

Canon

PUB. DIM-0949-000

VIXIA
HFS20

VIXIA
HFS21

VIXIA
HFS200



HD Camcorder
Instruction Manual

English

Caméscope HD
Manuel d'instruction

Français

Videocámara HD
Manual de Instrucciones

Español

NTSC

PictBridge

HDMI AVCHD



Photos

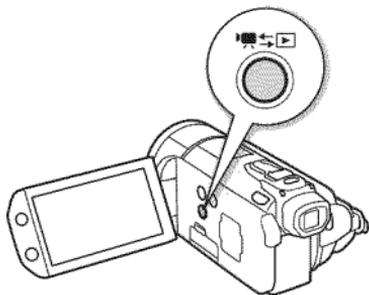
Refer to this chapter for details on taking photos (advanced shooting functions), viewing photos and printing them. For details about basic photo shooting, refer to *Dual Shot Mode* (📖 42).

Basic Playback

Viewing Photos

Operating modes: |

1 Press .

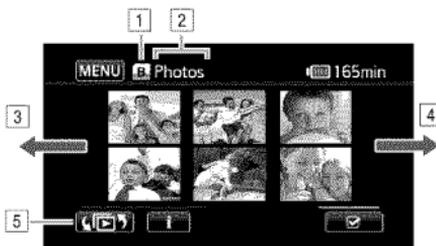


2 Open the [Photos] index screen, if it is not displayed.



3 Look for the photo you want to play back.

Move the zoom lever toward **W** to show 15 photos per page; move it toward **T** to show 6 photos per page.



- 1 Memory being read.
- 2 Index screen currently displayed.
- 3 Drag your finger left for the next index page.
- 4 Drag your finger right for the previous index page.
- 5 Select a different index screen to read different content or from a different memory (📖 53).

4 Touch the photo you wish to view.

- The photo is displayed in single photo view.
- Drag your finger left/right to browse through the photos one by one.

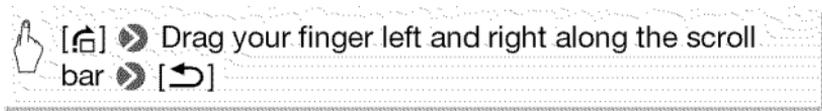
To return to the index screen from single photo view

- 1 Touch the screen to display the playback controls.
- 2 Touch [🎞️].

Photo Jump Function

When you have recorded a large number of photos, you can jump easily through the photos using the scroll bar.

- 1 Touch the screen to display the playback controls.
- 2 Jump through the photos using the scroll bar.



IMPORTANT

- Observe the following precautions while the ACCESS indicator is on or flashing. Failing to do so may result in permanent data loss.
 - Do not open the double memory card slot cover.
 - Do not disconnect the power source or turn off the camcorder.
 - Do not change the camcorder's operating mode.
- The following image files may not be displayed correctly.
 - Images not recorded with this camcorder.
 - Images edited on or uploaded from a computer.
 - Images whose file names have been changed.

Deleting Photos

You can delete those photos that you are not interested in keeping.

Operating modes:    |  

Deleting a Single Photo

- 1 In single photo view, select the photo you want to delete.
- 2 Touch the screen to display the playback controls.
- 3 Delete the photo.



- 4 Drag your finger left/right to select another photo to delete or touch [X].

Deleting Photos from the Index Screen

- 1 Open the [Photos] index screen.



- 2 Touch [Grid] to open the photo selection screen.

3 Touch on the individual photos you want to delete.

- A checkmark ✓ will appear on photos selected. Touch a selected photo again to remove the checkmark.
- To select all the photos at once: Touch [Select All] instead of touching individual photos. (Remove in advance any checkmarks from photos you may have selected individually.)

4 Delete the photos.



* Touch [Stop] to interrupt the operation while it is in progress. Some photos will be deleted nevertheless.

IMPORTANT

- Be careful when deleting photos. Deleted photos cannot be recovered.
- Protected photos cannot be deleted.

Additional Functions

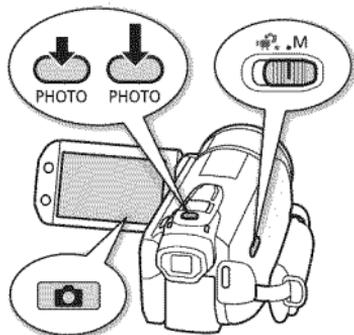
Taking Photos in **M** Manual Mode

Operating modes: 

1 Set the mode switch to **M**.

2 Turn on the camcorder.

- By default, photos are recorded in the built-in memory (**HFS21/S20** only) or on memory card **A** (**HFS200**). You can select the memory that will be used to record photos ( 38).
- Please read the **IMPORTANT** section before using an Eye-Fi card.



3 Touch  to switch to  mode.

4 Press  halfway.

Once the focus is automatically adjusted,  will turn green and one or more AF frames will appear.

5 Press  fully.

The ACCESS indicator will flash as the photo is being recorded.

IMPORTANT

- Observe the following precautions while the ACCESS indicator is on or flashing. Failing to do so may result in permanent data loss.
 - Do not open the double memory card slot cover.
 - Do not disconnect the power source or turn off the camcorder.
 - Do not change the camcorder's operating mode.
- When recording photos on an Eye-Fi card in memory card slot **B**, photos will be uploaded automatically if you are within the range of a configured network. Always verify that Eye-Fi cards have been approved in the country/region of use. See also *Using an Eye-Fi card* ( 150).

NOTES

- If the subject is not suitable for autofocus,  turns yellow. Adjust the focus manually ( 76).
- When the subject is too bright, [Overexp.] will flash on the screen. In such case, use the optional 58 mm ND4-L or ND8-L filter.

Deleting a Photo Right After Recording It

You can delete a photo you have just recorded while reviewing it within the time set for the   [Photo Review Time] option.

Operating modes:    |  

While reviewing the photo immediately after recording:



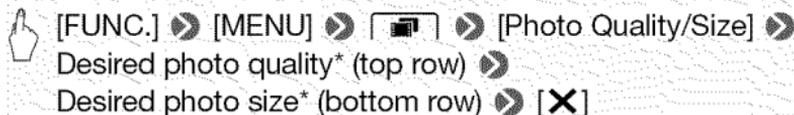
NOTES

- If you press  during the photo review time, the photo will continue to be displayed indefinitely. Press  halfway to return to normal shooting mode.

Selecting Photo Size and Quality

Photos are recorded as JPG files. As a general rule, select a larger photo size for higher quality. Select the [LW 3264x1840] size for photos with an aspect ratio of 16:9.

Operating modes:    |  



* The number displayed on the right corner indicates the approximate number of photos that can be recorded with the current quality/size setting.

Options

Large capacity memory cards, like those usually used for video recording, can contain a very large number of photos. As a reference, the number of photos that can be recorded on a 1 GB memory card is given in the following table.

Approximate number of photos available on a 1 GB memory card

♦ Default value

Memory card	Photo quality		
	 [Super Fine]	 ♦ [Fine]	 [Normal]
L 3264x2456♦	170	260	520
LW 3264x1840	230	345	695
M 1920x1440	505	760	1,500
MW 1920x1080 ¹	670	1,000	1,970
S 640x480	4,395	6,350	11,430 ²

¹ This size is only available for simultaneous recording in  mode or  mode or for capturing photos from a movie ( 100).

² Approximate number of photos that can actually be recorded on the memory card. (The maximum number of remaining photos displayed on the screen is 9999.)

NOTES

- The actual number of photos that can be recorded will vary depending on the subject and shooting conditions.
- The camcorder retains the last setting used even if you set the camcorder to  mode.
- When printing photos, use the following guidelines as a reference for selecting the print size.
 - **L** 3264x2456: To print photos up to A3 size (29.7 x 42 cm, 11.7 x 16.5 in.).
 - **M** 1920x1440: To print photos up to L size (9 x 13 cm, 3.5 x 5 in.) or postcard size (10 x 14.8 cm, 4 x 6 in.).
 - **S** 640x480: To send photos as e-mail attachments or to post on the Web.
 - **LW** 3264x1840, **MW** 1920x1080: To print photos with a 16:9 aspect ratio. (Wide-sized photo paper is required.)

Flash

You can use the flash to take photos in dark places.

Operating modes:    |  

POINTS TO CHECK

- Select a recording program other than [ Fireworks].

1 Select the flash mode.



- The icon of the selected flash mode appears.
- #### 2 Press **[PHOTO]**, first halfway to activate the autofocus and then fully to record the photo.

Depending on the setting selected and shooting conditions, the flash will pop up and fire. After using the flash, gently press the pop-up flash to close it.

Options (♦ Default value)

- [ Automatic]♦** The flash fires automatically according to the brightness of the subject.
- [ Red-Eye Auto]** The flash fires automatically according to the brightness of the subject. The assist lamp lights up to reduce the red-eye effect.
- [ Flash On]** The flash always fires.
- [ Flash Off]** The flash does not fire.

Using the VFL-2 Video Flash Light

You can use the optional VFL-2 Video Flash Light as an external flash when its POWER switch is set to  ON. The procedure for setting the external flash is the same as for the built-in flash.

Attach the optional VFL-2 Video Flash Light to the mini advanced shoe.

Refer to *Using the Mini Advanced Shoe* ( 86).

 appears when you turn on the video flash light ( ON). For details about using the video flash light, refer to the instruction manual of the VFL-2.

NOTES

- The flash will not fire in the following cases:
 - When the flash mode is set to [ Automatic] or [ Red-Eye Auto] and you manually adjust the exposure.
 - During auto exposure bracketing.
 - When the flash mode is set to [ Automatic] or [ Red-Eye Auto] and the recording program is set to [ Night Scene].
 - When using an optional video light.
- **About the AF-Assist Lamp:** While you press  halfway, if the surroundings of the subject are too dark, the mini video light may pop up and the assist lamp may light up briefly in order to enable the camcorder to focus more accurately (AF-assist lamp).
 - You can also set [  [AF-Assist Lamp] to [ Off] so the assist lamp is not activated.
 - The camcorder may not be able to focus even if the AF-assist lamp is on.
- The practical range of the flash is approx. 1 to 2 m (3.3 to 6.6 ft.). The practical range with the VFL-2 attached is approx. 1 to 4 m (3.3 to 13.1 ft.). In any case, the actual range will depend on the recording conditions.
- The range of the flash decreases in continuous shooting mode.
- For red-eye reduction to be effective, the subject needs to look at the assist lamp. The degree of reduction depends on the distance and on each individual.
- The flash mode cannot be selected when the exposure is locked.
- We recommend not using the flash while the optional Wide-converter or Tele-converter is attached; its shadow can appear on the screen.

Drive Mode: Continuous Shooting and Exposure Bracketing

Take a series of photos of a moving subject or record the same picture in 3 levels of exposure in order to choose later the photo you like the best.

Operating modes:



POINTS TO CHECK

- Select a recording program other than [ Fireworks].

 [FUNC.] ➤ [Drive Mode] ➤ Desired option ➤ []

Options (♦ Default value)

Single♦ Records a single photo.

AE Bracketing The camcorder records 3 photos using 3 different exposures (dark, normal, light in 1/2 EV steps), allowing you to choose the photo you like the best.

Continuous, [] **Hi-Speed Cont.**

Captures a series of up to 60 photos as long as you hold **[PHOTO]** pressed down. There are two continuous shooting speed settings: normal (approx. 3 photos/second) and high speed (approx. 5 photos/second).

Continuous Shooting/Hi-Speed Continuous Shooting

- 1 Press **[PHOTO]** halfway to activate the autofocus.
- 2 Press **[PHOTO]** fully and hold it pressed down.

Auto Exposure Bracketing

Press **[PHOTO]**, first halfway to activate the autofocus and then fully to record the 3 photos.

NOTES

- Continuous shooting speeds are approximate and vary depending on recording conditions and subjects.

- When the flash is used, continuous shooting speed will decrease to approx. 2.1 photos/second. Continuous shooting speed will decrease also when using slow shutter speeds (1/30 or slower).

Taking Photos while Recording Movies (Simultaneous Recording)

You can record photos even while the camcorder is set to  mode. Moreover, you can capture the photo at the same time you are recording video. Photos recorded with simultaneous recording will have the same aspect ratio of movies (16:9).

Please read the IMPORTANT section ( 114) before using an Eye-Fi card.

Operating modes:    |  

 [FUNC.]  [MENU]    [Simultaneous Recording]  Desired photo quality* (top row)** 
 Desired photo size* (bottom row)  [X]

* The number displayed on the right corner indicates the approximate number of photos that can be recorded with the current quality/size setting.

** Touch  if you do not intend to use simultaneous recording.

Operating modes:    |  

While recording, or in record pause mode, press  to capture the photo.

In  mode, the size/quality of photos taken while recording video (simultaneous recording) will be determined by the setting selected with this procedure; the size/quality of photos taken in record pause mode will be determined by the photo size set in  mode ( 109).

IMPORTANT

- When recording photos on an Eye-Fi card in memory card slot **B**, photos will be uploaded automatically if you are within the range of a configured network. Always verify that Eye-Fi cards have been approved in the country/region of use. See also *Using an Eye-Fi card* ( 150).

NOTES

- Photo quality will be higher when photos are recorded in  mode or in  mode during record pause.
- Photos will be recorded on the memory selected for recording photos.
- Photos cannot be recorded simultaneously while the digital zoom or a digital effect is activated.
- Photos cannot be recorded simultaneously at [LW 3264x1840] size while the digital tele-converter ( 80) is activated.
- If while recording video, photos are recorded simultaneously at [LW 3264x1840] size, you may notice a very brief stop during the playback of the video at the point where  was pressed.

Light Metering Mode

The camcorder measures the light reflected from the subject in order to calculate the optimal exposure settings. Depending on the subject, you may want to change the way the light is measured and evaluated.

Operating modes:    |  

POINTS TO CHECK

- Select a recording program other than the Special Scene recording programs.

 [FUNC.]  [Metering Mode]  Desired option  [X]

Options (♦ Default value)

 **Evaluative**♦ Appropriate for standard shooting conditions, including backlit scenes. The camcorder divides the picture into several areas and the light is measured in all of them to achieve the optimal exposure for the subject.

 **Center-Wt. Avg.** Averages the light metered from the entire screen, giving more weight to the subject in the center.

 **Spot** Meters only the area within the spot AE point frame. Use this setting to adjust the exposure to match the subject in the center of the screen.

Slideshow

You can play a slideshow of all the photos and even set it to music.

Operating modes:    |  

- 1 Open the [Photos] index screen.
- 2 Select the background music to use when playing back the photo slideshow ( 93).

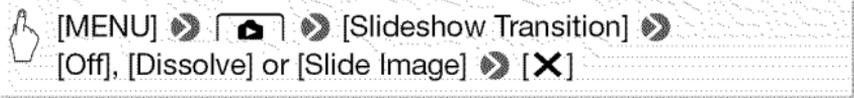
Slideshow set to a music track

- 3 Touch the screen to display the playback controls, then touch  to play back the slideshow set to the selected music track.

Slideshow not linked to the external audio

- 3 Touch the screen to display the playback controls, then touch  to start the slideshow.
- 4 Start the music playback on the external player.
 - Drag your finger left and right along the volume bar to adjust the volume.
 - Touch  to stop the slideshow. Hide the playback controls if necessary.

To change the slideshow's transition effects



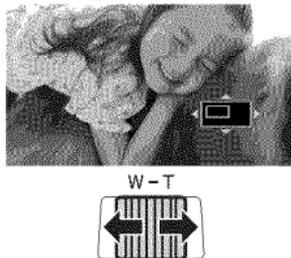
Magnifying Photos during Playback

In single photo view, photos can be magnified up to 5 times.  will appear for photos that cannot be enlarged.

Operating modes:    |  

1 Move the zoom lever toward **T**.

- The photo is magnified by 2 times and a frame appears indicating the position of the magnified area.
- To further enlarge the photo, move the zoom lever toward **T**. To reduce the magnification times, move it toward **W**.



2 Drag your finger across the photo to display the area you want to see enlarged.

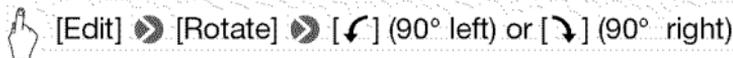
To cancel the magnification, move the zoom lever toward **W** until the frame disappears.

Rotating Photos

You can rotate photos 90 degrees to change their orientation.

Operating modes:    |  

- 1 In single photo view, select the photo you want to rotate.
- 2 Touch the screen to display the playback controls.
- 3 Rotate the photo.



- 4 Drag your finger left/right to select another photo to rotate or touch **[X]**.

Histogram Display

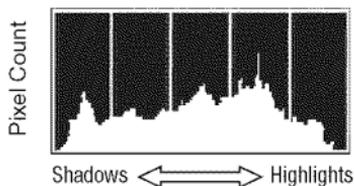
In single photo view, you can display the histogram and the icons of all the functions used at the time of recording (Exif information panel). The histogram will be displayed also immediately after taking a photo. Use the histogram as a reference to verify the correct exposure of the photo.

Operating modes:    |  

* In  mode the histogram will be displayed while a photo is reviewed immediately after having taken the photo.

Touch the screen to display the playback controls.

The histogram and Exif information panel are displayed as well. Press **[DISP.]** to hide the histogram and Exif information panel.



The area to the right of the histogram represents highlights and the left side represents shadows. A photo whose histogram skews to the right is relatively bright; while one whose histogram peaks to the left, is relatively dark.

Protecting Photos

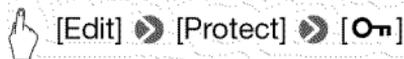
You can protect photos from accidental erasure.

Operating modes:    |  

Protecting Single Photos

- 1 In single photo view, select the photo you want to protect.
- 2 Touch the screen to display the playback controls.

3 Protect the photo.



- appears and the photo cannot be deleted. Touch [On] again to remove the protection.

4 Drag your finger left/right to select another photo to protect or touch [X].

Protecting Photos from the Index Screen

1 Open the [Photos] index screen.

2 Touch [] to open the photo selection screen.

3 Touch on the individual photos you want to protect.

- A checkmark will appear on photos selected. Touch a selected photo again to remove the checkmark.
- To select all the photos at once: Touch [Select All] instead of touching individual photos. (Remove in advance any checkmarks from photos you may have selected individually.)

4 Protect the photos.



* Touch [Remove Protection] to remove the protection from the selected photos.

IMPORTANT

- Initializing the memory will permanently erase all recordings, including protected photos.

You can also use the following functions...

The following functions and features of the camcorder can be used either for shooting video or for taking photos. The way to set and use them was already explained in detail, so we refer you to the relevant page in the "Video" section.

- Zoom (📖 46)
- Quick Start (📖 47)
- Recording programs (📖 61, 63, 71)
- Face detection (📖 67)
- Touch & Track (📖 68)
- Digital effects (📖 70)
- Manual exposure adjustment (📖 74)
- Manual focus adjustment (📖 76)
- White balance (📖 79)
- Image effects (📖 81)
- Mini video light (📖 82)
- Self timer (📖 83)

Printing Photos

Printing Photos (Direct Print)

The camcorder can be connected to any PictBridge-compatible printer. You can mark in advance the photos you want to print and set the desired number of copies as a print order (📖 123).

Canon printers: SELPHY printers of the CP, DS and ES series and PIXMA printers carry the PictBridge logo.



Operating modes:    |  

Connecting the Camcorder to the Printer

- 1 In single photo view, select a photo you want to print.
- 2 Turn on the printer.
- 3 Connect the camcorder to the printer using the supplied USB cable.
 - Connection . Refer to *Connection Diagrams* (📖 128).
 - If the device selection screen appears, touch [Computer/Printer].
 -  appears and changes to .

IMPORTANT

- If  continues to flash (for more than 1 minute) or if  does not appear, the camcorder is not correctly connected to the printer. In such case, disconnect the USB cable and turn off the camcorder and the printer. After a short while, turn them on again, set the camcorder to  mode and restore the connection.
- During the following operations, even if you connect a printer to the camcorder it will not be recognized.
 - Deleting all photos
 - Removing all print orders

NOTES

-  will appear for photos that cannot be printed.
- We recommend powering the camcorder using the compact power adapter.

- Refer also to the printer's instruction manual.
- If you have no intention to use the optional DW-100 DVD Burner, you can set   [USB Connection Type] to  Computer/Printer so the device type selection screen does not appear every time you connect the camcorder to a printer.
- For best performance when connecting the camcorder to a PictBridge-compatible printer, we recommend keeping the number of photos in the memory to no more than 100 photos.

