

# Asahi Pentax Spotmeter III

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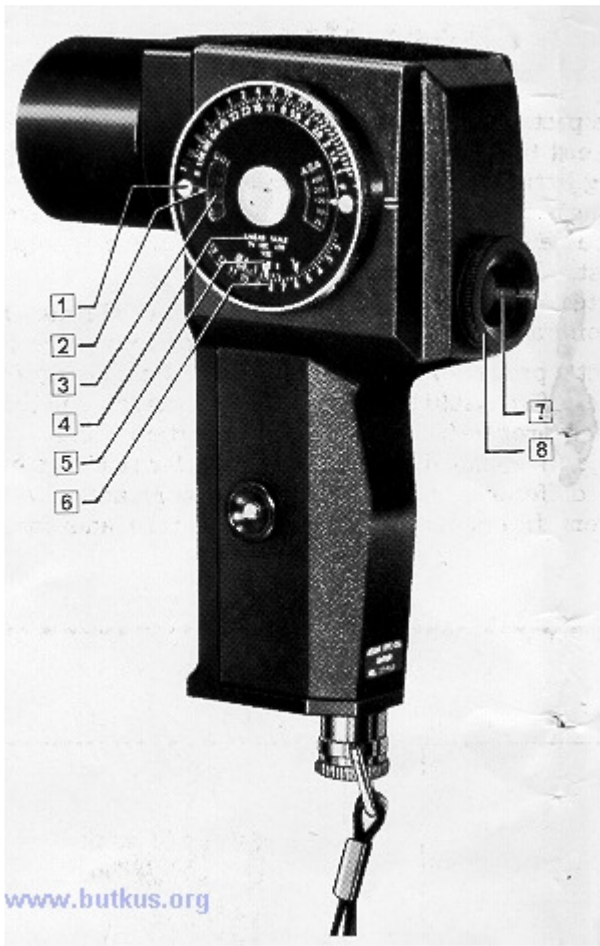
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## ASAHI PENTAX SPOTMETER III

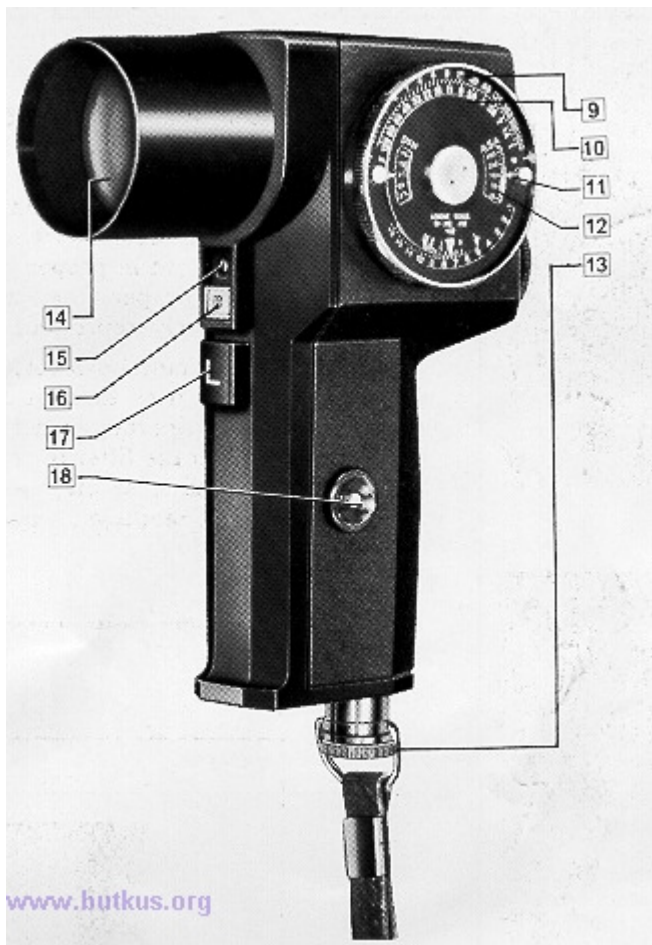
SPOT-reading professional meter--an ideal instrument for critical exposure/brightness measurement.





