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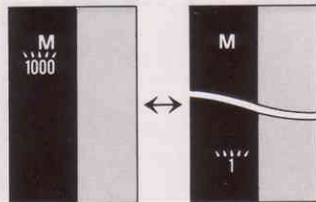
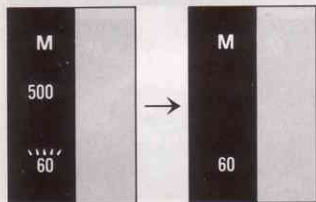
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### When setting aperture first

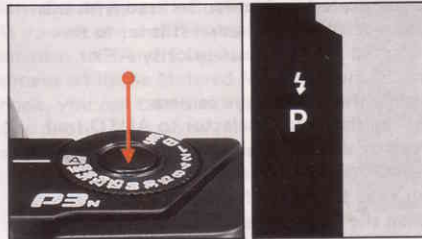
Set the aperture to your desired f-stop. Turn the shutter dial until the shutter-speed display changes from a blinking speed to a just glowing speed, namely, until only one shutter speed is seen, so that correct exposure can be obtained. If the display does not change from a blinking speed to a glowing speed even by turning the shutter dial, reset the aperture by turning the aperture ring.



- Also in the case of Metered Manual mode, when the subject is too bright or dark, "1000" or "1" blinks as a warning. Adjust the shutter speed or the aperture to obtain correct exposure. When the subject is very dark and a shutter speed slower than 1/30 is displayed, there is a danger of camera shake, and you are recommended to use a tripod or a flash. (For details, refer to page 38.)

Using the AF200SA, AF240Z, or AF160SA flash unit with this camera easily allows the Programmed Auto Flash photography with the camera set to the Programmed AE mode. You just turn the flash's switch to ON. Furthermore, the AF200T, AF280T and AF400T can also be used with this camera in the Programmed Auto Flash mode. The table indicates what dedicated functions work when the camera is used with Pentax dedicated auto flash units.

- If the AF200T, AF280T or AF400T is used with the camera in the TTL Auto Flash mode the dedicated functions are indicated in the viewfinder, but the flash emits the full light output, resulting in incorrect exposure.
- The AF200SA, AF240Z and AF160SA do not provide the dedicated function described in 3.
- AF080C, AF200S, AF160S and earlier Pentax flashes apply to 1 and 2 only in the table, when the camera is used in the Aperture-priority AE or Metered Manual mode.
- When the Pentax dedicated auto flash is used in its M or MS mode, the dedicated functions in the Programmed AE mode do not work.



Dedicated Functions (In Programmed Auto Flash mode)	
1	Flash-ready indication by the lighting of ⚡ mark.
2	As soon as flash is ready, shutter speed is automatically set to 1/100 sec. for flash syn.
3	When flash has worked properly, ⚡ mark in viewfinder disappears for an instant and lights up again or flickers, indicating that proper flash sync has been made.
4	In Programmed AE mode, aperture is also set automatically.

## USING PROGRAMMED AUTO FLASH MODE

Pentax dedicated flashes can be used with this camera, regardless of whether it is set to the Programmed AE, Aperture-priority AE or Metered Manual mode.

1. Attach the flash to the camera.
2. Set the flash mode selector to AUTO (red, green or yellow). This does not apply to the AF200SA, AF240Z and AF160SA.
3. Turn the flash switch on.
4. When the flash is ready, it is indicated by the glowing of  $\text{⚡}$  mark in the viewfinder. (When the meter's timer switch is off, the  $\text{⚡}$  mark also disappears.)



### Using in Programmed AE mode

- AF200SA, AF240Z, AF160SA, AF280T and AF400T are compatible with this mode.
- As soon as the flash is ready, the camera is automatically switched to work at the flash sync speed of 1/100. The aperture is also automatically set to the programmed f-stop as shown in the table, depending on which AUTO position you choose.

