Pentax SP 500
On line manual

Posted 11-27-'02

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(Same as the Pentax SP but with only
a 1/500 sec as fastest shutter speed)

INDEX

Honeywell Pentax SP 500

This is the Pentax SP 500—another proud member of the world-famous Pentax family whose name has become synonymous with design innovations and precision craftsmanship in 35mm single-lens-reflex cameras. When the first Pentax Spotmatic was introduced to the public at the 1960 PHOTOKINA, the world's largest photographic fair, in Cologne, Germany, it attracted the instant and close attention of photographers and photographic engineers alike. Not available for purchase at that time, it was a model of the advanced design and features that would be incorporated into cameras of the future. Pentax cameras and other brands as well.

Several years of extensive research preceded its introduction, and four more years of research and experimentation followed before the meticulous Pentax engineers and technicians felt the camera was truly ready.

At last, in late 1964, it reached the eager hands of serious amateur and professional photographers around the world. Like that early Spotmatic your Honeywell Pentax SP 500 is a computer camera. Hidden Within its body, its unique, behind-the-lens exposure meter utilizes two highly sensitive Cadmium Sulphide sensors to accurately measure the light gathered by the camera's lens as it is reflected from the subject being photographed. Therefore, by measuring the light as it passes through the lens and matching the exposure needle as seen through the viewfinder, you can be assured of properly exposed pictures under all but the most impossible lighting conditions. Whether you're using special, macro- or microphotographic lenses, telephoto lenses, or simply filters on normal lenses, your Honeywell Pentax SP 500 will give you correctly exposed photographs without the use of external meters or the need for difficult, time-consuming exposure calculations! Your SP 500 may also be set manually the same as any other quality 35mm camera if special lighting or selective focus effects are desired. Just leave the exposure meter switch in its OFF position and select the f/stop and speed settings for the desired effect. The traditional classic design and simple elegance associated with earlier models of the famous Pentax have been retained in the SP 500 despite the incorporation of many highly advanced features and many internal improvements that have been developed over the years.

Like the other members of the Pentax family, the Honeywell Pentax SP 500 has a 42mm threaded lens mount that accepts any of the superb Takumar lenses from the ultra-wide-angle 17mm Takumar to the super telephoto 1000mm Takumar, a wide range of optics that will satisfy the demands of even the most critical professional. Moreover, the list of fine accessories is always growing—to help you keep growing photographically.

A--Shutter speed index

B--Shutter speed dial

C--Rapid wind lever

D--ASA film speed setting

E--Shutter release

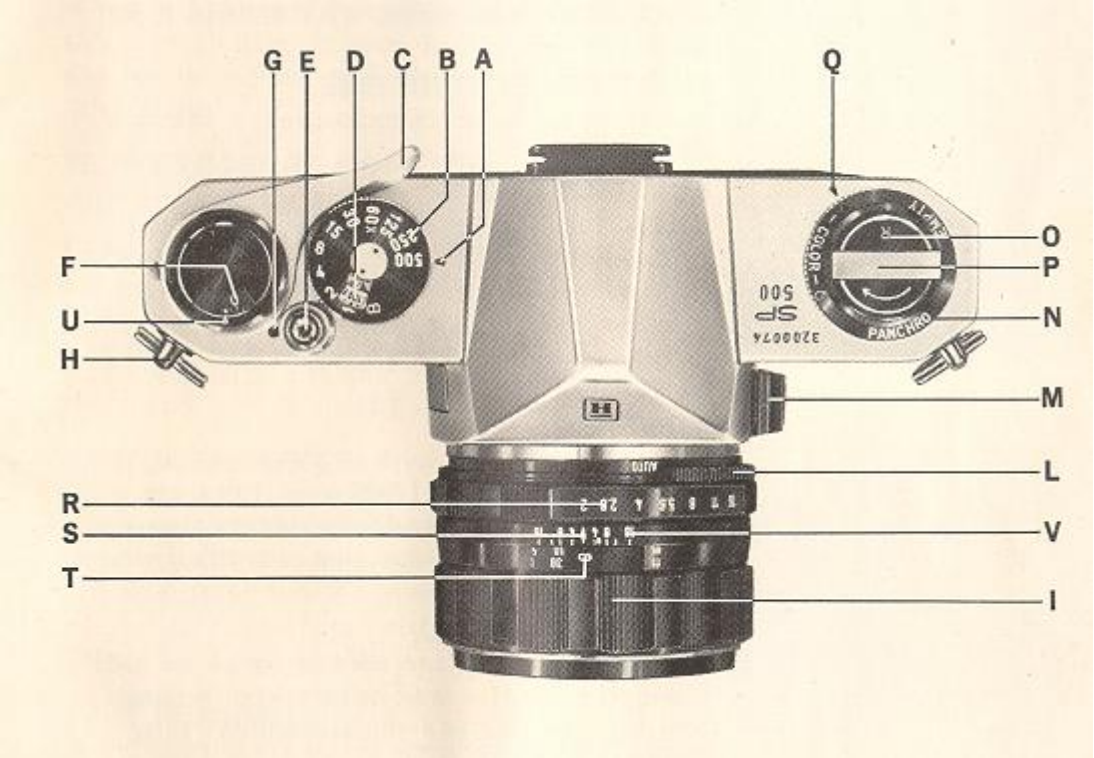
F--Automatic reset exposure counter

G--Winding indicator

H--D ring lug

I --Focusing ring

J--X flash terminal



K--FP flash terminal

L--Preview lever

M--Exposure meter switch

N--Film type reminder dial

0--Rewind knob

P--Rewind crank

Q--Film type index mark

R--Diaphragm ring

S--Diaphragm and distance index mark

T--Distance scale

U--Exposure counter index mark

V-- Depth-of- field guide

Specifications

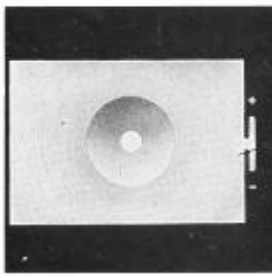
Type
35mm single-lens reflex with built-in light meter.

Film and Picture Size
35mm film (20 or 36exposures). 24mm x 36mm.

Standard Lenses
Super -Takumar 50mm f/1.4 or 55mm f/l.8 with fully automatic diaphragm. Filters and lens hood size: 49mm. Equipped with diaphragm preview lever which affords visual check of depth of field. Distance scale: 45cm (18") to infinity.

Shutter
Focal plane shutter, with single non-rotating dial. Speeds: B, 1-1/1000 sec. Film speed (ASA) setting dial and window on shutter speed dial. Shutter curtains of special rubberized silk.

Warning Signal
The index of shutter speeds turns to red when the shutter and film speed settings are off the meters measurability range. Refer to page 15.



Finder
Pentaprism finder with microprism Fresnel lens for instant focusing; 0.88x magnification with 50mm lens and approximately life-size with 55mm lens

Focusing
Turn the distance scale ring until the subject image on the ground glass comes into focus.

Reflex Mirror
Instant return type with special shock absorbers for minimum vibration.

Film Advance
Ratchet-type rapid wind lever (for film advance and shutter winding). 10° pre-advancing and 160 degrees advancing angle.

"Wound" Indicator
A red disk appears in a small window alongside the shutter release button when the shutter is wound, and blacks out when it is released.

Film Exposure Counter
Automatic re-set type

Lens Mount
42mm threaded lens mount.

Flash Synchronization
Equipped with FP and X flash terminals. Electronic synchronization at 1/60 sec.

Exposure Meter
Built-in meter measures the brightness of the ground glass, and couples directly to shutter and film speed settings. Film speed (ASA) setting ranges from 20 to 1600 (LV1-18 for ASA-100 film with standard lens.) Meter is powered with a mercury battery. (Wein Air replacements)

Film Rewind
Rapid rewind crank for speedy film take-up. Film rewind release button on bottom of camera body rotates while film is being rewound.

Loaded Film Indicator
Loaded film reminder dial underneath film rewind knob is marked "PANCHRO" (black and-white), "COLOR" and "EMPTY."

Dimension
Width 5.6" (143mm) x height 3.6" (92mm) **x** thickness 3.4" 88mm).