Printing a Single Photo

With the camcorder correctly connected to the printer and the photo you want to print displayed in single photo view:



- Printing starts. When the printer finishes printing the photo, the camcorder will return to single photo view.
- Touch [Stop]  [Yes] to interrupt the printing in progress.
- Drag your finger left/right to select another photo to print.

To change the paper size



NOTES

- Print setting options and the [Default] paper size vary depending on the printer used. For details, refer to your printer's instruction manual.

When you have finished printing

Disconnect the USB cable from the camcorder and printer and turn off the camcorder.

Print errors

If an error occurs while printing, an error message (for example, [No paper]) will appear on the camcorder's screen. Solve the problem refer-

ring to the error message list (📖 191) and to the printer's instruction manual.

- **Canon's PictBridge-compatible printers:** If printing does not resume automatically after you solved the problem, touch [Continue] to resume printing. If that option is not available, touch [Stop] and then restart printing from the beginning.
- **Other printers or if the error still persists with a Canon printer:** If printing does not resume automatically, disconnect the USB cable and turn off the camcorder. After a short while, turn on the camcorder and restore the USB connection.

Print Orders

You can mark in advance photos you want to print from those recorded on a memory card, and set the desired number of copies as a print order. Later, you can easily print out the print orders by inserting the memory card into the SD memory card slot of DPOF-compatible printers or self-served digital photo kiosks. You can set print orders for up to 998 photos.

Operating modes:    |  

Marking Single Photos with Print Orders

- 1 In single photo view, select the photo you want to mark with a print order.

Check that you are viewing photos recorded on a memory card. (A or B appears next to the photo number.)

- 2 Touch the screen to display the playback controls.
- 3 Mark the photo with a print order.



- The total number of copies in the DPOF print order appears next to the 📄 icon.
 - To cancel the print order, set the number of copies to 0.
- 4 Drag your finger left/right to select another photo to mark with a print order or touch [X].

Setting Print Orders from the Index Screen

1 Open the [Photos] index screen.

Check that you have selected the [A] or [B] tab (memory card **A** or **B**).

2 Touch [☑] to open the photo selection screen.

3 Touch on the individual photos you want to mark with a print order.

- A checkmark ✓ will appear on photos selected. Touch a selected photo again to remove the checkmark.
- To select all the photos at once: Touch [Select All] instead of touching individual photos. (Remove in advance any checkmarks from photos you may have selected individually.)

4 Mark the photos with print orders.



Options

[One Copy Each] Sets a print order of 1 copy of each of the selected photos.

[Remove Print Orders] Removes all the print orders from the selected photos.

NOTES

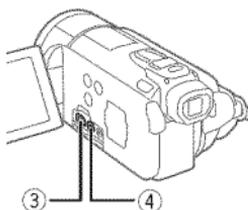
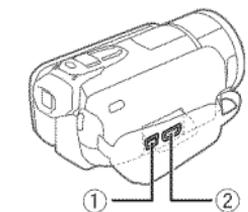
- **HFS21/S20** To set print orders for photos recorded in the built-in memory, copy the photos to memory card **B** in advance.



External Connections

This chapter explains how to connect your camcorder to an external device such as a TV, VCR, or computer.

Terminals on the Camcorder



① USB Terminal

Access: Open the side terminal cover.



② HDMI OUT Terminal*

Access: Open the side terminal cover.

The HDMI OUT terminal offers a high-quality digital connection that combines audio and video in a single convenient cable.



③ COMPONENT OUT Terminal*

Access: Open the LCD panel and terminal cover.

The component video terminal is for video only. When you use connection ② do not forget the audio connections using the AV OUT/🔊 terminal.

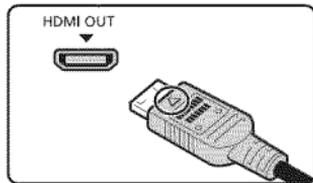
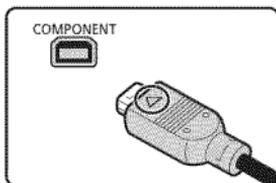


④ AV OUT/🔊 Terminal

Access: Open the LCD panel and terminal cover.

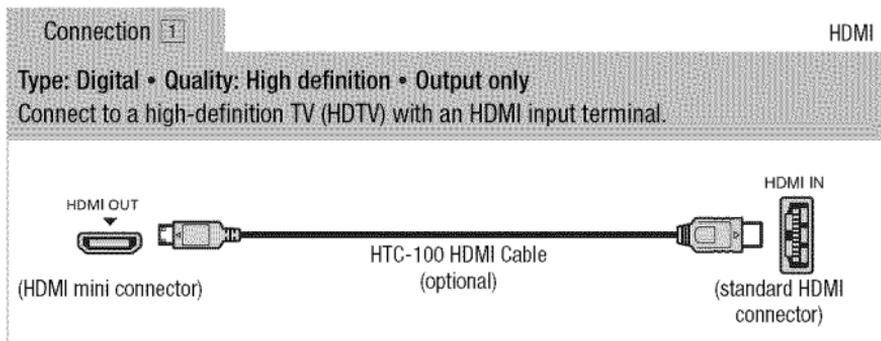
Sound from the built-in speaker will be muted while the STV-250N Stereo Video Cable is connected to the camcorder. Adjust the volume on the connected TV.

* When connecting a cable to the camcorder, make sure to align the cable so the triangle mark on the connector is facing up.



Connection Diagrams

In the following connection diagrams, the left side shows the terminals on the camcorder and the right side shows (for reference only) an example of terminals on a connected device.



About the HDMI™ connection

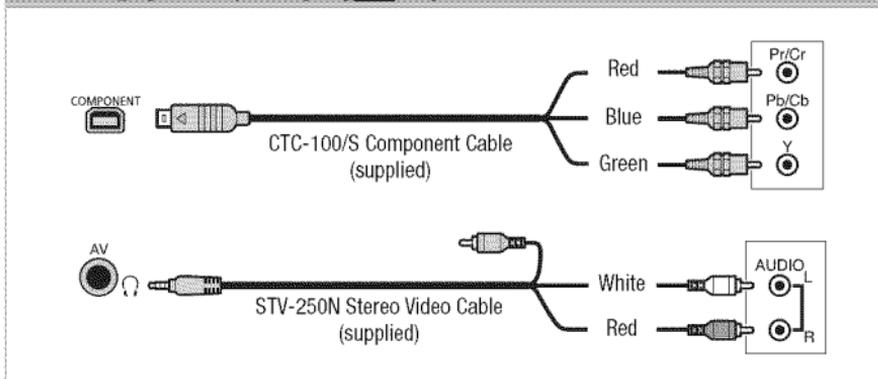
The HDMI (High-Definition Multimedia Interface) connection (**1**) is a convenient all-digital connection using a single cable for both video and audio. When you connect the camcorder to an HDTV equipped with an HDMI terminal, you can enjoy video and audio playback at the highest quality.

- The HDMI OUT terminal on the camcorder is for output only. Do not connect it to an HDMI output terminal on an external device, as this may damage the camcorder.
- While the camcorder is connected to an HDTV using connection **1**, there will be no video output from other terminals.
- Correct operation cannot be guaranteed when connecting the camcorder to DVI monitors.
- Depending on the HDTV, correct playback of personal video content may not be possible using connection **1**. Try one of the other connections.

Type: Analog • Quality: High Definition • Output only

Connect to a high-definition TV (HDTV) with component video input terminals. Change the following settings on the camcorder:

- [TV Type] [AV/Headphones] to [AV AV]



Type: Analog • Quality: Standard definition • Output only

Connect to a standard TV or a VCR with audio/video input terminals. Change the following settings on the camcorder:

- [TV Type] [TV Type] according to the TV set (widescreen or 4:3), if the TV cannot automatically detect and change the aspect ratio
- [AV/headphones] [AV/headphones] to [AV AV]



Type: Digital data connection

Connect to a computer to save your recordings, to the optional DW-100 DVD Burner to create DVD discs from them, or to a printer to print out photos.

**i** NOTES

- To be able to write back scenes and to transfer music files from the computer to the camcorder, power the camcorder using the compact power adapter and only then connect it to the computer using the supplied USB cable.

Playback on a TV Screen

Connect the camcorder to a TV to enjoy your recordings with family and friends. Playback on an HDTV using one of the high-definition connections will ensure the best playback quality.

Operating modes:    |  

1 Turn off the camcorder and the TV.**2 Connect the camcorder to the TV.**

Refer to *Connection Diagrams* (📖 126) and select the most appropriate connection for your TV.

3 Turn on the connected TV.

On the TV, select as the video input the same terminal to which you connected the camcorder. Refer to the instruction manual of the connected TV.

4 Turn on the camcorder and set it to  or  mode.

Play back the movies or photos.

NOTES

- To correctly play back movies recorded with x.v.Color ( 162) on an HDTV compatible with this standard, additional settings may be required on the connected HDTV. Refer to the TV's instruction manual.
- We recommend powering the camcorder using the compact power adapter.
- Connection : When you play back your 16:9 movies on standard TV sets with a 4:3 aspect ratio, the TV set will switch automatically to wide-screen mode if it is compatible with the Video ID-1 system. Otherwise, change the aspect ratio of the TV manually.

Saving and Sharing Your Recordings

Copying Recordings to a Memory Card

You can copy your recordings only one-way: from the built-in memory or from memory card **A** to memory card **B**. Scenes and photos will be copied from the index screen you selected to the corresponding index screen on the memory card.

Please read the IMPORTANT section (📖 132) before using an Eye-Fi card.

POINTS TO CHECK

- Make sure the memory card to which you want to copy recordings is inserted into memory card slot **B**.

Copying Scenes

Operating modes:    |  

1 Open the index screen that contains the scenes you want to copy.

- Select the  tab to copy scenes from the built-in memory (HFS21/S20 only) or the **A** tab to copy scenes from memory card **A**.
- [Original] or [Video Snapshot] → [Original] index screen: To copy all the scenes recorded on a specific date, narrow down the scenes shown to scenes recorded on that date (📖 56).

2 Touch to open the scene selection screen.

When you copy scenes from the [Playlist] index screen (including the playlist of video snapshot scenes), you cannot select individual scenes; instead, the entire playlist will be copied. Skip directly to step 4.

3 Touch on the individual scenes you want to copy.

- A checkmark  will appear on scenes selected. Touch a selected scene again to remove the checkmark.
- To select all the scenes at once: Touch [Select All] instead of touching individual scenes. (Remove in advance any checkmarks from scenes you may have selected individually.)

4 Copy the scenes.



* Touch [Stop] to interrupt the operation while it is in progress.

Copying a Single Photo

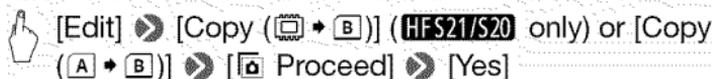
Operating modes:    |  

1 In single photo view, select the photo you want to copy.

Check that you are viewing photos recorded in the built-in memory (HF521/S20 only) or on memory card A. (📷 or A appears next to the photo number.)

2 Touch the screen to display the playback controls.

3 Copy the photo.



4 Drag your finger left/right to select another photo to copy or touch [X].

Copying Photos from the Index Screen

Operating modes:    |  

1 Open the [Photos] index screen.

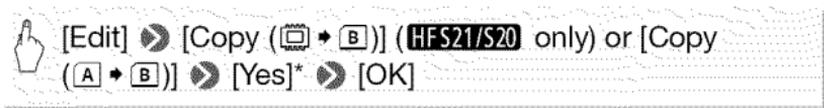
Select the 📷 tab to copy photos from the built-in memory (HF521/S20 only) or the A tab to copy photos from memory card A.

2 Touch [👉] to open the photo selection screen.

3 Touch on the individual photos you want to copy.

- A checkmark ✓ will appear on photos selected. Touch a selected photo again to remove the checkmark.
- To select all the photos at once: Touch [Select All] instead of touching individual photos. (Remove in advance any checkmarks from photos you may have selected individually.)

4 Copy the photos.



* Touch [Stop] to interrupt the operation while it is in progress.

! IMPORTANT

- Observe the following precautions while the ACCESS indicator is on or flashing. Failing to do so may result in permanent data loss.
 - Do not open the double memory card slot cover.
 - Do not disconnect the power source or turn off the camcorder.
 - Do not change the camcorder's operating mode.
- When copying photos onto an Eye-Fi card in memory card slot **B**, photos will be uploaded automatically if you are within the range of a configured network. Always verify that Eye-Fi cards have been approved in the country/region of use. See also *Using an Eye-Fi card* (📖 150).

i NOTES

- In the following cases, you will not be able to copy recordings to the memory card:
 - If the double memory card slot is open.
 - If the LOCK switch on memory card **B** is set to prevent writing.
 - If there is no memory card in memory card slot **B**.
- Scenes that were edited using the supplied software **ImageMixer 3 SE** and were then written back to the camcorder cannot be copied to the memory card.
- If there is not enough space on memory card **B**, as many photos as possible will be copied before stopping the operation.

Saving Recordings on a Computer

Movies recorded with this camcorder are saved in the built-in memory (**HFS21/S20** only) or on the memory cards. Because space is limited, make sure to save your recordings on a computer on a regular basis.

Saving Movies

With the supplied software **ImageMixer 3 SE** you can save scenes to your computer. If necessary, video files previously saved on a computer can be restored back to the camcorder. The software also offers many options for organizing your video library, editing video and more.

Installation

See 'PIXELA Applications' Installation Guide.

Using the software

See 'ImageMixer 3 SE Software Guide' (PDF file).

Saving Photos

With the supplied software **Photo Application** you can save photos to your computer, and easily organize and edit them.

Installation

Install the software before you connect the camcorder to the computer for the first time. See also the relevant sections in the 'Photo Application' Instruction Manual ([**PHOTO**] PDF file) in the [MANUALS_ENGLISH] folder on the supplied Camcorder Supplemental Disc.

Install the supplied Photo Application software following the instructions in the software's instruction manual.

[**PHOTO**] Refer to *Installing Photo Application*.

First-time connection to a computer running Windows

Windows users only: The first time you connect the camcorder to the computer, you also need to select the CameraWindow auto-launch setting.

 Refer to *Starting CameraWindow*.

Using the software

- 1 Power the camcorder using the compact power adapter.
- 2 Set the camcorder to  mode, in single photo view.
- 3 Connect the camcorder to the computer using the supplied USB cable.
 - Connection [4]. Refer to *Connection Diagrams* (128).
 - If the device type selection screen appears, touch [Computer/Printer].
- 4 Save the photos onto the computer.

 Refer to *Downloading Still Images to the Computer*.

IMPORTANT

- **When the camcorder is connected to a computer:**
 - Do not open the double memory card slot cover and do not remove the memory cards.
 - Do not access, change or delete any of the camcorder's folders or files directly from the computer as this may result in permanent data loss. Always save your movies on the computer, and restore files to the camcorder, using only the supplied software **ImageMixer 3 SE**.
- Operation may not work correctly depending on the software and the specifications/settings of your computer.
- If you wish to use the image files on your computer, make copies of them first. Use the copied files, retaining the originals.
- Observe the following precautions while the ACCESS indicator is on or flashing. Failing to do so may result in permanent data loss.
 - Do not open the double memory card slot cover.
 - Do not disconnect the USB cable.
 - Do not turn off the camcorder or the computer.
 - Do not change the camcorder's operating mode.

- When restoring to the camcorder video files that were previously saved to the computer, do not disconnect the USB cable or turn off the camcorder or computer. Doing so may result in scenes that cannot be played back on the camcorder.

NOTES

- Refer also to the computer's instruction manual.
- **Users of Windows 7, Windows Vista, Windows XP and Mac OS X:** Your camcorder is equipped with the standard Picture Transfer Protocol (PTP) allowing you to transfer photos (JPEG only) simply by connecting the camcorder to a computer using the supplied USB cable, without having to install the supplied software **Photo Application**.
- If you have no intention to use the optional DW-100 DVD Burner, you can set  [USB Connection Type] to  [Computer/Printer] so the selection screen does not appear every time you connect the camcorder to a computer.
- If you connect the camcorder to the computer while it is set to  mode, the process of creating scene thumbnails will start automatically. If your intention was to save photos to the computer, you can touch [Skip] to stop the process and use the computer's Safely Remove Hardware function (Windows) or Eject function (Mac OS) to end the connection to the camcorder. Disconnect the USB cable, set the camcorder to  mode and restore the connection.

Saving Movies onto High-Definition Discs (AVCHD/Blu-ray Discs)

You can save your video recordings in high definition by creating AVCHD or Blu-ray discs in your computer using the supplied software **ImageMixer 3 SE**.

Installation

See 'PIXELA Applications' Installation Guide.

Using the software

See 'ImageMixer 3 SE Software Guide' (PDF file).

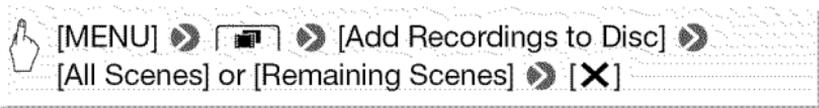
Even without a computer, you can save your video recordings in high definition by creating AVCHD discs using the optional DW-100 DVD Burner. Refer to this section along with the relevant sections in the instruction manual of the DW-100.

Operating modes:    |  

Preparations on the Camcorder

- 1 Power the camcorder using the compact power adapter.
- 2 Open the [Original], [Playlist] or [Video Snapshot] → [Original]/[Playlist] index screen.
AVCHD discs created with the optional DW-100 DVD Burner cannot contain scenes recorded in MXP mode. If you have recorded scenes in MXP mode, add to the playlist in advance only those scenes recorded in other recording modes and create the disc from the [Playlist] index screen.
- 3 For original recordings only: Choose whether to add to the disc all the scenes or only scenes that have not been previously added to a disc.

When you create the disc from the [Playlist] index screen (including the playlist of video snapshot scenes), the disc will contain the entire playlist.



Connecting to the DW-100 DVD Burner and Creating AVCHD Discs

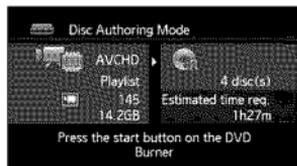
- 1 Turn on the DVD Burner.
 Refer to *Creating DVDs*.
- 2 Connect the camcorder to the DVD Burner using the supplied USB cable.
 - Connection [4](#). Refer to *Connection Diagrams* (128) and  *Connections*.
 - If the device type selection screen appears, touch [DVD Burner].
 - When the connection is completed, [No disc] will be displayed.

3 Insert a brand new disc into the DVD Burner.

- Use the OPEN/CLOSE button on the DVD Burner to open and close the disc tray.
- After the disc is recognized, an information screen will display the type of DVD you are creating and the estimated time and number of discs it will require (based on the disc you inserted).
- If you inserted a DVD-RW disc that already contains data, [The disc already contains data.] will be displayed. To overwrite the data (erasing the previous content of the disc), touch [OK]  [Yes].

4 Press the start button on the DVD Burner.

- A progress bar will be displayed on the screen.
- After pressing the start button (while the disc is being written) the operation cannot be canceled.
- When the last disc is finalized, [Task completed] will be displayed. Take out the disc and close the disc tray.



When the data requires multiple discs

After a disc is finalized, it will be ejected automatically and a message will appear. Insert the next disc and close the disc tray.

To create an additional copy of the same disc

After the operation is finished, insert a brand new disc, close the disc tray and repeat the operation.

IMPORTANT

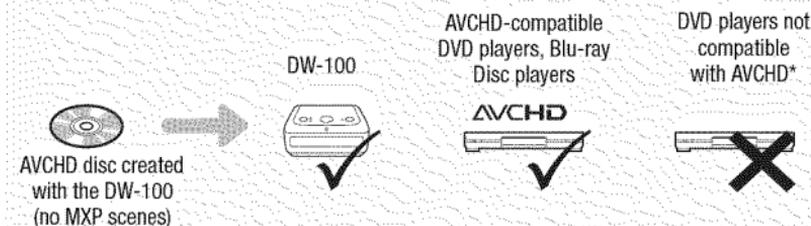
- AVCHD discs created with the optional DW-100 DVD Burner cannot contain scenes recorded in MXP mode. Use the supplied software **ImageMixer 3 SE** to save such scenes.
- While the camcorder is connected to the DVD Burner, do not open the double memory card slot cover and do not remove the memory cards.

- Observe the following precautions while the ACCESS indicator on the camcorder is on or flashing. Failing to do so may result in permanent data loss.
 - Do not open the double memory card slot cover.
 - Do not disconnect the USB cable.
 - Do not disconnect the compact power adapter or turn off the camcorder or the DVD Burner.
- For important information on handling your discs, refer to [DW-100](#) > *Cautions on handling*.

