitor can result in dropping the unit, or in a malfunction.
Do not use a tripod on unsteady or unlevel surfaces. It could tip over, causing serious damage to the camcorder.

CAUTION!
Connecting cables (Audio/Video, S-Video, etc.) to the camcorder and leaving it on top of the TV is not recommended, as tripping on the cables will cause the camcorder to fall, resulting in damage.

CAUTION:
The mains plug shall remain readily operable.

WARNING:
The battery pack and the camcorder with battery installed should not be exposed to excessive heat such as direct sunlight, fire or the like.

Remember that this camcorder is intended for private consumer use only.
Any commercial use without proper permission is prohibited. (Even if you record an event such as a show, performance or exhibition for personal enjoyment, it is strongly recommended that you obtain permission beforehand.)

Trademarks
● Manufactured under license from Dolby Laboratories. Dolby and double-D symbol are trademarks of Dolby Laboratories.
● Windows® is either a registered trademark or trademark of Microsoft Corporation in the United States and/or other countries.
● Macintosh is a registered trademark of Apple Inc.
● YouTube and the YouTube logo are trademarks and/or registered trademarks of YouTube LLC.
● Other product and company names included in this instruction manual are trademarks and/or registered trademarks of their respective holders.

2

IMPORTANT SAFETY INSTRUCTIONS

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Only use attachments/accessories specified by the manufacturer.
10. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
11. Unplug this apparatus during lightning storms or when unused for long periods of time.
12. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

If this symbol is shown, it is only valid in the European Union.

Declaration of Conformity
Model Number: GZ-MS90U
Trade Name: JVC
Responsible party: JVC AMERICAS CORP.
Address: 1700 Valley Road Wayne, N. J. 07470
Telephone Number: 973-317-5000
This device complies with Part 15 of 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.

Changes or modifications not approved by JVC could void the user's authority to operate the equipment. 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.

This Class B digital apparatus complies with Canadian ICES-003.
Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

Read This First!

Make a backup of important recorded data

JVC will not be responsible for any lost data. It is recommended to copy your important recorded data to a DVD or other recording media for storage. (☞ pg. 14)

Make a trial recording

Before the actual recording of important data, make a trial recording and play back the recorded data to check that the video and sound have been recorded correctly. We recommend you to use the same recording media when performing both the trial recording and the actual recording.

Reset the camcorder if it does not operate correctly (☞ pg. 17)

Precautions on handling batteries

● Be sure to use the JVC BN-VF808U/ VF815U/VF823U battery packs.
● If the camcorder is subjected to electrostatic discharge, turn the power off before using it again.

If a malfunction occurs, stop using the camcorder immediately and contact www.jvc.com or by phone at 1-800-252-5722.

Recorded data may be erased while the camcorder is being repaired or inspected. Back up all data before requesting repairs or inspections.

How to Select an Item Using the Touch Sensor

An example screen in English is used for the guidance below.

E.g. Selecting an item from the menu list (on the menu screen)
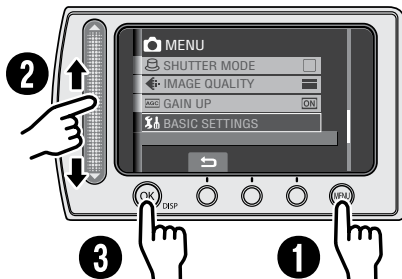
❶ Touch the **MENU** button.
❷ Slide your finger up and down on the sensor.
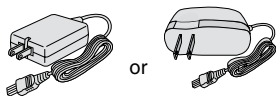❸ Touch the **OK** button.

CAUTION

Touch the sensors with your finger. The sensors do not function if you touch them with your fingernail or with gloves on.
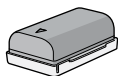
On-screen function guide

The on-screen function guide is displayed at the bottom of the screen during menu display, etc.
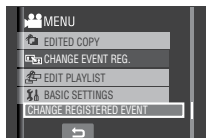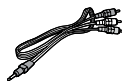
Accessories

AC Adapter
AP-V18U/V14U/V20U

Battery Pack
BN-VF808U

Audio/Video Cable

USB Cable
(☞ pg. 13)

CD-ROM
(☞ pg. 12)

Core Filter
(for USB Cable)
* The core filter reduces
interference.

NOTE

Make sure to use the provided cables for connections. Do not use any other cables.

Attaching the Core Filter to the USB Cable

Attach the core filter to the USB cable. The core filter reduces interference. Connect the end of
the cable with the core filter to the camcorder.

Release the stopper.