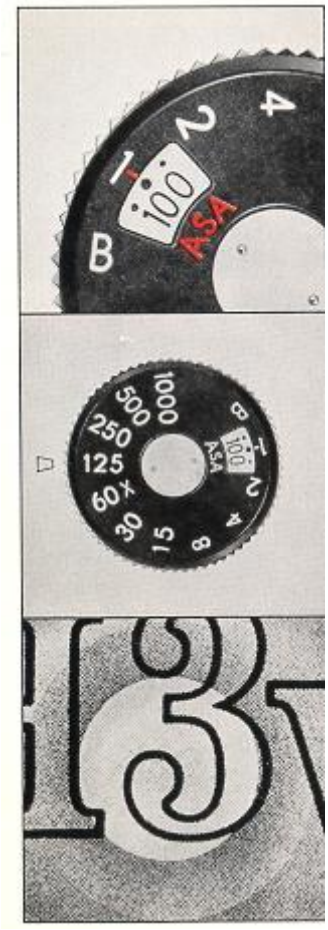
Weight
868 grams (1 lb. 14 oz.) with standard lens, Body alone: 621 grams (1 lb. 6 oz.)

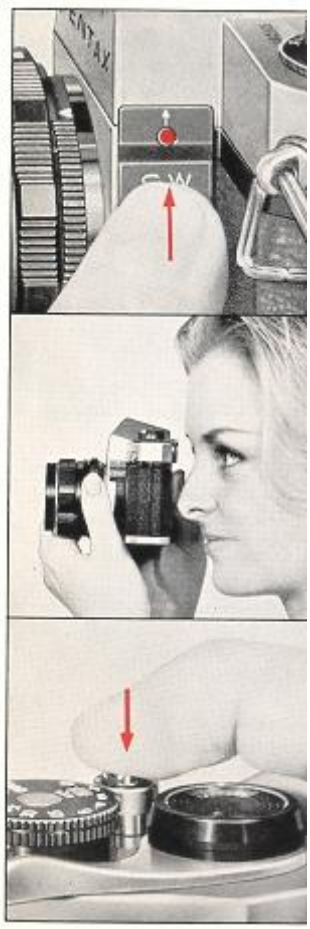
1. SET FILM SPEED.
Lift the outer ring of the shutter speed dial, turn it around and set the same number as the ASA number of the loaded film to the small red index

which appears alongside the figure 1. Then wound the rapid wind lever.

2. SET SHUTTER SPEED.
Turn the shutter speed dial and set the speed you wish to use to the index. When outdoors, set the speed at 1 /125 Sec. or faster, depending upon the lighting. When indoors, set it at 1 30, or in its neighborhood. Change the shutter speed later, when necessary. Refer to item 5, page 19.)

3. COMPOSE AND FOCUS.
While viewing through the viewfinder, turn the distance scale ring with your thumb and index finger until you get the sharpest image of your subject at the microprism center of the finder.





4. TURN ON LIGHT METER SWITCH.

Push up the switch button with your thumb, and the small window on the switch button will turn to red indicating that the meter is switched on. Through the viewfinder, you will observe the movement of the meters needle on the right side of the ground glass. Be sure to turn off the meters switch when not actually taking readings.

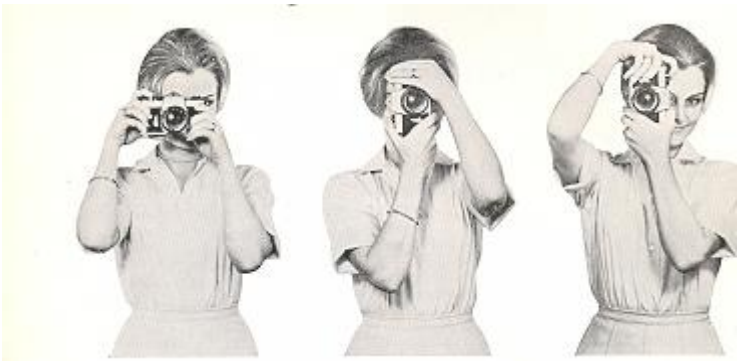
5. ROTATE DIAPHRAGM RING.

The needle moves up and down with the turn of the diaphragm ring. When the needle rests at the center, you will get correct exposure, If the needle does not come to the center no matter how far you turn the diaphragm ring, change the shutter speed. When the needle is off center and close to the (+) mark, you will get over-exposure:

change the shutter speed to a faster setting. If the needle is closer to the **(--** mark, you will get under-exposure: change the shutter speed to a slower setting.

6 RELEASE SHUTTER.

Hold your camera firmly and trip the shutter. When the shutter is released, the meter switch will automatically turn off, and the needle will remain fixed off and underneath the center. The diaphragm will reopen to its full aperture and the overall image will look brighter. Wind the rapid wind lever for the next picture. (When taking a series of pictures under the same lighting conditions, it is not necessary to repeat instructions 4 and 5.)



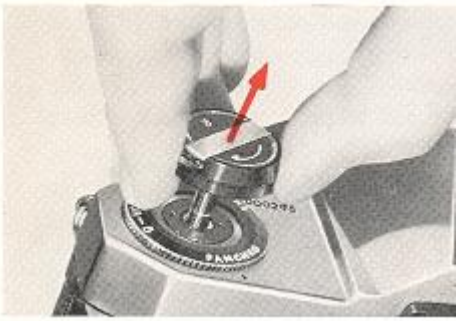
How to hold your camera

In horizontal position A. Hold the camera firmly with your left hand, and draw your arm close to your body.	**In vertical position B**. Hold your camera tightly to your forehead with your left hand, and draw your right arm close to your body.	**In vertical position C**. Hold your camera tightly to your forehead with your left hand, raise your arm and draw your left arm to your body.

As a general rule, your camera should be held more firmly by the left hand which does not release the shutter. If you hold your camera with the right hand--the hand which releases the shutter--it may cause camera movement. Very often, pictures which are not sharp are due to movement of the camera. When you focus with the camera held horizontally (Position A), hold the lens barrel as illustrated in photograph.

Put the camera on your left hand thumb and little finger. Turn the distance scale ring with your thumb and index finger. When holding the camera vertically, some people release the shutter with the thumb (Position B), while others release it with the index finger (Position C). Position C is more desirable for fast focusing and shooting. With the Honeywell Pentax, whether held vertically or horizontally, you see your subject image through the taking lens, enabling you to compose, focus and shoot with a minimum of time and effort.

Film loading



Avoid direct sunlight when loading your film.

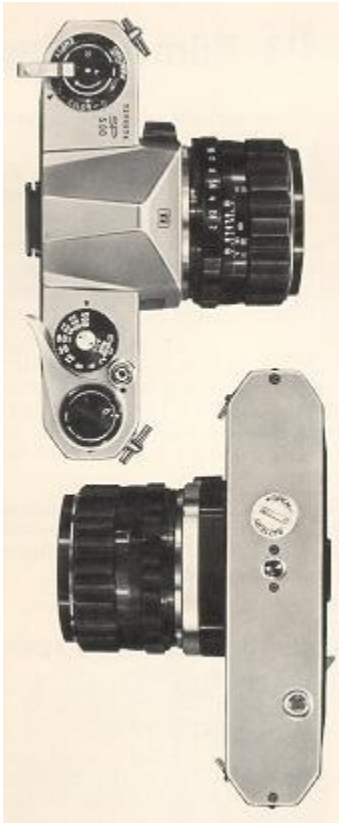
1. Open the back by pulling out the rewind knob until back cover snaps open.

2. Place the film cassette into the cassette chamber, and push back the rewind knob. Draw out the film leader and crease across one or two perforations back from the end of the leader. Insert the creased portion into slot of the take-up spool.

3. Advance the film by alternately turning the rapid wind lever and releasing the shutter until both sprockets have properly engaged the film perforations. Close the back by pressing it firmly.

4. If the film is properly loaded, the rewind knob will turn counter-clockwise when you advance the film by turning the rapid wind lever.

Film Type Reminder dial	Setting ASA film speed
 Use the film type dial to show what type of film is in your camera. Simply turn the dial so that the type of film in the camera is opposite the A mark. To check whether the camera is loaded, turn the film rewind knob clockwise. If it turns freely, the camera is not loaded.	 The ASA film speed rating of all 35mm films is given in the data sheet packed with each roll of film. The higher the ASA number, the more sensitive the film. Lift the outer ring of the shutter speed dial and rotate it until the ASA number of your film is opposite the red index mark. Be sure to set your film speed on the shutter speed dial because the dial is connected to the exposure meter system.



