DSLR Video

# Key areas to Consider

Moving into Motion

Despite the widespread use of DSLR cameras on professional sets, most photographers still have yet to tap the motion-making potential housed within their cameras that have HD video capabilities. Opinions such as, “It’s a DSLR—the video quality can’t be that good.” Or “I’ll need to invest in more special gear.” Even, “I’d like to try video, but really have no idea how to start” abound.

The first thing to understand is that motion capture (video) technology operates very differently than traditional still photography, DSLRs included. To illustrate, imagine for a moment that your D-SLRs can capture only 2 Megapixel stills in a format far more compressed than JPEG Basic. Also imagine that all settings, such as [White Balance](http://www.nikonusa.com/en/Learn-And-Explore/Article/fubpbfls/setting-white-balance.html) and [Picture Control](http://www.nikonusa.com/en/Learn-And-Explore/Article/gu5zwt9w/picture-controls-step-by-step.html) profile, are baked-in. Finally, know that very little post-processing can be done later in the editing room. Sounds rather limiting, doesn’t it?

The above description parallels how work in 1080p operates. Despite the perceived limitations, not to mention challenges, the majority of the video world produces in 1080p and employs some variant of heavy compression.

Film like a photographer

When you compose in video, many of the usual photography rules apply. Horizons should be straight and backgrounds uncluttered—and you’ll need to get it right in the camera, as you won’t have enough pixels to crop. Plus, since you probably won’t be shooting RAW, you’ll have less leeway with exposure and white balance.

And don’t forget the B-roll. When you photograph an event, you always shoot details to set the scene; in video, this is called B-roll, and it gives you more options when you edit. If possible, have at least one static master shot and then a bunch of details. For example, if you’re shooting a wood carver talking while carving, start with wide shot showing him and his surroundings, then shoot close-ups of his hands, the tools he’s using and the wood being carved.

Settings

The first thing to keep in mind is video mode is not the same as still photography. For video, you should pay far more attention to determining appropriate settings, then applying these to your shoot.

Let’s look first at the Picture Control profile and White Balance settings to be sure the desired “look” can be achieved in-camera. Remember that with video, settings such as these are baked-in so very little can be done to correct flaws post-capture. By baked-in, the camera is applying the Picture Control profile and White Balance settings in a non-raw format so neither can be changed later. This means that for a shot with a high contrast picture control profile there is likely little to no detail in underexposed blacks or overexposed whites. And shots where white balance renders very blue, little if any other color information will be recorded. What you see is what you get.

Resolution/Frame Rate/codec

For best results, use the highest resolution possible. On most DSLRs it’s 1920×1080. Some cameras may only have a 1280×720 option, which is still a decent quality level. The lower 1280×720 setting (with appropriate frame rate) may also be employed to produce slow motion footage. This resolution results in a smaller file size, which of course means less storage space will be needed.

Along with resolution choice, you have options for frame rate. The cinema standard in the U.S. is 24 FPS (frames per second); in Europe it’s 25 FPS. Standard broadcast (television) frames rates are 30p FPS or 60i FPS. The “p” in 30p stands for “progressive” and the “i” in 60i stands for “interlaced.” Progressive video displays all the lines in the frame simultaneously, while the lines in interlaced video are displayed by showing half of the frame at a time, skipping every other line.

The higher the frame rate, the sharper any motion will appear during playback. However, sharper does not necessarily mean more natural looking. Humans see things that are in motion in a slightly blurry manner. Try holding your hand in front of your face and quickly wave it back and forth. You see your hand blur. 24 FPS is the video standard closest to the way our eyes perceive things.

Some DSLRs offer 720p resolution frame rates of 50 FPS and 60 FPS. These higher frame rates are generally not used for normal speed playback, but instead are used to produce slow motion.

The term codec, a mashup of “compression” and “decompression,” refers to the way your camera saves video footage. Many DSLRs use the H.264/MPEG-4 AVC codec with an MOV container. With this combo, you should be able to use modern video editing software without converting to another file format. Sony and Panasonic use the AVCHD format, which is more efficient in terms of storage space and image quality, but it uses a less common structure, so it can be more difficult to play back and edit. Many editing programs come with presets to optimize your file for different venues—use them. And sites such as YouTube and Vimeo offer guides for getting the best results, so refer to those before you upload.

Frame Shutter Speed + Frame Rate

In order to capture what we perceive to be natural looking motion, there is a correct shutter speed for each specific frame rate. The rule is:

-The shutter speed should be double the frame rate. For example, if you are shooting at 24 FPS the correct shutter speed would be 1/50th (rounded up from 1/48th). For 25 FPS the shutter speed should be 1/50th. For 30 FPS the correct shutter speed is 1/60th and so forth.