3 cm

**To be connected to
the camcorder.**

Wind once.
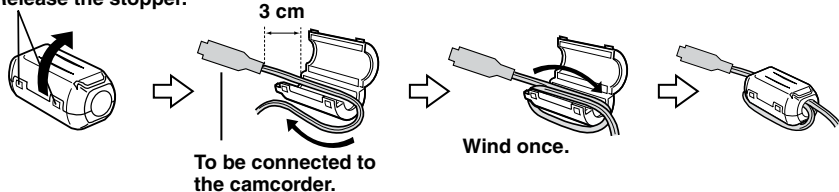
Read these INSTRUCTIONS to enjoy your CAMCORDER.
For more details on the operations, refer to the GUIDEBOOK in the
supplied CD-ROM.

In order to view the GUIDEBOOK, Adobe® Acrobat® Reader™ or Adobe®
Reader® must be installed.
Adobe® Reader® can be loaded from Adobe's web site:
http://www.adobe.com/
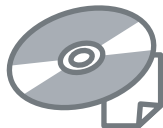
NOTE

Select your desired language with a single click.
The model name is indicated on the bottom of your camcorder.

Getting Started

Charging the Battery Pack

1 Close the LCD monitor to turn off the camcorder.

2 Attach the battery pack.
Slide the battery pack until it locks in place.

3 Connect the AC adapter.

DC Jack

Charge lamp

BATT.

AC Adapter — To AC Outlet (110V to 240V)
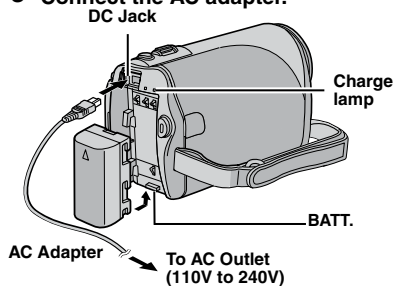
- The charge lamp blinks to indicate charging has started.
- When the lamp goes out, charging is finished.

Required charging/recording time (approx.)
* When the monitor backlight is set to [STANDARD] mode.

Battery pack	Charging time	Recording time
BN-VF808U (Provided)	1 hr. 30 min.	2 hr. 5 min.*
BN-VF815U	2 hr. 40 min.	4 hr. 15 min.*
BN-VF823U	3 hr. 50 min.	6 hr. 25 min.*

■ **To detach the battery pack**
Slide and hold **BATT**., then remove the battery pack.

■ **To check the remaining battery power**
See page 9.

- You can also use the camcorder with just the AC adapter.
- Please do not pull or bend the AC adapter plug and cable. This may damage the AC adapter.
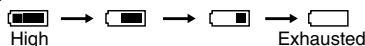
High — Exhausted

Displays the remaining battery power. As the battery power comes close to nil, the battery indicators blink. When the battery power is exhausted, power turns off automatically.
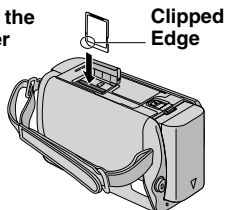
Insert an SD Card

- Operations are confirmed on the following SD cards.
  Class 4 or higher compatible SD or SDHC card
  Panasonic, TOSHIBA, SanDisk, ATP SD card (256 MB to 2 GB) or SDHC card (4 GB to 16 GB)
- If other media are used, they may fail to record data correctly, or they may lose data that had already been recorded.
- MultiMediaCards are not supported.
- Cards used to record video on this camcorder cannot be played back on other devices.
- Some card readers (including internal card readers in PCs) may not be able to support SDHC format. Please use the camcorder or other SDHC compatible devices to access the card.

1 Close the LCD monitor to turn off the camcorder.

2 Open the SD card cover.

3 **Firmly insert the card with its clipped edge first.**

Bottom of the Camcorder **Clipped Edge**

4 **Close the SD card cover.**

■ **To remove an SD card**
Push the SD card once.
After the card comes out a little, pull it out.

NOTES
● Insert and remove the SD card only while the power is turned off. Otherwise, data on the card may be corrupted.
● Do not touch the terminal on the reverse side of the label.

MEMORY CARD ERROR!
Turn off the camcorder. Remove the SD card and insert it again. Turn on the camcorder. If the error message appears again, replace the card with one that is confirmed to operate correctly.
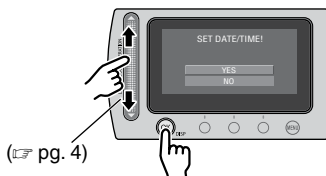
Format an SD card when using it for the first time
This will also ensure stable speed and operation when accessing the SD card.

Select [FORMAT SD CARD] from the MENU.

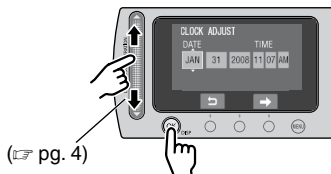
Date/Time Setting

1 **Open the LCD monitor to turn on the camcorder.**

2 **When [SET DATE/TIME!] appears, select [YES] within 10 seconds.**

SET DATE/TIME!
YES
NO

(☞ pg. 4)

If you do not select within 10 seconds, the screen disappears. In such case, press the power button (⏻) and turn the camcorder on again.