Film wind and rewind

1. Before turning the rapid wind lever, slowly turn the film rewind knob clockwise until a slight resistance is felt. This prevents loosening or warping of the film.

2. The first portions of the film cannot be used for picture taking as they have already been exposed to light. Generally, two blank exposures should be made before taking your first picture. Wind the rapid wind lover until it stops. Watch to see that the film rewind knob turns counterclockwise, indicating that the film is moving from cassette to take-up spool. Trip the shutter. Wind the rapid wind lever for the first picture; the exposure counter automatically turns to '1', indicating that the first picture is ready to be taken.

3. After the final picture on the roll (20 or 36 exposures) has been taken, the rapid wind- lever will not turn all the way as you stroke it. This indicates that the final picture has been taken on your film, and that the film must be rewound. DON'T open the back of the camera, or *all* exposed frames will be ruined.

4. Unfold the film rewind crank.

5. Depress the film rewind release button. Turn the rewind crank to rewind the film into the film cassette. The film rewind crank permits rewinding at a smooth, even rate. (Under some atmospheric conditions, erratic or too rapid rewinding will cause static electricity marks on the film.) You will feel the tension on the rewind crank lessen as the leader end of the film slips off the take-up spool.

Stop rewinding when you feel this happen. AVOID DIRECT SUNLIGHT WHEN UNLOADING YOUR FILM. (The rewind release button will return to normal position as you lead your next film and turn the rapid wind lever.)

6. Pull out the film rewind knob (the back will open automatically), and remove the film cassette.

Bright field focusing

1. You can start viewing and focusing before and after winding the rapid wind lever. When the preview lever is in "A" (automatic) position, and the meter is at "OFF the diaphragm is fully open except for the moment of exposure.

2. Turn the distance scale ring until your subject image is clearly in focus. It is not always necessary for you to view and focus with the diaphragm fully open. In bright sunlight, you can easily focus with diaphragm closed to f/5.6 or f/8, and still observe the depth of field. It is easier, however, to focus with the diaphragm fully open as your subject image is much brighter. When the letter "M" appears beside the lever, the lens is in manual position; when "A" appears, it is in automatic position.	

	**Microprism** Honeywell Pentax cameras have a Fresnel lens with a microprism center underneath the ground glass. As you look through the finder, you will see that the Fresnel lens consists of many concentric rings which provide the brightest possible image on the ground glass. The microprism is the center portion of this diagram. When your subject is in focus, the image in the microprism will be sharp and perfectly clear. If your subject is not in focus, the microprism will break the image up into many small dots, much like an engravers screen. You can focus your subject on any portion of the ground glass.

Automatic diaphragm

When the preview lever is in "A" (automatic) position, and the exposure meter is turned to "OFF", the fully automatic diaphragm is at its largest aperture at all times, except for the instant of exposure, no matter what aperture is set on the diaphragm ring. When you release the shutter, the diaphragm automatically stops down to the predetermined aperture and the shutter curtains start traveling instantly. When the exposure is completed, the diaphragm reopens to maximum aperture completely automatically and you are ready to compose, focus, and shoot your next pictures. If you wish to visually check exact depth-of-field before making the exposure, move the preview lever to "M" Manual) position. This stops the diaphragm to the aperture selected and shows you exactly how much depth-of-field will appear in your picture. The preview lever may be moved back to "A" (automatic) position before or after making your exposure, or, if you are making pictures in bright sunlight, it may be left in manual position, which permits a constant ('heck of depth-of-field.

OUT OF FOCUS

IN FOCUS

** When the exposure meter switch is turned to the "on position, the lens diaphragm changes from the automatic to manual position even though the preview lever is in the "A" (automatic) position. When the shutter is released, the lens diaphragm will automatically return to its automatic position if the lever is set on "A".*

Shutter

Turn the shutter speed dial clock. wise or counter-clockwise to the shutter speed desired. The shutter speed may be set either before or after winding the rapid wind lever. As you wind the shutter by turning the rapid wind lever, the "wound" indicator turns to red showing that the shutter is wound.

The indicator window blacks out as you trip the shutter button. For use of the X setting on the shutter speed dial, refer to page 17.

With the shutter speed dial set on B (bulb), the shutter will stay open as long as you depress the shutter button. As you release your finger from the shutter button, the shutter closes. When a long exposure is desired while using the B setting, attach a shutter release cable with a locking device to the shutter button. This will permit a "Time" exposure.

Cautions

1. At slow speeds-slower than 1/30 - support your camera rigidly or use a tripod to prevent movement of your camera.

2. To protect the shutter mechanism, trip the shutter release before putting the camera out of use for any extended period.

Depth of field

If you want to know how great the depth of field is at a certain aperture, look at the depth-of-field guide. In the above photograph, the distance scale is set at 15 feet . . . the lens is focused on a subject 15 feet away. The calibrations on each side of the distance index correspond to the diaphragm setting and indicate the range of in-focus distance for different lens apertures.

For example, if the lens opening of f/8 is to be used, the range on the distance scale ring covered within the figure 8 on the depth-of-field guide indicates the area in focus at the lens opening. You will note from the depth-of-field guide in the photograph that the range from approximately 10 to 25 feet is in focus.
Note that as the lens apertures change, the effective depth of field also changes. For the depth of fields at different apertures and distances. refer to page 14.

Depth of field is the range between the nearest and farthest distances which are in focus at different lens apertures.

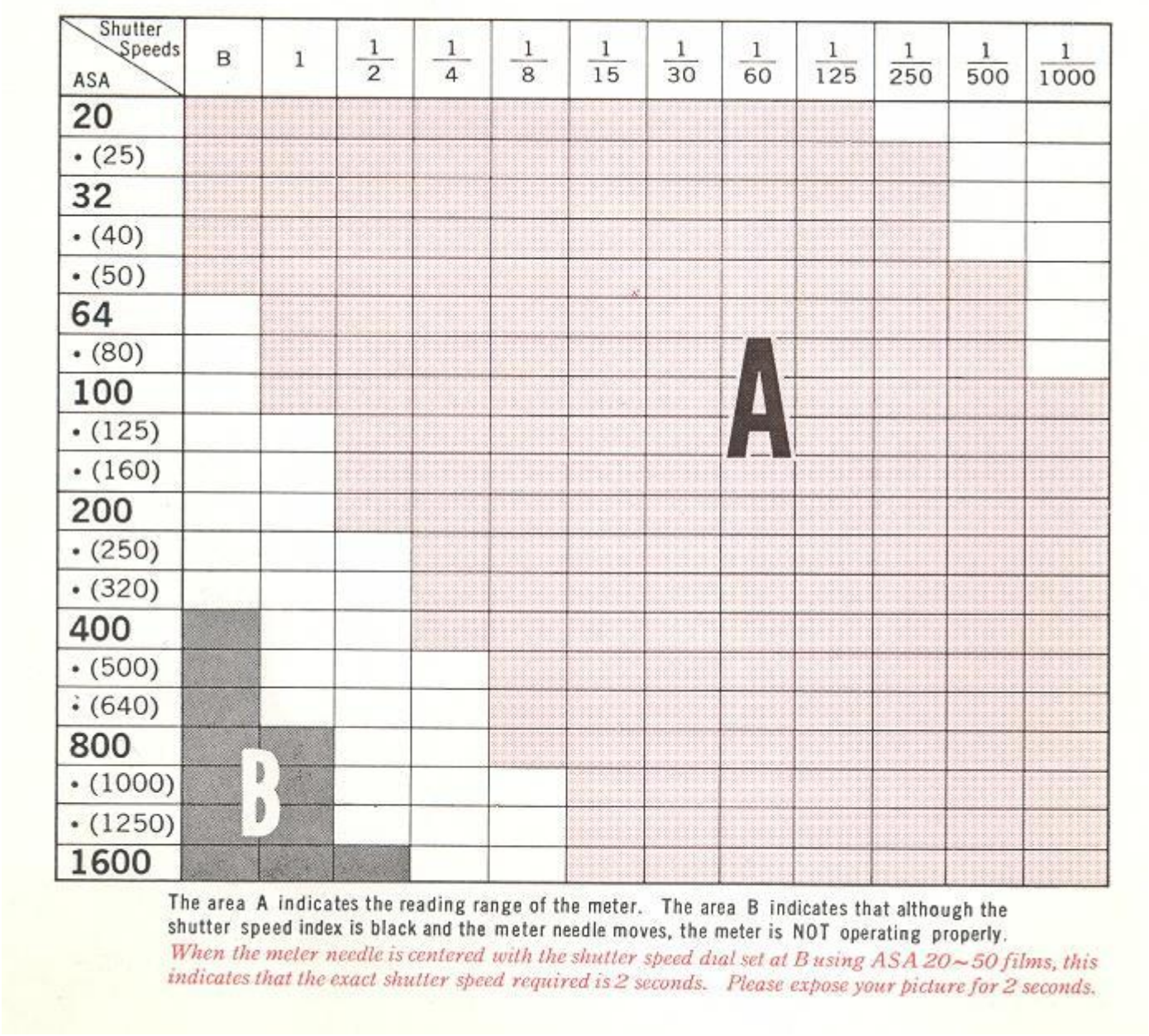
Depth-of-field table: Super-Takumar 55mm lens

