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What is the Light Meter?

For as long as people have been taking photos, there has been a need to determine how bright a scene is. Any method of recording light can only work in a relatively narrow band without over or under exposing the image. To find the correct exposure that will record the image without over or under exposing it too much, photographers need to know how bright the scene is. An extremely talented photographer may be able to guess a near-enough exposure, but a light meter is a far more accurate and convenient way to do it.



Light meters in cameras react to how intense the light is as seen from the camera. SLRs measure the light (called *metering*) through the lens – TTL. They collect light that has actually passed through the camera’s lens and measure its intensity. There are problems when the scene has parts that are much brighter or darker than others, for example shadows on a sunny day. This can trick the light meter into measuring the intensity of the light incorrectly, depending on which part of the scene was illuminating the sensor.

Modern SLR cameras use multi-point light meters, meaning that several light meters are actually scattered around the projected scene, each measuring the light intensity at that point. Very sophisticated cameras may have dozens of metering points. How much the measured intensity of the light at each point influences the final meter reading depends on the metering mode selected by the photographer.

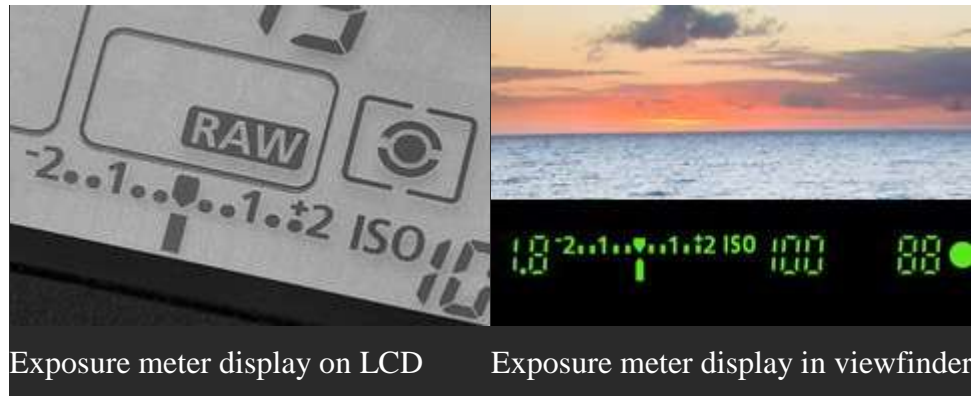
How to Use the Light Meter?



As we now know, the correct exposure is created by juggling the three points of the exposure triangle: aperture, shutter and ISO. The light meter is the tool that puts us in the right neighborhood for how these should be set. If you are shooting on full auto, then when you meter the scene – usually done at the same time as focusing, by half pressing the shutter – the light meter gives its best guess for each of these variables.

If you want to take creative control of the photo, you can manually set each of the three variables yourself. Typically ISO is left at the default, or previous setting, and you take control by choosing aperture priority or shutter priority. On most DSLRs that's done by turning the exposure mode dial. If you set the dial to Av – aperture priority, the photographer chooses what the aperture will be, and the light meter adjusts the shutter speed to maintain the correct exposure. The reverse is true for TV – shutter priority.

When using these modes, it's useful to refer to the exposure meter display on the camera. The **exposure meter** (display) shows the result of the measurement taken by the **light meter** (sensor). It will typically look something like this:



Exposure meter display on LCD

Exposure meter display in viewfinder

Each number represents a stop change in the light, as indicated, with the central mark being the “correct” exposure, as determined by the light meter. Each pip between the numbers represents one third of a stop. The arrow underneath indicates how close the current settings are to the correct exposure. Usually in priority modes, the arrow will stay in the middle as the light meter will be able to set the exposure correctly. However, if for example you set your aperture to 1/400sec in TV (shutter priority mode) and the light meter indicated that you needed an aperture of f4, but your lens was only capable of f5.8, then the exposure meter will display one stop of underexposure. You will need to compensate for this by setting a longer shutter time, or increasing the ISO.

The juggling act becomes more complicated, and the light meter’s assistance more valuable, when you go to full manual control of the exposure. Here the exposure meter simply displays whether the current settings will under or over expose the image, according to the light meter. The photographer can freely change any of the values on the exposure triangle, and see the change to the predicted versus recommended exposure.

Exposure compensation

Even though the light meter in your camera is pretty sophisticated, sometimes it can get it wrong, especially with harsh contrasts, or highly reflective surfaces. Changing metering modes may help this, but a more controlled approach is to use exposure compensation. Imagine you are photographing a person against a large bright sky. The light meter thinks the sky is the most important part, and exposes correctly for that, leaving the person a dark silhouette. By using exposure compensation, you can tell the camera to take the metered exposure and make it

brighter by a chosen amount. This will then allow the photographer to correctly expose the person. I'll look at exposure compensation in more detail in a future post.