



Ideal Camera Settings for Shooting Live Video



Let's review the basics
of camera exposure
settings...



CAMERA SETTINGS OVERVIEW

The shutter speed, aperture and gain (ISO) are commonly referred to as the most important camera settings.

SHUTTER SPEED
(Motion Control)



GAIN
(Image Noise aka ISO)

APERTURE
(Depth of Field)

Always start with the proper
frame rate, shutter speed, and
aperture when setting up your
camera...

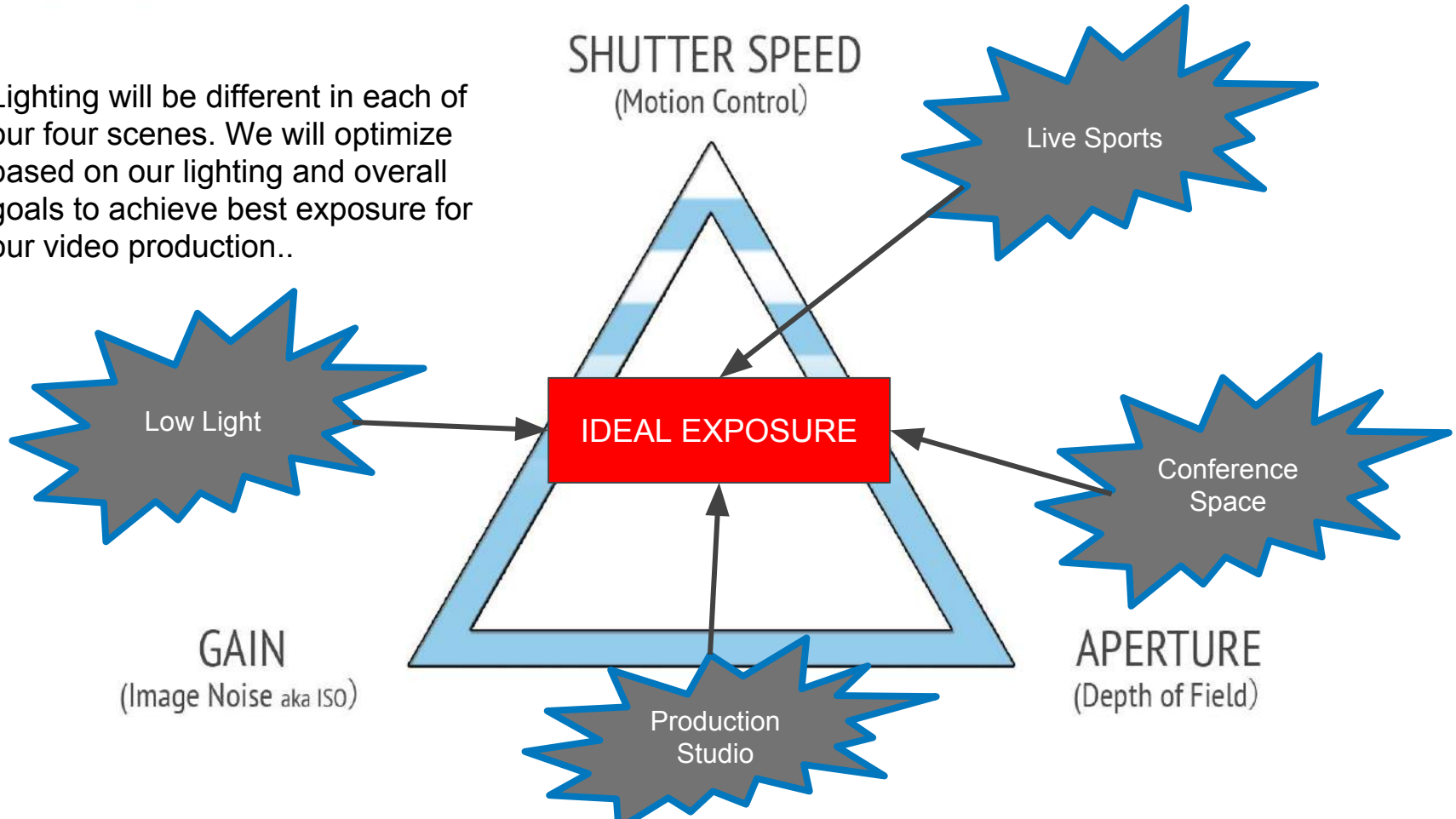
Then you can adjust the
advanced settings for optimal
video picture...

PTZOptic's cameras offer advanced features to optimize your exposure in almost any setting...



Getting your camera settings perfect is a requirement for live video... because there is usually no post-production options.

Lighting will be different in each of our four scenes. We will optimize based on our lighting and overall goals to achieve best exposure for our video production..



CONFERENCE SPACE



PRODUCTION STUDIO



LIVE SPORTS



LOW LIGHT



COMPLEXITY FOR PERFECT EXPOSURE



Aperture: The aperture also known as the f/stop controls the opening of the iris and therefore light on the sensor.

