Ely Photographic Club

Camera Controls

All camera models are different, but this is a rough guide.

First, we have the three basic settings (Four on Canon):

Sony, Nikon and OM System

A = Aperture priority mode

S = Shutter speed priority mode

M = Manual mode

Canon

Av or Aperture Value is the same as the A setting on Sony, Nikon & OM systems

Tv or Time Value is the same as the S setting on Sony, Nikon & OM Systems

M = Manual mode

Fv = Flexible Value (on some newer models)

Fuji

These are slightly different and often have an aperture dial on the lens as well.

What are we controlling; Aperture (F-Stop) chart

Full Stops	1/3rd Stops	Full Stops	1/3rd Stops
f/2.8	f/2.8	f/8	f/8
	f/3.2		f/9
	f/3.5		f/10
f/4	f/4	f/11	f/11
	f/4.5		f/13
	f/5		f/14
f/5.6	f/5.6	f/16	f/16
	f/6.3		f/18
	f/7.1		f/20
		f/22	f/22

Dials and buttons and how to control the camera within these modes

The controls will vary depending on the camera brand and even the model

Aperture: On a Sony camera in Manual Mode the Front dial is usually the aperture dial, which sets the f-stop; In Aperture priority mode on a Sony camera, you can use either the front or rear dial to set this, and the camera automatically adjusts the shutter speed. There is an image later which shows the relationship between this setting, Shutter speed and ISO.

Shutter speed: On a Sony camera in Manual Mode the Rear dial is usually the shutter speed dial; In Shutter speed priority mode on a Sony camera, you can use either the front or rear dial to set this, and the camera automatically adjusts the aperture.

Bulb Mode: This is a separate mode for shots over 30 seconds in length. This Is it only available in manual mode on Sony cameras. Check your own camera to see where this feature is and how to use it. Some cameras have a built-in timer to use with bulb mode, but some don't, so if your camera doesn't have a timer you will have to time the exposure yourself with a watch or phone.

Bulb mode is often required when using filters in darker conditions thus requiring a very long exposure time. There are apps that help calculate the time required based on the normal shutter speed setting for the situation without the filter in place and then set in the app against the filter you are going to use. The app then indicates the shutter time required.

ISO: There will be a button or dial for ISO; You set this manually to suit the light available to avoid extreme settings. So, for example if you are hand holding and setting an f11 aperture using Aperture priority mode and this gave a very slow shutter speed below the reciprocal rule for the lens (if you are using a 50mm lens then a minimum shutter speed of 1/50th Second is recommended. If a 100mm lens, then it's a minimum of 1/100th Second) you would increase the ISO until an acceptable shutter speed is achieved.

If shooting fast moving objects requiring a fast shutter speed you might use shutter priority and a speed of 1/2000 seconds, but this might give an aperture of f4 which doesn't give you the depth of field you need so again adjust the ISO accordingly.

In Manual mode you adjust all these setting manually to achieve the look you want. If shooting wildlife for example a "good" f-stop in the circumstances might be between say f/4 – f/8 but you also need a reasonably high shutter speed if the subject is moving. So anything that can move across different darkness / brightness backgrounds will cause problems so you then set the ISO to automatic within a set range, say 100 – 8000 (this will depend on your camera and how it deals with higher ISO values, as the higher values result in more noise) so the camera adjusts this for you to suit as you often won't have time to do this manually.

Exposure Compensation: Many cameras now have an exposure compensation dial so you can tweak the settings in manual mode. Very useful to reduce exposure for example if the subject has a very bright white area the overall scene might indicate certain settings, but the white areas may be blown out, (pure white) so dial it back a touch. If an area is too dark dial the compensation up a bit.

Taking the shot: Shutter button; half press to focus full press to take the shot, unless using back-button focus:

Back-button focus; Set a button on the back of the camera that you can reach easily with your thumb as the focus button, then turn off the focus part of the shutter button in your camera settings, so you can focus independently of the shutter button. This stops the camera refocusing every time you press the shutter button. You basically have more control of when you want the camera to refocus.

Focusing:

Often four buttons or dial positions here. These are called something different on every camera, but the modes are:

Manual focus

Single focus using Auto-focus

Continuous focus using Auto-focus

Or a balance between Single and Continuous

For most landscape situations I use Single and for wildlife or anything moving I use Continuous

For macro its worth using manual focus if the subject and the camera are held very still as you can move around the subject focusing on different points as required.

Other settings

Then there are the many buttons you can set yourself for various functions depending how you use the camera.

Focus Area:

There are usually several focus area settings within your camera's menu, normally Wide, Zone, Centre, various flexible spots of different sizes, some tracking focus areas. This will vary quite a lot depending on the camera.

