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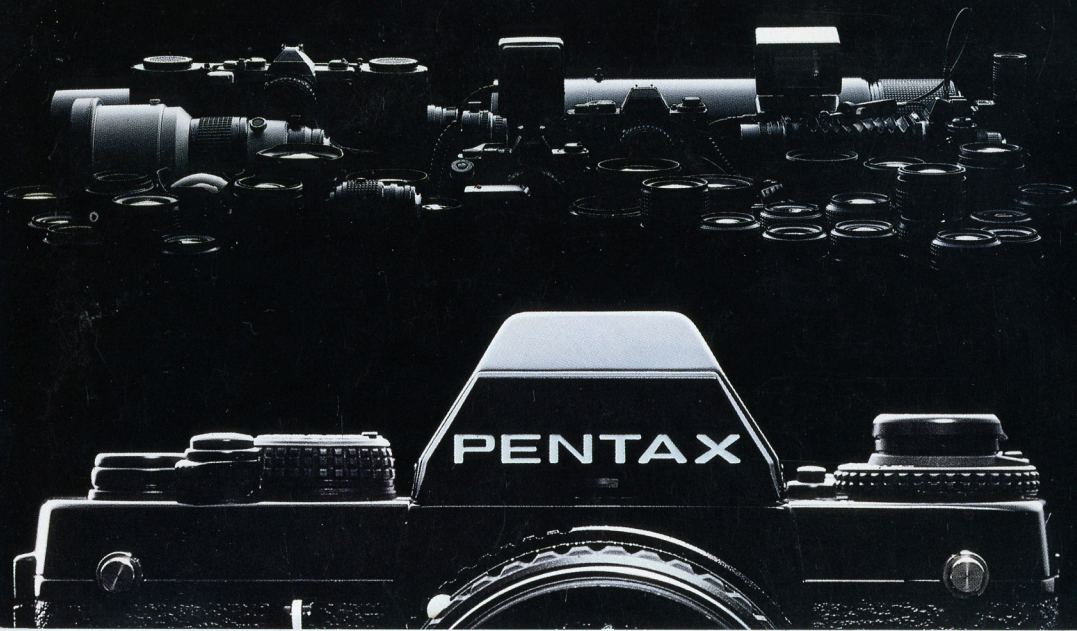
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# PENTAX®

# LENSES & ACCESSORIES



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# THE PENTAX SYSTEM

A Pentax 35mm SLR camera is much more than a superior photographic tool: it is the starting point for an exceptionally comprehensive and versatile system of photography. Used with any Pentax 35mm body, the complete range of Pentax lenses and accessories can help the photographer to capture the most inaccessible images, to produce the most specialized creative effects.

The extensive line of over 50 SMC Pentax lenses offers an extremely broad choice of photographic perspectives. Focal lengths range from a 15mm ultra wide angle to a 2000mm super telephoto, and there is a wide choice of zoom, macro and special-purpose lenses.

Pentax accessories are available to fit every photographic need. There is a complete collection of equipment for close-up and macro work. There are interchangeable viewfinders, eyepieces and focusing screens. There is a sophisticated system of flash accessories and an infrared remote control system. There is a complete line of filters, power cords, cases, straps and other accessories.

The Pentax System offers the photographer unlimited creative possibilities.

# LENS SYSTEM



## A NEW PERSPECTIVE ON PHOTOGRAPHY

The beauty of the Pentax system is that it sees and records images the naked eye never could. Imagine viewing 180 degrees of a panoramic landscape at a glance. Or zeroing in on a single human subject from a hundred yards away. Or freezing faster-than-the-eye motion at point-blank range.

The Pentax system of interchangeable lenses can make each of these possibilities – and many more – a reality. Pentax makes over 50 interchangeable lenses for use with any Pentax 35mm SLR. Some are standard lenses that see much the way the human eye does. Others see the world in a different way, from macro to wide angle to telephoto. There is also an excellent selection of zoom and special application lenses.

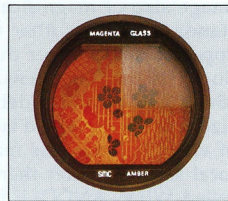
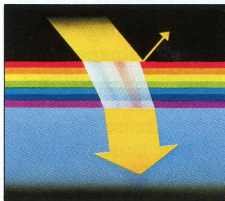
Among the newest Pentax lenses is the Pentax A Series. These lenses have special contacts for automatic aperture control and programmed automation. Pentax M Series lenses are up to 60% shorter and much lighter than their standard counterparts, and while designed for use with compact M-series cameras, can also be used to advantage with larger models.

All Pentax lenses have the exclusive Super-Multi-Coating (SMC), a remarkable seven-layer lens coating process that cuts the reflection ratio

down to just 0.2% per lens surface. The result is a dramatic improvement in both color fidelity and brightness and the elimination of flare and ghost images. In multi-element zoom lenses, SMC can increase brightness up to 50% over conventional lens coatings. Pentax's ultra-modern production techniques, stringent quality control and SMC technology combine to make Pentax lenses unexcelled tools for the amateur or professional.

Make the most of your Pentax camera with a carefully selected system of Pentax lenses.

- *Light transmission with Super-Multi-Coating is an amazing 99.8%; correspondingly, glass-to-air surface reflection is a mere 0.2%.*



### 1. Points For Consideration

The four points most frequently considered when choosing lenses are the following:

- a. Focal length/angle of view
- b. Maximum aperture
- c. Dimensions and weight
- d. Price

### 2. The Relationship Between Image Size And Focal Length

When camera-to-subject distance remains constant, image size (magnification) is dependent upon focal length.

For example, when a 135mm lens is used, the image will appear  $2.7\times$  larger than that of a 50mm standard lens used at the same distance. Long focal length lenses (longer than approx. 50mm) are referred to as TELEPHOTO LENSES. When a 28mm lens is compared to a 50mm lens, image size or magnification is  $0.56\times$  that of the standard lens. In other words, the image will appear slightly larger than  $1/2$  the image produced by the 50mm lens. The reason for using a 28mm lens is not to deliberately shrink image size, but (as explained later) to increase the angle of view. It is for this reason that lenses with a focal length shorter than approx. 50mm are called WIDE-ANGLE LENSES.

### 3. Camera-To-Subject Distance, Focal Length And Image Size

When the camera-to-subject distance is changed in proportion to the focal length, image size remains constant. For example, when the same subject is photographed from 10 meters with a 50mm lens, 27 meters with a 135mm lens, and 5.6 meters with a 28mm lens, image size will be the same.

### 4. The Relationship Between Focal Length And Angle of View

The shorter the focal length of a lens, the wider the angle of view; the longer the focal length of a lens, the narrower the angle of view.

For example, a 28mm wide-angle lens has an angle of view of  $75^\circ$  while a 24mm wide-angle lens has an angle of view of  $84^\circ$ . The angle of view is  $18^\circ$  for a 135mm telephoto lens, but it is  $12^\circ$  for a 135mm telephoto lens, but it is  $12^\circ$  for a 200mm telephoto lens.

### 5. The Need For Telephoto Lenses

At times, it is impossible to approach the subject close enough to obtain a satisfactory image size. Of course, the negative can be cropped and greatly enlarged, but it is an unsatisfactory solution because of the resultant loss of sharpness and increase in grain. It is at just such a

time that the need for a telephoto lens most clearly manifests itself.

#### **6. The Need For Wide-Angle Lenses**

When photographing a group of people indoors, it is sometimes impossible to include everyone, even if you stand in the furthest corner of the room. Similarly, it is often impossible to photograph a large church, for example, or a panoramic scene with the 50mm standard lens. On such an occasion the need for a wide-angle lens is strongly felt.

#### **7. Which Should I Purchase First, A Wide-Angle Or A Telephoto Lens?**

Before attempting to make the above decision, it is necessary to use the 50mm standard lens for about three months. After this period, it will become clear to you which need is greater by simply asking yourself which type of situation you most frequently encounter, No. 5 or No. 6 mentioned above.

#### **8. What Focal Length Lens Should I Purchase First?**

It would be inadvisable for a beginner, who is accustomed to using only the standard lens, to suddenly purchase an ultra-wide-angle or ultra-telephoto lens, for the enormous difference in angle of view would most likely confuse him.

The key to success, in any field, is to advance a step at a time.

Those lenses considered to be ultra-wide-angle are the 24mm, and 15mm; we can also include the 17mm Fish-eye. Lenses representing ultra-telephoto are the 300mm, 400mm, 500mm, and 1000mm focal length.

Thus, the clever beginner will select the 28, or 35mm as his first wide-angle and the 85, 120, or 135mm as his first telephoto lens.

#### **9. What About Lens Speed?**

The maximum aperture of a lens is often referred to as the "speed" of a lens. An  $f/2$  lens, for example, is said to be "faster" than an  $f/4$  lens since faster shutter speeds are usually used at larger lens openings; just how much more or less light enters the lens, when  $f/2$  is compared to other maximum apertures, is indicated in the chart on page 6.

For example, if a picture is taken with an  $f/2$  lens at  $f/2$  (diaphragm completely open), and the same picture is taken with an  $f/4$  lens at  $f/4$ , only  $1/4$  of the amount of light will reach the film with the  $f/4$  lens. Therefore, the shutter speed must be  $4\times$  longer to compensate for the loss of light. Of course, if both of the above lenses are used at the same aperture, for example  $f/8$ , the



amount of light reaching the film will be exactly the same. Generally speaking if one desires to take pictures indoors, with the camera handheld and without the use of a flash unit, an  $f/2$  or "faster" ( $f/1.4$ ,  $f/1.2$ ) lens will be required. For brightly-lit interiors, and  $f/2.5$  or  $f/2.8$  lens should suffice. If the lens is just to be used outdoors, a maximum aperture of  $f/3.5$ ,  $f/4$ , or  $f/4.5$  will be sufficient. Thus, if you wish to purchase an SMC Pentax 35mm lens, you have a choice of an  $f/2$  or  $f/2.8$ . Similarly, if you wish to buy a 135mm lens, you can select from the  $f/2.5$  and  $f/3.5$  lenses.

### 10. Dimensions And Weight

Over twenty of the SMC Pentax lenses are so compact and lightweight that they do not require the use of a tripod. For handheld lenses, you can choose from the 15mm wide-angle to the 300mm telephoto, including seven zoom lenses.

### 11. Purchasing Two Lenses Simultaneously

a. **Wide-angle and telephoto.** If two lenses are to be purchased simultaneously, the most com-

mon choice is that of a wide-angle and a telephoto. However, depending upon the needs of the individual, some users prefer to select two wide-angle or two telephoto lenses. Among those selecting a wide and tele, the most usual procedure is to select a focal length that is relatively close to the standard lens (and consequently easy to handle). Thus, for the wide-angle, the 35mm is most popular, and for the telephoto lens, the 85, 100, or 120mm is usually chosen.

For those wishing to travel light, the 85mm and 35mm are often used while the standard lens is left at home. Although we can not say it is the best choice for everyone, those seeking optimum flexibility often choose to use a 28mm and 135mm lens along with their standard lens.

b. **Two wide-angles.** The most frequently selected pair of wide-angle lenses is the 35 and 28mm set, although a new trend exhibited by camera enthusiasts favoring wide-

<b>Maximum Aperture</b>	1.2	1.4	2	2.5	2.8	3.5	4	4.5	5.6	8
<b>Amount of Light</b>	2.8×	2×	1	Approx. 2/3×	1/2×	Approx. 1/3×	1/4×	1/5×	1/8×	1/16

angle lenses is to select the 28 and 24mm focal lengths.