3 **Set the date and time.**

CLOCK ADJUST
DATE   TIME
JAN 31 2008 11 07 AM

(☞ pg. 4)

Repeat this step to input the day, month, year, hour and minute.

■ **To change the date and time**
  1) Touch the **MENU** button.
  2) Select [BASIC SETTINGS], and then [CLOCK ADJUST].

■ **To return to the previous screen**
  Select ↰.

■ **To quit the screen**
  Touch the **MENU** button.

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Recording Files

Preparation: ● Insert an SD card.
● Open lens cover.
● Open the LCD monitor to turn on the camcorder.

1 Slide the mode switch to select 🎥 (video) or 📷 (still image) mode.

🎥 📷 Zoom out ◀ W T ▶ Zoom in

2 Press the SELECT PLAY/REC button to select recording mode.

[SELECT]
PLAY/REC

Video Recording

3a Press the START/STOP button to start or stop recording.

Record-standby

🖳 [5 h 5 6 m]
● ⏸
●REC

Recording

Approximate remaining time for recording appears.
■ **Don't forget to make copies/ backup after recording! (☞ pg. 14)**
■ **To change the aspect ratio of the image (16:9/4:3)**
Change the settings in [SELECT ASPECT RATIO] from the MENU.

| 16:9 | 4:3 |

■ **To record a video clip (approx. 10 minutes)**
Before you start recording, press **UPLOAD** button twice to "UPLOAD REC ON". 🎦 appears.

Still Image Recording

Press and hold the SNAPSHOT button halfway.

640 FINE

The 🔍 indicator becomes green when the captured image is focused.

Press the SNAPSHOT button fully to take the photo/picture.

40, FINE [9 9 9 9]
PHOTO

■ **To record still images continuously**
Set to [CONTINUOUS SHOOTING] in [SHUTTER MODE] from the MENU.

NOTES
● A new file will be created for every 4 GB of continuous shooting.
● This camcorder records video in MPEG2 format compliant with SD-VIDEO format. This camcorder is not compatible with other digital video formats.

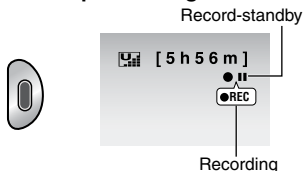■ **To view the video/image you just recorded**
Select 🔄 during pause. During the preview, you can delete the video/image by selecting 🗑.
■ **To change the picture quality**
Change the settings in [VIDEO QUALITY] or [IMAGE QUALITY] from the MENU.

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CHECK LENS COVER
Appears for 5 seconds after power is turned on if the lens cover is closed or when it is dark.

RECORDING FAILURE
● The writing speed of SD card is slow, or the SD card is corrupted. Use an SD card that is confirmed to operate correctly.
● Appears when the SD card is full and recording is not possible. Delete unnecessary files, or replace the SD card.

VIDEO MANAGEMENT FILE IS DAMAGED. RECOVERY IS REQUIRED TO RECORD/PLAYBACK. RECOVER?
The video management file is damaged. Recovery is required to record or play back video files. Select [YES], then touch the **OK** button to recover the video management file.

Manual Recording Mode

Manual recording mode enables you to set focus, screen brightness, etc. manually.

Press twice

Ⓐ **AUTO** ⇆ Ⓜ **MANUAL**

Change the settings in [MANUAL SETTING] from the MENU.

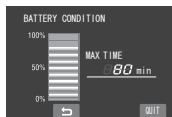## Checking the Remaining Battery Power

Preparation:
Attach the battery pack.

For ▄ mode:
Press the **INFO** button twice or the **INFO** button and then select ▭.
For ▢ mode:
Press the **INFO** button.

INFO

BATTERY CONDITION	
100%	
50%	MAX TIME
	80 min
0%	
⤺	QUIT

■ **To return to the normal screen**
Press the **INFO** button again.

NOTES
● If "COMMUNICATING ERROR" appears, there may be a problem with your battery. In such a case, consult your nearest JVC dealer.
● The recordable time display should only be used as a guide. It is displayed in 10 minute units.
● Pressing **INFO** button while connecting to PC may launch DVD dubbing.