(At ISO 100)

	AF200T	AF280T	AF400T
Red	f/2.8	f/4	f/4
Green	f/5.6	f/8	f/8
Yellow	—	—	f/11

(AF200SA/AF240Z/AF160SA: f/4 at ISO 100)

- As the film speed changes, the aperture also changes automatically.
- As shown in the above table, the aperture is set to f/2.8 when the AF200T is used in the Red AUTO, and therefore, using a lens whose maximum aperture is as small as f/4, for instance, will result in underexposure.

### Using in Aperture-priority AE or Metered Manual mode

- Set the lens aperture to the f-stop indicated by the exposure table on the back of the flash.
- As soon as the flash is ready, the camera is automatically switched to work at 1/100 sec. flash sync speed. (In Metered Manual mode, the slow-speed sync described later is workable.)

### Auto Flash Check Mark ( $\frac{1}{2}$ )

When a proper flash photo has been taken, the  $\frac{1}{2}$  mark in the viewfinder disappears for an instant just after the flash firing and lights up again or blinks, indicating the completion of a proper flash photography.

This auto flash check mark only appears when the AF200T, AF280T and AF400T are in use.

### Slow-Speed Sync Photography

As you set the shutter speed between 1/60 and 1 sec. with the camera set in the Metered Manual mode, you can take a slow-speed-sync photo. As soon as the flash is ready, "  $\frac{1}{2}$  " and "M" marks plus the shutter speed set are displayed in the viewfinder.



- When the shutter speed is set between 1/1000 and 1/125 sec., the camera is automatically switched to the flash sync speed of 1/100 sec., as soon as the flash is fully charged. (In this case, no shutter speed is displayed in the viewfinder.)

## EXPOSURE-MEMORY LOCK



Memory lock not used



Used



The exposure-memory lock enables you to take an exposure reading in the Programmed AE or Aperture-priority AE mode, lock-in that reading, move your position, and then take the picture with the programmed reading. This is particularly useful in high-contrast conditions, such as when your subject is back-lit or has a dark background.

1. If you are taking a portrait, you can move in close to your subject and take a close-up reading of the face. To hold that reading, depress the memory-lock button; this will hold the reading for about ten seconds, simultaneously making the shutter speed (LED) you are using flicker in the viewfinder at a faster speed.
2. As long as you keep depressing the shutter
  - 30

button half-way while the memory lock is in use, the memory lock will be maintained or, in other words, the exposure will remain the same.

- When you wish to interrupt the memory lock, just turn the main switch off.
3. Recompose your picture and shoot; the subject will correctly be exposed. The memory lock will automatically be cancelled as soon as you release the shutter.

### Cautions

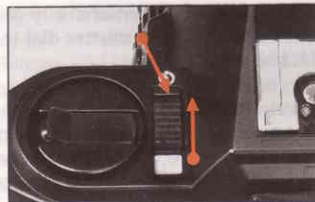
- When the Pentax dedicated auto flash is used on this camera, the memory lock does not work.
- If you accidentally depress the memory-lock button with the camera in the Metered Manual mode, the shutter speed set will meaninglessly lock and flicker in the viewfinder.

The self-timer is helpful for getting yourself into the photograph.

It can be set by sliding the main switch forward until the "S.T." is visible, while depressing the self-timer lever.

As you cock the film wind lever and press the shutter release button, the shutter will be released about 12 seconds later. The self-timer lamp blinks to show the self-timer is working. About two seconds before shutter release, the lamp will start to blink at a faster rate. The self-timer can be cancelled even after it has started, by sliding the main switch back to the original position.

- When you shoot at the B (Bulb) setting, the self-timer cannot be used.



**Caution:** When using the self-timer, you keep your eye away from the viewfinder, and light entering through the eyepiece can cause errors in exposure. This can be prevented by sliding an accessory viewfinder cap over the eyepiece, to shield the metering system from extraneous light.

## USING 100 $\frac{1}{2}$ SETTING

When using a conventional clip-on-type flash on this camera, set the shutter dial to "100  $\frac{1}{2}$ " (1/100 sec.).

**Caution:** If non-Pentax flashes whose dedicated functions are claimed to work also with cameras of other brands are used with this camera, they may well cause malfunction and damage to the electronic mechanism.



