Photography is creative. A photographer must make a number of critical choices that will determine the outcome. One of the most influential choices is the lens itself. What is being photographed, under what lighting conditions, and where? What lens will provide the necessary control over composition and perspective, or how motion is captured? Which areas of the image are to be in sharp focus and which are to be out of focus? How will the lens function with filters that might be needed to change the characteristics of the captured light? There is no single right answer for every photographer and subject. The only certainties are that a choice must be made and that more high-quality options mean more creative freedom.

Sony’s α lens lineup offers everything the creative photographer needs to realize their vision. Economy, luxury, versatility, precision, legendary optical performance... it’s all there. The choice is yours.
Lenses: How they capture and control light

The linguistic roots of the word “photography” are the Greek words meaning “light” and “drawing.” Photography is “drawing with light,” and lenses are the brushes. After their imagination, lenses are the photographer’s primary creative tools. The way a lens captures and presents an image to the camera’s sensor determines the visual outcome more than any other factor. The ability to choose the right lens and use it well is one of the most important skills an aspiring photographer should acquire.

In this brief guide we’ll look at some of the basics that will help you to choose lenses that are suited to your needs, and make the most out of them to create truly satisfying photographs.

Projecting an image

Our eyes do it, cameras do it, even a simple light-tight box with a tiny hole in one end will do it: the feat of turning light into an image can only be accomplished by first capturing the light from a scene and projecting it onto a surface. That surface, the “image plane,” can be a wall, a piece of film, a sensor, or the retina in our eye. In all cases the image is projected upside-down and horizontally reversed. Let’s take a look at the precursor of modern cameras, the simplest camera of all: the pinhole camera. In a pinhole camera a tiny hole is all that’s needed to project an image.

To make this easier to understand, remember that light normally travels in straight lines, then try to imagine the subject being photographed as being made-up of a multitude of points of light of appropriate brightness and color.

In the example in Figure 1, light from a point at the top of the tree travels in a straight line through the pinhole and reaches a point at the bottom of the photo paper plane, whereas light from a point at the bottom of the tree ends up at the top of the image plane after passing through the pinhole.

The real-world scene becomes an image projected on the image plane, upside-down and reversed left-to-right.

If a little hole can do all of this, why do we need lenses?

Pinholes can “project” images, but they are limited and inflexible. In other words, they can only capture and project light from the exact center of the lens, since a pinhole has no ability to focus or correct for the aberrations that occur when light passes through a single surface. Pinholes can “project” images, but they are limited and inflexible. In order for the projected image to be sufficiently sharp, the hole must be very small, but this also means that the projected image is very dim. In principle, lenses work similarly to the pinhole, but they are capable of capturing more light from each point on the subject, and therefore produce a much brighter image. A lens can also bring more light into the camera’s image sensor plane.

In the example in Figure 1, light from a point at the bottom of the tree ends up at the top of the image plane after passing through the pinhole.

The real-world scene becomes an image projected on the image plane, upside-down and reversed left-to-right.

Second exposures rather than having to make sure that both the camera and subject stay perfectly still for many minutes or even hours, which is usually the case with a pinhole camera. Other advantages are that lenses can be made in a variety of focal lengths from wide-angle to telephoto and that lenses can be made to project any image that the camera is focused on.

Zoom and focus mechanisms

The job of varying focal length in a zoom lens translates zoom ring rotation into precise group movement along the optical axis of the lens. Zoom mechanisms must be precisely manufactured to within tolerances so that all elements and groups stay in perfect alignment throughout the zoom range.

Focusing is sometimes accomplished by moving the entire lens closer to or farther away from the image sensor plane, although some lenses employ a “floating construction” in which groups of elements move independently in order to maintain optimum optical performance at all shooting distances.

Read your lenses

There is a lot of pertinent information printed or engraved on the outside of lenses that can help you understand their characteristics and how to best use them.

Here are a few examples.

Fixed focal length lenses, also known as “prime” lenses, generally have the simplest construction with the fewest groups and elements. Zoom lenses require a larger number of groups/elements to support the zoom functionality.

While most lens elements are “spherical,” meaning that one or more surfaces form part of a sphere, some lenses include “aspherical” elements. Aspherical elements have more complex shapes than simple spherical elements, and are much more difficult and more expensive to produce.

A lens element uses the principle of “refraction” to gather more light from the subject and project a sharp, bright image.

A simple pinhole of appropriate size is capable of projecting a sharp but dim image.

A simplified cross section of a modern lens and a typical SLR (Single Lens Reflex) type digital camera.

A look inside

Elements and groups

All modern photographic lenses are “compound” lenses that use a number of lens “elements” precisely mounted along the same optical axis. The use of multiple elements allows lens designers to effectively reduce optical aberrations so you get nice sharp, clean images.

“Elements” are the individual pieces of specially shaped glass that make up the lens. A “group” consists of two or three elements that have been glued together to function as a unit. Sometimes groups consist of different types of glass that have been combined in order to control some form of aberration. Lenses are sometimes described in terms of the number of elements and groups they contain. You’ll hear terms such as “5-group 8-element” lens.

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The job of varying focal length in a zoom lens requires a fairly complex mechanism that translates zoom ring rotation into precise group movement along the optical axis of the lens. Zoom mechanisms must be precisely manufactured to within tolerances so that all elements and groups stay in perfect alignment throughout the zoom range.

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Lens mount and sensor formats

Sony A-mount and E-mount systems

Sony A-mount lenses are compatible with APS-C format SLR cameras only, while all other lenses will work with both APS-C and 35mm full-frame sensors. Sony lenses that have “DT” in the model name are marked “Digital Technology” and are made for use on Sony’s A-mount systems. Some of these DT lenses are designed specifically for APS-C format and others will work on both APS-C and 35mm full-frame sensors. Here’s a look at how A-mount and E-mount lenses work with cameras, and what that means for photographers.

In addition to overall size, the main difference between A-mount and E-mount lenses is their “flange back distance.” The flange back distance is the distance from the rear of the lens to the image (sensor) plane. Since many A-mount cameras have a reflex mirror between the rear of the lens and the sensor, precipitating the need to have a flange back distance that allows space for the mirror, E-mount cameras, on the other hand, are mirrorless and therefore can be designed with a much shorter flange back distance, allowing the body of the camera to be much smaller and consequently the lenses as well.

Sensor formats: 35mm full frame and APS-C

You may have heard the term “full-frame” in reference to cameras, but did you know it refers to the image size? Most modern full-frame cameras use a 36mm x 24mm image sensor, which is almost the same size as the film negatives of the iconic 35mm cameras. For photography, full-frame sensors offer the best image quality and can produce the most accurate representations of the world as you see it. They’re also the best option for photographers who like to use long lenses for shooting portraits and landscapes, as well as those who shoot video. But for a practical understanding it’s enough to know that smaller f-numbers correspond to larger effective apertures and thus allow for shallower depth of field, which in turn results in a more focused image on the subject and a more blurred background.

Telescopic lenses can be used to capture distant objects like planets or stars. But for a realistic, natural dream, the best camera setting is F8, with an effective aperture of approximately 1200 mm. A tripod is also recommended for long exposures.

The f-number and depth of field

The apparent size of objects and the range of objects that appear in focus are determined by the f-number or f-stop. The f-number is the ratio of the focal length of the lens to the effective aperture of the lens. If you double the focal length of the lens without changing its effective aperture, the f-number will also double (i.e., F4 becomes F8). This means that larger f-numbers correspond to smaller effective apertures and thus allow for shallower depth of field, which in turn results in a more focused image on the subject and a more blurred background. But for a realistic, natural dream, the best camera setting is F8, with an effective aperture of approximately 1200 mm. A tripod is also recommended for long exposures.

Three keys to effective defocusing

There’s actually a lot more to shooting images with beautifully defocused backgrounds than simply choosing straight lines and opening the aperture up all the way. The first “key” is that you can’t always see your subject clearly if the background is in focus. The second key is that your subject needs to be in focus as well. The third key is the distance between you and the background.

Shutter, Depth of field, and Dimens
Focal length and angle of view and perspective

Focal length

Focal length, or focal length range in the case of zooms, will usually be the foremost consideration when choosing a lens for a specific photograph or type of photography. The focal length of a lens determines two characteristics that are very important to photographers: magnification and angle of view.

Longer focal lengths correspond to higher magnification, and vice-versa. Wide-angle lenses with short focal lengths have low magnification, which means you have to get physically close to an object to make it fill the frame. But that also means you can’t fit large subjects in the frame without having to zoom all the way to a distortion Telephoto lenses with long focal lengths have high magnification, so you can fit the frame with subjects that are further away from the camera.

Angle of view

“Angle of view” describes how much of the scene in front of the camera will be captured by the camera’s sensor. In slightly more technical terms, it is the angular distance on the scene captured on the sensor, measured diagonally. It is important to remember that angle of view is entirely determined by both the focal length of the lens and the format of the camera’s sensor. The angle of view you get from any given lens will be different on 35mm full frame and APS-C format cameras. Different lenses of equal focal length will always have the same angle of view when used with the same-size sensor.

The “focal length vs. angle of view” comparison to the left illustrates this relationship for both 35mm full frame and APS-C format cameras.

Perspective

With long focal lengths, foreground and background objects will often appear to be closer together in the final image. This effect is sometimes called “telephoto compression,” although it is not actually caused by the lens itself. What really happens is that when using a telephoto lens, you will need to be further away from your subjects. As such, the distance of the subject from the background relative to the subject’s distance from the camera lens becomes smaller and smaller the further away the photographer stands. From that perspective they actually are closer together. Another way of saying this is that since both the foreground and background objects are at a considerable distance from the camera, their relative sizes in the final image will be closer to reality. When shooting with a wide-angle lens you normally need to get close to the foreground subject so that it is sufficiently large in the frame, which is why more distant objects appear smaller the further away the photographer stands from the subject. When shooting with a telephoto lens you normally need to get close to the foreground subject so that it is sufficiently large in the frame, which is why more distant objects appear smaller the further away the photographer stands from the subject.

Macro photography

Maximum magnification ratio

As mentioned on the previous page, the magnification of any lens is determined by its focal length. For macro photography we are also concerned with how close we can get to our subject. These two factors, focal length and minimum focusing distance, determine the lens’s maximum magnification ratio, sometimes referred to as “reproduction ratio.” The closer you can get to your subject with a lens of a given focal length, the higher the magnification ratio you’ll achieve.

The classic definition of a macro lens is one that has a maximum magnification ratio of at least 1:1, or 1x. In lens specifications this means that a subject can be reproduced at full size on the camera’s image sensor. A 10mm object can be projected onto the sensor as is 10mm image when the lens is sufficiently close to the subject. A maximum magnification ratio of 0.5x would mean that the maximum size that an image of the same 10mm object could be projected onto the sensor would be 5mm, or half its true size.

Other macro lens characteristics you should know about

Macro lenses are specifically designed to deliver optimum optical performance of very short focusing distances, and will usually be sharpened at close range, but that doesn’t mean that you can only use them for macro photography. Many macro lenses are also capable of excellent performance when shooting normal subjects of normal distances as well.

Another important characteristic of macro lenses used at short range is that they have very narrow depth of field. That means you have to be very carefully to get the desired details in perfect focus. A tripod can make focusing easier in some situations. You might have to stop the aperture down quite a bit to achieve sufficient depth of field for some subjects. But shallow depth of field can be an advantage, emphasizing the essential in-focus detail while defocusing and de-emphasizing distracting background.