Approximate recording time (for video)

Recording medium / Quality	SD or SDHC Card						
	256 MB	512 MB	1 GB	2 GB	4 GB	8 GB	16 GB
ULTRA FINE	3 min.	6 min.	14 min.	29 min.	1 hr.	1 hr. 50 min.	3 hr. 45 min.
FINE	5 min.	10 min.	21 min.	43 min.	1 hr. 20 min.	2 hr. 50 min.	5 hr. 40 min.
NORMAL	6 min.	13 min.	29 min.	1 hr.	1 hr. 50 min.	3 hr. 45 min.	7 hr. 30 min.
ECONOMY	18 min.	36 min.	1 hr. 20 min.	2 hr. 30 min.	5 hr.	9 hr. 55 min.	19 hr. 50 min.

Approximate number of storable images (for still image)

Recording medium / Image size/Quality	SD or SDHC Card						
	256 MB	512 MB	1 GB	2 GB	4 GB	8 GB	16 GB
640 x 480 / FINE	1480	3030	6205	9999	9999	9999	9999
640 x 480 / STANDARD	2115	4335	8865	9999	9999	9999	9999

Playing Back Files

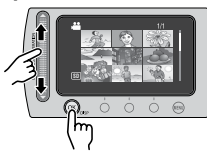**1** Slide the mode switch to select 🎥 (video) or 📷 (still image) mode.

2 Press the SELECT PLAY/REC button to select playback mode.
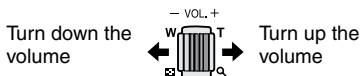
SELECT
PLAY/REC

The index screen for videos appears.

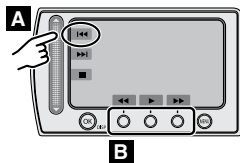**3** Select the desired file using laser sensor and press OK.

■ **To check the file information**
Press the **INFO** button when playback is paused.

■ **To adjust the sound volume of videos**

Turn down the volume ← — VOL. + → Turn up the volume

■ **Using on-screen buttons**

A To select an on-screen button appearing on the left side, touch the portion of the sensor next to the on-screen button.

B To select an on-screen button appearing at the bottom of the screen, touch the touch sensor under the on-screen button you want to select.

■ **Operations during Video Playback**

① ⏮
② ⏭
③ ⏹
④ ◄◄ ⑤ ► ⑥ ►►
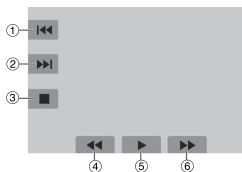
① ⏮ : Return to the first scene of the file
② ⏭ : Go to the first scene of the next file
③ ⏹ : Return to the index screen
④ ◄◄ : Reverse search (during playback)
　◄Ⅰ : Frame-by-frame playback in reverse direction (during pause)*
⑤ ► : Playback
　Ⅱ : Pause
⑥ ►► : Forward search (during playback)
　Ⅰ► : Frame-by-frame playback in forward direction (during pause)*

* Slow playback starts when you keep touching the sensor button under ◄Ⅰ / Ⅰ► for a while.

■ **Operations during Still Image Playback**

① ↰
② ↳
③ ⏹
④ ⏮ ⑤ ► ⑥ ⏭
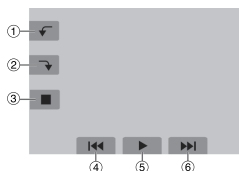
① ↰ : Rotate 90 degrees counterclockwise
　◄ : Change playback order of slide show in reverse direction
② ↳ : Rotate 90 degrees clockwise
　► : Change playback order of slide show in forward direction
③ ⏹ : Return to the index screen
④ ⏮ : Display the previous file
⑤ ► : Start/end the slide show
⑥ ⏭ : Display the next file

10

Watching Images on TV

Preparation:
Turn off all units.

AV Jack

DC Jack

AV Cable

To AC Outlet

AC Adapter

AV Input Jack
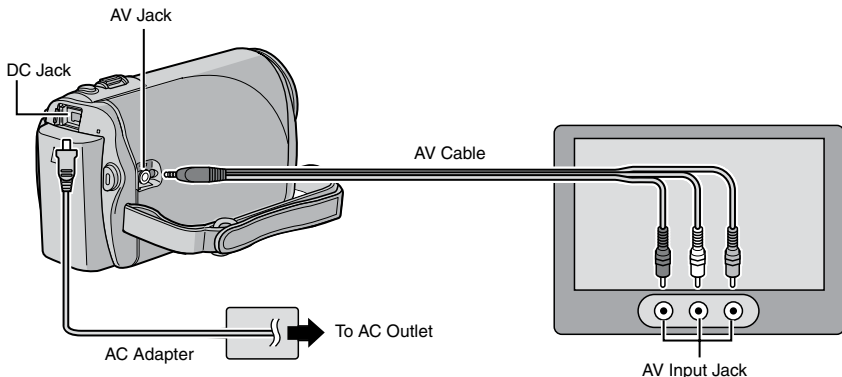
NOTE

This camcorder is designed to be used with NTSC-type color television signals. It cannot be used with a television of a different standard.