Tips

1. Use a large aperture (small f/stop number) for a shallow depth of field. A shallow depth of field is useful for close up subjects where you want the background to be out of focus.
2. Use a small aperture (large f-stop number) when you want a large depth of field. A large depth of field is useful for sporting events or large areas where you want everything in focus.



A shallow depth of field is ideal for portraits, artistic video and green screens used with a chroma key.



A deep depth of field is used to keep everything in the picture in focus. This is ideal for live news, sports and most broadcasts.

12X IRIS OPTIONS

Aperture / F-Stop :

F1.8, F2.0, F2.4, F2.8, F3.4, F4.0, F4.8, F5.6, F6.8, F8.0, F9.6, F11.0, Close (Effective only in Manual, AAE mode)

20X IRIS OPTIONS

Aperture / F-Stop :

Aperture value. Optional items: F1.8, F2.0, F2.4, F2.8, F3.4, F4.0, F4.8, F5.6, F6.8, F8.0, F9.6, F11.0, Close (Effective only in Manual, AAE mode)

* The aperture is the same for both models. The main difference is the field of view both wide angle and fully zoomed in.

Shutter Speed: The shutter speed supplies is the amount of time it takes the shutter to open and close each frame.

Tips

1. Use a fast shutter speed for scenes with a lot of movement such as Sports.
2. The faster your shutter speed is the less light will make it through to your sensor. You will notice this when you adjust your frame rates because the picture will become brighter or darker depending on your speed.
3. Keep in mind that most motion pictures use 24fps with a shutter speed of 1/50. Most professionals say this is the most natural setting.



A low shutter speed can make moving objects look blurry.



A fast shutter speed will make moving objects more clear. This is extremely important for slow-motion video.

12X SHUTTER SPEED

1/30, 1/60, 1/90, 1/100, 1/125, 1/180, 1/250, 1/350, 1/500, 1/725, 1/1000, 1/1500, 1/2000, 1/3000, 1/4000, 1/6000, 1/10000 (Effective only in Manual, SAE mode)

20X SHUTTER SPEED

1/30, 1/60, 1/90, 1/100, 1/125, 1/180, 1/250, 1/350, 1/500, 1/725, 1/1000, 1/1500, 1/2000, 1/3000, 1/4000, 1/6000, 1/10000 (Effective only in Manual, SAE mode)

* The shutter speed options are the same for both models. The main difference is the field of view both wide angle and fully zoomed in.

Color Balance: The color balance of your image will change the colors (including black and white) rendered in your image.

Tips

1. Start with an auto-white balance. This can be found on the OSD (On Screen Display Menu). Zoom your camera into the white image and allow the camera to make the appropriate adjustments.
2. Use the Red & Blue gain/fine-tuning to remove any unwanted coloring from either colors.
3. Use Hue/Saturation for additional color tuning.



Color balancing is crucial for recording live video because there is no post production option. Many video production systems offer help with color balance but it's still best practice to handle color and white



balance in the camera. In low light situations consider using a color checker as seen here.

12X & 20X COLOR OPTIONS

WB-MODE: AUTO, INDOOR, OUTDOOR, ONE PUSH (OK), MANUAL

RED GAIN: 0~255 (EFFECTIVE ONLY IN MANUAL MODE)

BLUE GAIN: 0~255 (EFFECTIVE ONLY IN MANUAL MODE)

RED GAIN FINE-TUNING: -10~10 (EFFECTIVE ONLY IN AUTO, INDOOR, OUTDOOR MODE)

BLUE GAIN FINE-TUNING: OPTIONAL -10~10 (EFFECTIVE ONLY IN AUTO, INDOOR, OUTDOOR MODE)

SATURATION: 60% ~200%.

HUE: CHROMA ADJUSTMENT - 0 ~ 14

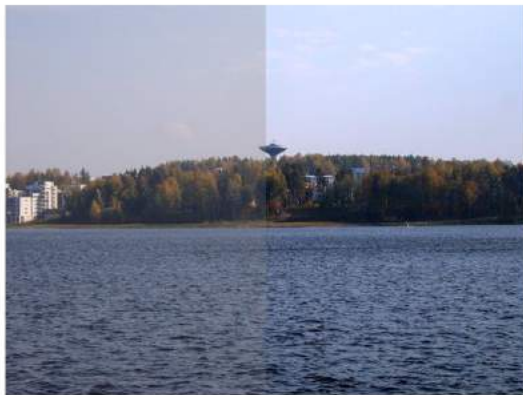
IR FILTER: 1 ~ 3

AWB SENS: THE WHITE BALANCE SENSITIVITY NORMAL, HIGH, LOW.

Contrast: Contrast is what adds dimension to your images. Good contrast means your image has a full range of color tones.

Tips

1. Try setting the camera to black and white. This will make your job of measuring contrast easier because you only have to look for the most rich setting for lights and darks.
2. Consider the mood you are trying to convey. If you are looking for a light and fresh mood use a lighter gray area. If you are looking for a dramatic mood use darker settings.
3. If you are using a green screen with a chroma key try adjusting the contrast and hue.