Minimum focus and working distance

The “minimum focusing distance” lens specification can be confusing. Minimum focusing distance is measured from the subject to the rear focal point of the lens, which is the image sensor plane in the camera body. The term “working distance” is used to describe the distance between the subject and the front element of the lens.

If a lens is specified as having an 0.2 meter (20 centimeters) minimum focusing distance, for example, depending on the thickness of the camera body and the length of the lens, you might only have a few centimeters of working distance when focused at the minimum focusing distance in order to take a 1:1 macro shot. Being that close to your subject can make lighting difficult (special macro flashes and ring lights are available to overcome this type of lighting problems) focusing can be difficult if the subject or camera moves even slightly, and you’ll likely to scare away living subjects at such close distances. If any of those problems occur you need to choose a macro lens that has a longer focal length for more working distance.

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Hoods and filters

Use your lens hood!
The lens hoods provided with most interchangeable-lens systems are not just accessories to be used occasionally. They are an important part of the lens's optical system and should always be used in order to ensure optimum performance. There are exceptions, such as when an on-camera flash is used and the lens hood casts a shadow but for most shooting situations the lens hood should be on the lens, not in your bag. If your lens has a built-in extending hood, it should be extended when you're shooting.

Even though ND filters are uncompromisingly designed with multi-coated elements and other internal features that minimize flare and ghosting, these problems can still occur if extraneous light is allowed to enter the lens. And although the effects of flare might not be obvious in all images, it can subtly degrade contrast and prevent you from capturing the strongest possible image. Strong back-lighting, particularly near the edge of the frame, can cause ghosts even when a lens hood is used. In such situations the only solution is to reframe the shot so that the problematic light source is excluded.

Lenses block extraneous light
Any light entering the lens that does not come directly from the scene being photographed is extraneous light that needs to be eliminated. Light that grazes the front element of a deep angle or bounces around inside the lens barrel will degrade image quality. A lens hood that is properly designed for the lens on which it is used will effectively block extraneous light that does not contribute directly to the image, ensuring that the lens will deliver the highest resolution and contrast it is capable of. Although most lens hoods for normal-to-telephoto focal lengths are basic round designs, lens hoods for wide angle lenses often have a "petal" shape that is designed to block unwanted light without intruding into the corners of image areas.

Circular polarizing filters for improved contrast and color
Circular polarizing (CPL) filters can be used to eliminate reflections and glare from reflective surfaces such as glass and water but landscape photographers find them most useful for increasing contrast and saturation in skies, foliage and other icons of the landscape genre. In all cases the filter works by eliminating the light that grazes the front element or grazes the front element at a steep angle or bounces around inside the lens barrel. This light is extraneous light that needs to be eliminated. If you're shooting in low light conditions and must use a slow shutter speed, the light entering the lens from glass or water will degrade image quality. When you're using a CPL filter you'll find it difficult to use multiple elements in lens designs. Effective coatings made of large apertures. The "Planar" name is derived from the flatness of the image. Planar lenses are appreciated for their superb image depth and rich color reproduction.

The Carl Zeiss lenses that started it all

Protar
Developed by Dr. Paul Rudolph in 1890, this lens was one of the original Anastigmat series. The design was named "Protar" (from the Latin "proto," or "first"/"origin") in 1900. The front group was a standard achromatic combination of low-refractive-index crown glass and high-refractive-index flint glass, but the rear group was an innovative achromatic doublet using Jena glass, with high-refractive-index crown glass and low-refractive-index flint glass. The front and rear elements were located on either side of the diaphragm, effectively suppressing chromatic aberration. This design evolved to become the Biotar lens and later the Tessar.

Planar
Another Paul Rudolph design, developed in 1897. Initially this design was called the "Anastigmat Series II." It features a symmetrical 6-element 4-group Gaussian design that facilitates the use of large apertures. The "Planar" name is derived from the flakiness of the image. Planar lenses are appreciated for their superb image depth and rich color reproduction.

The unmatched 1* (1-star) coating

The fact that lens coating technology—vapor deposition of a thin, even coating on the lens surface to reduce reflections and maximize transmission—was originally a Carl Zeiss patent is well known. The Carl Zeiss company also developed and proved the efficacy of multi-layer coatings for photographic lenses, and this is the technology that became the 1* coating.

Until the introduction of coated lenses, the lens surface would reflect a large percentage of the incoming light, thus reducing transmission and making it difficult to use multiple elements in lens designs. Effective coatings made it possible to design more complex optics that delivered significantly improved performance. Reduced internal reflection contributed to minimum flare and high contrast.

Carl Zeiss coated lens

Neutral density filters
Sometimes the light is so bright that you're forced to use smaller apertures or faster shutter speeds than you want to. Neutral density (ND) filters reduce the amount of light entering the lens without affecting the color or tonal balance in any way and can be very useful in this type of situation. Suppose you want to shoot a waterfall using a shutter speed that's slow enough to blur the moving water and create a sense of motion, but the lighting of the scene is too bright. An ND filter will reduce the light intensity so that you can use the relatively slow shutter speed required to achieve the desired effect.

Carl Zeiss optics

For many photo enthusiasts, Carl Zeiss lenses have long been the ultimate choice. Many models are available, but the only autofocus Zeiss lenses currently available for use on interchangeable-lens digital cameras are those that have been created through close cooperation between Carl Zeiss AG and Sony for the α series cameras.

The scientific approach
It was Ernst Abbe of Carl Zeiss AG who first applied scientific principles to lens design, rather than relying on trial-and-error experience. A significant portion of the history of photographic lens development centers on the Protar, Planar and Sonnar designs that featured advanced optical paths based on those principles. In many ways the history of Carl Zeiss AG is the history of photographic lenses.

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Carl Zeiss coated lens

Carl Zeiss
Making sense of MTF

Those MTF (Modulation Transfer Function) graphs that often accompany lens specifications are really not as intimidating as they look, and if you can give you a good idea of how a lens will perform, so it might be worth taking a few minutes to learn a bit more about them.

MTF describes a lens’s ability to resolve finely spaced black and white lines printed on a test target. As the lines get closer together they start to blur and blend together as the limits of the lens’s resolving ability are reached. MTF is plotted for multiple levels of subject detail (Y axis) at a number of points from the optical center of the lens to its periphery (X axis). The more lines per millimeter the lens can resolve, the better the resolution and contrast of the lens. The resolving power is expressed as line pairs per millimeter (lp/mm), and sometimes as the more scientific sounding “spatial frequency.”

To make sense of the MTF graph you must understand the X and Y axes:

- X: Distance from the optical center of the lens to a point near its periphery, measured in millimeters.
- Y: Degree of contrast measured at each point, expressed as a percentage.

The X (horizontal) and Y (vertical) axes of the chart correspond to the following values:

- X: Distance from the optical center of the lens to a point near its periphery, measured in millimeters.
- Y: Degree of contrast measured at each point, expressed as a percentage.

A number of parameters are represented by different line types on the MTF chart, as defined by a legend that accompanies each chart. Those parameters are:

- Two line pairs/mm: often 10 lines per millimeter and 30 lines per millimeter.
- Two different aperture settings: lens wide open and F8.
- Two orientations of line pairs in relation to the lens’s “G” (radial = lines parallel to the radius of the lens), and “T” (tangential = lines perpendicular to the radius of the lens).

All of the MTF charts that accompany the lens descriptions in the latter part of this brochure follow these conventions.

Take a look at the sample chart below to see how it all works to describe lens performance. The solid green line shows spatial contrast values for 10 lp/mm detail with the lens wide open. The line is almost flat, indicating that resolution is constant at approximately 93% from the center to the periphery of the lens. Very good. The solid red line shows contrast with the same parameters except that the aperture has been stopped down to F8. The red line is higher than the green line, indicating that stopping down has improved resolution somewhat.

Basically the higher and flatter the lines, the better the performance. For the corresponding set of parameters the smaller the distance between the green and red lines, the more consistent the performance of the lens is over a range of aperture settings. The smaller the gap between the solid and dotted lines, the more attractive the defocusing is likely to be.

That’s really all you need to know to glean useful information from an MTF chart. Just remember that comparing MTF graphs of different lenses is really only meaningful if both lenses have similar focal lengths.

Choosing the right lens

For most portraits, the person being photographed is the most important element of the photograph, so it can be effective to de-emphasize other non-essential elements. The usual way of doing this is to defocus the background so the viewer gets a sense of location without being distracted from the main subject by too much surrounding detail. Choose a lens that has a large maximum aperture, so a focal length between about 75mm and 150mm for flattering perspective, and so that you don’t have to get uncomfortably close to your subject. The Planar T* 85mm F1.4 ZA (SAL85F14), DT 55mm F1.8 SAM (SAL55F18), 85mm F2.8 SAM (SAL85F28), 15mm F2.8 (14.5;5.4;7.5;STF (SAL15F28)) and E-mount 50mm F1.8 (SEL50F18) are excellent choices for this type of photography.

Landscapes

Although you can use a wide angle to telephoto lenses for landscape photography, you’ll probably get the most use out of wide lenses that can capture the grandeur and scale of nature at its best. A wide-angle zoom such as the Sony DT 16-35mm F2.8 SAM (SAL1635Z2) would be an excellent choice because it covers a range of focal lengths that are extremely useful for landscape photography with outstanding resolution and contrast. Stopped down to F8 or F11 lenses in this focal length range will give you sufficient depth of field to keep the entire scene in sharp focus and eliminate prominent background subjects to give your landscape images a greater sense of scale.

Snapsots

The term “snapshot” refers to any photo opportunity that arises spontaneously. You’re shooting snapshots when you take your camera for a walk in the park, or on vacation, or even when you’re in “serious” steel-shooting mode. The key is to capture the moment, and that requires mobility and speed. Some photographers prefer to use a prime lens with a focal length they’re comfortable with for this type of shooting: a simple is faster and better approach. Others choose a compact midrange zoom like the 28-70mm F2.8 SAM (SAL2870F28) for maximum versatility if you’re going to be shooting snap indors or in evening or early morning light, or you want to choose a lens with a large maximum aperture.

“True” macro lenses that can be focused close enough to create a clear, detailed images of very tiny subjects have a maximum magnification ratio of 1:1 (1x), and that limits your choices. Use the DT 35mm F2.8 Macro SAM (SAL35F28), 50mm F2.8 Macro (SAL50F28), or E-mount 30mm F3.5 (SAL30F35;STF) for stationary subjects that you can get very close to, or the 100mm F2.8 Macro (SAL100F28GM) where a bit more working distance is required. You can also shoot impressive close-ups such as flowers with any lens that has a maximum magnification ratio of about 0.25x or more and a sufficiently short minimum focusing distance. The 75-200mm F4.5-5.6 SAM (SAL75300S) is good for this type of close-up shooting, or you could use the 70-300mm F4.5-5.6 SAM (SAL59Q00S) for truly stunning image quality.
α lens technology

The technology required to produce first-class interchangeable camera lenses is very sophisticated indeed, and that applies to every phase of the production process from design through precision parts manufacturing and assembly to stringent quality assurance testing and more. Sony brings a distinguished history of excellence in all of these areas to bear in producing the α lenses. You’ll feel the difference in the way α lenses handle, and you’ll see the difference in the superior image quality they deliver.

