

Instructions for choosing a dSLR Camera

The purpose of this document is to inform the reader, who has decided to purchase a dSLR Camera, how to evaluate the variety of features found in the camera market. Whether a long-time hobbyist or newly interested in photography, there are many considerations to make when shopping for a new camera.

Digital Single-Lens Reflex Cameras (dSLRs) are complex tools with a multitude of different features and options, depending on the manufacturer and model. Choosing one can be very complicated for an uninformed consumer. After reading this manual, expect to spend a few days researching cameras using the steps provided here.

Before reading this manual, it is advised that you consider the following factors in your purchase:

- ✓ Expected amount of use
- ✓ Types of photography you will engage in
- ✓ Computer speed & memory
- ✓ Price Range

First Evaluation Step:

Megapixels

Think about the quality of the images you want to produce. Do you need to make large prints up to 11"x14", or are you satisfied with smaller photographs?

The camera's *resolution* determines the quality and size of prints you can make. *Resolution* is calculated in pixels (colored dots), and can range from 640x480 to above 3264x2448.

Cameras makers advertise this information as *Megapixels*: how many millions of pixels are in each image. If the images are a resolution of 3264x2448, that totals nearly 8 million pixels, or *8 megapixels*.

Generally, if you require professional output of large prints, you will look for a camera with a higher resolution.

Here are some examples of different camera models and their total megapixels:

- Olympus E-Volt 500 – *8 Megapixels*
- Nikon D40 – *6.1 Megapixels*
- Nikon D3 – *12.1 Megapixel*
- Canon Rebel xTi – *10 Megapixels*

These camera models will be used for reference throughout the document. They represent some of the most popular dSLR models available.

Second Evaluation Step:

Exposure Control

Now that you know how many pixels your camera is capable of processing, you're going to want to control those pixels. Finding out how much control (or how little) your camera gives you is an important step. There are a few different points of evaluation here: *exposure modes*, *fastest/slowest shutter speeds*, and *highest/lowest ISO sensitivity*.

Exposure modes determine when the camera automatically chooses its settings, and when the photographer does so manually. Most dSLRs offer manual and automatic settings, with variations in between.

For example, a *shutter priority mode* lets the photographer choose the setting for shutter speed, such as 1/100th of a second, and then the camera adjusts all other settings accordingly. Conversely, in *aperture priority mode* the photographer chooses the aperture setting, such as f22, and the camera adjusts shutter speed. Some cameras are equipped with unique scene settings, designed specifically for portraits, sunsets, or night-time shooting.

The *fastest/slowest shutter speed* that a camera can record is an important quality. Slow shutter speeds bring more light into a photo, ideal for night-time situations, while fast shutter speeds excel in stopping fast motion such as sports, or machines.

ISO sensitivity references the amount of light that the camera's image sensor can read. The ISO setting can be adjusted in the camera to adapt to lighting situations. Low ISO (100) is used in normal conditions, and higher ISO (1600) can be used in low-light. Cameras with a large range of ISO settings allow the photographer to control the camera's sensitivity to light.

Figure 1: Exposure Control Comparison Chart

	Exposure Modes	Fast/Slow Shutter Speed	ISO Range
Olympus E-500	Auto, Manual, Shutter/Aperture Priority, Program, Scene (15 unique settings for various shooting conditions)	1/4000, 60 seconds	ISO 100-1600
Nikon D40	Auto, Manual, Shutter/Aperture, Vari-Program (8 unique settings)	1/4000, 30 seconds	ISO 100-1600
Nikon D3	Auto, Manual, Shutter/Aperture Priority	1/4000, 30 seconds	ISO 100-6400
Canon xTi	Auto, Manual, Program, Shutter/Aperture Priority, Auto Depth-of-field	1/4000, 30 seconds	ISO 100-1600

Third Evaluation Step:

Digital-Only Qualities

Up to this point, some of the features we have looked at are uniform characteristics of both digital and film cameras. Now, let's evaluate what makes dSLRs so wonderful: the digital technology that separates them from traditional film cameras. The *LCD screen* allows photographers to instantaneously view their work and make adjustments on the fly. Different *storage media* permits photographer's to take hundreds of pictures in a single day, without the added expense of film.

