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Selecting the Right Camcorder

Digital camcorders are available in a wide variety of formats and capabilities -- making it easy to get confused while shopping. This guide will break down the differences in the camcorders on the market -- from recording formats to audio to all of the latest technology features -- and help you get started selecting the best one for you.

Overview

If you've been searching for a new camcorder, learn how to find the best option for your video needs and lifestyle.

Selecting The Right Camcorder

Camcorders are the ideal way to make your memories come alive. Whether it's your child's first steps or her wedding day, you can capture and relive the magic of the moment for years to come. Plus, you can easily embellish your videos with music, play them back in high definition on your TV, or even post them on the Web.

Yet, shopping for a camcorder can be overwhelming. With a mix of formats and features to fit every lifestyle, how do you know which one is right for you? This brief will teach you what you need to know before you buy.

Consider Your Needs

Before you set foot in your local electronics store, you should take some time to understand your needs. The best way to narrow down your search is to have a clear idea of how you'll use your camcorder. Do you plan to film your special family events, such as vacations, weddings or sporting activities? Are you going to make short films? Do you want professional quality?

With so many options to choose from, your choice of a camcorder is purely personal. Only you know the types of events you want to record, as well as your level of experience. Whether you want to save the memories of your new baby or you dream of becoming the next award winning producer or filmmaker, there's a specific camcorder model waiting for you.

To help select the right camcorder, think about where you might fall in this list:

- **Novice User:** Will this be your first camcorder purchase? Are you ready to explore the world of videography? The easy "point-and-shoot" models include automatic exposure modes, image stabilization and low-light performance, making them a perfect fit for the first-time filmmaker.
- **Familiographer:** To document your family life, select a versatile camera that can handle both fast-action events (like your kids' soccer games) and slower, staged scenes (such as plays or recitals). In addition to point-and-shoot features, consider a large zoom, manual controls, audio options, compact size, and long battery life.
- **Serious Amateur:** Are you interested in high-quality video, which you can also edit with near-professional results? Look for a model with manual exposure controls, software compatibility, ruggedness, and the ability to fit accessories (tripods, external microphones, headphones, etc).
- **Professional User:** When it comes to audio and video quality, you're the type that accepts only the best. For professional results, you should look for full manual control and editing flexibility, including high-definition recording capabilities, wide-angle options and cinematic effects.

Pick Your Format

Once you understand your needs, you can identify the media format that best suits those needs. The quality of digital video is a no-brainer (as compared to analog), but even amongst digital camcorders, there are more choices than ever before. And the different digital formats all enable you to shoot, edit and share videos in vastly different ways. The possibilities are almost endless.

Consider the following tips for choosing the right media format:

HD Camcorders Provide the Ultimate Picture Quality

If you own or you're considering a High Definition TV, then High Definition camcorders should be at the top of your shopping list. Just as in televisions, camcorders that provide "Full HD 1080" deliver a High Definition picture with a full 1080 scanning lines, so you get more than four times the detail of Standard Definition. You also get a larger color range and a widescreen picture, too. Depending on the model, HD camcorders can record onto DVDs, internal hard disks, flash memory media, or MiniDV cassettes.

Hard Disk Drive Camcorders Deliver PC-Friendly Recording

These models store your memories on internal hard disk drives with up to 120 GB¹ capacities -- that's enough for up to 48 hours of High Definition video in Long Play mode. Imagine the ability to record an entire vacation before you need to offload clips to your PC.



Hard disk recording has other benefits, including instant access to any scene without fast forward or rewind. You can play back your shots then return to shooting without stopping to search for the end of the last clip. (The camcorder automatically finds and records on the blank spaces.) After you fill up the internal hard disk, it's easy to copy your memories out to your PC or DVD burner and clear the drive for the next occasion. You can also give your memories the professional touch by editing them on a PC with compatible software.