Aspherical lens elements

Spherical aberration, slight misalignment of the image plane between light that has passed through the center and periphery of a simple spherical lens, can become a noticeable problem in large-aperture lenses. The most effective solution is to use one or more specially shaped aspherical elements near the aperture stop to restore perfect alignment at the image plane. Thus, maintaining high contrast even with the aperture wide open. Aspherical lenses arranged far from the aperture stop can minimize image distortion and flatterness of the image plane. Well-designed aspherical lenses can reduce the number of elements in the lens for less overall size and weight.

ED and Super ED glass

Chromatic aberration in conventional optical glass elements can reduce contrast, resolution, and color fidelity, particularly at longer focal lengths. ED (Extra-low Dispersion) and Super ED glasses were developed with refractive index and dispersion characteristics specially tailored to counter this problem. Lenses that include ED or Super ED glass elements provide superior contrast and resolution throughout the image even at large aperture settings.

Auto clutch

The auto clutch mechanism decouples the focus ring so that it does not rotate during autofocus operation. This allows the lens to be cradled in one hand without interfering with autofocus operation, for improved shooting comfort and versatility.

Circular aperture

Standard lens apertures appear as a flat-sided polygon when the lens is stepped down, the number of sides corresponding to the number of blades in the aperture. This results in the familiar polygonal out-of-focus highlights seen in many photographs. Almost all α lenses feature a unique circular aperture that contributes to smooth, natural defocusing.

Floating lens mechanism

This focusing feature is particularly important in certain lenses that are designed for close focusing. It maintains optimum lens performance and therefore maximum sharpness right down to the minimum focusing distance by moving “floating” elements independently when focusing, rather than moving the entire optical assembly as a whole.

Focus hold button

Press this button to lock focus at the current setting. The focus hold button is on the lens barrel right under your fingertip for convenient, fast operation.

Focus range limiter

This feature can be used to limit focus range when you need the quick-and-possible autofocus response. On some lenses a single “lim” range will match the characteristics of the lens (near focus lim on macro lenses, for example), while some lenses have a “near”/”far” lim range switch.

Internal focusing mechanism

In this type of lens, focusing is achieved by moving only the internal elements. The overall length of the lens remains constant, and the filter mounting thread at the front of the lens remains stationary during focusing. The latter characteristic is an advantage when using a polarizing filter. Other advantages include fast autofocus response and reduced minimum focusing distance.

Rear focusing mechanism

This focusing configuration has similar advantages to internal focusing described above, but focusing is achieved by moving the rear lens elements rather than the internal elements.

SSM (Super Sonic wave Motor)

SSM is an advanced direct-drive piezoelectric motor that is capable of delivering high torque even at low speeds, with almost instantaneous start/stop response. Its fast response and low-noise operation translate directly into fast, quiet autofocus operation. SSM lenses also include position detection for enhanced focusing precision. Other advantages of this advanced drive system are that the focus ring does not rotate during autofocus operation, and you can directly switch to manual focusing by simply rotating the focus ring.

SAM (Smooth Autofocus Motor)

SAM is another type of internal lens motor for autofocus drive. While the SSM motor described above is piezoelectric, the SAM motor is electromagnetic in operation, but provides similar benefits responsive autofocus operation that does not require mechanical coupling from the camera body.

STF lens

A unique α lens feature currently available only in the SAL135F28, STF (Smooth Trans Focus) is an optical technology that is aimed specifically at creating the smoothest, most visually pleasing defocusing effect possible while retaining full resolution and contrast in in-focus areas. STF technology employs a special “apodization” element that causes the intensity of defocused point light sources to fade out radially so that no sharply defined edges or geometry remain. The result is extraordinarily creamy defocusing that goes beyond the capabilities of conventional lens technology.

SAM lens

SAM consists of a rotor (left) and a stator (right) on which piezoelectric elements are mounted.
Zoom Lenses

The advent of the digital age—both in terms of photography itself and the tools used for optical design—has made high-performance zoom lenses more accessible and easier to use than ever before. Not only are zoom lenses a great way to be ready for any photo opportunity, but the freedom to rapidly change framing and composition without having to change the camera position offers creative flexibility that is just too appealing to ignore. In many situations, that speed and freedom can be the key to grabbing shots that would otherwise be missed. Advanced Sony design and manufacturing technology delivers outstanding image quality with unparalleled zoom versatility and convenience.

The DT 11-18mm F4.5-5.6 SAL1118

This lens fits squarely in the “wide zoom” category, offering a range of focal lengths that are indispensable for serious indoor and architectural photography as well as any other situation that demands wide-angle coverage. City scenes, crowded markets, historical ruins... all of these are subjects that can benefit from the wide perspectives this lens provides. It’s also a great lens for shooting dynamic images with deep perspective. Although wide angles present more opportunities for image-degrading lens flare, the SAL1118 features special elements and design that reduce flare and aberrations to a minimum for crisp, high-contrast images even under difficult conditions.

- Weight (approx.): 360 g
- Dimensions (Dia. x L): 83 x 80.5 mm
- Max. magnification ratio: 0.125x

One ED glass element and three aspherical elements for superior image quality
High contrast throughout zoom range
Flare and aberrations effectively subdued
Circular aperture for attractive defocusing
35mm equivalent focal length: 16.5-27mm

Spatial frequency
10 line pairs/mm
30 line pairs/mm

Contrast (%)
100 80 60 40 20 0 3 6 9 12

Distance from optical center of lens (mm)

Max. aperture
R: Radial values  T: Tangential values
F8 aperture

M mode, 1/1250 sec., F8, ISO 200, Auto white balance. Photo: Goh Fujimaki
Mid-range zoom

**DT 16–50mm F2.8 SSM**  
SAL1650

The SAL1650 packs first-class optical performance and a versatile zoom range into a lens that is remarkably compact and lightweight. At the wide end you have a 16mm focal length that is ideal for interiors, sweeping landscapes, or creating visual impact with powerful perspective. Zoom out to the 50mm end for mid-range telephoto reach that can bring details and distant subjects closer. What’s more, you have a constant F2.8 maximum aperture throughout the entire zoom range. That makes shooting in low light easy, especially when the lens is used with a body that includes SteadyShot INSIDE™ body-integrated image stabilization. A large maximum aperture also provides plenty of margin to stop down for increased depth of field or to freeze fast motion. The SAL1650 additionally features a circular aperture that, combined with the F2.8 maximum aperture, contributes to beautiful defocusing effects.

- **Weight (approx.):** 577 g
- **Dimensions (Dia. x L):** 81 x 88 mm
- **Max. magnification ratio:** 0.2x

### Features
- Three ED glass elements and two aspherical elements for superior image quality
- Bright constant F2.8 maximum aperture
- SSM (Super Sonic wave Motor) for fast, quiet autofocus operation
- Circular aperture for attractive defocusing
- Dust and weather resistant design

### Specifications
- Aspherical lens
- ED glass
- 35mm equivalent focal length: 24–75mm

### Performance Chart

<table>
<thead>
<tr>
<th>Distance from optical center of lens (mm)</th>
<th>Transmission (%)</th>
<th>Contrast (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 lines/mm</td>
<td>T</td>
<td>R</td>
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<tr>
<td>6 lines/mm</td>
<td>T</td>
<td>R</td>
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<td>12 lines/mm</td>
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<td>R</td>
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<td>24 lines/mm</td>
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<tr>
<td>48 lines/mm</td>
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<td>T</td>
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<tr>
<td>96 lines/mm</td>
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**Mid-range zoom**

**DT 16–105mm F3.5–5.6**  
SAL16105

Zoom range can be a very subjective and personal choice, hinging on individual shooting style and preferred subjects. The 16–105mm range of this lens is a “sweet spot” for many photographers, wide enough at the 16mm end to capture indoor scenes and long enough at 105mm to fill the frame with relatively distant subjects. Comfortable handling is another plus, facilitated by a compact, lightweight design and an auto-clutch mechanism that prevents focus ring rotation during autofocus operation, so you can comfortably cradle the lens in your hand while shooting. Of course comfort isn’t everything. A precision optical design delivers superb image quality throughout the entire zoom range.

- **Weight (approx.):** 470 g
- **Dimensions (Dia. x L):** 72 x 83 mm
- **Max. magnification ratio:** 0.23x

### Features
- One ED glass element and two aspherical elements for superior image quality
- High resolution and contrast throughout zoom range
- Circular aperture for attractive defocusing
- Focus ring with auto clutch does not rotate during autofocus

### Specifications
- Aspherical lens
- ED glass
- 35mm equivalent focal length: 24–157.5mm

### Performance Chart

<table>
<thead>
<tr>
<th>Distance from optical center of lens (mm)</th>
<th>Transmission (%)</th>
<th>Contrast (%)</th>
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<tbody>
<tr>
<td>3 lines/mm</td>
<td>T</td>
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<td>96 lines/mm</td>
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M mode, 1/500 sec., F8, ISO 800; Manual white balance

M mode, 1/1000 sec., F6.3, ISO 200; Daylight white balance, landscape Creative Style; Photo: Norifumi Inagaki
Mid-range zoom
DT 18–55mm F3.5–5.6 SAM
SAL1855

- One ED glass element and two aspherical elements for superior image quality
- 0.25m min. focus plus 0.34x max. magnification for close-ups
- Responsive internal SAM (Smooth Autofocus Motor) autofocus drive
- Circular aperture for attractive defocusing
- 35mm equivalent focal length: 27–82.5mm

If you’re the kind of photo enthusiast who likes to carry a camera at all times, whether actively shooting or not, you probably want one small, lightweight lens that won’t be a burden while walking around but will deliver top quality and versatility when a photographic opportunity arises. The SAL1855 is the smallest and lightest zoom in this series, weighing in at only 210 grams while offering an 18–55mm focal length range that will cover most day-to-day subjects. It also features a minimum focusing distance of just 25 centimeters that, combined with 0.34x maximum magnification, will let you get close and explore details. If you want to be prepared for a wider range of subjects the SAL1855 is the perfect companion for the SAL55200-2, the pair providing excellent optical performance from 18mm to 200mm.

- Weight (approx): 210 g
- Dimensions (Dia. x L): 69.5 x 69 mm
- Max. magnification ratio: 0.34x

Mid-range telephoto zoom
DT 18–135mm F3.5–5.6 SAM
SAL18135

- One ED glass element and two aspherical elements for superior image quality
- 0.25m min. focus plus 0.34x max. magnification for close-ups
- Responsive internal SAM (Smooth Autofocus Motor) autofocus drive
- Circular aperture for attractive defocusing
- 35mm equivalent focal length: 27–82.5mm

Developed to provide the most ideal focal range for normal use—covering frequently-used focal lengths between 18mm and 135mm—the Sony SAL18135 mid-range zoom lens enables rich expression for a wide range of shots. Direct Manual Focus (DMF) allows you to switch between AF and MF without removing your eyes from the viewfinder to seize fleeting photo ops with ease. Plus, enjoy smooth and quiet AF thanks to the Smooth Autofocus Motor (SAM), which also improves AF response when shooting moving subjects. And with a single ED glass lens element as well as a pair of aspherical lens elements, the SAL18135 delivers images with low levels of color aberration for excellent image quality in any setting.

