

The battery

The battery compartment is in the back of the camcorder, below the viewfinder. Line up the top of the battery, where the connector is, with the connector on the back of the camcorder. The camcorder will not fit if you try to insert it incorrectly, so if it's not going in easily, turn it around.

The battery simply clicks onto the back of the camcorder, in the camcorder compartment.

To release the battery, there's a small release slider on the bottom of the camcorder – slide it in the direction of the small arrow, and gently pull the battery down and off the camcorder.

To charge the battery connect the power cord to the power adapter. Plug in the power cord to an electric outlet. Connect the power adapter to the camcorder's DC IN terminal, located below the RECORD/PAUSE button. The ON/OFF (CHG) indicator will start flashing in red. The flashing light will go out when the battery is fully charged.

The SD card – this is your record media

Open out the LCD screen to locate the SD card slot. This is where you insert your record media – the SD card.

Slide the slot over (left to right) and insert the SD card into either slot A or slot B. Either is okay. You will be telling the camcorder where the SD card is in the menu selection area.

The SD card has to be initialized. In order to be able to initialize the SD card, the slot covering the SD card compartment must be closed. In order to be able to record onto the SD card, the SD card compartment must be closed.

You will select the SD card slot A or B in the camcorder menu so that your footage goes onto the SD card. If you do not select the card slot into which you inserted the SD card, the camcorder will record onto its own hard drive.

To remove the SD card open the SD card compartment and push gently on the edge of the SD card – it will pop out enough so that it can be grabbed and removed.

Power-on

The POWER button is on the top of the camcorder, towards the back, indicated by ON/OFF (CHG). Push the button to turn on the camcorder. Push the button again to turn off the camcorder.

Recording modes

On the top of the camcorder, directly on the other side of the handle from the POWER button is a switch that allows you to set the recording mode – MANUAL, AUTO, OR CINEMA.

Switch to AUTO to fully enable automatic functions (focus, aperture, exposure). The AUTO setting allows you to begin shooting as soon as you turn on the camcorder without worrying about settings, lighting, focus, etc. AUTO mode places limits on most of the camera functions.

Switch to M to be able to control the settings and advanced functions, and to access the full menu. The MANUAL mode gives you the opportunity to create a specific look for each scene. MANUAL opens up possibilities to use the range of camera functions.

Switch to CINEMA to apply pre-programmed filters to your entire image. When in CINEMA mode, you will be able to select from a menu of cinema filters by tapping on the FILTER box that appears in the lower left corner of the screen. This is a matter of taste, but once you have recorded with a specific digital filter, you cannot remove the filter. It may be best to apply filters and styles to your image in post-production (editing effects).

Initializing the SD card

- Turn on the camcorder and open the LCD screen.
- Turn camera to MANUAL mode and tap the FUNC indicator in the upper left corner of the LCD screen.
- Tap the MENU indicator.
- Tap the tab with the WRENCH icon. Scroll through the menu options until you reach INITIALIZE and select it by tapping on the highlighted (orange) area.
- The INITIALIZE options appear: select Mem Card A if you've placed your SD card in Slot A; select Mem Card B if you've placed your SD card in Slot B
- NOTE: If you select the Built-In Mem option, you will be recording on the camcorder's hard drive. This is usually a mistake. If you do this, take the camcorder to the tech staff in the Cage and have the tech staff transfer your footage to an SD card. You don't want to have to do this too often. Recording onto the Built-In Memory means you turn in your footage when you turn in the camcorder. Recording onto an SD card allows you to take the footage with you.

Do not re-initialize your SD card unless you want to erase everything on the card. You can take the card out and insert it again for another shooting session without re-initializing it.

The viewfinder, the LCD touchscreen

After battery has been installed, pull out the LCD screen to see what you are shooting and to check the camera's setting. If you are shooting using the viewfinder only, you

can adjust the viewfinder to your eyesight with the small switch at the base of the viewfinder.

With the power on, open out the LCD screen to find a display showing the camcorder's current settings, battery and recording time remaining, and RECORD/PAUSE status.

The LCD screen is a touchscreen. To set the camcorder to desired settings, gently tap the FUNC menu at the top left-hand side of the screen. An X will appear in the upper right-hand corner of the screen – use this to exit any menu.

To scroll through menus or adjust slider controls on the LCD screen, apply pressure lightly to the screen and swipe/drag your finger up and down the screen, or use the small pen-like selection tool that is in the camcorder bag.

