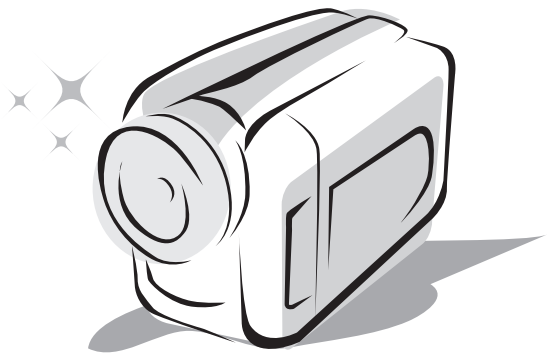


User's Manual



Digital Camcorder

English

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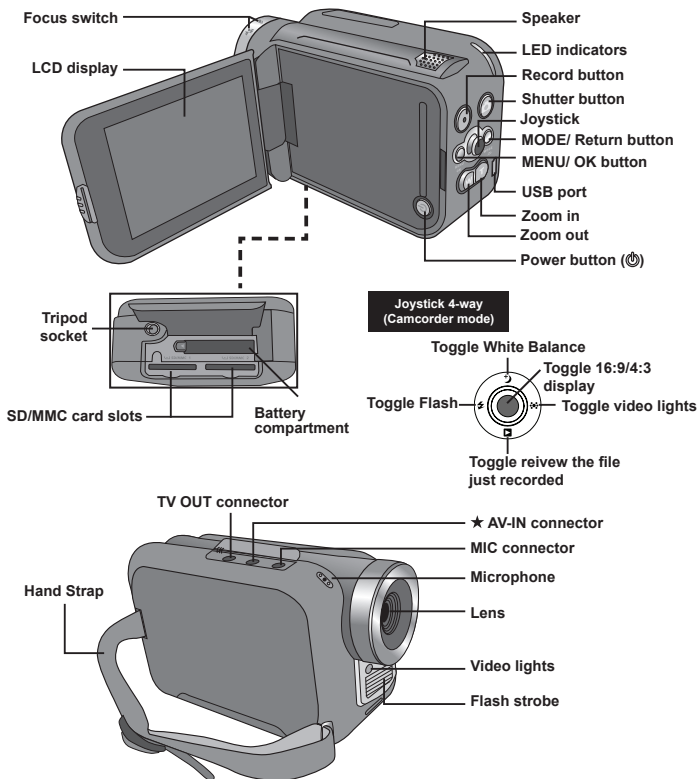
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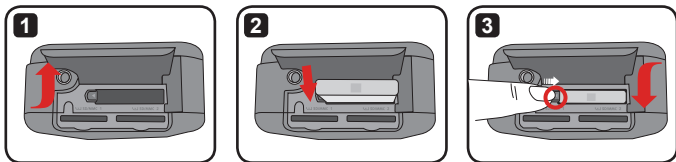
Getting Started

Parts of the camcorder

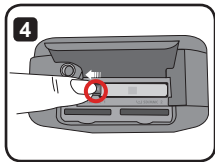


★ For select model only. Please refer to the package printing for detailed specification.

Loading/Removing battery



- 1** Slide the battery compartment cover open as indicated.
- 2** Insert the Li-ion battery into the battery compartment as indicated. Note that the metallic contacts on the battery must be aligned with those in the compartment.
- 3** Make sure the drop prevention lever clicks into place. Replace the compartment cover.
- 4** To remove the battery, push the drop prevention lever downward and take out the battery pack.



Using SD/MMC card (optional)

In addition to the internal built-in memory, your camcorder can store data on a Secure Digital (SD) card or a MultiMedia card (MMC). To insert a memory card, gently push the card until the card reaches the bottom of the slot (make sure the beveled corner is correctly aligned). When a card is successfully inserted, you will see the storage icon changes on the LCD. To remove the memory card, gently push the card and it will pop up. Then pull the card out of the slot.