- c. **Two telephotos.** For those who favor telephoto lenses, the 135 and 200mm combination proves to be most popular. For maximum versatility the following combinations are recommended (they are listed in order of usefulness for the average amateur): 85 & 135mm, 100 & 150mm, 120 & 200mm. Not only is the 85mm moderate telephoto lens ideal for portraits, but it also excels as a lens for scenics whenever the angle of view of the standard lens proves too wide.
- d. Whatever your choice, a wide and tele, two wide-angles, or two telephotos, it would be a good idea to first purchase the focal lengths that are relatively close to the standard lens. Extreme (ultra) wide and tele lenses are much more difficult for the beginner to master than are their moderate focal length cousins.

## 12. Special Needs

- a. **Macrophotography.** For those who are chiefly interested in macro (close-up) photography there are the 50 and 100mm macro lenses.
- b. **Versatility with a single lens.** For versatility without the need to change lenses, the 35~70mm and 80~200mm zoom lenses are

ideal.

- c. **When traveling abroad.** When going abroad and desiring to keep weight down to an absolute minimum, the 28mm lens is ideal as it can encompass picturesque buildings and panoramic landscapes.
- d. **For sports events.** The 135, 150mm and 200mm lenses are very useful at sports events.

## 13. The World Of Interchangeable Lenses

For those who have mastered the standard, moderate wide, and moderate tele lenses; for those who wish to capture dramatic "close-ups" of wild life, or fill the frame with the slowly sinking sun; for those seeking new and fantastic perspective; in a word, for those who wish to be introduced to new worlds of photographic expression, there are the SMC Pentax 300, 400, 500, and 1000mm ultra-telephotos, as well as the 17mm Fish-eye, 135~600mm telephoto zoom, and 15 and 24mm ultra-wide-angle lenses to choose from.

## STANDARD LENSES



- ① SMC PENTAX-A 50mm f/1.2
- ② SMC PENTAX-A 50mm f/1.4
- ③ SMC PENTAX-A 50mm f/1.7
- ④ SMC PENTAX-A 50mm f/2

Pentax standard lenses are the most versatile for all-purpose shooting. They approximate the natural viewing perspective of the human eye and their fast maximum apertures make low-light shooting easy. Pentax offers a full line of compact 50mm lenses, from the super-fast f/1.2 to the economical f/2. All are available with automatic aperture control.

## ULTRA-WIDE-ANGLE LENSES

### SMC PENTAX-A 15mm f/3.5

This lens encompasses a spectacular 111° angle of view without distortion, even at the edges. Four built-in filters (UV, Skylight, Y2, O2) and a built-in lens hood make this a superb lens for creative and special effects photography.



### SMC PENTAX-A 20mm f/2.8

This fast f/2.8 wide-angle lens features extended depth of field — perfect for quick candid shots or fast-moving subjects — and a convenient viewing angle of 93°. With Pentax original Floating Mechanism, it ensures sharp, stable image quality, even in closeups.



### SMC PENTAX-A 24mm f/2.8

Available with automatic aperture control, this lens is favored for scenic and architectural photography. It features a viewing angle of 84°, a fast maximum aperture, and shallow depth of field for easy focusing.





1



2

- 1 **SMC PENTAX-A 28mm f/2**
- 2 **SMC PENTAX-A 28mm f/2.8**

The 28mm focal length is one of the most popular and manageable for photographing groups, interiors or wide-angle scenery.

Pentax offers two 28mm lenses, in the fast f/2 version or the supercompact f/2.8 version – and with automatic aperture control.



3

- 3 **SMC PENTAX-A 35mm f/2**
- 4 **SMC PENTAX-A 35mm f/2.8**
- 5 **SMC PENTAX-M 35mm f/2.8**

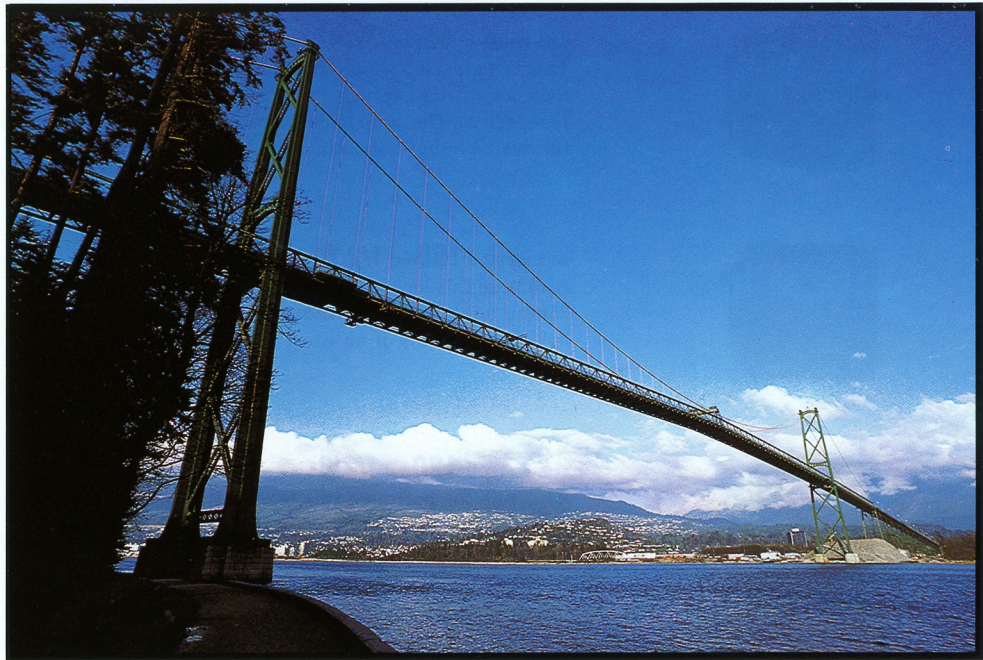
With its natural perspective and wide angle of view, a Pentax 35mm lens is versatile enough to be used as a standard lens, especially when photographing in close quarters. In both the f/2 and f/2.8 speeds and with or without automatic aperture control, Pentax 35mm lenses are compact and of excellent optical quality.



4



5





### **smc PENTAX-A\* 85mm f/1.4**

This is a great all-around portrait lens, with just the right focal length for capturing faces in the most pleasing perspective. The large maximum aperture makes it suitable for available-light shooting.



### **smc PENTAX-A 100mm f/2.8**

Although this lens is 15mm longer in focal length than the 85mm, it is physically 10mm shorter in length and weighs 54% less, making it an ideal telephoto lens.



### **smc PENTAX-M 120mm f/2.8**

Also fine for portraits, this lens is excellent for candid shooting, hand-held action sports, news photography and other medium-range applications.

❶ **SMC PENTAX-A\* 135mm f/1.8**

● **SMC PENTAX 135mm f/2.5**

❷ **SMC PENTAX-A 135mm f/2.8**

● **SMC PENTAX-M 135mm f/3.5**

These medium-telephoto lenses bring the subject quite close, and can be used to isolate the subject by throwing the background out of focus. But they are compact enough for easy hand-held shooting.

❸ **SMC PENTAX-M 150mm f/3.5**

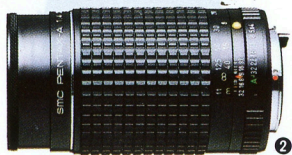
Despite its focal length, this compact telephoto is even lighter than the standard 50mm f/1.2. It is useful for following sports action, for candid shooting, and for close-up portraiture.



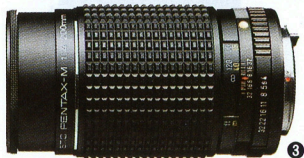




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3

1 SMC PENTAX-A\* 200mm f/2.8 ED

2 SMC PENTAX-A 200mm f/4

3 SMC PENTAX-M 200mm f/4

The 200mm focal length is well suited to action sports, candid photography and general subjects at medium range. Pentax offers an extremely fast 200mm f/2.8 lens — fast enough for long-range available light photography. The f/4 lenses are among the lightest in their class.





### ① **smc PENTAX-A\* 300mm f/4**

With a magnification of 6X, the 300mm telephoto lens is ideal for long-range photography, yet is compact enough for hand-held shooting. The A\* lens is a new generation of telephoto lens – among the most compact on the market.



### ② **smc PENTAX-A\* 300mm f/2.8 ED(IF)**

### ③ **smc PENTAX-A\* 400mm f/2.8 ED(IF)**

The special extra-low-dispersion lens elements in these lenses reduce chromatic aberration to a minimum. An inner focusing system improves balance and allows closer focusing. Despite high magnifications of 6X and 8X, these lenses feature a fast maximum aperture of f/2.8 for improved contrast and better image quality.



#### **SMC Pentax PF Filter**

PF filters protect the front lens element of SMC Pentax lenses, especially A\* and ED lenses. They have no optical effect, and they provide the same high performance as Pentax lenses thanks to the exclusive Pentax Super-Multi-Coating. The filters are available in 77, 112, 128 and 145mm sizes.

### ① **SMC PENTAX-A 400mm f/5.6**

This lens is also extremely lightweight for the focal length. Despite the 8X magnification power it is hand-holdable at faster shutter speeds.



### ② **SMC PENTAX 500mm f/4.5**

Another relatively lightweight telephoto, this lens is equipped with a relatively fast maximum aperture and a built-on sight for easy composition and focus. Brings subjects inaccessible to shorter lenses within reach. Excellent for nature photography.



### ③ **SMC PENTAX-A\* 600mm f/5.6 ED(IF)**

The extra-low-dispersion optical elements used in this lens reduce chromatic aberration, for performance levels not possible with conventional optical glass. The rear focus system features a rear elements group that moves inside the barrel. This allows a far more compact lens design, as well as better balanced, smoother and faster focusing. The focal length is ideal for most long-distance applications.



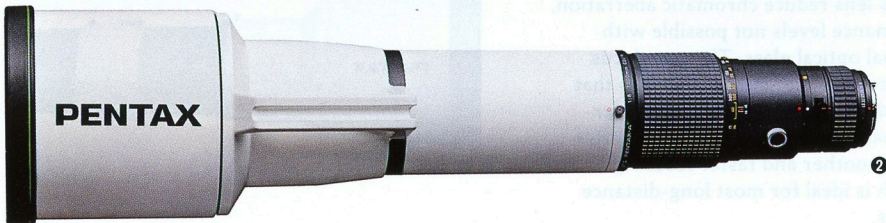
### ① smc PENTAX 1000mm f/8

The 20X magnification of this lens brings distant subjects into the closest focus. A built-on sight, rack-and-pinion focusing system and specially designed tripod (optional) make focusing fast and sure.



### ② smc PENTAX-A\* 1200mm f/8 ED(IF)

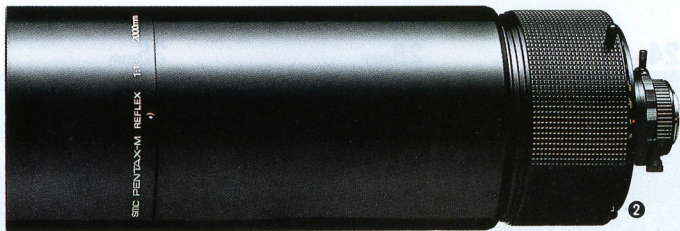
Another extra-low-dispersion-elements-used, high-performance, ultra-telephoto lens, this optic reduces chromatic aberration to a minimum and well corrects other various aberrations, ensuring distinct and high-contrast pictures even with the lens wide open.



