

# Shutter Basics

Shutter speed is one of the three basic light control functions of a camera. Aperture, film speed (or ISO), and shutter speed work together to adjust how much light strikes the film or digital sensor. These elements control the exposure of your photograph.



**1/160 sec**

**4 sec**

## What is Shutter Speed?

Shutter speed controls the amount of time that your film, or digital sensor, is exposed to light.

In effect, the shutter determines what image is captured on your film. The shutter is a small plastic sheet or curtain that opens and closes to allow light onto the film or prevent light from reaching the film.

The shutter is opened when you press the shutter release button on your camera to take a picture. The shutter speed determines how long the shutter remains open.

## Understanding Shutter Speeds on Your Camera

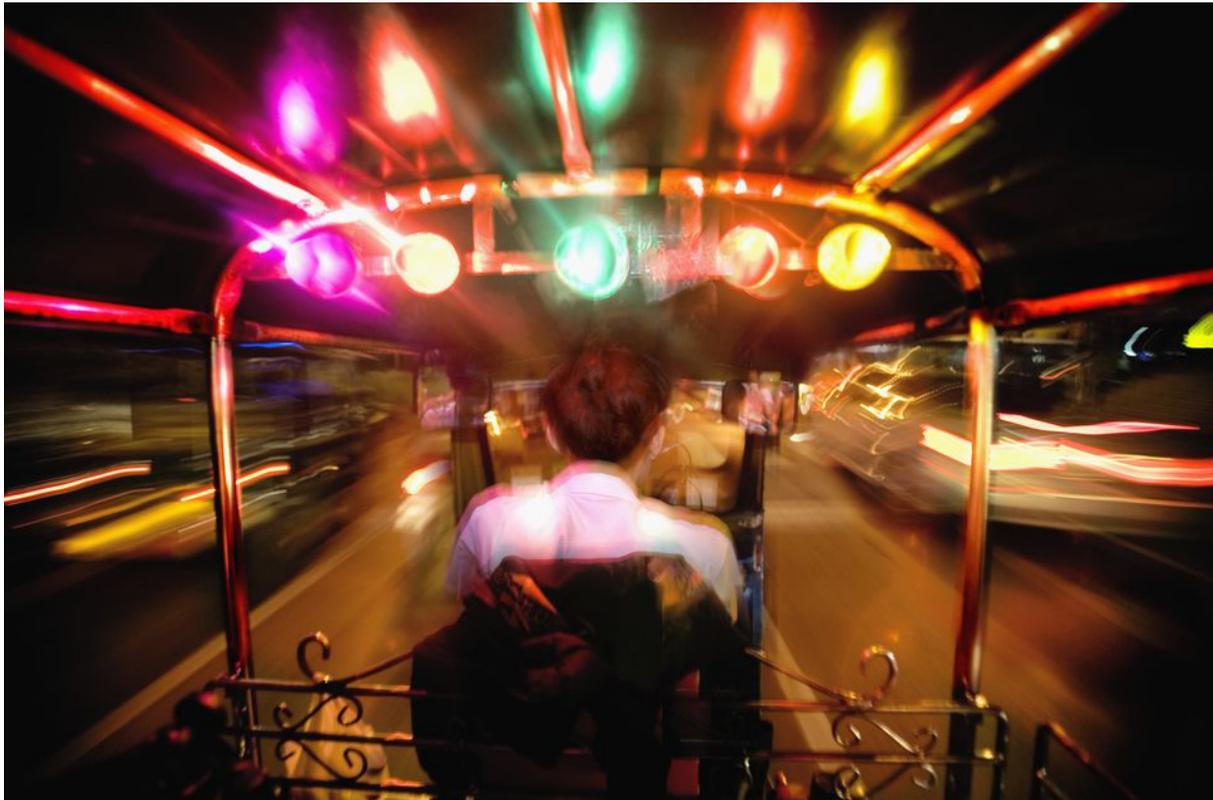
Measuring shutter speed is relatively simple. Shutter speed is generally measured in fractions of a second.

- A shutter speed of "5000" means that the shutter will open for 1/5000th of a second.
- Shutter speeds of 1 second and longer are generally marked with an apostrophe ('), or a similar mark, after the number. This means that 16' on your camera's display stands for 16 seconds.
- The letter "B" is often used to indicate the 'bulb' setting. This means that the shutter will remain open for as long as you hold down the shutter release button.

## Slow Shutter Speeds

Shutter speed is considered to be "long" or "slow" when it is slower than 1/60th of a second. (Remember, this is marked as 60 on your camera dial or display.)