Distance Scale / f Setting	1′6″	2′	3′	5′	10′	15′	30′	∞
f/1.8	1′ 5.9″ 1′ 6.1″	1′11.8″ 2′ 0.2″	2′11.5″ 3′ 0.6″	4′10.4″ 5′ 1.7″	9′ 5.6″ 10′ 7.2″	13′ 9.7″ 16′ 5″	25′ 6.4″ 36′ 4.7″	168′ 2.4″ ∞
f/2	1′ 5.9″ 1′ 6.1″	1′11.8″ 2′ 0.2″	2′11.4″ 3′ 0.6″	4′10.3″ 5′ 1.8″	9′ 4.9″ 10′ 8″	13′ 8.3″ 16′ 7.1″	25′ 1.3″ 37′ 3.2″	151′ 4.8″ ∞
f/2.8	1′ 5.9″ 1′ 6.1″	1′11.6″ 2′ 0.4″	2′11.2″ 3′ 0.8″	4′ 9.6″ 5′ 2.6″	9′ 2.3″ 10′11.5″	13′ 2.8″ 17′ 4″	23′ 7″ 41′ 3.4″	108′ 2.3″ ∞
f/4	1′ 5.8″ 1′ 6.2″	1′11.5″ 2′ 0.5″	2′10.8″ 3′ 1.2″	4′ 8.6″ 5′ 3.8″	8′10.7″ 11′ 5.3″	12′ 7.1″ 18′ 6.7″	21′ 7.2″ 49′ 2.8″	75′ 9.5″ ∞
f/5.6	1′ 5.6″ 1′ 6.4″	1′11.4″ 2′ 0.7″	2′10.4″ 3′ 1.8″	4′ 7.4″ 5′ 5.4″	8′ 6.1″ 12′ 1.7″	11′10.1″ 20′ 6.2″	19′ 5.2″ 66′ 3.4″	54′ 2.3″ ∞
f/8	1′ 5.5″ 1′ 6.5″	1′11″ 2′ 1″	2′ 9.8″ 3′ 2.5″	4′ 5.6″ 5′ 8.2″	8′ 13′ 4.4″	10′10.3″ 24′ 4.6″	16′10.7″ 138′ 2.8″	37′11.9″ ∞
f/11	1′ 5.4″ 1′ 6.7″	1′10.8″ 2′ 1.3″	2′ 9″ 3′ 3.6″	4′ 3.6″ 5′11.8″	7′ 5.4″ 15′ 3.7″	9′10.1″ 31′10.8″	14′ 6.2″ ∞	27′ 8.2″ ∞
f/16	1′ 5.2″ 1′ 7″	1′10.3″ 2′ 2″	2′ 7.8″ 3′ 5.5″	4′ 0.6″ 6′ 6.8″	6′ 8.2″ 20′ 3″	8′ 6.2″ 66′ 9.2″	11′ 9.4″ ∞	19′ 1″ ∞

Depth-of-field table: Super-Takumar 50mm lens

Distance Scale / f Setting	1′6″	2′	3′	5′	10′	15′	30′	∞
f/1.4	1′ 6.12″ 1′ 6.13″	1′11.8″ 2′ 0.2″	2′11.5″ 3′ 0.6″	4′10.4″ 5′ 1.7″	9′ 5.6″ 10′ 7.2″	13′ 9.7″ 16′ 4.9″	25′ 6.6″ 36′ 4.2″	169′ 9.2″ ∞
f/2	1′ 5.9″ 1′ 6.1″	1′11.6″ 2′ 0.4″	2′11.3″ 3′ 0.8″	4′ 9.8″ 5′ 2.4″	9′ 3.1″ 10′10.6″	13′ 4.3″ 17′ 1.2″	24′ 0.2″ 39′11.8″	118′ 3.5″ ∞
f/2.8	1′ 5.8″ 1′ 6.2″	1′11.5″ 2′ 0.5″	2′10.9″ 3′ 1.1″	4′ 9″ 5′ 3.4″	8′11.9″ 11′ 3.2″	12′ 9.6″ 18′ 1.4″	22′ 3″ 46′ 1.4″	84′11.6″ ∞
f/4	1′ 5.6″ 1′ 6.4″	1′11.4″ 2′ 0.6″	2′10.6″ 3′ 1.7″	4′ 7.7″ 5′ 5″	8′ 7.4″ 11′11.2″	12′ 0.6″ 19′11″	20′ 0.4″ 59′11.6″	59′ 6.4″ ∞
f/5.6	1′ 5.5″ 1′ 6.5″	1′11.2″ 2′ 1″	2′10″ 3′ 2.3″	4′ 6.2″ 5′ 7.2″	8′ 1.9″ 12′11.2″	11′ 2″ 22′10.7″	17′ 8.3″ 100′ 1.3″	42′ 6.8″ ∞
f/8	1′ 5.4″ 1′ 6.6″	1′10.8″ 2′ 1.3″	2′ 9.1″ 3′ 3.4″	4′ 4.1″ 5′10.9″	7′ 6.8″ 14′ 9.5″	10′ 1″ 29′ 7.2″	15′ 0.7″ ∞	29′10.2″ ∞
f/11	1′ 5.2″ 1′ 7″	1′10.4″ 2′ 1.9″	2′ 8.2″ 3′ 4.8″	4′ 1.6″ 6′ 4.2″	6′11.3″ 18′ 0.6″	8′11.8″ 46′ 9.7″	12′ 8.4″ ∞	21′ 9″ ∞
f/16	1′ 4.8″ 1′ 7.3″	1′ 9.7″ 2′ 2.9″	2′ 6.7″ 3′ 7.6″	3′10″ 7′ 3″	6′ 1.2″ 28′ 7.6″	7′ 7.2″ ∞	10′ 1″ ∞	15′ ∞

Range of light measurement

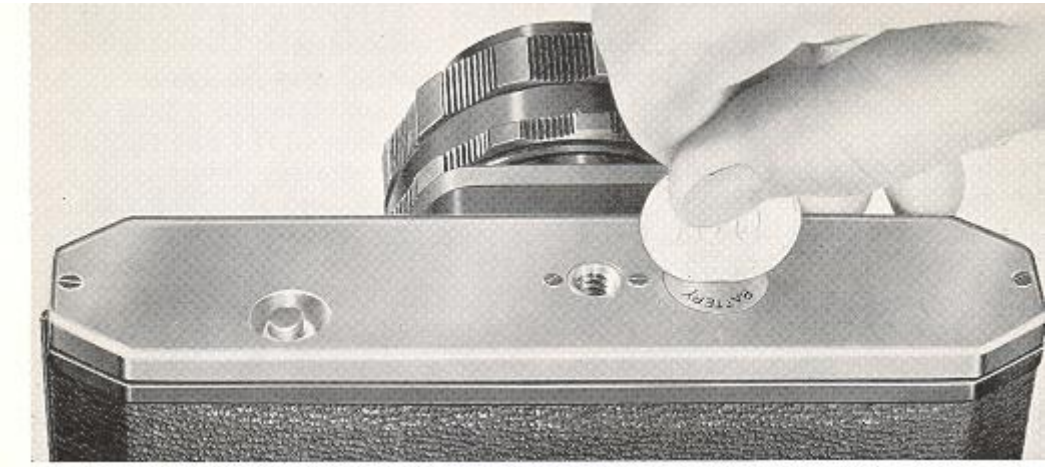


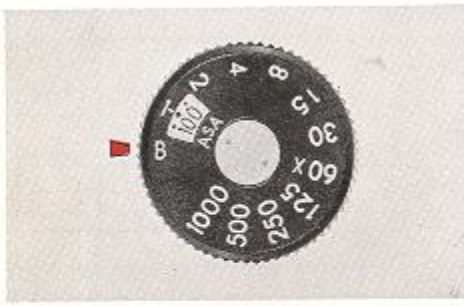
The area A indicates the reading range of the meter. The area B indicates that although the shutter speed index is black and the meter needle moves, the meter is NOT operating properly.
When the meter needle is centered with the shutter speed dial set at B using ASA 20~50 films, this indicates that the exact shutter speed required is 2 seconds. Please expose your picture for 2 seconds.