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1. Nipple for turning ASA/DIN disk
2. Index for DIN scale
3. DIN scale
4. IRE scale
5. Standard index for Light Levels
6. Light Level scale
7. Adjustable eyepiece
8. Adjust ring



- 9. Shutter speed scale
- 10. f/ number scale
- 11. Index for ASA scale
- 12. ASA scale
- 13. Hand strap retainer
- 14. Objective lens...
- 15. Zero adjust screw
- 16. Battery checker button
- 17. "L" switch button for low-light range
- 18. Scale illuminator button

## SPECIFICATIONS

**Type of measurement** SPOT-reading reflected light meter which reads high-light range with the lens cap off, and low-light range with the "L" button depressed.

**Distance of measurement** 1m - 00

**Light Level range** 3~18 ;

**ASA/DIN film speed range** ASA 6~6400/DIN 9~39

**Diaphragm range** f/1~f/128

**Shutter speed range** 4 minutes~1/4000 second

**Viewing** Eye-level pentaprism finder (magnification 1.5x) with adjustable eyepiece (0~1.5Dptr.)

**Viewing angle** 12° (vertical) / 17° (horizontal) / 21° (diagonal)

**Angle of acceptance of CdS photo conductor** 1°

**Scale illuminator** Scale illuminator glows, for dark area reading, when the illuminator button is depressed.

**Power source** One 1.3V mercury battery (Mallory RM640, Eveready E640 or equivalent)--for high-light range....

One 9V dry battery (Mallory M-1604, Eveready 216 or equivalent)--for low-light range.

**IRE scale** IRE scale for television filming and other special readings.

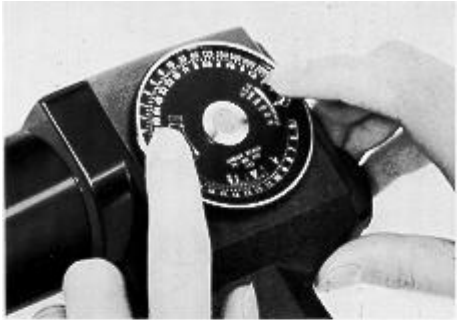
**Battery checker** Battery checker mark on Light-Level scale; battery checker button on grip.

**Dimension** Height 164mm x Width 62mm x Length 127mm....

**Weight** 475 g.

**Accessories** Soft leather case + hand strap.

## SHORT OPERATING INSTRUCTION



**A** Set the ASA scale to the correct film speed rating of the loaded film.

**B** Hold the meter in your right hand (with viewing ocular close to your eye), and direct the meter toward the photographic subject.

**C** Looking through the viewfinder, center the small circle (center of the scale glass) on the area of prime picture interest. (Turn the adjust ring (8) until you can clearly see the viewfinder scale.) Observe on the H scale of the viewing screen the Light-Level (L.L.) number at which the needle comes to rest. If the level is less than 10 on the H scale and/or the needle is not deflected, then press the "L" button down and observe the L.L. number on the low range indicated by L scale.

**D** Set this observed number below the green standard index mark on the meter calculator by turning the knurled outer ring....

**E** Select the shutter speed and f/stop combination desired (from the two top scales of the meter calculator), and transfer this data to your camera.



### **IRE\* SCALE (\*Institute of Radio Engineers)**

IRE units are used for percentage wise comparison of energy. They are used in wireless communications for comparison of signal voltage. In the Asahi Pentax Spotmeter an IRE scale is incorporated for comparison of the energy of light under exposure measurement. The brightest spot in the high light area is rated at 10 (100 percent IRE) and other areas are compared with this brightest spot in percents.

The index 10 (100 percent IRE) shows the maximum brightness in the high-light detail reproducible on color film. ("White Level.")...



The index 1 (10% IRE) shows the maximum darkness in the shadow detail reproducible on color film. The other indices from 2 to 9 (20 percent ~ 90 percent IRE) show the percentage wise comparison of the brightness based on the "White Level."

