

Camera Controls

The Aperture

The aperture controls light and depth of field

The aperture is made of adjustable blades which form an opening that can vary in size. The size of the hole (expressed as a ratio to focal length) is called an *f*-stop. The normal range of *f*-stops on a 50mm:1.4 lens is:

1.4—2.0—2.8—4.0—5.6—8.0—11—16 (*f*-stop)
8 x 2x x ½ x 1/8 x (amount changed)

These are full stops. Each number represents an exposure that is twice (or half) as much as the number next to it. Thus *f*5.6 lets twice as much light through the lens as *f*8 and only half as much as *f*4. Since the numbers represent a ratio (or fraction) then it is easier to understand why a bigger number means less light. 1/16th is less than ½.

Since we double or halve the exposure with the *f*-stop just as we do with the shutter speed, we can use various combinations of the two to give the same volume of light. Starting with any initial exposure, we can adjust the shutter and aperture, as desired creatively, to yield the same amount of light. As long as we double one and halve the other, the total volume of light used to render the image is unchanged (the Rule of Reciprocity).

Modern DSLR cameras hold the diaphragm at its widest opening so focusing is bright and easy. The camera's auto exposure system might make a choice other than wide open. Changing the aperture setting can change the look of the image you capture. To avoid surprises, use the depth of field preview control to look at the image through the working diaphragm (chosen by the metering system). If you like what you see, take the picture at that setting. If not, change the setting to one that gives you a more pleasing result. You have control.

Using a wide aperture can isolate the subject in a picture and give it emphasis by making it the only part of the image that is in focus. The eye tends to look at the sharpest part of an image, so the part that is in sharpest focus is emphasized. This shallow focus is an important tool for the photographer, especially in portraiture.

At the other end of the aperture scale is the maximum sharpness often found in landscapes. The smaller the aperture (the larger the number) the more overall sharpness you will have in your picture. A small aperture will make the image more sharply rendered in the areas in front of and behind the actual point of focus. Proper use of aperture and focus settings can yield images with everything from a flower a few feet away from the camera to a mountain range many miles away all rendered sharp. We will discuss these hyperfocal images in a class dedicated to that subject.

Common *f*-stop numbers

1.0—1.4—2.0—2.8—4.0—5.6—8.0—11—16—22—32—64 **Whole**
1.2 1.8 2.4 3.3 4.8 6.7 9.5 13 19 27 **Half**

and when set to give a 1/3 stop change the sequence is

1.4 1.8 2.0 2.2 2.5 2.8 3.2 3.5 4 4.5 5 5.6 6.3 7.1 8 9 10 11 13 14 16 18 20 22 25 29 32 Third