

SLR Camera Metering Systems

SLR cameras offer at least three and sometimes more metering systems.

1. Evaluative (Canon) or Matrix (Nikon)
2. Centre weighted
3. Partial
4. Spot

Evaluative/Matrix

Evaluative/Matrix work differently from the other three. When you half press and hold the shutter button the camera sets and locks in its recommended exposure settings. You can even recompose the picture and the exposure will remain locked in as long as you don't release the button. This is the exposure you will get automatically when you complete pressing the shutter button.

The system works by measuring the average brightness in each of a substantial number of zones making up the field of view. It compares these values with a data base and selects an exposure that has been found to be successful previously. The system attempts to avoid blowing out highlight detail and prefers to sacrifice shadow detail if the brightness range is a bit too large. If the brightness range is very large it may lose detail at both ends but it always gives preference to highlights over shadows.

For any set of circumstances, it tries to capture the optimum amount of digital information so that your options for post camera processing are maximised.

90% of the time Evaluative/Matrix metering will deliver excellent images.

Centre weighted/Partial/Spot metering

These differ in one important respect. Holding down the half pressed shutter button does NOT lock in the exposure. If you recompose the picture the exposure will shift. It is only set at the instant the shutter releases. If you want to lock in an exposure while you recompose, You must press the "AE Lock" button on your camera. The AE Lock button on the Canon, marked with an *, locks in the exposure for 6 seconds. On the Nikon, the AE Lock button must be held down until exposure takes place. Releasing the AE Lock button immediately removes the locked exposure and allows it to change.

Other differences between these three modes follow:

Centre weighted: Measures the average brightness of two zones, a 67% oval area in the centre of the frame and a 10% circle right at the centre. It averages these two readings placing 2/3 of the emphasis of the central 10% and 1/3 on the surrounding oval. It makes no attempt to protect highlights, it simply calculates the average as described.

In almost all practical circumstances Evaluative/Matrix metering outperforms Centre weighted metering.

Partial metering: Measures one circular zone in the centre of the viewfinder about 10% of the area of the full image.

Spot metering: Is similar but the measured area is only about 3% at the centre of the viewfinder. (Note that the size of the spot may be different on your camera)

With both of these last two metering methods the recommended exposure is designed to expose the area covered by the spot to produce a mid-tone result in the same area of the final image. Thus white will render as approximately 50% grey and so will black. Neither metering method tries to produce a correctly exposed complete image.

Thus the Partial/Spot meters are true exposure meters. The information they provide must be interpreted to estimate the correct exposure. Alternatively they can be used to measure brightness range in a scene and/or to estimate whether highlight or shadow zones in an image will be appropriately exposed when using any particular exposure setting you or your Evaluative/Matrix metering system may have chosen.

Using Spot metering

The spot meter can be used in different ways.

1. Manually average readings from different parts of a scene. (If your camera has a Multi-spot metering function it will average a series of spot exposures for you.)
2. Spot meter a highlight where you wish to preserve detail. Increase the indicated exposure by 2 stops and capture the image. This is useful when trying to capture rim lighting on backlit subjects without overexposing the bright fringe.
3. Spot meter a shadow where you wish to preserve detail. Decrease the indicated exposure by 2 stops and capture the image. Again, this is a method for checking that small zones in your image will be captured effectively when you can't get close enough to measure exposure directly.

Summarising

Evaluative/Matrix metering will produce excellent exposures in most practical circumstances. Even if the resulting exposure is not optimal, if the image is captured in RAW format, It will be possible to correct the exposure with a computer without difficulty and without any negative effects.

Spot metering is useful when small, inaccessible zones in an image are important and where overall exposures may not cater for these local areas correctly. With careful spot metering and a little thought you can check to ensure that the image you capture will meet your expectations.

Warning: If you switch to another metering mode to check an exposure don't forget to switch back again. If you forget, the images you capture using the wrong metering mode may all be rubbish.