Contrast can be one of the most important settings when shooting live video. In order to judge contrast broadcasters use high contrast ratio field monitors. Contrast that is too low looks underexposed and gray. Perfect contrast should look clear and represent the real world perfectly.



Playing with contrast can produce extremely interesting colors and reflections as seen here..

12X & 20X COLOR OPTIONS

LUMINANCE: BRIGHTNESS ADJUSTMENTS FROM 0 ~ 14

CONTRAST: CONTRAST ADJUSTMENT FROM 0 ~ 14

SHARPNESS: SHARPNESS ADJUSTMENT FROM AUTO, 0 ~ 15

More Tips

1. Luminance can help you brighten up and image but may wash out your image if used too much. Try reducing reliance on luminance and add naturally or professional lighting.
2. PTZOptics camera can be used to produce extremely sharp images. While full sharpness can be helpful for certain applications, a softer sharpness setting can make the picture look more “natural.”

Noise Reduction: Noise is generally defined as aberrant pixels that are not representing the color or exposure properly generally due to low light.

Tips

1. 2D noise reduction settings is ideal for scenes with movement. The technology produces superior results for moving objects.
2. 3D noise reduction settings are ideal for static fields of view.
3. By using both 2D and 3D noise reduction together you can effectively enhance both moving and static imagery.

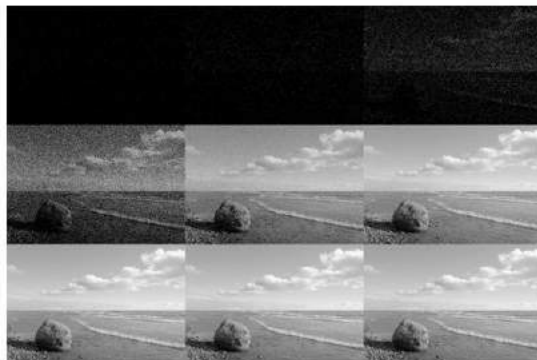


Image noise is extremely distracting to viewers and must be removed to achieve a broadcast quality image. Many PTZOptics users do not notice any image noise because they are shooting in a well lit environment.

Image Noise is generally only noticed in low light scenes where the gain has been increased. The gain is usually increased to brighten an image where aperture and shutter speed have already been optimized.

Using a mix of 2D and 3D noise cancellation is ideal for most live broadcast environments.

12X & 20X COLOR OPTIONS

2D NOISE REDUCTION: OFF, AUTO, 1 ~ 5

3D NOISE REDUCTION: OFF, 1 ~ 8

D-HOTPIXEL: OFF, 1 ~ 5

More Tips

1. Hot pixels (sometimes called stuck pixels) appear as brightly coloured spots in your images. They are often more noticeable with slow shutter speeds or high ISO settings. Given the location of these hot pixels, the D-Hotpixel feature can automatically remove them.

Camera Settings for a Conference Space

Resolution: 1920x1080p 30fps

Camera Aperture: Automatic

Camera Shutter Speed: Automatic

Camera Focus: Automatic

Camera Control: IR Remote



Camera Settings for a Production

Resolution: 1920x1080p 30-60fps

Camera Aperture: small such as 1.8

Camera Shutter Speed: Automatic

Camera Focus: Manual

Camera Control: IR Remote / Joystick

Other Settings: Contrast and Hue perfect for chroma key.



Camera Settings for Live Sports

Resolution: 1920x1080p 60fps

Camera Aperture: Large such as 1.8

Camera Shutter Speed: Fast 1/120 or more

Camera Focus: Manual ∞

Camera Control: Joystick w/ monitor

Other Settings: 60 fps ideal for post production and slow motion



Camera Settings for Low Light Performance

Resolution: 1920x1080p 30fps

Camera Aperture: small such as 1.8

Camera Shutter Speed: slow 1/120

Camera Focus: Manual ∞

Camera Control: Joystick w/ monitor

Other Settings: Contrast and Hue and Wide Dynamic Range



Download this checklist in PDF Format!



<http://ptzoptics.com/landing/checklist.html>

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- Introduction to Live Streaming - Intermediate**
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Kit!



The graphic is divided into two vertical panels. The left panel has a blue background and features the PTZ logo (three interlocking circles with 'P', 'T', and 'Z') at the top. Below it, the text 'Look professional with our starter kit!' is displayed. A list of features follows: 'OVERLAYS', 'VIDEO CLIPS', 'BACKGROUNDS', and 'AUDIO CLIPS', each preceded by a checkmark. At the bottom of this panel is the website 'www.ptzoptics.com'. The right panel has a black background and features the word 'OPTICS' at the top. Below it is an image of a white shirt with a zipper, and the word 'ZIP' is written below that. A blue button labeled 'DOWNLOAD' is at the bottom. A circular badge with a blue border and white text 'VIDEO OVERLAY STARTER KIT' is positioned between the two panels.

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