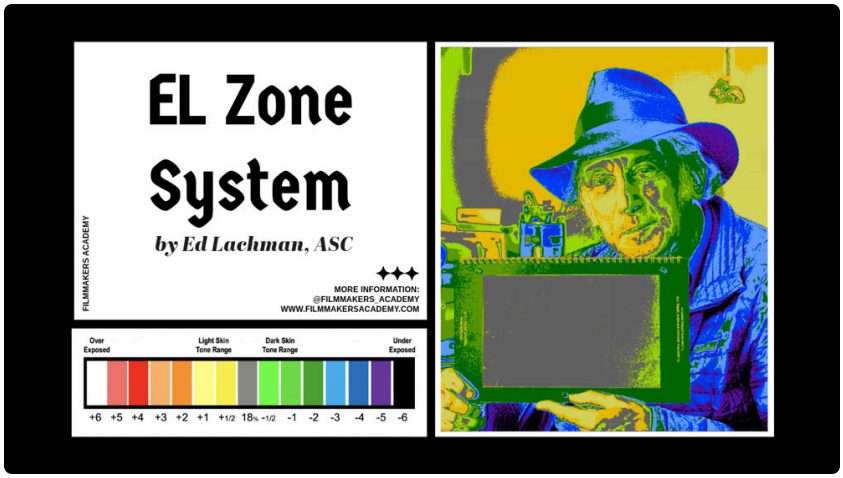
CINEMATOGRAPHY

CINEMATOGRAPHY: THE EL ZONE SYSTEM EXPOSURE GUIDE



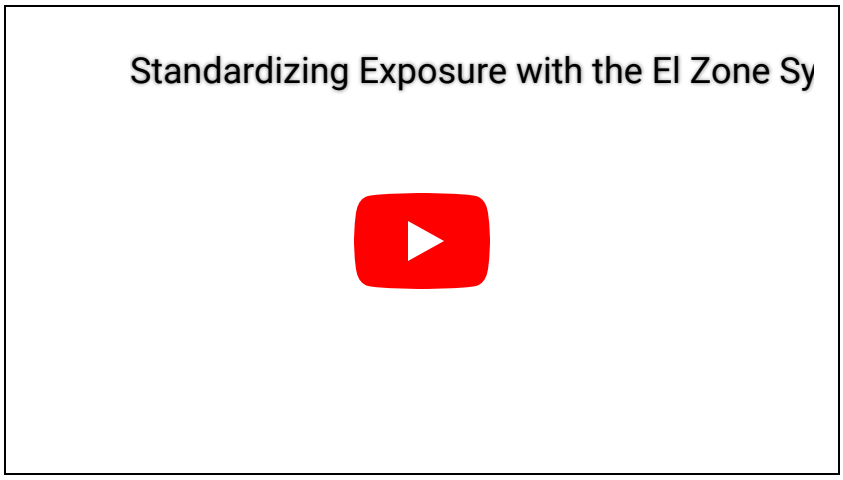
In the **EL Zone System Exposure Guide**, we break down this revolutionary new exposure system so you can implement it into your cinematography. That way, you can light scenes faster and more accurately, while also improving communication with the gaffer and fellow cinematographers.

PRO TIP: Bookmark this page to quickly refer to it in the future.

Ed Lachman, ASC [https://www.imdb.com/name/nm0005767/] visited the Filmmakers Academy studio and explained the EL Zone System to his cinematography compatriot Shane Hurlbut, ASC

BLOG CATAGORIES

[https://www.filmmakersacademy.com/mentors/shane-hurlbut-asc/] . Jump there first [https://www.filmmakersacademy.com/blog-exposure-el-zone-system/] for an overview of the EL Zone System and Lachman's approach to standardizing exposure in digital camera systems.



You might ask, why EL Zone? Well, it could replace false color and waveform monitors, which are based on IRE that's linear and not logarithmic.

So far, the EL Zone System was integrated into the Panasonic VariCam LT and VariCam 35mm, Sigma [https://www.elzonesystem.com/about#:~:text=in%20Panason%2C%20and%20in%20SmallHD] cameras, and SmallHD [https://www.elzonesystem.com/about#:~:text=%2C%20and%2%2C%20with%20serious%20discussions] monitors. There are also some serious discussions [https://www.elzonesystem.com/about] with ARRI, Sony, RED, Blackmagic, Canon, and Fuji.