NOTES

- If a scene does not fit entirely in one disc, it may be divided and continue on the next disc.
- When the camcorder contains a large number of scenes to be saved on discs, it may take a long time for the connection to the DVD Burner (step 2 above) to be completed. For best performance, we recommend limiting the number of scenes to be saved to 500 or fewer scenes. (With 500 scenes, it will take approximately 3 minutes to complete the connection.)

Playing back AVCHD discs created with the DW-100 DVD Burner



* Do not insert a disc into an incompatible device, as you may not be able to eject the disc.

Playing Back AVCHD Discs Using the DW-100 DVD Burner

You can use the optional DW-100 DVD Burner and the camcorder also to play back high-definition (AVCHD) discs on a TV. This is very convenient, for example to play back your discs even in a location where an AVCHD-compatible DVD player is not available.

Operating modes:    |  

1 Connect the camcorder to the TV.

Refer to *Connection Diagrams* (📖 126). Select connection 1 or 2 to enjoy high-definition playback.

2 Turn on the camcorder and set it to mode.

3 Turn on the DVD Burner and set it to Disc Playback mode.

 Refer to *Playing DVDs*.

4 Connect the camcorder to the DVD Burner using the supplied USB cable.

- Connection 4. Refer to *Connection Diagrams* (📖 128) and  *Connections*.
- If the device type selection screen appears, touch [DVD Burner].

5 Insert the disc you want to play back into the DVD Burner.

- Use the OPEN/CLOSE button on the DVD Burner to open and close the disc tray.
- After the disc is recognized, the disc's content will be displayed in an index screen.

6 Select the scene you want to play back and touch it to start playing it back.

IMPORTANT

- While the camcorder is connected to the DVD Burner, do not open the double memory card slot cover and do not remove the memory cards.

NOTES

- Only AVCHD discs created with the DW-100 DVD Burner can be played back using the DVD Burner.
- The camcorder's menus cannot be accessed while the camcorder is connected to the DVD Burner.
- With the exception of fast playback at 60x speed, special playback modes (📖 49) can be used also for disc playback.

Saving Movies onto Standard-Definition Discs (DVD)

You can convert your high-definition video recordings into standard definition and save them onto standard DVDs. These are ideal for sharing your videos with family and friends since, unlike AVCHD or Blu-ray discs, standard DVDs can be played back on most DVD players and computers' DVD drives.

You can complete the conversion to standard definition in the camcorder and then use the supplied software **ImageMixer 3 SE** to save the converted scenes and burn them onto DVDs in your computer.

Installation

See 'PIXELA Applications' Installation Guide.

Using the software

See 'ImageMixer 3 SE Software Guide' (PDF file).

Even without a computer, you can convert your video recordings into standard definition scenes and create DVDs using the optional DW-100 DVD Burner. Refer to this section along with the relevant sections in the instruction manual of the DW-100.

Operating modes:    |  

Converting Scenes into Standard Definition

- 1 Power the camcorder using the compact power adapter.
- 2 Make sure there is a memory card in slot **B** with sufficient available space.
- 3 Open the [Original], [Playlist] or [Video Snapshot] → [Original]/[Playlist] index screen.
 - Select the  tab to convert scenes from the built-in memory (**HFS21/S20** only) or the  **A** tab to convert scenes from memory card **A**.
 - [Original] or [Video Snapshot] → [Original] index screen: To convert all the scenes recorded on a specific date, narrow down the scenes shown to scenes recorded on that date ( 56).

4 Touch [☑] to open the scene selection screen.

When you convert scenes from the [Playlist] index screen (including the playlist of video snapshot scenes), you cannot select individual scenes; instead, the entire playlist will be converted. Skip directly to step 6.

5 Touch on the individual scenes you want to convert.

- A checkmark ✓ will appear on scenes selected. Touch a selected scene again to remove the checkmark.
- To select all the scenes at once: Touch [Select All] instead of touching individual scenes. (Remove in advance any checkmarks from scenes you may have selected individually.)

6 Touch [Edit] ➤ [Convert HD➔SD (DVD)] to open the HD➔SD conversion screen.

- If a copyright notice appears, read it carefully and touch [OK] if you agree.
- touch [⏸] to change the conversion settings as described below.

7 Touch [Yes] ➤ [OK].

Touch [■] to interrupt the operation while it is in progress.

To embed the recording date and time

The recording date and time will always be displayed on the converted scene.



To select the bit rate

Using a higher bit rate will result in better video quality for the converted scenes.



NOTES

- **When converting scenes in the [Playlist] or [Video Snapshot] → [Original]/[Playlist] index screen:**
 - The scenes are converted with the selected background music (93) instead of the original sound.

- **When converting scenes in the [Playlist] index screen:**
 - All the scenes are merged into one converted scene.
 - If the converted scene is too large, it will be split into 2 GB-sized scenes.
 - The playlist cannot be converted when its total playback time exceeds 2 hours and 30 minutes.
- The time required to convert scenes is approximately equal to the total playback time of the converted scenes. In most cases this is still faster than converting the scenes in the computer so we recommend you convert scenes in the camcorder.

Connecting to the Computer and Creating DVD Discs

- 1 Power the camcorder using the compact power adapter.
- 2 Open the [For DVD Burning] index screen on memory card **B**.



- 3 Connect the camcorder to the computer using the supplied USB cable.
 - Connection **4**. Refer to *Connection Diagrams* (128).
 - If the device type selection screen appears, touch [Computer/Printer].
 - On the computer, ImageMixer 3 SE will start up automatically and the startup screen (ImageMixer 3 Launcher) will appear.
- 4 Click [Disc writing] and continue the operation on the computer following the software's indications.
See also 'ImageMixer 3 SE Software Guide' (PDF file).

! IMPORTANT

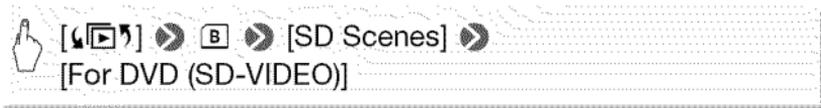
- While the camcorder is connected to the computer, do not open the double memory card slot cover and do not remove the memory cards.

- Observe the following precautions while the ACCESS indicator is on or flashing. Failing to do so may result in permanent data loss.
 - Do not open the double memory card slot cover.
 - Do not disconnect the USB cable.
 - Do not disconnect the compact power adapter or turn off the camcorder or the computer.

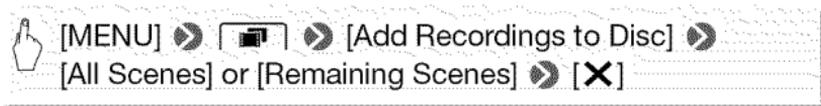
Connecting to the DW-100 DVD Burner and Creating DVD Discs

Operating modes: 

- 1 Power the camcorder using the compact power adapter.
- 2 Open the [For DVD Burning] index screen on memory card **B**.



- 3 In  mode: Choose whether to add to the disc all the scenes or only scenes that have not been previously added to a disc.



- 4 Connect the camcorder to the DW-100 DVD Burner and create the disc.

The procedure is the same as that for burning AVCHD discs ( 136).

To play back standard-definition DVDs

Standard-definition DVDs are created using DVD-Video specifications. Play back these DVDs using standard DVD players.

NOTES

- When the camcorder contains a large number of scenes to be saved on discs, it may take a long time for the connection to the DVD Burner ( 136, step 2) to be completed. For best performance, we recommend limiting the number of scenes to be saved to 500 or fewer scenes.

- Standard-definition DVDs cannot be played back using the DW-100 DVD Burner.

Saving Photos on Photo DVDs

Using the optional DW-100 DVD Burner you can save your photos on a Photo DVD. The Photo DVD will contain all your photos as JPG files as well as a slideshow of all the photos, each displayed for about 3 seconds, with the selected background music (📖 93).

Refer to this section along with the relevant sections in the instruction manual of the DW-100.

Operating modes:    |  

- 1 Power the camcorder using the compact power adapter.
- 2 Open the [Photos] index screen.
- 3 Connect the camcorder to the DW-100 DVD Burner and create the disc.

The procedure is the same as that for burning AVCHD discs (📖 136).

To play back Photo DVDs

Photo DVDs are created using DVD-Video specifications. Play back these DVDs using standard DVD players. If your computer has a DVD drive, you can play back the slideshow as a DVD and you can also access individual photos as JPG files.

NOTES

- Photo DVDs cannot be played back using the DW-100 DVD Burner.
- When creating Photo DVDs from a memory card, if the memory card contains SD scenes in the [For Web Upload] index screen, the image files of the scene thumbnails will be saved on the DVD as well.

Copying Recordings to an External Video Recorder

In High Definition

Connect the camcorder to AVCHD-compatible digital video recorders to make perfect copies of your movies in high definition. If the external digital video recorder has an SD memory card slot, you can use the memory card to copy your movies without connecting the camcorder. Details will vary depending on the device used so be sure to refer to the instruction manual of the digital video recorder.

In Standard Definition

You can copy your movies by connecting the camcorder to a VCR or a digital video recorder with analog audio/video inputs. Video output will be in standard definition, although the original scenes are in high definition.

Operating modes: 

Connecting

Connect the camcorder to the VCR using Connection . Refer to *Connection Diagrams* ( 127).

Recording

- 1 External device: Load a blank cassette or disc and set the device to record/pause mode.**
- 2 Turn on the camcorder and set it to  mode.**
Verify that   [AV/Headphones] is set to [**AV** AV].
- 3 Camcorder: Locate the scene you wish to copy and pause the playback shortly just before the desired scene.**
- 4 Camcorder: Resume playback.**
By default, onscreen displays will be embedded in the output video signal. You can change the displays by repeatedly pressing  ( 97).
- 5 External device: Start recording when the scene you wish to copy appears; stop recording when it ends.**
- 6 Camcorder: Stop playback.**

NOTES

- We recommend powering the camcorder using the compact power adapter.

Uploading Movies to Video Sharing Web Sites

You can convert your high-definition video recordings into standard definition in order to upload them to your favorite video sharing Web site.

If you are using an Eye-Fi card, after converting your video recordings into standard definition scenes you can upload your movies wirelessly, directly from the camcorder. Refer to Eye-Fi's homepage for the latest information on compatible Web sites.

You can complete the conversion to standard definition in the camcorder and then use the supplied software **ImageMixer 3 SE** to upload your videos to the Web.

Installation

See 'PIXELA Applications' Installation Guide.

Using the software

See 'ImageMixer 3 SE Software Guide' (PDF file).

Operating modes:    |  

Converting Scenes into Standard Definition

- 1 Power the camcorder using the compact power adapter.
- 2 Make sure there is a memory card in slot **B** with sufficient available space.

3 Open the [Original], [Playlist] or [Video Snapshot] → [Original]/[Playlist] index screen.

- Select the  tab to convert scenes from the built-in memory (HFS21/S20 only) or the  tab to convert scenes from memory card .
- [Original] or [Video Snapshot] → [Original] index screen: To convert all the scenes recorded on a specific date, narrow down the scenes shown to scenes recorded on that date ( 56).

4 Touch to open the scene selection screen.

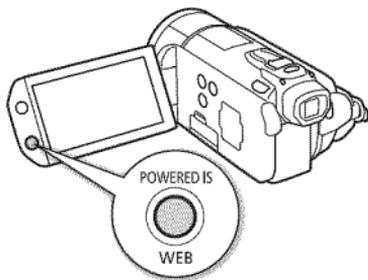
When you convert scenes from the [Playlist] index screen (including the playlist of video snapshot scenes), you cannot select individual scenes; instead, the entire playlist will be converted. Skip directly to step 6.

5 Touch on the individual scenes you want to convert.

- A checkmark  will appear on scenes selected. Touch a selected scene again to remove the checkmark.
- To select all the scenes at once: Touch [Select All] instead of touching individual scenes. (Remove in advance any checkmarks from scenes you may have selected individually.)

6 Press and touch [Yes].

- If a copyright notice appears, read it carefully and touch [OK] if you agree.
- Before touching [Yes], you can touch  to change the conversion settings as described below.
- Touch  to interrupt the operation while it is in progress.



7 When the conversion is completed, a confirmation screen will appear.

Connect the camcorder to the computer at this point ( 149) to continue uploading the converted videos to the Web or touch [End Without Connecting] to connect to the computer later.

To embed the recording date and time

The recording date and time will always be displayed on the converted scene.



To select the bit rate

Using a higher bit rate will result in better video quality for the converted scenes, while a lower bit rate will result in smaller file sizes and faster uploads.



To convert only part of a scene

Instead of steps 4 and 5 above, touch on the scene you want to convert to start playing it back. Pause the playback at the point where you want the conversion to begin and continue with step 6.

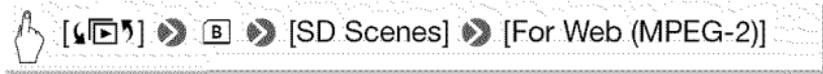
NOTES

- **When converting scenes in the [Playlist] or [Video Snapshot] → [Original]/[Playlist] index screen:**
 - The scenes are converted with the selected background music (📖 93) instead of the original sound.
- **When converting scenes in the [Playlist] index screen:**
 - All the scenes are merged into one converted scene.
 - If the converted scene is too large, it will be split into smaller 10-minute long scenes.
 - When converting only part of a scene, the maximum length of the converted scene will be 10 minutes from the starting (playback pause) point.
 - The playlist cannot be converted when its total playback time exceeds 2 hours and 30 minutes.
- The time required to convert scenes is approximately equal to the total playback time of the converted scenes. In most cases this is still faster than converting the scenes in the computer so we recommend you convert scenes in the camcorder.

Connecting to the Computer and Uploading your Videos

If you are connecting the camcorder to the computer immediately after the conversion described in the previous section, start this procedure from step 3 below. Otherwise, start this procedure from the beginning.

- 1 Power the camcorder using the compact power adapter.
- 2 Open the [For Web Upload] index screen on memory card **B**.



- 3 Connect the camcorder to the computer using the supplied USB cable.
 - Connection **4**. Refer to *Connection Diagrams* (128).
 - If the device type selection screen appears, touch [Computer/Printer].
 - On the computer, ImageMixer 3 SE will start up automatically and the startup screen (ImageMixer 3 Launcher) will appear.
- 4 Click [Web upload] and continue the operation on the computer following the software's indications.
See also 'ImageMixer 3 SE Software Guide' (PDF file).

! IMPORTANT

- While the camcorder is connected to the computer, do not open the double memory card slot cover and do not remove the memory cards.
- Observe the following precautions while the ACCESS indicator is on or flashing. Failing to do so may result in permanent data loss.
 - Do not open the double memory card slot cover.
 - Do not disconnect the USB cable.
 - Do not disconnect the compact power adapter or turn off the camcorder or the computer.

Uploading your Videos Wirelessly

If you are using an Eye-Fi card, you can automatically upload the movies from the [For Web Upload] index screen to your favorite video sharing Web site. You will need to have installed the software supplied with your Eye-Fi card and completed all the required configuration setup in advance. Refer to the instruction manual of the Eye-Fi card.

Please read the IMPORTANT section (📖 150) before using an Eye-Fi card.

- 1 **Insert your Eye-Fi card into memory card slot **B** and make sure there is sufficient available space on the memory card.**
- 2 **Convert the desired movies (📖 146).**
 - When the conversion is completed, touch [End Without Connecting].
 - If you are within the range of a configured network, Web upload will start automatically.
 - The status of the wireless communication is shown by the Eye-Fi icon as follows:
 - 📶 (grayed out) Communication not established
 - 📶 (white, flashing) Connecting; 📶 (white, continuously on) Wireless upload on standby
 - 📶 (animated) Wireless upload in progress
 - 📶 [Eye-Fi Communication] is set to [**OFF** Off]
 - 📶 Wireless upload stopped by the camcorder (📖 181)
 - 📶 Error reading from the Eye-Fi card (📖 179)

IMPORTANT

Using an Eye-Fi Card

- This product is not guaranteed to support Eye-Fi card functions (including wireless transfer). In case of an issue with an Eye-Fi card, please check with the card manufacturer. Also note that an approval is required to use Eye-Fi cards in many countries or regions. Without approval, use of the card is not permitted. If it is unclear whether the card has been approved for use in the area, please check with the card manufacturer.
- Do not use Eye-Fi cards on airplanes and in other places where wireless communication is forbidden. Remove the Eye-Fi card from the camcorder beforehand.

NOTES

- Depending on the amount of data to be uploaded and the network's wireless connection conditions, it can take some time to upload video files. If the wireless connection is too weak, the wireless upload may fail and the video files will be registered as incomplete uploads.
- **About power saving:**
 - Wireless communication drains the power of the battery pack faster than usual. We recommend powering the camcorder using the compact power adapter.
 - While files are being uploaded wirelessly, the camcorder's automatic power off function will be disabled.
- While recording audio with an external microphone, the interference caused by wireless communications may result in noise being picked up and recorded with the sound. We recommend turning off the wireless communication while recording.



- If the LOCK switch on the Eye-Fi card is set to prevent writing, you will not be able to turn the wireless communication on/off and the status icon will change to . To use wireless communication make sure the switch on the Eye-Fi card is not in the LOCK position.
- While using an Eye-Fi Card, the ACCESS indicator may flash from time to time.
- Wirelessly uploading files is not possible when the Eye-Fi card is in memory card slot **A** (the Eye-Fi icon will not appear on the screen). Be sure to insert the Eye-Fi card into memory card slot **B**.



Additional Information

This chapter contains troubleshooting advice, screen messages, handling and maintenance tips, and other information.

Appendix: Menu Options Lists

Menu items not available appear grayed out. For details about how to select an item, refer to *Using the Menus* (📖 32). For details about each function, see the reference page. Menu options without a reference page are explained after the tables. Underlined menu options indicate default values.