① SMC PENTAX REFLEX 1000mm f/11

② SMC PENTAX-M REFLEX 2000mm f/13.5

The reflex optical design of these two super telephotos make possible a dramatic reduction in the size of the lens. Besides reducing size, the use of mirrors in the design eliminates the need for optical correction and makes possible an extremely close minimum focusing distance. Since the reflex design does not allow a lens diaphragm, light control is accomplished by means of three built-in ND (neutral density) filters and shutter speed variation. Both lenses are equipped with built-in standard filters and sights.



## ZOOM LENSES



### SMC PENTAX-A ZOOM 24mm ~ 50mm f/4

This compact wide-to-standard lens is the most versatile in the line. Optical performance is superb from 24mm ultra-wide angle all the way to 50mm standard.

**24mm**



**28mm**



**35mm**



**50mm (STANDARD)**



**smc PENTAX-M ZOOM 28mm f/3.5~50mm f/4.5**

Another versatile wide-to-standard zoom this lens is as compact as a conventional standard lens. The focal length coverage is highly practical and the variable aperture design enables optimum speed and performance at any setting.



**smc PENTAX-A ZOOM 28mm ~ 135mm f/4**

This triumph of lens technology is the most versatile of all Pentax zooms. It's fast, compact and covers the complete range from wide angle to medium telephoto plus a macro setting. And it is equipped for automatic aperture control.



**85mm**



**100mm**



**120mm**



**135mm**







**SMC PENTAX-A ZOOM 35mm ~ 70mm f/4**

Unprecedented speed and compactness along with an extremely functional range of focal lengths makes this an excellent choice for a standard lens. Maximum wide-angle and telephoto settings are as fast as their fixed-length counterparts.



**SMC PENTAX AF ZOOM 35mm ~ 70mm f/2.8**

This is a fast, versatile all-purpose zoom designed especially for use with the ME-F Auto Focus Camera. Mechanisms and power supply for automatic focus adjustment (available with the ME-F only) are built into the lens body.

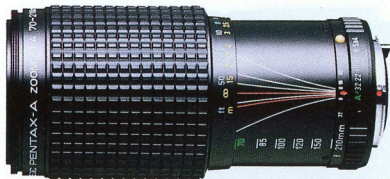


**SMC PENTAX-A ZOOM 35mm ~ 105mm f/3.5**

Also equipped for automatic aperture control, this lens has a slightly narrower range than the 28mm-135mm, but a faster maximum aperture. It is an extremely compact and practical all-purpose lens, complete with macro setting.

### smc PENTAX-A ZOOM 70mm ~ 210mm f/4

Compact and equipped for automatic aperture control, this is an excellent zoom for all medium telephoto focal lengths and closeup macro photography. Combine it with the Pentax-A 24-50mm zoom and you can shoot almost any subject with automatic aperture.



### smc PENTAX-M ZOOM 75mm ~ 150mm f/4

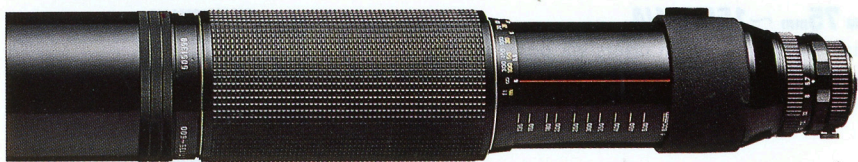
Only 111mm in length, this zoom offers six popular telephoto lens lengths in one. A one-touch zoom-focus control lets you frame and focus quickly and easily.





**SMC PENTAX REFLEX ZOOM 400mm f/8 ~ 600mm f/12**

A compact and lightweight reflex design makes this an ideal lens for hand-held sports and landscape shots. The reflex design also ensures reduced chromatic aberrations and sharp images at all times.



**SMC PENTAX ZOOM 135mm ~ 600mm f/6.7**

Powerful and fast for its class, this is the ultimate zoom lens for professional-quality distance photography. Features a rotatable tripod socket, a sight for quick focusing and a rear filter mount.

**28mm**



**50mm**

**(STANDARD)**



**100mm**



**210mm**



**300mm**



**400mm**





### SMC PENTAX-A MACRO 50mm f/2.8

This lens offers continuous focus to infinity and when used with Reverse Adapter K, offers magnifications greater than life size. Also operates as a standard-focal-length lens. Features automatic aperture control and an exceptionally fast maximum aperture.

### ● SMC PENTAX-A MACRO 100mm f/2.8

SMC PENTAX-A MACRO 100mm f/4

SMC PENTAX-M MACRO 100mm f/4

These lenses offer greater magnification than the 50mm macro lens, for closer close-ups or to permit close-ups of subjects at greater distance. They also operate as a regular 100mm telephoto.

### SMC PENTAX BELLOWS 100mm f/4

This compact and lightweight lens is designed specifically for use with bellows equipment. With Auto Bellows M, it offers magnifications to greater than life size with automatic diaphragm operation. With Bellows Unit M, diaphragm control is manual and magnifications is to 0.9X.





**SMC PENTAX-A FISH-EYE 16mm f/2.8**

The exaggerated perspective of this lens and its amazing depth of field make it an invaluable creative tool, covering a full 180° angle of view. Its fast maximum aperture allows shooting under poor lighting conditions. Compared to conventional fish-eye lenses, it has a very little spherical aberration and much improved contrast and resolving power.



**SMC PENTAX SHIFT 28mm f/3.5**

The 360° rotating lens barrel of this lens allows you great flexibility in solving the problem of converging lines: you may choose either to correct the perspective or exaggerate it for creative effect. It is indispensable for architectural photography. Comes with four built-in filters and a rear filter mount.

Uncorrected



Corrected



## REAR CONVERTERS & LENS MOUNT ADAPTERS

- 1 SMC Pentax Rear Converter-A 1.4X-S
- 2 SMC Pentax Rear Converter-A 2X-S
- 3 SMC Pentax Rear Converter-A 1.4X-L
- 4 SMC Pentax Rear Converter-A 2X-L

Fitting between the lens and the camera body, these rear converters increase effective focal length of the lens. 1.4X models boost focal length 40%, nearly doubling image area; 2X models double focal length. Models S are usable with most lenses up to 300mm while models L are for lenses over 300mm. All four can be used with automatic aperture control and open-aperture metering.

- 1 67-System Lens Mount Adapter K
- 2 645-System Lens Mount Adapter K

The lens mount adapters permit Pentax 67-system and 645-system lenses to be used with bayonet-mount Pentax 35mm cameras. With an adapter, lenses will focus to infinity, but must be used with manual diaphragm and stopped-down metering. When used with 67-system telephoto lenses, the adapter allows the camera to move both vertically and horizontally while the lens remains on the tripod.





# LENS SPECIFICATIONS

● Type	● Lens	● Minimum Aperture	● Angle of View (Degree)	● Lens Construction (Groups/Elements)	● Diaphragm	● Minimum Focusing Distance		● Maximum Diameter & Length (mm x mm)	● Weight		● Filter Size (mm)
						● m	● ft.		● gr.	● oz.	
FISH-EYE	SMC Pentax-A Fish Eye 16mm f/2.8	22	180	7-9	FA	0.2	0.7	65×56	320	11.3	BI
ULTRA-WIDE-ANGLE	SMC Pentax-A 15mm f/3.5	22	111	12-13	FA	0.3	1	80×81.5	595	21	BI
	SMC Pentax-A 20mm f/2.8	22	95	9-10	FA	0.25	0.8	70×43.5	245	8.6	67
	SMC Pentax-A 24mm f/2.8	22	84	8-9	FA	0.25	0.8	63×41.5	205	7.2	52
WIDE-ANGLE	SMC Pentax-A 28mm f/2	22	75	7-8	FA	0.3	1	63×41.5	215	7.6	49
	SMC Pentax-A 28mm f/2.8	22	75	7-7	FA	0.3	1	63×36.5	170	6	49
	SMC Pentax-A 35mm f/2	22	63	7-7	FA	0.3	1	63×41.5	205	7.2	49
	SMC Pentax-A 35mm f/2.8	22	63	6-6	FA	0.3	1	63×36.5	170	6	49
STANDARD	SMC Pentax-A 50mm f/1.2	22	47	6-7	FA	0.45	1.5	64.5×47.5	345	12.2	52
	SMC Pentax-A 50mm f/1.4	22	47	6-7	FA	0.45	1.5	63×37	235	8.3	49
	SMC Pentax-A 50mm f/1.7	22	47	5-6	FA	0.45	1.5	63×31	165	5.8	49
	SMC Pentax-A 50mm f/2	22	45.7	5-5	FA	0.45	1.5	63×31	165	5.8	49
TELEPHOTO	SMC Pentax-A* 85mm f/1.4	22	28.5	6-7	FA	0.85	2.8	74×66	555	19.6	67
	SMC Pentax-A 100mm f/2.8	22	24.5	5-5	FA	1	3.3	63×56	260	9.1	49
	SMC Pentax-M 120mm f/2.8	32	20.5	5-5	FA	1.2	3.9	62.5×63	270	9.5	49
	SMC Pentax-A* 135mm f/1.8	22	18	6-7	FA	1.2	3.9	80×97.5	865	30.3	77
	SMC Pentax 135mm f/2.5	32	18	6-6	FA	1.5	4.9	67.5×85.9	480	16.8	58
	SMC Pentax-A 135mm f/2.8	32	18	4-4	FA	1.2	3.9	65×76.5	340	11.9	52
	SMC Pentax-M 135mm f/3.5	32	18	5-5	FA	1.5	4.9	62.5×65.7	270	9.5	49
	SMC Pentax-M 150mm f/3.5	32	16.5	5-5	FA	1.8	5.9	62.5×75	290	10.2	49
	SMC Pentax-A* 200mm f/2.8 ED	32	12.5	6-6	FA	1.8	5.9	91×137.5	850	29.8	77
	SMC Pentax-A 200mm f/4	32	12.5	6-6	FA	1.9	6.3	63.5×111	410	14.4	52
	SMC Pentax-M 200mm f/4	32	12.5	5-6	FA	2	6.6	63.5×111	400	14	52

BI .... Filters built-in FA .... Fully automatic M .... Manual ND .... Controlled by ND filters **Note:** Lens length does not include mount portion.

A\* = Called A-star. High-performance, compact lens using special glass elements.

ED = Ultra-achromatic lens using extra-low-dispersion glass elements. IF = Inner focus

● Lens hoods are not available for "A" Zooms 28-135mm f/4 and 35-105mm f/4, due to possible vignetting problems.