Below is a guide through the EL Zone exposure system and essential details to consider when using this powerful new lighting resource.

- READ — Standardizing Exposure with the El Zone System [https://www.filmmakersacademy.com/blog-exposure-el-zone-system/]

WHAT YOU WILL LEARN IN THIS GUIDE:

- What is the EL Zone System?

- How EL Zone Works
- IRE vs Logarithmic
- EL Zone vs False Color [https://www.filmmakersacademy.com/glossary/color/]

- SmallHD EL Zone Setup
- EL Zone Panasonic Menu Setup
- EL Zone System Sigma fp & fl Camera [https://www.filmmakersacademy.com/glossary/camera/]
- The Bottom Line
- The Future of the EL Zone System

WHAT IS THE EL ZONE SYSTEM?

The **EL (Exposure Latitude) Zone System** [https://na.panasonic.com/ns/292763_EL_Zone_System_Setup is an exposure tool developed by cinematographer Ed Lachman, ASC to accurately measure light values in stops, conveying 1-to-1 with lenses and light meters. The camera's sensor data is used as a reference point for a more intuitive process [https://theasc.com/articles/smallhd-pageos-5-update-includes-el-zone] . With the EL Zone, filmmakers can view the entire exposure of a shot to reference like a spot meter to make lighting adjustments easier.

Normal

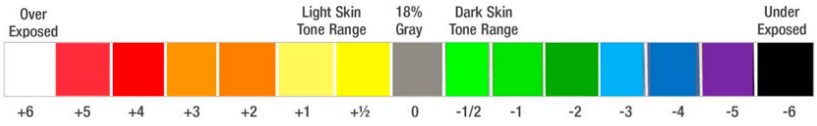
False Color

EL Zone

Comprised of 15 zones, the EL Zone is measured by 1 and + − ½ increments above and below 18% gray. Keep

in mind, 18% gray is the universal standard for photography.

Note below on the color scale how overexposure is +6 white and underexposure is -6 black. Between those values are 13 other unique colors that represent each zone — altogether there are 15 zones.



Just keep in mind that it is not possible to use the EL Zone simultaneously with a LUT. And if you use it with the SmallHD monitor, you can only do so with a LOG signal.

HOW EL ZONE WORKS

We understand in this business, seeing is believing. When Ed Lachman, ASC showcased the EL Zone with Shane Hurlbut, ASC on the Inner Circle Podcast, the live results were PHENOMENAL.

Lachman unsheathed his spot meter in studio and at 800 ISO he registered about 4.3.

From there, they switch on the EL Zone screen and reference the values with the help of the scale on the screen.

Lachman points out that the most important factor of the system is the 18% gray. It is at the center of the EL Zone exposure range. On the scale, he included half stops to give greater detail, especially when working with skin tones.

In the image of Hurlbut above, the highlight on his forehead reads at +½ stop to +1 stop, while other areas are 18% gray and -½ stops. In fact, the image is largely 18% gray and under, with little pockets of black at -6 stops and a flash of orange in the background at +2 stops.

Now, this image is exposed pretty well, but let's take a closer look at when we change the exposure…

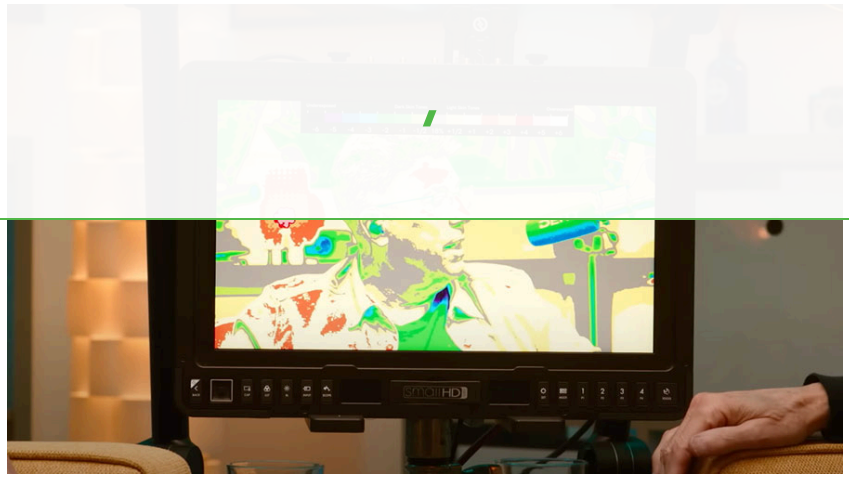
CHANGING EXPOSURE

Next, Lachman demonstrates how the EL Zone registers the visual information when changing the exposure. He directs the cameraperson to bring it down -1 stop to see how it tracks.