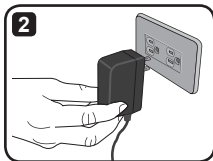
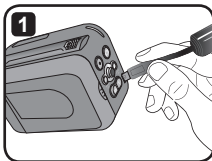
- i** There are 2 card slots. Depending on which card slot is being used, the storage icon will change accordingly:

 : using internal memory

 : using card slot 1

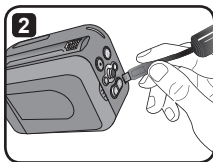
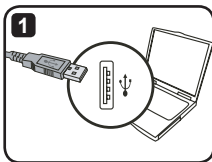
 : using card slot 2

Charging battery - using adapter



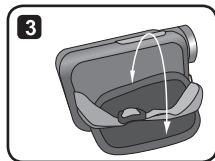
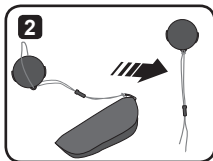
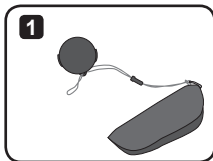
- 1** Connect the smaller end of the power cable to the USB port of the camcorder.
 - 2** Plug the AC adapter to a wall outlet, and the charge will start to take place. The LED indicates red light during charging. When the battery is fully charged, the LED light will go out.
- i** You can power on and use the camcorder when charging with the adapter. An icon on the LCD indicates charging is in progress. Note that the charging time may extend.

Charging battery - using PC



- 1** Power on your computer. Connect one end of the USB cable to the computer.
 - 2** Connect the other end of the USB cable to the camcorder, and the charge will start to take place. The LED indicates red light during charging. When the battery is fully charged, the LED light will go out.
- i** **DO NOT** power on the camcorder when the battery is being charged, or the charging will be interrupted.

Attaching the strap



- 1** Thread the strap through the eyelet on the edge of the lens cap.
- 2** Pass the lens cap and pull it tighten as indicated.
- 3** Unfasten the touch fastener and then fold it again with the hand strap on the inside.

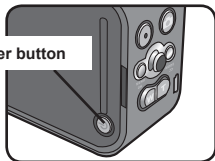


Basic Operations

Powering the camcorder on and off

Open the LCD monitor and the camcorder will be automatically powered on. Or press the Power button for 2 seconds to turn on or turn off the camcorder.

Power button



❗ If the camcorder is not turned on after pressing the Power button, please check:

1. A Li-ion battery is installed in the camcorder.
2. The installed battery has enough power left.
3. The metallic contacts of the installed battery are correctly aligned with those in the compartment.

❗ If the camcorder stays idle for over a period of time, the camcorder may automatically shut down due to the [Power Off] setting. See “Advanced Operations” section for more information.

Switching mode

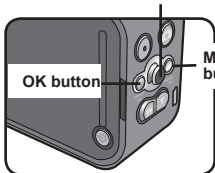
The camcorder provides several modes to use. After powering on the camcorder, press the Mode button and then use the Joystick to select a mode you want to enter. Then press the OK button to confirm. If you want to switch mode afterwards, press the Mode button and then repeat the above operation.

-  : **Settings** - configure system settings.
-  : **Camcorder** - take pictures; record videos.
-  : **My Works** - playback files; delete/ copy/ lock files.
-  : **Voice Recorder** - record voice clips.
-  : **Music Player** - play MP3 music.
-  : **Movie Recorder** - View/Record AV-in images.

Joystick

OK button

Mode button



❗ In any other than the Settings and Camcorder modes, you can press the Shutter button to switch to Camcorder mode.

Setting time

- 1 Power on the camcorder and switch to Settings mode (⚙️).
- 2 Use the Joystick to select the [Clock] item, and then press OK (or move the Joystick toward right) to confirm.
- 3 Move the Joystick up/down to adjust value. Move the Joystick left/right to shift between fields.
- 4 When all are done, press OK to confirm the setting.

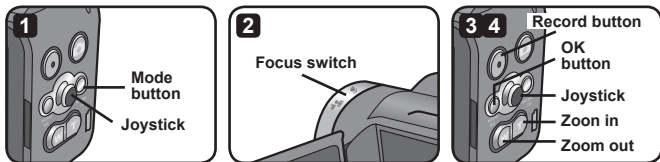


Setting language

- 1 Power on the camcorder and switch to Settings mode (⚙️).
- 2 Use the Joystick to select the [Language] item, and then press OK (or move the Joystick toward right) to confirm.
- 3 Move the Joystick up/down to select a language.
- 4 When done, press OK to confirm the setting.



