

Understanding Metering

Correctly metering an exposure is the key to getting successful photographs. The contrast between the lightest and darkest areas in a landscape can be vast, especially when shooting at sunrise or sunset. This difference in brightness range is often too great for either film or digital sensors to cope with, even with the help of filters, so you need to work at getting the exposure right each time.

The metering system in your camera measures the amount of light in the photo and tells you the aperture and shutter speed needed for a correct exposure.

The fact is, though, that you can't always rely on your camera's built-in meter to get the exposure right. But you can increase your success rate by selecting the right metering mode for the conditions. Not all cameras (even SLRs) allow you to select the type of metering to use. But the explanations below will help you understand how your camera measures light. Your camera manual will explain which metering modes your camera uses under different settings.

Multi-Segment Metering [(0)]

Camera divides the scene into several zones and does calculations to come up with the right exposure. In other words, Camera gives equal importance to the entire scene to make sure that over all best exposure is achieved in the entire scene.



Multi-Segment Metering - the frame is broken into several segments for calculating exposure

Each camera manufacturer has their own secret way of processing the information to produce a final exposure, but most use a set of typical scenes as a basis.

Multi-segment metering is best for point-and-shoot photos as it's the most likely to get the exposure right for a wide range of scenes. It can still be fooled by very dark or very bright scenes (like snow-covered landscapes) and it's difficult to predict how the meter will react in these conditions.



Multi-Segment Metering Mode

Take a second look at the elephant image with Evaluative Metering above. You can see that as most of the background is bright, to achieve 18% grey level, the camera reduces the exposure to such an extent that we lose the fine artwork details in the elephant body as they are underexposed.

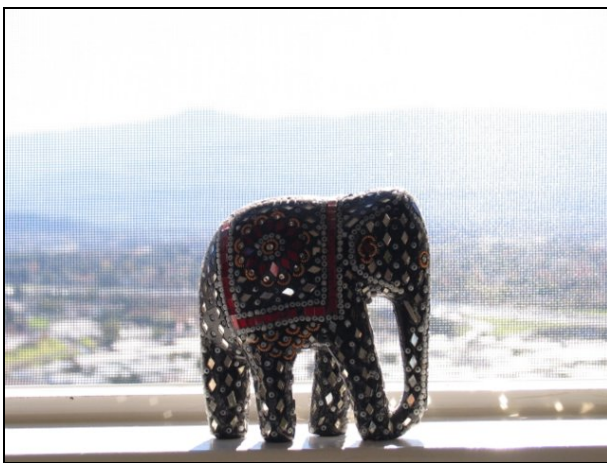
Center Weighted Metering []

This is similar to the Evaluative Metering, except for the fact that instead of giving equal importance to all areas, Camera gives higher importance to center of the image. In other words, Camera tries to make sure that the center is properly exposed and may make compromise (underexpose or overexpose) the rest of the image.

Centre Weighted Metering - the whole frame is metered but the emphasis is placed on reading from the centre of the frame



Below is the same scene with center weighted Metering.



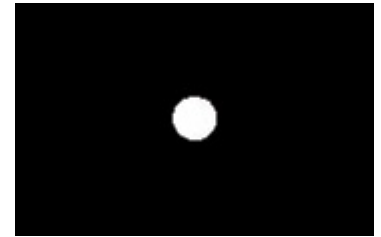
Center Weighted Metering Mode

This time, the camera is giving higher importance to the middle of the scene i.e. makes sure they don't get underexposed. Even after giving less importance to surrounding areas (i.e. risk over exposure as they are brighter). We are getting the artwork details on the elephant a little bit underexposed.

Spot Metering [o]

In this mode, the camera only considers a very small area of the screen to decide exposure level. This area can be selected as a small part in the Center or a small area around the adjustable Auto Focus Point. The Camera makes sure that 18% grey exposure is achieved in this spot area, and doesn't care for over/under exposure in rest of the frame.

Spot Metering - the exposure is calculated from a small part of the frame (usually in the centre of the frame)



Most cameras use the centre of the frame to spot meter from but some more expensive cameras meter from the area around the autofocus point.



Spot Metering Mode

Take a second look at the Elephant image with Spot Metering above. As the center spot was selected, which happens to be covering mainly the back and side of the elephant body, the camera tried to achieve 18% grey exposure in this area. So all the artwork details have come out very well. But the camera completely disregarded the exposure level in rest of the frame. To achieve the required exposure in spot area, which has a lot of black, Camera reduced the shutter speed so much that the rest of the frame is completely overexposed!

Handheld Light Meter

Even though today's cameras provide sophisticated metering options, using a handheld lightmeter still offers the ultimate in exposure control.