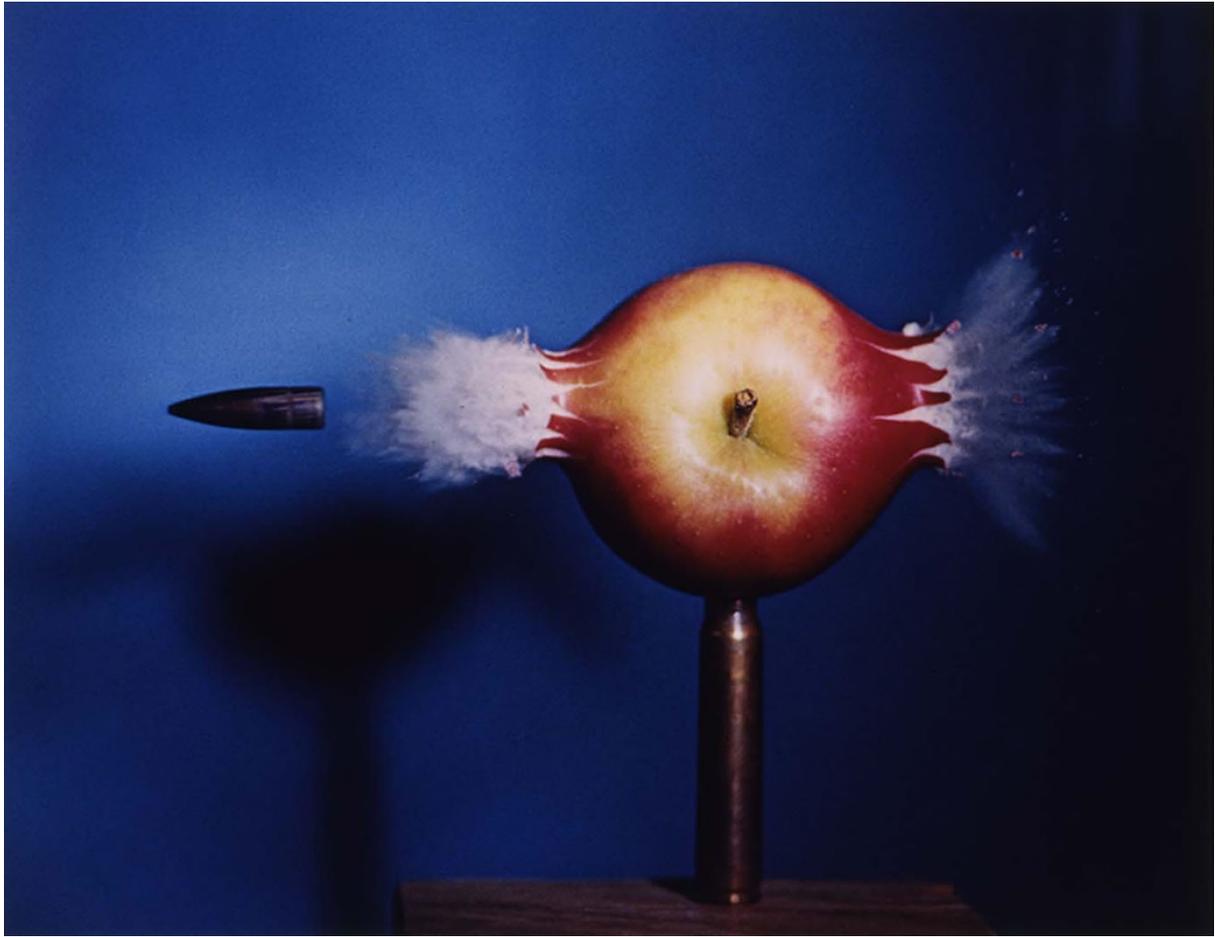
- This number comes from the fact that most people can only hold a standard lens (between 35mm and 70mm) steady for 1/60th of a second or less.
- If a hand-held photo is taken at an exposure longer than 1/60, you will have camera shake and the image will be blurry.
- This is different from the commonly used term "long exposure" which usually refers to shutter speeds of over 1 second.



## Fast Shutter Speeds

Fast shutter speeds are generally considered to be those shutter speeds faster than 1/500th of a second. Care must be taken when using these fast shutter speeds, ensure you have balanced your exposure using ISO and aperture to remain correctly exposed.

- These shutter speeds are used to freeze, or stop, motion for a clear image when shooting fast subjects.



Example of very fast shutter speeds

## A Rule of Thumb for Hand-Holding the Camera

Taking photos without a tripod is very convenient, we call this hand-held photography. However, the longer your lens is, the faster your shutter speed needs to be in order to avoid camera shake and blurry photos.

A good rule of thumb for knowing the slowest shutter speed you can use with a particular lens is to use the number of the lens size. For example, a 300mm lens can be hand-held at shutter speeds of 1/300th of a second and faster.

Note that the minimum hand-held speed should never be below 1/60th of a second without image stabilization assistance from your camera or lens.

Now that you understand what shutter speed is and how to measure it, you need to learn how to set the shutter speed. Each camera varies slightly, but this will give you a general idea of what to look for.

## How to Set the Shutter Speed

How to set shutter speed is a very common question among new photographers and the process is actually very simple. Shutter speed is set on cameras by turning a specified dial on the camera body.