FUNC. Panel

FUNC. Panel - Recording Modes

Control Button	Setting options/Function			
[MENU]	Open the menus	●	●	33
[Rec. Programs]	<u>[P] Programmed AE</u> , [Tv Shutter-Pri. AE], [Av Aperture-Pri. AE]	●	●	71
	[Cine Mode]	●	●	63
	[Portrait], [Sports], [Night Scene], [Snow], [Beach], [Sunset], [Low Light], [Spotlight], [Fireworks]	●	●	61
[WB White Balance]	[AWB Automatic], [Daylight], [Shade], [Cloudy], [Fluorescent], [Fluorescent H], [Tungsten], [Custom WB]	●	●	79
[Mic. Level]	[A Automatic], [M Manual] [Audio Level Indicator]: Toggle on (●) or off (○)	●	–	84
[Flash]	[Flash Automatic], [Red-Eye Auto], [Flash On], [Flash Off]	–	●	111

Control Button	Setting options/Function			
[Focus]	[MF] (manual focus): Toggle on (●) or off (○), Touch AF frame, [PEAK] (peaking): Toggle on (●) or off (○), [] (peaking settings): [Peaking and B&W]: [Off], [On] [Peaking Color]: [Red], [Blue], [Yellow]	●	●	76
[Exposure]	[M] (manual exposure): Toggle on (●) or off (○), Touch AE frame, [70%], [100%] (zebra pattern): Toggle on (●) or off (○), [] (AE and zebra pattern settings): [AE Lock (touch)]: [Normal], [Highlights] [Zebra Pattern]: [70%], [100%]	●	●	74
[ZOOM]	Zoom controls, [START/STOP] control, [] (digital tele-converter): Toggle on (●) or off (○)	●	●	46, 80
[AGC AGC Limit]	[A Automatic], [M Manual]: (0 dB - 24 dB)	●	–	76
[Metering Mode]	[Evaluative], [] Center-Wt. Avg., [Spot]	–	●	115
[Video Light]	[ON On], [OFF Off]	●	●	82
[Pre REC]	[ON On], [OFF Off]	●	–	66
[Drive Mode]	[Single], [AE Bracketing], [Continuous], [Hi-Speed Cont.]	–	●	113
[Digital Effects]	[Off], [E1 Black & White], [E2 Sepia], [F1 Fade Trigger/Once], [F1 Fade Trigger/Always], [F2 Wipe/Once], [F2 Wipe/Always]	●	–	70
	[Off], [E1 Black & White], [E2 Sepia]	–	●	
[Image Stabilizer]	[Dynamic], [Standard], [Off]	●	–	64
	[On], [Off]	–	●	

[Edit] Panel - Mode

 : Original scenes

 : Playlist scenes (including the playlist only of video snapshot scenes)

 : Original video snapshot scenes

 : SD scenes on memory card **B**

Control Button	Target Scenes/Function					
[Copy ( → )]	[Selected Scenes]	●	–	●	–	130
	[All Scenes]	●	●	●	–	
	[This Scene] (from the Timeline screen)	●	–	●	–	
HFS21/S20 [Copy ( → )]	[Selected Scenes]	●	–	●	–	140
	[All Scenes]	●	●	●	–	
	[This Scene] (from the Timeline screen)	●	–	●	–	
[Convert HD → SD ( DVD)]	[Selected Scenes]	●	–	●	–	140
	[All Scenes]	●	●	●	–	
	[This Scene] (from the Timeline screen)	●	–	●	–	
[Delete]	[Selected Scenes]	●	–	●	–	57, 99
	[All Scenes]	●	●	●	●	
	[This Scene] (from the Timeline screen or playback pause)	●	●	●	–	
[Add to Playlist]	[Selected Scenes], [All Scenes]	●	–	●	–	98
	[This Scene] (from the Timeline screen)	●	–	●	–	
[Move]	[This Scene] (from the Timeline screen)	–	●	–	–	99
[Divide]	[This Scene] (from the Timeline screen or playback pause)	●	–	–	–	102

[Edit] Panel -  Mode

Control Button	Index Screen	Single Photo View	
[Copy (A → B)]	[Selected Photos], [All Photos]	●	131
HFS21/S20 [Copy (📷 → B)]			
[Delete]		●	106
[Protect]		●	118
[Print Orders]		●	123
[Rotate]	—	●	117

Setup Menus

/ Camera Setup

Menu item	Setting options			
[Digital Zoom]	[OFF Off], [40x 40x], [200x 200x]	●	–	–
[Zoom Speed]	[VAR Variable], [▶▶▶ Speed 3], [▶▶ Speed 2], [▶ Speed 1]	●	●	46
[AF Mode]	[LAF Instant AF], [AF Normal AF]	●	●	–
[AF-Assist Lamp]	[A Automatic], [OFF Off]	–	●	112
[Focus Priority]	[AiAF AiAF Frames], [□ Center Frame], [OFF Off]	–	●	–
[Focus Assistance]	[ON On], [OFF Off]	●	●	–
[Face Detection & Tracking]	[ON On ], [OFF Off]	●	●	67
[Auto Backlight Correction]	[ON On], [OFF Off]	●	●	75
[Auto Slow Shutter]	[ON On], [OFF Off]	●	–	–
[Image Effects]	[OFF Off], [A_v Vivid], [A_N Neutral], [A_s Low Sharpening], [A_D Soft Skin Detail], [A_c Custom Effect]	●	●	81
[Wind Screen]	[A Automatic], [OFF Off 	●	–	–
[Microphone Attenuator]	[A Automatic], [ON On ATT]	●	–	–
[Surround Mic Directionality]*	[5.1ch Surround], [5.1ch ZOOM Zoom], [5.1ch GUN Shotgun]	●	–	–
[Surround Mic Attenuator]*	[ON On ATT], [OFF Off]	●	–	–
[Onscreen Markers]	[OFF Off], [EW Level (White)], [EG Level (Gray)], [EW Grid (White)], [EG Grid (Gray)]	●	●	–

Menu item	Setting options			
[Custom Key/Dial]	[OFF Off], [Focus], [Exposure], [Tv / Av], [Mic. Level], [AGC AGC Limit]	●	–	89
	[OFF Off], [Focus], [Exposure], [Tv / Av]	–	●	
[POWERED IS Button]	[ION Press and Hold], [Toggle On/Off]	●	–	65

* Option available only when the optional SM-V1 Surround Microphone is attached to the camcorder after having updated the camcorder's firmware using the memory card supplied with the SM-V1.

[Digital Zoom]: Determines the operation of the digital zoom. The color of the indicator indicates the zoom.

- When activated, the camcorder will switch automatically to digital zoom when you zoom in beyond the optical zoom range.
- With the digital zoom the image is digitally processed, so the image resolution will deteriorate the more you zoom in.

Optical zoom	Digital zoom	
White	Light blue	Dark blue
Up to 10x	10x - 40x	40x - 200x

[AF Mode]: Select how fast the autofocus will operate.

- With [**LAF** Instant AF] the autofocus adjusts quickly to a new subject. This is convenient for example when changing the focus from a near subject to a far subject in the background, or when recording moving subjects.
- When the optional Wide-converter or Tele-converter is attached to the camcorder, it may partially obstruct the Instant AF sensor. Set the AF mode to [**AF** Normal AF].

[Focus Priority]: When the focus priority is activated, the camcorder records a photo only after the focus has been adjusted automatically. You can also select which AF frames to use.

[**AiAF** AiAF Frames]: One or more AF frames out of the nine frames available are automatically selected and the focus is fixed on them.

[Center Frame]: A single focusing frame appears in the center of the screen and the focus is automatically fixed on it.

[OFF Off]: No AF frame will appear and the photo will be recorded immediately after you press **[PHOTO]**.

- When the recording program is set to [Fireworks], focus priority is automatically set to **[OFF Off]**.
- When focus priority is activated, if face detection (67) is also activated, the camcorder will focus on the face of the main subject (white face-detection frame) when one is detected.

[Focus Assistance]: When focus assistance is activated, the image at the center of the screen is magnified to help you focus manually (76).

- Using focus assistance will not affect the recordings. It will be cancelled automatically after 4 seconds or when you start recording.

[Auto Slow Shutter]: The camcorder automatically uses slow shutter speeds to obtain brighter recordings in places with insufficient lighting.

- Minimum shutter speed used: 1/30; 1/12 when the frame rate is set to **[PF24 PF24]** or **[24F 24F]**; 1/15 when it is set to **[PF30 PF30]**.
- The auto slow shutter can only be activated when the recording program is set to **[P Programmed AE]**, but the setting will not change even if you set the camcorder to mode.
- If a trailing afterimage appears, set the slow shutter to **[OFF Off]**.
- If (camcorder shake warning) appears, we recommend stabilizing the camcorder, for example, by mounting it on a tripod.

[Wind Screen]: The camcorder automatically reduces the background sound of wind when recording outdoors.

- Some low-frequency sounds will be suppressed along with the sound of wind. When recording in surroundings unaffected by wind or if you want to record low-frequency sounds, we recommend setting the wind screen to **[OFF Off]**

[Microphone Attenuator]: Helps prevent audio distortions.

[A Automatic]: The camcorder will automatically activate the microphone attenuator as necessary for optimal audio recording levels so high audio levels will not be distorted.

[ON On ATT]: The microphone attenuator will be activated at all times to reproduce more faithfully the sound dynamics. **ATT** will appear on the screen.

- This menu option is not available when the optional SM-V1 Surround Microphone is attached to the camcorder. In that case, activate the microphone attenuator with the [Surround Mic Attenuator] setting.

[Surround Mic Directionality]: Sets the directionality mode of the optional SM-V1 Surround Microphone.

[ Surround]: Records 5.1ch surround sound.

[ Zoom]: Records 5.1 audio channels. Additionally, the audio is linked to the zoom position. The larger the subject appears on the screen, the louder the sound will be as well.

[ Shotgun]: Records monaural audio with a highly directional setting that is most sensitive to sound coming directly from the front of the camcorder/microphone.

[Surround Mic Attenuator]: Helps prevent audio distortions due to high audio recording levels when the optional SM-V1 Surround Microphone is attached to the camcorder. When set to [ On ,  will appear on the screen.

[Onscreen Markers]: You can display a grid or a horizontal line at the center of the screen. Use the markers as a reference to make sure your subject is framed correctly (vertically and/or horizontally).

- Using the onscreen markers will not affect the recordings.

[POWERED IS Button]: Determines the operation mode of the POWERED IS button.

[ Press and Hold]: Powered IS will be activated while you hold the button pressed down.

[ Toggle On/Off]: Each press of the button will turn the Powered IS function on and off.

Recording & Connections Setup

Menu item	Setting options					
[Self Timer]	[ON On ], [OFF Off]	●	●	–	–	83
[Video Snapshot Length]	[2sec 2 sec], [4sec 4 sec], [8sec 8 sec]	●	–	●	–	69, 100
[Rec Media for Movies]	 * (built-in memory),  ** (memory card A),  (memory card B) * Default for the HFS21/S20 . ** Default for the HFS200 . HFS21/S20 [Relay Recording]: [OFF] (Off),  A], [ A →  B],  A →  B] HFS200 [Relay Recording]: [OFF] (Off),  A →  B]	●	–	–	–	38
[Recording Mode]	[MPX High Quality 24 Mbps], [FXP High Quality 17 Mbps], [XP+ High Quality 12 Mbps], [SP Standard Play 7 Mbps], [LP Long Play 5 Mbps]	●	–	–	–	60
[Frame Rate]	[60i 60i (Standard)], [PF24 PF24], [PF30 PF30], [24F 24F]	●	–	–	–	–
[Rec Media for Photos]	 * (built-in memory),  ** (memory card A),  (memory card B) * Default for the HFS21/S20 . ** Default for the HFS200 .	●	●	●	–	38
[Simultaneous Recording]	[OFF Off], [LW 3264x1840], [MW 1920x1080] [S Super Fine], [F Fine], [N Normal]	●	–	–	–	114

Menu item	Setting options					
[Photo Quality/Size]	[LW 3264x1840], [L 3264x2456], [M 1920x1440], [S 640x480] [ Super Fine], [ Fine], [ Normal]	–	●	–	–	109
[Photo Capture from Video]	[<input type="checkbox"/> Single Photo], [ Photo Sequence]	–	–	●	–	101
[Photo Capture Quality]	[ Super Fine / 1920x1080], [ Fine / 1920x1080], [ Normal / 1920x1080]	–	–	●	–	101
[Memory Info]	[ (built-in memory), [ (memory card A), [ (memory card B)	●	●	●	●	–
[x.v.Color]	[ON On color], [OFF Off]	●	–	–	–	–
[Color Bars & Test Tone]	[OFF Off], [ Color Bars], [ Color Bars & Tone]	●	–	–	–	–
[Auto Rotate]	[ON On], [OFF Off]	–	●	–	–	–
[Photo Review Time]	[OFF Off], [2sec 2 sec], [4sec 4 sec], [6sec 6 sec], [8sec 8 sec], [10sec 10 sec]	–	●	–	–	–
[Photo Numbering]	[ Reset], [ Continuous]	●	●	●	●	–
[USB Connection Type]	[ DVD Burner], [ Computer/Printer], [ Connect and Set]	–	–	●	●	–
[Add Recordings to Disc]	[<u>All Scenes</u>], [<u>Remaining Scenes</u>]	–	–	●	–	136
[Paper Settings]	[Default], [9 x 13 cm], [13 x 18 cm], [10 x 14.8 cm], [Credit Card], [4 x 6 in.], [8.5 x 11 in.], [A3], [A4], [4 x 7.1 in.]	–	–	–	●	122

[Frame Rate]: Selects the frame rate to be used when recording.

[PF30 PF30]: 30 frames per second, progressive. Use this frame rate to easily edit your recordings, for example, to post them on the Web.

[PF24 PF24]: 24 frames per second, progressive. Using this frame rate will give your recordings a cinematic look. When combined with the **[Cine Mode]** recording program (p. 63), the cinematic look will be enhanced. Using this frame rate, video is recorded as 60i and movies can be converted to standard definition in the camcorder.

[24F 24F]: 24 frames per second, progressive. Using this frame rate will achieve the same cinematic look as **[PF24 PF24]**, the difference being that video is recorded as true 24p. Use the supplied software **ImageMixer 3 SE** to convert movies recorded with this frame rate to standard definition.

[Memory Info]: Displays a screen where you can verify how much of the built-in memory (**[HFS21/S20]** only) or the memory card is currently in use (total recording time and total number of photos) and how much space remains available for recording.

- Estimated figures about available movie recording time and available number of photos are approximate and based on the recording mode and photo quality/size settings currently in use.
- In the information screen of a memory card you can also check its Speed Class.
- **[HFS21/S20]** The [Total space] shown for the built-in memory indicates actually usable space. It may be slightly smaller than the nominal built-in memory capacity listed in the Specifications.

[x.v.Color]: Uses a color space with an extended gamut to achieve deeper colors, closer to real life.

- Use this function to record video only when you intend to play back your recordings on an HDTV compatible with x.v.Color, connected to the camcorder using an HDMI cable. If recordings made with x.v.Color are played back on a non-compatible TV, colors may not be reproduced correctly.

[Color Bars & Test Tone]: Use the color bars to calibrate the colors on an external TV or monitor.

[Color Bars]: Displays a standard SMPTE color bar pattern.

[Color Bars & Tone]: In addition to the color bar pattern, a 1 KHZ, -12 dB test tone is output.

- Connect the camcorder to the TV or monitor and display the color bars (if desired, along with the test tone). Check the colors and audio recording levels on the external monitor and adjust as necessary.

[Auto Rotate]: Photos that were recorded in portrait orientation (by turning the camcorder on its side), will be rotated automatically and displayed correctly during playback.

[Photo Review Time]: Selects the time to display a photo after it has been recorded.

- The review time can only be set when the drive mode is set to Single].

[Photo Numbering]: Select the photo numbering method to be used on a new memory card. Photos are automatically assigned consecutive numbers from 0101 to 9900, and stored in folders containing up to 100 photos. Folders are numbered from 101 to 998.

 Reset]: Photo numbers will restart from 101-0101 every time you insert a new memory card.

 Continuous]: Photo numbers will continue from the number following that of the last photo recorded with the camcorder.

- If the memory card you insert already contains a photo with a larger number, a new photo will be assigned a number one higher than that of the last photo on the memory card.
- We recommend using the  Continuous] setting.
- The photo number indicates the name and location of the file on the memory card. For example, the file name of a photo numbered 101-0107 is "IMG_0107.JPG", stored under the folder "DCIM\101\CANON".

[USB Connection Type]: Select the connection protocol to use when connecting the camcorder to an external device using the supplied USB cable.

 DVD Burner]: To connect exclusively to the optional DW-100 DVD Burner.

 Computer/Printer]: To connect to a computer, printer or similar USB peripheral.

 Connect and Set]: To make the selection from a screen that appears at the time of the connection to the external device.

Menu item	Setting options			
[Select Music]	[OFF Off] , [ON On] When [ON On] - list of music tracks	● ¹	●	93
[External Audio Input]	[OFF Off] , [ON On]   When [ON On] - [External Player Link]: Toggle on (●) or off (○)	●	●	95
[Data Code]	 Date],  Time],  Date and Time],  Camera Data]	●	-	-
[Slideshow Transition]	[OFF Off] ,  Dissolve],  Slide Image]	-	●	116
[TV Type] ²	[4:3 Normal TV] , [16:9 Wide TV]	●	-	-

¹ Option available only from the [Playlist] or [Video Snapshot] → [Original]/[Playlist] index screen.

² Option not available when the camcorder is connected to an HDTV using an HDMI cable.

[Data Code]: Displays the date and/or time when the scene was recorded.

 Camera Data: Displays the aperture (f-stop) and shutter speed used when recording the scene.

[TV Type]: When you connect the camcorder to a TV using the supplied STV-250N Stereo Video Cable, select the setting according to the type of TV in order to display the picture in full and in the correct aspect ratio.

[4:3 Normal TV]: TV sets with 4:3 aspect ratio.

[16:9 Wide TV]: TV sets with 16:9 aspect ratio.

- When the TV type is set to **[4:3 Normal TV]**, during the playback of video originally recorded with an aspect ratio of 16:9, the picture will not be displayed fullscreen.

System Setup

Menu item	Setting options					
[Font Size]	[A Large], [A Small]	●	●	●	●	–
[Output Onscreen Displays]	[ON On], [OFF Off]	●	●	●	●	–
[Language	[Česky], [Deutsch], [Ελληνικά], [English], [Español], [Français], [Italiano], [Magyar], [Melayu], [Nederlands], [Polski], [Português], [Română], [Türkçe], [Русский], [Українська], [العربية], [فارسی], [ภาษาไทย], [简体中文], [繁體中文], [한국어], [日本語]	●	●	●	●	35
[LCD Brightness]		●	●	●	●	–
[LCD Screen Dimmer]	[ON On], [OFF Off]	●	●	●	●	–
[AV/Headphones]	[AV AV], [Headphones]	●	–	●	●	85
[Volume]	Speaker: 	–	–	●	●	51, 85
	Headphone: 	●	–	●	●	
[Notification Sounds]	[High Volume], [Low Volume], [OFF Off]	●	●	●	●	–
[Wireless Remote Control]	[ON On], [OFF Off	●	●	●	●	–
[Power Saving Mode]	[Auto Power Off]: [ON On], [OFF Off] [Quick Start (Standby)]: [OFF Off], [10min 10 min], [20min 20 min], [30min 30 min]	●	●	●	●	–

Menu item	Setting options					
HFS21/S20 [Initialize /]	[Built-in Mem.], [A] Mem. Card A], [B] Mem. Card B] [Complete Initialization]: Toggle on (●) or off (○)	●	●	● ¹	●	40
HFS200 [Initialize]	[A] Mem. Card A], [B] Mem. Card B] [Complete Initialization]: Toggle on (●) or off (○)					
[Time Zone/DST]	[] (home time zone) or [] (travel time zone): <u>[New York]</u> , list of world time zones [] (DST adjustment)	●	●	●	●	35
[Date/Time]	[Date/Time]: – [Date Format]: [Y.M.D], [M.D.Y], [D.M.Y] (Y- year, M- month, D- day) [24H]: Toggle On (●, 24-hour clock) or Off (○, 12-hour clock)	●	●	●	●	34
[Calendar Start Day]	[Saturday], [Sunday], [<u>Monday</u>]	–	–	●	–	–
[Battery Info]	–	●	●	●	●	–
[Control for HDMI] ²	[ON On], [OFF Off]	●	●	●	●	–
[HDMI Status]	–	●	●	●	●	–
[Distance Units]	[m meters], [ft feet]	●	●	–	–	–
[Demo Mode]	[ON On], [OFF Off]	●	●	–	–	–
[Reset All]	[No], [Yes]	●	●	●	●	–
[Firmware]	–	–	–	–	●	–
[Eye-Fi Communication] ³	[A Automatic], [OFF Off]	●	●	●	●	150

¹ Option not available from the [Playlist] index screen.

² Option not available when the camcorder is connected to an HDTV using an HDMI cable.

³ Option available only after having inserted an Eye-Fi card in memory card slot **B**.

[Font Size]: Changes the size of the font for the menu and other screens.

- When the font size is set to [**A** Large], some information may be displayed in shortened form (icons only, etc.). Some screens will be displayed using the small font size regardless of the setting.

[Output Onscreen Displays]

- When set to [**ON** On], the camcorder's onscreen displays will appear also on the screen of a TV or monitor connected to the camcorder.

[LCD Brightness]: Adjusts the brightness of the LCD screen.

- Changing the brightness of the LCD screen does not affect the brightness of your recordings, the brightness of the viewfinder (**HFS21** only) or the brightness of the playback image on a TV.

[LCD Screen Dimmer]: When set to [**ON** On], the LCD screen is dimmed. Doing so is ideal when using the camcorder in locations where the LCD's illumination could become a nuisance to others. Hold [**DISP**] pressed down for about 2 seconds to restore the LCD screen to its previous brightness setting.

- Dimming the LCD screen does not affect the brightness of your recordings or the brightness of the playback image on a TV.
- When the screen dimmer is set to [**OFF** Off], the LCD screen will return to the brightness level that was in use before the screen was dimmed.

[Notification Sounds]: A beep will accompany some operations like turning on the camcorder, the self-timer countdown, etc.

[Wireless Remote Control]: Allows the camcorder to be operated with the wireless controller.

[Power Saving Mode]: Controls the camcorder's automatic power off settings.

[Auto Power Off]: In order to save power when the camcorder is powered by a battery pack, it will automatically shut off if left without any operation for 5 minutes.

- Approximately 30 seconds before the camcorder shuts off, [Auto power off] will appear.
- In standby mode, the camcorder will shut off after the time selected for the [Quick Start (Standby)] setting.

[Quick Start (Standby)]: Select whether to activate the Quick Start function ( 47) when you close the LCD panel in a recording mode and the length of time after which the camcorder will end the standby mode and shut off automatically.

- You can set Quick Start to [**OFF** Off], for example, if the camcorder is set on a fixed position and you want to keep recording video with the LCD panel closed in order to conserve the battery's power.

[Calendar Start Day]: Select the day on which the week in the calendar screen ( 56).