1 **Turn on the camcorder and the TV.**

2 **Set the TV to its VIDEO mode.**

3 (Only when connecting the camcorder to the VCR/DVD recorder)
Turn on the VCR/DVD recorder, and set it to its AUX input mode.

4 **Start playback on the camcorder. (☞ pg. 10)**

■ **If the aspect ratio of the image is not correct as shown on the right**
Change the settings in [SELECT TV TYPE] from the MENU.

16:9 TV   **4:3 TV**

■ **To display the camcorder's on-screen display on TV**
Set [DISPLAY ON TV] to [ON] from the MENU.
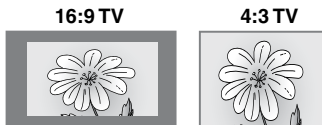
Installing Software to the PC

Please read the "JVC SOFTWARE LICENSE AGREEMENT" in the CD-ROM instruction before you install software.
The following software is included in the CD-ROM that came with your camcorder.

● **PowerCinema NE for Everio**
The main file managing software. You can perform various operations such as file backup, playback, upload and DVD authoring.

Scroll right or left to focus on a function, and select the function by clicking on the picture.

● **Digital Photo Navigator 1.5**
Allows you to change the format of still image files backed up on your PC.

You can find the latest information on the provided software program at CyberLink's world wide web server at http://www2.cli. co.jp/products/ne/

Preparation:
Quit any other software you are using.

1 Load the provided CD-ROM into the PC.

After a moment, the [SETUP] screen appears. If the [SETUP] screen does not appear, double-click the CD-ROM icon in [My Computer].

2 Click [Easy Installation].

3 Click [Yes].
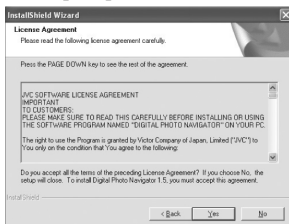
4 Select the desired language and click [OK].

5 Click [Yes].
The software installation starts.
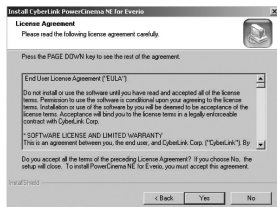
6 Click [Finish].

Connecting the Camcorder to the PC

Preparation:
Close the LCD monitor to turn off the camcorder.

DC Jack

USB Jack

USB Cable

AC Adapter

To AC Outlet

USB Port
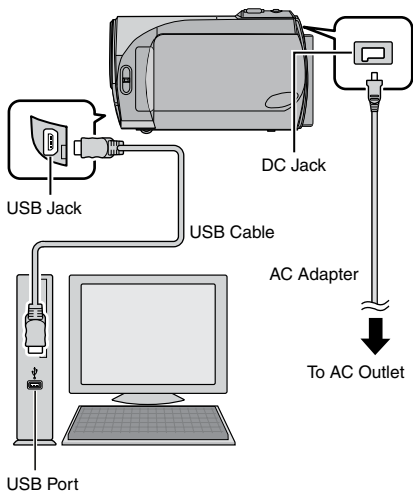
NOTES

● Never disconnect the USB cable while the access/charge lamp on the camcorder lights or blinks.
● Do not turn off the camcorder when the USB cable is connected, to prevent malfunctions of the PC.
● It is recommended to use the AC Adapter as the power supply instead of the battery pack.

POWER IS OFF, OR USB DEVICE IS UNSUPPORTED
Appears when an incompatible USB device is connected to the camcorder.

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File Backup

Video files that have never been backed up onto the connected PC are automatically selected from the back up history and backed up.

Preparation:
● Install the software from the provided CD-ROM. (☞ pg. 12)
● Connect the camcorder to the PC with the USB cable. (☞ pg. 13)

NOTE

When backup is performed, folders are created in the [MyWorks] folder (☞ below), and the files are backed up inside those folders.
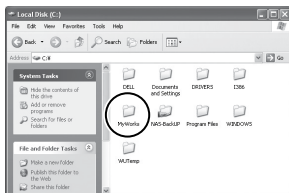
1 **Open the LCD monitor to turn on the camcorder.**

2 **On the camcorder, select [BACK UP] then press OK.**

3 **On the PC, click EVERIO_SD, then click [OK].**
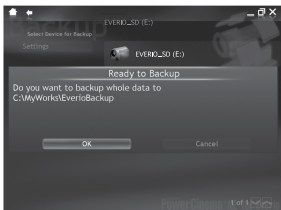
When the progress bar disappears, the process is complete.