- Weight (approx): 398 g
- Dimensions (Dia. x L): 76 x 86 mm
- Max. magnification ratio: 0.25x
High magnification zoom

**DT 18–200mm F3.5–6.3 SAL18200**

- Two ED glass elements and three aspherical elements for superior image quality
- Broad zoom range in a compact, lightweight lens
- Circular aperture for attractive defocusing
- Internal focusing for fast autofocus and short min. focus distance
- 35mm equivalent focal length: 27–370mm

**Specifications**

- Weight (approx): 405 g
- Dimensions (Dia. x L): 73 x 85.5 mm
- Max. magnification ratio: 0.27x

Two ED glass elements and three aspherical elements for superior image quality

Broad zoom range in a compact, lightweight lens

Circular aperture for attractive defocusing

Internal focusing for fast autofocus and short min. focus distance

35mm equivalent focal length: 27–370mm

Aspherical lens

ED glass

**Performance**

- 100
- 80
- 60
- 40
- 20
- 0

**Contrast (%)**

**Spatial frequency**

10 line pairs/mm

30 line pairs/mm

**R: Radial values  T: Tangential values**

**Max. aperture**

R RT T

F8 aperture

At 18 mm

At 200 mm

**Although similar to the SAL18200 in zoom range and performance, the SAL18250 offers a bit more “reach” at the long end that can make a significant difference if you’re shooting sports or wildlife, for example. The tradeoff is a small increase in weight and size, but if you need the extra range the difference is worth it. You get the same outstanding clarity and contrast throughout the image at all focal lengths, so you can shoot with confidence in any situation that arises.**

**SAL18250**

- Two ED glass elements and two aspherical elements for superior image quality
- Extra-broad zoom range in a compact, lightweight lens
- Circular aperture for attractive defocusing
- Internal focusing for fast autofocus and short min. focus distance
- 35mm equivalent focal length: 27–370mm

**Specifications**

- Weight (approx): 440 g
- Dimensions (Dia. x L): 75 x 86 mm
- Max. magnification ratio: 0.29x

Two ED glass elements and two aspherical elements for superior image quality

Extra-broad zoom range in a compact, lightweight lens

Circular aperture for attractive defocusing

Internal focusing for fast autofocus and short min. focus distance

35mm equivalent focal length: 27–375mm

Aspherical lens

ED glass

**Performance**

- 100
- 80
- 60
- 40
- 20
- 0

**Contrast (%)**

**Spatial frequency**

10 line pairs/mm

30 line pairs/mm

**R: Radial values  T: Tangential values**

**Max. aperture**

R RT T

F8 aperture

At 18 mm

At 250 mm

**Live view examples**

- S mode, 1/250 sec., F6.3, +1.0 EV, ISO 3200, Auto white balance; Photo: Shinya Morimoto
- P mode, 1/125 sec., F5.6, +0.3 EV, ISO 100, Auto white balance, Portrait Creative Style; Photo: Norifumi Inagaki
### Mid-range zoom

**28–75mm F2.8 SAM SAL2875**

- Three ED glass elements and one spherical element for superior image quality
- Bright constant F2.8 maximum aperture
- Responsive internal SAM (Smooth Autofocus Motor) autofocus drive
- Circular aperture for attractive defocusing
- Aspherical lens
- ED glass

If you use a 35mm full frame body, this award-winning* lens offers an ideal balance of brightness, zoom range and image quality for a wide range of situations you’re likely to encounter in everyday shooting. The fact that it features a constant, bright F2.8 maximum aperture at all focal lengths offers significant advantages for hand held and low light shooting, as well as for creating gorgeous defocused backgrounds. But you never know when you might need to go a bit longer, so if there’s room in your bag consider taking the 75–300mm SAL75300 along as well: the SAL2875 plus SAL75300 combination gives you a full-frame focal length range from 28mm to 300mm.

- **Weight (approx):** 565 g
- **Dimensions (Dia. x L):** 77.5 x 94 mm
- **Max. magnification ratio:** 0.22x

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### Telephoto zoom

**DT 55–200mm F4–5.6 SAM SAL55200-2**

- One ED glass element for superior image quality
- Medium to telephoto range in a lightweight lens
- 9-blade circular aperture for attractive defocusing
- Responsive internal SAM (Smooth Autofocus Motor) autofocus drive
- 35mm equivalent focal length: 82.5–300mm

Covering the medium to telephoto stretch of the “standard” zoom range with ample F4-5.6 brightness at the 200mm end, this lens is a lightweight, easy handling choice for shooting sports and other subjects that require some telephoto reach. On an APS-C format camera the 35mm equivalent focal length at the telephoto end is 300mm, which is long enough to capture tight shots of the action. In terms of compact, lightweight design and optical performance, the SAL55200-2 is an ideal companion for the 18–55mm SAL1855. The pair is light enough to be carried comfortably, providing outstanding image quality from 18mm to 200mm.

- **Weight (approx):** 305 g
- **Dimensions (Dia. x L):** 71.5 x 85 mm
- **Max. magnification ratio:** 0.29x

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*The SAL2875 received the 2010 TIPA Best Expert Lens award.*
Get a superb all-purpose telephoto zoom lens at a great value with the Sony SAL55300 55-300mm f/4.5-5.6 lens. An excellent all-around addition to your kit, this lens covers the medium- to long-distance telephoto range used most often by family photographers. It also provides close minimum focusing distance of about 4.5 feet (1.4m) ideal for tight shots of people, natural subjects and close-up details. Its compact, lightweight design makes it easy to carry as your standard or accessory lens. All your shots will benefit from the Sony Super SteadyShot® image stabilization system built into your Sony Alpha DSLR camera. (35mm equivalent: 82.5-450mm)

- Weight: 460 g
- Dimensions (Dia. x L): 77 x 116.5 mm
- Max. magnification ratio: 0.27x
- ED Glass for sharp imaging

Omitting zoom lenses, commonly known as “prime lens” or simply as “primes,” can complement your photographic vision in a number of ways. Although most of the focal lengths offered are also available with zoom lenses, some special-purpose lenses are only available as primes: fish-eye lenses and most true macro lenses are examples. And since the optical path only needs to work at one focal length, it can be optimized to deliver a level of optical performance that is a cut above the average zoom. But many photographers like working with a fixed focal length simply because it always gives them the same angle of view and perspective, making it easier to pre-visualize what the camera will see and thus providing the most consistent, intuitive shooting experience.
Once a scientific tool but now a favorite of creative photographers, fisheye lenses forgo the restraints of rectilinear perspective—the complex “correction” that is required to keep straight lines looking straight—to deliver expansive images that cover an extremely wide angle of view with curvilinear perspective. The SAL16F28 provides an extremely wide 180° angle of view on 35mm full-frame format cameras (110° on APS-C format cameras). In addition to eye-catching interpretations of reality, it offers extended depth of field so that you can capture huge vistas in which everything from 20 centimeters to infinity is sharp, even at maximum aperture. Since the bulging front element and wide angle of view prevent the use of external screw-in filters, four selectable internal filter settings are provided: normal, O56 monochrome, B12 red reduction and A12 blue reduction.

- **Weight**: (approx) 400 g
- **Dimensions**: (Di. x L): 75 x 66.5 mm
- **Max. magnification ratio**: 0.15x

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This rigorously corrected lens gives you a wide angle of view for images that benefit from dramatic perspective with minimum distortion. It’s an ideal choice for covering spread-out scenes that you can’t get far enough way from to cover with a “normal” lens. But there’s more since it has extended depth of field that can keep everything from 25 centimeters to infinity in crisp focus; you can create exaggerated perspective by including very close and very distant objects in the frame. Close objects will loom large, while distant objects appear to recede markedly into the distance. Meticulous attention has been paid to minimizing flare and internal reflections in this advanced design, with the result that excellent sharpness and contrast are maintained through the image.

- **Weight**: (approx) 285 g
- **Dimensions**: (Di. x L): 78 x 53.5 mm
- **Max. magnification ratio**: 0.13x

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### Fisheye 16mm F2.8 Fisheye SAL16F28

- **180° angle of view on full-frame cameras**
- **Curvilinear perspective for unique, expansive images**
- **Crisp image quality throughout the focus range**
- **Four selectable internal filter settings**

### Ultra wide angle 20mm F2.8 SAL20F28

- **Wide 94° angle of view on full-frame cameras**
- **Precisely corrected for natural perspective**
- **Aberration effectively suppressed throughout the focus range**
- **Rear-focusing mechanism for fast autofocus response**
- **Circular aperture for attractive defocusing**
Wide angle
28mm F2.8 SAL28F28

28 millimeters is an extremely versatile focal length that can be useful in a wide variety of situations on both full frame and APS-C format cameras. On a 35mm full frame format camera, 28mm is wide enough to allow comfortable shooting indoors or on the street without producing forced perspective. On an APS-C format camera 28mm is equivalent to a focal length of 42mm, which is close to “normal” in terms of angle-of-view and perspective. For photo enthusiasts who use either or both types of bodies, this lens is a must-have! It’s compact and lightweight, and is a versatile, convenient choice for use either as a main or second lens.

- Weight (approx): 185 g
- Dimensions (Dia. x L): 65.5 x 42.5 mm
- Max. magnification ratio: 0.13x

Excellent contrast and resolution
Compact, lightweight design
Built-in slide-out lens hood
An outstanding choice for 35mm full-frame and APS-C format cameras

Normal
DT 35mm F1.8 SAM SAL35F18

There’s a very good reason why 35mm is one of the most popular focal lengths for use on APS-C format cameras. The full-frame equivalent focal length is 52.5mm, providing “normal” perspective—similar to that experienced with the naked eye—and an angle of view that is suitable for an extremely wide range of subjects. You can shoot anything from landscapes to portraits with this lens, without ever feeling that the perspective is too forced or too flat, or that objects appear distorted. The large F1.8 maximum aperture is another advantage: bright enough to allow handheld shooting in low light, and capable of producing smooth defocusing effects that can add depth and artistic elegance to your images. As a bonus, the SAL35F18 weighs a mere 170 grams, making it unobtrusive on the camera, in a bag, or even in a pocket!

- Weight (approx): 170 g
- Dimensions (Dia. x L): 70 x 52 mm
- Max. magnification ratio: 0.25x

Excellent sharpness and contrast throughout the image
Circular aperture for attractive defocusing
Responsive internal SAM Smooth Autofocus Motor autofocus drive
Light enough for handheld shooting in low light
35mm equivalent focal length: 52.5mm
Normal
50mm F1.4  SAL50F14

- Flare effectively controlled for high contrast
- Outstanding corner-to-corner resolution
- Bright F1.4 max. aperture facilitates hand-held shooting in low light
- Circular aperture for effective defocusing

50mm focal length with a maximum aperture of F1.4, this quintessential "normal" lens formula has produced some of the greatest photographic masterpieces in history, and continues to serve as a photographic standard to this day. Of course, not all 50mm F1.4 lenses are created equal, and the stunning clarity and contrast delivered by the SAL50F14 proves that it is one of the finest in its class. While the in-focus plane is sharp from corner to corner, the combination of F1.4 maximum aperture and circular aperture design makes it possible to elicit silky-smooth defocusing effects to enhance dimensionality and isolate important visual elements. This is a lens that should be part of every serious photo enthusiast’s palette.

