



Models

ID0060: XA35

ID0065: XA30

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Highlights of the XA35 / XA30

The Canon XA35 / XA30 HD Camcorder is a hi

AVCHD/MP4 recording and dual recording

When you record, you can choose between AVCHD and MP4 formats (A 39). You can also use dual recording (A 49) to record the same scene to both memory cards and even record on both memory cards using different formats. Dual recording is convenient, for example, to create a backup of your recording.

Special recording modes (A 51, 94)

When you make recordings, you can change the recording frame rate to achieve a fast or slow motion effect. Alternatively, you can use pre-recording to record 3 seconds before you decide to start recording, helping you capture those hard-to-catch opportunities.

Other Features

Versatile audio connectivity

You can use the built-in microphone, MIC audio input terminal or the two INPUT terminals when recording. When using the INPUT terminals, you can even use microphones that require phantom power.

Audio scene select

With the audio scene select function (A 83), you can optimize the audio settings of the built-in microphone by selecting the audio scene that matches your surroundings. Your audience will feel even more immersed in the scene during playback.

Wi-Fi functions

Because the camcorder is compatible with Wi-Fi, you have access to a variety of convenient functions such as using a smartphone or tablet as a remote control (A 128), using the Web browser on a smartphone or tablet to view the camcorder's recordings (A 134), and using an iOS device to share your videos on the Internet (A 136).

OLED screen and LCD viewfinder

The OLED screen and LCD viewfinder both have 100% frame coverage, which will ensure that you can accurately check that your shots are framed how you want them. The OLED screen has incredible clarity, which is indispensable in checking the details of those important shots. The viewfinder can be tilted 45 degrees upward, which gives you additional range and versatility while you shoot.

Touch AE

By simply touching the screen, you can make dark areas in the picture appear brighter (A 70). This operation is simple yet allows you to shoot with the desired exposure.

Added and improved functionality

Other functions include relay recording (A 49) and conversion to MP4 (A 121).

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Supplied Accessories

The following accessories are supplied with the camcorder:

* Use **Data Import Utility** to transfer your scenes to a computer. Refer to *Saving Movies to a Computer* (📖 117). The CD-ROM includes the instruction

- 1 Instant AF sensor (A 57, 175)
- 2 Remote sensor (A 27)
- 3 Illumination sensor (A 154)
- 4 AF/MF button (A 55)/
Assignable button 1 (A 99)
- 5 PRE REC (pre-recording) button
(A 94)/
Assignable button 2 (A 99)
- 6 OLED touch screen (A 25, 30)
- 7 Focus/Zoom ring switch (A 60)
- 8 Viewfinder (A 24)
- 9 Dioptic adjustment lever (A 24)
- 10 Joystick (A 31)/SET button (A 31)
- 11 Strap mount (A A)

Names of Parts

- 1 Tripod socket (A 28)
- 2 BATTERY RELEASE switch (A 21)
- 3 Eye cup (A 24)
- 4 Identification plate

This plate bears the camcorder ID, which is written as "ID00XX" with "XX" representing a two-digit number. In addition, if "2.4 GHz only" is written, that indicates that Wi-Fi functions operate only in the 2.4 GHz band (A 127).

WL-D89 Wireless Controller

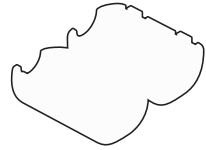
- 1 START/STOP button (A 40)
- 2 G (mode selection) button (A 102)
- 3 MENU button (A 33, 147)
- 4 DISP. (onscreen display) button (A 95)
- 5 SET button
- 6 \tilde{N} (stop) button (A 102)
- 7 PHOTO button (A 40)
- 8 Zoom buttons (A 60)
- 9 Navigation buttons (I /I /I /D)
- 10 \odot (play/pause) button (A 102)

Attaching the Ferrite Core

Attach the enclosed ferrite core before you connect the compact power adapter to the camcorder.

Attach the ferrite core to the cable about 6 cm from the plug end (the plug to be connected to the camcorder) of the compact power adapter cable.

Pass the cable through the center of the core and wrap it around the core (as shown in the illustration), then close the unit until it clicks shut.



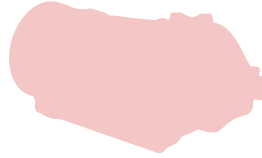
Charging the Battery Pack

The camcorder can be powered with a battery pack or directly using the compact power adapter. For approximate charging times and recording/playback times with a fully charged battery pack, refer to *Charging, Recording and Playback Times* (A 184).

- 1 Connect the power cord to the compact power adapter.
 - 2 Plug the power cord into a power outlet.
 - 3 Connect the compact power adapter to the camcorder's DC IN terminal.
-
- 4 Attach the battery pack to the camcorder.
 - Press the battery pack softly into the battery attachment unit and slide it forward until it clicks in place.

5 Charging will start when the camcorder is turned off.

- If the camcorder was on, the green POWER/CHG indicator will go out when you turn off the camcorder. After a moment, the POWER/CHG indicator will turn on in red (battery pack charging). The red POWER/CHG indicator will go out when the battery pack is fully charged.
- If the indicator flashes, refer to *Troubleshooting* (A 162).



6 Disconnect the compact power adapter in the order shown in the illustration.

To remove the battery pack

- 1 Slide clasp in the direction of the arrow and hold it pressed down.
- 2 Slide the battery pack and then pull it out.

Using the Lens Hood and Lens Cap

While recording, the supplied lens hood with lens barrier is effective for reducing stray light that can be the cause of lens flare and ghost images. Additionally, closing the lens barrier can help prevent fingerprints and dirt accumulation on the lens. Use the supplied lens cap when carrying the camcorder or storing it after use.

* Note that the lens cap and the lens hood with lens barrier cannot be used simultaneously.

- 1 Remove the lens cap.
- 2 Place the lens hood on the front of the lens so that the groove on the lens hood is aligned with the bottom of the lens (①), and then turn the lens hood clockwise until it stops with a click (②).
 - Be careful not to deform the lens hood.
 - Make sure that the lens hood is aligned with the thread.
 - To remove the lens hood, turn it counterclockwise.



Using the Viewfinder

If it is difficult to use the OLED screen, you can use the viewfinder, which can be tilted 45 degrees upward. You can also use the viewfinder when you rotate the OLED panel 180 degrees to let the subject watch the recording.

- 1 Pull out the viewfinder.
- 2 Use the power switch to turn on the camcorder.
- 3 Adjust the viewfinder using the dioptic adjustment lever.
 - You can close the OLED panel or rotate it toward the subject as you prefer.
 - You can tilt the viewfinder 45 degrees upward.

- If you wear glasses, you may find the viewfinder easier to use if you flip back the outer edge of the eye cup toward the camcorder body.



- **About the OLED and viewfinder screens:** The screens are produced using extremely high-precision manufacturing techniques, with more than 99.99% of the pixels operating to specification. Less than 0.01% of the pixels may occasionally misfire or appear as black dots. Misfired pixels in the viewfinder may appear instead as white dots. This has no effect on the recorded image and

Attaching an optional shoulder strap

Pass the ends of the shoulder strap through the strap mount on the grip belt and adjust the length of the strap.



Wireless Controller

First, insert the supplied CR2025 lithium button battery into the wireless controller.

- 1 Press the tab in the direction of the arrow and pull out the battery holder.
- 2 Place the lithium button battery with the + side facing up.
- 3 Insert the battery holder.

To use the wireless controller

Point the wireless controller at the camcorder's remote sensor when you press the buttons.

- You can rotate the OLED panel 180 degrees to use the wireless controller from the front of the camcorder.

Operation of the Camcorder

Turning the Camcorder On and Off

To turn the camcorder on, press the power button. To turn it off, press the power button again. To play back recorded video, press the play button.

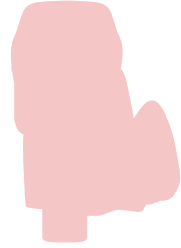
The camcorder has a mode selector dial. Turn the dial to CAM to start recording. Turn it to CAM to stop recording. Turn it to (A) to start playback.

Turn the camcorder on. Turn the power switch to OFF.

Setting the Shooting Mode

In **CAMERA** mode, you can change the shooting mode to match your shooting style.

30



(Auto) mode

Set the mode switch to **N**. With this mode, the camcorder takes care of all the settings while you concentrate on recording (A 41). This operating mode is suitable if you just prefer not to bother with detailed camcorder settings.

(Manual) mode

Set the mode switch to **m**. With this mode, you can enjoy full access to menus, settings and advanced functions (A 45).

(Cinema) mode

Set the mode switch to **E**. With this mode, you can give your recordings a cinematic look and use cinema-look filters to create unique movies (A 53).

Using the Touch Screen

The control buttons and menu items that appear on the touch screen change dynamically depending on the operating mode and the task you are performing. With the intuitive touch screen interface you have all the controls at your fingertips.

Touch

Press on an element displayed on the touch screen.

Used to start playing back a scene in an index screen, to select a setting from the menus, etc.

Drag

Swipe your finger up and down or left and right across the screen. Used to scroll menus, to browse through index screen pages or to adjust slider controls like the volume. On some screens, you can achieve the same effect by touching the triangle control buttons.



IMPORTANT

- The camcorder features a capacitive touch screen. In the following cases, you may not be able to perform touch operations correctly.

Using the Menus

Many of the camcorder's function

First Time Settings

Setting the Date and Time

You will need to set the date and time of the camcorder before you can start using it. The [Date/Time] screen will appear automatically when the camcorder's clock is not set.

- 1 Use the power switch to turn on the camcorder.
 - The [Date/Time] screen will appear.
- 2 Touch a field you want to change (year, month, day, hours or minutes).

- 2 Touch the desired language and then touch [OK].
- 3 Touch [X] to close the menu.


NOTES

- Some control buttons, such as [ZOOM], [FUNC.] and [MENU], will appear in English regardless of the language selected.

Changing the Time Zone

Change the time zone to match your location. The default setting is Paris. In addition, the camcorder is able to retain the date and time of an additional location. This is convenient when you travel so that you can set the camcorder to match the time of your home location or that of your travel destination.

Operating modes:

- 1 Open the [Time Zone/DST] screen.
[FUNC.] > [MENU] >  > [Time Zone/DST]
 - Touching [FUNC.] is necessary only when performing the procedure in mode.
- 2 Touch ["] to set the home time zone, or [#] to set the time zone of your destination when you are traveling.
- 3 Touch [|] or [|] to set the desired time zone. If necessary, touch [\$] to adjust for daylight saving time.
- 4 Touch [X] to close the menu.

Using a Memory Card

Memory Cards Compatible for Use with the Camcorder

You can use the following types of commercially available Secure Digital (SD) cards with this camcorder.

The movie recording function has been tested using SD/SDHC/SDXC memory cards made by Panasonic, Toshiba and SanDisk. For the latest information on cards that can be used, visit your local Canon Web site.

