

# EXPOSURE

( © R.H.Cullen updated 9/5/2019)

There is no such thing as “Correct Exposure” for general photographic subjects. Your “Best Exposure” happens when the brightness tones in the image suit the photo subject and your interpretation of the subject.

There are two steps to determining camera exposure-

**First- Measure** the brightness of the subject and calculate aperture/shutter/ISO values to record these tones. (Using the camera meter’s suggested “Correct Exposure”)

**Second- Vary** the calculated exposure if you want a personal adjustment to the final photo rendering. You may desire a darker or lighter rendering of the whole scene.

To expose for the best exposure, we need to consider-

Brightness of the light. Type of subject (light or dark). Our desired image result.

Knowing these, we set the camera by adjusting - ISO + Aperture + Shutter Speed. .

## EXPOSURE METERS

As an aid to determining correct exposure, LIGHT METERS internal to the camera have been developed to a high degree. They convert light into an electric current and a meter reading which can be easily translated into an EXPOSURE VALUE, ie. A combination of APERTURE, SHUTTER SPEED and ISO (Sensitivity of the Sensor), that will suggest a correctly exposed image.

Light meters were originally 'hand-held' as separate meters; some attached to the top of cameras; and now are fully incorporated into the cameras internal mechanisms, so much so that the meter controls, and can set automatically,- Aperture, Shutter Speed, and ISO. ("Programmed or Auto metering")

All three settings (ISO + Aperture + Shutter Speed) in the camera must be adjusted for the cameras best exposure result.

**MANUAL MODE:** You can set all three (A, S, ISO.) to your choice with guidance from the meter, or Over-ride the meter suggestion entirely and use any settings.

**AUTOMATIC MODES:** The camera makes decisions for you-  
First consider setting **ISO to** a fixed value. ('Low' for most subjects. 'Higher' when scene brightness or fast Shutter is needed.

**APERTURE PRIORITY-**You set your wanted APERTURE; the camera automatically sets the shutter for the metered exposure.

**SHUTTER PRIORITY-**You set your wanted SHUTTER SPEED; camera automatically sets the aperture for the metered exposure.

**PROGRAM AUTOMATIC-**The camera sets BOTH Aperture and Shutter by itself.

Aperture and Shutter Speed can be adjusted by you to suit the subject, but alter one of these and the camera adjusts the other for the 'correct' exposure.

**FULL AUTO-** The camera does it all, even a top flash may pop up if needed. You can adjust nothing!

## METHODS OF MEASURING LIGHT

A METER TELLS YOU THE EXPOSURE TO GIVE AN AVERAGE RESULT FOR THE AVERAGE OF REFLECTED TONE BRIGHTNESS OF THE SUBJECT.

(Bright & Dark areas are averaged, Colours are not considered- only their luminosity!)

**A meter is not intelligent enough to determine if you want the image darker or lighter.!**

**1. REFLECTANCE METERS** are aimed at the subject and read the light reflected from it.

**Cameras have Reflectance meters** built into their systems and read the subject image as seen in the viewfinder.

The light brightness is determined 'THROUGH THE LENS' (ie. TTL )

'AVERAGING' types see and average the whole scene in the frame. ~100%

'SPOT METERING' types see only a small area or spot in the viewfinder to meter. ~5%

'CENTRE WEIGHTED' types see a predominant oval area central in the frame. ~75%

'INTEGRATED' types read several areas in the frame and average the light.

**2. INCIDENT METERS:** (including 'Flash' meters) are now rarely used by 'Professional' and keen photographers, and being separate from the camera and hand-held, are aimed towards the light source or towards the camera position from the subject location. They read the brightness of the light falling on the subject and are not influenced by the 'REFLECTANCE' of the subject.

## **NOTES ON EXPOSURE**

A Camera **HISTOGRAM** is a guide to the "Best Exposure" that might indicate exposure problems. Eg. Over-exposure might cause bright subject areas to be pure white without any detail ("Clipped" or "Burnt out" and un-acceptable!). Under-exposure might cause dense black areas in the image (and yet, may be acceptable!). The Histogram gives a visual guide indicating the tones from Black through to White that the camera sensor can capture.

**EXPOSURE FAILURE** can occur when photographing excessively LIGHT or DARK subjects. Reflectance meters will compensate and give an exposure reading to produce the subject as an AVERAGE GREY TONE.

We need to recognise these situations and adjust exposure to render the photo result to our own satisfaction. eg. snow, bright water, night outdoors, dark and light backgrounds.

### **OVER-RIDING AUTOMATIC EXPOSURE**

Most Cameras have an 'Exposure Compensation' dial or switch.

eg. -2 -1 0 +1 +2 ie. up to 2 f-stops Under or Over exposure.

Even a '**BACK LIGHT BUTTON**' compensates by Over-exposing, ie. allows the darker part of the scene to appear lighter. Using the camera in **MANUAL MODE** can allow you to exposure compensate to ANY amount differing from the meter 'suggestion'.

**IN MANUAL MODE - REFERENCE GREY TONES** can be had by carrying a calibrated Grey-card. If you give the camera meter a grey-card to read, it will give an exposure reading for the available light, and irrespective of subject reflectance.

A rough "handy" alternative is the palm of your hand which is about 1-stop lighter than middle grey. Take a close-up reading from your hand palm held in the same lighting as the subject then open up one stop aperture (eg f-11 to f-8 ) Sunlit green grass may also be a good area to meter a landscape scene.

**LIMITATIONS-** Unfortunately, many camera sensors are not capable of recording a very large range of brightness tones (Dynamic Range) that is present in many subjects (especially bright sunlight with shadows). You will need to expose for the tones that YOU WANT to have priority and detail in the image, and be prepared to lose the extreme tones that fall outside the sensor latitude (refer Histogram).

Digital methods to achieve a High/Wide Dynamic Range "HDR" (from Blacks to Whites) means taking images of different exposures to capture detail in both highlights and shadows, and then combining the images with 'HDR' software.

**SCENE MODES-** Are camera 'Presets' that change your camera's Automatic settings (A + S + ISO, Focus method) to suit various subjects- (Sport, Close-ups, Portraits, etc).