- Weight (approx): 220 g
- Dimensions (Dia. x L): 65.5 x 43 mm
- Max. magnification ratio: 0.15x

Flare effectively controlled for high contrast
Outstanding corner-to-corner resolution
Bright F1.4 max. aperture facilitates hand-held shooting in low light
Circular aperture for effective defocusing

Mid-range telephoto
DT 50mm F1.8 SAM  SAL50F18

- Compact, lightweight and eminently portable
- Circular aperture for effective defocusing
- Responsive internal SAM (Smooth Autofocus Motor) autofocus drive
- Bright enough for handheld shooting in low light
- 35mm equivalent focal length: 75mm

On APS-C format cameras, for which it is specifically designed, the SAL50F18 functions as a moderate telephoto lens (equivalent to 75mm on a full-frame camera) that can be ideal for shooting portraits as well as for framing and isolating areas of interest in broader, busier scenes. Not only can you isolate the desired subject matter by framing, but you can also take advantage of the lens’s large F1.8 maximum aperture and circular aperture design to isolate your subject from the background by using defocusing. The large maximum aperture also facilitates shooting in low light, a capability that is further enhanced by SteadyShot INSIDE™ image stabilization featured in α series bodies.

- Weight (approx): 170 g
- Dimensions (Dia. x L): 70 x 45 mm
- Max. magnification ratio: 0.2x

On APS-C format cameras, for which it is specifically designed, the SAL50F18 functions as a moderate telephoto lens (equivalent to 75mm on a full-frame camera) that can be ideal for shooting portraits as well as for framing and isolating areas of interest in broader, busier scenes. Not only can you isolate the desired subject matter by framing, but you can also take advantage of the lens’s large F1.8 maximum aperture and circular aperture design to isolate your subject from the background by using defocusing. The large maximum aperture also facilitates shooting in low light, a capability that is further enhanced by SteadyShot INSIDE™ image stabilization featured in α series bodies.

- Weight (approx): 170 g
- Dimensions (Dia. x L): 70 x 45 mm
- Max. magnification ratio: 0.2x
Photographers often choose a large-aperture 85mm lens for portraits for two compelling reasons. First, the 85mm focal length makes it easy to fill the frame with the subject from a comfortable distance, without getting so close that unflattering distortion occurs. And second, a large maximum aperture works with the medium-long focal length to create beautifully defocused backgrounds, so that the subject seems to “pop” out of the image. The SAL85F28 is just such a lens. But it’s not just limited to portraits. It’s a great choice for any situation where you want a bit more magnification than a “standard” focal length provides. And the fact that it is light and compact means that it’s easy to take along as a second lens.

- **Weight (approx):** 175 g
- **Dimensions:** (Dia. x L): 70 x 50 mm
- **Max. magnification ratio:** 0.2x

**Compact, lightweight and eminently portable**
**Excellent corner-to-corner sharpness**
**Large maximum aperture plus circular aperture design for smooth defocusing**
**Responsive internal SAM (Smooth Autofocus Motor) autofocus drive**

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This unique lens has been specifically designed to deliver smooth transitions between crisp in-focus areas and creamy defocused background and foreground areas. It uses special apodization* optics to produce images that seem to have an extra dimension, with high resolution at the plane of focus, gradually melting away to beautifully diffused out of focus rendition. With some lenses highlights in defocused areas can be distracting, but with this unique Smooth Trans Focus design they retain their natural shape in a way that doesn’t detract from the defocused background or foreground, and there’s no ugly double-line defocusing. The SAL135F28 promises a one-of-a-kind photographic experience. A manual aperture ring is provided for direct, hands-on defocusing control.

- **Weight (approx):** 730 g
- **Dimensions:** (Dia. x L): 80 x 99 mm
- **Max. magnification ratio:** 0.25x

*“Apodization” is the technical term for changing the shape of a mathematical function. In this case the optical transmission characteristics of the lens. 

For details of STF technology see pg.17.
If you shoot with an APS-C format camera and want a lightweight, compact lens that will handle snapshots and portraits plus macro photography as well, this is it. The 35mm equivalent focal length of this lens is a distinctly “normal” 45mm, making it a good choice for general photography. But when an exquisite little detail catches your eye, you can move in as close as 2 centimeters from your subject to capture macro images with up to 1:1 magnification. The details you focus on will be astonishingly sharp, while the out-of-focus background dissolves into a creamy blur that can really make the details stand out. The SAL30M28 is only 45 millimeters long and weighs a discreet 150 grams, so it can stay on your camera or in your bag at all times without getting in the way.

- **Weight** (approx): 150 g
- **Dimensions** (Dia. x L): 70 x 45 mm
- **Max. magnification ratio**: 1.0x
- **2cm working distance lets you get really close**
- **Precision optics deliver excellent sharpness and contrast**
- **Compact, lightweight, portable design**
- **Responsive internal SAM (Smooth Autofocus Motor) autofocus drive**
- **35mm equivalent focal length**: 45mm
- **Spatial frequency**: 10 line pairs/mm
- **Contrast (%)**: 100
- **Max. aperture**: F8

Photographers who are attracted to details need a lens that lets them get in close when necessary, filling the frame with their diminutive but fascinating subjects. A lens like the SAL50M28, with a minimum focusing distance of just 20 centimeters and up to 1:1 magnification, can open up a world of creative possibilities. But there’s no need to change lenses when you want to go back to shooting at normal distances. The SAL50M28 offers outstanding optical performance for general photography as well, and its 50mm focal length is a very versatile choice for 35mm full frame format cameras. On APS-C format cameras you get a little more reach, which can be advantageous for some normal subjects as well as macro shooting.

- **Weight** (approx): 295 g
- **Dimensions** (Dia. x L): 71.5 x 60 mm
- **Max. magnification ratio**: 1.0x
- **High-performance macro and everyday shooting with one lens**
- **Accurate autofocus from 1:1 magnification to infinity**
- **Double floating design contributes to outstanding image quality**
- **Circular aperture for attractive defocusing**
- **Focus ring with auto clutch does not rotate during autofocus**

**Performance**
- **Spatial frequency**: 10 line pairs/mm
- **Contrast (%)**: 100
- **Max. aperture**: F8

**At 30 mm**
- 100 80 60 40 20 0 3 6 9 12 20
- Distance from optical center of lens (mm)
- Spatial frequency: 10 line pairs/mm
- Contrast (%): 100
- Max. aperture: F8

**At 50 mm**
- 100 80 60 40 20 0 3 6 9 12 20
- Distance from optical center of lens (mm)
- Spatial frequency: 10 line pairs/mm
- Contrast (%): 100
- Max. aperture: F8

**P mode, 1/200 sec., F4.5, ISO 100, Auto white balance; Photo: Kentaro Fukuda**
**M mode, 1/50 sec., F2.8, ISO 400, Auto white balance; Photo: Shinya Morimoto**
Doing macro photography outdoors “in the wild” often means that you can’t get too close to your subject and lighting can’t be easily controlled. That’s when you need a telephoto macro lens like the SAL100M28. Greater working distance means you can capture tight macro shots of small-scale wildlife without scaring it away, and you’re not so close that you need special lighting to illuminate your subject. Of course the SAL100M28 is a first-class telephoto lens for normal shooting too, and can be a good choice for portraits or other subjects that require a bit more reach than a normal lens.

- Weight (approx.): 505 g
- Dimensions: (Dia x L): 75 x 98.5 mm
- Max. magnification ratio: 1.0x
- Focus hold button, focus range limiter
- Focus ring with auto clutch does not rotate during autofocus

Macro

100mm F2.8 Macro

SAL100M28

Stunning macro shots from a comfortable distance
Autofocus from 1:1 magnification to infinity
Double floating design contributes to outstanding close-up image quality
Thistle-shaped aperture for attractive defocusing
Focus hold button, focus range limiter
Focus ring with auto clutch does not rotate during autofocus

Sony G Lenses are an exceptional breed. They inherit a distinguished pedigree from the original Minolta® lens line, with industry-leading Sony design and quality assurance technology added to push their performance to the forefront of twenty-first century photography. G Lenses impart a visual elegance to every aspect of the images they produce:

- Extraordinary presence at in-focus areas, smoothly dissolving to luscious out-of-focus rendering that can provide a beautiful foundation for capturing photographic art. Their handling is extraordinary too, with intimate operation and response that seamlessly connect the process of taking photographs to the photographer’s imagination.
The range from 70 to 200 millimeters is where much of the telephoto action occurs. The ability to cover that range with a constant F2.8 aperture affords some significant photographic advantages, and the outstanding clarity and contrast offered by the SAL70200G multiplies those advantages many times over. Although the large F2.8 maximum aperture does make it easier to create beautifully defocused backgrounds, there are important advantages for shooting moving subjects as well. Larger apertures—often referred to as “fast” as well as “bright”—allow you to use faster shutter speeds to achieve equivalent exposure, making it possible to capture motion that might end up as a blur with a slower lens. The SAL70200G does it all with characteristic G Lens refinement and class.

- Weight (approx.): 1340 g
- Dimensions (Dia. x L): 87 x 196.5 mm
- Max. magnification ratio: 0.21x
- Tripod mount supplied

Four ED glass elements effectively suppress aberration
- Constant F2.8 maximum aperture
- Outstanding sharpness and contrast throughout the zoom range
- SSM (Super Sonic wave Motor) for fast, quiet autofocus operation
- Circular aperture for attractive defocusing
- Focus hold and focus range switches offer precision focusing control

At 70 mm
- 100
- 80
- 60
- 40
- 20
- 0
- 4
- 8
- 11
- 15
- 20
- 25
- 30
- Contrast (%)

Distance from center of image (mm) Spatial frequency
- 10 line pairs/mm
- 30 line pairs/mm

R: Radial values  T: Tangential values

Max. aperture
- R RT T
- F8 aperture

The SAL70300G is the smallest and lightest zoom in the current G Lens series, offering an appealing combination of extended zoom range and handling, plus image quality that will satisfy the most demanding photo enthusiast or pro. An ED lens element collaborates with an advanced optical path design to achieve exceptionally low aberration right out to the maximum 300mm focal length, so that your telephoto images benefit from impressive clarity and depth. 300mm is generally considered to be the point at which the “medium” telephoto range ends and the “super” telephoto range begins. Long focal lengths like this require careful handling to prevent camera shake, but SteadyShot INSIDE™ image stabilization featured in α series bodies will help you capture clear telephoto images in a wider range of handheld shooting situations than would normally be possible.

- Weight (approx.): 760 g
- Dimensions (Dia. x L): 82.5 x 135.5 mm
- Max. magnification ratio: 0.25x
- Tripod mount supplied

One ED glass element contributes to minimal aberration
- Outstanding sharpness and contrast throughout the zoom range
- SSM (Super Sonic wave Motor) for fast, quiet autofocus operation
- Circular aperture for attractive defocusing
- Focus hold and focus range switches offer precision focusing control

At 70 mm
- 100
- 80
- 60
- 40
- 20
- 0
- 4
- 8
- 11
- 15
- 20
- 25
- 30
- Contrast (%)

Distance from center of image (mm) Spatial frequency
- 10 line pairs/mm
- 30 line pairs/mm

R: Radial values  T: Tangential values

Max. aperture
- R RT T
- F8 aperture
### Super telephoto zoom 70–400mm F4–5.6 G SSM SAL70400G

- Covering an extremely wide telephoto range with ample brightness, this award-winning lens can, for example, take you from an elegant 70mm portrait to a stunning 400mm wildlife shot in an instant without having to change lenses and potentially miss a great shot. This is an extraordinarily wide zoom range for a lens in this class, but range isn’t its only feature. Being a high-end G Lens with a precision optical path that includes two ED glass elements, you can be sure that it will deliver excellent sharpness and contrast right out to the edges of the image at all focal lengths. And although long telephoto shots usually require a very steady hand or even a tripod to achieve optimum quality, SteadyShot INSIDE image stabilization featured in a series bodies will vastly improve your chances of capturing stunning handheld telephoto images.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
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</thead>
<tbody>
<tr>
<td>Weight</td>
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</tr>
<tr>
<td>Dimensions (Dia. x L)</td>
<td>94.5 x 196 mm</td>
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<tr>
<td>Max. magnification ratio</td>
<td>0.27x</td>
</tr>
</tbody>
</table>

* The SAL70400G received the 2009 TIPA Best Expert Lens award and the 2009-2010 EISA Zoom Lens award.