Preparation:
Connect the camcorder to the PC with the USB cable. (☞ pg. 13)

1 **On the PC, create a folder to back up files into.**

2 **Open the LCD monitor to turn on the camcorder.**

3 **On the camcorder, select [PLAYBACK ON PC], then press OK.**
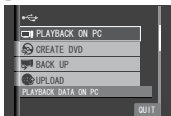
4 **On the PC (Windows®): Select [Open folder to view files using Windows Explorer] and click [OK].**
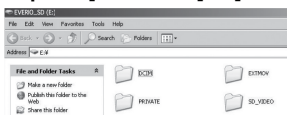
On the PC (Macintosh): double click EVERIO_SD

5 **Select the folder you want to back up, and drag & drop it into the folder you created in step 1.**
● **SD_VIDEO:**
  Folder that contains video files.
● **DCIM:**
  Folder that contains still image files.

e.g. Windows PC

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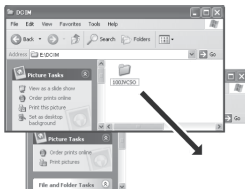
File Upload to YouTube™

This method uses software on the provided CD-ROM to perform quick video clip upload to YouTube™ with a simple one touch operation.

The presence of YouTube™ upload functionality in this product is not an endorsement or recommendation of the product by YouTube LLC.

The operation is possible only with video clips that have been configured for this video sharing website. So, before you start shooting, set upload pre-record mode to "UPLOAD REC ON". (☞ pg. 8)

Preparation:
● Install the software from the included CD-ROM. (☞ pg. 12)
● Connect the camcorder to the PC with the USB cable. (☞ pg. 13)

1 Open the LCD monitor to turn on the camcorder.

2 On the camcorder, press the UPLOAD button.
PowerCinema starts automatically.

3 On the PC, click on the check box of the desired file.
The ✔ mark appears on the left of the selected file.
To select other files, repeat this step.

4 Click [YouTube™].

5 Login your username and password. Click [Next].
To create a YouTube™ account, click [Sign up to YouTube™].
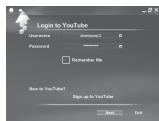
6 Select video category and broadcast option. Click [Next].
The Video Title is automatically filled in during uploading process with the File name, and the Description and Tags with Everio Video references. Date information is also input. If you want to modify this information, sign on to your account on the YouTube™ website: http://www.youtube.com/

7 Click on the check box and then click [Upload].
Uploading starts.
Click [Cancel] to cancel procedure.

8 Click [Finish].

NOTES
● It is recommended to use the AC Adapter as the power supply instead of the battery pack.
● It takes approx. 5 minutes to upload every 1 minute recording of a video clip (for uplink speed of 1Mbps).
● There is no guarantee that the operation will work in all environments or when there are changes in YouTube™ site in the future.

Customer Support Information

Contact us for Information on the Provided Software

Use of this software is authorized according to the terms of the software licence.

JVC

When contacting the nearest JVC office or agency in your country (refer to the JVC Worldwide Service Network at http://www.jvc-victor.co.jp/english/worldmap/index-e.html) about this software, please have the following information ready.

- Product Name
- Model
- Problem
- Error Message

- PC
  Manufacturer
  Model (Desktop/Laptop)
  CPU
  OS
  Memory (MB)
  Available Hard Disk Space (GB)

Please note that it may take some time to respond to your questions, depending on their subject matter.
JVC cannot answer questions regarding basic operation of your PC, or questions regarding specifications or performance of the OS, other applications or drivers.

CyberLink

Telephone/fax support

Location	Language	Office hours (Mon. to Fri.)	Phone #	Fax #
Germany	English / German / French / Spanish / Italian	9:00 am to 5:00 pm	+49-700-462-92375	+49-241-70525-25
Taiwan	Mandarin	9:00 am to 6:00 pm	+886-2-8667-1298 ext. 333	+886-2-8667-1300
Japan	Japanese	10:00 am to 5:00 pm	+81-3-3516-9555	–

Paid voice support

Location	Language	Lines are open (Mon. to Fri.)	URL
U.S.A.	English	1:00 pm to 10:00 pm CST	http://www.cyberlink.com/english/cs/support/new_site/voice_support.jsp

Support web/e-mail

Language	URL/e-mail address
English	http://www.cyberlink.com/english/cs/support/new_site/support_index.html
German / French / Spanish / Italian	goCyberlink@aixtema.de
Japanese	http://jp.cyberlink.com/support/

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Troubleshooting

The camcorder is a microcomputer-controlled device. External noise and interference (from a TV, a radio, etc.) might prevent it from functioning properly.

The following phenomena are not malfunctions.
- The camcorder heats up when it is used for a long time.
- The battery heats up during charging.
- When playing back a video file, the image stops momentarily or the sound is interrupted at junctions between scenes.

- To solve the problem, first follow the instructions below.
- If the problem is not solved, reset the camcorder. (☞ below)
- If the problem persists, please consult your nearest JVC dealer.