● Type	● Lens	● Minimum Aperture	● Angle of View (Degree)	● Lens Construction (Groups-Elements)	● Diaphragm	● Minimum Focusing Distance		● Maximum Diameter & Length (mm x mm)	● Weight		● Filter Size (mm)
						● m	● ft.		● gr.	● oz.	
ULTRA TELEPHOTO	SMC Pentax-A* 300mm f/2.8 ED(IF)	32	8.3	8-8	FA	3	10	133×236	2970	104.8	49
	SMC Pentax-A* 300mm f/4	32	8.3	7-8	FA	4	13.1	84.5×132	850	30	77
	SMC Pentax-A* 400mm f/2.8ED(IF)	32	6.2	8-8	FA	4.5	14.8	165×325	6000	211.7	49
	SMC Pentax-A 400mm f/5.6	45	6.2	6-7	FA	2.8	9.2	85×277	1240	43.7	77
	SMC Pentax 500mm f/4.5	45	5	4-4	M	10	32.8	126.5×440	3370	118.9	52
	SMC Pentax-A* 600mm f/5.6 ED(IF)	45	4.1	6-8	FA	5.5	18	133×386	3280	115.7	49
	SMC Pentax 1000mm f/8	45	2.5	5-5	M	30	98.4	143×738	5290	186.6	52
	SMC Pentax Reflex 1000mm f/11	—	2.5	4-6	ND	8	26.2	119×248	2300	81.1	Bl/52
	SMC Pentax-A* 1200mm f/8 ED (IF)	45	2.1	8-9	FA	8	26.2	170×684	8580	302.6	49
	SMC Pentax Reflex 2000mm f/13.5	—	1.2	4-6	ND	20	65.6	180×530	8000	282.2	Bl/52
	ZOOM	SMC Pentax-A Zoom 24~50mm f/4	22	84-47	10-11	FA	0.4	1.4	64×67.5	375	13.2
SMC Pentax-M Zoom 28mm f/3.5~50mm f/4.5		22	75-47	10-10	FA	0.6	2	65×52	310	10.9	52
SMC Pentax-A Zoom 28~135mm f/4		22	75-18	15-17	FA	1.7	5.6	80×112	820	28.9	77
* SMC Pentax-AF Zoom 35~70mm f/2.8		22	63-34.5	7-7	FA	1.2	3.9	73×76.5	580	20.5	58
SMC Pentax-A Zoom 35~70mm f/4		22	63-34.5	7-7	FA	0.25*	0.8	65×79.5	330	11.6	58
SMC Pentax-A Zoom 35~105mm f/3.5		22	63-23.5	13-15	FA	1.5	4.9	70×97.5	615	21.7	67
SMC Pentax-A Zoom 70~210mm f/4		32	34.5-12	13-13	FA	1.2	3.9	72×149	680	24	58
SMC Pentax-M Zoom 75~150mm f/4		32	32-16.5	9-12	FA	1.2	3.9	63.5×111	465	16.4	49
SMC Pentax Zoom 135~600mm f/6.7		45	18-4.1	12-15	M	6	19.7	105×582	4070	143.6	52
SMC Pentax Reflex Zoom 400mm f/8~600mm f/12		—	6.2-4.1	7-12	ND	3	9.8	82×108	730	25.8	⊕
MACRO	SMC Pentax-A Macro 50mm f/2.8	22	47	4-6	FA	0.24	0.8	63×50	220	7.8	49
	SMC Pentax-A Macro 100mm f/2.8	22	24.5	7-7	FA	0.31	1	74×92.5	470	16.6	58
	SMC Pentax-A Macro 100mm f/4	32	24.5	3-5	FA	0.45	1.5	64.5×78	340	12	49
	SMC Pentax-M Macro 100mm f/4	32	24.5	3-5	FA	0.45	1.5	65×78	360	12.6	49
	SMC Pentax Bellows 100mm f/4	32	24.5	3-5	FA/M	—	—	60×40	185	6.5	52
SHIFT	SMC Pentax Shift 28mm f/3.5	32	75	11-12	M	0.3	1	80×92.5	610	21.5	Bl

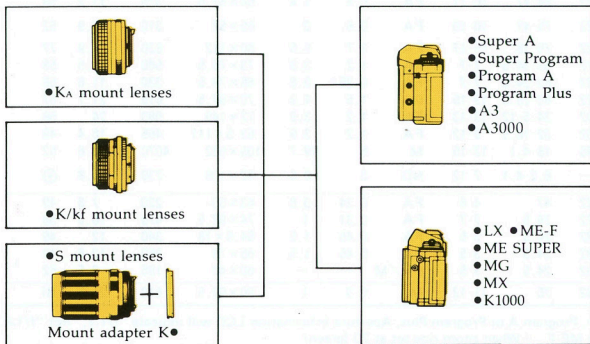
● When A\* 135mm f/1.8 is used with Super A, Super Program, Program A or Program Plus, Aperture Information LCD will indicate "f/1.7," not "f/1.8."

\* AF stands for Auto Focus; Auto focusing possible only with ME-F. \* When zoom ring set at 70 (green)

⊕ 67mm filters can be screwed in the lens front; 40.5mm special filters in the lens rear.

## Interchangeable Pentax Lenses

Switching to a new Pentax body does not make your old Pentax lenses obsolete, since any Pentax 35mm lens can be used with any Pentax 35mm body. Note that only K<sub>A</sub> mount lenses allow automatic aperture control with the Super A/Super Program and Program A/Program Plus cameras. K<sub>A</sub> mount lenses, however can be used with all other bodies without loss of automatic shutter-speed control. Older S-mount lenses can be used on all current Pentax cameras with Mount Adapter K.

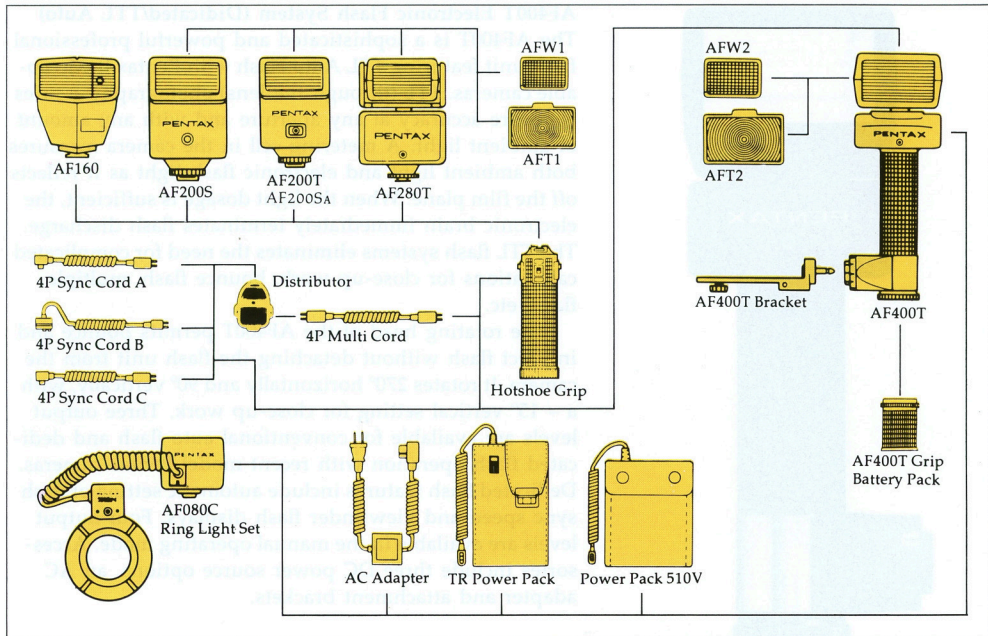




### TO BROADEN YOUR PHOTOGRAPHIC HORIZONS

To help you get the most out of the Pentax camera you've just bought, on the following pages you will find descriptions of the broad range of accessories Pentax offers. By selecting various items from these pages, you can actually tailor an entire "Pentax System" to your own particular photographic needs. And naturally if you have any questions or problems, your Pentax dealer is always ready to help.

# FLASH SYSTEMS





### AF400T Electronic Flash System (Dedicated/TTL Auto)

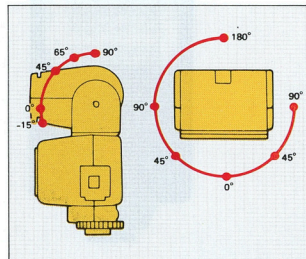
The AF400T is a sophisticated and powerful professional flash unit featuring TTL Auto Flash with Pentax IDM-capable cameras. TTL (through-the-lens) photography assures exposure accuracy at any aperture and with any amount of ambient light. A metering cell in the camera measures both ambient light and electronic flash light as it reflects off the film plane. When the light dosage is sufficient, the electronic brain immediately terminates flash discharge. The TTL flash systems eliminates the need for complicated calculations for close-up work, bounce flash, multiple flash, etc.

The rotating head of the AF400T permits bounce and indirect flash without detaching the flash unit from the camera. It rotates 270° horizontally and 90° vertically, with a - 15° vertical setting for close-up work. Three output levels are available for conventional auto flash and dedicated flash operation with recent model Pentax cameras. Dedicated flash features include automatic setting of flash sync speed and viewfinder flash displays. Four output levels are available in the manual operating mode. Accessories include three DC power source options, an AC adapter and attachment brackets.

### AF280T Auto Flash (Dedicated/TTL Auto)

The AF280T, like the AF400T, offers highly versatile TTL Auto Flash operation when used with Pentax IDM-capable cameras. Creative flash photography has never been simpler. When used as an auto or manual flash, two light levels are available. More recent Pentax cameras permit dedicated functions such as automatic flash sync speed setting and viewfinder flash displays.

The rotating head of the AF280T turns 270° horizontally and 90° vertically (plus -15° for close-ups), making it easy to create varied effects using bounce and indirect lighting.







### **AF200T Auto Flash (Dedicated type)**

When used with Pentax IDM-capable cameras, the AF200T offers TTL Auto Flash operation, the sophisticated system that ensures perfect flash exposures. As a dedicated or auto flash, AF200T functions include two light levels and automatic flash sync speed setting and viewfinder display of flash readiness with recent Pentax cameras plus audible confirmation of successful flash exposure. Four-level manual flash operation is also possible.



### **AF200SA Auto Flash (Dedicated type)**

This compact clip-on auto flash is specially designed to be used with any Pentax program camera in the Programmed AE mode. It sets the camera's aperture and shutter speed automatically as soon as it is fully charged. Its electronic sensor measures the amount of light reflected off a subject and controls the flash emission for the correct exposure, so complicated adjustments are unnecessary.

### AF080C Ring Light Set

The AF080C is specifically designed for close-up and macro flash photography. It provides direct, shadowless light by means of a 360° circular flash head that attaches easily to any 49mm-diameter lens (or 52mm with an adapter). When used with Pentax IDM-capable cameras, error-free TTL Auto Flash operation is possible. With other recent Pentax cameras, the AF080C offers dedicated manual operation with automatic setting of flash sync speed and viewfinder flash-ready indication.





#### **AF200S Auto Flash (Dedicated type)**

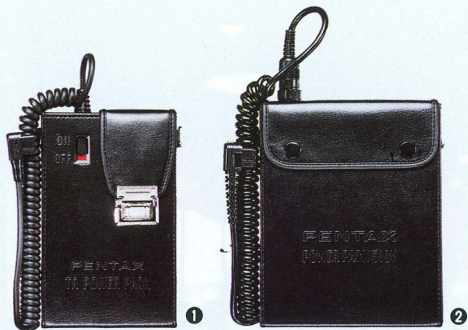
This very compact flash easily attaches to the hotshoe of any Pentax camera. Two flash output levels, high and low, are available in both auto and manual modes. With recent Pentax cameras, it also offers automatic setting of flash sync speed and viewfinder flash-ready display.



#### **AF160 Auto Flash (Dedicated type)**

Our most compact flash, the AF160 offers a choice of two flash output levels, high and low, in both auto and manual operation modes. When used on recent Pentax cameras, additional functions include automatic setting of flash sync speed and view-finder flash-ready display.



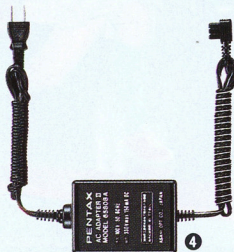


❶ **Power Pack 510V** encloses a 510V multi-cell battery and is designed specifically for use with AF400T or AF080C flash system via accessory power cord. A powerful, reliable power source for professional use.

❷ **TR Power Pack** is a convenient external power source, using six "C" batteries (regular or Ni-Cd).

❸ **Grip Battery Pack** is for use with the AF400T flash and attaches to its grip. It uses six "AA" batteries (regular or Ni-Cd).

❹ **AC Adapter II** powers AF400T or AF080C from standard household AC current.



