

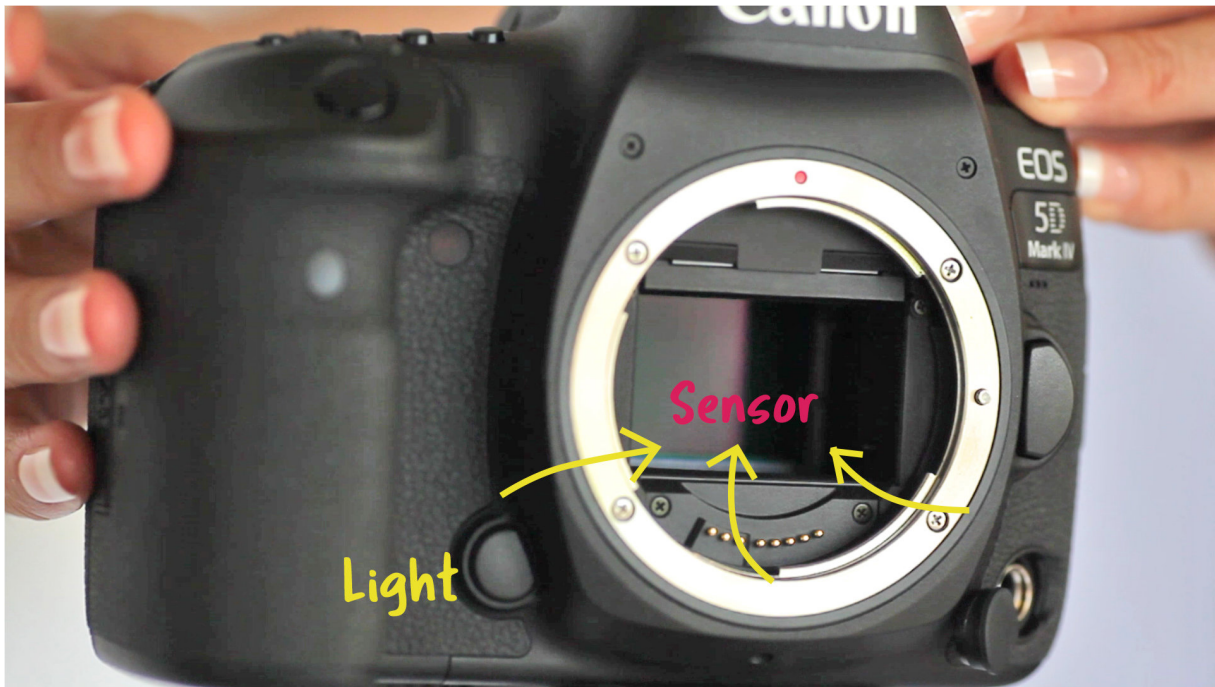
Mastering MANUAL MODE

Module 2 Shutter Speed

Shutter Speed

Overview

Inside your camera, there is a door called the shutter. The shutter has a mirror on the front of it. When the door is closed, the mirror is reflecting the image that you're seeing through the lens up into the eye viewer of your camera or onto the screen on the back of your camera.



When you press the trigger button on your camera to capture an image, the door opens, which means that the mirror lifts and the light is now hitting directly onto the camera sensor.

For that moment, while the door is open, you won't actually be able to see the image through the eye viewer because the mirror is no longer available to direct the image into the viewfinder. But because most of the time, the shutter opens and closes in such a tiny fraction of a second, you don't actually notice that the image disappears momentarily. (blink and you'll miss it). However, when you are using a very slow shutter speed of 1" or more, you can actually see this occur.

As long as that door is open, the light is hitting the sensor directly. The longer the duration that the light is hitting the sensor, the more it absorbs and the brighter the resulting image become. Conversely, the faster the door opens and closes, the less light that gets through and the less information is burned onto your sensor.

Shutter Speed Range

The increments that are used to express a shutter speed are defined by fractions of a second. This measures the length of time that the door/shutter is open. So for example, on your camera, you might see the figure 60. What that actually stands for is 1/60th of a second. So rather than drawing it as a fraction on the camera, they just removed the 1/ and just leave you with the number of 60 to represent 1/60 of a second. Generally, fast shutter speeds are all presented like this. So a 1/500 of a second or a 1/1000th of a second or a 2000th of a second all appear as a single number on the display. When we go to the other end of the scale and select slower shutter speeds of one second or longer will be expressed as this little double apostrophe or quote mark symbol appear on your camera. This is letting you know that it's the duration is one second or longer, e.g. one second, 2 seconds etc.



Shutterspeed special function

If you use a fast shutter speed, the door is only open for a fraction of a second and therefore it only captures that fractional moment. So it freezes the movement in time.

Whereas you will find that when the shutter is open for a long time – that is set to a slow shutter speed - it will imprint any movement that occurs while it's open. So rather than getting a sharply focused image, you will get a blurred result. The amount of blur will depend on how long the shutter is open for. For example, if you were to move your hand from left to right across the frame of the scene, you will see blur, or even more dramatically, tracers from that movement, in the direction of the movement ie. from left to right in this case. If you're sprinkling sugar, you will see little stripes and streamers indicating the direction of movement that the sugar has taken.



Motion blur is also often an undesirable and unfortunate side effect of trying to use too slow a shutter speed while you are taking a hand-held shot. Your body makes natural micro-movements all the time. If you are not completely statue still while you're taking your shot, and the shutter is open while this movement occurs, you will have a blurred image. The blur can be minor, and not evident on the camera preview screen, but it can be very disappointing when you see the full-size image because the blur is enough to make the shot unusable.

Using a tripod eliminates this issue because the camera is completely still and unaffected by your micro movements.

So, how do you know when you're on a shutter speed that is too slow for hand-held shooting? There is a great rule of thumb that says you should use the same numeric of shutter speed that matches the longest focal length of your camera lens, or higher, to avoid motion blur. For example, if you are using a 100mm lens you would need to use a shutter speed of at least 1/100 of a second to avoid camera blur. If you are using a 70-200mm zoom lens, you would need to use a shutter speed of at least 1/200 of a second to avoid motion blur. If you're using a 50mm camera you might get away with taking a shot at 1/50 of a second without moment blur, however generally from 1/60 of a second downwards, you reach a point that most people can't succeed in taking a shot without motion blur, no matter what lens you are using. If you're going to attempt to take a hand-held shot with a slow shutter speed, make sure to take several shots in a row, so hopefully one of them will hit the mark.



Shutter Priority Mode – TV/S

For the practical exercise that I'm going to give you in a moment, we're going to use one of the semi automatic modes in your camera. Semi automatic means that you have control over one function and then the camera makes the decisions for setting other functions, to help you to create what it believes to be accurate exposure.



In this case, if you have a Canon camera, you want to adjust the dial on the top left side to TV mode, which is the term that Canon uses for Shutter Speed Priority mode on a Canon camera. Shutter speed priority means that you will choose the shutter speed yourself, and the camera will decide the rest. If you have a Nikon camera, you want to adjust the dial to S for Shutter Speed Priority mode. If you have another kind of camera, you need to refer to your manual to find out how you set that function within your camera.