

PENTAX

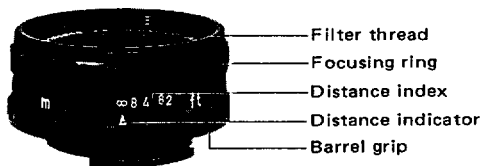
PENTAX FD LENSES



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NAMES OF PARTS



SPECIAL NOTES

- To determine the 35mm format focal length equivalence of a Pentax-110 lens, multiply its focal length $\times 2$ (e.g. 110 format 50mm lens = 35mm format 100mm lens).
- There are no aperture settings on Pentax 110 lenses. Aperture is set automatically by the diaphragm mechanism of the camera's programmed shutter system. The aperture range is $f/2.8 - f/13.5$.

BASIC LENS TERMINOLOGY

The number of millimeters that designates a lens — such as the “24mm” in “Pentax-110 24mm lens” — indicates the **focal length** of that lens.

Focal length is the distance between the point of focus and the film plane. By increasing the focal length, you increase the size of any object framed by the camera, in the same way as a telescope gives you a closer look at things. And, like a telescope, a lens with a long focal length (“telephoto”) **decreases the breadth** of you field of vision.

This is expressed as a narrower **angle of view**; the angle formed by two lines extended from the point of focus to

diagonally opposed corners of the picture frame when the lens is focused to infinity.

That’s why the distance between camera and target is “cut in half” when the 50mm lens is used in place of the 24mm standard lens; and why the shorter focal length/wider angle of view of an 18mm lens lets you put more of a panorama into the picture frame.



SPECIFICATIONS

● Type	● Focal length	● Lens construction (Groups—Elements)	● Angle of view (Degrees)	● Minimum focusing (m)	● Diameter & length (mm)	● Filter size (mm)	● Weight (gr.)
Standard	24mm	5-6	47	0.35	30 x 13	25.5	13
Wide-angle	18mm	6-6	61.5	0.25	34 x 21	30.5	27
Telephoto	50mm	5-5	24	0.9	43 x 27	37.5	57
Telephoto	70mm	5-6	17.2	1.5	51 x 50.5	49	160
PF	18mm	6-6	61.5	—	34 x 21	30.5	29
Zoom	20-40mm	8-8	57.5-31	0.7	54 x 45.2-65.4	49	174

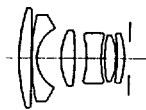
Note: ● PF is a fixed-focus lens.

- There are no aperture settings on Pentax-110 lenses. The aperture is set automatically by the diaphragm mechanism of the camera's programmed shutter system. The aperture range is f/2.8 — f/13.5.

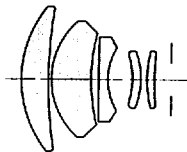
LENS CONSTRUCTION



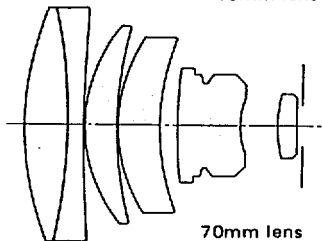
24mm lens



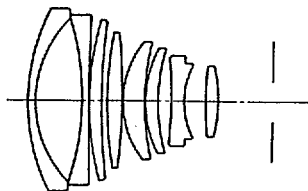
18mm lens &
PF 18mm lens



50mm lens



70mm lens

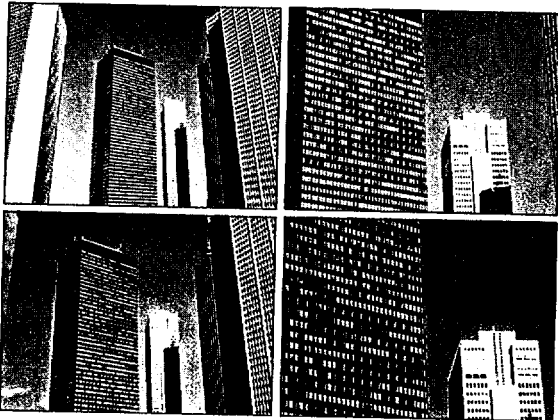


Zoom 20~40mm lens



COMPARATIVE SHOTS

The camera position was the same for all these photos. Only the lens was changed.