❶ **4P Sync Cord A** connects the 4P sync socket of the LX camera to AF400T, Hotshoe Grip or Distributor for TTL Auto Flash photography. For multiple flash photography, a hotshoe such as on finder FA-1 can be used for clip-on type auto flashes.

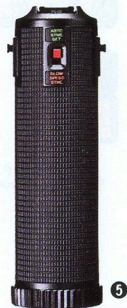
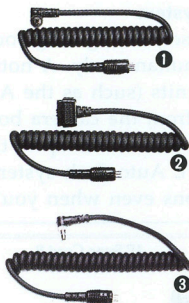
❷ **4P Sync Cord B** connects the hotshoe of LX finder FA-1, FA-1W or Super A/Super Program/Program A/Program Plus finder to AF400T, Hotshoe Grip or Distributor. This cord is necessary for multiple flash photography in the TTL Auto Flash mode.

❸ **4P Sync Cord C** connects an X sync socket to a flash unit such as AF400T for auto and manual flash photography.

● **4P Multi Cord** connects distributor to hotshoe or AF400T for multi-flash photography. 5m.

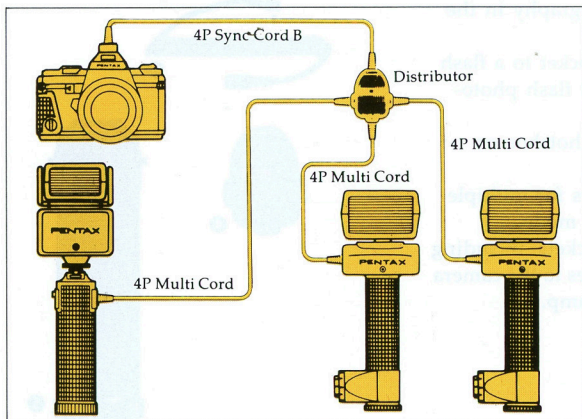
❹ **Distributor** connects up to 3 flash units for multiple flash photography in the TTL Auto Flash mode.

❺ **Hotshoe Grip** has a variety of sync sockets, including one for the TTL Auto Flash mode. It attaches to the camera by means of the AF400T's bracket and clamp.



## Multi Flash System

To create precisely the lighting you want, use up to three flash units simultaneously. A hotshoe grip lets you use clip-on flash units (such as the AF280T) even when they are separated from the camera body. A multi-flash distributor lets you combine up to three units. And if your camera has TTL Auto flash system, there is no need for extra calculations even when you're using extra units.

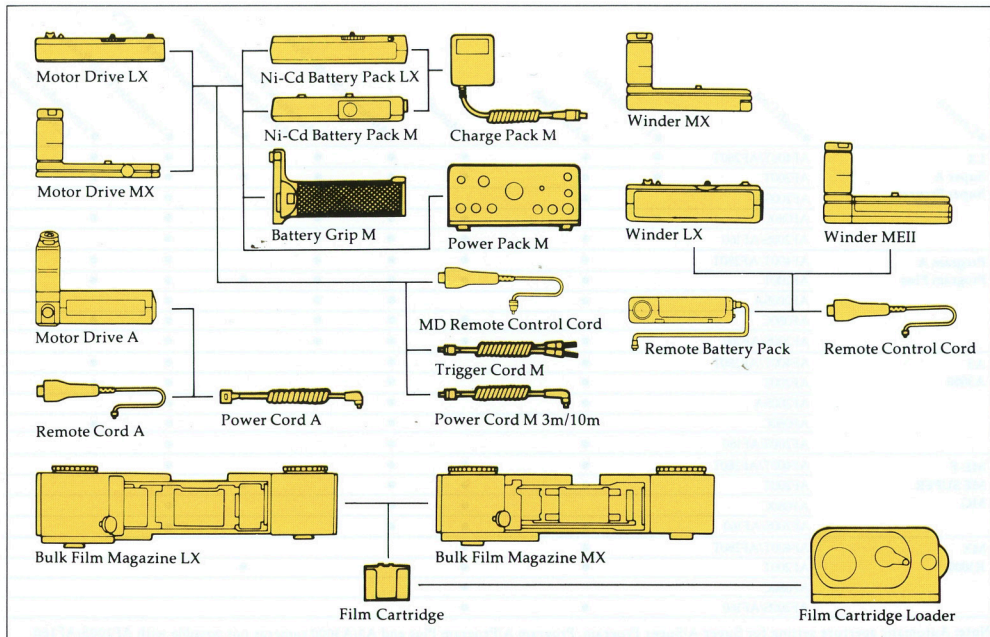


	● Camera	● Flash Unit	● TTL Auto Flash	● Auto Flash	● Manual	● Automatic Shutter Sync	● Automatic Flash Prevention at High Shutter Speed	● Auto Exposure Check by PCV	● Viewfinder Flash Ready	● Viewfinder Flash Confirmation
<b>LX Super A Super Program</b>		AF400T/AF280T	●	●	●	●	●	●	●	●
		AF200T	●	●	●	●	●	●	●	●
		AF200SA		●		●	●		●	
		AF080C	●		●	●	●		●	●
		AF200S/AF160		●	●	●	●		●	
<b>Program A Program Plus</b>		AF400T/AF280T		●	●	●		●	●	●
		AF200T		●	●	●	●	●	●	●
		AF200SA		●		●	●		●	
		AF080C			●	●	●			●
		AF200S/AF160		●	●	●	●		●	
<b>A3 A3000</b>		AF400T/AF280T		●		●		●	●	●
		AF200T		●		●		●	●	●
		AF200SA		●		●		●	●	
		AF080C				●		●	●	●
		AF200S/AF160		●		●		●	●	
<b>ME-F ME SUPER MG</b>		AF400T/AF280T		●	●	●		●	●	●
		AF200T		●	●	●	●	●	●	●
		AF080C			●	●		●	●	
		AF200S/AF160		●	●	●		●	●	
<b>MX K1000</b>		AF400T/AF280T		●	●					
		AF200T		●	●		●			
		AF080C			●					
		AF200S/AF160		●	●					

Note: Automatic aperture setting for Super A/Super Program, Program A/Program Plus and A3/A3000 cameras not possible with AF200S/AF160.

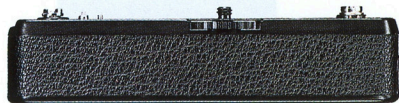


# MOTOR DRIVE & WINDER SYSTEMS



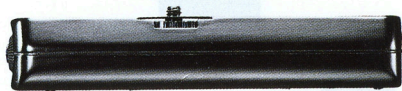
### Motor Drive LX

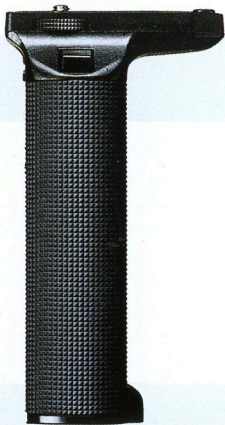
Motor Drive LX is one of the accessories that makes the Pentax LX camera such a popular choice with professional and action photographers. Mounting quickly and easily on the tripod mount of the LX, Motor Drive LX permits sequential photography at speeds from 5 to 0.5 frames per second plus single-frame. The shutter can be triggered by the camera's shutter release button, the release on the optional Battery Grip M or by remote control. Other features include end-of-film rewind, full synchronization at all shutter speeds (except "B") and an LED end-of-film warning/battery check.



### Ni-Cd Battery Pack LX

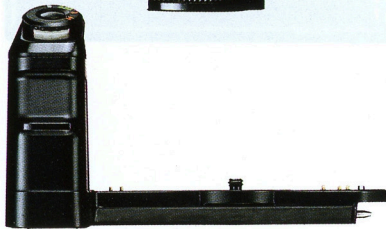
This compact, lightweight power source attaches to the base of Motor Drive LX or MX. Fully recharged, it will power the motor drive through about 20 rolls of 36-exposure film. A trigger button is located along the side to facilitate shooting when holding the camera vertically and for remote control shooting. Recharging requires Charge Pack M or Power Pack M.





### Battery Grip M

For maximum portability and convenience, this powerful battery pack attaches to the bottom of Morot Drive LX or MX, doubling as a grip. A trigger-type shutter is built in. With 12 "AA" size alkaline-manganese cells, it will last through about 30 rolls of 36-exposure film.



### Motor Drive A

For action photography with the Super A/Super Program and Program A/Program Plus cameras, we have developed Motor Drive A, a very compact unit that permits speeds up to 3.5 frames per second plus single frame. The convenient grip has a built-in shutter release that is ideally positioned for standard horizontal shots.

### Battery Pack A

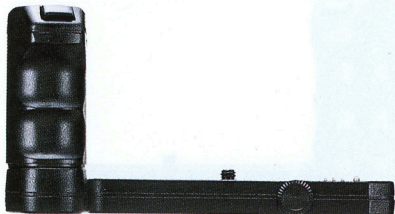
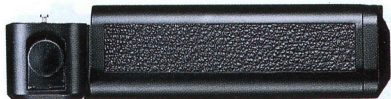
Powers Motor Drive A, using 8 "AA" cells. Can be used together with Motor Drive A or separately via Power Cord A. A second shutter release button is provided, ideally positioned for vertical shots.

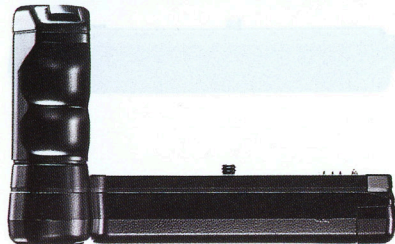
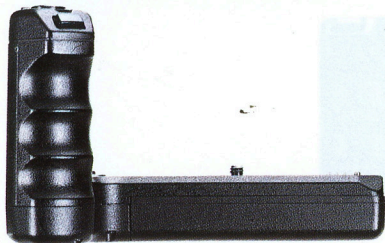
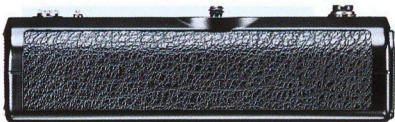
### Motor Drive MX

Designed for use with the Pentax MX camera, this compact motor drive provides continuous photography up to five frames per second, plus single frame. It can be activated by the shutter release on the battery pack or by a trigger-type shutter release located on the grip. Frame advance speed is continuously adjustable.

### Ni-Cd Battery Pack M

Like Ni-Cd Battery Pack LX, a dial lets you choose continuous or single frame advance mode. Up to 20 rolls of 36-exposure film can be shot with one set of batteries.





### **Winder LX**

Winder LX operates the Pentax LX at speeds up to two frames per second with full synchronization at all shutter speeds (except "B"). Single frame advance is also available. The auto rewind feature rewinds a 36-exposure roll of film in just seven seconds. Winder LX attaches securely to the camera's tripod mount with a special gasket to keep moisture and dust out. An LED flashes to indicate film end. Remote control operation is possible.

### **Winder ME II**

This compact winder fits the Pentax Super A/Super Program, Program A/Program Plus, ME-F, ME SUPER and MG. In the S mode, it automatically advances the film one frame at a time, and in the "C" mode, it offers continuous film advance at up to two frames per second.

### **Winder MX**

Winder MX, designed for the Pentax MX camera, offers two frame-per-second continuous or single frame advance. The comfortable, lightweight grip enhances the versatility of the MX and, for added convenience, a shutter release is located on the grip. Using four "AA" Alkaline-Manganese batteries, about 20 rolls of 36-exp film can be shot.

### ❶ Bulk Film Magazine LX

For extended time-lapse photography, laboratory work and fast-action sports photography, a bulk film magazine is essential. Bulk Film Magazine LX snaps on in place of the regular camera back of the Pentax LX. Its large capacity film cartridge holds 10 meters of film, enough for up to 250 exposures. A subtracting-type film counter is built in. Coupler LX, included, permits use of Bulk Film Magazine LX on the Pentax LX without a motor drive.