#### Features
- Two ED glass elements effectively suppress aberration
- Outstanding sharpness and contrast throughout the zoom range
- SSM (Super Sonic wave Motor) for fast, quiet autofocus operation
- Circular aperture for attractive defocusing
- Focus hold and focus range switches offer precision focusing control

### Wide-angle prime 35mm F1.4 G SAL35F14G

- 35mm prime lenses are a staple for many photographers. The angle of view provided by this focal length is one of the most comfortable and versatile on both 35mm full-frame format and APS-C format cameras, and with that, this lens can be used for anything from close-ups to landscapes. The SAL35F14G, with its superb optics and large F1.4 maximum aperture, is one of the finest fast 35mm lenses in its class. In addition to no-compromise G Lens construction and quality throughout, it features an optical design that includes an aspherical lens element that contributes to consistently superior, low-distortion image quality right up to the F1.4 maximum aperture. You can shoot wide-open in low light knowing that the entire scene will be captured with equally superb clarity and contrast. The large maximum aperture and circular aperture design are also an advantage when you want to isolate your subject from a busy background, for example, allowing you to defocus unwanted detail so your subject stands out.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
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<tbody>
<tr>
<td>Weight</td>
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<tr>
<td>Dimensions (Dia. x L)</td>
<td>69 x 76 mm</td>
</tr>
<tr>
<td>Max. magnification ratio</td>
<td>0.2x</td>
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</table>

* One aspherical element contributes to outstanding image quality even at maximum aperture
- High resolution and contrast throughout the image area
- Circular aperture for attractive defocusing
- Focus ring with auto clutch does not rotate during autofocus
- Focus hold and focus range switches offer precision focusing control

#### Features
- One aspherical element contributes to outstanding image quality even at maximum aperture
- High resolution and contrast throughout the image area
- Circular aperture for attractive defocusing
- Focus ring with auto clutch does not rotate during autofocus
- Focus hold and focus range switches offer precision focusing control
Telephoto prime

300mm F2.8 G SSM  SAL300F28G2

Featuring a new high-performance optical design, a quiet high-speed SSM (Super Sonic Wave Motor) autofocus drive system with enhanced object tracking, and an anti-glare Nano AR coating, the SAL300F28G2 super telephoto Sony G lens delivers both high contrast and beautiful bokeh effects at levels far surpassing those of existing 300mm f/2.8 lenses. Take advantage of fast internal focusing and two DMF (Direct Manual Focus) modes for tack-sharp images in any situation. Designed with outdoor use in mind, the front and back of the unit as well as the area around the focus ring are specially constructed to help prevent water penetration.

- Weight (approx): 2340 g
- Dimensions (Dia. x L): 122 x 242.5 mm
- Max. magnification ratio: 0.18x

G Series • 300mm (12.8 G) Super Telephoto
- New Nano AR Coating with nano-precision structure
- High-performance AF with enhanced object tracking
- Dust and moisture protection design
- 3 ED Glass Elements for greater visual accuracy
- Fast Internal Focusing - lens length does not change
- 2 SWF (Direct Manual Focus) Modes
- Versatile focus hold with 8 buttons on lens
- 35mm equivalent: 105mm to 300mm

High performance ultra-telephoto lens with 300mm fixed focal length
- Ideal for sports, wildlife and other demanding imaging applications requiring very high magnification
- Bright F2.8 maximum aperture allows use of faster shutter speeds to broaden shooting opportunities
- Advanced optical design with 11 elements in 10 groups, including three ED (Extra-low Dispersion) glass elements
- Exclusive AR Nano Coating by Sony on lens surfaces cuts reflections for extremely low ghosting and flare
- New SSM (Super Sonic wave Motor) drive circuit for extremely high speed autofocus - ideal for capturing fast-moving subjects
- Tilted circular aperture for beautiful defocus (bokeh) effects
- Improved operability with four focus hold buttons, two-way DMF (Direct Manual Focus) mode button and focus range switch
- Supplied AR Nano Coating with black velvet fibers for high absorption of incident light
- Weather-resistant design with interlocking seals to protect against dust and moisture

Perfect for photographing athletics and wild animals, this lens provides ideal performance thanks to impressive specifications such as a bright f/4 aperture and the ultra-telephoto 500mm focal length. Lens construction includes 11 elements in 10 groups specially developed to deliver beautiful background and foreground defocusing. Its smooth circular aperture, formed by 9 aperture blades, contributes to rounder more beautiful bokeh. A Nano AR Coating and velvet lining also minimize flare, eliminate opacity and tighten blacks. Furthermore, three ED (Extra-low Dispersion) glass elements compensate for color aberration to realize sharper image quality.

- Weight (approx): 3460 g
- Dimensions (Dia. x L): 140 x 367.5 mm
- Max. magnification ratio: 0.135x

Ideal for sports, wildlife and other demanding imaging applications requiring very high magnification
- Bright f/4 maximum aperture allows use of faster shutter speeds to broaden shooting opportunities
- Advanced optical design with 11 elements in 10 groups, including three ED (Extra-low Dispersion) glass elements
- Exclusive AR Nano Coating by Sony on lens surfaces cuts reflections for extremely low ghosting and flare
- New SSM (Super Sonic wave Motor) drive circuit for extremely high speed autofocus - ideal for capturing fast-moving subjects
- Tilted circular aperture for beautiful defocus (bokeh) effects
- Improved operability with four focus hold buttons, two-way DMF (Direct Manual Focus) mode button and focus range switch
- Supplied AR Nano Coating with black velvet fibers for high absorption of incident light
- Weather-resistant design with interlocking seals to protect against dust and moisture

High performance ultra-telephoto lens with 500mm fixed focal length
- Ideal for sports, wildlife and other demanding imaging applications requiring very high magnification
- Bright f/4 maximum aperture allows use of faster shutter speeds to broaden shooting opportunities
- Advanced optical design with 11 elements in 10 groups, including three ED (Extra-low Dispersion) glass elements
- Exclusive AR Nano Coating by Sony on lens surfaces cuts reflections for extremely low ghosting and flare
- New SSM (Super Sonic wave Motor) drive circuit for extremely high speed autofocus - ideal for capturing fast-moving subjects
- Tilted circular aperture for beautiful defocus (bokeh) effects
- Improved operability with four focus hold buttons, two-way DMF (Direct Manual Focus) mode button and focus range switch
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- Weight (approx): 3460 g
- Dimensions (Dia. x L): 140 x 367.5 mm
- Max. magnification ratio: 0.135x
Teleconverters
1.4x Teleconverter
SAL14TC

The SAL14TC and SAL20TC teleconverters are a great way to extend your telephoto range without having to carry more large lenses. The SAL14TC provides a 1.4x increase in focal length with a 1-stop light loss, so when used with the SAL300F28G, for example, you have the equivalent of a 420mm lens with a maximum aperture of F4. For sports, wildlife and landscapes, the SAL14TC and SAL20TC teleconverters can give you maximum reach with minimum gear to carry.

Carl Zeiss AG, founded in 1846, is a legend in the field of camera optics. The company was responsible for many of the innovations that have raised the quality of photographic imaging to the high standard we enjoy today, and is revered for its unswerving dedication to delivering nothing less than the best. Sony is proud and honored to be working with Carl Zeiss AG on the development and production of top-class lenses for Sony α series cameras. In fact, these are the only autofocus Carl Zeiss lenses currently available for use on digital single-lens reflex cameras, meaning that Sony camera users have exclusive access to legendary image quality that many consider to be the ultimate in photographic expression.
Wide-angle zoom

**Vario-Sonnar T* 16–35mm F2.8 ZA SSM SAL1635Z**

- One Super ED glass element, one ED glass element and three aspherical elements for superior image quality
- Carl Zeiss T* coating effectively controls flare and glare
- Constant F2.8 maximum aperture
- Outstanding sharpness and contrast at all aperture settings
- Silent, responsive internal SSM (Super Sonic wave Motor) autofocus drive
- Focus mode switch and focus hold button offer precision focus control

Although it is a wide-angle zoom, and an ideal supplement to a high-performance mid-range zoom, the 16–35mm range of this lens will satisfy the core focal length requirements of many photographers who shoot primarily indoors or in the city. At the other end of the spectrum it can be a great choice for spacious landscapes as well. Regardless of where or how the SAL1635Z is used, its advanced coated optical path delivers exceedingly crisp images with striking contrast, without the aberration and peripheral light falloff that commonly plague wide-angle zooms.

- **Weight**: approx. 860 g
- **Dimensions**: (Dia. x L): 83 x 114 mm
- **Max. magnification ratio**: 0.24x
- One Super ED glass element, one ED glass element and three aspherical elements for superior image quality
- Carl Zeiss T* coating effectively controls flare and glare
- Outstanding sharpness and contrast at all aperture settings
- Silent, responsive internal SSM (Super Sonic wave Motor) autofocus drive
- Focus mode switch and focus hold button offer precision focus control

Mid-range zoom

**Vario-Sonnar T* DT 16–80mm F3.5–4.5 ZA SAL1680Z**

- Two aspherical elements for outstanding image quality at all apertures
- Carl Zeiss T* coating effectively controls flare and glare
- Outstanding sharpness and contrast at all focal lengths
- Circular aperture for attractive defocusing
- Compact, lightweight high-performance zoom
- 35mm equivalent focal length: 24–120mm

Because it has been designed specifically for APS-C format cameras, the SAL1680Z is the lightest and most compact zoom in the Carl Zeiss lineup. It also offers the greatest zoom range in the lineup, making it a superb single-lens solution for many APS-C format photographers. Its 35mm equivalent focal length range of 24–120mm may be all you’ll ever need for day-to-day shooting. And of course it delivers acclaimed Carl Zeiss optical performance and handling, with image quality that rivals the best prime lenses at any focal length. Although the maximum aperture isn’t as large as the 35mm full-frame format lenses in this series, circular aperture design makes it possible to get creative with beautifully smooth defocusing effects. The SAL1680Z is quite simply the most versatile, economical way to experience Carl Zeiss quality on an APS-C format body.