The only way to understand these is to use them all to see what works best in various situations. This will vary massively between the style / genre of photography as well.

White balance:

There are several settings within this menu setting to suit the light. Most of the time the auto white balance setting works quite well but can be fooled in certain circumstances so sometimes using the manual settings can be worthwhile. However, if you shoot in RAW mode the white balance can be adjusted in post processing in most software. If you shoot in jpeg the white balance is fixed and cannot be adjusted.

In normal average light a white balance setting of cloudy / shade seems to provide a good starting point. If your camera allows, you can set the Kelvin value and around 5000 – 7000 is the normal range for most situations. However, you set it to a particular value be careful to remember to adjust it to suit the conditions and time of day. This is why auto white balance can be a better choice as long as you are aware the camera is not perfect and will get the white balance wrong from time to time, it may be better to use auto than having a totally wrong white balance set.

Check the first image on the rear screen to see if the white balance looks ok before taking loads of shots.

If you use a too high white balance the image can look washed out, too low and its will be over saturated.

Bracketing:

Most modern cameras have an exposure bracketing setting where you can take multiple images at different exposure values with the same shutter speed and aperture settings.

This can be very useful when on a tripod and shooting a scene with say a bright sky and a dark foreground.

Set the bracketing feature to say three shots with whatever difference in aperture you think will be best. You can check this first by adjusting the aperture on each area of the scene to see the aperture difference required. A 1 or 2-stop difference is commonly used.

The middle setting normal setting will be for the mid ground and the other two for the bright and dark areas.

Then in post processing you can blend these together to get a better overall light level which you can adjust more as required.

Display:

This can be an important setting as it allows you to scroll through the settings you see either on the back of your camera or through the view finder.

It can show a grid to help with compositions and also a level guide, which is very useful.

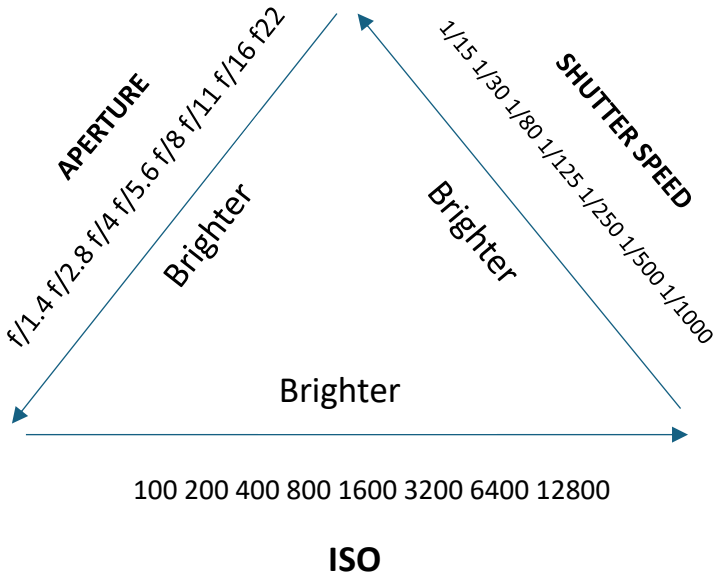
The histogram is very important as you can see the range of light in the image.

Timer:

If you are using a tripod and you haven't got a remote shutter release set the shutter timer to 2 seconds or 10 seconds so you can release the camera to avoid shaking it when pressing the shutter button.

Also, good if you want to be in the shot and 10 seconds works best here.

The Aperture, Shutter speed, ISO Triangle



This triangle shows the relationship between these three settings. As you adjust one it affects the other two. Photography with modern cameras is about getting the balance right.

As you decrease (stop down) the aperture for example from f/2.8 to f/11 to get a better depth of field the image gets darker. To counter this, you slow down the shutter speed so light has longer to get through the lens.

If you can't slow the shutter speed as the subject is moving or you are hand holding, then increase the ISO.

All of these have consequences on the image.

The basic rule with modern post processing software is that it's easier to remove noise from using a high ISO than it is to fix a blurry image because of the wrong depth of field or a too slow shutter speed, so don't be afraid to push the ISO as far as your camera can allow without excessive noise in the resulting image. Only tests with your camera brand / model can decide this point.

All of this is good but what about the other variable that aperture gives you, which is Depth of Field. There is a separate document in this tutorial section of the website on this aspect of aperture and why it may require a different aperture to control more than just exposure.

Test Example

What settings did I use for this photo

Answer

None as it was taken with an old iPhone, so it shows it’s the camera you have with you that’s the most important thing.