Memory Stick[™] Camcorders Deliver Lightweight and Versatility

If you think hard disk drive camcorders are impressive, though, you may want to consider the latest camcorder models that record to compact, removable flash memory media cards, such as Sony[®] models that record to Memory Stick[™] media. These camcorders are super small and lightweight, and they can record hours of high quality video. Memory cards also make it easy to transfer your footage from the camcorder to your PC where you can watch the video, edit it, or burn it to a DVD. Just be sure to consider that memory cards tend cost more than the other media types.



The ability to record to Memory Stick media isn't restricted only to camcorders that use this format exclusively. Camcorders that feature Sony's Hybrid recording technology deliver a new level of flexibility for transferring your video footage and digital photos from the camcorder to compatible viewing devices. Hard disk drive or DVD camcorders with Hybrid technology can record video to the camcorder's main format, or you can choose instead to

record to removable Memory Stick™ media. You can even select from various dubbing functions to easily copy video or still images from the hard disk drive to Memory Stick media -- without using a PC. You can then view the images recorded or transferred to Memory Stick media directly on a PS3 or PC to share your memories with friends and family.

DVD Camcorders Offer Simplicity and Convenience

DVDs are everywhere these days, making them an excellent choice for camcorders. Simply record directly to the DVD; then play it back in any compatible DVD player (or in the DVD drive on your PC). DVDs are highly durable—an important consideration for saving your precious family memories. You have instant access to any clip, without needing to fast forward or rewind. Plus, you can do in-camera editing (delete scenes, move them, etc) while on the go.



MiniDV Camcorders Use the Most Affordable Digital Format

In addition to being ultra-compact, MiniDV camcorders can record images of amazing quality. The affordable MiniDV tapes are only 1/12th the size of VHS cassettes, and they're available in convenience stores, drug stores, and supermarkets. Because MiniDV is the digital format that's been on the market the longest, there's also a wide range of compatible Windows® and Macintosh software ready to edit your MiniDV tapes. It's a proven way to relive your special moments again and again.



The following table outlines the key benefits and main differences among the primary recording formats available on the market.

Format	DVD	Hard Disk Drive	Memory Stick®	Mini-DV
Key benefits	Easy; compatible with DVD players	Easy; no media; PC-friendly.	Ultra-compact and lightweight.	Affordable; digital quality.
Digital Quality	Yes	Yes	Yes	Yes
High Definition	Selected models	Selected models	Selected models	Selected models
Recording media	3-inch (8-cm) DVD	Internal hard disk drive	Memory Stick®™	Mini-DV tape
Maximum recording time	Up to 60 minutes of HD footage or up to 110 minutes of SD footage (Dual Layer media, LP mode)	Up to 8 hours of HD footage or up to 84 hours SD footage (120 GB ¹ drive, LP mode)	Up to 3 hours of HD footage or up to 5 hours 25 minutes SD footage (8GB ⁴ Memory Stick PRO Duo™ media, LP mode)	Up to 60 minutes of HD footage or up to 90 minutes of SD footage (LP mode)

Table 1-1: Overview of the key differences among the primary camcorder formats.

Don't Forget The Audio

When it comes to once-in-a-lifetime events, the audio you record with your camcorder is just as vital as the video. Good sound quality can help immerse you in the moment, just as you remember it. The audio can do everything from helping viewers understand what's going on, to setting the right mood for your footage.



As you begin your search for a camcorder, keep in mind the following options for achieving high-quality sound:

Dolby® Digital 5.1 Channel Surround Sound

Ready to take your home movies to a whole new level? Today's camcorders enable you to record everything with the cinematic quality of Dolby® Digital 5.1 channel surround sound. You're immersed in the action, with the sounds coming from all directions. And it's the perfect complement for widescreen viewing on a high definition television.

In addition to the ability to record Dolby Digital 5.1 channel surround sound from the on-board microphone, some Sony® camcorders also feature a unique, built-in zoom microphone. The zoom microphone focuses audio recording on your subjects in sync with the camera's zoom lens, helping memories ring true with clear dialogue and crisp, discrete sounds.

High Fidelity Audio

Even the most affordable camcorders can deliver superb, CD-quality stereo sound. Whether you opt for a standard

digital camcorder or an HD version, you can obtain outstanding audio quality. The main difference is in how many channels of sound are encoded.