* When using an SD memory card without a speed class rating or one rated SD Speed Class 2, you may not be able to record movies, depending on the memory card used.

** SD memory cards with a capacity of 64 MB or smaller cannot be used to record movies.

NOTES

- **About the Speed Class:** Speed Class is a standard that indicates the minimum guaranteed data transfer speed of memory cards. When you buy a

Inserting and Removing a Memory Card

Make sure to initialize (A 37) all memory cards before using them with this camcorder.

- 1 Turn off the camcorder.
 - Make sure the POWER/CHG indicator is off.
- 2 Open the double memory card slot cover.
- 3 Insert the memory card straight, with the label facing the front of the camcorder, all the way into one of the memory card slots until it clicks.
 - You can also use two memory cards, one in each memory card slot.
- 4 Close the double memory card slot cover.
 - Do not force the cover closed if the memory card is not correctly inserted.

To remove the memory card

Push the memory card once to release it. When the memory card springs out, pull it all the way out.




2 Open the initialization screen for the desired memory card.


[FUNC.] > [MENU] > > [Initialize] > [6 Mem. Card A] or [7 Mem. Card B] > [Initialize]

- Touching [FUNC.] is necessary only when performing the procedure in mode.
- In the initialization screen, touch

Selecting the Movie Format (AVCHD/MP4)

You can choose to record movies in AVCHD or MP4 format. AVCHD movies are ideal for playback with fantastic picture quality. MP4 movies are versatile and can easily be played back on smartphones and tablets or uploaded to the Web.

Operating modes: 

- 1 Open the [Movie Format] screen.
[FUNC.] > [MENU] >  > [Movie Format]
- 2 Select the desired movie format.
- 3 Touch [X].
 - The icon of the selected movie format will appear on the screen.

Recording Movies and Photos

You can select the memory card that will be used to record movies and photos (A 38). For details on recording audio, refer to *Recording Audio* (A 81). Should the camcorder fail to operate correctly, refer to *Troubleshooting* (A 160).



POINTS TO CHECK

- **Before you begin recording**, make a test recording first to check that the camcorder is operating correctly.

Preparing to Record

- 1 **Attach a charged battery pack to the camcorder** (A 20).
- 2 **Insert a memory card into a memory card slot.**
 - To use relay recording or dual recording (A 49), insert memory cards into both memory card slots.
- 3 **Open the lens barrier.**
 - Set the lens barrier switch to OPEN.
- 4 **If you need to yye56gC12 42T(e56len3w(u)3a)ou**

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Smart AUTO

In **Smart AUTO** mode, the camcorder will automatically detect certain characteristics of the subject, background, lighting conditions, etc. It will then adjust various settings (focus, exposure, color, image stabilization, image quality, among others), selecting the best settings for the scene you want to shoot. The Smart AUTO icon will change to one of the icons in the following table.

Smart AUTO icons

Background (color of the icon) →	Bright ¹ (gray)	Blue skies ¹ (light blue)	Vivid colors ¹ (yellow/green/ red)	Sunsets ¹ (orange)
People (stationary)	()	()	()	—
People (moving)	()	()	()	—
Subjects other than people, such as landscapes	()	()	()	—
Close objects	(/ ²)	(/ ²)	(/ ²)	—

Background (color of the icon) →	Dark (dark blue)	
Subject ↓	Spotlight	Night scene
People (stationary)	—	—

¹ The icon in parentheses appears under backlight conditions.

² This icon will appear under tele macro conditions. Tele macro is activated automatically when you zoom toward the telephoto end and close in on the subject. Tele macro allows you to get closer shots of small subjects and adds a soft focus to the background, so the subject not only looks larger but also stands out more.

Recording in **M** (Manual) Mode

When the mode switch is set to **M** (Manual), you can enjoy full access to the menus and manually adjust the exposure, focus, white balance and many more of the camcorder's settings to your preference. Even in **M** mode, though, the camcorder can help you with the settings, for example, by using Special Scene recording programs (A 74).

Operating modes: **CAMERA**

- 1 Set the mode switch to **M**.
- 2 Set the power switch to **CAMERA**.
- 3 Record movies and photos.
 - The procedure is the same as in **M** mode (A 41).

! IMPORTANT

- Observe the following precautions while the ACCESS indicator is on or flashing. Failing to do so may result in permanent data loss or damage to the memory card.
 - 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.
- Be sure to save your recordings regularly (A 117), especially after making important recordings. Canon shall not be liable for any loss or corruption of data.

i NOTES

- The START/STOP button on the handle unit has a lock lever to prevent accidental operation. Set the lock lever to **C** in cases such as when you do not want a recording inadvertently paused or do not plan to use this START/STOP button. Return the lever to its previous position to enable use of the START/STOP button again.
- When you set the **q** > [Rec Command] setting to [i On] and you use the HD/SD-SDI terminal (or the HDMI terminal) to connect the camcorder to a device capable of receiving video data (or connection via the HD/SD-SDI terminal (only) or HDMI terminal), the connected device will also start or stop recording. (The still image snapshot will not be available.)

- When the camcorder switches from recording on one memory card to another during relay recording, the video will be recorded as two separate relay scenes. With the supplied software, Data Import Utility, you can join relay scenes recorded on both memory cards as a single scene and save it on a computer (A 117).
- For scenes with a long recording time, the video (stream) file in a scene will be split approximately every 4 GB. Even in such case, playback will be continuous. Wi

Selecting the Recording Mode (Video Quality)

The camcorder offers various recording modes, depending on whether the movi

Recording modes by movie format

Movie format	Recording mode	Resolution	Audio format
AVCHD	28 Mbps LPCM (50.00P)	1920x1080	Linear PCM
	28 Mbps (50.00P)		Dolby Digital
	24 Mbps LPCM		Linear PCM
	24 Mbps		Dolby Digital
	17 Mbps		
	5 Mbps	1440x1080	
MP4	35 Mbps (50.00P)	1920x1080	AAC
	24 Mbps		
	17 Mbps		
	8 Mbps (50.00P)	1280x720	
	4 Mbps		
	3 Mbps	640x360	

Approximate recording times

§ Default value

For AVCHD movies:

Recording mode →	28 Mbps LPCM (50.00P) and 28 Mbps (50.00P)	24 Mbps LPCM and 24 Mbps	17 Mbps	5 Mbps
Memory card ↓				
8 GB Memory card	35 min.	40 min.	1 hr.	3 hr.
16 GB Memory card	1 hr. 15 min.	1 hr. 25 min.	2 hr. 5 min.	6 hr. 5 min.
32 GB Memory card	2 hr. 30 min.	2 hr. 55 min.	4 hr. 10 min.	12 hr. 15 min.*
64 GB Memory card				

For MP4 movies:

* A single scene can be recorded continuously for 12 hours; at that point, the camcorder will stop.

Dual Recording and Relay Recording

When you record, you can use dual recording to record simultaneously on both memory cards so that you can use one of the movies as a backup.

Alternatively, you can use relay recording so that if the memory card being recorded on becomes full, the recording will continue uninterrupted on the other memory card.

Activating dual recording

The backup movie is recorded on memory card 3. After you activate dual recording, select the backup movie's recording mode.

49

1 Open the [Dual Recording] screen.

[FUNC.] > [MENU] > > [Dual/Relay Recording] > [Dual Recording]

- The screen shows the movie format and recording mode of the movies that will be recorded on each card.

2 Select the movie format and recording mode for the backup movie that will be recorded on memory card 3.

- The first option is always the same movie format and recording mode of the movie that will be recorded on memory card 2. The second two options are always [, 4Mbps] and [, 3Mbps], which result in small files that are ideal for transferring to a computer.

3 Touch [X].

Activating relay recording

1 Open the [Dual/Relay Recording] screen.

[FUNC.] > [MENU] > > [Dual/Relay Recording]

2 Touch [Relay Recording] and then touch [X].

NOTES

- To use neither function, select [Standard Recording] on the [Dual/Relay Recording] screen.
- When you use relay recording, it does not matter which memory card the recording starts on. The recording will continue on the other memory card. However, the camcorder will switch to another memory card only one time.
- With the software Data Import Utility, you can join relay scenes (either AVCHD or MP4 format) recorded on both memory cards as a single scene and save it on a computer (A 117).
- D.652 m annd (•)

Selecting the Frame Rate

You can change the frame rate (the number of frames recorded per second) of AVCHD movies to change the look of your movies. When the recording mode is set to 28 Mbps LPCM (50.00P) or 28 Mbps (50.00P) for AVCHD movies, or 35 Mbps (50.00P) or 8 Mbps (50.00P) for MP4 movies, the frame rate will automatically be set to 50.00P so you will not be able to select the frame rate. In

Slow & Fast Motion Recording

When the movie format is set to MP4, you can record scenes that have a slow motion or fast motion effect during playback. You simply select the slow motion or fast motion rate you are trying to achieve (x0.5 to x1200 the normal speed) and then record. Sound is not recorded for such scenes.

1 Open the [Slow & Fast Motion] screen.

[FUNC.] > [MENU] > > [Slow & Fast Motion]

2 Select the desired rate.

- Available rates depend on the recording mode and frame rate. Refer to the following table.

3 Touch [X].

- or and the selected option will appear on the screen.
- To turn off slow & fast motion recording mode, repeat the procedure selecting [OFF] instead.

4 Press Y to start recording.

- The amount of video that can be recorded at one time is approximately 12 hours' worth of video at normal playback speed. When that amount is exceeded, the camcorder will automatically stop

CINEMA Mode and Cinema-Look Filters

In **CINEMA** mode, you can use a variety of professional cinema-look filters to create unique movies with a distinctive appearance. You can also use cinema-look filters when you convert movies to MP4 (A 121).

- 1 Set the mode switch to **E**.
- 2 Touch [FILTER 1] to open the cinema-look filter selection screen.
- 3 Drag your finger up and down along the photos to select the desired cinema-look filter and then touch [OK].

Options (§ Default value)

The camcorder offers the following cinema-look filters. Select the desired filter while previewing the effect on the screen.

- [1. Cinema Standard]§
- [2. Vivid]
- [3. Dream]
- [4. Cool]
- [5. Sepia]
- [6. Old Movies]
- [7. Memory]



- ! Filter number (will appear on the control button) and name
- " Preview the effect on the screen
- # Select the effect level
- \$ Brief description (onscreen guidance)

i NOTES

- During _____ mode, the following functions are not available.
 - Taking photos
 - Dual recording
 - Recording movies at 28 Mbps, 35 Mbps or 8 Mbps.
 - Slow & fast motion recording mode

[FUNC.] > [< Focus]

2 Touch [D].

3 Use Touch AF or turn the focus/zoom ring to obtain the desired focus position.

4 Touch [SET] to set the preset focus position.

5 After adjusting the focus, touch [ON] to return to the preset focus position.

- Touch [SET] again to cancel the current preset focus position.
- [ON] will be grayed out while adjusting the focus or zoom.
- You can use the α > [Focus Preset Speed] setting to adjust the speed at which the camcorder returns to the preset focus position.

