

Influence of Lighting on Image Quality

Exposure - is the amount of light reflected from the scene which reaches camera's photosensitive element. The higher the exposure, the more light reaches the frame and the brighter it gets. However, too high exposure can negatively affect the frame, since it can be spoiled by exposing to light. Exposure value depends on many parameters. But the most basic ones are the **scene illumination** and the **shutter speed**.

Any camera, whether digital or film, has a shutter. A shutter is needed to regulate the amount of light reaching the photosensitive element. This lets you avoid spoiling the frame by exposing it excessively to light if the scene illumination is too intense, or, on the contrary, give the photosensitive element time to saturate if the illumination is poor. If the exposure time is not adjusted, then in the first case the frame will be spoiled by exposing to too much light and the details of the image will not be visible, and in the second case the image will be too dark. If the shutter is open for a long time (slow shutter speed), then more light reaches the photosensitive element. If it is open for a short time (fast shutter speed), then less light reaches the photosensitive element. You can see the example in the picture below.

Earlier, the exposure time (shutter speed) on film cameras was set manually, taking into consideration the scene illumination. This was considered to be the skill of a photographer. Nowadays, CMOS sensors measure the scene illumination. The shutter has become electronic, the mechanical one remained for more expensive systems and is rarely used. Now the microprocessor takes a test shot, analyzes it and sets the required shutter speed. Several test shots may be taken in order to set optimum shutter speed. And the darker the scene, the longer it takes for the processor to get enough data to process.



It is worth noting that if the shutter speed is slow and the scene is dark, then moving subjects may be "blurred". If you want to take a shot of a moving subject without it being blurred, you should use fast shutter speed with good scene illumination.

The following conclusions can be drawn:

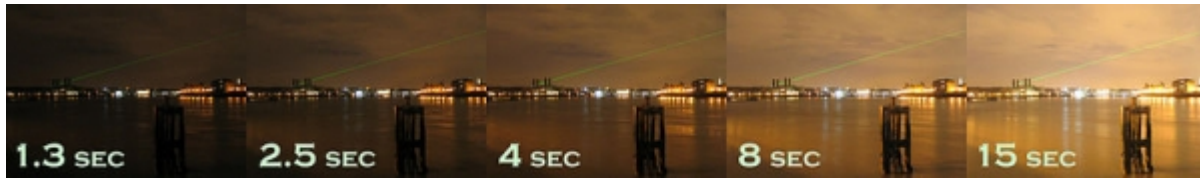
1. The trail camera cannot guarantee a fixed response time without losing image quality.

You can only specify the minimum response time, since the sensor needs to set the optimum shutter speed. And in case of insufficient light it can take longer.

1. If the illumination is insufficient, the shutter speed will be always slow, resulting in longer response time.



In KUBIK versions 1.0.54 and later forced fast shutter speed mode is used. In this mode, the frame rate will always be at its maximum and moving subjects will be less "blurred", but to get a good shot, the scene must be well-lit.



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