Camcorder settings, menus

The FUNC. panel screen gives you an overview of current camcorder settings.

Tap FUNC. to access the function panel and the tap the function you would like to set or adjust. Drag your finger on the screen to scroll down the adjustable functions.

Go through the menus to familiarize yourself with them. There are a lot of menus and they can be confusing, but they are the best and easiest way to set up your camera for recording.

Audio settings & using external microphones (mics)

First rule of audio: WEAR HEADPHONES while setting up audio input, levels, and during recording process. Always wear headphones.

Audio switches and manual controls are on the side of the handle opposite the XLR (audio) cable inputs. XLR cables connect the mics to the camcorder at the XLR cable input.

When using mics with XLR audio connectors, you have to set the audio switch on the side of the handle to EXT (EXT refers to “external microphone”).

Select the recording channel:

CH1 setting records audio to each channel separately, i.e. CH1 audio goes to CH1, and CH2 audio goes to CH2. Use this when recording with 2 separate mics.

CH1/CH2 setting records audio from CH1 input to both channels.

If you are using just one microphone, plug it into CH1 XLR input, set the XLR Rec Channel to CH1/CH2, and the same will be recorded in stereo on both channels.

There is also a MIC input near the front of the camcorder below where the hand strap connects to the camcorder. Use this if you are recording with a mic that has a ¼” phono audio connector rather than an XLR connector.

Next, on the screen, tap:

FUNC. > MENU > CAMCORDER ICON > MIC Terminal Input

Tap “Microphone” and exit the MENU

When using the built-in microphone, set the INT / EXT switch to INT.

If you do not set the input switch to INT, you will not record any sound at all.

Wear headphones to make sure you are recording sound.

Audio Recording Levels

When mics are connected, you must set record levels manually.

Use the LCD screen to test recording levels as they appear on the lower left hand side of the screen. This is the VU meter. Use the manual dials on the side of the handle to raise or lower your recording levels.

Using the MENU to set record levels, tap:

FUNC. > mic icon (on lower right side of screen) > M (Manual)

The current audio recording level indicators will appear on the screen. The top one is for the built-in mic:

Touch and hold the < or > arrow indicators to adjust audio record levels

Tap the X to lock the audio record level

VOICE Record levels should be between -12 and -6 db.

When your record level approaches 0db, it will become distorted. At 0db and above, your audio will not be useable. Unlike analog audio, digital audio is not flexible. Distorted audio cannot be fixed in editing.

Headphones

Use headphones while recording. The best headphones to use are those that wrap around the ears, cutting out external sounds. Earbuds are not adequate for testing the quality or db level of your audio.

Open the AV/Headphones screen:

FUNC. > MENU > (Wrench tab) > AV/Headphones

Tap Headphones and go back to previous MENU

Connect the headphones using the AV/OUT terminal. Open the screen to locate the AV/OUT terminal in the lower left corner of the camcorder body (i.e. not on the screen itself, but on the camcorder).

In MENU, tap Volume and use volume level indicators to adjust your headphones volume.

Note: This does not adjust the actual audio recording level – it only adjusts the volume for the headphones.

White Balance

In video, the three primary colors are red, blue, and green. These colors combine produce white, which is a signal at 100% of luminance (brightness). The absence of color in video results in black, which is a signal at 0% of luminance.

To “white balance” a camcorder means you are setting not only white, but all of the colors for the shooting conditions. White balancing establishes the proper value for white in your image, and therefore sets the values for all of the colors as well.

You can only white balance in the MANUAL or CINEMA recording modes. In AUTO, the camcorder white balances for you.

About Color Temperature

The white balance function relates to the color temperature of your lighting, whether it is daylight or studio lights. Color temperature has nothing to do with air temperatures. It is based on a scale of colors from cool blues to warm oranges and relates to how the camera's pickup device interprets lighting conditions.

The brighter and sunnier the day, the cooler the color temperature. The camera interprets a bright sunny day in cool blue tones. The darker your lighting condition, the warmer the color temperature. The camera interprets artificial light in warm orange tones.