Autofocus

When autofocus is activated, the camcorder continuously adjusts the focus on the subject in the center of the screen. The focusing range is 1 cm (at full wide-angle, measured from the front of the lens barrel) to G and 60 cm (throughout the zoom range, measured from the front of the lens barrel) to G . Perform the following procedure to set the autofocus speed.

- 1 and modes only: Press B .
- 2 Open the [AF Mode] screen.
[FUNC.] > [MENU] > p > [AF Mode]
- 3 Touch the desired option and then touch [X].
 - The icon of the selected option appears on the screen.

Options (§ Default value)

NOTES

- When recording in bright surroundings, the camcorder closes down

- While using autofocus, you can turn the focus/zoom ring to focus manually. When you stop turning the ring, the camcorder returns to autofocus. This is useful in situations such as when focusing on a subject on the other side of a window.
- When the recording program is set to [Š Fireworks], the focus will be set to G and cannot be changed.
- Autofocus may not work well on the following subjects or in the following cases. In such case, focus manually.
 - Reflective surfaces
 - Subjects with low contrast or without vertical lines
 - Fast moving subjects
 - Through dirty or wet windows
 - Night scenes

Face Detection & Tracking

The camcorder automatically detects people's faces and uses this information to select the optimal focus and exposure settings. You can use tracking to have the camcorder track and optimize settings for a different subject. You can also use tracking to optimize settings for moving subjects such as pets. You must use the touch screen to select the subject.

Operating modes:   | 



POINTS TO CHECK

- Select a recording program other than [ü Night Scene], [Æ Low Light] or [Š Fireworks].

By default, face detection & tracking are activated. If the function was turned off, perform the following procedure to turn it on.

1 Open the [Face Detection & Tracking] screen.

[FUNC.] > [MENU] > p > [Face Detection & Tracking]

2 Touch [i On }] and then touch [X].

To select the main subject

If there is more than one person in the picture, the camcorder will automatically select one person it determines is the main subject. The main subject is indicated by a white face-detection frame and the camcorder will optimize the settings for that person. Other faces will have gray frames.

Touch a different face on the touch screen to optimize the camcorder's settings for that person.

- You can also touch other moving objects, such as a pet.
- A white double frame will appear around the subject and track it as it moves.
- Touch [Cancel E] to remove the frame and cancel the tracking.

Limiting Autofocus to Faces

While using autofocus, you can limit the autofocus function only to cases when a subject's face is detected and use manual focus for all other scenes. The camcorder will also adjust the brightness when focusing automatically on the subject's face.

Set an assignable button to [~ Face Only AF] (A 99) and press the button.

- ~ appears on the screen.

NOTES

- The camcorder may mistakenly detect the faces of non-human subjects. In such case, turn face detection & tracking off.
- When face detection is activated, the slowest shutter speed used by the camcorder is 1/25.
- In certain cases, faces may not be detected correctly. Typical examples include:
 - Faces extremely small, large, dark or bright in relation to the overall picture.
 - Faces turned to the side, upside down, at a diagonal or partially hidden.
- Face detection & tracking cannot be used in the following cases.
 - When the shutter speed used is slower than 1/25.
 - When the digital zoom is activated at more than 80x zoom.
 - During infrared mode.
- Touching somewhere with a color or pattern unique to the subject will make it easier to track. However, if there is another subject in the vicinity that shares similar characteristics to the selected subject, the camcorder may start tracking the incorrect subject. Touch the screen again to select the desired subject.
- In certain cases, the camcorder may not be able to track the subject. Typical examples include:
 - Subjects extremely small or large in relation to the overall picture.
 - Subjects too similar to the background.
 - Subjects lacking sufficient contrast.
 - Fast moving subjects.
 - When shooting indoors with insufficient lighting.

Zooming

To zoom in and out, you can use the focus/zoom ring, the zoom rockers on the camcorder and handle unit, the zoom buttons on the wireless controller or the zoom controls on the touch screen.

In addition to the 20x optical zoom, in **Movie** mode, you can turn on the digital zoom* (400x) with the **Fn** > [Digital Zoom] setting.

This camcorder also features a digital tele-converter, which allows you to enlarge the image on the screen digitally.

* Digital zoom is not available in **Still** mode or when **Fn** > [Conversion Lens] is set to [WA-H58].

Using the Focus/Zoom Ring

- 1 Set the focus/zoom ring switch to **ZOOM**.
- 2 Turn the focus/zoom ring to adjust the zoom.
 - Turn the focus/zoom ring slowly for a slow zoom; turn it faster for faster zooms.
 - The zoom bar that appears on the screen indicates the approximate zoom position.

Using the Zoom Rockers or Wireless Controller

Move the zoom rocker on the camcorder or handle unit toward T (wide angle) to zoom out. Move it toward S (telephoto) to zoom in.

- You can also use the zoom buttons on the wireless controller.
- By default, the camcorder's zoom rocker (the rocker near the grip belt) operates at a variable speed – press gently for a slow zoom; press harder for faster zooms.

Setting the Zoom Speed

You can set the zoom speed for the zoom rockers and wireless controller.

To set the zoom speed of the camcorder's zoom rocker

First, set the overall zoom speed to one of three levels. Next, select whether the zoom rocker





To set the zoom speed of the wireless controller

For the wireless controller, first set the overall zoom speed to one of three levels. The wireless controller operates at a constant speed that you can select. Refer to the following table for a summary of the zoom speed.

1 Open the [Zoom Speed Level] screen.

[FUNC.] > [MENU] >  > [Zoom Speed Level]

2 Touch [Z Fast], [ Normal] or [ Slow] and then touch [K

Soft Zoom Control

Soft zoom control allows you to start and/or stop the zoom gradually.

1 Open the [Soft Zoom Control] screen.

[FUNC.] > [MENU] >  > [Soft Zoom Control]

2 Touch the desired option and then touch [X].


Options (Ⓢ Default value)

Digital Tele-Converter

Using the digital tele-converter, you can digitally increase the focal length of the camcorder by a factor of approx. 2 and record the enlarged image at full HD resolution.


1 Open the [Digital Zoom] screen.

[FUNC.] > [MENU] >  > [Digital Zoom]

2 Touch [ Digital Tele-conv.] and then touch [X].

3 Open the zoom controls.

[FUNC.] > [ZOOM]

4 Touch [] (digital tele-converter) and then touch [X].

- The center of the snte]023

Advanced Image Stabilization

The image stabilizer reduces camcorder blur (blur du

Automatic Gain Control (AGC) Limit

When recording in dark surroundings, the camcorder will automatically increase the gain to try to get a brighter picture. However, using higher gain values may result in more noticeable video noise. You can select the AGC limit to curb the amount of noise by setting the maximum gain value to be used. The smaller the AGC limit, the darker the picture but the less noise it will contain.



POINTS TO CHECK

- Select a recording program other than the Special Scene recording programs or [n Manual Exposure].
- 1 Open the AGC limit adjustment screen.
[FUNC.] > [x AGC Limit] > [n Manual]
 - Touch [m Automatic] to remove the AGC limit.
 - 2 Touch [I] or [E] to set the AGC limit.
 - You can also drag your finger along the dial.
 - 3 Touch [X].

Automatic Exposure Recording Programs

With the automatic exposure (AE) recording programs, the camcorder will adjust the shutter speed and/or aperture value to obtain the optimal exposure. When using the AE recording programs, you can change functions like the white balance and image effects.


1 Open the screen of the desired recording program.

[FUNC.] > [Rec. Programs] > [, Shutter-Pri. AE] or [“ Aperture-Pri. AE]

2 Touch [f] or [D] to set the desired shutter speed () or aperture value (“) and then touch [X].

- You can also drag your finger along the dial.
- The selected shutter speed or aperture value will appear on the screen next to the recording program icon.

Options (§ Default value)

 NOTES


- [, Shutter-Pri. AE]:
 - On screen only the denominator is displayed – [, 250] indicates a shutter speed of 1/250 second, etc.
 - When recording in dark surroundings, you can obtain a brighter picture by using slow shutter speeds; however, image quality may not be as good and autofocus may not work well.
 - The image may flicker when recording with fast shutter speeds.
- [" Aperture-Pri. AE]: The actual range of values available for selection will vary depending on the initial zoom position.
- When setting a numeric value (aperture or shutter speed), the number displayed will flash if the aperture value or shutter speed is not appropriate for the recording conditions. In such case, select a different value.
- During exposure lock, the aperture value/shutter speed cannot be changed. Set the aperture value or shutter speed before manually adjusting the exposure.
- If you set **q** > [CUSTOM Dial & Button] to [" Tv / Av] (A 98), you can adjust the shutter speed or aperture value with the CUSTOM dial and button.

Exposure Adjustment

At times, backlit subjects may appear too dark (underexposed) or subjects under very strong lights may appear too bright or glaring (overexposed). In such cases, adjusting the exposure will correct this. This camcorder features a dedicated recording program, [Fn Manual Exposure], for adjusting the exposure manually. However, you can also compensate the exposure when using other recording programs.

Using the Manual Exposure Recording Program

Using the [Fn Manual Exposure] recording program, you can adjust the aperture, shutter speed and gain to achieve the desired exposure.

Operating modes: 

- 1 Activate the [Fn Manual Exposure] recording program.
[FUNC.] > [Rec. Programs] > [Fn Manual Exposure]
- 2 Touch the control button of the setting you wish to adjust.

- 3 Touch [i] or [D] to set the desired value.
 - You can also drag your finger along the dial.
 - The exposure will change according to the setting's new value. Repeat steps 2 and 3 to adjust other settings.
 - Before touching [X], you can also use the zebra pattern (see below).
- 4 Touch [X].

NOTES

- When the [Image Effects] > [Looks] setting is set to [Wide DR], the lowest available setting is 6 dB.
- If you set q > [CUSTOM Dial & Button] to [Fn Manual Exposure] (A 98), you can adjust the aperture, shutter speed and gain with the CUSTOM dial and button.

Using the Zebra Pattern

You can use the zebra pattern to identify areas that might be overexposed, so you can correct the exposure appropriately. The camcorder offers two levels of zebra pattern: With 100% only areas that will lose detail in the highlight areas will be identified, while 70% will identify also areas that are dangerously close to losing detail.

1 From the exposure adjustment screen, touch [w

To adjust the Touch AE function for highlights (Highlight AE)

Certain subjects, like clouds or white objects, are easily overexposed and can end up appearing as bright areas where all detail is lost. Using the [Highlights] setting, you can touch the brightest area inside the y frame and the camcorder will automatically make corrections so that area is not overexposed. When you touch a dark area in the picture or the highlights are too6(h)3.57(rk ar(ing a5(ar),TJ21.2

yy

White Balance

The white balance function helps you to accurately reproduce colors under different lighting conditions.