[Battery Info]: Displays a screen where you can verify the battery charge (as a percentage) and the remaining recording time (,  mode) or playback time (,  mode).

[Control for HDMI]: Activates the HDMI-CEC (Consumer Electronics Control) function. When you connect the camcorder to an HDTV compatible with HDMI-CEC using an HDMI cable, you can control the camcorder's playback using the remote control of the TV.

- If set to [**ON** On], when the camcorder is connected to a compatible HDTV using an HDMI cable, the video input on the TV will automatically be set to the camcorder's video input. Then, you can use the up/down/left/right buttons and the OK or SET button on the TV's remote control to play back your recordings.
- Depending on the TV set, additional settings may be required on the TV itself to activate the HDMI-CEC function. Refer to the TV's instruction manual.
- Correct operation of the HDMI-CEC function cannot be guaranteed even when connecting the camcorder to compatible TV sets. If you cannot use the remote control of the TV, set [Control for HDMI] to [**OFF** Off] and operate the camcorder directly or use the camcorder's wireless controller.
- The remote control of the TV can only be used to play back movies or photos ( or  mode only). If the camcorder is connected to the TV while it is set to a recording mode, depending on the TV used, turning off the TV will automatically turn off the camcorder even if it is recording at the time.
- We recommend not connecting more than 3 HDMI-CEC compatible devices at a time.

[HDMI Status]: Displays a screen where you can verify the standard of the output signal from the HDMI OUT terminal.

[Distance Units]: Selects the units to use for the focusing distance display during manual focus.

[Demo Mode]: The demonstration mode displays the camcorder's main features. It starts automatically when the camcorder is powered with the compact power adapter if you leave it turned on without a memory card for more than 5 minutes.

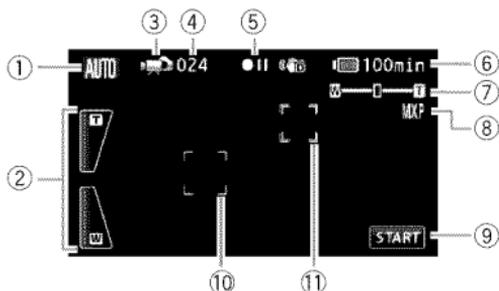
- To cancel the demo mode once it has started, press any button or turn off the camcorder.

[Reset All]: Resets all the camcorder's settings to default values.

[Firmware]: You can verify the current version of the camcorder's firmware. This menu option is usually unavailable.

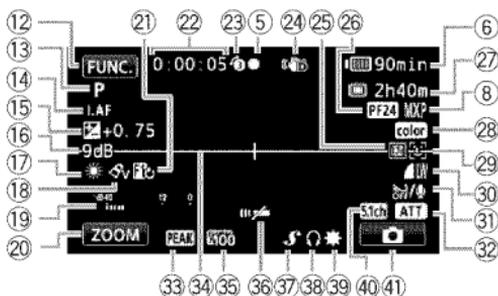
Appendix: Onscreen Icons and Displays

Recording Movies (in Dual Shot mode)



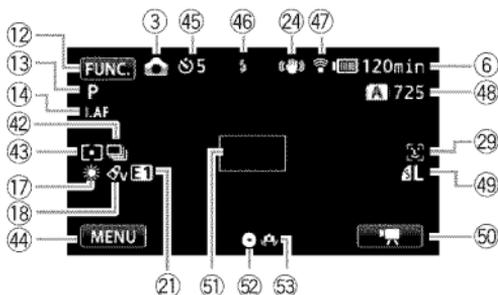
- | | |
|---|--|
| ① Smart AUTO mode ( 43) | ⑦ Zoom ( 46) |
| ② Onscreen zoom controls ( 46) | ⑧ Recording mode ( 60) |
| ③ Operating mode ( 30) | ⑨ Control button: Start/Stop video recording |
| ④ In record pause mode:
Total number of scenes | ⑩ Face detection frame ( 67) |
| ⑤ Memory operation ( 174) | ⑪ Touch & Track frame ( 68) |
| ⑥ Remaining battery time ( 174) | |

Recording Movies (in M Manual mode)



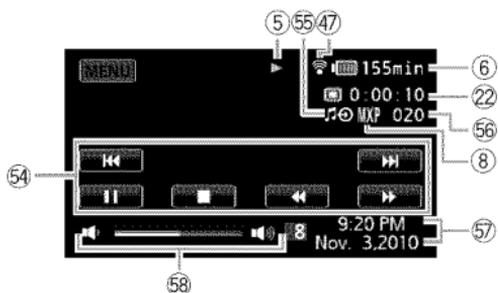
- 12 Control button: Open the FUNC. panel (32)
- 13 Recording program (61, 63, 71)
- 14 **LAF** Instant AF (157), MF Manual focus (76)
- 15 Manual exposure (74)
- 16 AGC (automatic gain) limit (76)
- 17 White balance (79)
- 18 Image effect (81)
- 19 Audio level indicator (83)
- 20 Control button: Last function used ([ZOOM] in this case)
- 21 Digital effect (70)
- 22 While recording/during playback: Scene counter (hours : minutes : seconds)
- 23 Pre-recording (66)
- 24 Image stabilizer (64)
- 25 Digital tele-converter (80)
- 26 PF24 progressive frame rate (63, 174)
- 27 Remaining recording time
A, B On memory card **A** or **B**
M In the built-in memory*
M* **A** Relay recording (39)
 * **HFS21/S20** only.
- 28 x.v.Color (162)
- 29 Face detection (67)
- 30 Photo quality/size (simultaneous recording) (114)
- 31 Wind screen off (158)
- 32 Microphone attenuator (158), Surround microphone attenuator (159)
- 33 Peaking (78)
- 34 Level marker (159)
- 35 Zebra pattern (75)
- 36 Remote sensor off (167)
- 37 Mini advanced shoe (86)
- 38 Headphone output (85)
- 39 Mini video light (82)
- 40 Microphone directionality of the SM-V1 (87)
- 41 Control button: Switch to photo recording (108)

Recording Photos (in M Manual mode)



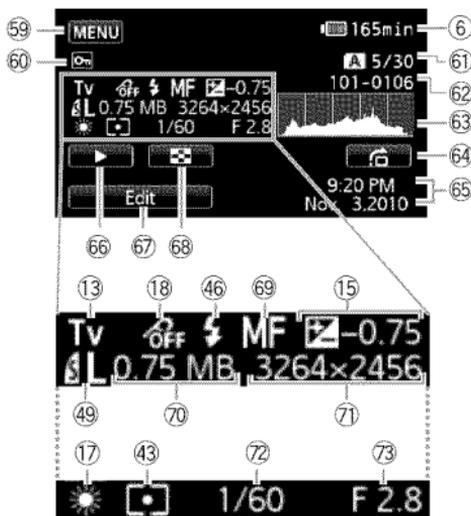
- ④ Drive mode (📖 113)
- ④ Light metering mode (📖 115)
- ④ Control button: Last function used ([MENU] in this case)
- ④ Self timer (📖 83)
- ④ Flash (📖 111)
- ④ Eye-Fi wireless communication (📖 150)
- ④ Number of available photos
 - A**, **B** On memory card **A** or **B**
 - HFS21/S20**  In the built-in memory
- ④ Photo quality/size (📖 109)
- ④ Control button: Switch to movie recording (📖 59)
- ④ AF frame (📖 157)
- ④ Focus and exposure lock (📖 42, 108)
- ④ Camcorder shake warning (📖 158)

Playing Movies (during playback)



- ④ Playback control buttons (📖 49)
- ④ External audio input (📖 95)
- ④ Scene number
- ④ Data code (📖 97, 164)
- ④ Volume (📖 49)

Viewing Photos



Exif information panel

- 59 Control button: Open the setup menus (156)
- 60 Protected photo mark (118)
- 61 Current photo / Total number of photos
- 62 Photo number (163)
- 63 Histogram (118)
- 64 Control button: Photo jump (105)
- 65 Date and time of recording
- 66 Control button: Slideshow (116)
- 67 Control button: Open the Edit panel (155)
- 68 Control button: Switch to [Photos] index screen (104)
- 69 Manual focus (76)
- 70 File size
- 71 Photo size (109)
- 72 Shutter speed (71)
- 73 Aperture value (71)

⑤ Memory operation

- Record, ●|| Record pause, ▶ Playback, || Playback pause, ▶▶ Fast playback, ◀◀ Fast reverse playback, |▶ Slow playback, ◀| Slow reverse playback, ||▶ Frame advance, ◀|| Frame reverse.

⑥ Remaining battery time

- The icon shows a rough estimate of the remaining charge as a percentage of the full charge of the battery pack. The remaining recording/playback time of the battery pack is displayed, in minutes, next to the icon.
- When  is displayed in red, replace the battery pack with a fully charged one.
- When you attach an empty battery pack, the power may turn off without displaying .
- Depending on the conditions under which the camcorder and the battery pack are used, the actual battery charge may not be indicated accurately.
- When the camcorder is off, press **BATT.INFO** to display the charge status of a battery pack. The Intelligent System will display the charge status (as a percentage) and the remaining recording time (in minutes) for 5 seconds. If the battery pack is exhausted, the battery information may not be displayed.



②⑥ PF24 progressive frame rate

Select the PF24 or 24F progressive frame rate ( 63) to give your recordings a cinematic look. You can combine this frame rate with the [ Cine Mode] recording program to enhance the effect.

②⑦ Remaining recording time

When there is no more free space on the memory, [ End] (built-in memory, **HFS21/S20** only) or [ End] (memory card **A**) or [ End] (memory card **B**) will be displayed in red and the recording will stop.

④⑧ Number of available photos

 /  in red: There is no memory card in the corresponding memory card slot.
 /  in green: 6 or more photos ➔ in yellow: 1 to 5 photos ➔ in red: No more photos can be recorded.

- When viewing the photos, the display will always be in green.
- Depending on the recording conditions, the number of available photos displayed may not decrease even after a recording has been made, or may decrease by 2 photos at once.

Troubleshooting

If you have a problem with your camcorder, refer to this section. Sometimes what you think is a malfunction of the camcorder may have the simplest of solutions - please read the "CHECK THIS FIRST" box before going on to the more detailed problems and solutions. Consult your dealer or a Canon Service Center if the problem persists.

CHECK THIS FIRST

Power supply

- Is the battery charged? Is the compact power adapter correctly connected to the camcorder? (📖 22)

Recording

- Did you turn the camcorder on and correctly set it to a recording mode? (📖 42, 59, 108) If you are recording on a memory card, is one correctly inserted into the camcorder? (📖 37)

Playback

- Did you turn the camcorder on and correctly set it to playback mode? (📖 49, 104) If you are playing back recordings from a memory card, is one correctly inserted into the camcorder? (📖 37) Does it contain any recordings?

Other

- Does the camcorder make a rattling sound? The internal lens fixture can move when the camcorder is turned off or in a playback mode. This is not a malfunction.

Power source

The camcorder will not turn on or it turns off by itself.

- The battery pack is exhausted. Replace or charge the battery pack.
- Remove the battery pack and reattach it correctly.

Cannot charge the battery pack.

- Make sure the camcorder is off so charging can start.
- The temperature of the battery pack is outside the charging range. If the battery pack's temperature is below 0 °C (32 °F), warm it before charging it; if it is above 40 °C (104 °F), let the battery pack cool down before charging it.
- Charge the battery pack in temperatures between 0 °C and 40 °C (32 °F and 104 °F).
- The battery pack is faulty. Replace the battery pack.
- The camcorder cannot communicate with the battery pack attached. Such battery packs cannot be charged using this camcorder.

A noise can be heard from the compact power adapter.

- A faint sound can be heard while the compact power adapter is connected to a power outlet. This is not a malfunction.

The battery pack is exhausted extremely quickly even at normal temperatures.

- The battery may have reached the end of its battery life. Buy a new battery pack.

Recording

Pressing  will not start recording.

- You cannot record while the camcorder is writing previous recordings onto the memory (while the ACCESS indicator is on or flashing). Wait until the camcorder has finished.
- The memory is full or it already contains the maximum number of scenes (3,999 scenes). Delete some recordings ( 57, 106) or initialize the memory ( 40) to free some space.

The point where  was pressed does not match the beginning/end of the recording.

- There is a slight interval between pressing  and the actual start/end of recording. This is not a malfunction.

The camcorder will not focus.

- Autofocus does not work on the subject. Focus manually ( 76).
- The lens or Instant AF sensor is dirty. Clean the lens or sensor with a soft lens-cleaning cloth ( 199). Never use tissue paper to clean the lens.

When a subject flits across in front of the lens, the image appears slightly bent.

- This is a phenomenon typical of CMOS image sensors. When a subject crosses very quickly in front of the camcorder, the image may seem slightly warped. This is not a malfunction.

Changing the operating mode between recording ()/record pause ()/playback () takes longer than usual.

- When the memory contains a large number of scenes, some operations may take longer than usual. Save your recordings ( 133) and initialize the memory ( 40).

Movies or photos cannot be recorded properly.

- This may occur as movies and photos are recorded/deleted over time. Save your recordings ( 133) and initialize the memory ( 40).

Cannot record a photo in  mode.

- You cannot take photos in this mode if   [Simultaneous Recording] is set to [Off] ( 114), or if either the digital zoom ( 157) or a digital effect ( 70) is activated. Also, photos cannot be recorded at [LW 3264x1840] size while the digital tele-converter ( 80) is activated.

After using the camcorder for a long time, it becomes hot.

- The camcorder may become hot after using it continuously for long periods of time; this is not a malfunction. If the camcorder becomes unusually hot or it becomes hot after using it only for a short while, it may indicate a problem with the camcorder. Consult a Canon Service Center.

Playback

Cannot add scenes to the playlist.

- The playlist can contain a maximum of 999 scenes. If the playlist includes scenes recorded in MXP or FXP mode, the maximum number of scenes in the playlist may be less than 999.
- You may not be able to add to the playlist scenes recorded or edited using another device.
- The memory is full. Delete some recordings (📖 57, 106) or initialize the memory (📖 40) to free some space.

Cannot move scenes in the playlist.

- The memory is full. Delete some recordings (📖 57, 106) or initialize the memory (📖 40) to free some space.

Cannot delete a scene.

- You may not be able to delete scenes recorded or edited using another device.

Deleting scenes takes longer than usual.

- When the memory contains a large number of scenes, some operations may take longer than usual. Save your recordings (📖 133) and initialize the memory (📖 40).

Cannot delete a photo.

- The photo is protected. Remove the protection (📖 118).

Cannot capture a video snapshot scene from a movie.

- You cannot capture video snapshot scenes from scenes recorded or edited using another device.
- The memory is full. Delete some recordings (📖 57, 106) or initialize the memory (📖 40) to free some space.

When playing back scenes/slideshow with background music, the music track is not played back correctly.

- This can occur when you transfer the music files to a memory after repeatedly recording and deleting scenes (fragmented memory). Save your recordings (📖 133) and initialize the memory (📖 40). Then, transfer the music files first and only then write the video files back to the memory.
- Music tracks will not play back correctly if the connection was interrupted while transferring the music files. Delete the music tracks and transfer the music files again.
- The transfer rate of the memory card used is too slow. Use a recommended memory card (📖 36).

When playing scenes/a slideshow linked to external audio, the video playback is not correctly linked to the external player.

- The volume of external player may be too low. Try increasing the volume of the external player.

Cannot divide scenes

- You cannot divide scenes recorded or edited using another device.
- The memory is full. Delete some recordings ( 57, 106) or initialize the memory ( 40) to free some space.

Cannot copy scenes/photos

- You may not be able to copy scenes/photos recorded or edited using another device.

Cannot mark individual scenes/photos in the index screen with a checkmark ✓

- You cannot select more than 100 scenes/photos individually. Reduce the number of selected scenes/photos or use the [Select All] option.

Indicators and Onscreen Displays

 lights up in red.

- Battery pack is exhausted. Replace or charge the battery pack.

 appears on the screen.

- The camcorder cannot communicate with the battery pack attached so the remaining battery time cannot be displayed.

 lights up in red.

- A memory card error occurred. Turn off the camcorder. Remove and reinsert the memory card. Initialize the memory card if the display does not change back to normal.
- The memory card is full. Replace the memory card or delete some recordings ( 57, 106) to free some space on the memory card.

 flashes in red on the screen.

- The camcorder has malfunctioned. Consult a Canon Service Center.

Even after stopping recording, the ACCESS indicator does not go off.

- The scene is being recorded in the memory. This is not a malfunction.

The red ON/OFF (CHG) indicator flashes rapidly ( one flash at 0.5-second intervals).

- Charging has stopped because the compact power adapter or the battery pack is faulty. Consult a Canon Service Center.

The red ON/OFF (CHG) indicator flashes very slowly () one flash at 2-second intervals).

- The temperature of the battery pack is outside the charging range. If the battery pack's temperature is below 0 °C (32 °F), warm it before charging it; if it is above 40 °C (104 °F), let the battery pack cool down before charging it.
- Charge the battery pack in temperatures between 0 °C and 40 °C (32 °F and 104 °F).
- The battery pack is damaged. Use a different battery pack.

appears on the screen

- The LOCK switch on the Eye-Fi card is set to prevent accidental erasure. Change the position of the LOCK switch.
- An error occurred when trying to access control data on the Eye-Fi card. Turn the camcorder off then on again. If the icon appears often, there might be a problem with the Eye-Fi card. Contact the card manufacturer's customer care.

Picture and Sound

The screen appears too dark.

- The LCD screen was dimmed. Hold  pressed down for 2 seconds to restore the LCD screen to its previous brightness setting.

Screen displays turn on and off repeatedly.

- The battery pack is exhausted. Replace or charge the battery pack.
- Remove the battery pack and reattach it correctly.

Abnormal characters appear on the screen and the camcorder does not operate properly.

- Disconnect the power source and reconnect it after a short time. If the problem still persists, use the   [Reset All] menu option to reset all the camcorder's settings to default values.

Video noise appears on screen.

- Keep a distance between the camcorder and devices that emit strong electromagnetic fields (plasma TVs, cellular phones, etc.).

Horizontal bands appear on the screen.

- This is a phenomenon typical of CMOS image sensors when recording under some types of fluorescent, mercury or sodium lamps. To reduce the symptoms, set the recording program to [Programmed AE] or [Shutter-Pri. AE] ( 71). This is not a malfunction.

HF521 No picture appears on the viewfinder.

- Pull out the viewfinder until it clicks to activate the viewfinder ( 28).

HF521 Viewfinder picture is blurred.

- Adjust the viewfinder with the dioptic adjustment lever ( 28).

Noise can be heard along with the recorded sound

- When recording sound with an external microphone, the interference caused by wireless communications may be picked up and recorded as noise. We recommend turning off the wireless communication while recording (☞ 151).

Sound is distorted or is recorded at lower levels.

- When recording near loud sounds (such as fireworks, shows or concerts), sound may become distorted or it may not be recorded at the actual levels. Activate the microphone attenuator (☞ 158) or adjust the audio recording level manually (☞ 83).

The picture is displayed correctly but there is no sound from the built-in speaker.

- Speaker volume is turned off. Adjust the volume.
- If the STV-250N Stereo Video Cable is connected to the camcorder, disconnect it.
- The AV terminal is set to headphone output. Set   [AV/Headphones] to [AV].

Memory Card and Accessories

Cannot insert the memory card.

- The memory card was not facing the correct direction. Turn the memory card over and insert it.

Cannot record on the memory card.

- The memory card is full. Delete some recordings (☞ 57, 106) to free some space or replace the memory card.
- Initialize the memory card (☞ 40) when you use it with the camcorder for the first time.
- The LOCK switch on the memory card is set to prevent accidental erasure. Change the position of the LOCK switch.
- A compatible memory card must be used to be able to record movies on a memory card (☞ 36).
- The folder and file numbers have reached their maximum value. Set   [Photo Numbering] to [Reset] and insert a new memory card.

The wireless controller will not work.

- Set   [Wireless Remote Control] to [On].
- Replace the battery of the wireless controller.

Cannot upload files wirelessly using an Eye-Fi card.

- You may have inserted the Eye-Fi card into memory card slot **A**. Insert it into memory card slot **B**.
-  [Eye-Fi Communication] is set to [Off] ( appears onscreen). Set it to [Automatic].
- Opening the LCD panel may help when the wireless connection is not strong enough.
- If certain conditions occur while uploading files, such as the camcorder becoming too hot or the wireless connection getting too weak, the camcorder may stop the wireless upload ( appears onscreen). Turn off the camcorder and let it cool down or move to a location with a stronger wireless signal.
- Contact the card manufacturer's customer care.