Notice how everything is a stop down from the previous image, including Hurlbut's hair which is about -4 to -5 stops below.

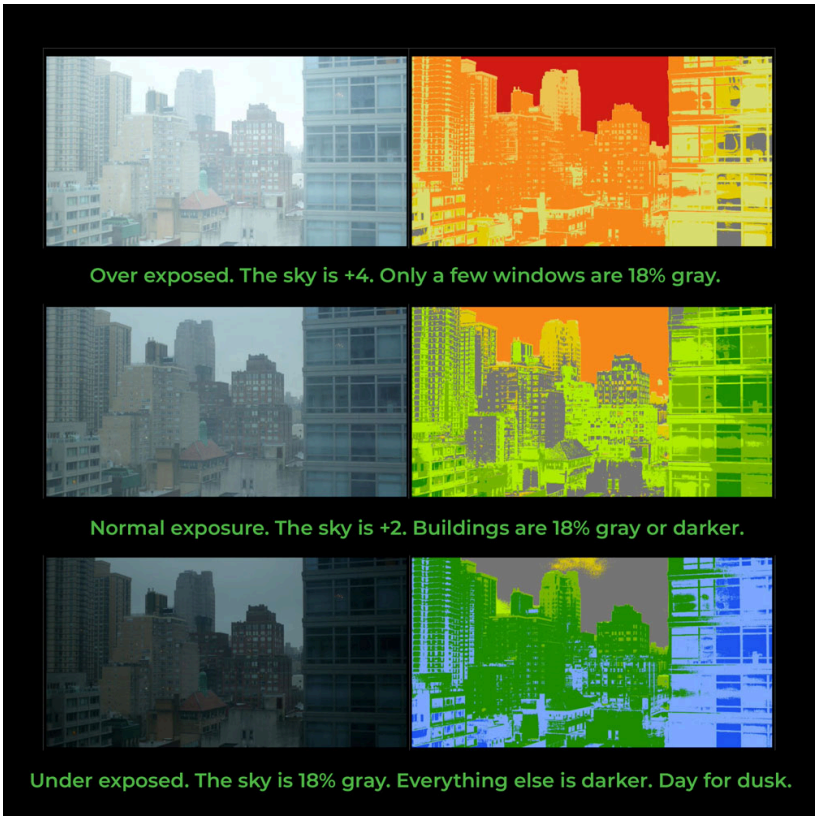
When referring back to the LOG file, it's obviously an underexposed image. Although, Lachman emphasizes that you still have all of the information.

On the opposite side of the spectrum, the same concept rings true as the information is still available in the overexposed image.



It’s about +5 stops over and still holding the detail in the light.

Below is a window view example from the offices of Film & Digital Times [https://www.fdtimes.com/2021/04/25/el-zone-by-ed-lachman-asc/] , a publication by Jon Fauer, ASC. Take note of the colors and what they represent in normal exposure, over-exposure, and under-exposure.



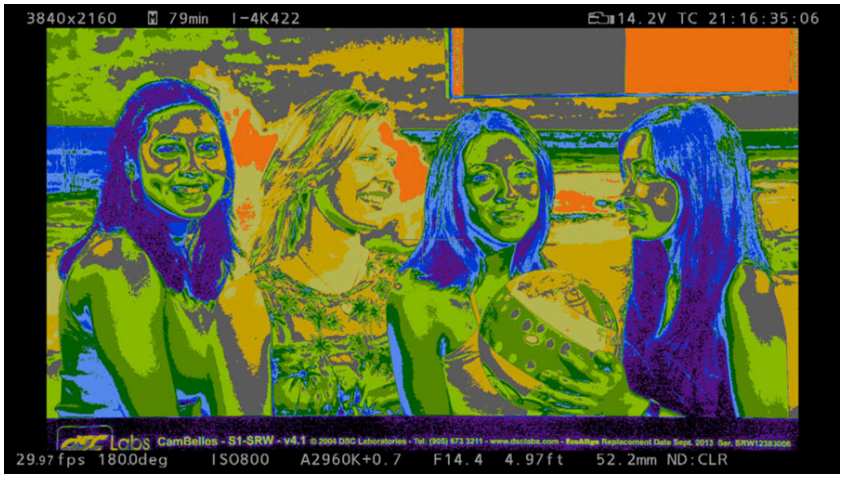
Images from FDTimes.com. By Jon Fauer, ASC.