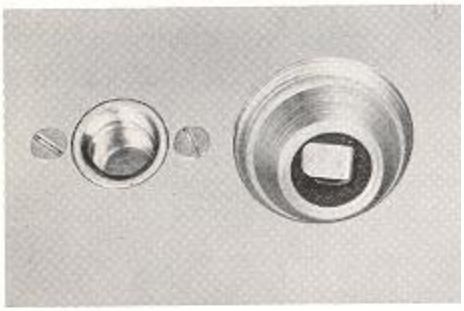
The exposure meter of the Spotmatic measures the brightness of the ground glass. Therefore, the meter should be turned on *after you* have focused your subject on the ground glass. The following table shows the range of the meter's light measurement, and should not be interpreted as the camera's total range of f/stop-shutter speed combinations.

As you will note from the table below, with an ASA100 film, you may use any shutter speed from 1 sec. to 1/500 sec. in combination with any aperture that will bring the meter needle to the midpoint in the viewfinder. The total range of the aperture settings is, of course, determined by the minimum and maximum apertures of the lens being used. For example, with the 50mm f/1.4 lens and ASA100 film, an aperture from f/1.4 (the maximum aperture of this lens) to f/16 (the minimum aperture) may be used with any shutter speed from 1 sec. to 1/500 sec. that will bring the meter needle to midpoint.

Mercury battery - [There are WEIN Air replacement batteries available that provides the accurate 1.3v needed.]







DANGER! A serious accident has been

How to check it

1. Set the shutter speed dial to B (bulb) position.

2. Turn the ASA dial to ASA 100.

3. Push the meter switch to "on" position.

Look at the meters needle through the viewfinder. If the needle rapidly drops, the meter battery has sufficient capacity; if it does not, replace the mercury battery.

How to replace it Open the battery housing cover on the bottom cover plate with a coin. Remove old battery and insert new battery with (+) side toward the top of the camera. For replacement, use Mallory PX-400 or RM-400-R or equivalent.

[See this link on a Wein Air replacement battery.]

CAUTION: The mercury battery is like a phonograph record. It can be damaged by skin acids. Handle by the edges with a dry cloth only. Be sure the battery is cleaned with the cloth before insertion into the camera. The battery is not rechargeable.

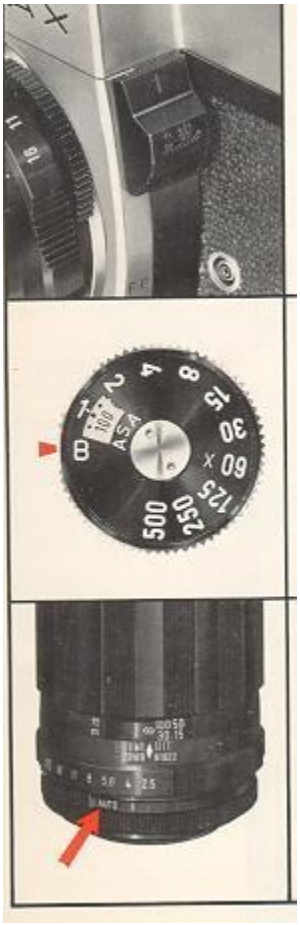
DANGER: A serious accident has been reported of a small child who has put a mercury battery (any button battery) into his mouth and has been hospitalized for serious gripes and stomach inflammation. Please, always keep a battery from the reach of small children

Webmaster: see my page on mercury batteries

Flash synchronization

The Honeywell Pentax has two sets of terminals --FP and X. The table below shows which flash contact, which shutter speed and which flash bulb may be combined for maximum lamp efficiency. Unless these combinations are rigidly followed, there will be a failure in flash synchronization. Note the "X" setting is exactly at the 60 marked on the speed dial. This indicates the highest shutter speed at which Honeywell Strobonars or other electronic flash units may be used.

SHUTTER SPEED / FLASH TERMINAL	1/1000	1/500	1/250	1/125	1/60 X	1/30	1/15	1/8	1/4	1/2	1
FP	FP Class (Screw Base)										
	FP Class (Bayonet Base)										
X							F Class				
								M Class & MF Class			
					Electronic Flash						

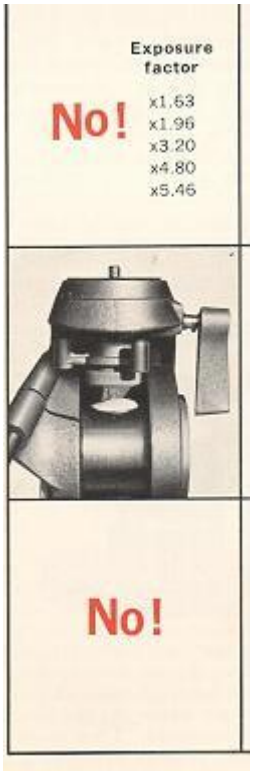


Important notes

1. Always keep the meter switched off when not actually taking readings. Leaving the meter switched on will rapidly exhaust the battery. It is also necessary to keep the meter switched off when mounting a Super-Takumar lens on the Spotmatic camera body. If it is switched on, the tip of the automatic diaphragm release pin of the lens will hit the pin release plate inside the camera body and it may get damaged.

2. When the index of the shutter speeds turns to red, it indicates that the shutter and film speed settings are off the meters measurability range. Change the shutter speed setting to a faster or slower setting. Refer to page 15.

3. When the meter is switched on, the lens any Super-Takumar lens) is in its manual position even when the diaphragm preview lever is in "A" (automatic) position. When the meter is switched off manually, or automatically after shutter release, the lens returns to its automatic position when it is set in "A" position.



4. Exposure increase factors which apply when taking pictures with filters, close-ups, macro- and micro-photos. do not apply to the Spotmatic.

5. The length of the tripods screw should not exceed the normal length of 3/16" 4.5mm). Do not extend it longer than this length when mounting your camera on tripod. Forcing longer screws into the tripod socket of the camera will damage the mechanism.

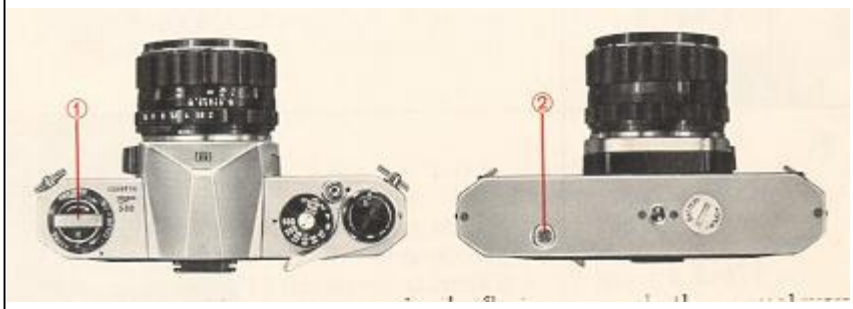
6. We do not guarantee the quality of photographs when brands other than Takumar lenses and Pentax accessories, such as lens extenders, are used.

Infra-red photography

If you intend to take infra-red photographs, remember to use the small "R" index marked on the depth-of-field guide. First, focus your lens on your subject. Determine the lens to subject distance from the distance scale. Then match your lens to subject distance to the "R" mark by turning the distance scale accordingly. For instance, if your subject is in focus at infinity, turn the distance ring and move the infinity (oo) mark to the "R" index. The "R" index marking on the Takumar lenses is based on the lens setting at infinity.

How to make deliberate double exposure

For deliberate double exposures, make the first exposure in the normal way. Then tighten the film by turning the rewind knob A, and keep hold of the rewind knob. Depress the film rewind release button ~ and wind the rapid re-wind lever. This tensions the shutter without advancing the film. Finally, release the shutter to make the second exposure. Then make one blank exposure, before taking the next picture, to avoid overlapping.