### ❷ Bulk Film Magazine MX

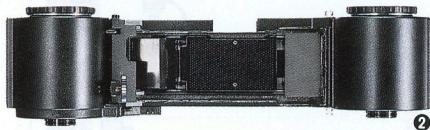
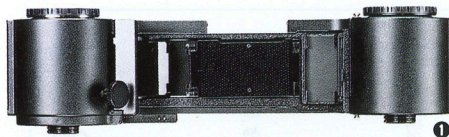
Bulk Film Magazine MX, specially designed for use with the Pentax MX camera, has the same convenient features and large capacity as Bulk Film Magazine LX.

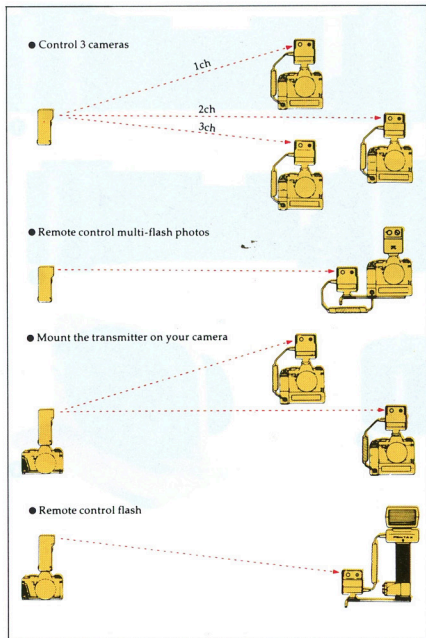
### ❸ Film Cartridge

Extra film cartridges for use with Pentax bulk film magazines.

### ❹ Film Cartridge Loader

The Pentax Film Cartridge Loader is used to load bulk film (sold in 30.5 meter lengths) into cartridges for use with Pentax bulk film magazines. Darkroom use is required.





### Infrared Remote Control System

This is one of the most versatile system accessories available to Pentax owners. Consisting of a separate transmitter and any number of receivers, it enables the photographer to operate one or more cameras or flash units from up to 60 meters away. Single or continuous shooting is possible with any motor drive or winder equipped Pentax camera. It's a perfect system for nature study, surveillance, scientific applications or multiple flash setups.

**Control 3 cameras** – Three different channels let you control up to three separate cameras or flash units independently with a single transmitter.

**Remote-control flash** – For special effects, position flash units around your subject and trigger them simultaneously with the transmitter mounted on your camera's hotshoe.

**Mount the transmitter on your camera** – When mounted on your camera, the transmitter sends out a pulse to activate other cameras each time you release the shutter.

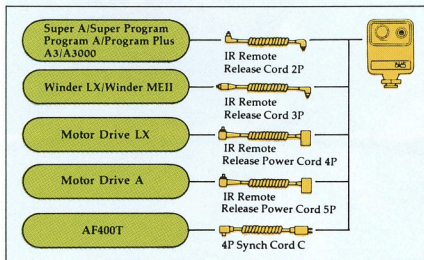
**Remote-control multi-flash photos** – With a handheld transmitter, send pulses to a receiver connected to a motor driven camera. A second transmitter located in the camera's hotshoe and set to a second channel activates remote flash units, each equipped with a receiver.

### ❶ Three-Channel Infrared Transmitter

The infrared remote control transmitter has a range of approximately 60 meters and a choice of 3 channels, letting you activate up to 3 different receivers individually. Both single frame and consecutive shooting is possible. When mounted on a camera's hotshoe, the transmitter automatically emits a pulse when the camera's shutter is released.

### ❷ Infrared Receiver

Mounts on a camera's hotshoe (or on a bracket when a flash is used). Automatically activates the camera's shutter when it receives a pulse from the infrared transmitter. A selector lets you match the receiver channel to any of the three transmitter channels. Powered by one 6V battery; Motor Drive A and LX are alternate power sources. Equipped with terminals for connection with multiple flashes.







### Wired Remote Control System

When the infrared remote control system is not available, a variety of remote control and other special shooting situations can be set up using equipment selected from Pentax's complete line of cords and accessories. Multiple camera shooting, interval shooting, bulk film shooting, time exposures, close-up and macro photography and photo copying are possible with all Pentax cameras with or without motor drive or winder, remote power source, flash systems, etc. The right accessories can greatly expand the creative possibilities of your Pentax photographic system.

● **Wired Remote Control**

Ni-Cd Battery Pack LX/M



Power Cord M



Trigger Cord M



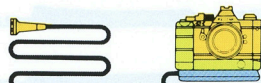
Remote Control Cord A

Power Pack A



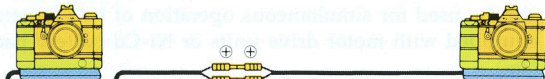
Power Cord A

Battery Grip M



MD Remote Control Cord

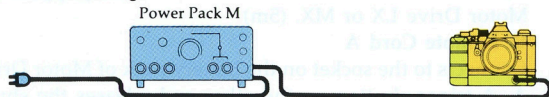
● **Simultaneous Shooting**



Trigger Cord M

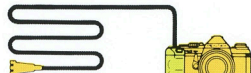
Trigger Cord M

● **Interval Shooting**

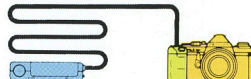


Power Cord M

● **Wired Remote Control for Winders**



Remote Control Cord



Remote Battery Pack



**❶ Power Cord M**

Connects Ni-Cd Battery Pack LX or M, Battery Grip M, or Power Pack M to Motor Drive LX or MX. It also allows shutter release from a remote power source. (3m/10m)

**❷ Power Cord A**

Connects Motor Drive A to a power source (Power Pack A) for remote control shooting. The power source can be stored in a warm place for better performance in cold weather. (3m)

**❸ Trigger Cord M**

Attaches to a remote control socket of Ni-Cd Battery Pack LX or M. A shutter release switch or other remote-control accessories can be attached to the other end. This cord can also be used for simultaneous operation of two cameras equipped with motor drive units or Ni-Cd battery packs. (3m)

**❹ Remote Cord for Motor Drives**

Connects to Ni-Cd Battery Pack LX or M. Shutter release button on the other end controls cameras equipped with Motor Drive LX or MX. (5m)

**❺ Remote Cord A**

Connects to the socket on the battery pack of Motor Drive A. A trigger button on the other end releases the shutter for remote control shooting. (5m)

### ❶ Remote Cord for Winders

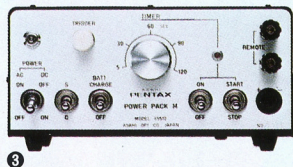
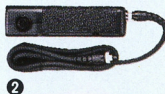
Shutter release button connects via cord to socket on Winder LX or ME II.

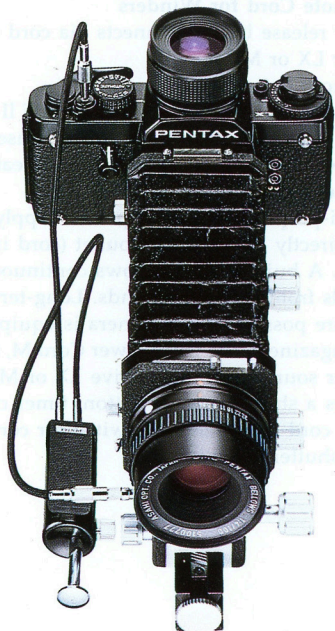
### ❷ Remote Battery Pack

This power source for Winder LX or ME II connects to the winder via power cord (included). It is useful for keeping the power source warm during cold weather.

### ❸ Power Pack M

A multi-purpose timer and power-supply unit that connects directly to AC power outlet (cord included) or car battery. A built-in timer allows continuous shooting at intervals from 5 to 120 seconds. Long-term timed sequences are possible when camera is equipped with bulk film magazine. Used with Power Cord M, this also acts as a power source for Motor Drive LX or MX. Control panel includes a shutter release button, timer control, remote control cord terminals and switch for continuous and single shutter release.





## SMC Close-Up Lenses

By simply screwing them onto the front of a master lens, the lens can be used for close focusing. Close-up lenses do not affect operation of automatic exposure control mechanisms and require no exposure compensation. Pentax offers close-up lenses in a variety of types and sizes to match different SMC Pentax lenses. Each is treated with the exclusive Pentax Super-Multi-Coating to preserve the high-quality performance of the Pentax master lens.



• Type	• SMC Pentax Lens	• Lens-to-subject distance range	• Magnification
S40	50mm f/1.4, 50mm f/1.7, 50mm f/2	48.0~27.0cm (with 50mm f/1.7 lens)	1/7.6~1/3.5 (with 50mm f/1.7 lens)
S25	50mm f/1.4, 50mm f/1.7, 50mm f/2	32.6~22.0cm (with 50mm f/1.7 lens)	1/4.8~1/2.7 (with 50mm f/1.7 lens)
T80	85mm~150mm	91.6~50.5cm (with 85mm f/2 lens)	1/9.4~1/4.2 (with 85mm f/2 lens)
T160	100mm~150mm	174.2~79.1 (with 135mm f/3.5 lens)	1/12.3~1/4.31 (with 135mm f/3.5 lens)
T95	135mm f/2.5, 200mm f/4	111.7~80.3 (with 200mm f/4 lens)	1/4.96~1/2.61 (with 200mm f/4 lens)
T183	135mm f/2.5, 200mm f/4	108~200cm (with 200mm f/4 lens)	1.95~1/3.77 (with 200mm f/4 lens)



### Extension Tube Set K

This set features the same characteristics as Auto Extension Tube Set K, except that diaphragm operation is manual with stopped-down metering. The three tubes are 9.5mm, 19mm and 28.5mm in length, and provide magnifications from 0.38X to 1.61X with a standard 50mm f/1.4 lens.



### Auto Extension Tube Set K

Extension tubes are another way to create close-up photographs with a regular Pentax lens. They are also useful for macrophotography. Auto Extension Tube Set K consists of three rings (12mm, 19mm and 26mm in length) that fit between the camera body and the master lens. Used together or in any combination, they produce magnifications from 0.38X to 1.02X (1.8X with lens reversed), using a standard 50mm f/1.4 master lens. With this set, automatic diaphragm and open-aperture metering functions are retained.

### Helicoid Extension Tube K

This is a manual extension tube with an internal helicoid that permits variable magnification from 0.57X to 1.05X with a 50mm lens. Useful for magnification values not covered by fixed-length extension tubes.

### Auto Extension Tube K 50mm

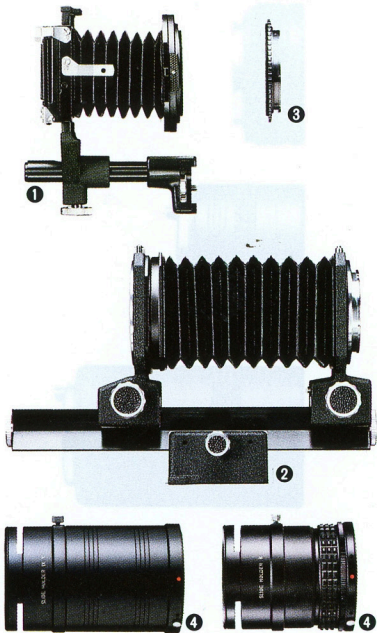
This single, fixed-length extension tube is an economical alternative to the auto extension tube set. It provides automatic diaphragm operation and open-aperture metering and magnifications up to life size with the 100mm f/4 macro lens.