As illustrated, align "100  $\frac{1}{2}$ " with the red-line index. Set the aperture ring of your SMC Pentax-A lens to any f-stop other than A.

- When using a conventional flash, select an appropriate f-stop according to the camera-to-subject distance or the program of the flash. (Refer to the instructions accompanying the flash.)
- When using a sync-cord-type flash, use an optional accessory: Hot Shoe Adapter 2P.
- This "100  $\frac{1}{2}$ " setting can be used for non-flash photography, but since the meter does not function at this setting, you can in no way make sure of correct exposure.



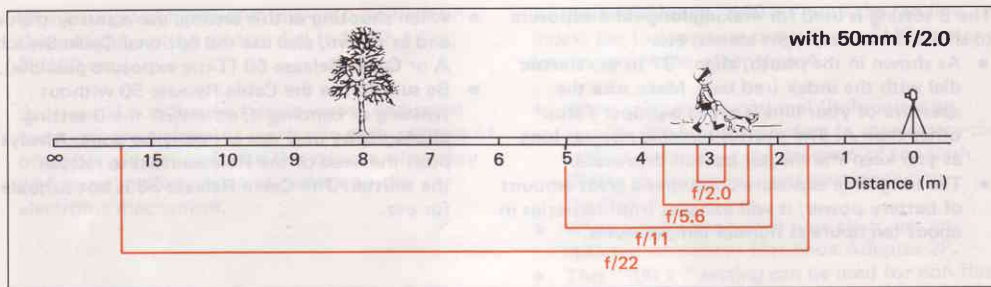
The B setting is used for making long-time exposure to shoot fireworks, night scenes, etc.

- As shown in the photo, align "B" in the shutter dial with the index (red bar). Make sure the aperture of your lens is set to a proper f-stop other than A. The shutter remains open as long as you keep the shutter button depressed.
- The long-time exposure consumes a great amount of battery power; it will exhaust fresh batteries in about ten hours at normal temperatures.

- When shooting at this setting, use a sturdy tripod, and as shown, also use the optional Cable Switch A or Cable Release 50 (Time exposure possible).
- Be sure to use the Cable Release 50 without twisting or bending it; otherwise the B-setting photography may not properly be done. Always push the head of the Release hard to release the shutter. The Cable Release 30 is not suitable for use.



## DEPTH OF FIELD



Depth of field is the area of acceptable sharpness in front of and behind the point of focus. The depth of field becomes progressively greater as the lens opening becomes smaller. The distance at which the lens is focused also affects the depth of field: it increases as you get further away. The focal length of the lens is another factor to determine the depth of field. The shorter the lens, the greater the depth of field.





f/2.0 (2.79 ~ 3.24m)



f/22 (1.67 ~ 16.9m)



## DEPTH-OF-FIELD PREVIEW



Your camera enables you to preview just what will and what will not be sharp in your pictures. By depressing the preview lever near the lens mount, you can close the lens down to whatever aperture you have set. You can then preview how much sharpness you will get in your picture by examining the picture area on the ground glass. After previewing your picture, if you release the preview lever, the lens will return to full aperture for focusing. You cannot, however, preview the depth of field with your camera set in the Programmed AE mode.

