

FOREWORD

Your METER is without question one of the most practical, least complicated, easiest and accurate made thus far: If you observe these few informative pointers, you will become expert in its use after the first using.

- Set film speed ASA
- Set pointers (Color marks) for, "Cover Closed", "Cover Open" or "Cover Open and Booster Open."
- Point meter toward object or subject.
- Place chaser bar with green circle, over pointer, then choose your f/stop and shutter speed.
- Because of the expert craftsmanship and the highest grade of materials used, you may expect this meter to give you many years of satisfaction. Also, due to the high rating ASA 6 to 12 thousand, this meter will not become outmoded due to high emulsion speeds being steadily raised by manufacturers.

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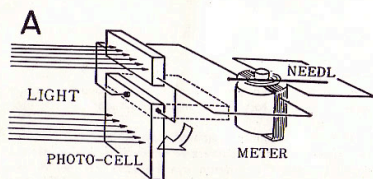
WHAT IS A PHOTOELECTRIC EXPOSURE METER?

Briefly described, a photoelectric exposure meter is a precision instrument which, by means of a photoelectric cell or cells, measures primarily brightness level. It also provides that the measured brightness be translated into photographic factors for the determinations of the correct exposure of sensitized film.

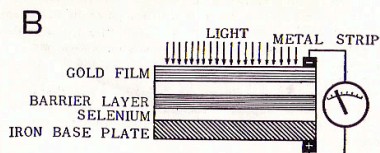
It is important that the beginner appreciate that, although this instrument is infinitely superior to the human eye in evaluating the intensity of light, it has no magical powers. The human eye focuses sharply at a small angle, it is sensitive to light but also possesses the power of accommodation to various levels of lighting. It is well known that this accommodation takes some time, as long as two hours. On the other hand, the photoelectric cell is extremely sensitive to the slightest variance in light intensity and records this instantly. However, the meter provides only an average of all the various light rays from the highest to the darkest parts of angular field it was designed to cover. It does not "see" specific high lights, shadows, colors, etc.

In the hands of a thoughtful photographer, the Sekonic Auto-Leader L-99 meter is indispensable for determining consistently the correct exposure under all conditions of lighting. Read the instructions carefully. Make experimental exposure factors. In this way, you will soon achieve complete mastery of the all-important photographic problem—correct exposure.

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HOW YOUR METER MEASURES BRIGHTNESS

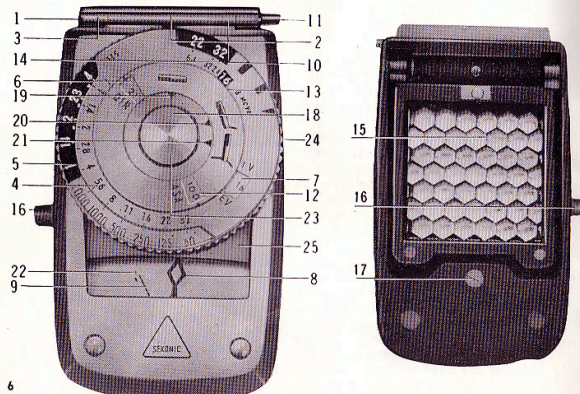


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Study the diagram on the opposite page. There are two photoelectric cells, the main cell and the amplifier cell. The latter is called the "Flip-Up Booster." It is not operative until it is brought to the right-angle position as shown in fig. A. Each photoelectric cell is covered with a lenticular window which permits light coming from a certain angular field to be focussed through a baffle on the photoelectric cell below. The cell is known as a barrier-layer type of selenium cell. A diagram of its parts is shown in fig. B. When this type of cell is exposed to light it becomes a self-generating source of electricity. The reason for this phenomenon is not fully known. It is believed that under the impact of light particles (a form of energy) electrons within the selenium are freed.

Some of the free electrons move towards the barrier-layer and a greater number towards the metal base. Thus a potential difference is caused and this results in the flow of a very small electric current. The strength of the electric current is proportional to the intensity of the light falling on the cell. The current is conducted through a very sensitive microammeter to which is attached a pointer. The pointer is deflected in proportion to the current. Therefore where this deflection is measured against a scale, we have obtained an average value of the intensity of light or brightness. When the flip-up booster is switched in, the sensitivity is increased 400% and we can obtain a value in very low level illumination.