External microphones can also help bring your videos to life. You can get them close to your subject for clean, rich sound. Some types can even provide distinct audio for close-in and wide-angle shots.

Prioritize Your "Must-Have" Features

Whether this is your first foray into video or you're an accomplished pro, there are a variety of camcorder features to evaluate for your purchase. Don't let the broad range of choices put you off. Simply consider what matters most to you. This section helps explain how different features can suit your specific needs.

Camcorder Size

The overall size of your camcorder can affect how easy it is to use, and whether you'll want to carry it along on your outings. Keep in mind that even the lightest camcorder won't do much good if the controls are too small for your hands.

LCD Screen

With a large LCD screen, you can more easily see what you're recording and preview the clips. Be careful when considering a camcorder's screen, because some LCDs are hard to see in bright sunlight. Remember that a viewfinder is an option for bright conditions, and it even uses less battery power than the screen.

Zoom Features

Camcorders come with two types of zoom: optical and digital. Your optical zoom is more important, because it refers to the actual lens that lets you get closer to your subject. With digital zoom, the camcorder simply enlarges the center of the image, and this often results in grainy, distorted videos. So, optical zoom is the more valuable feature.

Image Quality

Behind the scenes, camcorders use an image sensor based on either CCD (charge couple device) or CMOS (Complementary Metal Oxide Semiconductor) technology. The image sensor converts visible light into an electronic signal, which gets recorded on your media.

Both types of sensors are able to record video images with excellent color and detail, and the design qualities of CCD sensors make them particularly well-suited for compact camcorders. Most CCD camcorders use a single chip, though some higher-end models use three sensors -- one for each primary color. However, while CCD sensors deliver good performance, CMOS sensors offer improved still image capabilities, better performance in bright conditions, and longer battery life².

Still Pictures

Many camcorders can serve as a digital camera, saving still images to a memory card or tape. It's great if you just want a few pictures and don't want to carry around another device. Typically, a digital camera will give you more control, better still image quality, and a far better price-per-megapixel. However, camcorders with high megapixel counts are becoming available, including Sony models that have as high as 10.2 megapixel still image capture, for great-looking stills from your camcorder.

Image Stabilization

Image stabilization is important for removing some of the shakiness that occurs when you're handling a camcorder, which can be especially apparent while zooming or in low-light situations. Optical stabilization (where the lens helps compensate for any movement) usually provides better results than electronic image stabilization (which is handled by the camcorder's internal computer).

Inputs and Outputs

Most camcorders have a number of connectivity options that make it easy to watch your video on a television or transfer your video to a PC so it can be edited or burned to DVD. Different connections are suited to different tasks, so it helps to know which are most important for the ways you plan to use your camcorder.

Naturally, you can view footage on your television by using the common AV outputs. However, if you have an HDTV, look for a camcorder with an **HDMI™** (High Definition Multimedia Interface) connection. HDMI connectivity gives you the ability to transfer high definition video and up to 5.1 channel audio from your camcorder using only a single cable.

Some HDMI-equipped camcorders use the industry-standard HDMI CEC (Consumer Electronics Control) protocol to let you operate multiple devices using a single remote. For instance, Sony® Handycam® camcorders with the BRAVIA® Sync™ feature allow you to control both your camcorder and HDTV using your BRAVIA HDTV remote.

Another option to connect your camcorder to your television is Sony's **A/V Remote Terminal**, which reduces several outputs into a multi-purpose connection port. The A/V Remote Terminal provides the option to use one of several cables with a single jack for Component Video (with audio), Composite audio/video, and S-Video connections to your TV, as well as a Control L/LANC Terminal to video editing equipment. Additionally, the A/V Remote Terminal lets you use an optional A/V remote tripod or hand control that provides the ability to operate the camcorder's on/off, start/stop, and zoom functions, and even perform some simple editing and dubbing tasks.

To transfer video footage and still images to a PC, most hard disk drive, flash memory, and DVD camcorders use a **USB** connection. Some camcorders, though, such as standard or high definition MiniDV models, may also include an IEEE 1394 port (known commonly as **i.LINK®** interface³ or **FireWire®**) for transferring video to your computer.