The wireless communication status icon does not appear

- You may have inserted the Eye-Fi card into memory card slot **A**. Insert it into memory card slot **B**.

Connections with External Devices

Video noise appears on the TV screen.

- When using the camcorder in a room where a TV is located, keep a distance between the compact power adapter and the power or antenna cables of the TV.

Playback looks fine on the camcorder but there is no image on the TV screen.

- The video input on the TV is not set to the video terminal to which you connected the camcorder. Select the correct video input.

There is no sound from the TV.

- When connecting the camcorder to an HDTV using the CTC-100/S Component Cable, make sure to connect also the audio connections using the white and red plugs of the STV-250N Stereo Video Cable.

The camcorder is connected using the optional HTC-100 HDMI Cable, but there is no picture or sound from the HDTV.

- Disconnect the HTC-100 HDMI Cable and then restore the connection or turn the camcorder off and then on again.

The camcorder is connected using the optional HTC-100 HDMI Cable, but HDMI-CEC does not work (cannot play back using the TV's remote control).

- Disconnect the HTC-100 HDMI cable and turn off the camcorder and the TV. After a short while turn them on again and restore the connection.
-  [Control for HDMI] is set to [Off]. Set it to [On].
- HDMI-CEC is not activated on the connected TV. Activate this function on the TV.
- Even with TV sets compatible with HDMI-CEC the range of functions available differs depending on the type of TV. Refer to the instruction manual of the connected TV.

The computer does not recognize the camcorder even though the camcorder is connected correctly.

-   [USB Connection Type] is set to [DVD Burner]. Set it to [Computer/Printer] or to [Connect and Set].
- Disconnect the USB cable and turn off the camcorder. After a short while, turn it on again and restore the connection.
- Connect the camcorder to a different USB port on the computer.
- The camcorder will not be correctly recognized if you connected the USB cable to the computer while the camcorder was deleting all the photos. Disconnect the USB cable and restore the connection once the operation is completed.

The printer is not working even though the camcorder and printer are connected correctly.

-   [USB Connection Type] is set to [DVD Burner]. Set it to [Computer/Printer] or to [Connect and Set].
- Disconnect the USB cable and turn off the printer. After a short while turn it on again and restore the connection.
- Cannot connect to a PictBridge-compatible printer if the memory contains 2,500 photos or more.

After connecting the camcorder to a printer, the message [Busy] continues to appear on the screen

- Disconnect the USB cable and restore the connection after a short while.

Photos are not correctly printed

- You may not be able to print correctly, using a PictBridge-compatible printer, photos whose file names have been changed or that were recorded, created, edited or changed using another device.

Cannot save photos on my computer

- When the memory contains too many photos (Windows – 2,500 photos or more, Macintosh – 1,000 photos or more), you may not be able to transfer photos to a computer. Try using a card reader to transfer the photos on the memory card. **HFS21/S20** only; To transfer the photos in the built-in memory, copy them to the memory card in advance ( 130).

The camcorder does not recognize the DW-100 DVD Burner even though it is connected correctly.

-   [USB Connection Type] is set to [Computer/Printer]. Set it to [DVD Burner] or to [Connect and Set].

List of Messages (in alphabetical order)

Following the list of messages for the camcorder you can find separate lists for print-related messages (📖 191) and for messages that appear only when using the optional DW-100 DVD Burner (📖 190).

Accessing the memory card. Do not remove the memory card.

- You opened the memory card slot cover while the camcorder was accessing the memory card or the camcorder started accessing the memory card as you opened the memory card slot cover. Do not remove the memory card until this message disappears.

AVCHD discs cannot include MXP scenes

- AVCHD discs created with the optional DW-100 DVD Burner cannot contain scenes recorded in MXP mode. Select only those scenes recorded in other recording modes to create the disc (📖 135).

Back up recordings regularly

- This message may appear when you turn on the camcorder. In the event of a malfunction, recordings may be lost so back up your recordings regularly.

Buffer overflow. Recording was stopped.

- The data transfer rate was too high for the memory card in use and the recording was stopped. Replace the memory card with one rated Speed Class 2, 4, 6 or 10.

HFS21/S20 Built-in memory error

- The built-in memory could not be read. Contact a Canon Service Center.

HFS21/S20 Built-in memory is full

- The built-in memory is full ([📷] End) appears on the screen). Delete some recordings (📖 57, 106) to free some space. Save your recordings (📖 133) and initialize the built-in memory (📖 40).

HFS21/S20 Cannot access the built-in memory

- There is a problem with the built-in memory. Contact a Canon Service Center.

Cannot communicate with the battery pack. Continue using this battery pack?

- You attached a battery pack that is not recommended by Canon for use with this camcorder.
- If you are using a battery pack recommended by Canon for use with this camcorder, there may be a problem with the camcorder or battery pack. Consult a Canon Service Center.

Cannot convert

- Cannot access the memory card. Check the memory card and make sure it is inserted correctly.
- You inserted a MultiMedia Card (MMC) into the camcorder. Use a recommended memory card (📖 36).
- There was an error creating the file name. Set [📷] [▶] [Photo Numbering] to [Reset] and initialize the memory card or delete all the photos (📖 106) and all the scenes in the [For Web Upload] and [For DVD Burning] index screens (📖 57).

Cannot copy

- The total size of the scenes you selected to copy exceeds the available space on memory card **B**. Delete some recordings on the memory card (📖 57, 106) or reduce the number of scenes to copy.
- Memory card **B** already contains the maximum number of scenes (3,999 scenes). Delete some scenes (📖 57) to free some space.

Cannot divide the scene. Initialize only using the camcorder.

- The scene could not be divided because the camcorder's internal scene management data log is full. Save your recordings (📖 130) and initialize the memory (📖 40). Write back the backup files and try dividing the scene again.

Cannot edit

- Could not move a scene in the playlist. Delete some scenes from the playlist (📖 99).

Cannot enter standby mode now

- The camcorder cannot enter standby mode if the remaining battery charge is too low. Charge or replace the battery pack (📖 22).

Cannot play back

- There is a problem with the memory. If this message appears often without apparent reason, contact a Canon Service Center.

HFS21/S20 Cannot play back Cannot access the built-in memory

- There is a problem with the built-in memory. Save your recordings (📖 133) and initialize the built-in memory using the [Complete Initialization] option (📖 40). If the problem persists, contact a Canon Service Center.

Cannot play back Check the memory card

- There is a problem with the memory card. Save your recordings (📖 133) and initialize the memory card using the [Complete Initialization] option (📖 40). If the problem persists, use a different memory card.

HFS21/S20 Cannot play the movies in the built-in memory Initialize only using the camcorder

- The camcorder's built-in memory was initialized using a computer. Initialize the built-in memory with this camcorder (📖 40).

Cannot play the movies on this memory card

- Movies cannot be played back from a 64 MB or smaller memory card. Use a recommended memory card (📖 36).

Cannot play the movies on this memory card Initialize only using the camcorder

- The memory card in the camcorder was initialized using a computer. Initialize the memory card with this camcorder (📖 40).

Cannot record

- You cannot capture video snapshot scenes from scenes recorded or edited using another device.
- There is a problem with the memory. If this message appears often without apparent reason, contact a Canon Service Center.

HF521/S20 Cannot record Cannot access the built-in memory

- There is a problem with the built-in memory. Save your recordings (📖 133) and initialize the built-in memory using the [Complete Initialization] option (📖 40). If the problem persists, contact a Canon Service Center.

Cannot record Check the memory card

- There is a problem with the memory card. Save your recordings (📖 133) and initialize the memory card using the [Complete Initialization] option (📖 40). If the problem persists, use a different memory card.

HF521/S20 Cannot record movies in the built-in memory Initialize only using the camcorder

- The camcorder's built-in memory was initialized using a computer. Initialize the built-in memory with this camcorder (📖 40).

Cannot record movies on this memory card

- Movies cannot be recorded on a 64 MB or smaller memory card. Use a recommended memory card (📖 36).

Cannot record movies on this memory card Initialize only using the camcorder

- The memory card in the camcorder was initialized using a computer. Initialize the memory card with this camcorder (📖 40).

Change the battery pack

- Battery pack is exhausted. Replace or charge the battery pack.

Check the memory card

- Cannot access the memory card. Check the memory card and make sure it is inserted correctly.
- A memory card error occurred. The camcorder cannot record or display the image. Try removing and reinserting the memory card, or use a different memory card.
- You inserted a MultiMedia Card (MMC) into the camcorder. Use a recommended memory card (📖 36).
- If after the message disappears, [A] / [B] appears in red, perform the following: Turn off the camcorder and remove and reinsert the memory card. If [A] / [B] turns back to green you can resume recording/playback. If the problem persists, save your recordings (📖 133) and initialize the memory card (📖 40).

Could not add the scene(s) to the playlist

- One or more scenes could not be added to the playlist. The playlist can contain a maximum of 999 scenes. If the playlist includes scenes recorded in MXP or FXP mode, the maximum number of scenes in the playlist may be less than 999. Delete some scenes from the playlist (📖 99).

Do not disconnect the USB cable or the power source until you safely end the connection from the computer. Cannot write data with this connection. To write data to the camcorder, connect the compact power adapter then reconnect the camcorder and computer.

- The camcorder cannot be operated while it is not being powered by the compact power adapter and is connected to a computer with the supplied USB cable. In addition, scenes cannot be written back and music files cannot be transferred to the camcorder. To avoid corrupting the data in the camcorder's memory, use the computer's Safely Remove Hardware function to end the connection and disconnect the USB cable before using the camcorder.
- To be able to write back scenes and to transfer music files to the camcorder, use the computer's Safely Remove Hardware function to end the connection, disconnect the USB cable, power the camcorder using the compact power adapter and only then connect it to the computer again.

Do not disconnect the USB cable or the power source until you safely end the connection from the computer. Connect the compact power adapter

- When the camcorder is in  mode and is connected to the computer with the supplied USB cable, the camcorder cannot be operated. Disconnecting the USB cable or power source while this message appears may result in permanent loss of the recordings in the camcorder. Use the computer's Safely Remove Hardware function to end the connection and disconnect the USB cable before using the camcorder.
- To be able to write back scenes and to transfer music files to the camcorder, power the camcorder using the compact power adapter and only then connect it to the computer using the supplied USB cable.

Error writing on the memory card. Data may be recovered if the memory card has not been removed. **Attempt recovering the data?**

- This message will appear the next time you turn on the camcorder if power supply was accidentally interrupted while the camcorder was writing on the memory card. Select [Yes] to try to recover the recordings. If you removed the memory card and used it with another device after this happened, we recommend you select [No].

File name error

- The folder and file numbers have reached their maximum value. Set  [Photo Numbering] to [Reset] and delete all the photos on the memory card ( 106) or initialize it ( 40).

Initialize only using the camcorder

- There is a problem with the file system that prevents accessing the selected memory. Initialize the memory with this camcorder ( 40).

LCD Screen has been dimmed

- Hold  pressed for 2 seconds to restore the LCD screen to its previous brightness setting.

May not be possible to record movies on this memory card

- You may not be able to record movies on a memory card without a Speed Class rating. Replace the memory card with one rated Speed Class 2, 4, 6 or 10.

Mem. Card Number of scenes already at maximum

- The memory card already contains the maximum number of scenes (3,999 scenes); no further scenes can be copied onto the memory card. Delete some scenes ( 57) to free some space.

Mem. Card Unable to recognize the data

- The memory card contains scenes recorded in a different television system (PAL or SECAM). Play back the recordings in the memory card with the device originally used to record them.

Memory card cover is open

- After inserting a memory card, close the memory card slot cover ( 37).

Memory card is full

- The memory card is full. Delete some recordings ( 57, 106) to free some space or replace the memory card.

Memory card is write-protected

- The LOCK switch on the memory card is set to prevent accidental erasure. Change the position of the LOCK switch.

Need to recover files from the memory card. Change the position of the LOCK switch on the memory card.

- This message will appear the next time you turn on the camcorder if power supply was accidentally interrupted while the camcorder was writing on the memory card and later the position of the card's LOCK switch was changed to prevent erasure. Change the position of the LOCK switch.

No faces were detected in this scene

- The camcorder did not detect any faces in the scene displayed. Be sure to turn on face detection (📖 67) when shooting movies.

No memory card

- Insert a compatible memory card into the camcorder (📖 37).

No photos

- There are no photos to play back. Have fun taking some photos (📖 42, 59).

No scenes

- There are no scenes in the memory selected. Have fun shooting some video (📖 42).
- After selecting [Scenes with Faces] when narrowing down the scenes shown in the index screen: No scenes contain people's faces or no scenes were recorded using the face detection function.

Not enough available space

- Delete some recordings on the memory card (📖 57, 106) or select the [3Mbps] bit rate for the conversion to SD.

Number of scenes already at maximum

- The maximum number of scenes (3,999 scenes) has been reached. Delete some scenes (📖 57) to free some space.
- The playlist can contain a maximum of 999 scenes.

Playlist is full. Cannot divide the scene.

- Scenes cannot be divided when the playlist already contains 999 scenes. Delete some scenes from the playlist (📖 99).

Scene recorded using another device. Cannot divide the scene.

- Scenes recorded using another device cannot be divided with this camcorder.

Select the desired scene number

- A number of scenes have the same recording date but different file control information. This can occur for example when you edit photos and write the files back to the camcorder. Select a number to display the corresponding group of scenes.

Some  photos could not be deleted

- Protected photos () cannot be deleted. Remove the protection (📖 118).

Some scenes could not be added to the playlist.

- You may not be able to add to the playlist scenes recorded using another device.
- The playlist can contain a maximum of 999 scenes. If the playlist includes scenes recorded in MXP or FXP mode, the maximum number of scenes in the playlist may be less than 999. Delete some scenes from the playlist (📖 99).

Some scenes could not be converted

- Among the scenes selected for conversion to SD there are scenes recorded with another device using 24p frame rate. When converting scenes to SD, leave out scenes recorded using another device.

Some scenes could not be deleted

- Movies that were protected/edited with other devices cannot be deleted with this camcorder.

Some scenes were recorded using another device and cannot be copied.

- Scenes that were not recorded with this camcorder cannot be copied to memory card **B**.

Task in progress. Do not disconnect the power source.

- The camcorder is updating the memory. Wait until the operation ends and do not disconnect the compact power adapter or remove the battery pack.

The camcorder is set to photo mode

- You pressed **[START/STOP]** while recording photos (📷 mode). Set the camcorder to **[📷]** or **[📹]** mode to record movies.

This memory card contains scenes. Delete all scenes to use relay recording.

- Save your movies (📖 133) if necessary, and delete all the movies from the memory card (📖 57).

This photo cannot be displayed

- You may not be able to display photos taken with other devices or image files created or edited on a computer.

This **Ⓞ** photo could not be deleted

- Protected photos (**Ⓞ**) cannot be deleted. Remove the protection (📖 118).

This scene was recorded using another device and cannot be added to the playlist.

- Scenes that were not recorded with this camcorder cannot be added to the playlist.

This scene was recorded using another device and cannot be copied.

- Scenes that were not recorded with this camcorder cannot be copied to memory card **B**.

To record video on this memory card, it is recommended to use only the XP+/SP/LP recording modes

- Movies may not be recorded correctly on this memory card if the recording mode is set to MXP or FXP mode (📖 60).

To use the wireless function, insert the Eye-Fi card into slot B.

- You may have inserted the Eye-Fi card into memory card slot **A**. Insert it into memory card slot **B**.

To use this function change the camcorder's mode from to **M**

- You pressed a button that cannot be used in  mode. Set the mode switch to **M** to set the camcorder to flexible recording mode.

Too many photos. Disconnect the USB cable.

- Disconnect the USB cable. Try using a memory card reader or decrease the number of photos on the memory card to fewer than 2,500 photos (printers, Windows computers), or 1,000 photos (Macintosh computers).
- If a dialog box appeared on the computer screen, close it. Disconnect the USB cable, and restore the connection after a short while.

Total play time is too long

- The playlist cannot be converted when its total playback time exceeds 2 hours and 30 minutes. Reduce the number of scenes in the playlist.

Unable to recognize the data

- You transferred data to the camcorder recorded in a different television system (PAL or SECAM). Play back the recordings with the device originally used to record them.

Unable to recover data

- Could not recover a corrupted file. Save your recordings ( 133) and initialize the memory using the [Complete Initialization] option ( 40).

Messages Related to the Optional DW100 DVD Burner

If an error message appears while the camcorder is connected to the optional DW-100 DVD Burner, refer to the following section and also to the instruction manual of the DVD Burner.

Cannot read the disc. Check the disc.

- During disc recording mode, this message can appear when a commercially available DVD disc (a DVD disc containing movies, software, etc.) or an 8 cm mini DVD disc is inserted. Replace with a brand new disc.
- During disc playback mode, this message can appear when a commercially available DVD disc or a brand new DVD disc is inserted. Replace with an AVCHD disc created with the DVD Burner.

Close the memory card slot cover

- The memory card slot cover is open. Close the cover after correctly inserting the memory card ( 37).

Connect the compact power adapter

- The camcorder is being powered by the battery pack. Connect the compact power adapter to the camcorder.

Disc access failure. Check the disc.

- There was an error when reading the disc or attempting to write onto it.
- This message can appear also if condensation has formed (☞ 199). Wait until the DVD burner dries completely before resuming use.
- The disc may be dirty or not correctly loaded. Try removing the disc and reinserting it after cleaning the recording surface with a clean, soft cloth. If the problem persists, replace with a different disc.

Error reading the data

- Check that the USB cable was not accidentally disconnected.

No disc

- Insert a disc into the DVD Burner.
- This message can appear also if condensation has formed (☞ 199). Wait until the DVD burner dries completely before resuming use.

No photos

- There are no photos to add to the disc.

No scenes

- There are no scenes to add to the disc.

No scenes left to add

- There are no scenes that have not already been added to discs created previously.

Operation canceled

- The USB cable was disconnected and the operation was canceled. Check the USB connection.
- The scenes selected to be written on the disc include scenes recorded in MXP mode. Add to the playlist in advance only those scenes recorded in other recording modes and create the disc from the [Playlist] index screen.

Unable to recover data

- Could not recover a corrupted file. Save your recordings (☞ 133) and initialize the memory using the [Complete Initialization] option (☞ 40).

Direct Print Related Messages

Data transfer error

- Cancel printing, disconnect the USB cable and turn off the printer. After a while, turn the printer back on and reconnect the USB cable.
- You attempted to print from a memory card that contains a large number of photos. Reduce the number of photos.

File error

- You attempted to print a photo that was recorded with another camcorder, has a different compression, or was edited on a computer.

Hardware error

- Cancel printing. Turn off the printer and turn it back on.
- Check the printer status.
- Ink tank errors have occurred. Replace the ink tank.

Ink absorber full

- Touch [Continue] to resume printing. Consult a Canon Service Center (refer to the list included with the printer) to replace the ink absorber.

Ink error

- The ink level cannot be detected correctly or the ink cartridge is out of ink. Replace the ink cartridge.

Low ink level

- The ink cartridge needs to be replaced soon. Touch [Continue] to restart printing.

No ink

- The ink cartridge is not inserted or is out of ink. Replace the ink cartridge.

No paper

- Paper is not correctly inserted or there is no paper.

Paper error

- There is a problem with the paper. The paper is not correctly loaded or the paper size is wrong.
- If the paper output tray is closed, open it to print.

Paper jam

- The paper jammed during printing. Touch [Stop] to cancel printing. After removing the paper, set some paper again and retry printing.

Paper lever error

- Paper lever error occurred. Adjust the paper selection lever to the proper position.

Print head not installed

- No print head is installed in the printer or the print head is defective.

Printer cover open

- Close the printer cover securely.

Printer error

- A malfunction has occurred that may require repairs. (Canon PIXMA printers: the printer's green power lamp and orange error lamp flash alternately.)
- Disconnect the USB cable and turn off the printer. Unplug the printer's power cord from the power outlet and contact the appropriate customer support center or service center.

Printer in use

- The printer is in use. Check the printer status.

Printing error

- The printer does not support the paper size selected for [Paper Settings]. Set [Paper Settings] to [Default] or a paper size supported by the printer used.
- Cancel printing, disconnect the USB cable and turn off the printer. After a while, turn the printer back on and reconnect the USB cable. Check the printer status.

NOTES

About Canon PIXMA/SELPHY DS Printers: If the printer's error indicator flashes or an error message appears on the printer's operation panel, refer to the printer's instruction manual.

- If you cannot solve the problem even after consulting this list and the printer's instruction manual, contact the closest Canon Service Center (refer to the list included with the printer).