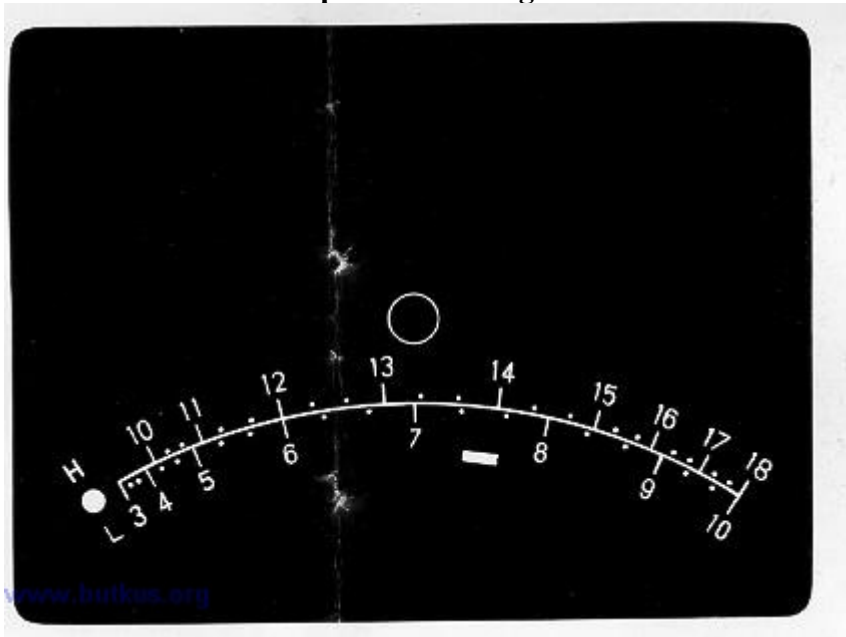
The large green triangle index between the indices 3 and 4 (not marked) is the standard index which shows the average of optimum exposure range.

Colored indices	Index 8.	Yellow
	Index 5	Red
	Standard index	Green
	Dot between 2 and 3	Blue

The figure "1:32" on the calculator indicates the contrast ratio between IRE scale 1 and 10. The IRE scale from 1 to 10 covers 5 EV ranges; hence the contrast ratio is 1:32. In television broadcasting, the contrast ratio of the picture is limited to 1:30; therefore, the illumination for television filming is so adjusted that the contrast ratio is kept within 1:30.

Viewing screen with high/low light scale calibrations, battery checker mark and 1° center spot.

### Various Methods of Exposure Readings



#### 1. General Method

Center the small circle (seen through the viewfinder) on the half-tone spot in the area of prime picture interest. Set the observed Light-Level (L.L.) number below the standard index, and get the shutter speed and f/stop combination desired.

## 2. Averaging Method

Read the high light and low-light areas, and get the average L.L. by dividing the total added L.L. numbers by the number of spot readings. Set the divided L.L. number below the standard index.

For black-and-white films, the difference (contrast ratio) between high-light and low. light areas can be about 6~7 L.L. numbers; for color films, this difference should be kept below 5 L.L. numbers. If the contrast ratio exceeds these L.L. numbers, the picture area outside of these L.L. ranges will be over- and/or under-exposed....

## 3. High Light Reading Method

Developed for television 'filming, this method can be also applied to still photography. As stated earlier, the reproducible contrast ratio for color films is about 1:30 (5 L.L. numbers ~ 5 E.V.), same as in television filming. For black and-white, this ratio is about 1:100 (6~7 L.L./6~7 E.V.).

Read the high-light spot white spar, for instance) in the picture area. Set the observed L.L. number below the IRE index 10. This will give you an optimum exposure based on the high-light spot.

In this case, however, the details in the picture area reproducible on color films are those areas giving L.L. number readings covered by the IRE scale from 10 to 1. The shadow details in the picture area giving L.L. number readings not reaching the IRE index 1 will not be reproduced on the film.

Therefore, such shadow areas should be additionally illuminated so that the L.L. reading will exceed the IRE index 1, as in television filming.

## 4. Shadow Reading Method

Contrary to the high-light reading method, this method reads the low-light spot to determine optimum exposure, such as when you wish to properly reproduce shadow details, based on the shadow area.

Read the shadow spot in the picture area. Set the observed L.L. number below the IRE index 1. This will give you an optimum exposure based on the shadow area. (In this case, you will have to read the L scale by depressing the L" switch button).

## 5. Special Color Reading Method

This method can't be recommended as a strict reading method; but as you get accustomed to this, you will find it highly efficient.

