

READING an EXPOSURE METER

An exposure meter will appear in the viewfinder when you switch the camera to Manual Exposure Mode. It will show if the combination of Aperture and Shutter Speed settings that are set will let in too much light (*over-exposure*), just the right amount (*proper exposure*), or let in too little light (*under-exposure*). The amount of light is calibrated in *f* stops. Each full stop is twice as much, or half as much light as its neighbor. There are typically clicks on the lens to adjust for $\frac{1}{3}$ stops in-between the full stops.

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-2 -1 0 +1 +2

Whenever the Aperture or Shutter Speed is changed, the amount of light that will hit the sensor will change. The goal is to have the exposure meter pointing to 0, meaning that the proper exposure is set and the right amount of light to make a good photograph is entering the camera.

AVERAGING METERS

Light meters do not really tell you how to set the right exposure, however. They have no idea what you're taking a picture of. What they are really doing is averaging all of the light coming into the lens, paying more attention to the center area, and comparing that tonality to middle gray. Then they will tell you how much light to lend the camera to render your subject middle gray.

Then you have to make an aesthetic judgment about the tonality of your subject. Is it lighter or darker than middle gray?

- If your subject is lighter than middle gray then you have to overexpose your shot somewhat. The extreme situation would be shooting snow. This would require a +2 stop overexposure in general.
- If your subject is darker than middle gray then you have to under exposure the shot somewhat. The darkest shadows with detail are usually -2 stops darker than middle gray.

When shooting film, the medium requires that you pay more attention to shadows, just because the way film is processed. But with digital photography the highlights are more important. It is very easy to blow out the highlights what a digital camera. Once the highlight detail is gone you can never fix it in Photoshop.

BRACKETING

If you're not sure exactly which exposure setting to use, you can bracket your exposures this means taking three shots of the same subject. One will be what you think is right, another $\frac{1}{3}$ to $\frac{1}{2}$ stop underexposed, and another $\frac{1}{3}$ to $\frac{1}{2}$ stop over exposed. In more dramatic lighting situations it may be appropriate to bracket even wider than this or make 5-shot bracket. Some cameras have the ability to set this as a shooting option so the camera will bracket automatically.

EXPOSURE TECHNIQUE

APERTURE, technical explanation

Aperture is the opening inside the lens. It opens and closes to let more or less light enter the camera. The size of the opening is named according to the focal length of the lens. The actual size is not important, just its relative size. The important point is that $f/4$ on any lens for example, lets in the same amount of light. This allows lenses to be easily interchangeable.

The standard full f stops on a camera are as follows:

2 . . 2.8 . . 4 . . 5.6 . . 8 . . 11 . . 16 . . 22 . . 32

There are numbers for the $\frac{1}{3}$ stops between each of these.

A way to remember is: BIG NUMBER = small light.

The name of each f stop is written as

f	meaning focal length of the lens
/	over or divided by
4	a number

For example:

a 50mm 'normal' lens set to $f/2$ has an aperture of 25

a 35mm wide angle lens set to $f/2$ has an aperture of 17.5mm

a 200mm telephoto lens set to $f/2$ has an aperture of 100mm

Since the wider lens lets in more light than the normal lens, the aperture has to be smaller to let in the same amount of light. The inverse is true for the longer lens, i.e. a 200mm lens needs to have an aperture of 100mm to let in the same amount of light at $f/2$.

The bottom line is that you do not have to remember any of this when shooting.

Just understand that f stops are consistent from lens to lens.

f stops of the same number let in the same amount of light
no matter what lens is being used.

SHUTTER SPEED, technical explanation

The shutter is a curtain behind the lens that keeps light from hitting the sensor. When a photo is taken, the shutter opens to let light hit the sensor. The Shutter Speed controls how long the shutter will stay open to make an exposure. A slower speed lets in more light, while a faster speed lets in less light.

Again, the way to remember is: BIG NUMBER = small light.

Changes in Shutter Speed are also called 'stops' of light. The standard full stops of exposure in Shutter Speeds are:

1000 . . 500 . . 250 . . 125 . . 60 . . 30 . . 15 . . 8 . . 4 . . 2 . . 1

These numbers represent fractions of a second, e.g. 1000 is really $1/1000^{\text{th}}$ of a second while 4 is $\frac{1}{4}$ of a second. There are also speeds at $\frac{1}{3}$ stop intervals between the numbers, but the numbers above are the standard shutter speeds. Many cameras also go beyond these values. Some go as fast as $1/4000^{\text{th}}$ of a second, while many go as slow as 8 full seconds.

EXPOSURE AESTHETICS

The big question is, the real question is: How do you want your photographs to look? What is the photo about? It is not enough to get the exposure right.

Once you know what your subject is, you have to use Depth of Field and Movement to make the intent more clear. Aperture and Shutter Speed control Depth of Field and Movement respectively and their creative use can greatly effect how the subject will appear.

“Exposure is really an aesthetic decision first, followed by a technical response.”

DEPTH of FIELD, aperture controlled, aesthetic explanation

If you want a detailed rendition of your subject where everything is in focus, then you need to use a small aperture. The smaller the aperture the greater the depth of field, meaning more things will be in focus at the same time.

If you want only a specific section of your photograph to be in focus, use a larger aperture. This will focus in on the place of interest and throw the rest of the photo softer. The amount of difference between the focused and unfocused areas depends on how large the aperture is. Shooting with the lens ‘wide open’ will give you the most shallow depth of field and can be a great looking effect.

Sometimes an aperture in the middle range will do just fine.

MOVEMENT, shutter speed controlled, aesthetic explanation

If you are trying to capture a very sharp photograph, using a high shutter speed will eliminate any movement in the subject.

If you are trying to capture ‘the feel of something moving’ then a slow shutter speed will allow a some bit of time to pass while the shot is being made. This will allow moving things to blur, hence the term ‘Motion Blur’.

Sometimes a shutter speed in the middle range will do just fine.