Handling Precautions

Camcorder

Be sure to observe the following precautions to ensure maximum performance.

- **Save your recordings periodically.** Make sure to transfer your recordings to an external device such as a computer or digital video recorder (📖 130) and save them on a regular basis. This will protect your important recordings in case of damage and create more free space on the memory. Canon shall not be liable for any data loss.
- Do not carry the camcorder by the LCD panel or the viewfinder (**HFS21** only). Be careful when closing the LCD panel. When using a wrist strap, do not allow the camcorder to swing and hit an object.
- **Handle the touch screen with care.** Do not apply excessive force and do not use ballpoint pens or other hard-tipped tools to operate the touch screen. This may damage the touch screen's surface or the pressure-sensitive layer beneath it.
- Do not attach protective film on the touch screen. The touch screen's operation is based on detecting applied pressure, so you may not be able to correctly operate the touch screen with an additional protective layer.
- Do not leave the camcorder in places subject to high temperatures (like the inside of a car parked under direct sunlight), or high humidity.
- Do not use the camcorder near strong electromagnetic fields such as above TVs, near plasma TVs or mobile phones.
- Do not point the lens or the viewfinder (**HFS21** only) at strong light sources. Do not leave the camcorder pointed at a bright subject.
- Do not use or store the camcorder in dusty or sandy places. The camcorder is not waterproof – avoid also water, mud or salt. If any of the above should get into the camcorder it may damage the camcorder and/or the lens.
- Be careful of heat generated by lighting equipment.
- Do not disassemble the camcorder. If the camcorder does not function properly, consult qualified service personnel.
- Handle the camcorder with care. Do not subject the camcorder to shocks or vibration as this may cause damage.

- When mounting the camcorder on a tripod, make sure that the tripod's fastening screw is shorter than 5.5 mm (0.2 in.). Using other tripods may damage the camcorder.



- **When recording movies, try to get a calm, stable picture.** Excessive camcorder movement while shooting and extensive use of fast zooms and panning can result in jittery scenes. In extreme cases, the playback of such scenes may result in visually induced motion sickness. If you experience such a reaction, stop the playback immediately and take a rest break as necessary.

Long-term storage

If you do not intend to use the camcorder for a long time, store it in a place free of dust, in low humidity, and at temperatures not higher than 30 °C (86 °F).

Battery Pack

DANGER!

Treat the battery pack with care.

- Keep it away from fire (or it might explode).
 - Do not expose the battery pack to temperature higher than 60 °C (140 °F). Do not leave it near a heater or inside a car in hot weather.
 - Do not try to disassemble or modify it.
 - Do not drop it or subject it to shocks.
 - Do not get it wet.
- Dirty terminals may cause a poor contact between the battery pack and the camcorder. Wipe the terminals with a soft cloth.

Long-term storage

- Store battery packs in a dry place at temperatures no higher than 30 °C (86 °F).
- To extend the battery life of the battery pack, discharge it completely before storing it.
- Charge and discharge all your battery packs fully at least once a year.

Remaining battery time

If the remaining battery time displayed is not correct, charge the battery pack fully. Still, the correct time may not be displayed if a fully charged battery pack is used continuously in high temperatures or it is left unused for long periods of time. Also, the correct remaining time may not be displayed, depending on the battery life. Use the time shown on the screen as an approximation.

Regarding the use of non-Canon battery packs

- For your safety, battery packs that are not genuine Canon battery packs will not be charged even if you attach them to this camcorder or to the optional CG-800 Battery Charger.
- We recommend using genuine Canon battery packs bearing the Intelligent System mark.  **Intelligent Li-ion Battery**
- If you attach to the camcorder battery packs that are not genuine Canon battery packs,  will appear and the remaining battery time will not be displayed.

Memory Card

- We recommend backing up the recordings on the memory card onto your computer. Data may be corrupted or lost due to memory card defects or exposure to static electricity. Canon shall not be liable for lost or corrupted data.
- Do not touch or expose the terminals to dust or dirt.
- Do not use memory cards in places subject to strong magnetic fields.
- Do not leave memory cards in places subject to high humidity and high temperature.
- Do not disassemble, bend, drop, or subject memory cards to shocks and do not expose them to water.
- Check the direction before inserting the memory card. Forcing a memory card into the slot if it is not correctly oriented may damage the memory card or the camcorder.
- Do not attach any labels or stickers on the memory card.

- Secure Digital (SD) memory cards have a physical switch to prevent writing on the card so as to avoid the accidental erasure of the card's content. To write-protect the memory card set the switch to the LOCK position.



Built-in Rechargeable Lithium Battery

The camcorder has a built-in rechargeable lithium battery to keep the date/time and other settings. The built-in lithium battery is recharged while you use the camcorder; however, it will discharge completely if you do not use the camcorder for about 3 months.

To recharge the built-in lithium battery: Connect the compact power adapter to the camcorder and leave it connected for 24 hours with the camcorder off.

Lithium Button Battery

WARNING!

- The battery used in this device may present a fire or chemical burn hazard if mishandled.
 - Do not disassemble, modify, immerse in water, heat above 100 °C (212 °F) or incinerate the battery.
 - Replace with a CR2025 battery made by Panasonic, Hitachi Maxell, Sony, Sanyo, or with Duracell2025. Use of other batteries may present a risk of fire or explosion.
 - Do not insert the battery into the mouth. If swallowed, seek medical assistance immediately. The battery case may break and the battery fluids may cause internal injuries.
 - Keep the battery out of the reach of children.
 - Do not recharge, short-circuit or insert the battery in the wrong direction.
 - Dispose of the used battery according to applicable recycling regulations.
- Do not pick up the battery using tweezers or other metal tools, as this will cause a short circuit.

- Wipe the battery with a clean dry cloth to ensure proper contact.
 - **For California, USA only:** The lithium battery included contains Perchlorate Material – special handling may apply.
See www.dtsc.ca.gov/hazardouswaste/perchlorate for details.
-

Disposal

When you delete movies or initialize the memory, only the file allocation table is altered and stored data is not physically erased. Take the necessary precautions when you dispose of the camcorder or memory card, for example by physically damaging it to prevent the leakage of private data.

If giving the camcorder or memory card to another person, initialize the built-in memory (**HFS21/S20** only) or memory card using the [Complete Initialization] option (📖 40). Fill it up with unimportant recordings, and then initialize it again using the same option. This makes recovering the original recordings very difficult.

Maintenance/Others

Cleaning

Camcorder Body

- Use a soft, dry cloth to clean the camcorder body. Never use chemically treated cloths or volatile solvents such as paint thinner.

Lens, Viewfinder (HFS21 only) and Instant AF Sensor

- If the lens surface or Instant AF sensor is dirty, autofocus may not work properly.
- Remove any dust or dirt particles using a non-aerosol type blower brush.
- Use a clean, soft lens-cleaning cloth to gently wipe the lens or the viewfinder (HFS21 only). Never use tissue paper.

LCD Touch Screen

- Clean the LCD touch screen using a clean, soft lens-cleaning cloth.
- Condensation may form on the surface of the screen when the temperature changes suddenly. Wipe it with a soft dry cloth.

Condensation

Moving the camcorder rapidly between hot and cold temperatures may cause condensation (water droplets) to form on its internal surfaces. Stop using the camcorder if condensation is detected. Continued use may damage the camcorder.

Condensation may form in the following cases:

- When the camcorder is moved quickly from cold to warm places
- When the camcorder is left in a humid room
- When a cold room is heated rapidly

To avoid condensation

- Do not expose the camcorder to sudden or extreme changes in temperature.
- Remove the memory card and battery pack. Then, place the camcorder in an airtight plastic bag and let it adjust gradually to temperature changes before removing it from the bag.

When condensation is detected

The camcorder automatically shuts off.

The precise time required for water droplets to evaporate will vary depending on the location and weather conditions. As a general rule, wait for 2 hours before resuming use of the camcorder.

Using the Camcorder Abroad

Power Sources

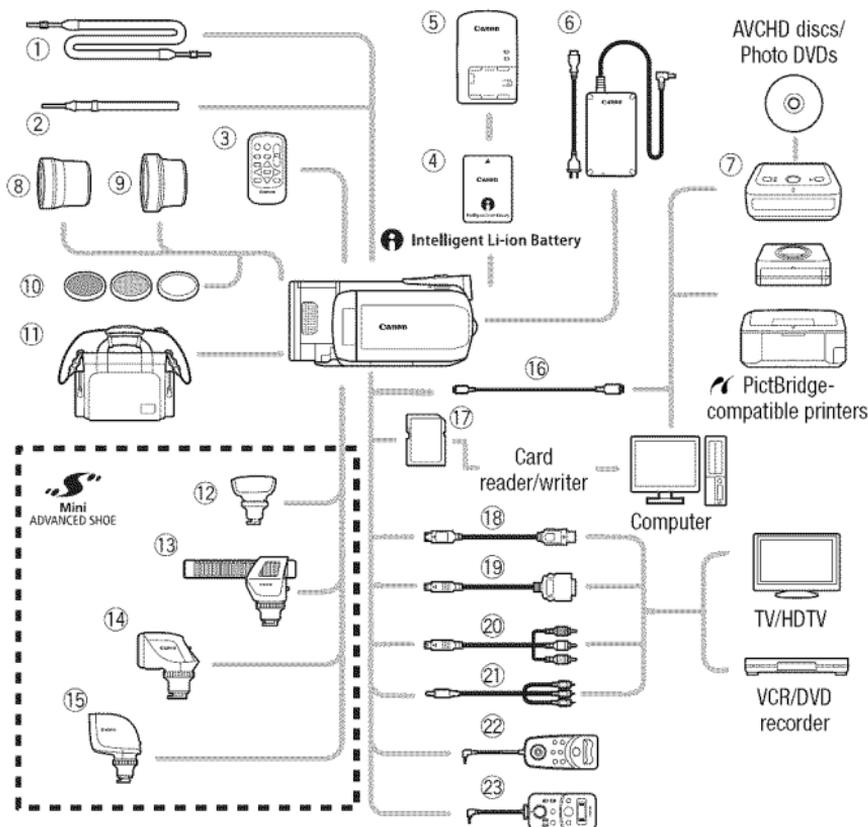
You can use the compact power adapter to operate the camcorder and to charge battery packs in any country with power supply between 100 and 240 V AC, 50/60 Hz. Consult a Canon Service Center for information on plug adapters for overseas use.

Playback on a TV Screen

You can only play back your recordings on TVs compatible with the NTSC system. NTSC is used in the following regions/countries:

Americas: All of North America and Central America; most Caribbean islands (except in French territories like Guadeloupe and Martinique); most of South America (except in Argentina, Brazil and Uruguay). **Asia:** Only in Japan, the Philippines, South Korea, Taiwan and Myanmar. **Oceania:** US territories (Guam, American Samoa, etc.) and some Pacific islands like Micronesia, Samoa and Tonga.

Accessories (Availability differs from area to area)



Optional accessories not listed below are described in more detail in the following pages.

- | | |
|--------------------------------|----------------------------------|
| ① SS-600/SS-650 Shoulder Strap | ⑲ DTC-100 D Terminal Cable |
| ② WS-20 Wrist Strap | ⑳ CTC-100 Component Cable |
| ③ WL-D89 Wireless Controller | CTC-100/S Component Cable* |
| ⑥ CA-570 Compact Power Adapter | ㉑ STV-250N Stereo Video Cable |
| ⑦ DW-100 DVD Burner | ㉒ ZR-1000 Zoom Remote Controller |
| ⑯ IFC-300PCU USB Cable | ㉓ ZR-2000 Zoom Remote Controller |
| ⑰ Memory card | |

* Supplied with the camcorder; not available as an optional accessory.

NOTES

- Accessories that are compatible with the Advanced Accessory Shoe cannot be attached to this camcorder. Look for the **Mini ADVANCED SHOE** logo to ensure compatibility with the mini advanced shoe.

Optional Accessories

Call or visit your local retailer/dealer for genuine Canon video accessories. You can also obtain genuine accessories for your Canon camcorder by calling: 1-800-828-4040, Canon U.S.A. Information Center.

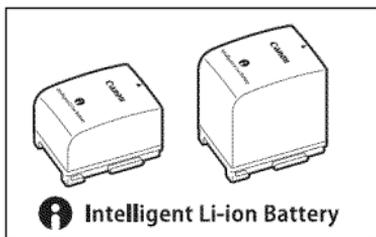
Use of genuine Canon accessories is recommended.

This product is designed to achieve excellent performance when used with genuine Canon accessories. Canon shall not be liable for any damage to this product and/or accidents such as fire, etc., caused by the malfunction of non-genuine Canon accessories (e.g., a leakage and/or explosion of a battery pack). Please note that this warranty does not apply to repairs arising out of the malfunction of non-genuine Canon accessories, although you may request such repairs on a chargeable basis.

Battery Packs

When you need extra battery packs, select one of the following models: BP-808, BP-809(B)*, BP-809(S)*, BP-819, or BP-827.

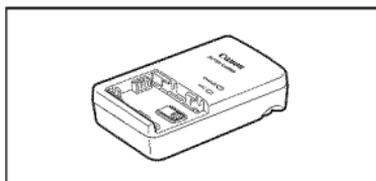
* Please note that the shape/color of this battery does not match the external design of the camcorder.



When you use battery packs bearing the Intelligent System mark, the camcorder will communicate with the battery and display the remaining usage time (accurate to 1 minute). You can only use and charge these battery packs with camcorders and chargers compatible with Intelligent System.

⑤ CG-800 Battery Charger

Use the battery charger to charge the battery packs. It plugs directly into a power outlet without a cable.



Charging, Recording and Playback Times

The charging times given in the following table are approximate and vary according to charging conditions and initial charge of the battery pack.

Battery pack →	BP-808 BP-809	BP-819	BP-827
Charging conditions ↓			
Using the camcorder	150 min.	260 min.	385 min.
Using the CG-800 Battery Charger	105 min.	190 min.	260 min.

Recording and playback times given in the following tables are approximate and vary according to recording mode and charging, recording or playback conditions. The effective usage time of the battery pack may decrease when recording in cold surroundings, when using the brighter screen settings, etc.

HFS21/S20 Using the built-in memory

Battery pack	Recording mode	Recording (maximum)		Recording (typical)*		Playback
		LCD	Viewfinder**	LCD	Viewfinder**	LCD
BP-808 BP-809	MXP	80 min.	95 min.	55 min.	60 min.	125 min.
	FXP	80 min.	95 min.	55 min.	60 min.	125 min.
	XP+	80 min.	95 min.	55 min.	60 min.	125 min.
	SP	80 min.	95 min.	55 min.	60 min.	130 min.
	LP	85 min.	100 min.	55 min.	60 min.	130 min.
BP-819	MXP	165 min.	190 min.	105 min.	120 min.	265 min.
	FXP	165 min.	190 min.	105 min.	120 min.	265 min.
	XP+	165 min.	195 min.	105 min.	120 min.	265 min.
	SP	170 min.	200 min.	110 min.	125 min.	265 min.
	LP	175 min.	200 min.	110 min.	125 min.	265 min.
BP-827	MXP	255 min.	290 min.	170 min.	185 min.	380 min.
	FXP	255 min.	290 min.	170 min.	185 min.	385 min.
	XP+	265 min.	295 min.	170 min.	190 min.	385 min.
	SP	270 min.	305 min.	175 min.	195 min.	405 min.
	LP	275 min.	315 min.	175 min.	195 min.	405 min.

* Approximate times for recording with repeated operations such as start/stop, zooming, and power on/off.

** **HFS21** only.

Using a memory card

Battery pack	Recording mode	Recording (maximum)		Recording (typical)*		Playback
		LCD	Viewfinder**	LCD	Viewfinder**	LCD
BP-808 BP-809	MXP	85 min.	95 min.	55 min.	60 min.	130 min.
	FXP	85 min.	95 min.	55 min.	60 min.	130 min.
	XP+	85 min.	100 min.	55 min.	60 min.	130 min.
	SP	90 min.	100 min.	55 min.	60 min.	135 min.
	LP	90 min.	100 min.	55 min.	60 min.	135 min.
BP-819	MXP	170 min.	195 min.	105 min.	120 min.	265 min.
	FXP	170 min.	195 min.	105 min.	125 min.	265 min.
	XP+	175 min.	200 min.	110 min.	125 min.	265 min.
	SP	175 min.	200 min.	105 min.	125 min.	270 min.
	LP	175 min.	200 min.	105 min.	125 min.	275 min.
BP-827	MXP	265 min.	295 min.	170 min.	190 min.	390 min.
	FXP	265 min.	300 min.	175 min.	190 min.	400 min.
	XP+	275 min.	305 min.	175 min.	195 min.	405 min.
	SP	275 min.	310 min.	175 min.	195 min.	410 min.
	LP	275 min.	315 min.	175 min.	195 min.	410 min.

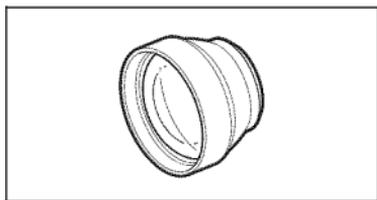
* Approximate times for recording with repeated operations such as start/stop, zooming, and power on/off.

** **HFS21** only.

⑧ TL-H58 Tele-converter

This Tele-converter lens increases the focal length of the camcorder lens by a factor of 1.5.

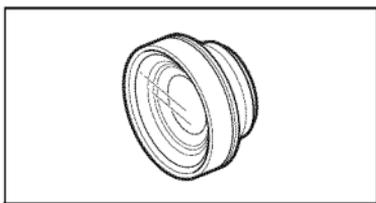
- The image stabilizer is not as effective when the Tele-converter is attached.
- The minimum focusing distance at full telephoto with the TL-H58 is 2.3 m (7.5 ft.).
- When the Tele-converter is attached, a shadow may appear in the picture when you use the flash.



⑨ **WD-H58 Wide-converter**

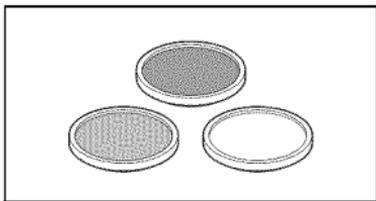
This Wide-converter lens decreases focal length by a factor of 0.7, giving you a wide perspective for indoor shots or panoramic views.

- When the Wide-converter is attached, a shadow may appear in the picture when you use the flash.



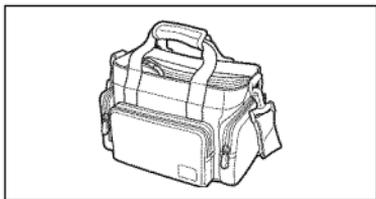
⑩ **Protect Filter 58 mm, ND4-L Filter 58 mm, ND8-L Filter 58 mm**

Neutral density and MC protector filters help you to control difficult lighting conditions.



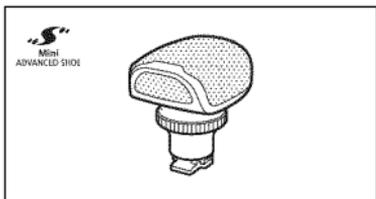
⑪ **SC-2000 Soft Carrying Case**

A handy camcorder bag with padded compartments and plenty of space for accessories.



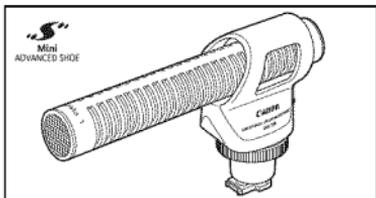
⑫ **SM-V1 Surround Microphone**

Use 5.1ch surround sound to add a sense of presence to your movies. You can link the surround sound to the zoom position or use the microphone as a highly directional shotgun microphone (monaural).



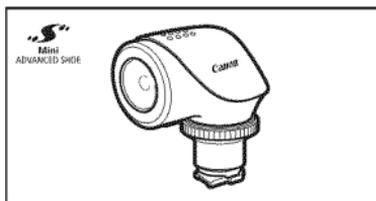
⑬ **DM-100 Directional Stereo Microphone**

This highly sensitive, super-directional microphone attaches to the camcorder's mini advanced shoe. It can be used as directional microphone (monaural) or stereo microphone.



⑭ VL-5 Video Light

This video light enables you to record brightly in color even in dark places. It attaches to the camcorder's mini advanced shoe for cable-free operation.



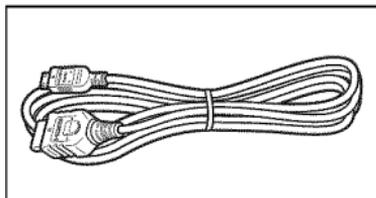
⑮ VFL-2 Video Flash Light

This video flash light allows you to record photos and movies even at night or in dark places. It attaches to the camcorder's mini advanced shoe for cable-free operation.