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POINTS TO CHECK

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

1 Open the white balance screen.

[FUNC.] > [WB White Balance]

2 Touch the desired option and then touch [X].

- When you select [WB Color Temperature], [WB Set 1] or [WB Set 2], set the color temperature or a custom white balance with the appropriate procedure below before touching [X].
- The icon of the selected option will appear on the screen.

To set the color temperature ([WB Color Temperature])

Touch [L] or [R] to set the desired value.

- You can also drag your finger along the dial.

To set a custom white balance ([WB Set 1] or [WB Set 2])

Point the camcorder at a white object, so it fills the whole screen, and touch [Set WB].

When the adjustment is completed, [WB] stops flashing and disappears. The camcorder will retain the custom white balance even if you turn it off.

Options (Default value)





NOTES

• When you select a custom white balance:

- Set [Z] > [Digital Zoom] to [Off].
- Reset the white balance when you change locations or the lighting or other conditions change.
- Depending on the light source, [WB] may keep flashing. The result w

- Using a custom white balance may provide better results in the following cases:
 - Changing lighting conditions
 - Close-ups
 - Subjects in a single color (sky, sea or forest)
 - Under mercury lamps, certain types of fluorescent lights and LED lights
- Depending on the type of fluorescent light, optimal color balance may not be obtained with [C Fluorescent] or [A Fluorescent H]. If the color looks unnatural, select [A Automatic] or a custom white balance setting.

 NOTES

- Image effects are not available during infrared mode.
- When [y Exposure] is set to [n], the [Brightness] parameter is not available.
- When the [Image Effects] > [Looks] setting is set to [Wide DR] or [Highlight Priority], the [Contrast] parameter is not available.
- When the [Image Effects] > [Looks] setting is set to [Highlight Priority], you can use the  > [Color View Assistance] setting to display the picture on the screen with more accurate colors.
- When the [Image Effects] > [Looks] setting set to [Wide DR], the lowest available gain setting is 6 dB. As such, when shooting outdoors in daylight or other bright surroundings, the subject may appear bright because the camcorder cannot achieve the optimal exposure.
- When [Looks] is set to [Highlight Priority], photos cannot be recorded.

Setting the Time Code

The camcorder can generate a time code signal and embed it in your recordings. In addition, the time code will appear in the recordings output from the HD/SD-SDI terminal (only) and HDMI terminal. You can select whether the time code is output from the HDMI terminal (A 155).

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Selecting the Running Mode

You can select the running mode of the camcorder's time code.

- 1 Open the [Time Code Mode] screen.

 NOTES

- When you are using pre-recording mode, [Free Run] is automatically set and cannot be changed.
- As long as the built-in rechargeable lithium battery is charged and you selected the [Free Run] option, the time code continues to run even if you disconnect all other power sources. However, this is less accurate than when the camcorder is on.

Setting the User Bit

The user bit display can be selected from the date or the time of recording, or an identification code consisting of 8 characters in the hexadecimal system. There are sixteen possible characters: the numbers 0 to 9 and the letters A to F. When you record a scene, the user bit will be recorded with it. The user bit is also output from the HD/SD-SDI terminal

Recording Audio

You can record audio using the built-in stereo microphone, commercially available external

Connecting an External Microphone or External Audio Input Source to the Camcorder

In order to use the microphone holder and INPUT 1/INPUT 2 terminals, the handle unit must be attached to the camcorder. Follow the procedure below to attach a microphone (refer also to the following illustration). To connect an external device to the camcorder, plug the device's cable into the

Settings for each audio scene



To display the audio level indicator

Usually, the audio level indicator will be displayed only after activating the manual adjustment of the audio recording level. You can choose to display it also when the audio level is adjusted automatically.

- 1 Open the automatic audio recording level screen.
[FUNC.] > [Mic Level] > [m] (automatic)
- 2 Touch [Audio Level Indicator] and then touch [X].

NOTES

- When the audio level meter reaches the red point (0 dB), the sound may be distorted.
- We recommend using headphones to check the sound level while adjusting the audio recording level or when the microphone attenuator is activated.

Wind Screen (Built-in Microphone)

The camcorder automatically reduces the background sound of wind when recording outdoors. You can select from two levels or turn off the auto wind screen.

POINTS TO CHECK




- Set [— Audio Scene] to [r Custom Setting] (A 83).
- 1 Open the [Built-in Mic Wind Screen] screen.
[FUNC.] > [MENU] > p >



Low Cut Filter (MIC Terminal)

When you are recording using a microphone connected to the MIC terminal, you can activate the low cut filter to reduce the sound of blowing wind, a car's engine and similar ambient sounds.

Operating modes:

- 1 Open the [MIC Low Cut] screen.
[FUNC.] > [MENU] >  > [MIC Low Cut]
- 2 Touch [ On] and then touch [].

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Using Line Input or an External Microphone Connected to an INPUT Terminal

Follow the steps below to use an external microphone connected to an INPUT terminal.

- 1 Set the INPUT terminal ON/OFF switch to ON.
- 2 Set the sensitivity switches for INPUT 1/INPUT 2 to LINE or MIC.
 - To supply a microphone with phantom power, set the switch to MIC+48V instead. Make sure to connect the microphone first, before turning the phantom power on. Keep the microphone connected when turning off the phantom power.

Recording Audio to Channel 2 (CH2)

You can select the audio source that will be recorded to channel 2.

- 1 Open the [CH2 Input] screen.
[FUNC.] > [MENU] >  > [CH2 Input]
- 2 Touch the desired option and then touch [].

Options ^(§ Default value)

- [**INPUT 1**] The audio signal input through the INPUT 1 terminal will be recorded to channel 1 and channel 2. You can use this setting when recording audio for backup purposes.
- [**INPUT 2**] The audio signal input through the INPUT 2 terminal will be recorded to channel 2 while the audio signal input th



1 Open the desired INPUT terminal's sensitivity submenu.

[FUNC.] > [MENU] > ρ > [INPUT 1 Mic Trimming] or [INPUT 2 Mic Trimming]

2 Touch the desired level and then touch [X].

- The available sensitivity levels are +12 dB, +6 dB, 0 dB, -6 dB and -12 dB.

Activating the Microphone's Attenuator (INPUT terminals)

You can activate the microphone attenuator (20 dB) for microphones connected to the INPUT 1 and INPUT 2 terminals to prevent audio from being distorted if the audio level is too high.

Using Headphones

Use headphones for playback or to check the audio level while recording. The following procedure explains how to adjust the volume.

1 Open the [Headphone Volume] screen.

[FUNC.] > [MENU] >  > [Headphone Volume]

- Touching [FUNC.] is necessary only when

Color Bars/Audio Reference Signal

You can have the camcorder output and record color bars and a 1 kHz audio reference signal and output them from the HDMI OUT terminal, AV OUT terminal, HD/SD-SDI terminal (only) and × (headphone) terminal (audio reference signal only).

Operating modes:

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Recording Color Bars

You can choose between EBU color bars and SMPTE standard-definition color bars.

1 Open the [Color Bars] menu.

[FUNC.] > [MENU] > > [Color Bars]

2 Touch the desired option and then touch [X].

- The selected color bars appear on the screen and will be recorded when you press Y

Recording an Audio Reference Signal

The camcorder can output a 1 kHz audio reference signal with the color bars.

1 Open the [1 kHz Tone] submenu.

[FUNC.] > [MENU] > > [1 kHz Tone]

2 Select the desired level and then touch [X].

- Available levels are -12 dB, -18 dB and -20 dB.
- Select [j Off] to turn off the signal.
- The signal is output at the selected level and will be recorded when you press Y

Video Snapshot

Record a series of short scenes. To record a video snapshot scene, set an assignable button to [F Video Snapshot] in advance.

- 1 Set an assignable button to [F Video Snapshot] (A 99).
- 2 Press the assignable button to activate video snapshot mode.
 - D (the default length of a video snapshot scene) appears on the screen.
 - Press the button again to deactivate video snapshot mode.
- 3 Press Y .
 - The camcorder records for a few seconds and then automatically returns to record standby mode.
 - When the camcorder stops recording, the screen will momentarily turn black as if a camera shutter had released.

Pre-Recording

The camcorder will start recording 3 seconds before you press **Y**, ensuring you do not miss important shooting opportunities. This is especially useful when it is difficult to predict when to start recording.

By default, the pre-recording function is assigned to assignable button 2.

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1 Press **Z**

- **z** will appear on the screen.
- Press **Z** again to turn off pre-recording.



2 Press **Y**

- The scene recorded on the memory card will start 3 seconds before **Y** was pressed.



Onscreen Displays and Data Code

You can turn most onscreen displays on or off.

Operating modes:  

Repeatedly press **D** to turn the onscreen displays on/off in the following sequence:

mode:

- All displays on
- Onscreen markers¹
- Displays off

mode²:

- Only data code on
- All displays on

¹ The onscreen markers will be displayed only when **p** > [Onscreen Markers] is set to an option other than [j Off].

² Pressing **D** has the same effect as touching the screen. During single photo view and while playing back a scene, the playback controls are displayed only momentarily.

Infrared Recording

This camcorder features the ability to shoot movies in dark surroundings using the camcorder's

Using the GP-E2 GPS Receiver

When you attach the optional GP-E2 GPS Receiver to the camcorder, you can acquire GPS information and add it to your movies and photos. For details about how to attach and use the receiver, refer also to the receiver's instruction manual.

Operating modes:

When connecting the GP-E2 GPS Receiver to the camcorder, use the connecting cable supplied with the receiver.

After connecting the receiver, we recommend that you attach the receiver to the grip belt or the carrying case supplied with the receiver.

IMPORTANT

- In certain countries and regions, the use of GPS may be restricted. Therefore, be sure to use GPS in accordance with the laws and regulations of your country or region. Be particularly careful when traveling outside your home country.
- Be careful about using GPS functions where the operation of electronic devices is restricted.
- Others may be able to locate or identify you by using location data in your geotagged pictures or movies. Be careful when sharing these images with others, as when posting them online where many others can view them.
- GPS signal reception may take some time.
- Never leave the receiver near any equipment that generates a strong magnetic field, such as magnets or electric motors.

NOTES

- The camcorder is not compatible with the receiver's digital compass and positioning interval functions. Also, [Set Now] is not available for **q** > [GPS Auto Time Setting].
- The GPS receiver's time will be set once when the receiver is attached to the camcorder. While recording movies and or when Browser Remote is activated, the time will not be set.
- You cannot add GPS information to the following types of recordings.
 - Photos captured from a movie.
 - MP4 movies that were converted from another movie.
- GPS information added to AVCHD movies cannot be deleted with the camcorder or software Data Import Utility.

CUSTOM Dial and Button

You can assign to **C** and the CUSTOM dial one of several frequently used functions. You can then adjust the selected function using **C** and the CUSTOM dial, without having to access the menu.

- 1 Open the [CUSTOM Dial & Button] screen.
[FUNC.] > [MENU] > **q** > [CUSTOM Dial & Button]
- 2 Touch the desired option and then touch [X].