INTERCHANGEABLE LENSES

The Honeywell Pentax offers many interchangeable lenses in a wide variety of focal lengths, all of which are highly respected by both professional and amateur photographers for their fine resolution. The photographic coverage Of the various Takumar lenses is illustrated on page 21. With focal length longer than 55mm, the subject image is seen through the viewfinder larger than its life size.

Regardless of the lens selected for your Honeywell Pentax, there is never need for an accessory viewfinder, ordinarily required for rangefinder type cameras. When interchanging lenses, hold the lens by the distance scale ring. When attaching a lens, filter, or lens hood, do not screw it too tightly, as you may find it difficult to remove.

FIXED FOCUSING SETTING

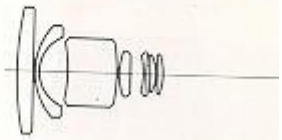
Because of the considerable depth of field of wide-angle lenses, you can use them as fixed focus lens-if the diaphragm and distance scales are set properly. For your convenience, the Super-Takumar lenses shown on page 22 have a fixed focus mark. Just align with the index the orange-colored figures of the diaphragm and distance scales, and the lens will be in fixed focus from foreground to infinity. You'll find this extremely convenient for fast shooting.

Resolving Power of Takumar Lenses Resolving power of all Takumar lenses is factory-tested by skilled optical engineers. There are three types of tests: microscopic aerial test, projection test and photographed film test. Resolving power of a lens shown by LPM (lines per mm) varies depending upon the method of resolution test. Takumar lenses have been tested for resolving power to conform to Asahi Optical Company standards which are higher than those set by JIS (Japan Industrial Standards). All Takumar lenses bear the seal of the Japan Camera Inspection Institute which insures the highest standards of performance When testing your lens performance . . .Use a slow-speed fine grain film. Generally, high speed films are grainy and are not suitable for resolution test. Support your camera on a good tripod. Use a shutter release cable to prevent camera movement. The definition of the picture on the negative film may decrease if exposure and developing time are not proper. Time your exposure and development correctly. If you do your own developing and enlarging, see that your enlarger uses a fine quality enlarger lens. If it is not of a fine quality, your pictures can never be sharp no matter what superb lenses are mounted on your camera. Usually, the diaphragm of the enlarger should be closed down to f/8 or f/11.

Super-Takumar 28mm f/3.5

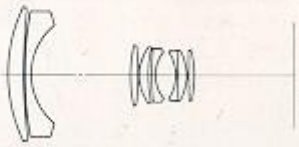
A new super-wide-angle lens of 7 elements, designed and produced to meet the most exacting of the professional requirements, this is *the* lens you professionals and advanced amateurs need to shoot more artistic photographs. Equipped with fully automatic diaphragm; ideal for architecture, fast-action and *artistic* photography.

Lens element	7
Minimum aperture	f/16
Minimum distance	1.3 ft. (40 cm)
Angle of view	75°
Weight	7.6 ozs. (218 gr.)



Super-Takumar 35mm f/2

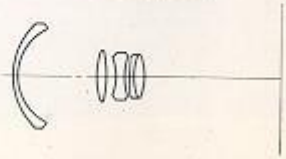
One of the fastest wide-angle lenses for 35mm single-lens reflex cameras. Edge-to-edge sharp resolution at full aperture; unique lens design without distortion; perfect for architectural photography.



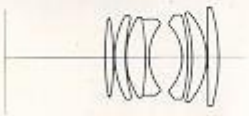
Lens element	8
Minimum aperture	f/16
Minimum distance	1.5 ft. (45 cm)
Angle of view	63°
Weight	14 ozs. (398 gr.)

Super-Takumar 35mm f/3.5

A medium speed lens with extremely high resolving power, this is an excellent general purpose wide-angle optic extremely useful for scenic, industrial, and architectural photography. Compact and light in weight.



Lens element	5
Minimum aperture	f/16
Minimum distance	1.5 ft. (45 cm)
Angle of view	63°
Weight	5.4 ozs. (152 gr)



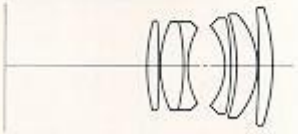
Super-Takumar 50mm f/1.4

Newest high-speed 7-element lens, utilizing latest optical glass advances. High resolving power combines with outstanding brightness for easiest focusing. An ideal all-around lens. Equipped with fully automatic diaphragm.

Lens element	7
Minimum aperture	f/16
Minimum distance	1.5 ft. (45 cm)
Angle of view	46°
Weight	8.1 ozs. (230 gr.)

Super-Takumar 55mm f/1.8 & f/2

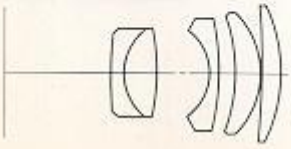
Razor-sharp, fully corrected, high-speed standard lenses, using rare-earth glass, designed by top lens designers. Bright f/1.8 or f/2 aperture makes viewing and focusing extremely easy. Their extremely fine resolving power is widely acclaimed by professionals and discriminating amateurs alike. Equipped with fully automatic diaphragm.



Lens element	6
Minimum aperture	f/16
Minimum distance	1.5 ft. (45 cm)
Angle of view	43°
Weight	7.5 ozs. (215 gr.)

Super-Takumar 85mm f/1.9

A new, ultra-fast 5-element lens which produces an image slightly larger than the standard lens. Perfect for available light portraiture, nature studies, and sport coverage. Used as a standard, general purpose lens by many photographers. Equipped with fully automatic diaphragm; supplied with special lenshood.

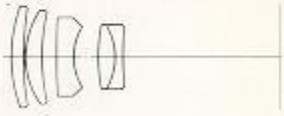


Lens element	5
Minimum aperture	f/16
Minimum distance	2.75 ft. (85 cm)
Angle of view	28°
Weight	12.3 ozs. (350 gr.)

Super-Takumar 105mm f/2.8

A quality medium telephoto lens of 5 elements, with well corrected aberrations. Light-weight design for portability and easy handling. Recommended for scenery, portrait, news photos, other moderate telephoto effects. Equipped with fully automatic diaphragm; supplied with special lenshood. (With the same optical specification, Takumar 105mm f/2.8 is available with pre-set diaphragm.)

Lens element	5
Minimum aperture	f/22
Minimum distance	4 ft. (1.2 m)
Angle of view	23°
Weight	10.2 ozs. (290 gr.)



Super-Takumar 135mm f/3.5

Produces a brilliant image in all corners of the picture even with the diaphragm fully open. Indispensable for distant subject matter and for portrait. Ideal for close-ups of animals or plants even at a distance. Recommended as the ideal long telephoto lens for handheld camera operation. Equipped with fully automatic diaphragm; supplied with special lens-hood.

Lens element	4
Minimum aperture	f/22
Minimum distance	5 ft. (1.5 m)
Angle of view	18°
Weight	12.1 ozs. (343 gr.)

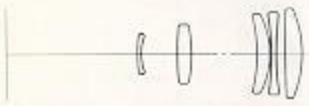
Super-Takumar 135mm f/2.5

A faster f/2.5 lens has joined the superb Takumar 135mm lens family. Well balanced, its total length is rather short so it is light in weight. Most suitable for shooting night scenes, stage, indoors, sports and snap portraits. An excellent lens also for colour photography.

Lens element	5
Minimum aperture	f/22
Minimum distance	5 ft. (1.5 m)
Angle of view	18°
Weight	15.5 ozs. (444 gr.)

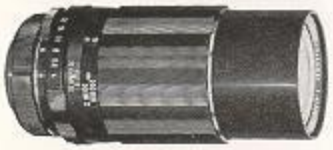
Super-Takumar 150mm f/4

This new fully automatic 150mm Super-Takumar with a focal length three times as long as the standard lens has been designed and produced to suit the purpose of photographing subjects requiring an intermediate angle between the 135mm and 200mm lenses. So compact, so light-weight, it looks like a 135mm lens, yet it is only 7mm longer. New-type, all-purpose telephoto lens ... for telephoto snaps, sceneries, sports, news events, stage photographs, nature life, etc.



Lens element	5
Minimum aperture	f/22
Minimum distance	6 ft. (1.8 m)
Angle of view	16.5°
Weight	11.3 ozs. (324 gr.)