⑯ HTC-100 HDMI Cable

Use this cable to connect the camcorder to an external device using an all-digital connection, allowing you to enjoy playback at the highest quality. This cable sends both video and audio signals.



This mark identifies genuine Canon video accessories. When you use Canon video equipment, we recommend Canon-brand accessories or products bearing the same mark.



Product Codes

Provided Accessories

CA-570 Compact Power Adapter	8468A002AA
BP-808 Battery Pack	2740B002AA
WL-D89 Wireless Controller	D83-0790-000
STV-250N Stereo Video Cable	3067A002AA (D82-0590-002)
IFC-300PCU USB Cable	6906A001AA

Optional Accessories

BP-809 Battery Pack	2588B003AA (silver), 2588B004AA (black)
BP-819 Battery Pack	2589B002AA
BP-827 Battery Pack	3185B002AA
CG-800 Battery Charger	2590B002AA
TL-H58 Tele-converter	3573B001AA
WD-H58 Wide-converter	3572B001AA
Protect Filter 58 mm	2595A002AA
ND4-L Filter 58 mm	2596A002AA
ND8-L Filter 58 mm	2597A002AA
VL-5 Video Light	3186B001AA
VFL-2 Video Flash Light	3574B001AA
SM-V1 Surround Microphone	4464B001AA
DM-100 Directional Stereo Microphone	2591B002AA
ZR-1000 Zoom Remote Controller	3089A002AA
ZR-2000 Zoom Remote Controller	0973B002AA
HTC-100 HDMI Cable	2384B001AA
CTC-100 Component Cable	1719B001AA
SS-650 Shoulder Strap	3123A001AA
SS-600 Shoulder Strap	3122A001AA
WS-20 Wrist Strap	3118A002AA
SC-2000 Soft Carrying Case	9389A001AA

Specifications

VIXIA HF S21 / VIXIA HF S20 / VIXIA HF S200

◆ — Values given are approximate figures.

System

• Recording System

Movies: AVCHD Video compression: MPEG-4 AVC/H.264;
Audio compression: Dolby Digital 2ch; Dolby Digital 5.1ch*
* Only when using the optional SM-V1 Surround Microphone.

Photos: DCF (Design rule for Camera File system), compatible with Exif* Ver. 2.2 and with DPOF**
Image compression: JPEG (Super Fine, Fine, Normal)

* This camcorder supports Exif 2.2 (also called "Exif Print"). Exif Print is a standard for enhancing the communication between camcorders and printers. By connecting to an Exif Print-compliant printer, the camcorder's image data at the time of shooting is used and optimized, yielding extremely high quality prints.

** Only photos recorded on a memory card.

• Television System

1080/60i* or 1080/24p (only recordings made with the [24F] frame rate)

* Recordings made with the [PF24], [PF30] frame rate are converted and recorded on the memory as 60i.

• Recording Media

- **HFS21/S20** Built-in memory: **HFS21** 64 GB, **HFS20** 32 GB
- SD or SDHC (SD High Capacity) memory card (not included)

• Maximum Recording Time◆

HFS21 64 GB built-in memory:

MXP mode: 5 hr. 55 min. **FXP** mode: 8 hr. 20 min. **XP+** mode: 11 hr. 30 min.
SP mode: 19 hr. 10 min. **LP** mode: 24 hr. 30 min.

HFS20 32 GB built-in memory:

MXP mode: 2 hr. 55 min. **FXP** mode: 4 hr. 10 min. **XP+** mode: 5 hr. 45 min.
SP mode: 9 hr. 35 min. **LP** mode: 12 hr. 15 min.

Commercially available 16 GB memory card:

MXP mode: 1 hr. 25 min. **FXP** mode: 2 hr. 5 min. **XP+** mode: 2 hr. 50 min.
SP mode: 4 hr. 45 min. **LP** mode: 6 hr. 5 min.

• Image Sensor

1/2.6-inch CMOS, 8,590,000 pixels◆

Effective pixels◆: Movies: 6,010,000 pixels
(using Digital Tele-converter): 2,070,000 pixels
Photos (**L**, **M**, **S**): 8,020,000 pixels
Photos (**LW**, **MW**): 6,010,000 pixels

- **LCD Touch Screen:** 3.5 in., wide, TFT color, 922,000 dots♦, touch operation
- **HFS21 Viewfinder:** 0.27 in., wide, TFT color, 123,000 dots♦
- **Microphone:** Stereo electret condenser microphone
- **Lens**
 - f=6.4-64 mm, F/1.8-3.0, 10x optical zoom, iris aperture
 - 35 mm equivalent♦: Movies: 43.5 – 435 mm
 - Photos (**L, M, S**): 39.9 – 399 mm
 - Photos (**LW, MW**): 43.5 – 435 mm
- **Lens Configuration:** 11 elements in 9 groups (2 aspheric elements)
- **AF System**
 - Autofocus (TTL + external distance sensor when set to [Instant AF]) or Manual focus
- **Filter Diameter:** 58 mm
- **Minimum Focusing Distance**
 - 1 m (3.3 ft.); 1 cm (0.39 in.) at full wide angle
- **White Balance**
 - Auto white balance, Custom white balance or Preset white balance settings:
 - Daylight, Shade, Cloudy, Tungsten, Fluorescent, Fluorescent H
- **Minimum Illumination**
 - 0.3 lx ([Low Light] recording program, Shutter speed at 1/2)
 - 4 lx ([Programmed AE] recording program, Shutter speed at 1/30, Auto slow shutter [On])
- **Recommended Illumination:** More than 100 lx
- **Image Stabilization:** Optical-Shift Image Stabilizer
- **Size of Video Recordings**
 - MPX, FXP** mode: 1920 x 1080 pixels; **XP+, SP, LP** mode: 1440 x 1080 pixels
- **Size of Photos**
 -  mode: **LW** 3264 x 1840, **L** 3264 x 2456, **M** 1920 x 1440, **S** 640 x 480 pixels
 - Simultaneous recording: **LW** 3264 x 1840, **MW** 1920 x 1080 pixels
 - Capturing photos from video: **MW** 1920 x 1080 pixels

Terminals

- **AV OUT/ Terminal**
 - ∅ 3.5 mm minijack; output only (dual purpose terminal also for headphones stereo output)
 - Video: 1 Vp-p / 75 Ω unbalanced
 - Audio: -10 dBV (47 kΩ load) / 3 kΩ or less
- **USB Terminal:** mini-B, USB 2.0 (Hi-Speed USB)
- **COMPONENT OUT Terminal (proprietary mini-D terminal)**
 - Luminance (Y): 1 Vp-p / 75 Ω; Chrominance (P_B/P_R (C_B/C_R)): ±350 mV / 75 Ω
 - 1080i (D3) compatible; output only
- **HDMI OUT Terminal**
 - HDMI mini connector; output only; compatible with HDMI-CEC and x.v.Color

- **MIC Terminal**
 Ø 3.5 mm stereo minijack
 -57 dBV (with 600 Ω microphone) / 5 kΩ or more
- **REMOTE Terminal**
 Ø 2.5 mm stereo minijack

Power/Others

- **Power supply (rated)**
 7.4 V DC (battery pack), 8.4 V DC (compact power adapter)
- **Power consumption** ♦
HF521/S20 4.1 W (SP mode, AF on, built-in memory, LCD normal brightness)
 4.0 W (SP mode, AF on, memory card, LCD normal brightness)
HF521 3.6 W (SP mode, AF on, built-in memory, viewfinder)
HF521 3.5 W (SP mode, AF on, memory card, viewfinder)
- **Operating temperature:** 0 – 40 °C (32 – 104 °F)
- **Dimensions** ♦ [W x H x D] (excluding the grip belt)
HF521 75 x 74 x 148 mm (3.0 x 2.9 x 5.8 in.)
HF520/S200 75 x 74 x 140 mm (3.0 x 2.9 x 5.5 in.)
- **Weight** ♦ (camcorder body only)
HF521 470 g (1.0 lb.)
HF520/S200 460 g (16.2 oz.)

CA-570 Compact Power Adapter

- **Power supply:** 100 – 240 V AC, 50/60 Hz
- **Rated output / consumption:** 8.4 V DC, 1.5 A / 29 VA (100 V) – 39 VA (240 V)
- **Operating temperature:** 0 – 40 °C (32 – 104 °F)
- **Dimensions** ♦: 52 x 29 x 90 mm (2.1 x 1.1 x 3.5 in.)
- **Weight** ♦: 135 g (4.8 oz.)

BP-808 Battery Pack

- **Battery type**
 Rechargeable lithium ion battery, compatible with Intelligent System
- **Rated voltage:** 7.4 V DC
- **Operating temperature:** 0 – 40 °C (32 – 104 °F)
- **Battery capacity:** 890 mAh
- **Dimensions** ♦: 30.7 x 23.3 x 40.2 mm (1.2 x 0.92 x 1.6 in.)
- **Weight** ♦: 46 g (1.6 oz)

About the music files

The specifications of the music files compatible with the camcorder are as follows.

Audio encoding: Linear PCM

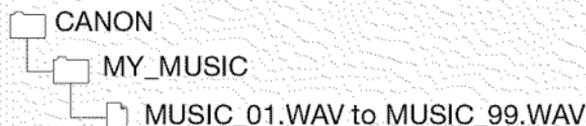
Audio sampling: 48 kHz, 16 bits, 2 channels

Minimum length: 1 second

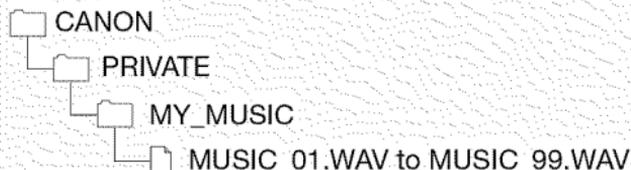
File extension: WAV

The music data is saved in the memory under the following folder structure.

HFS21/S20 In the built-in memory:



On the memory card:



Weight and dimensions are approximate. Errors and omissions excepted.
The information in this manual is verified as of January 2010. Subject to change without notice.

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* **HF521/S20** only.

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** **HFS21** only.

CANON CONSUMER DIGITAL VIDEO EQUIPMENT LIMITED WARRANTY FOR THE UNITED STATES

The limited warranty set forth below is given by Canon U.S.A., Inc. ("Canon USA") with respect to Canon Consumer Digital Video Equipment (the "Equipment") purchased in the United States. This limited warranty is only effective upon presentation of your Bill of Sale or other proof of purchase.

The Equipment is warranted under normal, non-commercial, personal use, against defective materials or workmanship as follows:

Parts: Defective parts will be exchanged for new parts or comparable rebuilt parts for a period of ONE YEAR from the date of original purchase, except for a defective Video Head, which will be exchanged for a period of three months from the date of purchase.

Labor: For a period of ONE YEAR from the date of original purchase, labor will be provided free of charge by our factory service centers or designated service facilities located in the United States.

When returning Equipment under this warranty, you must pre-pay the shipping charges, and you must enclose the Bill of Sale or other proof of purchase with a complete explanation of the problem. During the ONE-YEAR warranty period, repairs will be made and the Equipment will be return-shipped to you free of charge. For repairs after the warranty period is over, you will be given an estimate of the cost of repair and an opportunity to approve or disapprove of the repair expense before it is incurred. If you approve, repairs will be made and the Equipment will be return-shipped to you. (shipping charges apply). If you disapprove, we will return-ship the equipment at no charge to you.

Non-Canon brand peripheral equipment and software which may be distributed with, or factory loaded on, the Equipment, are sold "AS IS" without warranty of any kind by Canon USA, including any implied warranty regarding merchantability or fitness for a particular purpose. The sole warranty with respect to such non-Canon brand items is given by the manufacturer or producer thereof. If the Equipment contains a hard disk drive, Canon USA recommends that data stored on that drive be duplicated or backed up to prevent its loss in the event of failure or other malfunction of such drive.

Canon USA shall have no responsibility under this limited warranty for use of the Equipment in conjunction with incompatible peripheral equipment and incompatible software.

In order to obtain warranty service, contact the authorized Canon retail dealer from whom you purchased the Equipment or call the CANON INFORMATION CENTER AT 1-800-OK-CANON. You will be directed to the nearest service facility for your Equipment.

This Limited Warranty covers all defects encountered in normal use of the Equipment and does not apply in the following cases:

- A) Loss or damage to the Equipment due to abuse, mishandling, accident, improper maintenance, or failure to follow operating instructions;
- B) If the Equipment is defective as a result of leaking batteries, sand, dirt or water damage;
- C) If defects or damages are caused by the use of unauthorized parts or by service other than by Canon USA's factory service centers or authorized service facilities;
- D) If the Equipment is used for commercial or industrial use.

This Limited Warranty does not cover cabinet (exterior finish), video cassette tape, head cleanings, nor does it apply to Equipment purchased outside the United States. This warranty does not cover units sold to rental firms, military operations, hotels, schools, hospitals or for other commercial, industrial, or institutional applications. These uses are covered only by such specific warranty as Canon may issue with such sales.

This Limited Warranty does not apply to accessories or consumables for the Equipment, which are sold "AS IS", without warranty of any kind by Canon USA.

Please retain this warranty card and your Bill of Sale as a permanent record of your purchase. This card is most important in order to be sure you are contacted right away should there be a safety inspection, modification or product recall under applicable laws or regulations.

NO IMPLIED WARRANTY, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE APPLIES TO THIS EQUIPMENT AFTER THE APPLICABLE PERIOD OF EXPRESS WARRANTY OR GUARANTY, EXCEPT AS MENTIONED ABOVE, GIVEN BY ANY PERSON, FIRM OR CORPORATION WITH RESPECT TO THIS EQUIPMENT SHALL BIND THE UNDERSIGNED (SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU). CANON USA SHALL NOT BE LIABLE FOR LOSS OF REVENUES OR PROFITS, EXPENSE FOR SUBSTITUTE EQUIPMENT OR SERVICE, STORAGE CHARGES,

LOSS OR CORRUPTION OF DATA, INCLUDING WITHOUT LIMITATION, LOSS OR CORRUPTION OF DATA STORED ON THE EQUIPMENT'S HARD DRIVE, OR ANY OTHER SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES CAUSED BY THE USE, MISUSE OR INABILITY TO USE THE EQUIPMENT, REGARDLESS OF THE LEGAL THEORY ON WHICH THE CLAIM IS BASED, AND EVEN IF CANON USA HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. NOR SHALL RECOVERY OF ANY KIND AGAINST CANON USA BE GREATER THAN THE PURCHASE PRICE OF THE EQUIPMENT SOLD BY CANON USA AND CAUSING THE ALLEGED DAMAGE. WITHOUT LIMITING THE FOREGOING, YOU ASSUME ALL RISK AND LIABILITY FOR LOSS, DAMAGE OR INJURY TO YOU AND YOUR PROPERTY AND TO OTHERS AND THEIR PROPERTY ARISING OUT OF USE, MISUSE OR INABILITY TO USE THE EQUIPMENT NOT CAUSED DIRECTLY BY THE NEGLIGENCE OF CANON USA. (SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU). THIS WARRANTY SHALL NOT EXTEND TO ANYONE OTHER THAN THE ORIGINAL PURCHASER OF THIS EQUIPMENT OR THE PERSON FOR WHOM IT WAS PURCHASED AS A GIFT.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. CANON U.S.A., INC.

CANON CONSUMER DIGITAL VIDEO EQUIPMENT LIMITED WARRANTY

The limited warranty set forth below is given by Canon Canada Inc. ("Canon Canada") with respect to Canon Consumer Digital Video Equipment (the "Equipment") purchased in Canada. This limited warranty is only effective upon presentation of a bill of sale or other proof of purchase for this Equipment to a Canon Service Facility when repairs are required.

The Equipment is warranted under normal, non-commercial, personal use, against defective materials or workmanship as follows:

Parts: Defective parts will be exchanged for new parts or, at Canon Canada's option, comparable rebuilt parts for a period of one year from the date of original purchase, except Video Heads which will be exchanged for a period of 3 months from the date of purchase.

Labour: For a period of one year from the date of original purchase, labour will be provided free of charge by our Canon Service Facilities in Canada.

This limited warranty covers all defects except where:

(a) The loss or damage to the product results from:

- i) accident, natural disaster, mishandling, abuse, neglect, unauthorized product modification or failure to follow instructions contained in the instruction manual;
- ii) the use of accessories, attachments, products, supplies, parts or devices with the Equipment that do not conform to Canon specifications or that cause abnormally frequent service problems;
- iii) repairs or services performed by any party other than a Canon Service Facility;
- iv) defective batteries or any exposure to water, sand or dirt;
- v) shipping (claim must be presented to the shipper);

(b) Any serial number on the video equipment is altered or removed.

(c) The Equipment is used for commercial, professional or industrial purposes.

This limited warranty does not cover the cabinet (exterior finish) of the Equipment, media, nor does it apply to Equipment purchased outside Canada.

If the Equipment contains a hard disk drive, Canon Canada recommends that data stored on that drive be duplicated or backed up to prevent its loss in the event of a failure or other malfunction of such drive.

TO OBTAIN WARRANTY SERVICE

Ship your Equipment in its original carton, box or equivalent, properly packed, fully insured with shipping charges prepaid, together with a copy of your bill of sale or other proof of purchase and a description of the problem to any of the Canon Service Facilities in Canada.

LIMITATIONS

Except as otherwise required by applicable legislation, this warranty is in lieu of all other warranties, conditions, guarantees or representations, express or implied, statutory or otherwise, relative to the Equipment, including implied warranties or conditions of merchantability or fitness for a particular purpose.

Canon Canada assumes no liability for special, consequential or incidental damages, loss or corruption of data including, without limitation, data stored on the hard disk drive of the Equipment or loss that may arise, whether on account of negligence or otherwise, from the use, misuse or inability to use the Equipment (including loss of profit, revenue, media or enjoyment) or from failure to conform to any express or implied warranties, conditions, guarantees or representations. Any recovery under this limited warranty shall not exceed the purchase price of the equipment. Canon Canada does not assume or authorize any other person to assume for Canon Canada any other liability with respect to this equipment.

This warranty does not extend to any person other than the original purchaser of the Equipment or the person for whom it was purchased as a gift and states your exclusive remedy.

NOTICE TO CONSUMER

If you plan to take important videos or if the product has not been used for some time, please check all functions with the instruction book before using it.

Canon



USA	CANON U.S.A., INC. NEW JERSEY OFFICE 100 Jamesburg Road, Jamesburg, NJ 08831 USA CANON U.S.A., INC. CHICAGO OFFICE 100 Park Blvd., Itasca, IL 60143 USA CANON U.S.A., INC. LOS ANGELES OFFICE 15955 Alton Parkway, Irvine, CA 92618 USA CANON U.S.A., INC. HONOLULU OFFICE 210 Ward Avenue, Suite 200, Honolulu, HI 96814 USA
	❖ If you have any questions, call the Canon U.S.A. Information Center toll-free at 1-800-828-4040 (USA only).
CANADA	CANON CANADA INC. 6390 Dixie Road, Mississauga, ON L5T 1P7 CANON CANADA INC. CALGARY 2828 16th Street NE, Calgary, AB T2E 7K7 CANON CANADA INC. MONTREAL 8801 Route Transcanadienne, Saint-Laurent, QC H4S 1Z6
	❖ If you have any questions, call the Canon Canada Information Center toll free (in Canada only) at 1-800-OK-CANON (1-800-652-2666). ❖ Si vous avez des questions, veuillez téléphoner 1-800-OK-CANON (1-800-652-2666, sans frais au Canada seulement).
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CENTRO Y SURAMÉRICA	CANON LATIN AMERICA, INC. 703 Waterford Way, Suite 400, Miami, FL 33126 USA
ASIA	CANON HONGKONG COMPANY LTD. 19/F, The Metropolis Tower, 10 Metropolis Drive, Hunghom, Kowloon, Hong Kong Tel: +852 3191 2333, Fax: +852 2428 3963

- For support concerning the supplied PIXELA applications, please call PIXELA customer support (details in the 'PIXELA Applications' Installation Guide).
- Pour le support technique concernant les logiciels PIXELA fournis, veuillez appeler le service clientèle de PIXELA (les détails se trouvent dans le Guide d'installation 'PIXELA Applications').
- Para soporte relacionado las aplicaciones de PIXELA suministradas, llame al centro de atención al cliente de PIXELA (vea los detalles en la Guía de instalación 'PIXELA Applications').