Options (® Default value)

NOTES


- Instead of the procedure above, you can press and hold **C** to display a quick menu of the options. Use the CUSTOM dial to select an option and theDs.604 0 TD.6(o)1 w8m

Assignable Buttons

The camcorder conveniently features 5 buttons to which you can assign various functions. By assigning often used functions, you can quickly access them with a single press of a button.

Operating modes:

Changing the Assigned Function

- 1 Open the selection screen for the desired assignable button.
[FUNC.] > [MENU] >  > Select from [Assign Button 1] to [Assign Button 5]
- 2 Select the desired option and then touch [X].

Options

[E] **Powered IS*** Turns Powered IS on/off (A n 55.0pj)

* Even if this function is assigned to an assign

Saving and Loading Menu Settings

After you adjust the cinema-look filters and other settings in the FUNC. panel and setup menus, you can save those settings on a memory card. You can load those settings at a later date or on another XA35 or XA30 camcorder so that you can use that camcorder in the same way.

Saving Menu Settings to a Memory Card

Menu settings must be saved to memory card 3 . If the memory card already has menu settings on it, they will be overwritten.

Playing Back Video

This section explains how to play back scenes. For details on playing back scenes using an external monitor, refer to *Connecting to an External Monitor* (A 110).

Operating modes:

1 Set the power switch to MEDIA.

- The AVCHD movie index screen will appear.

2 If necessary, change the index screen.

[6 3] > Tab of the desired memory card (6 or 7) >
Control button of the content you want to play back
([y · Movies] or [y 3 Movies]).

3 Look for the scene you want to play back.

- ! Index screen button. Displays the currently selected memory card and movie format. Press to change the index screen.
- " Drag your finger left/right for the next/previous index page.
- # Display the next/previous index page.
- \$ Scene information.
- % 3dd

4 Look for the scene you want to play back.

5 Touch the desired scene to play it back.

- The camcorder will play back the scene selected and continue until the end of the last scene in the index screen.

- Touch the screen to display the playback controls. During playback, the playback controls will disappear automatically after a few seconds without operation. In playback pause, touch the screen again to hide the playback controls.

Playing back scenes recorded using the [Highlight Priority] look

When playing back a scene recorded using the [Image Effects] > [Looks] > [Highlight Priority] look, you can use the **q** > [View Assistance] setting to display the picture on the camcorder's screen with more accurate colors. When playing back such a scene on an external monitor, we recommend increasing the monitor's overall brightness.

About folder names

MP4 movies and photos are saved as files in folders. The folder names appear in a format such as "101_1025." The first three digits indicate the folder number and the last four digits indicate the month and day (October 25, for the example folder above).

During playback:

! Jump to the beginning of the scene. Dodi-e4 phcaca(2 44)-9.3(ie)-8.1(w As110. a.218181818-4.u02 -

Adjusting the volume

- 1 During playback, touch the screen to display the playback controls.
- 2 Touch [Ó/].
- 3 Touch [Ø/Ö] or [Û /Ö] to adjust the volume and then touch [K].

During playback pause:

Displaying scene information

1 In either the AVCHD or MP4 movie index screen, touch [I].

2 Touch the desired scene.

- The scene information screen appears.
- If the optional GP-E2 Receiver was attached to the camcorder during recording, GPS information will also appear.
- Touch [◀ /▶] to select the previous/next scene.

3 Touch [K] twice when finished.



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.

Capturing Photos During Movie Playback

Deleting Scenes

You can delete those scenes that you are not interested in keeping. Deleting scenes allows you also to free up space on the memory card.

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Deleting a Single Scene

- 1 Play back the scene you wish to delete (A 102).
- 2 Touch the screen to display the playback controls.
- 3 Open the [Delete] screen.
[Ý] > [FUNC.] > [Delete]
- 4 Touch [Yes].
 - The scene is deleted.
- 5 Touch [OK].

Deleting Scenes from the Index Screen

- 1 Open the index screen (A 102).
 - To delete all the scenes recorded on a specific date, drag your finger left/right until a scene you want to delete appears.
- 2 Open the [Delete] screen.
[FUNC.] > [Delete]
- 3 Touch the desired option.
 - When you touch [Select], perform the following procedure to select the individual scenes you want to delete before touching [Yes].
- 4 Touch [Yes].
 - Touch [Stop] to interrupt the operation while it is in progress. Some scenes may be deleted nevertheless.
 - The selected scenes are deleted.
- 5 Touch [OK].

To select individual scenes

- 1 Touch on the individual scenes you want to delete.
 - A checkmark ! will appear on the scenes you touch. The total number of selected scenes will appear next to the " icon.
 - Touch a selected scene to re

2 After selecting all the desired scenes, touch [OK].

Options

[date/folder name] Delete all the scenes recorded on a particular date. For AVCHD movies, the date will appear in the control button. For MP4 movies, the folder name (A 103) will appear, with the last four digits indicating the month and day.

[Select] Select individual scenes to delete.

[All Scenes] Delete all the scenes.

IMPORTANT

- **Be careful when deleting recordings. Once deleted, scenes cannot be recovered.**
- Save copies of important scenes before deleting them (A 117).
- Observe the following precautions while the ACCESS indicator is on or flashing (while scenes are being deleted).
 - 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.

NOTES

- To delete all movies and make all recordable space available again you may prefer to initialize the memory card (A 37).

Dividing Scenes

You can divide AVCHD scenes in order to leave out the best parts and later cut out the rest.

- 1 Play back the desired scene (A 102).
- 2 Pause the playback at the point where you want to divide the scene.
- 3 Open the screen for dividing scenes.
[FUNC.] >

Trimming Scenes

You can trim MP4 scenes by removing everything up to a certain point or everything after a certain point.

- 1 Play back the desired scene (A 102).
- 2 Pause the playback.
- 3 Open the screen for trimming scenes.
[Edit] > [Trim]
- 4 Bring the scene to a precise point, if necessary.
 - The point at which the movie will be trimmed is indicated by the marker.
 - Playback controls will appear on the screen (A 104). Use any special playback modes as necessary to locate the desired point.
- 5 Trim the scene.
[Trim] > Select whether to trim before ([Trim Before Marker]) or after ([Trim After Marker]) the marker > Select whether to save as a new scene ([Save as New]) or overwrite the existing scene ([Overwrite])
 - If you chose to save the trimmed scene as a ne

Selecting the Terminal Used For Output

To output your recordings on an external monitor, you must first select which terminal you will use.

1 Open the [Output Terminal] screen.

[FUNC.] > [MENU] > **q** > [Output Terminal]

- Touching [FUNC.] is necessary only when performing the procedure in **mode**.

2 Touch the desired option and then touch [X].

- If you selected [**HD/SD-SDI**], [**HD/SD-SDI & HDMI**] or [**HDMI**], continue with the relevant procedure below to configure the output signal.

Options (Ⓢ Default value)

Using the HD/SD-SDI Terminal

The digital signal output from the HD/SD-SDI terminal includes the video signal, audio signal and time code signal. If necessary, perform the following procedure to change the video output signal.

1 Open the [HD/SD-SDI Output] screen.

[FUNC.] > [MENU] > **q** > [HD/SD-SDI Output]

- Touching [FUNC.] is necessary only when performing the procedure in **mode**.

2 Touch the desired option and then touch [X].



- 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.
- There will be no video output from the AV OUT terminal while an external monitor is connected to

Audio Output

The camcorder can output audio from the HD/SD-SDI terminal (only), HDMI OUT terminal, AV OUT terminal or × (headphone) terminal. When audio is output from the AV OUT terminal or × (headphone) terminal, you can configure the following settings.

Synchronizing the Video with the Audio being Monitored

When audio is output from the AV OUT terminal or × (headphone) terminal, you can choose to synchronize the audio signal with the video signal or have the camcorder output the audio in real time. When the audio is output in real time, there will be a slight delay. Regardless of the setting, however, the audio and video signals recorded will be synchronized.

1 Open the [Monitor Delay] submenu.

[FUNC.] > [MENU] > **q** > [Monitor Delay]

- Touching [FUNC.] is necessary only when performing the procedure in mode.

2 Touch the desired option and then touch [X].

Options (§ Default value)

Selecting the Audio Channel

You can select the audio channel that is output from the AV OUT terminal or ×

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screen from single photo view
to display the playback controls.

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 Touch [h].
- 3 Drag your finger left and right along the scroll bar and then touch [K].



Saving Movies to a Computer

With the software Data Import Utility, you can do the following.

- Save scenes to a computer (all scenes/new scenes only).
- Join relay scenes (either AVCHD or MP4 format) that were saved on separate memory cards (A 49) and save them as a single scene.
- Join multiple video stream files of a single scene (either AVCHD or MP4 format) split because of the 4 GB maximum file size restriction and save them as a single scene.

Before installing the software, access PIXELA's Web site below for the system requirements and latest information on the software.

http://www.pixela.co.jp/oem/canon/e/index_biz.html

The software itself can be found on the supplied CD-ROM. For details about using the software, refer to the Software Guide (PDF file in the [Manual\English] folder of the supplied CD-ROM).

- An Internet connection is required to install the software.



IMPORTANT

Converting Movies to MP4 Format

You can convert AVCHD movies into MP4 movies or even convert MP4 movies into smaller MP4 movies. This is convenient, for example, when you want to upload the MP4 movies to the Web. When you convert movies on one memory card, they will be saved to the other memory card. While converting movies, the camcorder can add a cinema-look filter to the converted movie.

1 Open the desired movie index screen (A 102).

2 Open the screen to convert scenes.

[FUNC.] > [Convert to MP4 (6 ' 7)] or [Convert to MP4 (7 ' 6)] > [OK] >
Desired video quality (resolution and bit rate) of converted movies*

* Before selecting the video quality, you can touch [Join Scenes] to join the converted movies into one movie.

- When converting movies, the converted MP4 movie will have a frame rate of 25.00P.

3 Touch the individual scenes you want to convert.

- A checkmark ! will appear on the scenes you touch. The total number of selected scenes will appear next to the " icon.
- Touch **1** to select 1 scene.

7(5-0..2(v0.09)-8a• w4F1s Tcos3ouc [(ee)66

Copying Recordings to an External Video Recorder

In High Definition

Connect the camcorder to Blu-ray Disc recorders and other AVCHD-compatible digital video recorders using the supplied USB cable to make 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.

* Make sure the external device is compatible with the type of memory card used.

Connecting

- 1 Power the camcorder using the compact power adapter.
- 2 Open the desired AVCHD movie index screen (A 102).
- 3 Connect the camcorder to the digital video recorder using the supplied USB cable.
- 4 Select the memory card that contains the scenes you want to copy.
 - Select an option other than [All (for PC only)].
 - Camcorder: When the connection is successfully established, [USB Connection] appears on the screen.

Recording

Details will vary depending on the device used so be sure to

- 5 Camcorder: Resume playback.
 - By default, the data code will be embedded in the output video signal. You can change this using the **S** > [Data Code] setting.
- 6 External recorder: Start recording when the scene you wish to copy appears; stop recording when it ends.
- 7 Camcorder: Stop playback.