Recording a video clip



1 Power on the camcorder and it will automatically enter Camcorder mode (📹).

2 Adjust the focus as appropriate:

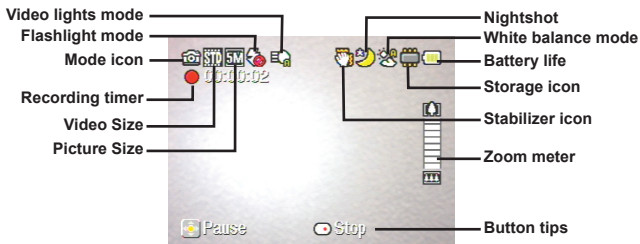
Mode	Range
Normal (📹)	20" ~ ∞ (50cm ~ ∞)
Macro (🌸)	12" ~ 20" (30cm ~ 50cm)

3 Press the Record button to start recording. While recording, you can use the zoom in/out button to zoom in/out the image or press the Joystick to pause/resume recording.

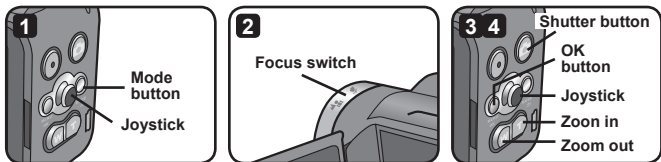
4 Press the Record button again to stop recording.

❗ You can move the Joystick toward right to change video lights mode.

OSD display - recording video



Taking a still picture



1 Power on the camcorder and it will automatically enter Camcorder mode ().

2 Adjust the focus as appropriate:

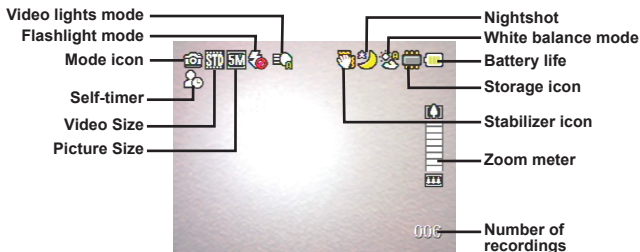
Mode	Range
Normal ()	20" ~ ∞ (50cm ~ ∞)
Macro ()	12" ~ 20" (30cm ~ 50cm)

3 Use the zoon in/out button to zoom in/out the image until a proper picture is set.

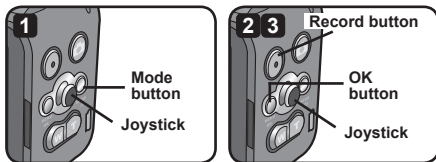
4 Press the Shutter button to take a still picture.

i You can move the Joystick toward left to change Flashlight mode.

OSD display - Camcorder mode



Recording a voice clip



- 1 Power on the camcorder and switch to Voice Recorder mode ().
 - 2 Press the Record button to start recording. While recording, you can press the Joystick to pause/resume recording.
 - 3 Press the Record button again to stop recording.
- i** You can press the Joystick to playback the clip just recorded.
- i** During playing, you can move the Joystick up/down to adjust sound volume.

OSD display - Voice Recorder mode



Playing files

- 1 Power on the camcorder and switch to My Works mode (.
- 2 Upon entering My Works mode, you will be prompted to select which type of file to display:
Image: display pictures and videos.
Video: display only videos.
Picture: display only pictures.
Voice: display voice clips.
- 3 Operations in My Works mode:

File Type / View	Button	Function
File index view	Joystick (left/right)	Move the file highlight box.
	Joystick (center)	Switch to full screen view. If the selected file is a video or voice clip, it will start playing.
All (full screen)	Record button	Switch to file Index view.
	Joystick	Move left/right to shift between files.
Still picture	Zoom in	Zoom in the picture
	Zoom out	Zoom out the picture (when zoom ratio is greater than 1.0).
	Joystick (center) ➡ Joystick (right/left)	When zoom ratio is greater than 1.0, press the Joystick(center) and then use the Joystick(left/right) to browse the enlarged picture. To quit browse mode, press the Joystick(center) again.
Audio & Video	Joystick (center)	Start playing the file.
Audio & Video (when playing)	Record button	Stop playing.
	Joystick (left/right)	Move left or right to fast-backward or fast-forward playing.
	Joystick (up/down)	Turn sound volume up/down.
	Joystick (center)	Pause/Resume playing.

- i** In camcorder mode, you can press the Joystick downward to review the file just recorded. When viewing, you can press the Menu button and choose to delete the file if you do not like the result.

