

TRANSCRIPT

Types and Categorization of lenses

The previous module was dedicated to a narration of the Importance of lens in a camera, focal length of camera lenses and its effects on photographs. In this module let us try to recognise the various types of detachable DSLR camera lenses available for us to use and its categorization.

A search for detachable DSLR camera lenses on any browser will result in popping up of thousands of lenses produced and marketed by various manufactures. It can be quite overwhelming in the early stages of getting into photography, when one realises just how many types of camera lens are there for us to use. This also leads to a confusion of where to start or what to purchase first.

Slide1

Normally when one intent to purchase a camera and approach a dealer in all probability the dealer will suggest some combination packages, which include a camera body and a lens. The lenses included in this package are generally termed kit lenses. These lenses tend to be cheap and provide only the basic features with limited zoom facility. A general trend among the camera manufactures is to provide a kit lens in 18-55mm zoom range with a variable minimum aperture numbered 3.5/F to 6.5/f. A typical kit lens manufactured by Canon Company is displayed in slide.

Slide 2

An improved version of a kit lens with a zoom range 24-105mm is also offered by some manufactures at a premium price. One such kit lens is displayed in the slide.

As a beginner in photography one normally purchases a DSLR camera with a kit lens and start creating digital images. The enthusiasm generated after seeing the images will compel one to learn and experiment with various features available in camera and lens. Soon the photographer will realise the limitations of equipment especially the kit lens provided by the camera manufacturer. This will lead to an idea of purchasing additional lenses and it is time to look forward to the types and categorization of lenses.

The entire detachable DSLR camera lenses can broadly be classifies into two categories

1. Zoom lenses
2. Prime lenses.

Let us look at the Zoom lens

Slide 3

A zoom lens is a single DSLR lens that offers variable focal lengths to select from. Using a zoom lens the photographer can manually adjusted and select a focal length to create focused images within a wide range of distances from a photographic subject. The kit lenses described above also comes under this category.

Advantages of Using a Zoom Lens

A zoom lens offers many advantages to both professional and amateur photographers alike. Most of these are relate to the adjustment of focal length, but there are a number of other advantages too. let us list them

1. Versatility.

A single Zoom lens offers multiple focal lengths

2. Artistic possibilities.

A zoom lens allows magnification of images and the ability to crop out unwanted subject matter.

3. Ability to change focal length on the go.

The variable focal length facility allows one to keep shooting without having to attach and detach lenses from the camera body.

4. Avoid post-photography digital zooming.

An optical zoom lens will allow one to take photographs of different focal lengths while maintaining the maximum resolution allowed by the camera. Emulating this feature using digital zoom cannot match the quality offered on a photograph taken with an optical zoom lens.

Different Types of Zoom Lenses

Some of the most common types of zoom lenses include:

1. parfocal lens,

This are lenses which maintains focus across all of its possible focal lengths.

2. varifocal lens

lenses which loses focus when its focal length is changed are called varifocal lenses. These lenses require an additional user step of refocusing once a new focal length is selected. The vast majority of zoom lenses sold in market are varifocal lenses.

3. telescopic lens

Provide a larger range of focal lengths than a standard parfocal or varifocal zoom lens.

4. wide-angle zoom lens

Allows a user to adjust focal lengths while also enjoying a wider horizontal image than would be possible with a traditional zoom lens

Prime lenses.

Slide 4

A prime lens is a fixed focal length lens that does not allow one to zoom in or out. In a prime lens the determined focal length of the lens is the distance between the point of convergence in lens to the camera sensor. Prime lenses allocate a handful of benefits compared to their zoom counterparts. The first, and most desirable, is the availability of wide apertures. With a wide aperture, prime lenses are able to maximize the amount of light entering in camera by opening its aperture to the maximum ($f/2 - f/1.2$ or even $f/.95$ range). Most zoom lenses do not possess an aperture less than a $f/2.8$. Being able to photograph with wide-open aperture also allows gaining a shallow depth of field. Shooting wide-open gives a narrow DOF, isolating the subject from its surroundings in terms of sharpness and clarity. The closer the lens is to the subject, the softer the foreground/background will become.

Prime Lenses have sharper Image quality. In prime lenses there is less distortions and aberration, due to its reduced optical elements in comparison to a zoom lenses. This translates into sharper and better quality images. Due to reduced optics in a prime lens, the product is available at a cheaper price in comparison to zoom lenses having the same maximum aperture. Again, because there is less distortion, and overall better image quality, one typically gets more value for money when it comes to the purchase of a prime lens.

The less mechanics inside a prime lens makes it simpler and lighter. This is incredibly beneficial while travelling. Even if one does have to bring two lenses of different focal lengths they together are generally lighter than one zoom lens.

Choosing Prime Lens focal lengths

Category 1. (85mm - 100mm lenses)

Slide 5

Ideal for Portrait and food photographers, because they tend to crop in closer to their subjects in-camera. In 85mm and 100mm prime lenses there is very limited distortion of the subject and the bokeh is soft and flattering.

Category 2. (35- 50mm)

Slide 6

These lenses are ideal for environmental and editorial work. They are versatile and interpret the scene in a way similar to how human eye perceives it. These focal lengths are also preferred for capturing street photography and building interiors images since there is minimal distortion towards the edges of the frame and are generally wide enough to take in the context of a scene.

Category 3. (Wide Primes < 35mm)

Slide 7

Wider-angle lenses are best for larger crowds of people or tight indoor spaces. There can be reasonable lens distortion towards the outer corners in pictures captured using these kinds of lenses. In this scenario it is important to maintain subject in the center “sweet spot” of the frame where distortion is less noticeable.

Some specialised lenses

1. Super-Telephoto Lenses

These are lenses having focal lengths ranging from 400mm to 2000mm. super-telephoto lenses allow to magnify a subject without physically getting close to it. Used in sports and wildlife photography.

Super-Telephoto Lenses are available in focal lengths of : 400mm, 600mm, 800mm, 1000mm, and 2000mm

2. Fisheye Lenses

A fisheye lens is in essence is an ultra wide-angle lens. Used mostly in abstract photography, and allows one to capture the most panoramic view which cannot be captured by other photography lenses. As the name suggest, a fisheye lens behaves like actual fish eyes, to give a panoramic view of anywhere from 100-180 degrees.

3. Macro Lenses

Macro lenses are better used for extreme close ups. Macro lenses will show details like hairs on insects, water droplets on plants, diamond on rings etc. Available in a Variety of prime focal lengths ranging from 50-200mm.

4. Tilt-Shift Lenses

Tilt-shift camera lenses distort perspective, making subjects appear smaller than their original dimensions or sizes. These camera lenses are mainly used for architecture and fine art photography. These camera lenses are generally wide-angled, ranging from 17mm to 35mm.

IN CONCLUSION, WE DETAILED VARIOUS TYPES OF LENSES AND ITS CATEGORIZATION IN THIS MODULE.