COLOR REPRESENTATION	EXPOSURE
RED / ORANGE	OVEREXPOSED
BLUE / DARK GREEN	UNDEREXPOSED
ORANGE / LIGHT GREEN / YELLOW	NORMAL

As you can see, the EL Zone serves as an amazing reference for dialing in the exposure of the shot to perfection. This allows you to confirm if you need to bring in more light to compensate for clipping or to add more contrast.

SKIN TONE KEY

Few things are as important as properly exposing skin tones. Here's what we found to properly expose skin tones that you can use as a reference point.



FLESH TONE	COLOR SCALE	VALUE
Lighter Skin	Medium/Bright Yellow	+1/2 / +1 over 18% gray

Darker Skin	Light/Medium Green	-1/2 / -1 below 18% gray

IRE VS LOGARITHMIC

Now, there are other systems out there that function similarly to Lachman's EL Zone. But where the EL Zone stands out is that it's not based on IRE. The problem with IRE is it's linear — 0 – 1, 0 -10. The problem when you use your meter on set is that it hardly ever really matches.

On the other hand, you double the amount of light with Logarithmic, which EL Zone is based on; (i.e. when you go 2 to 2.8 or 2.8 to 4).

Hurlbut notes that if they had a 5K keying them and he wanted another stop, he would have to bring in another 5K. Some filmmakers don't realize that you cannot just add a 2K, you need the same amount of light as the 5K source.

The problem was, according to Lachman, the initial engineers who created the camera systems "never thought in the analog world." Nevertheless, Lachman is using the analog world to understand the digital world.

When Hurlbut exposes film, he typically overexposes it by +½ stop for better printer lights. With digital cameras, conversely, he would take it -½ stop down to capture all the essential visual information.

To Lachman, the more colors in the viewfinder, the more confusing. On the scale, notice how it alternates between dark and light colors, so you notice the distinction between 1 stop and ½ stop even though the colors are in the same color family. You can also control the amount of stops the scale covers. For example, you can program them to increase by 2 stops, or you could go: 3 to 4, 4 to 5, 5 to 6, etc. That way, you can still maintain the same color spectrum.

EL ZONE VS FALSE COLOR

While you may get some scrutiny no matter where you fall on this line, we will try to be as clear as possible about the pros and cons of the EL Zone and false color.

Yes, false color is based on IRE values as noted above but overall it yields a larger scale for exposure. This may work better for the Alexa 35 as it has a large dynamic range that exceeds the 12 stops in the EL Zone scale.

Now, the EL Zone isn't available for ARRI cameras just yet and would require calibration to both the camera sensor's gamma and latitude. But this is something to consider when you want to know exactly how many stops you have to work with.

While the EL Zone system is still new and spreading its wings across the film tech market, once it takes hold it could easily become the standard. This gives cinematographers a common and accurate language to work from.

Ultimately, the strength of the EL Zone system is in the standardizing of exposure and operating from a logarithmic base as opposed to IRE. The possibilities for what EL Zone can do for cinematographers and the industry as a whole far exceed any perceived limitations of its scale, which can be adjusted as the system grows in popularity.

Next, we're going to explore some of the finer details of setting up the EL Zone on the devices it's available.

SMALLHD EL ZONE SETUP

SmallHD is one of the trailblazing companies leading the EL Zone charge. With SmallHD, you can select the

exact camera and color spaces so it's as accurate as possible.

Just remember, there are variations for certain technologies. For instance, to see the EL Zone on SmallHD, your monitor must receive a LOG image via SDI or HDMI outputs.