### Auto Extension Tube K 100mm

This fixed-length extension tube has twice the focal length of the Auto Extension Tube K 50mm for striking magnification using telephoto lenses. Magnification is 1X to 15X with a 100mm macro lens and 0.35X with a 300mm f/4 lens. Diaphragm operation and metering is fully automatic.







**1 Slide Copier A 2 Auto Bellows A**

Auto Bellows A is a convenient and flexible system for high-magnification photography and slide copying. The bellows unit is freely adjustable between 38mm and 170mm for a minimum magnification of 0.73X with a 50mm lens. Features include a lens-reversing system, double cable release for automatic diaphragm and open-aperture metering, and moveable tripod receptacle. Slide Copier A attaches easily to the bellows unit for fast and accurate slide duplication. Slides can be copied at normal to 1.5X size.

**3 Reverse Adapter K**

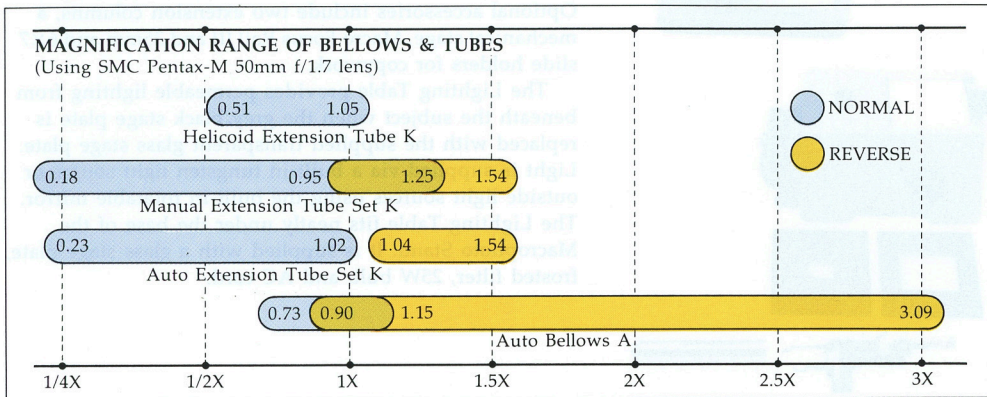
To produce greater-than-life-size magnifications with many lenses, the lens must be reversed for easier focusing and better results. This adapter, available in 49mm and 52mm sizes, screws onto the front of the lens and attaches to extension tubes or bellows with a bayonet mount.

**4 Slide Holder 1x/K & Slide Holder K**

Used with Auto or Extension Tube K, Slide Holder 1X, K allows 1X duplication of slides with a standard 50mm or Macro 50mm lens. Slide Holder K permits magnifications from 1.1 to 1.15X with the Macro 50mm lens and Auto Extension Tube No. 3.

## Magnification in Photography

Magnification, in photography, refers to the size of the subject compared to the size of the image on film. It is most easily calculated by dividing the length of the image along the longer side of the finder by 36mm – the length of the film frame. When the image is magnified to more than life size, it is called macrophotography. In life-size and macrophotography, focusing is much easier when the lens is reversed. Wide retro-focus type lenses such as 28mm, 30mm and 35mm provide higher magnifications when reversed.





### Macrophoto Stand/Lighting Table

This Macrophoto Stand with its optional lighting table is an extremely convenient and compact accessory for macrophotography and ultra-closeups. Used with the 50mm macro lens, Auto Extension Tube K, Reverse Adapter K, magnifications from 1/2X to 0.9X are available. With Auto Bellows A, magnification is from 0.7X to 3X. The Macrophoto Stand comes with a reversible grey/black stage plate offering ideal reflectance for exposure readings. Optional accessories include two extension columns, a mechanical stage, Macro Focus Rail III and 35mm and 6×7 slide holders for copywork.

The Lighting Table provides permeable lighting from beneath the subject when the grey/black stage plate is replaced with the supplied transparent glass stage plate. Light is supplied via a built-in tungsten light source or outside light sources using the built-in rotatable mirror. The Lighting Table fits neatly under the base of the Macrophoto Stand. It is supplied with a glass stage plate, frosted filter, 25W bulb and AC cord.

### ❶ Copy Stand III

The Copy Stand fixes the camera accurately and firmly above the subject for copy work. It is equipped with a fine height adjustment device to aid in focusing and an 18% standard reflector to facilitate exposure measurement.

### ❷ Table Clamp

The Table Clamp can be used to fix the Copy Stand's leg to a table top up to 6cm thick.

### ❸ Cable Switch A

Cable release for cameras equipped with electromagnetic shutters. (1m)

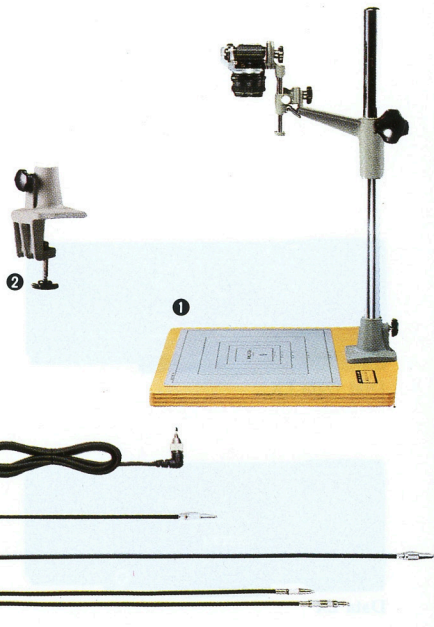
### ❹ Cable Release 30

### ❺ Cable Release 50

Prevents camera movement when shutter is released. Cable Release 50 is 50cm long and 30 is 30cm long.

### ❻ Double Release A

Allows automatic aperture control and open-aperture metering with Auto Bellows A.



Data recording systems, in the form of interchangeable LX or MX backs or add-on units for other M-series or A-series cameras, are capable of transferring valuable data directly onto the finished photograph. Data recording is extremely useful for scientific and industrial applications where an accurate time record is needed, or simply for keeping track of vacations or family events.



Dial Data LX



Data LX

### Dial Data LX

A compact data back interchangeable with LX back cover. With 3 dials following data can be recorded in the lower left-hand corner: (1) Year/F-stop; (2) Month/Alphabet/Shutter-speed; and (3) Date/Number. Settings are available for three ISO ranges for color film and all black and white film.

### Data LX

Interchangeable with LX back cover. Time elements, including hour minute and second, are recorded in clock shape in orange on a black background along with handwritten data. All data is clearly visible regardless of the background photo.

## Digital Data M

Connects to ME-F, Super A/Super Program, and Program A/ Program Plus and MG without cord and to ME SUPER with accessory Digital Data M cord. With built-in quartz clock, year/month/date or hour/date or hour/minute is clearly recorded. Seven-segment LCD display is provided outside for reference.

## Hot Shoe Adapter 2P

Attaches to hotshoe of MG to an X-sync socket. In addition to the MG, it can be used for all cameras without sync socket.

## Dial Data MX

Interchangeable with MX back cover. Functions are same as Dial Data LX and ME. Can be used with Motor Drive MX.

### \*Data MX

MX camera body with data capability same as Data LX.



Digital Data M



Dial Data MX

# FILTERS



	● 49mm	● 52mm	● 58mm	● 67mm	● 77mm
<b>● Black &amp; White</b>					
UV	●	●	●	●	●
Y1	●	●			
Y2	●	●	●	●	●
O2	●	●	●	●	●
R2	●	●	●	●	●
YG	●	●			
<b>● Color</b>					
Skylight	●	●	●	●	●
Cloudy	●	●	●	●	●
Morning & Evening	●	●			
Flash	●	●			
Flood	●	●			
Fluorescent	●	●			
<b>● Black &amp; White/Color</b>					
Polarizing	●	●	●		
Circular Polarizing	●	●			●
Fantasic Color R/B	●	●			
Fantasic Color R/G	●	●			
Magic Image Attachment 5C	●	●			
Magic Image Attachment 4C	●	●			
Magic Image Attachment 2C	●	●			
Magic Image Attachment 6M	●	●			

## FOR BLACK & WHITE FILM

**UV (ultraviolet)** – Absorbs ultraviolet rays and reduces haze for better definition of distant scenery.

**Y1, Y2, O2, R2** – Ranging in strength from yellow to red, these filters absorb blue so that skies are darker and clouds more sharply defined. Also increases contrast of distant scenery. The R2 filter is indispensable for infrared photography. Exposure factors: Y1, 1.5X; Y2, 2X; O2, 3X; R2, 6X.

**YG** – Absorbs ultraviolet, purple and blue to darken the sky and all red tones and flesh tones to aid in outdoor portraits. Exposure factor 2X.

## FOR COLOR FILM

**Skylight Filter** – Absorbs blue, green and ultraviolet rays and tones down bright sky for better results in landscape photography.

**Cloudy** – Softens excessive blue on cloudy or rainy days. Exposure factor 1.5X

**Morning & Evening (ME)** – Softens excessive red at sunset and sunrise. Exposure factor 1.5X

**Flash Filter (FL)** – Adjusts light from black & white flash bulbs for use with color film. Exposure factor 2X.

**Floodlight Filter (FD)** – Balances white light from floodlights for use with daylight color film. Exposure factor 3X.

**Fluorescent (FLR)** – Eliminates greenish tint produced by fluorescent lights when using daylight film. Exposure factor 2X.





**Polarizing Filters** – Polarizing filters can be used with both black & white and color film to reduce or eliminate surface reflections or to darken skies without affecting the rest of the scene. Just rotate the filter until desired effect is reached. In addition to standard linear polarizing filters, circular polarizing filters are available for the LX and ME-F cameras.



[R/B]

**Fantastic Color Filter R/B** – This rotating filter changes color from red to blue, producing colors in between as you turn the ring. Enhances the red of sunsets or autumn leaves or the blue of sky and sea.



[R/G]

**Fantastic Color Filter R/G** – This rotating variable color filter changes from red to amber and then to green. Useful for portraits, fashion photography and other creative applications.

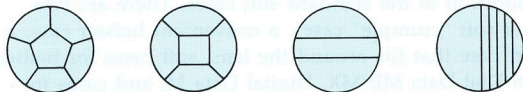


**Magic Image Attachment 2C** – Features two prism facets and a flat center to produce three images of the subject.

**Magic Image Attachment 2C** – Features four prism facets and a flat center to produce five images of the subject.

**Magic Image Attachment 5C** – Features five prism facets and a flat center to produce six images of the highlighted center subject.

**Magic Image Attachment 6M** – Five parallel prism facets are arranged on one half of the filter while the other half is flat. Produces six images of the subject.



**Gelatin Filter Holder** – For special filter effects not possible with standard screw-on filters, Pentax provides a gelatin filter holder designed for three-inch-square Kodak or other gelatin filters. The holder accommodates either Kodak gelatin filter frames or the accessory filter frame supplied with the holder. Changing filters is extremely simple and quick. (Available in 49, 52, 58 and 77mm sizes.)





• Soft Case M-40/M-50



• Soft Case W/Winder



• Short Soft Case



• Blimp Case LX



• Holster Case T



• Lens Case

Pentax produces durable, practical and attractive cases and bags. Standard soft cases for each model camera are available with interchangeable front cases for different lenses. For lenses, camera systems, and specialty uses, Pentax provides a complete line of cases and camera bags. All Pentax cases and bags offer superior protection and convenience, along with a touch of style.

### Special-Purpose Cases

Pentax produces a variety of special-purpose camera cases in addition to the standard soft cases. There are two super-soft "crumple" cases, a convenient holster case, a short case that fits around the lens, soft cases for bodies with Dial Data ME/MX, Digital Data M, and cases for cameras with winders.