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- | | |
|---------------------------------|------------------------------|
| 1. COVER (BAFFLE) | 13. MOVIE CAMERA SPEEDS |
| 2. SLIT | 14. MOVIE f/STOPS |
| 3. RED MARK (Dot) | 15. FLIP UP BOOSTER |
| 4. f/STOPS | 16. STUD FOR FLIP UP BOOSTER |
| 5. SHUTTER SPEEDS | 17. ZERO ADJUSTMENT SCREW |
| 6. DIN INDEX WINDOW | 18. RED NOT |
| 7. LVS AND EVS NUMBERS | 19. RED MARK (Closed) |
| 8. CHASER BAR | 20. BLUE MARK (Open) |
| 9. POINTER | 21. BLACK MARK (Amp) |
| 10. BLUE MARK (Bar) | 22. ZERO MARK |
| 11. COVER OPENING BUTTON | 23. CENTER DISK |
| 12. ASA INDEX WINDOW 6 to 12 M. | 24. INNER DIAL |
| | 25. MAIN DIAL OR OUTER DIAL |

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THE BASIC OPERATION OF THE METER

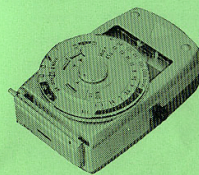
The METER is used for metering reflecting light. This is the light that is reflected from objects towards your camera. The main photoelectric cell is sufficiently sensitive to give considerable response to bright lighting when the cover above its window is closed. In this condition, the cell receives only the light that enters through the slit. The flip-up booster is used when the intensity of the light is so low that there is little or no deflection of the pointer when the cover over the window of the main cell is open. The meter measures for three degrees of illumination which we term bright, dull, and dim.

In order to make a precise determination of the factors for the correct

exposure, The METER provides three index markings on inner dial plate. Along side of the mark " — " should be pointed at the red dot on the center disk when the cover is closed and the booster cell is closed.

The blue mark " — " is placed over the red dot when the cover is open. The black mark " — " is placed over the red dot when the cover is opened and the booster cell is opened and snapped in place.

The first two marks refer to the condition of the cover over the main cell window. The cover has a blue index bar, when it is open, and a red dot when it is closed.

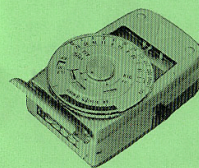


(A)

When metering, the simple rules to observe are these.

For bright outdoor and indoor illumination, CLOSE the cover and use the RED index or MARK " — " over the red dot on disk.

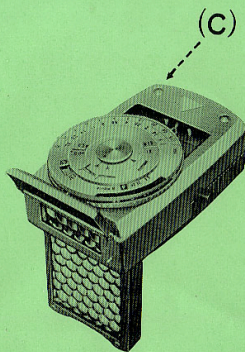
For dull conditions, OPEN the cover and use the MARK " — " Center same over the red dot on disk.



(B)

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(C)

For dim conditions, OPEN the cover, release Booster, by pushing the button, pull up until Booster clicks in place, then use black MARK " — " Center same over the red dot on disk.

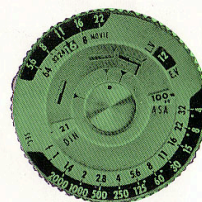
Naturally you must be guided by the deflection of the pointer. Too much light entering the meter will deflect the pointer beyond the extreme right end.

When there is too much light, snap the booster shut and close the cover, thus reducing light entrance. Unlike other exposure meters, the lack of Guide Lines has eliminated any confusion in obtaining exact readings. The simplicity of just lining up the chaser bar and pointer gives an immediate and accurate reading.

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THE CALCULATOR OR COMPUTER DIAL

consists of three dials. The manipulation of the dials is very simple. You will find it easy to rotate them to any setting, using your thumb.



FILM SPEED

This may be set by the calculator dial, Film Speed Setting Dial for the ASA or DIN value. You obtain either of these values from the film manufacturer's leaflet accompanying the film. Turn the dial so that the small black mark on the edge of the ASA or DIN window opposite the corresponding speed rating. Note that there are small divisions between the ASA or DIN numbers for intermediate values.

After setting the relative index (red, blue or black) mark over the red dot on disk, the calculator dial gives you automatically all the exposure factors need for still, movie cameras, and LVS or EVS shutters.

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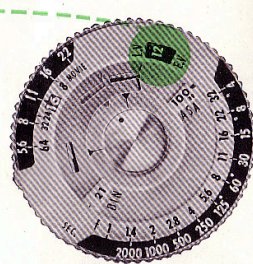
LVS AND EVS SCALES

This is shown by the numbers within the window marked "E. V." and "L. V.".

EVS is another name for LVS. This scale is used if your camera is fitted with a special lens which incorporates shutter for the light value or exposure value appropriate marker and then read the L. V. (or E. V.) number from the dial.

Now set this value on the lens of your camera.

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CONVENTIONAL FACTORS

These are the shutter speed and f/ number (lens stop) that apply to an index setting. They are the series, 1 through 22 (f/numbers) and 1000 through 8 (shutter speeds). Unnumbered line next to 1000 represents 2000.

