

Topic 80

Lighting Ratio

Lighting ratio in photography refers to the comparison of key light (the main source of light from which shadows fall) to the fill light (the light that fills in the shadow areas). Higher the lighting ratio, higher the contrast of the image; the lower the ratio, the lower the contrast. Since the lighting ratio is the ratio of the light levels on the brightest lit to the least lit parts of the subject, and the brightest lit are lit by both key (K) and fill (F), therefore the lighting ratio is properly $(K+F):F$ although for contrast ratios of 4:1 or more, then K:F is sufficiently accurate.

Light can be measured in foot candles. A key light of 100 foot candles and a fill light of 100 foot candles have a 1:1 ratio (a ratio of one to one). A key light of 800 foot candles and a fill light of 200 foot candles has a ratio of 4:1.

The ratio can be determined in relation to F stops since each increase in f-stop is equal double the amount of light: 2 to the power of the difference in f stops is equal to the first factor in the ratio. For example, a difference in two f-stops between key and fill is 2 squared or 4:1 ratio. A difference in 3 stops is 2 cubed, or an 8:1 ratio. No difference is equal to 2 to the power of 0, for a 1:1 ratio.

In situations such as motion picture lighting sometimes the lighting ratio is described as key plus fill to fill alone. A light meter can automatically calculate the ratio of key plus fill to fill alone.

High-key lighting is a style of lighting for film, television, or photography that aims to reduce the lighting ratio present in the scene. This was originally done partly for technological reasons,

since early film and television did not deal well with high contrast ratios, but now is used to suggest an upbeat mood. It is often used in sitcoms and comedies. High-key lighting is usually quite homogeneous and free from dark shadows. The terminology comes from the key light (main light).

In the 1950s and 1960s, high-key lighting was achieved through multiple light sources lighting a scene—usually using three fixtures per person (left, right, and central) —which resulted in a uniform lighting pattern with very little modeling. Nowadays, multiple hot light sources are substituted by much more efficient fluorescent soft lights which provide a similar effect.

The advantage to high-key lighting is that it doesn't require adjustment for each scene which allows the production to complete the shooting in hours instead of days. The primary drawback is that high-key lighting fails to add meaning or drama by lighting certain parts more prominently than others.

Shows with bigger budgets have moved away from high-key lighting by using lighting set-ups different from the standard three-point lighting. Part of the reason for this is the advent of new lighting fixtures which are easier to use and quicker to set up. Another reason is the growing sophistication of the audience for TV programs and the need to differentiate.

The term "high-key" has found its way from cinema into more widespread usage, for example referring to an event that requires much organization or is subject to a great deal of publicity.

Low-key lighting is a style of lighting for photography, film or television. It is a necessary element in creating a chiaroscuro effect. Traditional photographic lighting, three-point lighting uses a key light, a fill light, and a back light for illumination. Low-key lighting often

uses only one key light, optionally controlled with a fill light or a simple reflector. Low key light accentuates the contours of an object by throwing areas into shade while a fill light or reflector may illuminate the shadow areas to control contrast. The relative strength of key-to-fill, known as the lighting ratio, can be measured using a light meter. Low key lighting has a higher lighting ratio, e.g. 8:1, than high-key lighting, which can approach 1:1.

The term "low key" is used in cinematography to refer to any scene with a high lighting ratio, especially if there is a predominance of shadowy areas. It tends to heighten the sense of alienation felt by the viewer, hence is commonly used in film noir and horror genres.