

WHAT ABOUT APERTURE AND ISO?

by

Dick Kenyon

Exposure is determined by:

- > Aperture
- > ISO
- > Shutter speed

Aperture Number vs. Amount of Light

The aperture is the opening in a lens diaphragm that admits light to the sensor.

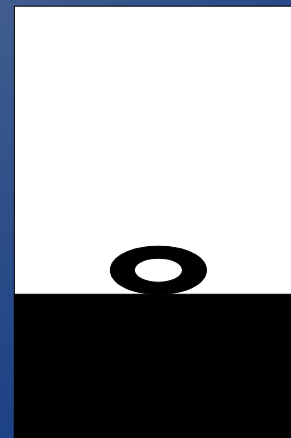
Think of the aperture as an upside down window shade.

The **higher** the shade is up, the **less light** is admitted. The **larger** the aperture number, the **less light** falls on the camera's sensor

The **lower** the shade, **more light** is admitted. The **lower** the aperture number, the **more light** falls on the camera's sensor

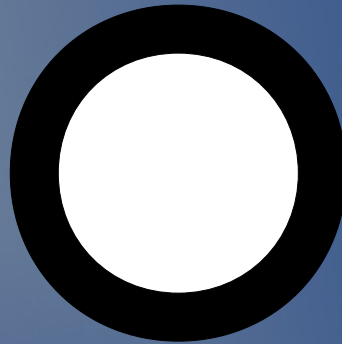


Higher shade =
Less light =
Higher f number



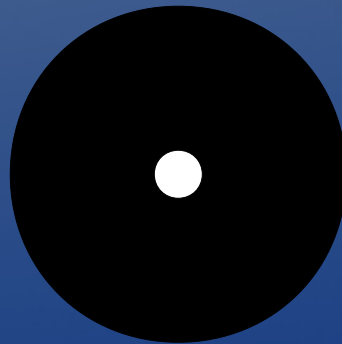
Lower shade =
More light =
Lower f number

Large Aperture = Large Diaphragm Opening



Ex. f/2.8

Small Aperture = Small Diaphragm Opening



Ex. f/16

Aperture and Depth-of-Field

- > Lower aperture number = less depth-of-field
- > Higher aperture number = more depth-of-field



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f/3.5 to blur background

***f*-Stop Defined**

- > An f-stop is the difference between f-numbers on the standard f-stop scale.**
- > For example the difference between f/2.8 and f/4 or between f/8 and f/11 is one f-stop.**
- > Moving from one aperture to a higher aperture by one stop cuts the admitted light by one half. i.e. f/8 to f/11**
- > Moving from one aperture to the next lower aperture, one stop, doubles the admitted light. i.e. f/11 to f/8**

F Stop Scales

Standard full-stop f-number scale Including aperture value AV:

AV	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
f/#	0.5	0.7	1.0	1.4	2	2.8	4	5.6	8	11	16	22	32	45	64	90	128

Typical one-half-stop f-number scale

f/#	1.0	1.2	1.4	1.7	2	2.4	2.8	3.3	4	4.8	5.6	6.7	8	9.5	11	13	16	19	22
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Typical one-third-stop f-number scale

f/#	1.0	1.1	1.2	1.4	1.6	1.8	2	2.2	2.5	2.8	3.2	3.5	4	4.5	5.0	5.6	6.3	7.1	8	9
	10	11	13	14	16	18	20	22												

Typical one-quarter-stop f-number scale[2]

f/#	1.8	2	2.2	2.4	2.6	2.8	3.2	3.4	3.7	4	4.4	4.8	5.2	5.6	6.
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Adjustment of Aperture on Camera

- > Control of Aperture is via a camera body wheel or other control device.
- > The aperture value appears as a readout on the LCD display and in the viewfinder if the camera has a viewfinder.
- > Depending on the camera, the Aperture may be adjusted in $1/3$ stops or $1/2$ stops.
- > To keep exposure the same for a given ISO if the aperture is reduced by one stop the shutter speed must be increased by one stop and vice versa.

Example: $f/11$ and $1/125$ sec is equivalent to $f/8$ and $1/250$ sec

ISO

- > ISO is a number that represents the light sensitivity of the camera's sensor.
- > Higher ISO = Higher Sensitivity to Light
- > Lower ISO = Lower Sensitivity to Light
- > ISO values generally range from about 80 – 1600
- > Higher ISO = Higher noise in image
- > Newer, digital cameras, with excellent noise suppression software, can operate with an equivalent of 12800 ISO
- > BEST TO SHOOT AT LOWEST ISO POSSIBLE
- > WISE TO CHECK ISO AT START OF EACH SHOOTING SESSION!

APERTURE PRIORITY, SHUTTER PRIORITY, MANUAL SHOOTING MODES

- > **Aperture Priority Mode** – Use when you need control of aperture. You set the aperture, the camera sets the shutter speed for proper exposure. Control of aperture determines depth of field.
- > **Shutter Priority Mode** – Use when you need control of shutter speed. You set shutter speed, camera sets aperture for proper exposure. Choose high shutter speed to freeze motion, slow shutter speed to blur motion
- > **Manual Mode** – In manual mode you set both aperture and shutter speed. You also control ISO. You get ultimate control of functions determining exposure and maximize your creative capability.

Aperture References:

<http://www.shortcourses.com/use/using1-9.html>

<http://www.digicamhelp.com/camera-features/advanced-settings/aperture/>

ISO References:

<http://www.digicamhelp.com/camera-features/advanced-settings/iso/>

http://www.photoxels.com/tutorial_iso.html

<http://www.digital-photography-school.com/iso-settings>

<http://www>

The End