In the latter series the black figures 1, 2, 4, 8, within white squares represent seconds; the remainder, fractions of seconds. You use the sections of these two series that are opposite to ascertain the shutter speed and lens stop combinations.

It is for you to determine which combination is best for the subject. If you wish to stop action, you select a high

shutter speed. If on the otherhand, your subject has to be photographed to show considerable depth of field, you select the suitable lens stop.

To give you an example how this combination works, set the ASA speed of 100, center the red triangle (Closed) over the red dot on disk, rotate the dial clockwise so that the chaser bar stops at the right end.

Note that for the highest shutter speed, 1/2000th sec., the lens stop is f/1.

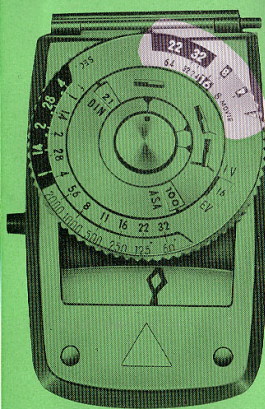
All the combinations down to f/22 will permit the same amount of light to fall on the film.

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MOVIE CAMERAS

Since the shutter speed of the movie camera is a constant value, it becomes merely necessary to select the correct f/number for the number of frames per second (8 thru 64). The movie lens series is shown on red band 1 thru 22. Set the dial to the ASA or DIN value, locate the appropriate index against the red dot on disk, stop the chaser bar above the deflected pointer, and then read the f/number of frames per second you intend to operate your camera. Since the normal operating speed is 16 frames per second, it is indicated by a bold white figure within a red square.

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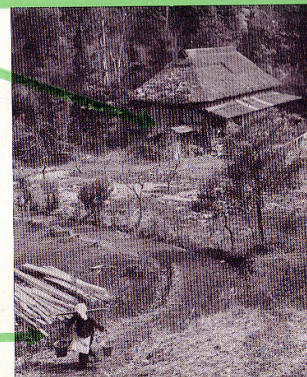
GENERAL SCENE

Outdoors, the light from the sky often predominates when the meter is pointed directly at the center of a scene. It is better to point the meter downwards to exclude the sky lighting.

This will give a slightly slower exposure time and improve the tonal balance of your picture. For black-and-white films, better balance is often obtained by using a light yellow filter. Do not forget to compensate for the factor of the filter used.

If you are a beginner in photography make some experimental exposures to gain confidence.

PRACTICAL PHOTOGRAPHY WITH THE METER.



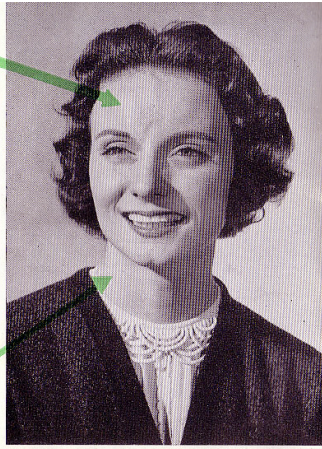
CLOSE-UP METERING

This is always the most satisfactory method but not always possible. Taking your meter close up to the subject entails some care. Four to six inches distance is about right but be careful not to let the meter cast its shadow on the surfaces you are metering.

Measure the intensity of light from various parts of the subject. You will then appreciate the considerable differences between the reflected light from differently colored objects or surfaces.

Expose for the average value of the various readings you make. Refer to the notes under "Color Photography."

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INACCESSIBLE OBJECTS

A compromise exposure value can be determined by measuring the light reflected from the palm of your hand.

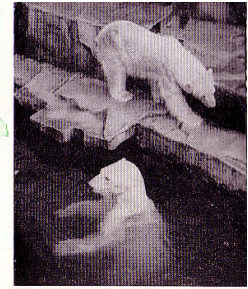
See that palm of your hand is facing the direction of the light falling on the subject before making a reading.

Human skin has a reflectance value of 35% and is therefore reliable for determining the correct exposure for flesh tones. Black objects have a reflectance value of 5% or less, whereas white objects may be as high as 90%.

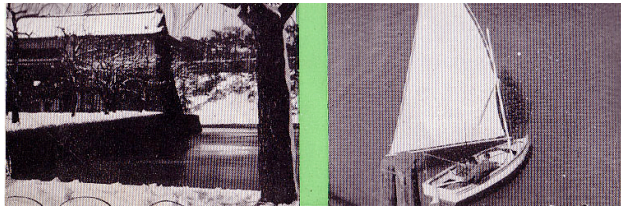
For important exposures, take three shots in a bracket. With black-and-white films expose at the f/stop you estimate first and then make two more exposure

using a full stop above and below that for the first exposure.

With color film the difference should be not more than one-half stop.