■ **To reset the camcorder**
  1) Close the LCD monitor to turn off the camcorder and remove the power supply (battery pack or AC adapter) from the camcorder, then reattach it.
  2) Select [FACTORY PRESET] from the MENU.

	Trouble	Action	☞ pg.
Power	No power is supplied.	● Connect the AC adapter securely. ● Detach the battery pack once again and reattach it firmly. ● Replace the dead battery with a fully charged one.	6 6 –
	The power does not turn on, or the battery operation time is extremely short even after the battery is fully charged.	● Make sure to use the camcorder under appropriate operating temperatures. ● The battery is worn out and needs to be replaced. Please purchase a new one.	20 –
	The power/charge lamp on the camcorder does not light during charging.	● Charging may stop in places subject to extremely high/low temperatures to protect the battery. It is recommended to charge it in places with a temperature of 10°C to 35°C (50°F to 95°F). ● When the battery is already fully charged, the lamp does not light. Check the remaining battery power.	– 9
Recording	Recording cannot be performed.	● SD card is full. Delete unnecessary files or replace the SD card.	–
	During recording, the date/time does not appear.	● Touch the **DISP** button once.	–
	Digital zoom does not work.	● Change the settings in [ZOOM]. ● Digital zoom is not available in the still image recording mode.	– –
	The focus is not adjusted automatically.	● Set [FOCUS] to [AUTO]. ● Clean the lens and check the focus again.	– 19
	The continuous shooting speed is slow.	● The continuous shooting speed will drop after repeated continuous shots, depending on the SD card or under certain recording conditions.	–
Playback	Playback cannot be performed.	● To watch images on a TV, set the TV's input mode or channel that is appropriate for video playback.	11

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Cautions

AC Adapter

**When using the AC adapter in areas other than the USA**
The provided AC adapter features automatic voltage selection in the AC range from 110 V to 240 V.
USING HOUSEHOLD AC PLUG ADAPTER
In case of connecting the unit's power cord to an AC wall outlet other than American National Standard C73 series type use an AC plug adapter, called a "Siemens Plug", as shown. For this AC plug adapter, consult your nearest JVC dealer.
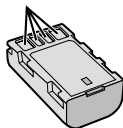
Plug Adapter
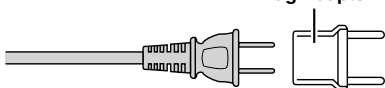
Battery Packs

The supplied battery pack is a lithium-ion battery. Before using the supplied battery pack or an optional battery pack, be sure to read the following cautions:

Terminals

● **To avoid hazards**
... **do not** burn.
... **do not** short-circuit the terminals. Keep it away from metallic objects when not in use. When transporting, make sure the provided battery cap is attached to the battery. If the battery cap is misplaced, carry the battery in a plastic bag.
... **do not** modify or disassemble.
... **do not** expose the battery to temperatures exceeding 60°C, as this may cause the battery to overheat, explode or catch fire.
... use only specified chargers.
● **To prevent damage and prolong service life**
... do not subject to unnecessary shock.
... charge within the temperature range of 10°C to 35°C (50°F to 95°F). This is a chemical reaction type battery — cooler temperatures impede chemical reaction, while warmer temperatures can prevent complete charging.
... store in a cool, dry place. Extended exposure to high temperatures will increase natural discharge and shorten service life.
... fully charge and then fully discharge the battery every 6 months when storing the battery pack over a long period time.
... remove from charger or powered unit when not in use, as some machines use current even when switched off.

ATTENTION:
The battery you have purchased is recyclable. Please call 1-800-8-BATTERY for information on how to recycle this battery.

Recording Medium (SD Card)

● **Be sure to follow the guidelines below to prevent corruption or damage to your recorded data.**
  ● Do not bend or drop the recording medium, or subject it to strong pressure, jolts or vibrations.
  ● Do not splash the recording medium with water.
  ● Do not use, replace, or store the recording medium in locations that are exposed to strong static electricity or electrical noise.
  ● Do not turn off the camcorder power or remove the battery or AC adapter during shooting, playback, or when otherwise accessing the recording medium.
  ● Do not bring the recording medium near objects that have a strong magnetic field or that emit strong electromagnetic waves.
  ● Do not store the recording medium in locations with high temperature or high humidity.
  ● Do not touch the metal parts.

LCD Monitor

● **To prevent damage to the LCD monitor, DO NOT**
... push it strongly or apply any shocks.
... place the camcorder with LCD monitor on the bottom.
● **To prolong service life**
... avoid rubbing it with coarse cloth.

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Cleaning

Before cleaning, turn off the camcorder and remove the battery pack and AC adapter.