18mm	50mm
24mm	70mm

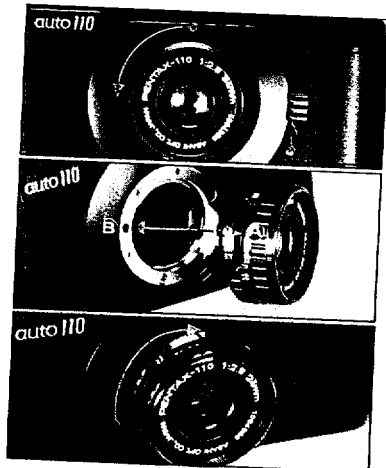
CHANGING LENSES

Lens removal

Push upwards on the lens release lever and turn the lens approximately 90 degrees to the left until the lens slips out of the mount.

Lens mounting

1. Match up the red distance scale index of the lens **A** with the red dot on the camera body **B** and insert the lens into the body.
2. Turn the lens to the right until it locks in place, with the red distance scale index positioned at the top.



FOCUSING

Look through the viewfinder eyepiece and turn the focusing ring of the lens to bring the image into focus. Sharp focus can be obtained by focusing on any part of the focusing screen. To be assured of pinpoint focusing, however, check your focus against the spot in the center of the screen. If the image is completely intact, focus is precise. If the image is split or broken, adjust the focusing ring further until both halves of the image fit together perfectly.

* For those who find focusing difficult because of poor eyesight, corrective eyepieces are available.



STANDARD LENS

- **Pentax-110 24mm** (equivalent to a 35mm format 48mm lens)

Weighing just 13 grams and only 13mm long, this is the smallest Pentax-110 lens. It is also the lens that most closely matches perspective as seen through the human eye.



TELEPHOTO LENSES

- **Pentax-110 50mm**
(equivalent to a 35mm format 100mm lens)

- **Pentax-110 70mm**
(equivalent to a 35mm format 140mm lens)

When the subject of your photograph is far away, or impossible to get near to, a telephoto lens helps. For example, the 70mm lens can make your target seem almost 3 times closer to you than the standard lens. And, incidentally, it also accepts many of the filters and attachments for Pentax 35mm SLRs because its filter thread has a 49mm diameter.

N.B.: Because of their size, these lenses will hit against the tripod mount if the camera is mounted directly onto the tripod. To prevent this, screw in the tripod spacer between camera and tripod mount.

24mm

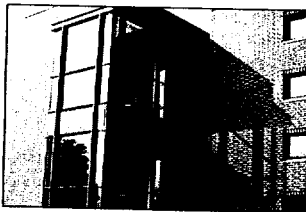
70mm



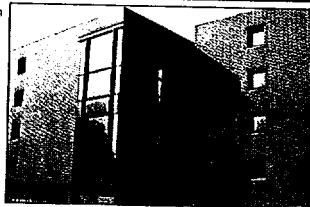
WIDE ANGLE LENSES

● **Pentax-110 18mm** (equivalent to a 35mm format 36mm lens)
You want to put more of the landscape into your photograph, or, perhaps, you want to put several people into an indoor shot — but you can't get far back enough to do so with the standard lens. That's when you need this wide angle lens.

The 18mm lens also exaggerates perspective. It makes near objects seem larger, and distant objects seem smaller, than they would to the naked eye. This trait is often exploited for dramatic effects.



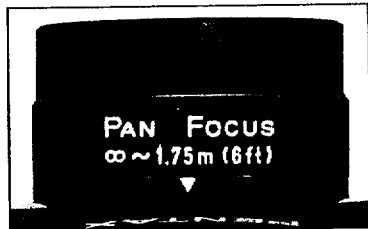
24mm



18mm

USING THE PF (PAN FOCUS) LENS

The pan-focus lens allows you to take photos without focusing. Simply look through the viewfinder, frame your subject and then press the shutter release. Depending on the distance to the subject, there may be a slight split in the center circle in the viewfinder,



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but if the subject is at least 1.75m away, the entire photo will always be in focus because of the deep range of focus of this lens.

There will be some variation in the actual effective range of focus, depending on the brightness of the subject, as follows:

Conditions	Effective Range
Outdoors Clear	approx. 1m ~ ∞
Outdoors Cloudy	approx. 1.5m ~ ∞

When the yellow light (LED) shows in the viewfinder, take precautions against camera movement.

Using the Close-up attachment

You can take extreme close-up photographs by screwing on a Close-up Attachment W21 (optional) into the filter thread. Because this is a fixed-focus lens, you can take photographs only at a preset distance of approx. 25cm between the subject and the film plane, i.e., when the focusing image is aligned. Extreme close-up photos cannot be taken at other distances.

