# Exposure Value and Balancing Light



When we use the exposure meter on the camera it gives us an average balance of light to work towards to match the light in the room for an accurate picture. In a lot of situations, we may want this light to be a little brighter or vice versa but it's always handy to be able to find an average exposure level to begin with.

The exposure meter changes depending on what settings we are using, so when we make an adjustment to our Shutter Speed, Aperture or ISO, the light in the image changes and the meter will show us if those settings are causing the image to be over exposed (too much light) or under exposed (too little light).



Under Exposed (Too Dark)        Average Exposure        Over Exposed (Too Light)
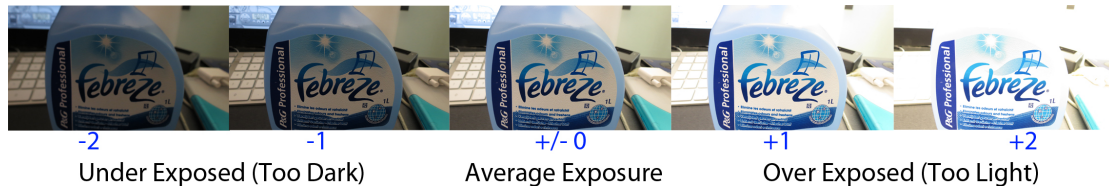
The measurement of exposure is often referred to as a 'stop'. This is not referring specifically to just shutter speed, just aperture or just ISO, it is a combination of all of them. However when we are changing our exposure, the change we make is measured on a scale that uses the 'stop' system.

Stops for Shutter Speed on their scale are seen like this:

    1/800, 1/4000, 1/1000, 1/500, 1/250, 1/125, 1/60. 1/30, 1/15, 1/8, 1/4, 1/2, 1" etc

Stops for Aperture on their scale are seen like this:

    F22, F16, F11, F8.0, F5.6, F4.0, F2.8, F2.0, F1.8 etc

Stops for ISO on their scale are seen like this:

    100, 200, 400, 800, 1600. 3200

So each of these numbers are a stop measurement.

If I had a shutter speed of 1/60 and I was told to increase my shutter speed by two stops, I would then change it to 1/250 as this is two numbers up the scale.

Sometimes we need to use a specific setting. As an example, I may wish to use a fast shutter, but I have already balanced my exposure to 1/250, f2.7 and ISO 400. I would need to adjust my shutter speed but this would put my exposure out of balance. But if we use the stop measurements as a guide we can easily get back to the balanced exposure without guessing at our settings.

So we have:

Shutter Speed – 1/250
Aperture – F2.7
ISO - 400

However we want to increase our shutter speed of 1/4000. So we will be moving 3 stops up the shutter speed scale.

1/800, 1/4000, 1/1000, 1/500, 1/250, 1/125, 1/60. 1/30, 1/15, 1/8, 1/4, 1/2, 1" etc

So we have moved 3 stops and our image will be too dark as we have sped up our shutter and not compensated for the lack of light.

We can then balance this out by moving either our Aperture or ISO an equal amount of stops along their scale. In this situation, we started off with an aperture of f2.7 and as this is the lowest we can go on the SX40, we won't be able to move this setting to let in more light.

This leaves only our ISO to change, so we need to move our ISO 3 stops up the ISO scale in order to compensate for the Shutter Speed and to let in more light:

100, 200, 400, 800, 1600 3200

So now we have a new setting for our image of:

Shutter Speed – 1/4000
Aperture – f2.7
ISO – 3200

This allows us to take that picture with a faster shutter and to maintain a good level of light in our image.

It seems a little complex but it's actually quite straightforward.

One last thing to mention is that on the SX40 you can also do fractions of a stop so instead of our Shutter Speed jumping from 1/30 to 1/60, the SX40 allows us to use 1/40 and 1/50 too. These smaller fractions are not part of the scale to measure light changes. Only the parts of the scale that have a number above them are full stops.