If this is your first time configuring the monitor, you will need to access the **Color Pipe settings**. Don't worry! If you mess up, a trusty pop-up message will say something like:

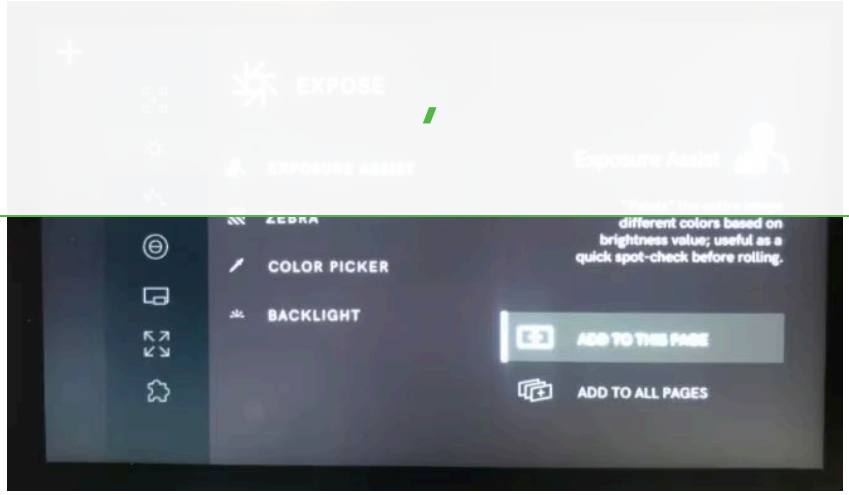
> **"Not supported by the current input's color pipe configuration. Please ensure the color [https://www.filmmakersacademy.com/glossary/color/] pipe's input type is set as LOG with no further conversations enabled."**

COLOR PIPE SETUP

1. Select **New Color Pipe**.
2. Next, set the **Input Type** to **LOG**.
3. Choose your correct **Camera**, **Color Space [https://www.filmmakersacademy.com/glossary/space/]** , and **Curve**.

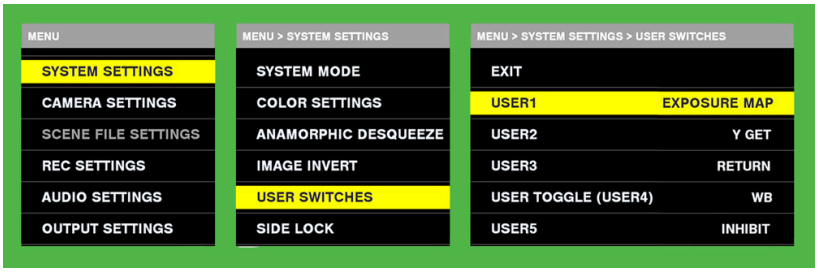
Regarding **Step 3**, say you have a RED V-Raptor. For the camera, you would choose **RED**, then **RWG RGB** for Color Space, and **RED Log3G10** for the Curve. If you had an Alexa 35 I, for example, then you would choose **ARRI**, **ARRI Wide Gamut 4**, and **LOG C4**.

Once you finish **Step 3**, the SmallHD monitor automatically saves your new Color Pipe. Then, you can choose **EL Zone** from the **Exposure Assist** and choose to toggle on the color scale. You can find Exposure Assist by navigating to **Tools** > **Look**.



EL ZONE PANASONIC MENU SETUP

ASSIGN TO USER SWITCH



Panasonic El Zone System Guide

To assign the EL Zone to User Switch, take the following steps.

1. Open the camera menu and select **SYSTEM SETTINGS**.
2. Next, select **USER SWITCHES**.
3. Finally, assign it to the preferred User.

Once complete, exit back to the Main Menu.

CONFIGURE EL ZONE

Panasonic El Zone System Guide

Follow the steps below to configure the EL Zone.

1. Scroll down the Main Menu and select **OUTPUT SETTINGS**.
2. Scroll to find and select **VF-SDI IE ASSIST**.
3. Navigate down to select **EXPOSURE MAP SEL** followed by **EL ZONE**.

When finished, exit the menu.

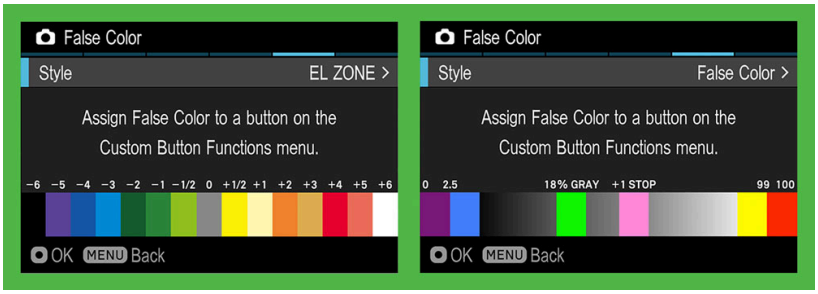
You can toggle the EL Zone ON/OFF by either pressing the assigned USER SW or in the Menu.