OSD display - My Works mode



Locking a file / Copying files

By setting a file to be locked, you can prevent the file from being accidentally deleted. To lock a file:

- 1** Use the Joystick to select the file to be protected and press the Menu button to enter menu. Then select the [Lock File] item and move the Joystick toward right.
- 2** Select [On] and press the Joystick (or move the Joystick toward right) to confirm.
- 3** A lock (🔒) icon will appear on the screen, and the file is protected.

i This function cannot prevent a file from being formatted.

- 4** To copy files from current memory card to another, press the Menu button to enter menu. Then select the [Copy File] item and press Joystick (or move the Joystick toward right). Note that you must insert two memory cards to enable this function.

Music Player

Copy MP3 files * (select model only)

- 1 Power on your computer and connect one end of the USB cable into the computer. Power on the camcorder and connect the other end of the USB cable to the camcorder. Select the [Disk] item from the pop-up menu and press the Joystick (or move the Joystick toward right) to confirm.
- 2 You will be prompted that a removable disk is found by your computer. Double-click on [My Computer] and you will find the removable disk. Create one [Music] folder in the removable disk if you do not see one, and then you are ready to copy MP3 files into the folder for playing.



Playing music * (select model only)

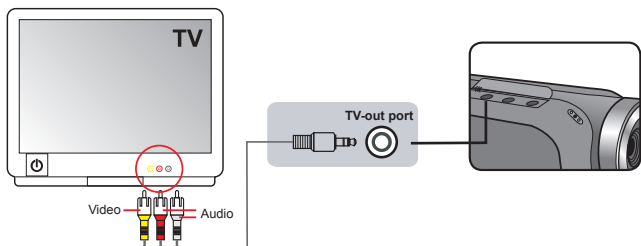
- 1 Power on the camcorder and switch to Music Player mode (🎧).
- 2 The MP3 files are sorted by albums or artists. The album and artist attributes are constituted by the ID3 tag stored along with the specific MP3 file.
- 3 Operations in Music Player mode:

File Type	Button	Function
MP3 (not playing)	Joystick (center)	Start playing the title.
	Joystick (up/down)	Select title.
MP3 (when playing)	Joystick (center)	Pause/Resume playing
	Joystick (up/down)	Adjust sound volume. (After the meter appears, pressing Joystick left/right can also adjust sound volume.)
	Joystick (left/right)	Long-push left/right : fast-backward or fast-forward playing.
	Record button	Stop playing.

Viewing display on a TV

Connecting the camcorder to TV

Connect your camcorder and TV via the accessory AV cable for real-time display. You can display your video clips, still pictures, and audio recordings directly on your TV, sharing them with your friends and family.

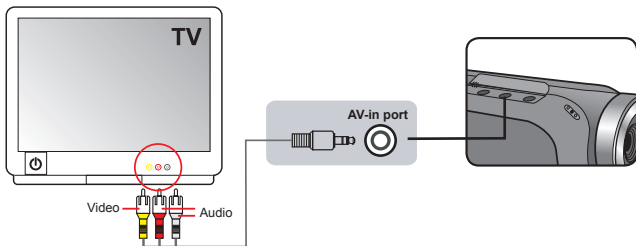


- 1** Power on your TV and switch the TV to AV mode.
- 2** Connect the audio and video ends of the AV cable to the [Video/Audio In] ports on the TV.
- 3** Power on the camcorder.
- 4** Connect the other end of the AV cable to the [TV out] port on your camcorder.
- 5** Select [TV Out] on the pop-up menu. Press the OK button to confirm.

Recording TV program or DVD

Connecting the camcorder to TV or DVD player * (select model only)

The advanced MPEG-4 digital video recording technology allows you to record TV program via the AV-IN cable.

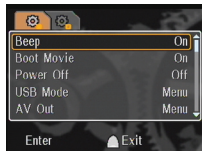


- 1** Power on your TV or DVD player.
 - 2** Connect the audio and video ends of the AV cable to the [Video/Audio Out] ports on the TV or DVD player. (Normally it is not necessary to adjust the TV or DVD player. Please refer to the instruction manual of the device.)
 - 3** Connect the other end of the AV cable to the camcorder's [AV-in] port.
 - 4** Power on the camcorder and switch to Movie Recorder mode (📺). Make sure that the image displayed on the TV or DVD player is also displayed on the camcorder's LCD monitor.
 - 5** Press the Record button to start recording.
 - 6** Press the Record button again to stop recording.
- i** The recorded videos will also appear in My Works mode.