Of course you can shoot video at other shutter speeds, from 1/25th -1/30th up to 1/8000th depending on the DSLR model. Keep in mind that as the shutter speed changes, so will the look of the video.

– The slower the shutter speed, the more motion blur will be visible in moving subjects.

– The higher the shutter speed, the less motion blur will be visible in moving subjects (making video appear choppy).

Video is easier to watch and is more smooth and natural when the right amount of motion blur in moving subjects is presented.

Due to this shutter speed/frame rate limitation, the settings combination cannot change during capture. This means that videographers face a challenge of having only ISO, aperture and filters as tools to obtain a desired exposure. This can be most challenging when shooting in bright environments.

Manual Focus

Another big difference between shooting photographic stills versus video is focus. With video, manual focus is the norm. Even the most expensive Hollywood cameras do not have autofocus; a dedicated crew member called a focus puller handles this.

Gaining familiarity and expertise with manual focus is imperative. Meet this learning challenge by selecting an easily-focused lens. Lenses that have a broad focus ring and long throw (how far the focus ring must rotate to go from close focus to infinity; the longer the distance between close focus and infinity, the easier focus pulling will be) plus a dampened/smooth focus ring are best.

Macro lenses are another good choice for manual focus since they were designed to be manually focused—even AF models.

As with photography, recording with the lens wide open makes it more difficult to achieve sharp focus. Consider stopping down the lens to sharpen and increase depth of field. Be sure focus is spot-on by using an external monitor. On-camera and off-camera monitors can be plugged directly into the camera’s HDMI port using an HDMI-mini to HDMI-standard cable/adapter. One option to consider is a small HDTV with HDMI-in. On most DSLR cameras the LCD monitor remains active even when an external viewing device is attached, which is extremely handy when more than one person needs to see the monitor.

Stabilization

Poet Johann von Goethe said:

“Nothing is so strong as gentleness, nothing so gentle as real strength.”

This is very much true when shooting video; the gentler and more smooth your video, the stronger it will be—unless you are going for that shaky effect! Invest in a quality video tripod. Unlike a photo tripod, a video tripod has built-in gears designed to gently pan and tilt. If you’ve already invested in a photography tripod and are just testing the video waters, your photo tripod will work fine for shots that don’t require movement.

For work where using a tripod is not possible or desired, VR (Vibration Reduction) in your lens can lessen or eliminate shake. Remember to turn off VR once the camera is again mounted on a tripod because it will conflict with the tripod’s panning/tilting motions.

Audio

Working in video introduces yet another medium to carefully monitor: audio. Capturing good audio is a key component to producing a quality end product. Instructions for capturing optimal audio are well beyond the scope of this article, but here are few tips.

First and foremost–pay attention to your surroundings. Even the camera’s own small microphone will pick up audio you did not consider while filming. Freeways, airplanes, the TV in the next room, the refrigerator, central air all make noise and may muddy sound. The microphone built-in to the camera is good for general purposes, but if you wish to elevate overall quality, consider purchasing a good quality external microphone.

As a further check, see if the camera supports Audio Out. If so, attach a pair of headphones or even simple ear buds to monitor sound while you shoot; catch and remedy undesired noise before it’s too late. Also remember that the closer the camera is to the audio source, the better the quality will be.

Pointers: In the Field

Once the appropriate settings, lenses and support have been selected it’s time to go into the field. Here are a few additional tips:

Carry Extra Batteries and Media Cards:

DSLRs go through batteries much faster when shooting video than when shooting stills. Carry ample recording media, and know that video memory cards tend to have a slower read/write speed as the card fills. If possible, don’t fill a card completely.

Avoid Overheating:

If shooting video with your DSLR for a long period of time, it’s important to keep the camera cool. Some D-SLRs have a warning timer to alert you when the camera is getting too hot to operate. Timer or not, adopt best practices that let you work in ways to reduce the chance of overheating: use an umbrella, cloth or other object to shield the camera from heat sources such as direct sun or big lights. When it comes to protecting your camera, little things like a shade can go a long way to prevent overheating.

**Learn the visual language of editing:**

 Each shot needs to contribute to the story and be visually interesting. And if it’s not visually interesting, it needs to be short. But not too short—don’t let intrusive cuts take the viewer out of the scene.

How? One way is to avoid jump cuts, showing the same subject from a slightly different angle. A rule of thumb: The camera should move at least 30 degrees between two adjacent shots of the same subject. You can also cut to B-roll to break up the shots. Another common rule is to cut while your subject is in motion, which helps make the cut less obvious.

Fortunately, the homework required for learning the rules can be fun. “Try to watch movies and television while paying attention,” says commercial photographer and cinematographer Cory Rich. You’ll soon discern the difference between a good cut and a bad one—and even come away inspired.