Introduction to Wi-Fi

When you use the camcorder's Wi-Fi function to connect to a smartphone or tablet, you can wirelessly save, play back and upload your recordings. You can even use a smartphone or tablet (iOS or Android device¹) as a remote control and record using the device's Web browser. Refer to *Glossary* (A 145) for a definition of the frequently used terms in this text.

¹ "iOS device" is used in this text to refer to Wi-Fi-enabled iPhones, iPods and iPads while "Android device" refers to Wi-Fi-enabled Android smartphones and tablets.

Wi-Fi connection [A](#)

When you use the Browser Remote application, you can use your iOS or Android device to remotely control the camcorder and make recordings (A 128).



Wi-Fi connection

Wirelessly connect the camcorder to your iOS device, Android device or computer² and use the device's Web browser to view recordings in the camcorder (A 134).

² You can also use a computer connected via an access point.

Wi-Fi connection

After you download the Movie Uploader app³, wirelessly connect the camcorder to an iOS device (A 136) to save, play back and upload your recordings. You can even use this connection type if you plan to share videos on YouTube and Facebook on the go.

³ The Movie Uploader app, provided by PIXELA, is available for free from the App Store.

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Wi-Fi connection

Wirelessly connect the camcorder to a wireless router (access point) on a Wi-Fi network (A 141). Use this connection if you plan to save your recordings on a computer or FTP server (A 139).

Wi-Fi connection

Wirelessly connect the camcorder to a network and use the media server function and play back your recordings on a device connected to the network using a LAN cable (A 138).

 IMPORTANT

- Using an unprotected Wi-Fi network can expose your files and data to monitoring by unauthorized third parties. Be aware of the risks involved.
- Using the Wi-Fi functions outdoors while the camcorder is operating in the 5 GHz band may be prohibited depending on the laws of the country/region you are in. (The 5 GHz operating frequency is not available for this camcorder.)

 NOTES

- While using Wi-Fi functions other than remote

About the camcorder's Wi-Fi standard

The specifications of the camcorder's Wi-Fi standard are as follows.

Wi-Fi protocol, operating frequency: IEEE 802.11b/g/n-compliant, 2.4 GHz
IEEE 802.11a/n-compliant, 5 GHz*

Maximum data transfer rate: 11 Mbps (IEEE 802.11b)
54 Mbps (IEEE 802.11a/g)*
150 Mbps (IEEE 802.11n)

These are theoretical values and actual data transfer rates may differ.

* The IEEE 802.11a protocol and 5 GHz operating frequency are not available for this camcorder.

Remote Operation Via the Browser Remote Application

You can operate the camcorder remotely via Browser Remote, a Web browser application that can be accessed using the Web browser* of devices compatible with Wi-Fi networks**. The Browser Remote application lets you monitor the image through live view, start and stop recording, and remotely control the shooting mode, exposure, white balance, aperture, gain, shutter speed, focus and zoom.

* A Web browser that has JavaScript and cookies enabled is required.

** For details about compatible devices, operating syst

- 3 iOS/Android device: Activate Wi-Fi in the settings screen.
 - The network names of detected access points will appear.
- 4 iOS/Android device: Touch the access point with the same SSID displayed in step 2.
 - If you have performed this procedure before and you have not changed the camcorder's password, the connection will be established automatically.
- 5 iOS/Android device: Enter the camcorder's password set previously.
- 6 iOS/Android device: Enter the URL displayed on the camcorder's screen into the Web browser to start the Browser Remote application.
 - The Browser Remote screen will appear.
 - As long as you do not change the port settings, the URL is always the same so you may find it convenient to bookmark it.
- 7 Camcorder: Touch [X].
 - When the connection has been established, „ appears on the camcorder's screen. If an iOS or Android device is not connected,

Remaining battery level (A 159)
Memory card status/Rem2ining battery level (

Selecting the recording program

- 1 Press the recording program button.
 - The recording programs will appear.
- 2 Select the desired recording program.

Adjusting the exposure compensation value

- 1 Touch [y].
- 2 Press the exposure compensation value button.
 - The exposure compensation screen will appear.
- 3 Select the desired exposure compensation value.
 - The selected value will be displayed on the Browser Remote screen and will be applied to the camcorder.

Adjusting the white balance

- 1 Press the white balance mode button.
 - The white balance modes will appear.
- 2 Select the desired white balance mode.

If you selected [E̅]:

- 3 Press the color temperature and then select the desired value from the list.
 - The selected value will be displayed on the Browser Remote screen and will be applied to the camcorder.

If you selected [Å̂]:

- 3 Point the camcorder at a white object so that it fills the whole screen.
 - Use the same lighting conditions you plan to use when recording.
 - Make sure the white object fills the screen until the procedure is completed.
- 4 Press [Å̂].
 - If a custom white balance has not yet been stored, [Å̂] will flash slowly.
 - During the procedure, [Å̂] will flash quickly. When it stops flashing, the procedure is completed and the setting will be applied to the camcorder.

Adjusting the aperture

- 1 Press the aperture button.

Adjusting the gain

- 1 Press the gain button.
 - The available gain values will appear.
- 2 Select the desired gain value.
 - The selected value will be displayed on the Browser Remote screen and will be applied to the camcorder.



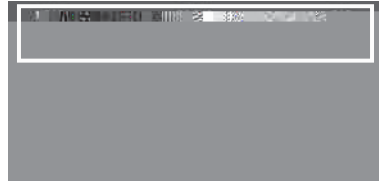
Adjusting the shutter speed

- 1 Press the shutter speed button.
 - The available shutter speed values will appear.
- 2 Select the desired shutter speed value.
 - The selected value will be displayed on the Browser Remote screen and will be applied to the camcorder.



Adjusting the focus

- 1 Touch MF.
- 2 Press one of the focus controls to adjust the focus as necessary.
 - Press one of the controls on the [NEAR] side to focus closer or one of the controls on the [FAR] side to focus farther away.
 - There are three levels of adjustment - [◀/▶] is the smallest and [◀◀◀/▶▶▶] the largest.



Adjusting the zoom

Press one of the zoom controls to adjust the zoom position as necessary.

- Press one of the controls on the [WIDE] side to zoom out or one of the controls on the [TELE] side to zoom in.
- There are three levels of adjustment - [◀/▶] is the slowest and [◀◀◀/▶▶▶] is the fastest.



NOTES


- Depending on the network setup and conditions, there may be a delay when using live view and configuring settings.
- When color bars are being displayed, live view updates will stop.
- When Browser remote is activated, q > [Time Zone/DST], [Date/Time] and [GPS Auto Time Setting] are not available. If [GPS Auto Time Setting] had previously been set to [Auto Update], it will automatically be set to [Disable] and cannot be changed. It will return to its previous setting when you deactivate Browser Remote.
- Only one device may be connected to the camcorder at a time.

Playback via Browser: Viewing Recordings Using a Web Browser on Your iOS or Android Device

With the Playback via Browser function, you can use the Web browser on your iOS device, Android device, computer or similar device to show a list of recordings in the camcorder, play them back and even download them.* This conveniently allows you to view your recordings while you are out.

* Depending on the device, OS, browser, movie format and recording mode, you may not be able to play back or download recordings. For details, visit your local Canon Web site.

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- 1 Camcorder: Open the desired index screen (A 102).
- 2 Camcorder: Open the [Playback via Browser] screen.
[MENU] >  > [Wi-Fi] > [Playback via Browser]
 - The camcorder's SSID (network name) will appear.
 - The camcorder will be ready to connect with the device.
 - To set or change the camcorder's password, perform the procedure in *Setting the Camcorder's Password* (A 128) starting from step 2.
- 3 iOS/Android device: Activate Wi-Fi in the settings screen.

Uploading Recordings Using an iOS Device

Using the Movie Uploader app* for iOS devices, you can wirelessly connect the camcorder to the device to upload your movies to YouTube and your movies and photos to Facebook even when you are away from your home network. You can even save** and play back MP4 movies and photos on the iOS device.

* The Movie Uploader app, provided by PIXELA, is available for free from the App Store.

** Depending on the device, this functionality may not be available for MP4 movies recorded at 35 Mbps.



Playback on a Computer


Using the Media Server function, you can wirelessly view your movies and photos from your computer or similar device. You will need an access point connected to your home network and software installed on your computer that can play back movies and photos on the media server. We recommend that you connect the computer to the access point using a commercially available LAN cable. Refer also to the instruction manuals for the computer, software and access point.

- 1 Camcorder: Open the desired movie index screen (

Transferring Files to a Computer or FTP Server

You can wirelessly transfer files (recordings) directly to a computer or an FTP server. You will need a correctly configured FTP server. During the manual setup procedure, you will need to enter the FTP server's IP address, port, user name, password and file transfer destination (where the files will be transferred to).

To enter text for the various settings, use the virtual keyboard (A 140).

- 1 Camcorder: Open the desired movie index screen (A 102).
- 2 Open the [FTP Transfer] screen.
[MENU] >  > [Wi-Fi] > [FTP Transfer] > [OK]
- 3 Enter the FTP server's IP address for [FTP Server] and the port number for [Port].
- 4 Touch [Next].
- 5 Enter the user name and password and then touch [Next].
- 6 Enter the destination folder to be used for [Destination Folder] and then touch [OK].



IMPORTANT

- Observe the following precautions when transferring files. Failing to do so may interrupt the transfer and incomplete files may remain at the transfer destination.
 - Do not open the double memory card slot cover.
 - Do not disconnect the power source or turn off the camcorder.

Wi-Fi Connection Using an Access Point

The camcorder can connect to a Wi-Fi network using a wireless router (access point) and even remember the settings for the four most recently used access points.

General requirements

[WPS: PIN Code] method

From a computer or similar device connected to the access point, use the Web browser to open the router's WPS settings screen. After the 8-digit PIN code appears on the camcorder's screen, enter it into your router's WPS settings screen.

2 Within 2 minutes, touch [OK] on the camcorder's screen.

- The camcorder will connect to the access point.
- You can touch [Stop] and then [OK] to interrupt the Wi-Fi Protected Setup while it is in progress.
- After the connection is established, continue using the function you were previously using. For details, refer to the procedure in *Playback on a Computer* (A 138), *Transferring Files to a Computer or FTP Server* (A 139) or *Viewing and Changing Wi-Fi Settings* (A 144), as necessary.

Searching for Access Points

The camcorder will automatically detect access points in the vicinity. After you select the desired access point, you simply enter the password (encryption key) to connect the camcorder. To enter text for the various settings, use the virtual keyboard (A 140).

1 Note the access point's network name (SSID) and encryption key.

2 When the detected access points appear, touch [OK].

- You can touch [↑] and [↓] to go through the detected access points.

3 In the [Encryption Key] field, enter the encryption key and then touch [OK].

- If the access point selected in step 2 did not have a [C] icon, this step is not necessary.