**Note:** Taking pictures with the preview lever depressed will result in incorrectly exposed pictures.

Depth-of-field Table: SMC Pentax-A 50mm Lens

unit=meter

Distance scale	f/1.4	f/2	f/2.8	f/4	f/5.6	f/8	f/11	f/16	f/22
0.45m	~ 0.448 ~ 0.453	~ 0.446 ~ 0.454	~ 0.445 ~ 0.455	~ 0.443 ~ 0.457	~ 0.440 ~ 0.460	~ 0.438 ~ 0.465	~ 0.431 ~ 0.471	~ 0.423 ~ 0.481	~ 0.414 ~ 0.493
0.5m	~ 0.497 ~ 0.503	~ 0.495 ~ 0.505	~ 0.494 ~ 0.507	~ 0.491 ~ 0.509	~ 0.487 ~ 0.513	~ 0.482 ~ 0.519	~ 0.476 ~ 0.527	~ 0.466 ~ 0.540	~ 0.454 ~ 0.557
0.6m	~ 0.595 ~ 0.605	~ 0.593 ~ 0.607	~ 0.590 ~ 0.610	~ 0.586 ~ 0.615	~ 0.581 ~ 0.621	~ 0.573 ~ 0.630	~ 0.564 ~ 0.642	~ 0.549 ~ 0.663	~ 0.532 ~ 0.691
0.8m	~ 0.791 ~ 0.810	~ 0.787 ~ 0.814	~ 0.781 ~ 0.820	~ 0.774 ~ 0.828	~ 0.764 ~ 0.840	~ 0.749 ~ 0.859	~ 0.732 ~ 0.883	~ 0.705 ~ 0.927	~ 0.675 ~ 0.987
1.0m	~ 0.985 ~ 1.016	~ 0.978 ~ 1.023	~ 0.970 ~ 1.032	~ 0.958 ~ 1.046	~ 0.942 ~ 1.066	~ 0.919 ~ 1.098	~ 0.892 ~ 1.140	~ 0.851 ~ 1.218	~ 0.806 ~ 1.328
1.5m	~ 1.464 ~ 1.538	~ 1.449 ~ 1.555	~ 1.430 ~ 1.578	~ 1.402 ~ 1.613	~ 1.366 ~ 1.664	~ 1.316 ~ 1.746	~ 1.259 ~ 1.861	~ 1.174 ~ 2.093	~ 1.086 ~ 2.462
2.0m	~ 1.935 ~ 2.070	~ 1.908 ~ 2.101	~ 1.874 ~ 2.144	~ 1.825 ~ 2.213	~ 1.764 ~ 2.312	~ 1.679 ~ 2.478	~ 1.584 ~ 2.724	~ 1.449 ~ 3.265	~ 1.314 ~ 4.298
3.0m	~ 2.853 ~ 3.164	~ 2.794 ~ 3.239	~ 2.719 ~ 3.346	~ 2.615 ~ 3.521	~ 2.487 ~ 3.785	~ 2.318 ~ 4.265	~ 2.137 ~ 5.073	~ 1.892 ~ 7.426	~ 1.665 ~ 16.893
10.0m	~ 8.488 ~ 12.171	~ 7.973 ~ 13.421	~ 7.375 ~ 15.552	~ 6.631 ~ 20.422	~ 5.846 ~ 35.101	~ 4.966 ~	~ 4.181 ~	~ 3.313 ~	~ 2.655 ~
∞	~ 55.370 ~	~ 38.772 ~	~ 27.707 ~	~ 19.408 ~	~ 13.876 ~	~ 9.726 ~	~ 7.086 ~	~ 4.885 ~	~ 3.565 ~


If you intend to take infrared photographs using infrared film and R2 or O2 filters, it is necessary to compensate for the difference between visible light focus and infrared focus. As shown on the right, note the subject-to-camera distance on the lens distance scale as you focus through the viewfinder and turn the focusing ring until that distance setting aligns with the red infrared index mark. The figure shows an example in which the subject-to-camera distance is set at infinity ( $\infty$ ).

For details on exposure control, refer to the instructions accompanying the film.



## WARNING DISPLAYS

Shutter speed	Remarks
P 1000	This display indicates the brightness of the subject is beyond the metering range in the Programmed AE mode. Releasing the shutter will result in incorrect exposure.
P 1	
1000	Indicates the brightness of the subject is beyond the metering range, or that the combination of shutter speed and aperture is beyond the coupling range, both in Aperture-priority AE mode. In the latter case, you can change the aperture to obtain correct exposure. In the former case, the flickering does not disappear even if you change the aperture. Releasing the shutter with this display appearing will result in incorrect exposure.
1	
M 500	Indicates the brightness of the subject is beyond the correct-exposure range in the Metered Manual mode. Change the shutter speed and aperture, and when the flickering disappears and only one speed remains lit, you are ready to shoot.
125	
M 250	Indicates the brightness of the subject is beyond the metering range in the Metered Manual mode. The flickering does not disappear even if you change the shutter speed and aperture. Releasing the shutter will result in incorrect exposure.
60	
M 1000	
M 1	
P 125	When the exposure-memory lock is used, these LEDs flicker at a fast speed.
P 250	When batteries become exhausted, these LEDs flicker at a slow speed of once per second.
M 250	