Advanced Operations

Using menu

The menu items provide several options for you to fine-tune your camcorder functions. The following table gives details on menu operations:



How to...	Action
Bring up the menu in each mode	Press the Menu button. Note that this step is not necessary in the Settings mode.
Move the highlight bar	Use the Joystick to move up/down.
Confirm an item/action; enter sub-menu	Press the Joystick or move the Joystick toward right (when a menu item is being selected).
Exit menu	Press the Menu button or the Mode/Return button.

Menu items in Settings mode (⚙️) - 1

Item	Options	Description
Beep	On/Off	Toggle beep sound on/off.
Boot Movie	On/Off	Toggle booting animation on/off.
Power Off	Off ~ 5 Min	Set how long the camcorder will automatically shut down when staying inactive. Setting to [Off] will make the camcorder stay powered on until it runs out of power.
USB Mode	Menu	When connected to a PC, the camcorder displays a menu for you to choose a desired connection mode.
	Disk	When connected to a PC, the camcorder automatically enters [Disk] (removable disk) mode.
	Printer	When connected to a PictBridge compatible printer, the camcorder automatically enters [Printer] mode.

Menu items in Settings mode () - 2

Item	Options	Description
AV Out	Menu	When connected to a device, the camcorder displays a menu for you to choose the connection mode.
	Headphone	When connected to a device, the camcorder automatically enters [Headphone] connection mode.
	TV Out	When connected to a device, the camcorder automatically enters [TV Out] connection mode.
Clock	[time setting]	Move the Joystick up/down to adjust value. Move the Joystick left/right to shift between items. Press OK when done.
Language	[setting language]	Set the OSD (on screen display) language.
TV System	NTSC	This option is suitable for America, Taiwan, Japan, and Korea areas.
	PAL	This option is suitable for Germany, England, Italy, Netherlands, China, Japan, and Hong Kong.
Flicker	50Hz/60Hz	Set flicker frequency to 50Hz or 60Hz. See table below for more details.
LCD Brightness	1 ~ 4	Set LCD brightness.
LCD Contrast	1 ~ 4	Set LCD contrast.
Select Card	Card 1/Card 2	Select which memory card to use.
Format Card	Yes/No	Format the storage medium. Note that all files stored in the medium will be gone.
Reset Default	Yes/No	Restore factory defaults. Note that your current settings will be overridden.

* Flicker table:

Region	England	Germany	France	Italy	Spain	Netherlands	Russia
Setting	50Hz	50Hz	50Hz	50Hz	50Hz	50Hz	50Hz
Region	Portugal	America	Taiwan	China	Japan	Korea	Thailand
Setting	50Hz	60Hz	60Hz	50Hz	50/60Hz	60Hz	50Hz

Note: The flicker setting is based on the frequency standard of your local power supply.

Menu items in Camcorder mode () - 1

Item	Options	Description
Video Size	WEB	Set video resolution to WEB (320x240) pixels.
	STD	Set video resolution to STD (640x480) pixels.
	DVD	Set video resolution to DVD (720x480) pixels.
Image Size	3M	Set picture resolution to 3 mega pixels.
	5M	Set picture resolution to 5 mega pixels.
	12M	Set picture resolution to 12 mega pixels.
Stabilizer	On/Off	Minimize image blur caused by hand shake when enabled.
Self-timer	On/Off	Enable/Disable the selftimer. After the self-timer is turned on, the camcorder will have ten seconds delay before recording when the Shutter button is pressed.
White Balance	Auto	The camcorder automatically adjusts white balance.
	Sunny	This setting is suitable for outdoor recording in sunny weather.
	Cloudy	This setting is suitable for recording in cloudy weather or shady environments.
	Fluorescent	This setting is suitable for indoor recording with fluorescent lamp lighting, or environments with high color temperature.
	Tungsten	This setting is suitable for indoor recording with incandescent lamp lighting, or environments with low color temperature.
EV Comp	+2.0 ~ -2.0	Manually adjust the exposure to gain better effect when the preview image appears too bright or too dark. A positive value indicates the image will be brighter than usual; while a negative value makes the image dimmer.
Photo Frame	1 ~ 10	This setting allows you to add customized frames to photos. 10 background frames are available on the LCD monitor.
	0	The Photo Frame function is disabled.
Effect	Normal	Record images in natural color.
	B&W	Record images in black and white.
	Classic	Record images in sepia-toned color.
Two-in-One	On/Off	This setting allows you to combine two images taken individually into one photo.