### *Please don't let colors misguide you!*

One of the important points you should bear in mind when using this SPOT meter is the color in the picture area. Reading any color spot in the picture area will not give you correct exposure unless you use the various indices properly.

The reflection of light greatly differs from one color to another:

### **LIGHT REFLECTION OF 7 COLORS**

Purple	Indigo	Blue	Green	Yellow	Orange	Red
6~12%	6~12%	15~21%	18~26%	65~75%	35~45 %	15~21%

Yellow has the highest reflection among the 7 colors. Therefore, if you spot read a yellow area and use the standard index to determine exposure, the picture will be under-exposed. To get proper exposure according to the color of the picture area, set the observed L.L. numbers below the following indices:

L.L. READING OF:	USE FOLLOWING INDICES:
White spot	Index 10 (white)
Yellow spot	Index 8 (yellow)
Orange spot	Index 6~7
Red spot	Index 5 (red)
Green spot	Standard index (green)
Blue (dark) spot	Blue dot between 2 and 3

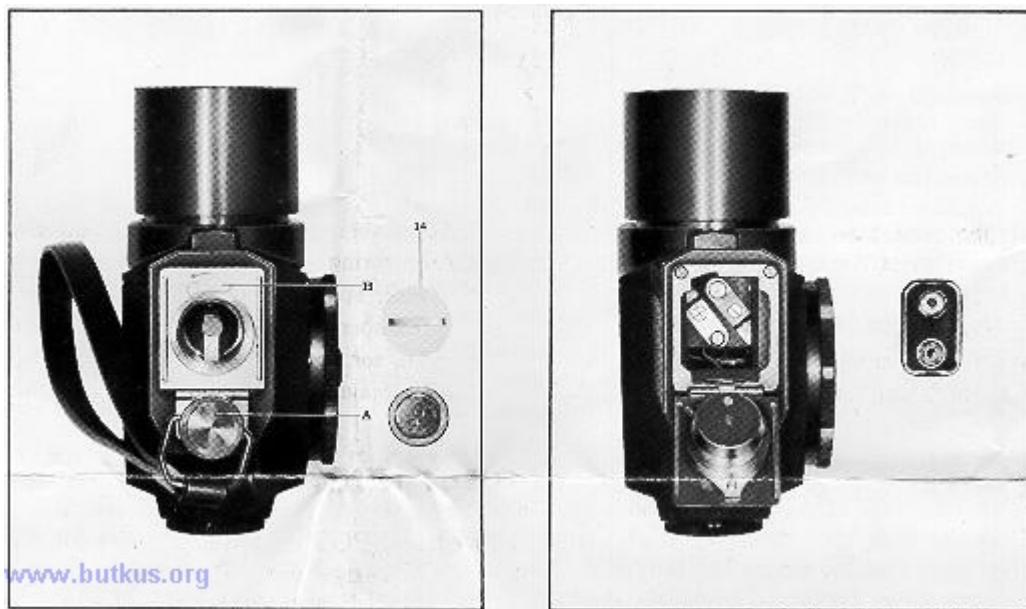
## Other Uses

When taking black-and-white pictures of a colored subject, you know that the areas adjacent to each other having little difference in light reflection, although different in visible colors, will not be reproduced on the film in proper contrast. In such a case, a proper filter is selected and used to properly reproduce the contrast....

It is difficult, however, to select a proper filter to be used for that purpose. The Asahi Pentax Spotmeter helps select proper filters. Put the filter over the objective lens of the Spotmeter and read the difference in the L.L. readings. . . use different filters until the difference in the L.L. readings (contrast) of the picture areas in question will become greatest. Select that filter which gives the greatest difference in the L.L. readings to properly reproduce the contrast.

The Spotmeter will also help correct illumination not only in color but also in black-and-white photography. The reproducible contrast of a picture area is limited within a certain range as stated earlier. The Spotmeter readings of the various important picture areas will indicate which areas should be additionally illuminated.

## Battery Checker and Replacement



The battery checker button (17) checks the life of the 9V dry battery. Look through the viewfinder, and depress the battery checker button. If the needle moves to the black mark between the figures 7 and 8, the dry battery is still active. If it does not move to this mark, replace the battery.

