Topic 2 - A Closer Look At Exposure: ISO

Learning Outcomes

In this lesson, we will revisit the concept of ISO and the role it plays in your photography and by the end of this lesson, you will have a much more advanced idea of how ISO can be changed or modified in its relationship with the two other exposure values, shutter speed and aperture.

A Closer Look At Exposure - ISO

A Closer Look at Exposure: ISO

You can think of ISO as the sensitivity of the sensor when looking at a DSLR. This was an idea that carried over from the days of film. The higher the ISO, the higher the sensitivity the strip of film would be to light. Technically speaking, this isn't 100% correct when we say the same about the sensor on a DSLR. However, coincidentally, the same result comes about at high ISOs for both film cameras and DSLRs. This result is noise. In digital, noise tends to be a lot worse than how it appears in film. This is one of the ways that film still trumps digital. Film noise has a texture and richness to it that is absent in DSLR cameras.

Generally speaking, the lowest ISO number that you will see in a DSLR camera is about ISO 100. Some cameras will have an ISO of 50 or 200 and they can reach a wide range of values such as 12,800, with the newer models.

When you double the ISO, that is actually a stop difference. When we double the ISO from, let's say ISO 100 to ISO 200, we are saying that it is a stop faster, which is a stop more sensitive. When we say faster, think of it in terms of shutter speed. The higher ISOs are called faster, because they allow you to set a faster shutter speed.

Example: Let's say that you want to take a photograph at ISO 100 and the shutter speed at 1/50th of a second. If you move up stop faster to 200 ISO, you can now change the shutter speed to 1/ 100th of a second. This is where the give and take, or trade off, comes into the equation. We have some more noise now, at that higher ISO, but we might be in a better position to better arrest the motion in a picture. You

know that the exposure will be correct at some specific set of values, meaning that you can modify one of those values and then be able to modify one or both of the other values in the opposite direction to compensate and be able to take that image with the same exposure value.

In small or older cameras, as one might expect, the noise will be noticeably worse. Size does matter, and for the most part, bigger is usually better. This is why sometimes you can be inundated with noise with your smart phone in low light conditions and this is due to the small sensor within the camera phone.

Generally speaking, if you want to take exposures that are longer than 30 seconds, you will have to use the bulb mode on your camera. This works by holding the shutter button down for as long as you want the exposure to be. There are also some devices out there on the market that can allow you to this via remote control. This device works by locking down the button for pre-determined length of time.

When to Use Low ISO

For the most part, you should always try to stick to the lowest ISO (base ISO) of your camera, which is typically ISO 100 or 200, whenever possible. When there is plenty of light, you should use the lowest ISO to retain the most amount of detail and to have the highest image quality. There are some cases where you might want to use low ISO in dim or dark environments – for example, if you have your camera mounted on a tripod or sitting on a flat, non-moving surface. In that case, bear in mind that your camera will most likely need more time to capture the scene and anything that is moving is probably going to look like a ghost. Always try and avoid going above ISO 800 because you tend to get a lot of noise after this setting.

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When to Increase ISO

You should increase the ISO when there is not enough light for the camera to be able to quickly capture an image. Another case where you might want to increase ISO is when you need to get ultra-fast shots. Before increasing the ISO though, you should first decide if it is OK for you to introduce some noise to the image. Remember, the bigger the ISO number, the more noise you will see in your images.

On many of the newer cameras, there is a setting for “Auto ISO“, which works great in low-light environments. The beauty of this setting, is that you can set maximum ISO to a certain limit, so when ISO is automatically increased based on the amount of ambient light, it does not cross the set limit.

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What have we learned in this lesson? A Summary

We have learned more about the role of ISO in the photography, specifically, its relationship with shutter speed.

We have also learned about how faster ISO settings correspond to higher ISO numbers and how these higher numbers have the potential to produce unwanted noise.