EL ZONE SYSTEM SIGMA FP & FL CAMERA

The EL Zone System is now in the SIGMA fp L and fp so you can utilize it as a spot meter and exposure tool.

In the menu images below, notice the difference between the EL Zone to the left and traditional False Color IRE values to the right.

CONFIGURE EL ZONE



Sigma fp & fl cameras

Activate the EL Zone for the SIGMA fp L and fp by following the steps below.

1. Navigate to the Menu and select **SHOOT**.
2. Then, select **FALSE COLOR [https://www.filmmakersacademy.com/glossary/color/]** and **EL ZONE**.

When complete, exit the Menu.

THE BOTTOM LINE

The EL Zone System is an ideal solution for cinematographers to accurately determine their exposure, no matter if shooting on different camera systems or shooting months or more apart. While it's not available in every camera at the moment, it's making its way into industry-leading brands like SmallHD.

Ultimately, Lachman wants to standardize exposure whether you're shooting on an ARRI, Sony, RED, or even still photography cameras. He wants every camera system to communicate the exact language of exposure and to give cinematographers the ultimate exposure resource. We don't know about you, but we're all in!

One of the standout questions the EL Zone System solves is setting the same exposure for reshoots. Frequently cinematographers will revisit a location 6 months to a year later to recreate a scene exactly as it was. The EL Zone allows them to recreate the exposure exactly as it was on set or on location.

It's also a great resource for documentary filmmakers who are adjusting their exposure on the fly. Or, you may be on location and the clouds come in or maybe the sun breaks out. Cinematographers always contend with the forces of nature when filming outside. Sure, you

have iris controls to help with such things, but the EL Zone system gives some much-needed peace of mind.

That way, according to Hurlbut, you can be confident in knowing exactly what your exposure is. Whether you're going from inside to outside and need to make adjustments, it's an intuitive way to do so.

> **As Lachman puts it, "Your camera is your spot meter."**

THE FUTURE OF THE EL ZONE SYSTEM

We are true believers in the EL Zone System and its promise to standardize exposure. Now Lachman works tirelessly to gain the confidence of the biggest camera manufacturers to implement his amazing new exposure tool.

> "I want to show them that people get it," says Lachman. "So far as every rental company I've shown this to in LA has signed it and went on board with it. That's great. So now I'm just reaching out to the cinematographers that I know and respect and see what they think and get their input. Because I've had this for years, but not to the point where I can really show it to people how it works, and now that people see it works. Even if they say, 'I don't use the light meter, I use my eye.' Great. But you have a reference now when you go in to reshoot something, or to communicate to somebody else what you're doing."

Ed Lachman, ASC leaves us news that will change how we go about pre-production. Lachman says they already have an EL Zone system app, and they're just in the stages of implementation.

With the EL Zone app, you can visit the location during prep, pull out your iPhone and get an accurate reading of the light. Then, you can determine if you need to bring lights in or not, allowing you to plan successfully.

Bookmark this page and follow the Filmmakers Academy blog for future news about the EL Zone and other amazing technology that will revolutionize the film industry in years to come!

ABOUT SHANE HURLBUT, ASC [HTTPS://WWW.FILMMAKERS HURLBUT-ASC/]

Shane Hurlbut, ASC [https://www.filmmakersacademy.com/mentors/shane-hurlbut-asc/] is not only a director of photography, he's an innovator who trailblazes new technology and finds creative ways to systematize it into the filmmaking process.

Hurlbut is one of the forefathers of the digital revolution and the first to turn affordable cameras into movie-making powerhouses! More recently, he reimagined pre-production with the Insta360 camera [https://watch.filmmakersacademy.com/programs/virtual-scouting-prep-with-360-degree-camera?category_id=125160&utm_source=filmmakers+academy&utm_ during the tech and location scout. Not only was it an essential tool during the pandemic, but it streamlines collaboration and saves the production money. This is an absolute **MUST** for directors of photography.

Learn more about Virtual Scouting & Prep with a 360 Degree Camera!
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