The mercury battery usually lasts for about a year, and when it is not active, the needle will not move rapidly against bright light. It should usually be replaced after one year's use. When replacing batteries, use a correct replacement battery.

For replacing the mercury battery, unscrew the battery housing cover with a coin. When inserting a new battery, be sure that the (+) side is UP.

For replacing the dry battery, remove the retainer (A) of the strap by unscrewing it, and turn the lever (B) to the direction of the arrow, and the whole housing of the mercury battery will spring up. Open it as illustrated, and drop the dry battery from inside the meter's grip. When inserting a new dry battery, make sure that it makes correct contact with the (+) and (-) terminals.

## Cine Index

Between 30 and 60 on the shutter speed scale is a red index. This is the index for 24/fps cine speed. For 18/fps cine speed, use the calibration 30 (1/30 sec.). Use the f/stop number facing this red index (for 24/fps) or the calibration 30 (for 18/fps).

Click here for [CONVERSION OF L.L. VALUES TO CANDLE POWER/FOOT LAMBERTS  \$K = 1.3\$](#)

## ASA & DIN Scales

The DIN scale (3) is calibrated in green from DIN 9 to 39, with every third number fully indicated (9, 12, 15, etc.), and the balance are indicated by markings.

The ASA scale (12) has the following calibrations in red. (The figures under a dash are merely indicated by markings).

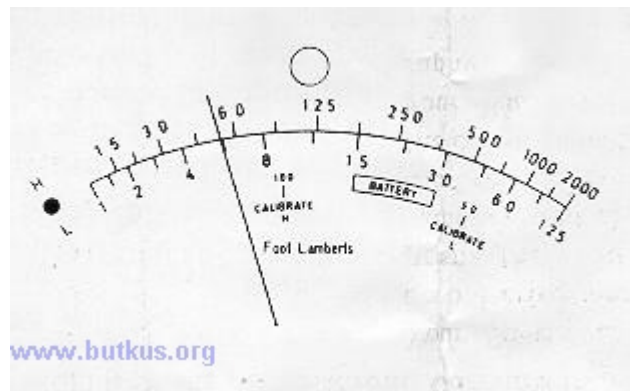
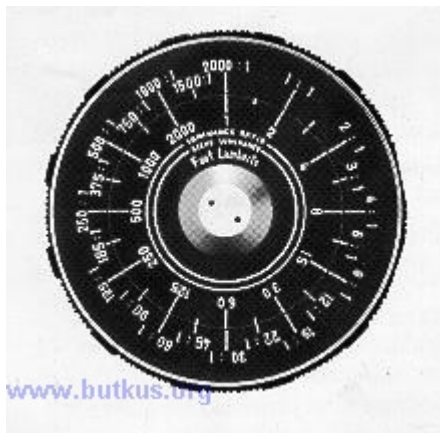
## Zero Adjustment

After the mercury battery is taken out, the needle should rest at the zero point of the light-level scale. If the meter's needle is off the zero point, turn the zero adjustment screw (16) with a screw-driver to bring the needle to the zero point. When making this adjustment, the mercury battery must be removed from its housing.

## Color Correction

Your Spotmeter contains an optical system consisting of an objective lens, reflex viewing system including a pentaprism (the same pentaprism as used in the Asahi Pentax camera), and an eyepiece. The reflex viewing system and the CdS cell have a special coating which properly corrects the color sensitivity of the light-sensitive element, making your Spotmeter highly accurate in critical color photography.

## ASAHI PENTAX SPOTMETER MODEL "FL"





The Model "FL" Spotmeter is identically same as the Model III in mechanical and optical construction with the exception of the viewfinder scale and the calculator. The viewfinder scale directly reads Foot/Lamberts; the inside scale of the calculator on the side of the meter is the Foot/Lamberts calibration, and the outside scale indicates luminance ratio.

If, for instance, the brightest spot in a given area reads 1000ft/L and the darkest spot reads 2 ft/L: Set the 2 ft/L calibration (inside scale) of the calculator below the luminance ratio 1:1 (outside scale), as illustrated. Observe the luminance ratio number (outside- scale) matching the 1000 ft/L calibration (inside scale). You will note that the luminance ratio is 500:1.

The operation of the Model "FL" is identically same as the Model III.