4 Touch [OK] twice.

- After the connection is established, continue using the function you were previously using. For details, refer to the procedure in *Playback on a Computer* (A 138), *Transferring Files to a Computer or FTP Server* (A 139) or *Viewing and Changing Wi-Fi Settings* (A 144), as necessary.

Manual Setup

Perform this procedure to manually configure the wireless connection settings. This may be necessary, for example, if your access point's network name (SSID) cannot be detected due to the stealth function being enabled. Manual setup is for advanced users of Wi-Fi networks. To enter text for the various settings, use the virtual keyboard (A 140).

1 In the [SSID] field, enter the SSID and then touch [OK] > [Next].

2 In the [Authentication/Encryption Method] field, touch [OPEN NONE] and then touch the desired method.

- If you selected [OPEN WEP], the WEP index is 1.

3 In the [Encryption Key] field, enter the encryption key and then touch [OK] > [Next].

- In step 2, if you selected [OPEN NONE], entering the encryption key is not necessary.

4 Touch [Automatic] or [Manual] to select how to obtain the IP address.

- If you selected [Automatic], proceed to step 11.

- 5 For the [IP Address] and [Subnet Mask] fields, touch [0.0.0.0] and then touch []/[] to change the value and then touch [Next].
 - Touch the next field to change the value, as necessary.
- 6 Touch [Next].
- 7 In the [Default Gateway] field, touch [0.0.0.0] and then touch []/[] to change the value and then touch [Next].
 - Touch the next field to change the value, as necessary.
- 8 Touch [Next].
- 9 For the [Primary DNS Server] and [Secondary DNS Server] fields, touch [0.0.0.0] and then touch []/[] to change the value and then touch [Next].
 - Touch the next field to change the value, as necessary.
- 10 Touch [Next].
- 11 Touch [OK].
 - After the connection is established, continue using the function you were previously using.

Viewing Wi-Fi Settings

When connected to an access point or to a Wi-Fi-enabled device, you can view the settings and then change them, if necessary. To view the settings, use the virtual keyboard (A 140).

Viewing connection settings

Touch [Connection].
The connection settings will appear.
Touch [View] to view more information.
The camcorder's password, port and operating frequency (2.4 GHz or 5 GHz)*. The operating frequency cannot be changed for camcorders whose identification plate contains the number 27).

Viewing an access point's connection settings

Touch [Joint Connection].
The access points' SSID settings in the camcorder's memory will appear.
Touch [Not configured] to view the settings of the access point, touch [Not configured] and then perform the procedure in *Wi-Fi Settings* (A 141). After doing so, the screen from this step will appear.

Viewing the connection settings of an access point next to the SSID of the access point whose settings you want to view.

Touch [View] to view the access point's settings will appear.
Touch [View] and [↑] to view more information.
Touch [View] to view the settings, touch [Edit] > [Delete] > [Yes].
Touch [View] to view the settings, touch [Edit] > [Manual Setup] to change the settings and then perform the procedure in *Manual Setup* (A 142).

Viewing the FTP server's connection settings

Touch [FTP Server Settings].
The FTP server's settings will appear.
Touch [View] and [↑] to view more information.
Touch [View] to view the settings, touch [Edit] to change the settings.

Appendix: Menu Options Lists

Menu items not available appear grayed out. For details about how to select an item, refer to *Using the Menus (A)*

¹ Option available only for recording movies.

² The setting is maintained when the camcorder

[INPUT 1/2 Limiter]: If set to [i On], the limiter will limit the amplitude of audio signals to prevent audio distortions.

S / Playback Setup

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

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

[File Numbering]: MP4 movies and photos are saved as files in folders. You can select the file numbering method for those files. File numbers appear

[CUSTOM Dial & Button]	[<u>”</u> Tv/Av], [<u>I</u> Manual Exposure], [<u>×</u> AGC Limit], [<u>y</u> Exposure], [<u>j</u> Off]	‘	-	-	98
[Assign Button 1] to [Assign Button 5]*	[<u>E</u> Powered IS], [<u>°</u> BLC Always On], [<u>~</u> Face Only AF], [<u>;</u> Video Snapshot], [<u>Ä</u> WB Priority], [<u>Z</u> Pre REC], [<u><</u> IR Light], [<u>∞</u> Audio Output CH], [<u>AF/MF</u>], [<u>Rec Review</u>], [<u>Rec. Programs</u>], [<u>BLC Always On</u>], [<u>White Balance</u>], [<u>AGC Limit</u>], [<u>Focus</u>], [<u>Exposure</u>], [<u>Audio Scene</u>], [<u>Mic Level</u>], [<u>Zoom</u>], [<u>Image Stabilizer</u>], [<u>Image Effects</u>], [<u>Browser Remote</u>], [<u>j</u> Off]	‘	-	-	99
[Powered IS Button]	[<u>I</u> Press and Hold], [<u>I</u> Toggle On/Off]	‘	-	-	-
[Set WB Priority]	[<u>Ä</u> Automatic], [<u>¼</u> Daylight], [<u>½</u> Shade], [<u>¾</u> Cloudy], [<u>⌂</u> Fluorescent], [<u>A</u> Fluorescent H], [<u>E</u> Tungsten], [<u>Color Temperature</u>], [<u>Æ</u> Set 1], [<u>Ç</u> Set 2]	‘	-	-	-
[Focus Ring Direction]	[<u>h</u> Normal], [<u>X</u> Reverse]	‘	-	-	-
[Focus Ring Response]	[<u>Z</u> Fast], [<u>[</u> Normal], [<u>]</u> Slow]	‘	-	-	-
[Focus Preset Speed]	[<u>Z</u> Fast], [<u>[</u> Normal], [<u>]</u> Slow]	‘	-	-	-
[Battery Info]	-	‘	‘	‘	-
[Output Terminal]	[<u>j</u> Off], [<u>HD/SD-SDI</u>], [<u>HD/SD-SDI & HDMI</u>], [<u>HDMI</u>], [<u>○</u> AV OUT]	‘	‘	‘	111
[Rec Command]	[<u>i</u> On], [<u>j</u> Off]	‘	-	-	43
[HD/SD-SDI Output]	[<u>576i</u>], [<u>720P</u>], [<u>⌂</u> 1080i]	‘	‘	‘	111
[HDMI Output]	[<u>k</u> Automatic], [<u>576i</u>], [<u>576P</u>], [<u>720P</u>], [<u>⌂</u> 1080i], [<u>1080P</u>]	‘	‘	‘	111
[HDMI Time Code]	[<u>i</u> On], [<u>j</u> Off]	‘	‘	‘	-

* The default settings are as follows. [Assign Button 1]: [AF/MF], [Assign Button 2]: [z PRE REC], [Assign Button 3]: [j Off], [Assign Button 4]: [j Off], [Assign Button 5]: [Rec Review].

** Option available only when the optional GP-E2 GPS Receiver is attached to the camcorder.

[OLED/VF Brightness]: Sets the OLED screen and viewfinder to one of two brightness levels. You can use this to make the screen brighter when recording in bright places, for example.

[OLED Dimmer]: When set to on, the illumination sensor will detect the surrounding brightness and the camcorder will automatically adjust the screen's brightness accordingly. When you need to carefully monitor picture quality when recording, keep this setting set to off.

- Changing the brightness of the screen does not affect the brightness of your recordings or the brightness of the playback image on a TV.
- Using the [Bright] setting will shorten the effective usage time of the battery pack.
- When [Demo Mode] is set to [i On] and the camcorder is being powered using the compact power adapter, this setting will automatically change to [Bright].
- When [OLED Dimmer] is set to on, the camcorder's screen will automatically become dimmer if the camcorder is left without any operation for 3 minutes. Operate any control on the camcorder to return the screen to its previous setting.

[OLED Mirror Image]: When set to [i On], this function reverses the image on the screen horizontally when you rotate the OLED panel 180 degrees toward the subject. In other words, the screen will show a mirror image of the subject.

[OLED Color Balance]: Allows you to adjust the color balance of the OLED screen. Adjust the [B] (blue) and [R] (red) bars by touching [+] and [-]. You can check the results on the screen.

[Notification Sounds]: A beep will accompany some of the camcorder's operations.

- While pre-recording (A 94) is activated, the camcorder will not emit any notification sounds.

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

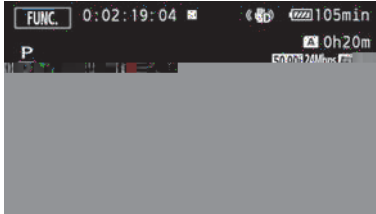
[Tally Lamp]: Activates the tally lamp when the camcorder is

[Focus Ring Direction]: Changes the direction the focus/zoom ri

Recording Movies

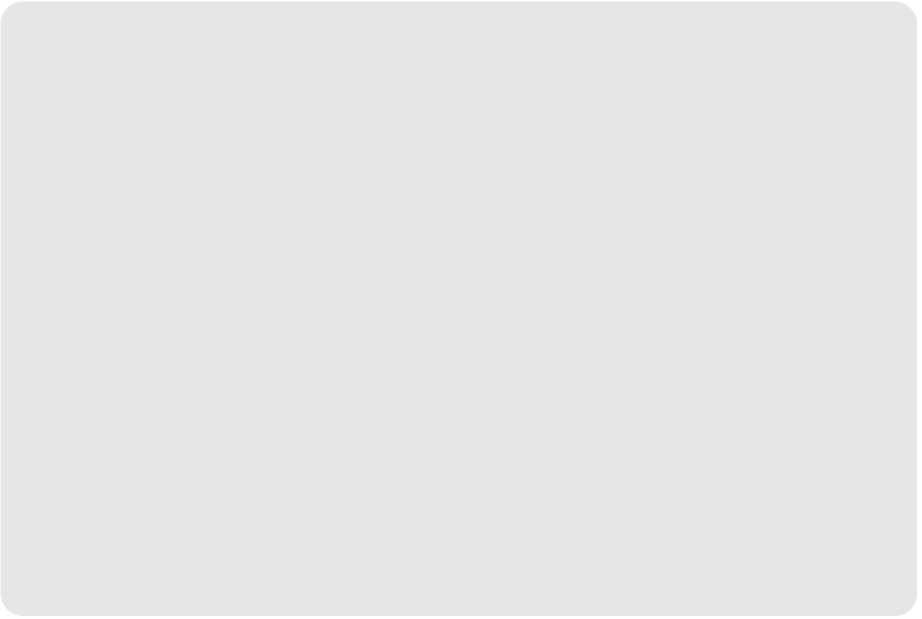
M mode

CINEMA mode



¹ When dual recording is activated, information for both memory cards will be displayed.





Troubleshooting

If you have a problem with your camcorder, refer

Recording

Pressing Y will not start recording.