To white balance your camera:

On the screen, tap FUNC. > WB (white balance)

Drag your finger to scroll down to see all the options

Tap the screen for your lighting conditions

AWB = Automatic white balance, even in Manual recording modes

Daylight = bright daylight conditions (cool color temperature 10,000 K)

Shade = slightly warmer color temperature (6000 – 7500 K)

Cloudy = slightly warmer temperature (color temp 6000 K)

Tungsten = indoor lighting with incandescent light bulbs, halogen lights, studio lights (color temp 2700 – 3300 K)

Fluorescent = indoor lighting with fluorescent lights (betw cool and warm color temperature, 3000 K (compact fluorescents) to 5000 K(tubular))

Easier to Remember:

Bright daylight = cool light (blue tones), higher color temperatures

Indoor, incandescent, studio lights = warm light (yellow tones), lower color temps

Lowlight conditions = warm light (orange tones), lowest color temps

Aperture and Shutter Speed

Aperture and shutter speed settings are available only in the MANUAL and CINEMA recording modes. These settings can work together to create a good recording under wide variety of lighting conditions.

Aperture

The aperture refers to the opening of the iris in the camera's lens, similar to the pupil of the eye.

When recording in bright light, your aperture should be closed down, meaning the iris should be adjusted to let in less light. This results in a sharper image.

When recording in low light, the aperture should be opened more to let in more light.

To set the aperture manually:

Tap FUNC. > Rec. Programs > Av

Use the slider at the bottom of the screen to set your aperture manually

Shutter Speed

The camcorder does not have an actual “shutter speed” like a film camera, but the shutter speed setting is equivalent in that it can be set from low speed recording to high speed recording based on the speed of the action being recorded.

This does not mean you will be recording in slow or fast motion – it means that the image itself is recorded at a normal rate or at a high rate.

This is most easily seen in the difference between recording a moving car or a landscape from a moving car with low or high shutter speed: at low speed, everything at closer range will be blurred, while at high shutter speed, fast motion will record in clear focus. Shooting at high shutter speeds requires more light.

To set the shutter speed manually:

Tap FUNC. > Rec. Programs > Tv

Use the slider at the bottom of the screen to set your shutter speed manually

Recording

There are two buttons for record/pause. One is a START/STOP button on the top of the handle. Use this when you are holding the camera by the handle to record, rather

than using the hand grip. The other record/pause button is near the side of the hand grip. Use this when you are recording using the hand grip.

When you record, you are creating a media file with video, audio and timecode. When you pause or stop, and then record again, you are creating a new media file. These files are on your SD card and can be played back in the viewfinder and downloaded to a computer for digital editing.

Playing back your footage

Open the LCD screen to locate the Playback button on the upper left side of the camcorder.

Push this button to go into Playback mode. The LCD screen will display the files you have shot, showing the shooting date, and MENU options.

Look for the scene you want to play back. The ZOOM lever is used to set display to either six six clips or 15. Each clip is represented by one image from the clip.

Use the touch screen to scroll through clip images and tap on the image of a scene to play it back.

Access controls (pause, stop, fast forward, reverse, go to beginning of scene and go to end of scene) by tapping the screen during playback.

Downloading your footage to a computer

Use either the camcorder, the computer's SD drive, or an external SD drive to download your footage from the SD disk. You need to download the footage in order to edit it

When using the camcorder:

- Plug the camcorder into power source using AC adapter. Download will not work if the camcorder is battery-powered, so it must be plugged in.
- Turn on the camcorder.
- Connect the camcorder to the computer using a USB cable. The cable is plugged into a mini-USB port at the side of the camcorder near the hand grip. Connect the regular end of the USB cable to the computer's USB input.
- Open the LCD screen to verify USB Connection.
- A CANON drive icon appears on the desktop. Open it.
- Grab the Private folder and drag to your desktop. Your footage/clip files are transferred to your desktop. You must grab the entire folder – it contains your footage as well as necessary metadata. The metadata is used by the editing software.
- When download is finished, eject the CANON drive from the computer desktop.
- Now you can disconnect the USB cable.

When using the computer's SD drive or an external SD card drive, insert the drive and open it on the desktop. Grab the Private folder to download contents to the desktop using same instructions as above.

Either way, these files are then brought into the Premiere Pro software for digital editing.

If Premiere Pro is already open when the SD card drive is connected, you can use the software functions to import directly to Premiere Pro.

Importing does not result in deleted files. To delete your files, either delete manually through camcorder functions, or re-initialize the SD card.

Always back up the files on your SD card. This means copying the entire PRIVATE folder to your desktop, or more safely, to an external drive. This means that if you ever lose any of your footage, you have the backup footage to replace it.

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