Menu items in Camcorder mode () - 2

Item	Options	Description
Flashlight	Off	The flash is disabled.
	Auto	The flash automatically fires when the lighting is insufficient.
	On	The flash is forced to fire in every shot.
Video Light	On/Auto/Off	Set the LED lights to always on, auto on when recording videos in dark surroundings, or off.
Icon Display	On/Off	Enable/Disable the display of OSD icons.
Nightshot	On/Off	Enabling this setting allows you to take a photograph with a dark background. Since the shutter speed will slow down when taking photographs at a dark place, we recommend using a tripod to eliminate blurring from hand shake. Note: Noise increases when Nightshot is enabled.
Date Stamp	On/Off	Enable this feature to print a date mark on each picture.
Select Card	Card 1/Card 2	Select which memory card to use.

- ① When the [Image Size] setting exceeds 5M, the “Photo Frame” and “Two-in-One” options will not be available.
- ① When [Image Size] is set to 10M or above, the “digital zoom” function will not be available.
- ① The “Photo Frame” and “Two-in-One” options are mutually exclusive.
- ① The “Self-timer” and “Two-in-One” options are mutually exclusive. Also, if you enable one of these options and then press the Record button to record a video, the setting will be cancelled automatically.

Menu items in My Works mode

Item	Options	Description
Delete One *1,2,3,4	Yes/No	Delete the selected picture, video, or audio file.
Delete All *1,2,3,4	Yes/No	Delete all pictures, videos, and audio files stored in the current medium.
Lock File *1,2,3,4	On/Off	Enable/Disable protection of the selected file.
Copy File *1,2,3,4	-	If you have two memory cards inserted in the camcorder, using this function will start copying all files from the current card to the unused card. Note: 1) Must have 2 cards inserted to use this function. 2) Larger files take longer to copy.
Image Play *1 Video Play *2 Picture Play *3	-	Start slide show of the recorded pictures and/or videos. To stop playing, press the Record button.
Select Card *1,2,3,4	Card 1/Card 2	Select which memory card to use.

*1: for Image (video and picture); *2: for Video; *3: for Picture; *4: for Voice

Menu items in Voice Recorder mode

Item	Options	Description
Volume	-	Set sound volume.
Quality	Normal	Set sound quality to normal.
	High	Set sound quality to high. Produces better sound but may consume more memory.
Delete One	Yes/No	Delete the selected voice clip.
Delete All	Yes/No	Delete all voice clips.
Select Card	Card 1/Card 2	Select which memory card to use.

Menu items in Music Player mode ★

Item	Options	Description
Repeat	All	Repeat playing all titles in current list.
	Single	Repeat playing the current title over and over again.
	Random	Repeat playing all titles in current list at random order.
	Off	Do not repeat playing.
EQ	Off ~ 15 EQ settings	Select one of the pre-defined EQ settings from the menu. You can set an EQ best suits the music you are playing, or turn the EQ off to enjoy the original flavor.
Effect	Stereo	Process sound signals on both left and right channels, thus producing stereo output. If both channels contain mono signals, the output will be mono.
	Left	Process sound signals on the left channel and bypass signals on the right channel.
	Right	Process sound signals on the right channel and bypass signals on the left channel.
	Vocal Remove	Turn down the vocal level of the song, thus resembling Kara OK effect.
3D Enhance	Off / Low / Medium / High	Set the level of 3D sound enhancement.
Select Card	Card 1/Card 2	Select which memory card to use.

Menu items in Movie Recorder mode ★

Item	Options	Description
Video Size	WEB	Set the resolution of recording to WEB (320x240) pixels.
	STD	Set the resolution of recording to STD (640x480) pixels.
	DVD	Set the resolution of recording to DVD (720x480) pixels.
Icon Display	On/Off	Enable/Disable the display of OSD icons.
Select Card	Card 1/Card 2	Select which memory card to use.

Copy files to PC

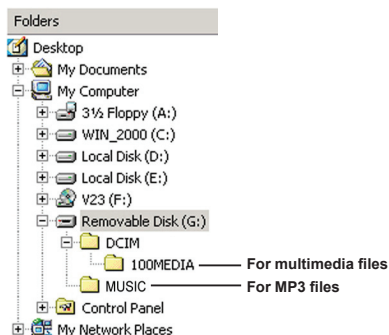
Connecting the camcorder to PC

- 1 Turn on your computer, and then connect the accessory USB cable to the USB port of your computer. Make sure the connector and the port are correctly aligned.
- 2 Connect the other end of the USB cable to your camcorder. Power on the camcorder.