Super-Takumar 200mm f/4



A new member to the superb Takumar telephoto lens family. Equipped with a fully automatic diaphragm. Compact, light, and elegantly designed for fast handleability.

Lens element	5
Minimum aperture	f/22
Minimum distance	8.2 ft. (2.5 m)
Angle of view	12.5°
Weight	19.3 ozs. (550 gr.)

Tele-Takumar 200mm f/5.6

Small, compact and light-weight ... that's the new Tele-Takumar 200mm f/5.6 lens. It weighs only slightly more than Super-Takumar 135mm. Still it produces professional quality resolution in hand-held telephotography. Equipped with pre-set diaphragm; supplied with special lens-hood.

Lens element	5
Minimum aperture	f/22
Minimum distance	9 ft. (2.5 m)
Angle of view	12°
Weight	13.1 ozs. (370 gr.)

Super-Takumar 300mm f/4

Light enough for hand-held picture taking, this lens is the most ideal for spectacular telephotographic effects. Even with the diaphragm fully open, the aberrations are corrected to the greatest extent possible. Gives needle-sharp resolution to every corner of the picture. Equipped with fully automatic diaphragm; supplied with special lenshood.

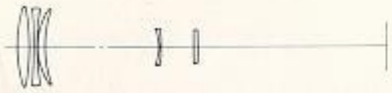
Lens element	5
Minimum aperture	f/22
Minimum distance	18 ft. (5.5m)
Angle of view	8°
Weight	33.1 ozs. (946 gr.)

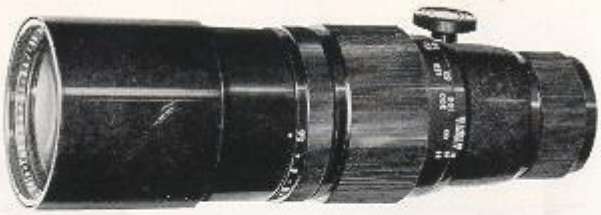
Tele-Takumar 300mm f/6.3

More compact and much lighter than the f/4, this lens is extremely suitable for hand-held outdoor telephotography. Features smooth helicoidal focusing and built-on lenshood. Also represents an exceptional value in long-focus lenses and is the choice of many professionals and advanced amateurs who require an extremely versatile telephoto lens. Equipped with manual diaphragm.

Lens element	5
Minimum aperture	f/22
Minimum distance	18 ft. (5.5 m)
Angle of view	8°
Weight	25.7 ozs. (729 gr.)

Tele-Takumar 400mm f/5.6





Especially designed for those professionals who specialize in outdoor sports, news and nature-life photography. Because of its f/5.6 aperture, this tele-lens is extremely compact and light for its focal length of 400mm. Also because of its portability, it can be easily hand-held for fast and successive shooting, depending upon the shutter speed to be used. Equipped with click-stop manual diaphragm; supplied with special lenshood.

Lens element	5
Minimum aperture	f/45
Minimum distance	27 ft. (8 m)
Angle of view	6°
Weight	45 ozs. (1300 gr.)

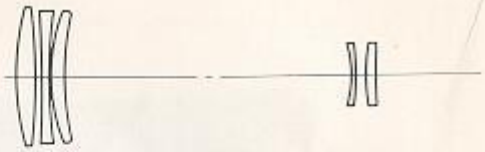
Takumar 500mm f/4.5

Comparatively light and small for its performance, this powerful long-focus lens brings the inaccessible within reach. Its bright f/4.5 image simplifies composition and focusing, and it produces edge-to-edge coverage of high resolution. Equipped with manual diaphragm; supplied with special lenshood.

Lens element 4
Minimum aperture f/45
Minimum distance ..... 32.8 ft. (10 m)
Angle of view ..... 5°
Weight ..... 122.5 ozs. (3500 gr.)

27

Tele-Takumar 1000mm f/8



Photographs subjects which are too far away to be seen by the naked eye. The ultimate in fine optics for the photographer who specializes in news, sports, scientific or wildlife photography. Fast, accurate focusing with manual diaphragm. Furnished with built-on lenshood, rigid wooden tripod and in wooden cases.

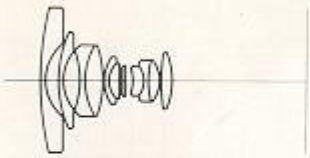
Lens element 5
Minimum aperture f/45
Minimum distance ..... 98 ft. (30 m)
Angle of view ..... 2.5°
Weight of lens ..... 192.5 ozs. (5.5 kg.)
Weight of tripod ..... 26 lbs. (11.8 kg.)

Super-Takumar-Zoom 70mm – 150mm f/4.5

Proven by an impartial and authoritative test to be the best zoom lens for 35mm single-lens reflex. Extremely versatile zooming range from 70mm to 150mm for fast action shooting.

Lens element 14
Minimum aperture f/22
Minimum distance ..... 11.5 ft. (3.5 m)
Angle of view ..... 35° – 16.5°
Weight ..... 42.6 ozs. (1209 gr.)

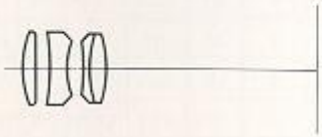
Super-Takumar Fish-Eye 17mm f/4



The world's most efficient fish-eye lens with maximum brightness of f/4. Covers an angle of vision of about 180°. Enables you to view and focus through the view-finder without keeping the reflex mirror flipped up.

Lens element ..... 11 (including 3 filters)
Minimum aperture f/22
Minimum distance ..... 0.66 ft. (0.2 m)
Angle of view ..... 180° (diagonal)
Weight..... 7.98 ozs.(228 gr.)

Macro-Takumar 50mm f/4



Lens element 4
Minimum aperture f/22
Angle of view ..... 46°
Weight..... 9.3 ozs. (265 gr.)

Bellows-Takumar 100mm f/4

Lens element 5
Minimum aperture f/22
Angle of view ..... 24°
Weight ..... 4.9 ozs. (139 gr.)

Complete System of Superb Takumar Lenses

	NAME OF LENSES	FOCAL LENGTH & MAXIMUM APERTURE	MINIMUM APERTURE	LENS ELEMENT	DIAPHRAGM	MINIMUM FOCUSING DISTANCE		ANGLE OF VIEW	WEIGHT		FILTER SIZE	LENSHOOD SIZE	LENS CAP SIZE
						m.	ft.	degrees	gr.	ozs.	mm	mm	mm
1	Super-Takumar Fish-Eye	17mm f/4	22	11	FA	0.2	0.66	180①	228	7.98	BI	—	60
2	Super-Takumar	28mm f/3.5	16	7	FA	0.4	1.3	75	218	7.6	49	*	51
3	Super-Takumar	35mm f/3.5	16	5	FA	0.45	1.5	63	152	5.4	49	49	51
4	Super-Takumar	35mm f/2	16	8	FA	0.45	1.5	63	398	14	70①	70②	70
5	Super-Takumar	50mm f/1.4③	16	7	FA	0.45	1.5	46	230	8.1	49	49	51
6	Macro-Takumar	50mm f/4	22	4	PS	—	—	46	265	9.3	49	49	51
7	Super-Takumar	55mm f/2④	16	6	FA	0.45	1.5	43	215	7.5	49	49	51
8	Super-Takumar	55mm f/1.8③	16	6	FA	0.45	1.5	43	215	7.5	49	49	51
9	Super-Takumar-Zoom	70~150mm f/4.5	22	14	FA	3.5	11.5	16~35	1209	42.6	67	*	70
10	Super-Takumar	85mm f/1.9	16	5	FA	0.85	2.75	28	350	12.3	58	58*	60
11	Bellows-Takumar	100mm f/4	22	5	PS	—	—	24	139	4.9	49	49	51
12	Takumar	105mm f/2.8	22	5	PS	1.2	4	23	250	8.8	49	49*	51
13	Super-Takumar	105mm f/2.8	22	5	FA	1.2	4	23	290	10.2	49	49*	51
14	Super-Takumar	135mm f/3.5	22	4	FA	1.5	5	18	343	12.1	49	49*	51
15	Super-Takumar	135mm f/2.5	22	5	FA	1.5	5	18	444	15.5	58	58*	60
16	Super-Takumar	150mm f/4	22	5	FA	1.8	6	16.5	324	11.3	49	49*	51
17	Super-Takumar	200mm f/4	22	5	FA	2.5	8.2	12.5	550	19.3	58	58*	60
18	Tele-Takumar	200mm f/5.6	22	5	PS	2.5	8.2	12	370	13.1	49	49*	51
19	Tele-Takumar	300mm f/6.3	22	5	PS	5.5	18	8	729	25.7	58	*	60
20	Super-Takumar	300mm f/4	22	5	FA	5.5	18	8	946	33.1	82	*	85
21	Tele-Takumar	400mm f/5.6	45	5	M	8.0	27	6	1300	45	77	*	85
22	Takumar	500mm f/4.5	45	4	M	10.0	32.8	5	3500	122.5	49	*	127
23	Tele-Takumar	1000mm f/8⑤	45	5	M	30.0	98	2.5	5500	192.5	49	*	143