### Lens Cases

Three types of lens cases are available, including two soft buckskin cases (one for short lenses, one for zooms and telephotos) and a hard case for 50mm standard lenses.

### Viewfinder Cases

For interchangeable LX viewfinders, Pentax offers two cases – a small one for finder units and a larger one for system finders.

## Straps

The Pentax line of camera straps includes the Fashion Strap, Hand Strap, Fastener Strap, and Camera Strap.

## Camera Bags

❶ Joy Bags S – A slimmer version of Joy Bag L. Holds a camera, standard lens and a wide angle or medium telephoto lens, and features front and back zippers for easy access.

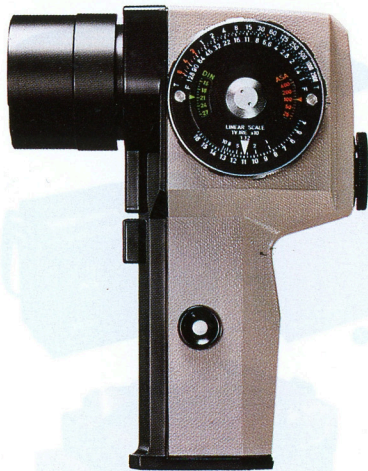
● Joy Bag L – Roomy enough for a camera, standard lens and telephoto lens, this compact bag also features two zipper compartments for accessories.

❷ Speed Bag M – This rugged, hard case holds a camera, two lenses and a complete system of accessories. Features hinged lid, built-in accessory pockets and foam padding.

● Travel Bag II – Drop-down front provides easy access for the action photographer. Roomy enough for a camera, two lenses, a winder, filters and close-up lenses.

❸ Gadget Bag – This large, genuine leather bag holds a complete professional system, including a camera, standard lens, 300mm telephoto, AF400T professional flash unit, motor drive and other oversized equipment.



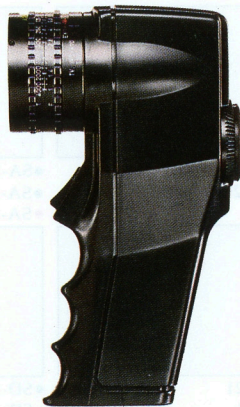


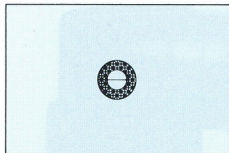
### Spotmeters V & V-FL

Ranking as one of the most accurate and useful exposure measuring instruments in the world, this meter, unlike the built-in through-the-lens meter of any Pentax camera, does not produce an average reading of the entire picture, but accurately measures a spot of only  $1^\circ$  of arc – but from any distance from the subject. Its SPD sensor offers virtually instantaneous response and a broad metering range of EV 1-19. Particularly useful when long-focus lenses are used. With it you can make an extremely accurate reading of a distant object – an on-stage performer right from your theater seat, a boat far out in the ocean. You need not attempt to take close-up readings by approaching close to the subject or finding an appropriate substitute nearby. It can also take readings from very small objects, such as a tiny flower four meters away. Moreover, it gives you an accurate check on the relative brightness of all objects within the picture area, which can be useful if you are afraid that the brightness range of a scene may be too great for accurate color reproduction. The model V-FL gives exposure information directly in foot lamberts and calculates illuminance ratios – perfect for TV or film metering.

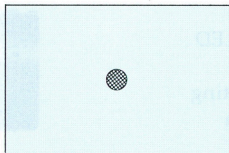
## Digital Spotmeter

This highly compact and lightweight model has an LED digital read-out in the viewfinder, thereby offering maximum visibility, regardless of the prevailing lighting conditions. Moreover, greater resistance to shock is a natural consequence of the elimination of a moving needle. When the exposure measurement button is depressed, the correct exposure is immediately displayed within the viewfinder as an EV number rounded off to the nearest  $1/3$  EV.

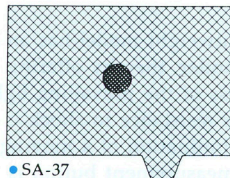




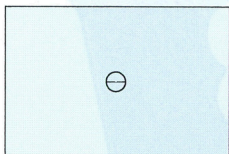
● SC-21 ● SC-1  
● SC-26 (Telephoto)



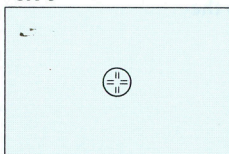
● SA-21 ● SA-1  
● SA-23 ● SA-26 (Telephoto)  
● SA-3



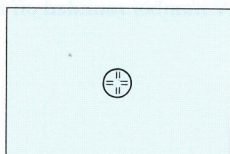
● SA-37



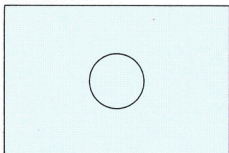
● SB-21  
● SB-1



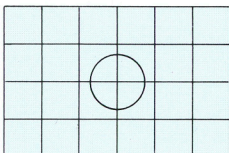
● SD-21  
● SD-1



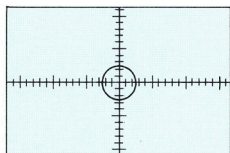
● SD-11



● SE-20 ● SE  
● SE-25 (Telephoto)



● SG-20  
● SG



● SI-20  
● SI

## Focusing Screens

A choice of interchangeable focusing screens is available for both the LX and MX cameras. There is a screen for any photographic requirement, including technical and scientific applications. MX screens may be used with the LX camera.

- For LX
- For LX & MX

**Split-Image/Microprism/Matte  
(SC-21/SC-26/SC-1)**

This versatile screen is standard on both the LX and MX. It features a center split-image spot surrounded by a microprism collar on a matte background. Model SC-26 is extra-bright for use with telephoto lenses.

**Microprism/Matte  
(SA-21/SA-1/SA-23/SA-26/SA-3)**

This versatile yet simple screen provides a microprism grid on a matte background. Models SA-21 and SA-1 are for use with normal lenses. Models SA-23/SA-26/SA-3 feature sharper microprism angles for easier focusing with fast lenses ( $f/2.8$  to  $f/1.2$ ). Model SA-26 is for use with lenses 300mm and over.

**All-Surface Microprism (SA-37)**

This screen features a microprism grid on its entire surface for brighter viewfinder image, especially in small-aperture telephoto shooting and high-magnification close-ups, and easier focusing. Recommended for lenses with a maximum aperture of  $f/1.8$  or smaller.

**Split-Image/Matte (SB-21/SB-1)**

This versatile screen for general applications features a convenient split-screen spot on a matte background.

**Matte with Central Cross Hairs (SD-21/SD-1)**

Perfect for scientific applications or macrophotography where lighting is dim, this screen features central cross hairs on an all-matte field.

**Clear Screen with Central Cross Hairs (SD-11)**

Central cross hairs are superimposed on a clear glass screen. Ideal for astronomical studies, microscopy or other applications where maximum light transmission is required.

**Matte (SE-20/SE-25/SE)**

This all-matte ground glass screen is well suited for super-telephoto photography or situations where no distractions to composition are wanted. Model SE-25 is especially for use with lenses 300mm and over.

**Scale Matte (SI-20/SI)**

An engraved scale on a matte field allows the macro photographer to determine image magnification and subject size while viewing through the finder.





### ❶ Refconverter-A

This right-angle viewer is ideal for copying, low-angle viewing and other situations where eye-level viewing is inconvenient. Image is non-reversed and laterally correct. Comes equipped with eyecup, 2X magnifier and provision for diopter correction.

### ❷ Magnifier-M/Magnifier

For ultra-precise focusing, this clip-on eyepiece magnifies the central portion of the screen 2X. The hinged magnifier can be raised to view the entire focusing screen and accepts SMC correction lenses. Magnifier-M is for use with M-series, Super A/Super Program, Program A/Program plus and LX cameras.



### ❸ Eyecup-M/Eyecup II

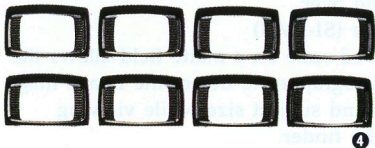
The eyecup attaches to the eyepiece grooves to eliminate reflections and prevent extraneous light from affecting metering.

### ❹ SMC Correction Lenses-M

Specially ground SMC corrective lenses are available in eight diopters, from -5 through +3.

### Refconverter

The image in the Refconverter without "A" designation appears laterally reversed. Use it only with the K1000 camera.



## Finders

The Pentax System includes a complete selection of easily interchangeable viewfinders for the LX camera. Since light metering is done inside the body, full exposure automation is available with any viewfinder. Pentax has the right finder for your focusing and composition needs.

● Finder	● Magnification	● Diopter	● Eyepoint	● Shutter Speed Indication	● Aperture Indication
FA-1	0.9X	-1.5-0Dpt	15.8mm	●	●
FA-1W	0.84X(0.8-0.88)	-3-+1Dpt	15mm	●	●
FA-2	0.9X	-1.5-0Dpt	15.8mm	●	●
FB-1+FC-1	0.55X	-0.95Dpt	60mm	●	●
FB-1+FD-1	0.95X	-4.5-+3.5Dpt	15mm	●	●
FB-1+FD-2	0.84X	-1Dpt	15mm	●	●
FE-1	1.35X	-5-+4Dpt	20mm	●*	●
FF-1	1.05X	-1.1Dpt	15mm	●*	●

\* Laterally incorrect



FC-1



FD-1



FE-1



### ❶ Quick Shoe Set 35mm

Top section screws into camera's tripod socket; bottom section is attached to tripod. Camera can be attached to and removed from tripod in seconds.

### ❷ Microscope Adapter K

This adapter will fit the camera body directly onto any microscope having a 25mm diameter tube.

### ❸ Battery Cord LX/A

To ensure proper battery performance in cold weather, this cord allows the photographer to store batteries in a warm pocket. Battery Cord LX is only for LX camera while Battery Cord A fits all A-series and M-series cameras except ME-F and MX.

### ❹ 52→49mm/49→52mm/58→77mm Adapter Rings

A variety of adapter rings are available to fit filters to different size lenses. The 52→49mm adapter is also used to attach the AF080C Ring Light to 52mm-diameter lenses such as the Bellows 100mm f/4.

### ❺ Mount Adapter K

This adapter allows screw-mount Takumar lenses to be used on bayonet-mount Pentax cameras. Screw-mount lenses will focus to infinity, but cannot be used for automatic diaphragm operation or open-aperture metering.

### ① Telescope Adapter

Pentax telescopes 65, 85, and 100 can be used as super-telephoto lenses using this adapter. TTL metering and automatic aperture operation are possible.

### ② Eyepiece Adjuster

This tool is used to correct diopters of the LX viewfinders. Also convenient for opening and closing battery compartment lid.

### ③ 49mm and 52mm Stereo Adapters

#### ④ Stereo Viewer II

With this stereo adapter, striking three-dimensional slides are easy to make. Simply attach Stereo Adapter II to a standard 50mm lens and shoot at  $f/5.6$  or  $f/8$ . After the slides are processed, simply view them in Stereo Viewer II.

### ⑤ Microscope Lens Adapter K

This adapter is used to fix special purpose objective lenses (such as Mplan 1.3X, 2.5X, 5X, 10X, 20X) to Pentax bayonet-mount cameras. Simply screw the lens into one side of the adapter and fit the other side into the bayonet mount.

### ⑥ 90° Mirror Adapter II

For candid or surveillance photography, this mirror adapter allows the photographer to shoot 90° to either side while pretending to shoot straight ahead in the normal manner.



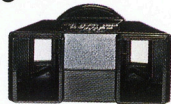
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