Main Unit

- **For safety, DO NOT**
... open the camcorder's chassis.
... disassemble or modify the unit.
... allow inflammables, water or metallic objects to enter the unit.
... remove the battery pack or disconnect the power supply while the power is on.
... leave the battery pack attached when the camcorder is not in use.
... place naked flame sources, such as lighted candles, on the apparatus.
... expose the apparatus to dripping or splashing.
... leave dust or metal objects adhered to the power plug or an AC wall outlet.
... insert any objects in the camcorder.
- **Avoid using the unit**
... in places subject to excessive humidity or dust.
... in places subject to soot or steam such as near a cooking stove.
... in places subject to excessive shock or vibration.
... near a television set.
... near appliances generating strong magnetic or electric fields (speakers, broadcasting antennas, etc.).
... in places subject to extremely high (over 40°C) or extremely low (under 0°C) temperatures.
- **DO NOT leave the unit**
... in places of over 50°C.
... in places where humidity is extremely low (below 35%) or extremely high (above 80%).
... in direct sunlight.
... in a closed car in summer.
... near a heater.
... in high places such as on a TV. Leaving the unit in high places while a cable is connected may result in a malfunction if the cable is caught and the unit falls onto the floor.
- **To protect the unit, DO NOT**
... allow it to become wet.
... drop the unit or strike it against hard objects.
... subject it to shock or excessive vibration during transportation.
... keep the lens directed at extremely bright objects for long periods.
... expose the lens to direct sunlight.
... swing it excessively when using the hand strap.
... swing the soft camcorder case excessively when the camcorder is inside it.
- **To prevent the unit from dropping,**
  - Fasten the grip belt securely.
  - When using the camcorder with a tripod, attach the camcorder to the tripod securely.
  If the camcorder drops, you may be injured and the camcorder may be damaged.
  When a child uses the unit, there must be parental guidance.

■ **To clean the exterior**
Wipe gently with a soft cloth. If the camcorder is particularly dirty, dip the cloth into diluted mild soap and wring it out well before wiping. Then wipe again with a dry cloth.

■ **To clean the LCD monitor**
Wipe gently with a soft cloth. Be careful not to damage the monitor.

■ **To clean the lens**
Wipe gently with lens cleaning paper.

NOTES
- Avoid using strong cleaning agents such as benzine or alcohol.
- Mold may form if the lens is left dirty.
- When using a cleaner or chemically treated cloth, refer to the cautions for each product.

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Specifications

Camcorder

■ **For general**
Power supply
DC 11 V (Using AC adapter)
DC 7.2 V (Using battery pack)
Power consumption
Approx. 2.3 W*
* When the monitor backlight is set to
[STANDARD] mode.
Dimensions (W x H x D)
54 mm x 68 mm x 111 mm
(2-3/16" x 2-11/16" x 4-3/8")
Weight
Approx. 225 g (0.50 lbs)
(incl. grip belt)
Approx. 270 g (0.60 lbs)
(incl. battery and grip belt)
Operating temperature
0°C to 40°C (32°F to 104°F)
Operating humidity
35% to 80%
Storage temperature
–20°C to 50°C (–4°F to 122°F)
Pickup
1/6" (680,000 pixels) CCD
Lens
F 1.8 to 3.2, f = 2.2 mm to 61.6 mm,
28:1 power zoom lens
Filter diameter
ø30.5 mm
LCD monitor
2.7" diagonally measured, LCD panel/TFT
active matrix system
Speaker
Monaural
Language
English/French/Spanish/Portuguese/
Japanese/Korean/Traditional Chinese

■ **For video/Audio**
Format
SD-VIDEO
Recording/Playback format
Video: MPEG-2
Audio: Dolby Digital (2 ch)
Signal format
NTSC standard
Recording mode (video)
ULTRA FINE: 720 x 480 pixels, 8.5 Mbps
(VBR)
FINE: 720 x 480 pixels, 5.5 Mbps (VBR)
NORMAL: 720 x 480 pixels, 4.2 Mbps (VBR)
ECONOMY: 352 x 240 pixels, 1.5 Mbps (VBR)
Recording mode (audio)
ULTRA FINE: 48 kHz, 384 kbps
FINE: 48 kHz, 384 kbps
NORMAL: 48 kHz, 256 kbps
ECONOMY: 48 kHz, 128 kbps

■ **For still image**
Format
JPEG
Image size
640 x 480
Picture quality
2 modes (FINE/STANDARD)

■ **For connectors**
AV output
Video output: 1.0 V (p-p), 75 Ω
Audio output: 300 mV (rms), 1 kΩ
USB
Mini USB type B, USB 2.0 compliant

AC Adapter

Power requirement
AC 110 V to 240 V∿, 50 Hz/60 Hz
Output
DC 11 V ⎓ , 1 A

Design and specifications subject to change
without notice.

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