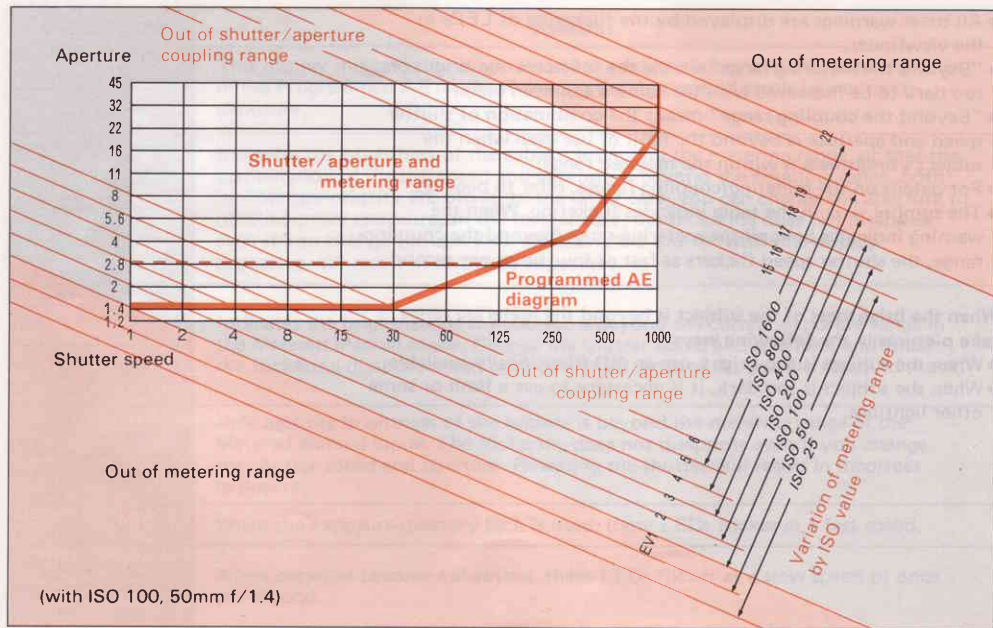
- All these warnings are displayed by the flickering of LEDs in the viewfinder.
- "Beyond the metering range" means the subject is too bright or too dark to be measured with the camera's built-in meter.
- "Beyond the coupling range" means the combination of shutter speed and aperture is beyond the limit of use even when the subject's brightness is within the metered range.
- For details on the metering/coupling ranges, refer to page 40.
- The symbol  in the table indicates flickering. When the warning indicates beyond-the-metering-range/beyond-the-coupling-range, the shutter speed flickers as fast as four times per second.

**When the brightness of the subject is beyond the metering range, take pictures in the following ways:**

- When the subject is too bright, use an ND filter locally available.
- When the subject is too dark, it is necessary to use a flash or some other lightings.



# PROGRAMMED AE DIAGRAM, METERING RANGE AND SHUTTER/APERTURE COUPLING RANGE





The shutter-speed and aperture combination in the Programmed AE mode is shown in the chart. The red line represents the variation of shutter-speed and aperture combination with an f/1.4 lens. Note that only the shutter-speed slows down after the lens aperture reaches its limit of f/1.4 in combination with a speed of approx. 1/30 sec. When you use a lens with a different maximum aperture, the exposure program varies the aperture and the shutter-speed in combination until reaching the maximum aperture of your lens. For example, with an f/2.8 lens the program varies the combination as shown by the red dotted line. Note that only the shutter speed changes after the maximum aperture is reached. The fine red line in the Programmed AE diagram indicates the Automatic Exposure control range for a lens with minimum aperture smaller than f/22, or for a film with ISO speed other than 100. The fine red-dotted line indicates the range for a lens with maximum aperture smaller than f/1.4, or for a film with ISO speed other than 100.