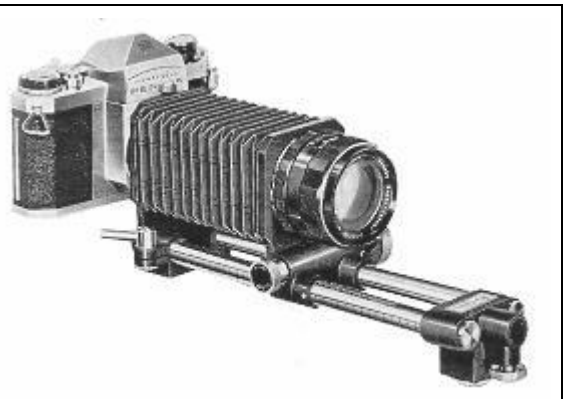
BI=3 filters built-in. M=Manual. FA=Fully Automatic. PS=Preset. ①=Diagonal

The extension tube set consists of 3 rings: #1, #2 and #3; 9.5mm, 19.0mm and 28.5mm respectively. These rings may be used in combination as desired. Ring #1 is suited for moderate close-up work as in copying documents. When all extension tubes are used simultaneously with the 55mm lens, the subject may be enlarged on the film to a magnification of 1.04 of the life size. Such extreme close-up photography is a special advantage of the single lens reflex camera because there is no parallax problem and you do not need an accessory viewfinder as is ordinarily required for rangefinder type cameras.

By inserting any or all of the extension tubes between the camera body and the Takumar lens, subjects as close as 3 35/64 inches from the front of 55mm lens may be photographed. By adding more extension tubes, close-ups as close as the focal length of the lens may be easily and simply photographed.

BELLOWS UNIT 11

Double-track, De Luxe model bellows unit for extreme magnification. Mounted between your camera body and standard lens, you can obtain the maximum magnification of more than 3 times the life size.



SLIDE COPIER

Use this with the Bellows II for duplicating your color slides.	

HONEYWELL REPRONAR

	An extremely versatile accessory for the Honeywell Pentax owner who specializes in color transparencies, the Repronar incorporates a specially modified Honeywell Pentax camera with a precision 50mm f/4 Takumar lens and a Strobonar electronic flash light source. It enables the user to duplicate original transparencies, correct for exposure errors and color balance, crop and enlarge portions of original transparencies, create special effects, and perform many other processes in color or black and white. Focusing and composition are quick and easy, and a built-in exposure scale takes the guesswork out of camera settings. Complete with filters, slide holders, lens cap and dust cover.

HONEYWELL PENTAX COPIPOD

This new portable copying stand fits all models of the Honeywell Pentax and can be used anywhere for copying documents, artwork, photographs, stamps, etc. The Copipod consists of a lens board complete with adapter rings for 46mm and 49mm sizes, and four calibrated telescoping legs. It can be set up in seconds, and when disassembled, fits neatly into a pouch-type case which occupies very little space. Lightweight, yet extremely rigid, the Copipod is a practical accessory which will fill a need for many Honeywell Pentax owners.

FILTERS AND LENSHOODS

Honeywell Pentax lens hoods are recommended for use whenever possible to guard against off-angle light which will cause flare in your pictures. (All Takumar lenses from 85mm up to 1000mm are supplied with a special lens hood.) Improve your picture quality by using the Honeywell Pentax filters that are precision-ground, polished and coated for your Honeywell Pentax.

MICROSCOPE ADAPTER

By inserting this adapter between the camera body and the micro scope tube, photomicrography can be easily and simply accomplished with the optics of the microscope.

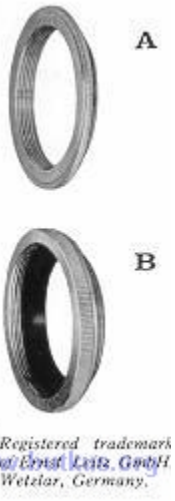
REVERSE ADAPTER

Screwed into the front thread of a Takumar lens which accepts 49mm~size filters and with the other end threaded into extension tubes or bellows mounted on an Honeywell Pentax, this adapter gives optimum performance in macrophotography of more than a life-size magnification.

LEICA MOUNT ADAPTER

ADAPTER 'A' - For use of Leica-mount lenses on the Honeywell Pentax camera body. Leica-mount lenses may be used on the Honeywell Pentax camera body with this adapter ring *ONLY for close-up photography.* The following table illustrates the film plane-to-subject distance that can be covered by Leica-mount lenses when using this adapter.

ADAPTER "B" - For use of Takumar lenses on Leica mount camera bodies. Primarily for use with Leica lens mount enlargers.



LENS MOUNT CAP For use with all Takumar lenses. When your Takumar lens is not on the camera body, use this cap to avoid dust. BODY CAP Use this body mount cap when you do not have a lens on your camera body.	 

LENS LEATHER CASE for standard lenses When using an accessory lens on your camera body, put your standard lens in this leather case for protection.	

FILM MAGAZINE For use in loading bulk film.	

90° FINDER
A convenient accessory viewfinder to be attached to the viewfinder frame of the Honeywell Pentax, for low-angle close-up, photo-micrography, etc.

× ACCESSORY CLIP
Attaches to the Honeywell Pentax viewfinder window for mounting a folding flash gun, etc.

MAGNIFIER
2-power magnification. Most convenient for critical focusing in close-ups, macrophotography, copying works, etc.

CABLE RELEASE
Use a cable release to prevent camera movement

CLOSE UP LENS
For simple close-ups, this is an extremely versatile and economical accessory, and enables you to close up your objects as large as 1/3 the life size with your standard lens. It also fits Takumar and SuperTakumar 105mm f/2.8, 135mm f/3.5 and Tele-Takumar 200mm f/5.6 lenses.

With this lens on a Super-Takumar lens, you can operate the diaphragm fully automatically, without manipulation for exposure increase.

WARRANTY POLICY

All Honeywell Pentax camera equipment and accessories sold in the United States and Mexico are unconditionally 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 instructions. Because the tolerances, quality, and design compatibility of lenses other than Pentax-Takumar lenses are beyond our control, damage caused by use of such lenses will not be covered by this warranty policy. Honeywell 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 Honeywell's liability under all guarantees or warranties, whether expressed or implied, is strictly limited to the replacement of parts as hereinbefore provided. In order to validate your warranty, the warranty card must be filled in COMPLETELY and mailed to the factory within ten days of purchase.

PROCEDURE DURING 12-MONTH WARRANTY PERIOD

Any equipment which proves defective during the 12-month warranty period should be returned to your Honeywell Pentax dealer. The dealer will forward the equipment to the Honeywell factory or nearest Honeywell repair station. If the equipment is covered by warranty, repairs will be made and parts replaced free of charge, and the equipment returned prepaid to your dealer. If the equipment is not covered by warranty, Honeywell's regular charges will apply. All models, prices and specifications are subject to change without notice.

Mercury Battery - click here to get a non-mercury battery replacement

The mercury battery should be kept dry. Don't touch it with your finger unnecessarily. Before inserting it into its housing, wipe its surface completely with a dry piece of cloth. Don't try to measure the short current or to charge the battery, to prevent rapid deterioration. Don't throw a used battery into fire ... it may explode. Keep the battery out of the camera's battery housing when you do not intend to use it for a lengthy period of time. See page 16. (You need to get a Wein Air replacement battery)

Should you need additional information about your Honeywell Pentax, address your questions to: Customer Service at the address below:

Honeywell Inc., Photographic Products Division

4800 East Dry Creek Road, Denver, Colorado 80217