Magnification: 1/11.3 times.

Size of framed target area:

14.7 x 19.2mm.

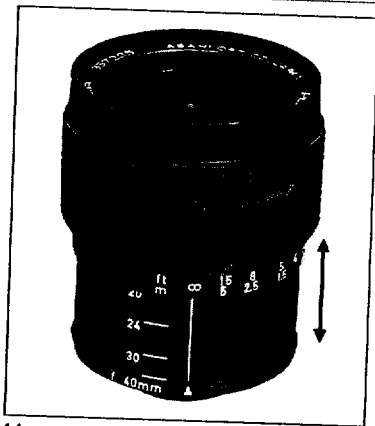
The PF lens accepts filters and a lens hood with 30.5mm diameter.

Using an auto flash unit

When using an Auto Flash with the PF lens, refer to the chart below for effective flash range.

Film	Auto Flash	Effective Range
ASA 100	AF100P	approx. 2m ~ 3.5m
	AF130P	approx. 2m ~ 4.6m
ASA 400	AF100P	approx. 1.4m ~ 3.5m
	AF130P	approx. 1.4m ~ 4.6m

ZOOM LENS



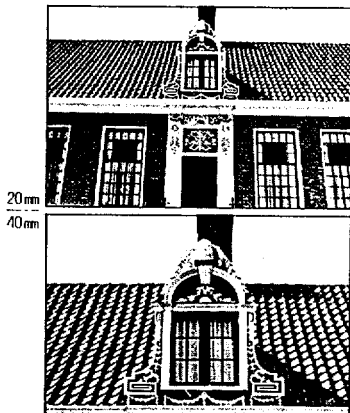
- Pentax-110 20–40mm zoom (equivalent to a 35mm format 40–80mm zoom lens)

This zoom covers every focal length between 20mm and 40mm. At 20mm, it's a wide-angle; at 40mm, it's a moderate telephoto. And since it offers every angle of view in-between, it also encompasses the standard perspective. As this is a "one touch" zoom lens, moving the focusing ring back and forth lets you zoom in and out. Focusing itself is done the usual way, by twisting the ring.

The best way to use this lens is to set it at 40mm, focus on your main target, then zoom out until you've framed the shot you want.

Like the 70mm lens, the 20–40mm zoom has a 49mm diameter filter thread, so it accepts many Pentax 35mm SLR filters and attachments.

N.B.: Because of its size, this lens will hit against the tripod mount if the camera is mounted directly on the tripod. To prevent this, screw in the tripod spacer between camera and tripod mount.



FILTERS AND CLOSE-UP ATTACHMENTS

- Filters for 18mm, 24mm, and 50 mm lenses

Skylight and UV filters are available for all these lenses.

- Filters for the 70mm and 20–40mm zoom lenses

All 49mm diameter filters made for 35mm camera lenses can also be screwed into the thread of the 70mm or the 20–40mm zoom lens.

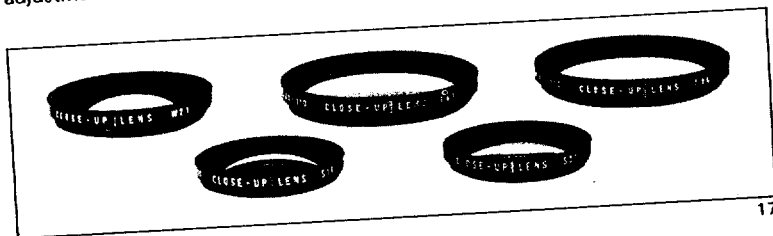
N.B.: It's advisable to keep a filter over your lens at all times, to protect its front element. A UV or skylight filter is good for this purpose.



- Close-up attachments

Close-up attachments (or lenses) screw into the filter thread of a lens to enable closer focusing and higher magnification. Exposure is automatically controlled when a close-up attachment is used with a Pentax-110 lens, and no special adjustments are required. Focusing is

also done the usual way, but focusing range and magnification are altered, as indicated in the chart on the next page. The 70mm and 20-40mm zoom lens accept all close-up attachments with a 49mm diameter.