### **Metering Range and Shutter/Aperture Coupling Range**

The metering range means the range of subject luminance within which the built-in exposure-meter works to control exposure. The shutter/aperture coupling range is that part of the metering range within which shutter-speed and aperture value can be combined for proper exposure control. When you use a 50mm f/1.4 normal lens and an ISO 100 film, the metering range is from EV 1 (f/1.4-1 sec.) to EV 18 (f/16 -1/1000 sec. or f/22-1/500 sec.). The range varies according to film speed (ISO). The variation of the metering range is shown by slanting lines which shift ISO ratings. The frame in the center shows the meter and shutter/aperture control coupling range.

### **EV (Exposure Value)**

EV represents a combination of the shutter-speed and the lens aperture which is determined by the film speed (ISO) and the brightness of the subject.

## DIOPTRER CORRECTION, MOUNT ADAPTER K, EYECUP P



Diopter correction lenses M which fit the eyepiece on your camera are available. If you find it difficult to see the viewfinder image clearly, choose any one of the eight Correction Lenses M of  $-5$ ,  $-4$ ,  $-3$ ,  $-2$ ,  $-1$ ,  $+1$ ,  $+2$ ,  $+3$  diopters. Slide it into the eyepiece's accessory groove. Before buying one, try it for yourself with the lens attached to your camera.



### Mount Adaptor K

If you want to use any conventional Takumar screw-mount lens on your camera it is possible by placing an optional accessory called the Mount Adapter K between the camera body and the lens. However, please note the following conditions when actually taking pictures:

- Automatic diaphragm does not work due to difference in the coupling system.
- Stop-down metering must be made.
- Automatic aperture setting with a Pentax dedicated flash is not workable.



### Eyecup P

The Eyecup P is attached to the viewfinder accessory groove. When using such accessories as "Diopter Correction Lenses M," "Viewfinder Cap," etc., remove the Eyecup P from the camera.

- Incorrect usage of batteries causes such hazards as leakage, heating or explosions. Polarity markings should be carefully checked while inserting batteries. If either battery is erroneously inserted, unexpected mishap may occur.
- Replace both batteries at the same time. Do not mix battery brands and types, or old batteries with new batteries.
- When not using the camera for long periods of time, you should remove batteries from the camera. Old batteries are apt to leak and damage the battery compartment. Always keep batteries out of the reach of children.
- Never break, recharge, or throw used batteries into fire as a precaution against explosions.
- Batteries should be kept warm in cold climates to prevent lowering of performance.
- Keep spare batteries on hand for convenience in photographing outdoors or while traveling, etc.
- One set of alkaline batteries should last about six months and one set of silver-oxide batteries about a year, both with average use.
- When keeping the camera in a bag or case, be sure to turn the main switch off to avoid the unnecessary consumption of battery power that may result from accidentally releasing the shutter.