The *LCD screen* is on the back of the camera and shows the photographer a representation of the image they just created, instantly after taking the picture. The size of the LCD is a primary factor in evaluation. Some newer camera models feature "live-view" LCD, which can show the photographer exactly what is coming through the lens before a picture is even taken. Of the four cameras in [Figure 1](#), three have LCD screens of 2.5", while the Nikon D3 has a 3" screen. None of these models feature "live-view," which is still a relatively new technology.

A camera's accepted *storage media* is the type or brand of memory card that can be used to store pictures. Some memory cards have become standard for many cameras, while other manufacturers prefer to use proprietary storage media. Different memory cards can record images at varying speeds, and hold greater or lesser amounts of data. It is important to know what your camera accepts, so that you can find the best storage media available. A common storage media is the CompactFlash card, which is compatible with all cameras in [Figure 1](#).

Fourth Evaluation Step

Lens Availability

One of the great advantages of having a digital SLR is the spectrum of available lenses. Understanding what comes with your camera, and what you can add to your collection later, are points of consideration. Most cameras are available in a package from the manufacturer with a standard lens that ranges around 11-45mm.

The *focal length* of a lens is measured in millimeters, with lower numbers representing a shorter zoom level and a wider field of view. An 11-45mm lens will sufficiently capture a wide, expansive landscape scene; a 70-200mm lens can zoom in on far away objects.

Think about what types of shots you plan on taking. Will you be going on a safari where animals in the distance are a primary subject? Perhaps you plan on shooting photos of architecture, or interior design. [Figure 2](#) outlines available lenses for different cameras.

In addition to a standard mid-range zoom lens, like the 11-45mm, there are a few different types of specialty lenses you will want to think about:

- *Telephoto zoom lenses* can extend from 170-500mm, allowing the photographer to capture very distant subjects.
- *Wide angle lenses* use a shorter focal length, such as 12-24mm, to get large subjects into the frame from a short distance. These are sometimes called “*fish-eye*” lenses.
- *Macro lenses* are extra sharp, and they are designed for close up photography. If you are capturing tiny subjects such as insects or flowers, you will need a macro lens.

Figure 2: Lens Shopping

	Standard mid-range lenses	Standard telephoto lenses
Olympus E-500 (Zuiko Digital Lens)	<ul style="list-style-type: none"> ○ 14-45mm ○ 18-180mm 	<ul style="list-style-type: none"> ○ 70-300mm
Nikon D40 (Nikkor Lens)	<ul style="list-style-type: none"> ○ 16-85mm ○ 18-135mm 	<ul style="list-style-type: none"> ○ 70-300mm ○ 80-200mm
Nikon D3 (Nikkor Lens)	<ul style="list-style-type: none"> ○ Lenses interchangeable between D3 and D40 	
Canon xTi (EF Lens)	<ul style="list-style-type: none"> ○ 17-55mm ○ 200mm 	<ul style="list-style-type: none"> ○ 70-300mm ○ 100-400mm

*Note – This is a small sample representing only a few of the dozens of available lenses for each camera model. Browse manufacturer websites to get a sense of the variety of available options.

Most camera lenses are interchangeable with other cameras made by the same manufacturer. For example, the Nikon D40 and D3 both use Nikkor lenses. Additionally, all Olympus dSLRs use Zuiko Digital lenses, and all Canons use EF lenses.

The interchangeability of lenses is helpful for a photographer who decides to replace their camera in the future. Instead of having to purchase a new collection, you can replace the camera body and re-use your old lenses.

Final Suggestions

There are many informational resources available for digital photographers on the internet. Here is a short list of some excellent websites to consult while conducting your search for the right dSLR:

- www.dpreview.com
- www.bhphotovideo.com
- www.photo.net

For information about the models discussed in this document, refer to the following websites:

- Olympus E-Volt 500: www.olympusamerica.com
- Nikon D40: www.nikonusa.com
- Nikon D3: www.nikonusa.com
- Canon EOS Digital Rebel xTi: www.usa.canon.com

While camera features and components are an integral part of photography, remember that the photographer takes the picture, not the camera. A solid understanding of fundamental photography is important to the quality of your work. Enjoy your new dSLR!