CLOSE-UP ATTACHMENTS

No.	Used with	Focusing Range	Magnification
W21	18mm wide-angle	16.0 ~ 26.0cm	1/5.7 ~ 1/11.3X
S31	24mm standard	20.0 ~ 36.0cm	1/6.1 ~ 1/12.7X
S16	24mm standard	15.0 ~ 20.0cm	1/4.1 ~ 1/6.4X
T86	50mm telephoto	48.5 ~ 91.9cm	1/8.0 ~ 1/17.1X
T43	50mm telephoto	34.4 ~ 48.9cm	1/5.4 ~ 1/8.6X
T160 (49mm)	70mm telephoto	8.5 ~ 17.0cm	1/10 ~ 1/23X
T80 (49mm)	70mm telephoto	6.0 ~ 8.9cm	1/7 ~ 1/11X
T80 (49mm)	20 ~ 40mm zoom (at 20mm)	44.8 ~ 90.7cm	1/18 ~ 1/39X
T80 (49mm)	20 ~ 40mm zoom (at 40mm)	43.5 ~ 88.6cm	1/10 ~ 1/21X
S40 (49mm)	20 ~ 40mm zoom (at 40mm)	43.5 ~ 88.6cm	1/7 ~ 1/10X
S25 (49mm)	20 ~ 40mm zoom (at 40mm)	26.1 ~ 33.0cm	1/5 ~ 1/6X

* 1X magnification = life size (i.e. the image of the subject on film has the same dimensions as the actual subject itself.)

LENS CARE

- Do not use thinner, alcohol, or ethylene liquids to clean the lens.
- Use a blower brush to remove dust and dirt from the surface of the lens. To remove smears and smudges, clean front and rear glass surfaces of the lens by wiping them gently with lens cleaning paper or a soft cloth dampened in lens cleaning solution.
- Keep camera and lenses in a cool, dry, well-ventilated place.
- Always cover the lens with both front and rear caps when it is not in use.
- Make it a habit to protect the lens from rough objects with casing, cloth, etc. when carrying it in your pocket.

Precaution on Auto 110 Lens Removal

When changing lenses or removing the lens on the camera, slide the lens release button upward and, without letting go, turn the lens counterclockwise until it slips out of the mount. Never attempt to remove a lens without first unlocking the mount by sliding the lens release button upward, as damage to the mount could result.

WARRANTY POLICY

All Pentax lenses purchased through authorized bona fide photographic distribution channels are guaranteed against defects of material or workmanship for a period of twelve months from date of purchase. Service will be rendered and defective parts will be replaced without cost to you within that period, provided the equipment has not been abused, altered, or operated contrary to instruction. Because the tolerances, quality, and design compatibility of lenses other than Pentax lenses are beyond our control, damage caused by use of such lenses will not be covered by this warranty policy. The manufacturer or its authorized representatives shall not be liable for any repair or alterations except those made with its written consent and shall not be liable for damages from delay or loss of use or from other indirect or consequential damages of any kind, whether caused by defective material or workmanship or otherwise; and it is expressly agreed that the liability of the manufacturer or its representatives under all guarantees or warranties, whether expressed or implied, is

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strictly limited to the replacement of parts as hereinbefore provided.

PROCEDURE DURING 12-MONTH WARRANTY PERIOD

Any Pentax lens which proves defective during the 12-month warranty period should be returned to the dealer from whom you purchased the equipment or to the manufacturer. If there is no representative of the manufacturer in your country, send the equipment to the manufacturer, with postage prepaid. In this case, it will take a considerable length of time before the equipment can be returned to you owing to the complicated customs procedures required in Japan in importing and re-exporting photographic equipment. If the equipment is covered by warranty, repairs will be made and parts replaced free of charge, and the equipment will be returned to you upon completion of servicing. If the equipment is not covered by warranty, regular charges of the manufacturer or of its representatives will apply. Shipping

charges are to be borne by the owner. If your Pentax lens was purchased outside of the country where you wish to have serviced during the warranty period, regular handling and servicing fees may be charged by the manufacturer's representatives in that country. Notwithstanding this, your Pentax camera or lens returned to the manufacturer will be serviced free of charge according to this procedure and warranty policy. In any case, however, shipping charges and customs clearance fees are to be borne by the owner. To prove the date of your purchase when required, please keep the receipts or bills covering the purchase of your equipment for at least a year. Before sending your equipment for servicing, please make sure that you are sending it to the manufacturer's authorized representatives or their accredited repair shops, unless you are sending it directly to the manufacturer. Always obtain a quotation of the service charge, and only after you accept the quoted service charge, instruct the service station to proceed with the servicing.

This warranty policy does not apply to Pentax products purchased in the U.S.A., U.K., or Canada. The local warranty policies available from Pentax distributors in those countries supersede this warranty policy.



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