- **Weight**: approx. 445 g
- **Dimensions**: (Dia. x L): 72 x 83 mm
- **Max. magnification ratio**: 0.24x

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A mode, 1/500 sec., F8, +0.7 EV, ISO 200, Manual white balance; Photo: Kentaro Fukuda

A mode, 1/50 sec., F6.3, -0.3 EV, ISO 200, Daylight white balance; Photo: Kenji Hosoda
Mid-range zoom

Vario-Sonnar T* 24–70mm F2.8 ZA SSM SAL2470Z

- Two ED glass elements and two aspherical elements for superior image quality
- Carl Zeiss T* coating effectively controls flare and glare
- Constant F2.8 maximum aperture
- Outstanding sharpness and contrast at all aperture settings
- Quiet, responsive internal SSM (Super Sonic wave Motor) autofocus drive
- Focus mode switch and focus hold button offer precision focus control

If you insist on prime-lens image quality but envy the convenience of variable focal length, here’s a lens that brings the best of both worlds together. For many discriminating photographers it is a lens that will stay on the camera most of the time. Its versatile 24mm to 70mm zoom range covers a wide gamut of shooting situations, and its extraordinary sharpness and contrast are fully retained at all focal lengths and apertures. Whether you’re shooting a tight indoor scene at 24mm, a portrait at 70mm, or anything in between, you’ll feel and see legendary Carl Zeiss quality in every shot.

- Weight (approx): 955 g
- Dimensions (Dia. x L): 83 x 111 mm
- Max. magnification ratio: 0.25x
- Two ED glass elements and two aspherical elements for superior image quality
- Carl Zeiss T* coating effectively controls flare and glare
- Quiet, responsive internal SSM (Super Sonic wave Motor) autofocus drive
- Focus ring with auto clutch does not rotate during autofocus
- 9-blade circular aperture for attractive defocusing

Wide-angle prime

Distagon T* 24mm F2 ZA SSM SAL24F20Z

- Two ED glass elements and two aspherical elements for superior image quality
- Carl Zeiss T* coating effectively controls flare and glare
- Quiet, responsive internal SSM (Super Sonic wave Motor) autofocus drive
- Focus ring with auto clutch does not rotate during autofocus
- 9-blade circular aperture for attractive defocusing

Representing the wide end of the A-mount Carl Zeiss prime lens range, the 24mm focal length of this model provides a wide perspective on 35mm full-frame format cameras, and a closer-to-normal equivalent focal length of 36mm on APS-C format cameras. Photographers who value a single-prime approach to general shooting will love this lens, as will those who appreciate the subtle but tangible quality advantage that a first-class prime provides. Use it indoors, on the street, or in the wild for images that can bring your artistic vision to life. In addition to unimpeachable optical performance and refined overall handling, this lens offers particularly responsive, quiet autofocus operation and a minimum focusing distance of just 19 centimeters that lets you explore your subjects at close range.

- Weight (approx): 555 g
- Dimensions (Dia. x L): 78 x 76 mm
- Max. magnification ratio: 0.29x
- Two ED glass elements and two aspherical elements for superior image quality
- Carl Zeiss T* coating effectively controls flare and glare
- Quiet, responsive internal SSM (Super Sonic wave Motor) autofocus drive
- Focus ring with auto clutch does not rotate during autofocus
- 9-blade circular aperture for attractive defocusing

A mode, 1/30 sec., F11, +0.7 EV, ISO 100, Auto white balance; Photo: Mike Jones
M mode, 1/500 sec., F8, -1.7 EV, ISO 200, Sunset Creative Style, D-Range Optimizer Lv2; Photo: Kentaro Fukuda
Mid-range telephoto prime
Planar T* 85mm F1.4 ZA SAL85F14Z

- 85mm focal length, F1.4 maximum aperture and precision Carl Zeiss T*-coated Planar optics: it all adds up to superlative performance and handling for portraiture or medium-telephoto landscapes. The delicate, nuanced ‘drawing’ of the Planar design makes it possible to capture subtleties of light and texture that can give images extraordinary depth and presence. Graceful reproduction of skin tones and textures is a characteristic that is prized by photographers and subjects alike.
- Shooting comfort is another feature of this refined lens. A wide focus ring with auto clutch mechanism does not rotate during autofocus operation, and a focus hold button on the lens itself lies right under your fingertips for easy access.

- Weight (approx): 640 g
- Dimensions (Dia. x L): 81 x 75 mm
- Max. magnification ratio: 0.13x

Outstanding sharpness and contrast at all aperture settings
- Carl Zeiss T* coating effectively controls flare and glare
- 9-blade circular aperture for attractive defocusing
- Focus ring with auto clutch does not rotate during autofocus
- Focus mode switch and focus hold button offer precision focus control

Telephoto prime
Sonnar T* 135mm F1.8 ZA SAL135F18Z

- F1.8 is a relatively large maximum aperture for a 135mm telephoto lens, and the consistently outstanding performance of this lens throughout its aperture range lets you take full advantage of the extra speed and brightness it provides. Whether you need the large aperture to shoot in low light, to achieve suitable shutter speeds for shooting action, or for creative control of background defocusing, the SAL135F18Z will reward you with stunning resolution and contrast where it counts. In addition to portraits and landscapes with natural proportions and perspective, the 135mm focal length of this lens is often a good choice for indoor sports. 135mm is well within telephoto territory, and usually requires careful handling to avoid image blurring due to camera shake, but on α series bodies with SteadyShot INSIDE™ image stabilization you’ll find it easier than ever to capture crisp images when shooting hand-held.

- Weight (approx): 995 g
- Dimensions (Dia. x L): 88 x 114.5 mm
- Max. magnification ratio: 0.25x

- Two ED glass elements for superior image quality
- Carl Zeiss T* coating effectively controls flare and glare
- Excellent corner-to-corner sharpness and high contrast
- Focus ring with auto clutch does not rotate during autofocus
- Focus hold button provides conveniently placed focus hold control
These compact, high-performance lenses are the cornerstone of a new category of still and video cameras that attest to the paradigm-shifting power of Sony innovation. They have been designed from the ground up to be used with the newest generation of ultra-compact APS-C format Sony camera and camcorder bodies, delivering big-camera image quality and features in astonishingly small but capable packages.

In addition to advanced optics and sophisticated handling, the E-mount zooms incorporate proven Optical SteadyShot™ image-stabilization technology from Sony camcorders that can significantly reduce blur due to camera movement in both stills and movies. Sony E-mount lenses are windows to a new world of imaging freedom and quality.
Combine this compact wide-angle prime lens with any E-mount camera for a totally new photographic experience. Mounted on any of the slim bodies for which it is designed it becomes part of an extraordinarily compact, portable photographic system that can slip comfortably into a coat pocket, ready to shoot at any time. In action it gives you wide 16mm coverage (equivalent to a 24mm lens on a full-frame 35mm camera) for comfortable shooting in situations ranging from cramped indoor settings to sweeping landscapes, and the large F2.8 maximum aperture is ideal for handheld shooting in low light. The SEL16F28 is an excellent choice for both stills and movies, particularly since its quiet autofocus/aperture operation will contribute to high-quality movie sound.

- Weight (approx): 67 g
- Dimensions (Dia. x L): 62 x 22.5 mm
- Max. magnification ratio: 0.078x

Ultra-slim (22.5 mm) and lightweight with high-quality metal exterior
5-element design with one aspherical element for top-class optical performance
Ideal for shooting stills or movies
Circular aperture for attractive defocusing
Built-in motor delivers smooth, quiet autofocus operation

35mm equivalent focal length: 24mm

Aspherical lens

**Wide-angle prime**

**E 16mm F2.8**  SEL16F28

**Fisheye Converter**

VCL-ECFI

**Ultra Wide Converter**

VCL-ECU1

**Fisheye and Ultra Wide Converters**

Although the 16mm SEL16F28 is a wide-angle lens, these converters can give you an even wider view. The VCL-ECFI Fisheye Converter goes a step further with a 180° angle of view that is equivalent to a 15mm lens on a 35mm full-frame format camera, with fascinating curvilinear “fisheye perspective.” The VCL-ECU1 Ultra Wide Converter provides an angle of view equivalent to that of an 18mm lens on a 35mm full-frame format camera, making it possible to shoot dramatic wide-angle scenes with extended depth of field. Both converters attach securely with bayonet mounts, ensuring optimum optical alignment and image quality. Furthermore, these converters cause no light loss so f-stop values remain unchanged.
Wide-angle prime

**Sonnar T* E 24mm F1.8 ZA SEL24F18Z**

- High-performance Carl Zeiss wide-angle prime with elegant black metal exterior
- One ED glass element and two aspherical elements
- Innovative optical design achieves outstanding corner-to-corner sharpness
- Ideal for shooting stills or movies.

*Carl Zeiss quality really shows off the capabilities of the E-mount system, with outstanding resolution and contrast that can add legendary Zeiss depth and dimensionality to your images. This wide-angle prime lens delivers superior corner-to-corner sharpness even at the maximum F1.8 maximum aperture, with minimum distortion and coma. It also focuses as close as 16 centimeters, providing an unusual combination of close focus and wide-angle perspective for 1:4 macro photography. The 24mm focal length, equivalent to 36mm on a 35mm format camera, is an excellent choice for general shooting. Many photographers will be happy to leave this lens on their camera most of the time, especially since its F1.8 maximum aperture facilitates handheld shooting even in challenging low-light situations. Movie makers will love this lens too, because smooth, low-noise autofocus and aperture operation mean they can take advantage of its outstanding optical characteristics without worrying about mechanical noise infiltrating the soundtrack.*

- **Weight** (approx): 225 g
- **Dimensions** (Dia. X L): 63 x 65.5 mm
- **Max. magnification ratio**: 0.25x

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Normal

**E 35mm F1.8 OSS SEL35F18**

- Compact, lightweight fixed F1.8 lens
- New optical design for excellent peripheral sharpness and contrast
- Built-in image stabilization
- Silent and smooth high-speed focusing ideal for shooting movies
- Superb focusing operation

*High performance and a compact design make the SEL35F18 prime lens an ideal second lens that's easy to carry around while capturing the action. It's perfect for a wide variety of photos, including snapshots while strolling, night shots (thanks to the bright maximum aperture) and portraits with beautifully defocused backgrounds. Newly-designed optics reduces spherical aberration and coma for sharp images even when shooting wide open. Combined with built-in Optical SteadyShot image stabilization, your photos and videos will be crisp, clear and blur-free.*

- **Weight (approx):** 155 g
- **Dimensions** (Dia. X L): 62.2 x 45 mm
- **Max. magnification ratio**: 0.15x

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**Contrast (%) vs Distance from optical center of lens (mm)**

- At 24 mm - Open
- At 24 mm - F8
Macro photography can be a creative, educational and thoroughly enjoyable pursuit. The SEL30M35 has been designed to offer versatile, high-performance macro capabilities in a lens that is compact, lightweight and easy to use. At the time of release the SEL30M35 is, in fact, the lightest interchangeable 1:1 macro lens available anywhere! It is a true 1:1 macro lens with a 2.4 centimeter minimum working distance that allows tiny subjects and details to be rendered with excellent resolution and contrast. But it also functions as an excellent “normal” lens for day-to-day shooting, and a smooth, quiet internal lens drive system makes it suitable for shooting movies as well. The SEL30M35 is a great choice for a second lens that will let you explore the world in creative new ways. A dedicated lens hood that won’t get in the way when shooting close is included.

- **Weight**: (approx) 138 g
- **Dimensions**: (Dia. X L): 62 x 55.5 mm
- **Max. magnification ratio**: 1x

Mid-range telephoto

**E 50mm F1.8 OSS**  SEL50F18

A focal length that is perfect for portraiture and a range of other subjects, a bright F1.8 maximum aperture, Optical SteadyShot (OSS) image stabilization and impressive image quality. Put it all together in a lens that is surprisingly compact and lightweight and you have a winning combination: the SEL50F18. The large maximum aperture and Optical SteadyShot are worthy features in their own right, but working together they make it possible to shoot crisp, clear images under low-light conditions that would be beyond the capabilities of a conventional lens. The F1.8 maximum aperture and a circular aperture design also join forces to create gorgeous defocusing effects. Add responsive, quiet autofocus and aperture operation, and you have a lens that is ideally suited to shooting movies as well as stills.

