

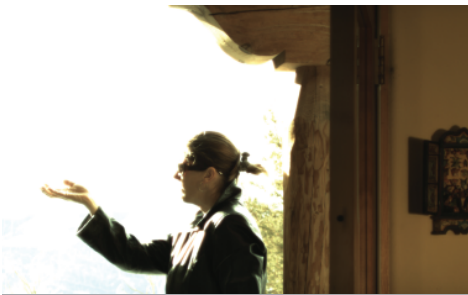


# contrast. HDR | HIGH DYNAMIC RANGE

**High Dynamic Range (HDR) imaging is a technique used in photography to get more range from the light levels captured by a digital camera.**

## Why HDR?

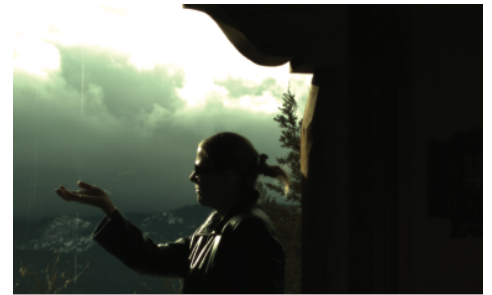
The human eye is capable of viewing scenes with a very large range of light levels. Standing inside a darkened room and looking out the window to see a scene lit with a bright sky is a good example. You are easily able to discern details inside the room, and at the same time you can see details in the clouds in the sky. The sky outside is about one million times brighter than the inside of the dark room you're standing in. In photographer's terms, the sky is 20 f/stops (or simply, "20 stops") brighter than the inside of the room. Now try capturing the same exact scene with a typical digital point-and-shoot camera. You'll find that the camera is unable to capture the scene the same way your eyes were viewing it.



Bright Exposure - Overexposed



Dark Exposure - Underexposed



Balanced Exposure - Exposure

None of these three photographs captures the scene the way you remember seeing it with your eyes. This is because the camera is unable to capture the same dynamic range as your eyes. Whereas the human eye has over 20 stops of dynamic range, a typical consumer camera has about 7 stops. High-end professional cameras may have as much as 13 stops of dynamic range, but this is still several hundred times less light level range than your eye can see. This is why snapshots taken of breathtaking scenes often look lackluster. This is also why lighting is such an important aspect of photography and cinematography, and why so many scenes in films are taken from a fixed viewpoint (the camera cannot move, otherwise the lighting in the scene gets disrupted).



Combined HDR image captured with the Contrast camera.

### How Does HDR work?

About 15 years ago, when digital photography started to become popular, a new method arose for producing images with higher dynamic range. This method involved placing a camera on a tripod and then capturing multiple images, each at a different exposure level (like the three images shown on page one). In photography terms, these three photos, each taken with a different exposure setting, are called a "bracketed series." Using some sophisticated algorithms, the images are combined to produce a single HDR image that exhibits the best parts of each original image.

Contrast's Cameras use patented technology to capture more light than a standard camera. Contrast Camera's automatically combine multiple images in real-time to recreate scenes that closely resemble what you see with your eyes.