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SNOW SEA AND WATER

Here you have to be concerned with the extremely high reflectance value of these subjects. Almost invariably, a meter reading of the mid-portion of the scene will result in overexposure. Take two or three readings from different objects nearby and expose for the average value.

The general rule is increase your shutter speed by 50 to 100% or close down the lens by one or one and one-half stops to compensate for extremely high reflectance. The use of filters is recommended for these scenes.

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COLOR PHOTOGRAPHY

The photographer has to consider several factors, the quality of the light, the type of film being used and the composition. You must be guided by the film manufacturer's recommendations to compensate for changes in the quality of light relative to the type of film used. Again, the processing of color film involves a reversal method which produces different results from the making of a black-and-white print.

In exposing for black-and-white pictures, you should take care in metering the shadows. Shadow detail is more important for these pictures; the high lights will look after themselves. The opposite applies for color transparencies. Pay special attention to measuring the high-lights of your subject. However, do not forget important shadow parts such as person's face shielded from the sun. Bracket your exposures, using one half



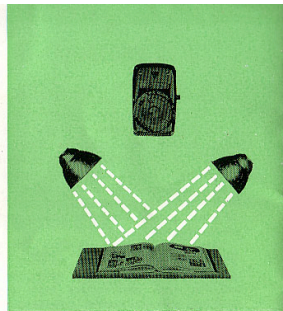
stop or one-third-stop changes for important color photographs.

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COPYING

This is usually done with artificial lighting. Generally the illumination is about the level for the meter to be used with the cover open where you will of course use the blue mark. Hold the meter window parallel to the surface of the subject being copied and about six inches away. Be sure that the meter and your hand cast no shadow over the part being measured. Meter several portions of the subject and adjust your illumination so that the pointer shows that subject is uniformly lighted.

If your copying is done with a long extension of the lens, be sure to make allowance for increase of exposure in the image magnification of the subject.



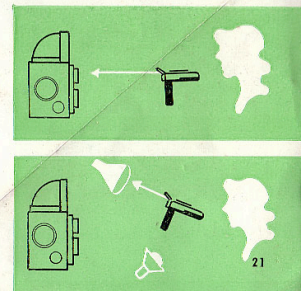
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VERY DIM ILLUMINATION

At times you may want to make an exposure under lighting conditions where the pointer is not appreciably deflected with the flip-up booster in operation. In this case, a fairly good exposure may be obtained by measuring the light intensity of the source, say an open window or distant artificial lighting. From the position of the subject, point the meter with the cover open and the flip-up booster switched in, at the principle source of light falling on the subject. The exposure combination that you select with the black mark index should be multiplied by 10. For example, if for a lens opening of f/11, the shutter speed is one-fifth second, the correct exposure time is then two seconds (10 times one-fifth).

You may find the factor not to be

always correct. This factor may vary between 8 and fifteen or more. Use a tripod for exposures for a twenty-fifth of a second and longer.



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TECHNICAL DATA

The exposure to photograph an average scene is determined by this formula:

$$\text{For Reflected Light } T = \frac{K \cdot A}{B \cdot S}$$

T: Exposure Time in Second

A: Relative Aperture (f/stop)

B: Brightness, reflected light, in Candles per sq. ft.

S: ASA Film Index.

K: ASA Calibration Constant, Reflected light.

WARRANTY

The METER has been carefully inspected before shipment. Should it prove to be defective within 90 days after date of purchase, it will be repaired or replaced free of charge.

This guarantee does not apply to meters which have been mishandled or tampered.

CARE OF YOUR METER

THE METER is a high-class precision instrument. Treat it carefully and it will give you years of service. The very sensitive microammeter is protected from normal shock by special ruggedization. The photo-electric cells will not, for reason of the free electron phenomenon run down or become weak. The following points should be observed:

ZERO ADJUSTMENT

Check the meter periodically to see that the pointer exactly opposes the zero mark when all light is excluded from the window of the main cell and the flip-up booster is retracted within the body of the meter.

Should it be 'off zero', the screw located at the back of the meter near the catch for the flip-up booster. A small turn is sufficient to center the

pointer correctly at zero.

1. Do not subject the meter to rapid changes of temperature or humidity. Never place the meter on a magnetized material. In case this condition lasts, it is quite possible that the meter becomes inoperative.
2. Be careful not to drop it or jar it suddenly as this will cause a displacement of the bearings of the microammeter or more serious damage.
3. When not in use, keep it stored in its carrying case in a cool, dust free place.

CONSISTENT OVER OR UNDEREXPOSURE

This sometimes happens. In this case make the necessary compensation by setting the ASA or DIN value slightly over or below (as the case may be) the value given by the film manufacturer. Do not be afraid to experiment. This is the stamp of a serious photographer.

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