- **Weight**: (approx) 202 g
- **Dimensions**: (Dia. X L): 62 x 62 mm
- **Max. magnification ratio**: 0.16x

Macro

**E 30mm F3.5 Macro**  SEL30M35

A compact, lightweight 1:1 macro lens with high-quality metal exterior and a 30mm focal length that is perfect for small subjects. It offers a 1:1 maximum magnification ratio, a circular aperture for attractive defocusing, and a smooth, quiet autofocus system. The SEL30M35 is ideal for shooting stills or movies, with a minimum working distance of 2.4 centimeters that allows tiny subjects to be captured with excellent resolution and contrast. The lens features an internal focus system, with no change in minimum working distance when the focus is adjusted. A dedicated lens hood is included to prevent light reflection.
Wide-angle zoom

**E 10–18mm F4 OSS SEL1018**

- 10-18 mm super wide-angle zoom lens with a maximum aperture of F4.
- Minimum focal length of 10 mm (15 mm in 35mm camera equivalency).
- Supertak-tak-detailed images.
- A built-in OSS image stabilization (Optical SteadyShot).

The SEL-1018 super wide-angle zoom lens is perfect for taking photos of sweeping landscapes and producing striking images with emphasized perspective. If you’re seeking a wider minimum focal length than offered by standard wide-angle zoom lenses, the SEL-1018 is the ideal choice for you. Featuring a minimum focal length of only 10mm (15mm in 35mm camera equivalency), the SEL-1018 wide-angle zoom lens delivers highly-detailed, super wide-angle photos. With a constant maximum aperture of F4 through the entire focal length range, you’ll be able to use the widest aperture of every focal length. Even in low light, you can take advantage of the bright aperture to utilise fast shutter speeds without needing to increase ISO sensitivity.

- Weight (approx): 225 g
- Dimensions (Dia. x L): 70 x 63.5 mm
- Max. magnification ratio: 0.1x

Measuring just 1/3” (29.9mm) when fully retracted, the SELP-1650 retractable zoom lens is super compact and easy to carry so you can quickly whip out your camera and spontaneously grab shots as they occur. It’s perfect for traveling and other scenarios that require a lightweight, compact camera and lens combo. It covers a 16mm to 50mm range (35mm equivalency = 24-75mm) for flexible shooting, and is equipped with one ED (extra-low dispersion) and four Aspherical elements, resulting in a high-performance lens that is surprisingly compact.

- Weight (approx): 116 g
- Dimensions (Dia. x L): 64.7 x 29.9 mm
- Max. magnification ratio: 0.215x
Mid-range zoom

**E 18–55mm F3.5–5.6 OSS SEL1855**

- Compact, lightweight 18–55mm zoom with high-quality metal exterior
- Three aspherical elements for top-class optical performance
- Ideal for shooting stills or movies
- Internal OSS (Optical SteadyShot™) image stabilization
- Circular aperture for attractive defocusing
- Built-in motor delivers smooth, quiet autofocus operation

**Features:**
- 35mm equivalent focal length: 27–82.5mm
- Max. magnification ratio: 0.3x
- Weight (approx.): 194 g
- Dimensions (Dia. x L): 62 x 60 mm

This lens offers a superb balance of form and function: ample zoom range in a compact design that weighs only 194 grams yet is remarkably comfortable to hold and operate. The 18–55mm zoom range, corresponding to 27–82.5mm on a 35mm full-frame format camera, is ideally designed for comfortable framing and capture of most subjects encountered in daily life or on vacation, and a built-in Optical SteadyShot™ image stabilization system makes it possible to produce sharp images even when shooting handheld in low light. The OSS system is so effective that you’ll be able to capture blur-free images at shutter speeds up to four steps slower than would be possible without image stabilization. And thanks to extremely smooth, quiet autofocus and aperture operation, you don’t have to worry about unwanted camera and lens noise infiltrating your movie soundtracks.

High magnification zoom

**E 18–200mm F3.5–6.3 OSS SEL18200**

- Versatile extended-range 18–200mm zoom with high-quality metal exterior
- Four aspherical elements for top-class optical performance right out to the image edge
- Ideal for shooting stills or movies
- Internal OSS (Optical SteadyShot™) image stabilization with Active Mode
- Circular aperture for attractive defocusing
- Built-in motor delivers smooth, quiet autofocus and aperture operation

**Features:**
- 35mm equivalent focal length: 27–300mm
- Max. magnification ratio: 0.35x
- Weight (approx.): 524 g
- Dimensions (Dia. x L): 75.5 x 99 mm

If you’re a photographer/videographer who needs maximum speed, versatility and mobility to rapidly respond to a wide range of shooting situations, from portraits and snapshots to sports, this is a lens you should consider. It features an extensive 11x zoom range, from wide 18mm to 200mm telephoto with impressive image quality all the way. The advanced Optical SteadyShot™ image stabilization system included in the lens will not only make it easier to shoot blur-free stills at long focal lengths, but it also has an automatic Active Mode that will help keep your movie images steady as you move around with the camera while shooting at the wide end of the zoom range. Another feature that contributes to high-quality movie production is extremely quiet autofocus and aperture operation that will keep your soundtracks free of unwanted camera noise.

- Weight (approx.): 141 g
- Dimensions (Dia. x L): 75.5 x 49 mm
- Max. magnification ratio: 0.36x
**Telephoto zoom**

**E 55–210mm F 4.5–6.3 OSS**

SEL55210

An ideal complement to the 18-55mm zoom range of the SEL1855, this 3.8x zoom lens takes you from 55mm out to 210mm with consistently outstanding optical performance all the way. In 35mm full-frame equivalent terms that's a wide zoom range of 82.5mm to 315mm, providing plenty of reach for outdoor sports or nature photography.

- **Built-in Optical SteadyShot (OSS) image stabilization** is a huge advantage when shooting at longer focal lengths or in low light, making it easy to capture crisp, stable images at up to four shutter speeds lower than would normally be possible. And if you shoot movies as well as stills, the built-in motor contributes to quiet yet responsive autofocus and aperture operation that keep your movie soundtrack free from mechanical noise.

**Specifications**

- **Weight** (approx): 330 g
- **Dimensions** (Dia. X L): 63.8 x 108 mm
- **Max. magnification ratio**: 0.225x

**Compact, lightweight 3.8x telephoto zoom with high-quality metal exterior**

- ED glass elements and two aspherical elements for superior image quality
- Internal OSS (Optical SteadyShot™) image stabilization
- Built-in motor delivers smooth, quiet autofocus and aperture operation
- Circular aperture for attractive defocusing
- 35mm equivalent focal length: 82.5mm–315mm

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**High magnification zoom**

**E 18-200mm F3.5-6.3 OSS LE**

SEL18200LE

Significantly smaller and lighter than comparable lenses, the Sony SEL18200LE high-magnification zoom lens is perfect for a wide range of shooting situations. With a compact size achieved in part by downsizing the autofocus motor and optical image stabilization unit, this lens offers a powerful mix of versatility and image quality perfect for shooting scenarios where a light, compact camera and lens combination is optimal. The broad focal length coverage of the lens—from 18mm wide angle to 200mm telephoto (27mm to 300mm in 35mm equivalence)—makes it an ideal high-magnification “travel” lens for a wide range of shots. Capture expansive landscapes, charming portraits with pleasantly blurred backgrounds, even sports and nature shots. Optical SteadyShot (OSS) technology cuts down on blur caused by camera shake and reduces reliance on high ISO settings when shooting in dark environments.

**Specifications**

- **Weight** (approx): 460 g
- **Dimensions** (Dia. X L): 68 x 97.1 mm
- **Max. magnification ratio**: 0.27x

**18-200mm f/3.5-6.3 OSS High Magnification Zoom Lens**

- 18 mm wide angle to 200 mm telephoto
- Optical image stabilization (Optical SteadyShot)
- Excellent image sharpness
- Aspherical lens
- ED glass

---

Auto Mode, 1/20 sec., f/9.0, ISO 800, Sunny White Balance

100
80
60
40
20
0
369 12
Distance from optical center of lens (mm)

Contrast (%)

Spatial frequency
10 line pairs/mm
30 line pairs/mm
R: Radial values  T: Tangential values
Max. aperture

18 mm wide angle
200 mm telephoto
Distance from optical center of lens (mm)

Contrast (%)

Spatial frequency
10 line pairs/mm
30 line pairs/mm
R: Radial values  T: Tangential values
Max. aperture

At 18 mm
At 200 mm
### Mount Category Page Description Model name Lens configuration

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α lens accessories

Carl Zeiss® filter
High-grade Carl Zeiss filters with exclusive T* coating optimize the superb performance of your lenses, effectively reducing flare and ghosting. A thin profile also prevents vignetting.

- Circular PL Filter
  Circular polarizing filters improve contrast in overly bright light, and remove glare and reflections.
  - VF-49CPAM (49mm)
  - VF-55CPAM (55mm)
  - VF-62CPAM (62mm)
  - VF-67CPAM (67mm)

- ND Filter
  Neutral density filters attenuate light to allow a longer exposure or larger aperture than required, without affecting colors (type: ND8).
  - VF-49NDAM (49mm)
  - VF-55NDAM (55mm)
  - VF-62NDAM (62mm)
  - VF-72NDAM (72mm)
  - VF-77NDAM (77mm)

- MC Protector
  Multi-coated protectors are coated on both sides, protecting lenses from damage without causing unwanted flare or reflections.
  - VF-49MPAM (49mm)
  - VF-55MPAM (55mm)
  - VF-62MPAM (62mm)
  - VF-67MPAM (67mm)
  - VF-72MPAM (72mm)
  - VF-77MPAM (77mm)

Lens Cap

- Front Lens Cap
  - Filter dia. 49/55/62/67/72/77mm
  - ALC-F49A
  - ALC-F62A
  - ALC-F67A
  - ALC-F72A

- G Front Lens Cap
  - Filter dia. 55/62/77mm
  - ALC-F55G
  - ALC-F62G
  - ALC-F77G

- Carl Zeiss Front Lens Cap
  - Filter dia. 62/72/77mm
  - ALC-F62Z
  - ALC-F72Z

- Rear Lens Cap
  - ALC-R55
  - ALC-R1EM

Lens Hood

- Petal shape
  (Photo: ALC-SH0001)

- Round shape
  (Photo: ALC-SH0003) - For model numbers, see pg. 65

Lens Case

- Mount Adaptor
  - LA-EA1

- Mount Adaptor
  - LA-EA2

Mount Adaptor

- Both the LA-EA1 and EA2 adaptors allow you to attach A-mount lenses to your E-mount camera. The LA-EA2 is the world’s first adaptor to leverage Sony’s exclusive Translucent Mirror Technology to provide super fast and accurate Phase Detection AF as well. The LA-EA2 adaptor has a translucent mirror built-in between the two mounts that directs a small portion of the light to the phase detection AF sensor in the bottom of the unit.

  * NEX-3, NEX-5, NEX-C3 and NEX-VG10 require firmware update to use LA-EA2 adaptor. www.esupport.sony.com

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