Handheld Light Meter - provides the most accurate readings for measuring exposure either with reflected light or incident light (i.e. light falling directly onto a subject)

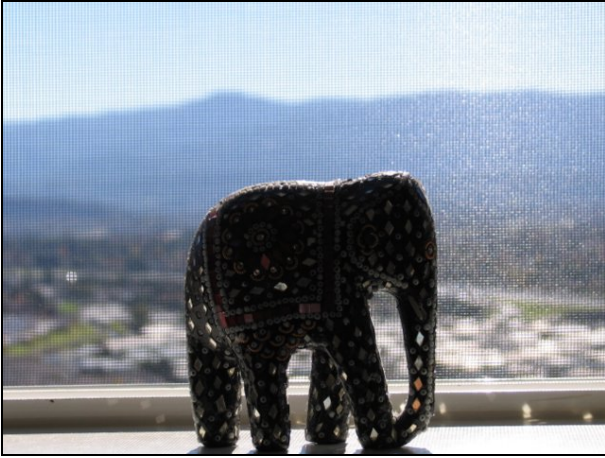


When shooting landscapes, your camera will often be fixed to a tripod. If you've framed your perfect composition, you won't want to move the camera but your camera's metering can only work from the scene your camera is pointed at and so may not give an accurate exposure reading. This is where the handheld light meter comes into its own. You can leave your camera pointing at your scene while directing the lightmeter at whatever point you want. Some models also provide a spot metering option.

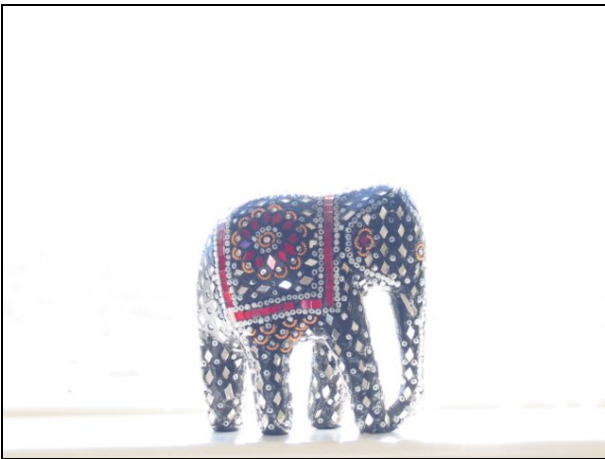
How To Use a Lightmeter

It's simple. Point the meter at your subject and take a reading. This is what is known as reflective reading. Just like the meter built into your camera, this method can be fooled into giving the wrong readings when used with very dark or bright scenes.

So how do you get around this limitation? Handheld meters have a white "invercone" (as it's called) that can be placed over the sensor. Once this is in place, you can get an accurate reading for the light falling onto the scene. This gives the most accurate results but you have to place the lightmeter where the subject is (which may be difficult for a landscape!) and point the sensor back towards the camera to take the reading.



Evaluative Metering Mode



Spot Metering Mode

As you can see metering makes a whole lot of difference. If you want to stop doing Point and Shoot and stop taking pictures with built-in flash, you must understand metering modes to make sure that you don't end up with under exposed or over exposed pictures.



18% Grey

Usually you get a mix of dark and light areas in any scene. The camera "mixes-up" all the brightness and comes up with a calculation for a shutter speed or aperture opening such that total exposure is equivalent to the 18% grey pic above, no matter what the scene is. This calculation is called the Metering. In aperture priority mode, it is used to select the shutter speed; and in Shutter priority mode, it is used to select the aperture.

Metering is equivalent to deciding how much heat is required to cook any particular food. Different ways of doing this are referred to as different metering modes.

In metering process, your camera "looks" at the scene, checks how much various areas of the frame are lit and decides how much total exposure (total light) is required to create the picture such that it is equivalent to 18% grey shade.

Important things to remember about Metering Modes

- Metering is camera's way of deciding how much exposure is required.
- Evaluative metering mode tries to make the **whole picture** properly exposed.
- Center Weighted metering mode tries to make sure that **objects towards the center** are properly exposed, objects on the edges may be under or over exposed.
- Spot metering mode tries to calculate exposure based **only on what is in the selected spot area**. Rest of the frame can be over or under exposed.
- The only time you are **NOT** using Camera's metering is when you go in full "**Manual**" mode, when you have to select both aperture and shutter speed. This makes it very important that you understand metering modes properly.

[UPDATE : In all the other exposure modes like full auto, other programmed modes, or priority modes like aperture priority or shutter priority, the camera is selecting at least one parameter for you. So it has to use its metering algorithms based on the metering mode you have selected.

In manual mode, you are selecting everything, so you are not really using camera's metering capabilities inherently. However that does not mean it becomes unavailable. Modern digital cameras show some form of indicator regarding how you are doing based on your selected parameters, compared to camera's metering. i.e. It may show you, how many stops above or below you are with respect to camera's metering. You don't have to use it, but it's there for reference.]

- Pay attention to subjects in your scene and make sure that you are not losing details in the shadows. Play around with various metering modes and try to get the details right.