- In older, fully manual cameras, this is a dial on the top of the camera body that is marked with numbers ranging from 1 to about 5000.
- In newer cameras, the shutter speed is generally displayed on an LCD screen while the photographer turns a small wheel near the shutter release button to adjust the speed.

The exact placement of the wheel will vary from camera to camera. Look through your camera's instruction manual and familiarize yourself with this control.

On point-and-shoot cameras, there may not be a control to select specific shutter speeds. Instead, you may need to understand your camera's pre-programmed modes to obtain the desired shutter speed.

Many SLR and DSLR cameras also have these pre-programmed modes as well as a few additional modes to fine-tune your exposure control.

## Shutter in Basic Preset Modes

Almost all automatic cameras today have some sort of preset or pre-programmed shooting modes. These are designed for specific situations such as action, landscapes, and portraits. Shutter speed preferences are different in each of these modes.

### Action Mode

Action mode is an automatic setting in which the camera is predisposed to use the highest shutter speed possible for the lighting situation.

- In this mode, you cannot set the exact shutter speed you want.
- You can, however, lessen your chances of a blurry image due to slow shutter speed by using this mode.

### Landscape Mode

Landscape mode is basically the opposite of Action Mode. Landscape is programmed to give the smallest aperture (largest f/stop) possible in order to ensure a large depth of field.

- A larger f/stop automatically means that the shutter speed will be slower.
- If your camera does not allow Manual or TV mode and you want to shoot a night-time or blurred motion shot, try the Landscape setting.

### Night Mode

Night mode goes a step farther than landscape mode. It not only prefers the slowest shutter speed possible, it also turns off the flash and sets the fastest ISO possible.

- As a result, your shutter speed may be only marginally slower because the fast film speed decreases the amount of light needed to expose the image.

### **Portrait Mode**

Portrait mode is a bit tricky when dealing with shutter speed. It is programmed to have a shallow depth of field (large aperture/small f/stop) and use a low ISO in order to throw the background out of focus and obtain a very fine film grain (or pixelization).

- Due to this, the shutter speed will be faster because of the aperture setting.
- However, because the camera is using a slower ISO, you will probably lose any shutter speed advantage.

Beyond the basic pre-programmed camera modes, shutter speed is important in advanced pre-programmed camera modes as well. These are primarily available on SLR and DSLR cameras.

### **Manual Mode**

The manual setting is marked with an "M" on newer cameras and is, in effect, the only setting on manual cameras. Manual mode means that you are fully in charge of the settings of your camera.

- If you set the shutter speed while in M mode, you will need to make an adjustment to the aperture in order to maintain a correct exposure.
- Use your camera's light meter to ensure the values are in balance.

### **Shutter Priority Mode**

The setting on your camera marked "Tv" is called Shutter Priority mode. This means that if you use Tv mode and set the shutter speed, the camera will adjust your aperture value to maintain a correct exposure.

- Use this setting when you know the shutter speed you want but are not so concerned about the aperture.
- Conversely, Aperture Priority Mode (marked "Av") allows you to choose the aperture and the camera will automatically set the correct shutter speed.

### **Program Mode**

Program mode is marked by a "P" on cameras that have this option. In program mode, your camera responds to some preset conditions you programmed through the menu.

- Generally, this mode allows you to set either the shutter speed or the aperture while the camera adjusts the other setting to maintain proper exposure.
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## When to use certain shutter speeds

Certain shutter speeds work better than others in specific situations. As you learn more about photography, this knowledge will become second nature, especially if you practice and experiment. For now, a few guidelines will be helpful.

### **Shutter Speed Required to Stop Motion**

The speeds listed are the shutter speeds necessary to freeze the action under normal conditions.

- If you want to blur the action, decrease the shutter speed.
- To adjust for a very fast situation, increase the shutter speed.

Please remember that because there are so many different light fluctuations, no single shutter speed works in every situation. These are meant as starting points for you to work with. It's also important to keep in mind that the speeds of these situations change as well. For example, a professional cricketer will throw much faster than a primary schooler. Some basic examples:

### **Bat/Ball Sports**

- Ball Parallel to Photographer - 1/1000 (1/500 for blur)
- Ball Coming at Photographer - 1/500
- Players Catching a Ball - 1/350
- Running Players - 1/350 (depending on angle to camera)
- Players Preparing to Throw a Ball - 1/350

### **Football**

- Players Running Towards Photographer - 1/250
- Players Running Parallel to Photographer - 1/500

### **Kids Running**

- Toward the Camera - 1/200
- Parallel to the Camera - 1/250

### **Golf**

- Golf Balls Parallel to Photographer - 1/3200
- Golf Swing Parallel to Photographer - 1/2500

### **Water**

- Waves - 1/160 (or faster depending on their speed)
- Blurred waves – 1/15 (or slower - use a tripod)
- Splash from a Thrown Object - 1/1500