- You cannot record while the camcorder is writing previous recordings onto a memory card (while the ACCESS indicator is on or flashing). Wait until the camcorder has finished.
- The memory card is full or it already contains 3,999 scenes (the maximum number of scenes for AVCHD movies). Delete some recordings (A 106, 116) or initialize the memory card (A 37) to free some space.
- The file numbers have reached their maximum value. Insert a new memory card in to the camcorder and set $\text{q} >$ [File Numbering] to [Reset].

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

- There may be a slight interval between pressing Y 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 (A 55).
- The lens or Instant AF sensor is dirty. Clean the lens or sensor with a soft lens-cleaning cloth (A 175). 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 (Ü)/record standby (Ñ)/playback (Ð) takes longer than usual.

- When the memory card contains a large number of scenes, some operations may take longer than usual. Save your recordings (A 117) and initialize the memory card (A 37).

Movies or photos cannot be recorded properly.

- This may occur as movies and photos are recorded/deleted over time. Save your recordings (A 117) and initialize the memory card (A 37).

Cannot record a photo while recording movies.

- You cannot take photos in mode.

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

- The camcorder may become hot after using it cont

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

- You cannot select more than 100 scenes/photos individually. Select the [All Scenes] or [All Photos] option instead of [Select].

Indicators and Onscreen Displays

lights up in red.

Horizontal bands appear on the screen.

- This is a phenomenon typical of CMOS image sensors when recording under certain lighting conditions. This is not a malfunction. You may be able to reduce the symptoms by setting $p >$ [Flicker Reduction] to [Automatic]. Alternatively, set the shutter speed to a value matching the frequency of the local electrical system (1/100 for 50 Hz systems, 1/60 for 60 Hz systems).

Viewfinder picture is blurred.

- Adjust the viewfinder with the dioptic adjustment lever (A 24).

No picture appears on the viewfinder.

- Pull out the viewfinder to activate it.

Audio cannot be recorded.

- When using a microphone connected to the MIC terminal, make sure the microphone is turned on. Also, make sure its battery is not exhausted.
- The INPUT terminal ON/OFF switch is not set correctly (A 82) or the audio recording level is not set correctly (A 84).
- An external microphone that re

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.

The camcorder is connected using the supplied High Speed HDMI cable, but there is no picture or sound from the HDTV.

- Disconnect the High Speed HDMI cable and then restore the connection or turn the camcorder off and then on again.
- When **q** > [HDMI Output] is set to an option other than [Automatic], the external monitor is not compatible with the signal output from the camcorder. Set [HDMI Output] to [Automatic] or an option compatible with the monitor.

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

- 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.

Cannot save photos on my computer

- When the memory card contains too many photos (Windows – 2,500 or more, Mac OS – 1,000 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.

Wi-Fi Functions

Refer also to the instruction manual of your access point and other devices you will use.

Cannot connect with the access point.

- Check that the access point is working correctly.
- The effective communication range between the camcorder and access point may vary depending on the strength of the wireless signal. Try using the camcorder closer to the access point.

The wireless connection was interrupted while transferring files.

- Incomplete files may remain at the transfer destination. If incomplete files remain at the transfer destination, check the content and make sure they are safe to delete before deleting them.
- Select [New Files] and perform the file transfer again.

Cannot connect a Wi-Fi-enabled external device wirelessly to the camcorder.

- Use the **q** > [Reset All] setting to reset the camcorder. The camcorder's SSID will return to the default setting and the password will return to not being configured so set the password again. Then, delete the previous network settings from the external device and try connect it to the camcorder.

List of Messages

Refer to *List of Messages for Wi-Fi Functions* (A 169) for a list of messages related to Wi-Fi functions.

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

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

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.

Battery pack is not compatible. Turning off the camcorder.

- A battery pack not recommended by Canon for use with this camcorder was attached and the camcorder was turned on. The camcorder will automatically turn off in 4 seconds.

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 scenes recorded at 50.00P

- Scenes that were recorded with a recording mode of 28 Mbps LPCM (50.00P), 28 Mbps (50.00P) or 35 Mbps (50.00P) cannot be converted.

Cannot convert the scene

- The camcorder cannot convert scenes that were recorded using a video configuration that is not supported (NTSC).
- You cannot convert scenes that were recorded or edited using another device and then

Cannot play back Initialize only using the camcorder

Mem. Card Number of scenes already at maximum
- The memory card already contains 3,999 scen

Recording was stopped due to insufficient write speed of the memory card

- The write speed of the memory card was too slow so recording was stopped. Replace the

List of Messages for Wi-Fi Functions

Refer also to the instruction manual of your access point and other devices you will use.

Another user is already controlling the camcorder. Try again later.

- This message appears on the screen of the Wi-Fi device. Multiple Wi-Fi devices are trying to connect with the camcorder. Make sure only one Wi-Fi device is trying to connect and then touch Retry.

IP address conflict

- Change the camcorder's IP address to avoid any conflict with devices connected to the same network. Alternatively, change the IP address of the conflicting device.

Memory card cover is open

- The double memory card slot cover was opened while the memory card was being accessed.

Unable to obtain an IP address

- If you are not using a DHCP server, connect using the [Manual Setup] option and enter the IP address using the [Manual] option (A 142).
- Turn on the DHCP server. If it is already on, make sure it is functioning properly.
- Make sure the address range for the DHCP server is sufficient.
- Turn on the DNS server. If it is already on, make sure it is functioning properly.
- Make sure that the DNS server's IP address and the name for that address are correctly configured.
- Set the DNS server's IP address in the camcorder.
- If you are not using a DNS server, set the DNS address to [0.0.0.0].

- When mounting the camcorder on a tripod, make sure that the tripod's fastening screw is shorter than 6.5 mm. 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.

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. 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.
- 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

When you are using a battery pack that is compatible with Intelligent System, if the remaining battery time displayed is not correct, charge the battery pack fully. Still, the correct time may not be displayed after a large number of repeated uses, if a fully charged battery pack is left unused, or if a battery pack is used for long periods of time in high temperatures. 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-800E Battery Charger.
- We recommend using genuine Canon battery packs bearing the Intelligent System mark.
- 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 a 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

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.

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Lens, Viewfinder 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.
- Use a clean, soft lens-cleaning cloth to gently wipe the lens or viewfinder. Never use tissue paper.

OLED Touch Screen

- Clean the OLED 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

Optional Accessories

The following optional accessories are compatible with this camcorder. Select accessories are described in more detail in the following pages.

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.,

Battery Packs

When you need extra battery packs, select one of the following models: BP-820 or BP-828.

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.

CG-800E Battery Charger

Use the battery charger to charge the battery packs.

TL-H58 Tele-converter

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

- The Tele-converter cannot be used together with the supplied lens hood with lens barrier.
- The image stabilizer is not as effective when the Tele-converter is attached.
- The minimum focusing distance at full telephoto with the Tele-converter is 1.3 m.

WA-H58 Wide Attachment

SC-2000 Soft Carrying Case

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

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

Specifications

XA35 / XA30

§ — Values given are approximate figures.

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System

- Recording System

Movies: AVCHD¹ Video: MPEG-4 AVC/H.264;
Audio: Linear PCM, 16 bits, 48 kHz, 2ch²
Dolby Digital 2ch

MP4 Video: MPEG-4 AVC/H.264
Audio: MPEG-2 AAC-LC (2ch)

Photos: DCF (Design rule for Camera File system), compatible with Exif³ Ver. 2.3
Image type: JPEG

1

- **Image Sensor**
1/2.84-type CMOS, 3,090,000 pixels^S
Effective pixels: 2,910,000 pixels^S
- **OLED Touch Screen:** 8.77 cm (3.5 in.), wide, TFT color, equivalent to 1,230,000 dots^S, 100% coverage, touch operation
- **Viewfinder:** 0.61 cm (0.24 in.), wide, color, equivalent to 1,560,000 dots^S, 100% coverage
- **Microphone:** Stereo electret condenser microphone
- **Lens**
f=3.67-73.4 mm, F/1.8-2.8, 20x optical zoom, 8-bladed circular aperture
35 mm equivalent: 26.8 – 576 mm^S
28.8 – 576 mm^S (when Dynamic IS is activated)
- **Lens Configuration:** 12 elements in 10 groups (double-sided aspheric element)
- **AF System**
Autofocus (TTL + external distance sensor when set to [Instant AF] or [Medium AF]) or Manual focus
- **Filter Diameter:** 58 mm
- **Minimum Focusing Distance**
60 cm; 1 cm at full wide angle
- **White Balance**
Auto white balance, Custom white balance (2 settings), User-defined color temperature or Preset white balance settings: Daylight, Shade, Cloudy, Fluorescent, Fluorescent H, Tungsten
- **Minimum Illumination**
0.1 lx ([Low Light] recording program, Shutter speed at 1/2)
1.0 lx ([Programmed AE] recording program, Auto slow shutter [On], Shutter speed at 1/25)
- **Recommended Illumination:** More than 100 lx
- **Image Stabilization:** Optical-Shift Image Stabilizer
- **Size of Video Recordings**
AVCHD movies:
28 Mbps LPCM (50.00P), 28 Mbps (50.00P), 24 Mbps LPCM, 24 Mbps, 17 Mbps:
1920 x 1080 pixels; 5 Mbps: 1440 x 1080 pixels
MP4 movies:
35 Mbps (50.00P), 24 Mbps, 17 Mbps: 1920 x 1080 pixels; 8 Mbps (50.00P),
4 Mbps: 1280 x 720 pixels; 3 Mbps: 640 x 360 pixels
- **Size of Photos:** 1920 x 1080 pixels
1280 x 720 pixels (when recording MP4 movies at 8 or 4 Mbps)
640 x 360 pixels (when recording MP4 movies at 3 Mbps)
1920 x 1080 pixels (photos captured from movies)

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
- Dimensions[§]: 52 x 29 x 90 mm

Recording MP4 movies

Battery pack	Recording mode	Recording (maximum)		Recording (typical)*		Playback
		OLED	Viewfinder	OLED	Viewfinder	OLED
BP-820	35 Mbps (50.00P)	150 min.	150 min.	90 min.	90 min.	240 min.
	24 Mbps	170 min.	170 min.	100 min.	100 min.	255 min.
	17 Mbps	170 min.	170 min.	100 min.	100 min.	255 min.
	8 Mbps (50.00P)	160 min.	160 min.	100 min.	100 min.	250 min.
	4 Mbps	175 min.	175 min.	105 min.	105 min.	260 min.
	3 Mbps	180 min.	180 min.	105 min.	105 min.	265 min.
BP-828	35 Mbps (50.00P)	220 min.	220 min.	135 min.	135 min.	360 min.
	24 Mbps	255 min.	255 min.	155 min.	155 min.	375 min.
	17 Mbps	260 min.	260 min.	155 min.	155 min.	375 min.
	8 Mbps (50.00P)	245 min.	245 min.	150 min.	150 min.	385 min.
	4 Mbps	270 min.	270 min.	160 min.	160 min.	395 min.
	3 Mbps	275 min.	275 min.	160 min.	160 min.	400 min.

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

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