For the best sound possible, make sure you have inputs for an external microphone, as well as a headphone jack.

Advanced Imaging Features

With the high performance image processors used in some camcorders, such as the BIONZ™ image processor found in many Sony® Handycam® camcorders, you can benefit from a number of features that add an entirely new dimension to your home video.

For instance, the BIONZ™ image processor is responsible for the addition of Face Detection technology and Dynamic Range Optimizer within many Sony camcorders. Face Detection technology automatically controls focus, exposure, and color to reveal faces in shadowed areas and makes skin tones look more natural. The result is videos and still photos that focus on the people in your scene, rather than the surrounding objects. Dynamic Range Optimizer (DRO) adjusts the exposure and contrast of an image to counter the effects of high-contrast shooting conditions, helping you achieve great, natural shots.

These features aren't necessarily critical to shooting video but, once you see how they can help you easily capture accurate, natural-looking video and still images, you might consider them must-have capabilities.

Once you've got a handle on your own requirements, choosing the right camcorder becomes easy. If you don't have it all figured out yet, don't worry -- we've summarized our shopping tips in a handy list that you can print out and take with you. This should help you select exactly what you need to capture and relive the magic of life.

Top 10 Tips For Buying The Right Camcorder

You're ready to buy a camcorder. You've got your money in hand, and you're ready to start shopping. Before going off to purchase the most gleaming model you can afford, prepare yourself with the following essential buying tips.

1. **Know yourself and why you need a camcorder.** Understand your capabilities and interest in shooting video, and how a camcorder fits into your lifestyle. Different models are better suited for different situations.
2. **Figure out your format.** Make sure you understand the benefits of the different recording formats.
 - a. Do you want ultimate convenience? Go with DVD.

- b. Is PC-friendliness most important? A hard disk drive camcorder is best for you.
 - c. Are you after minimum size and weight? A Memory Stick® camcorder is the way to go.
 - d. Do you require professional quality with maximum editing capability? MiniDV is your best choice.
3. **Try out the camera controls.** Hold the camera to see if it fits comfortably in your hand and that the controls are easy to use while recording. Sometimes, the smaller camcorders are harder to hold steady.
 4. **Look beyond the megapixels.** For high-quality video images, consider the size and type of the camcorder's image sensor. Megapixels are most meaningful if you're interested in still image capability.
 5. **Check out the zoom and focus features.** Optical zoom is more important than digital zoom. You should expect at least 10X optical zoom. Auto focus is important, but a camcorder with manual focus features can give you greater flexibility.
 6. **Help reduce the risks of jittery video.** Image stabilization is important for helping to reduce shaking and blurriness when shooting without a tripod. Electronic image stabilization is a good choice, while optical image stabilization is even better.
 7. **Consider the lifelike quality of HD recording and/or surround sound.** If you own or are considering purchasing an HDTV or surround sound system, consider the benefits of a camcorder with high definition and surround sound audio capabilities.
 8. **Look at advanced features for more capability and versatility with your videos.** Some of the latest features can help you capture video and still images more accurately and naturally.
 9. **Accessorize in style.** Know what types of accessories and external devices you'd like to use with your camcorder. This way, you can be sure that your chosen model has the right inputs and outputs.
 10. **Be sure to comparison shop.** Before deciding on a specific model, look at the models above and below it. You can get amazing features for only a small price difference.

Additional Information

1. Available storage capacity may vary and a portion of the memory is used for data management functions.
2. Actual battery life will vary based on product settings, usage patterns, battery, and environmental conditions.
3. i.LINK is a trademark of Sony used only to designate that a product contains an IEEE1394 connection. The i.LINK connection may vary depending on the software applications, operating system and compatible i.LINK devices. All products with an i.LINK connection may not communicate with each other. Please refer to the documentation that comes with any device having an i.LINK connection for information on compatibility, operating conditions and proper connection.
4. Actual capacity is 7.35GB. A portion of the memory is used for data management functions.