## SPECIFICATIONS

<b>Type:</b>	Through-the-lens, Programmed AE 35mm SLR camera.
<b>Film:</b>	35mm perforated cartridge film, 24 x 36mm format. Automatic film speed setting from ISO 25 to 1600 (in 1/3 steps) with DX-coded film.
<b>Mount:</b>	Pentax KA bayonet mount.
<b>Exposure Modes:</b>	Programmed AE, Aperture-priority AE, Metered Manual and Programmed Auto Flash.
<b>Shutter:</b>	Vertical-run focal plane shutter. automatic speeds from 1 to 1/1000 sec., manually-set shutter speeds from 1 to 1/1000 sec. (11 steps) and "B".
<b>Viewfinder:</b>	Pentaprism finder with split-image/micropism/matte focusing screen (Clear-Bright-Matte). Shows 92% of picture area at 0.82X magnification with 50mm lens at infinity. -1 diopter eyepiece.
<b>Exposure Indication in Viewfinder:</b>	LED indicators for "S" (flash ready), "P" (Programmed AE mode), "M" (Metered Manual mode), and 11 shutter speeds (green LED for "1000" to "60"; orange for "30" to "1"). Warnings for exposure setting outside aperture/shutter-speed coupling range ("1000" or "1" LED blinks at 4Hz.)
<b>Flash Synchronization:</b>	Hot shoe (X-Sync contact, dedicated flash contacts), X-Sync at 1/100 sec.
<b>Self-Timer:</b>	Electronically-controlled 12-second delay timer. Delay time indicated by blinking LED. Possible to cancel at any time. Timer activated with shutter release button.
<b>Mirror:</b>	Back-swing type instant-return mirror.
<b>Film Loading:</b>	Easy loading type.
<b>Film Transport:</b>	Single-stroke rapid wind lever with 130° throw and 35° stand-off angle.
<b>Film Counter:</b>	Additive type with automatic resetting.
<b>Film Rewind:</b>	Crank type.

<b>Exposure Metering:</b>	Open-aperture, TTL center-weighted, average area metering system with GPD cell.
<b>Metering Range:</b>	EV 1 (f/1.4, 1 sec.) – EV 18 (f/16, 1/1000 sec.) with 50mm f/1.4 lens and ISO 100 film.
<b>Exposure Memory Lock:</b>	With the exposure memory lock button.
<b>Battery Warning:</b>	When batteries grow weak, LED flashes. When batteries exhausted, LEDs go blank and shutter locks.
<b>Power Source:</b>	Two 1.5-volt silver-oxide or alkaline mini-batteries.
<b>Size &amp; Weight:</b>	137(W) x 89(H) x 50.5(D)mm (5.3" x 3.5" x 2.0"), 500g (17.5 oz.) without batteries.



Your Pentax camera is a sophisticated, precision instrument built to give long-lasting, reliable service. It will serve you well if you treat it right, with proper handling and reasonable care. The major causes of damage are:

1. Dropping or banging the camera against immovable objects, which can damage the camera in many ways.
2. Water damage, particularly if the camera is submerged in salt water. Cameras are not water-proof! They must be protected from salt spray at the beach, splashing of any kind, and shielded from the rain. If your camera does get soaked, wipe it dry immediately and rush it to a Pentax service center.
3. Dirt and sand can cause serious damage to the shutter and other moving parts of the camera. Your camera needs periodic cleaning to keep it operating properly. To remove dirt and dust, you need lens-cleaning fluid, lens-cleaning tissues, bulb-type ear syringe, camel's hair brush, etc. Never use a solvent such as thinner or alcohol.
4. Humidity and temperature extremes should be avoided. Keep your camera out of direct sunlight, car trunks, and glove compartments. Shooting

outdoors in winter presents a problem since batteries won't function if they get too cold. In cold weather carry your camera under your coat or jacket to keep the batteries warm. The temperatures at which this camera should function properly are approx.  $50^{\circ} \sim -10^{\circ}\text{C}$ . Sudden changes in temperature will often cause moisture to condense inside or outside your camera. This is a possible source of rust, which may be extremely harmful to the mechanism. Furthermore, if the camera is taken from a warm temperature to a sub-freezing one, further damage may result from the formation of icelets. Thus, sudden temperature changes should be avoided as much as possible. As a guide, a temperature change of  $10^{\circ}\text{C}$  should be allowed to take place gradually over a period of at least 30 minutes. If this is not possible, keeping the camera in its case or bag will help somewhat in minimizing the effects of a rapid temperature change.

5. Vibration experienced when you are traveling in a car, plane, or ship, can cause screws to loosen. To minimize this problem use foam-rubber padding about one inch thick to line the bottom of your camera bag.

6. When mounting your camera on a tripod, make sure the tripod screw is no longer than 5.5mm, which is the depth of your camera's tripod socket. If you use a longer screw, you will possibly puncture the tripod socket, after which the camera will not function properly.