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# The DX and FX Formats

Featuring **DIANE BERKENFELD**



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In digital SLR cameras, the camera's format refers to the size of its image sensor. Nikon makes a DX-format sensor and an FX-format sensor. The DX-format is the smaller sensor at 24x16mm; the larger FX-format sensor measures 36x24mm which is approximately the same size as 35mm film.

Different NIKKOR lenses are designed to accommodate the different camera sensor sizes. In the case of DX cameras with their smaller sensors, corresponding DX lenses have been designed, which are optimized for use with the DX sensor. The DX designation can be found in the lens name, i.e. AF-S DX Zoom-NIKKOR 12-24mm f/4G IF-ED. These lenses are smaller and lighter in weight and address the market's need for affordable, high-performance lenses with a variety of focal lengths and zoom options.

The DX sensor makes possible the production of lighter, smaller cameras, but because it covers a smaller portion of the image projected by the lens, a 1.5x crop

factor (so called because the smaller sensor crops the image compared to an image from a 35mm film frame) is introduced. This means, for example, a 24mm lens on a DX sensor camera will provide an approximate 36mm view.

The FX sensor, with more "light gathering" area, offers higher sensitivity and, generally, lower noise. There is, of course, no crop factor present with the FX sensor.

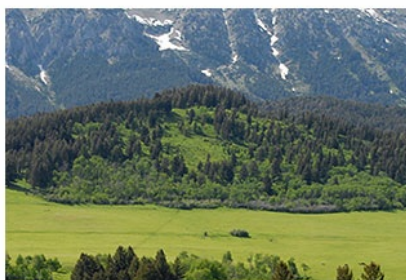
DX cameras have the added benefit of being able to use both DX and non-DX NIKKOR lenses—those lenses without the DX designation in their names, i.e. AF-S NIKKOR 14-24mm f/2.8G ED. And here's why.

Each lens is designed to cast an image circle on the camera's sensor. The circle cast by a DX lens is smaller and corresponds to the size of a DX sensor. Non-DX lenses cast a larger image circle corresponding to an FX-format sensor. The DX-format camera can use both types of lenses (DX and FX) since the non-DX lens image circle is larger than needed on a DX-format camera.

FX cameras can also use DX lenses, however to avoid vignetting, the DX crop mode is automatically selected by the camera when a DX lens is attached.



FX-sensor Camera with  
a non-DX Lens



FX-sensor Camera with  
a DX Lens

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On an FX-format camera with a DX lens mounted, the camera will automatically engage its built-in DX crop mode, thus recording an image only from the center section of the sensor.

*Featuring*

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