File folder of the removable disk

After the camcorder is connected to your computer and set as a removable disk, a removable disk icon will appear in "My Computer". The removable disk actually represents the storage medium of your camcorder. In the disk you can find all of your recordings and copy the files to your computer.

Refer to the figure on the right to see where the files are stored.



Troubleshooting

When connecting the camcorder to PC or TV:

Problem	Cause	Solution
I cannot view the video clips on my computer.	Driver or software is not installed on the computer.	Install <i>Direct X 9.0</i> or above to solve this problem. Please go to http://www.microsoft.com to download the required files.
The TV screen does not display after connecting the camcorder to the TV.	The camcorder is not correctly connected to the TV.	Reconnect the camcorder to TV correctly.
The camcorder does not respond when connecting to PC.	The [USB Mode] setting is set to [Printer].	Set the [USB Mode] option to [Menu].
The camcorder does not respond when connecting to TV.	The [AV Out] setting is set to [Headphone].	Set the [AV Out] option to [Menu].

Battery power indicator table

OSD icon	Status
	Full battery power
	Moderate battery power
	Low battery power
	Empty battery power

Note: To avoid sudden outage of power supply, you are recommended to replace or recharge the battery when the icon indicates low battery power.

Capacity table

Memory	Video (hh:mm:ss")			Audio (hh:mm:ss")	
	DVD(D1)	STD(VGA)	WEB(QVGA)	Normal	High
Flash (22MB)	12':00"	16':00"	1:00':00"	3:00':00"	1:30':00"
SD/MMC card (256MB)	28':00"	30':00"	2:00':00"	6:00':00"	3:00':00"
SD/MMC card (512MB)	1:00':00"	1:20':00"	4:00':00"	12:00':00"	6:00':00"
SD/MMC card (1GB)	2:00':00"	2:40':00"	8:30':00"	24:00':00"	12:00':00"
SD/MMC card (4GB)	4:00':00"	5:30':00"	17:00':00"	48:00':00"	24:00':00"

Memory	Still picture		
	12M	5M	3M
Flash (22MB)	130	300	500
SD/MMC card (256MB)	260	600	1000
SD/MMC card (512MB)	520	1200	2000
SD/MMC card (1GB)	1040	2400	4000
SD/MMC card (4GB)	2080	4800	8000

Note: The above tables are for your reference only. The actual value of capacity may vary (up to $\pm 30\%$) depending on the complexity of your subject and surroundings.

Battery life table

Still picture	Video clip
Number of shots	Recording time
300	2:00':00"
Conditions: 1) shoot every 30 seconds 2) use flash every shot 3) resolution is set to 5M	Conditions: 1) resolution is set to STD (VGA)

Note: This table is for your reference only. The actual battery life depends on the charging level and quality of your battery.

Specifications

Item	Description
Digital Video Camcorder (Video Resolution)	DVD (720x480), up to 30fps STD (640x480) , up to 30fps WEB (320x240) , up to 30fps
Digital Still Camera (Hardware Resolution)	12 Mega; 5 Mega; 3 Mega
Sensor Resolution	5 Mega Pixels (2592x1944 pixels)
File Format	ASF/ JPEG/ MP3/ WAV
Internal Memory	32 MB Flash Memory (16 MB for storage)
External Memory	SD Card with dual slot (up to 4G for each)
LCD Display	3.0" LTPS LCD
Lens	Fixed, 2 steps
Digital Zoom	16X
Anti-red eyes (IGBT)	Yes
Built-in Stereo Microphone	Yes
Built-in Speaker	Yes
Voice Recorder	Yes
TV out	NTSC/PAL Color System Supported
Self-timer	10 sec.
Auto Power Off	1/ 3/ 5 Minutes Auto Off
Interface	USB 2.0 mass storage
Battery	Li-Ion Rechargeable Battery (1000mA or above)
Dimensions (LxWxH)	113 x 68 x 53 mm

* Specifications are subject to change without notification.

System requirement

- Microsoft Windows 2000/ XP
- Pentium 4, 1.5GHz or equivalent
- 256MB of RAM (512MB Recommended)
- Video card with 64MB of RAM for minimum 24bit (True Color) display
- 4X speed CD ROM or higher
- Direct X 9.0c or above and Windows Media Player Codecs
- USB Connector