

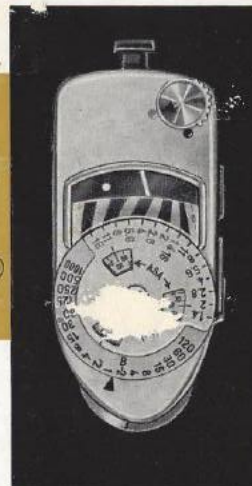
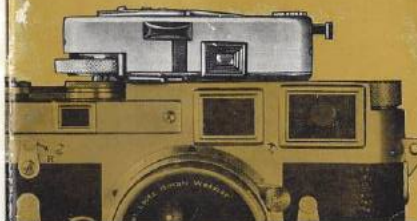


METRAWATT AG NURNBERG

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"AIMED" MEASUREMENTS FOR
PRECISE EXPOSURE DETERMINATION



WITH THE

Leica-METER MR

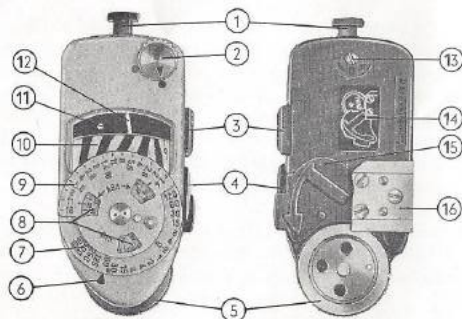
Your Leica-Meter MR

is a precision exposure meter with a sensitive cadmium sulfide photo resistor. It has been designed to couple to the shutter speed dial of the Leica M2 and M3 cameras. Its main advantages, compared to former models, are the high sensitivity and the narrow acceptance angle, which is the same as the angle of coverage of a 90 mm Leica lens. This makes it possible to sight the important subject area through the 90 mm frame of the Leica viewfinder and thereby increase the accuracy of aiming the meter. When the measurement has been completed, the needle indicator is automatically locked so that the reading may be evaluated easily and without being affected by skylight, shadows, etc.

You will find that measuring with your Leica-Meter MR is very easy as soon as you have become familiar with the instrument. So, this pamphlet will not only explain the instrument to you, but also will answer many of your questions about measuring the exposure time.

We hope you will enjoy this instrument and wish you many pleasant hours of photography with your new Leica-Meter.

Using your Meter



- 1. Needle Release Button.** Pressing this button for about two seconds releases the indicator needle to measure the light level. When you release the button, the needle automatically locks in place, indicating the illumination "read" by the meter.
- 2. Measuring-range selector switch.** For measurements in bright light, switch to the black dot; in poor light, use the red dot. When measuring outdoors in daylight, always switch to the black dot (see page 10).
- 3. Light window** with optics for the photo resistor. This controls the picture area measured by the exposure meter. It is equal to the field of the 90 mm viewfinder frame of the Leica M2 or M3.

- 4. Battery-testing switch.** To test the battery (Mallory PX 625), slide this switch (4) as far as it will go in the direction of the light-window (3). The needle (12) must then line up with the white battery-testing dot visible in the black area below the needle (11) (see page 6). If this is not the case, you must install a new battery.
- 5. Knurled knob** with coupling pin. This serves to rotate the scales (7) and (9) and, when coupled with the Leica, sets the shutter speed on the camera.
- 6. Black triangle** for indicating shutter speeds.
- 7. Time scale** for shutter speeds of $\frac{1}{1000}$ sec. to 120 secs.
- 8. Film speed scale** for setting the film speed in ASA or DIN.
- 9. Lens aperture scale:** black for high and red for low intensity according to the setting of the measuring-range selector switch (2).
- 10. Channel scale** with alternating black and silver channels from which you can read off the correct aperture setting with one glance.
- 11. Battery-testing point** [see (4)].
- 12. Indicator needle.** The needle is released by pressing the needle release button (1). It locks in position when you remove your finger from the button.
- 13. Zero-set screw for readjustment of indicator needle** (in case this has shifted). Take out the battery and press the needle release button (1). (see page 13).
- 14. Instructions** for installing the Mallory PX 625 battery.
- 15. Battery housing lid.** Set the shutter speed dial to a value between two and four seconds (see page 7, "Testing Battery"). You can then swing out the lid by turning it in the direction of the arrow.
- 16. Accessory foot** to attach meter to the accessory shoe of the Leica M2 and M3.

Detailed description

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Testing the battery

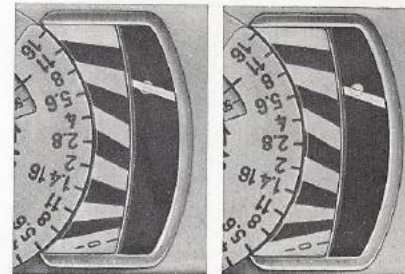
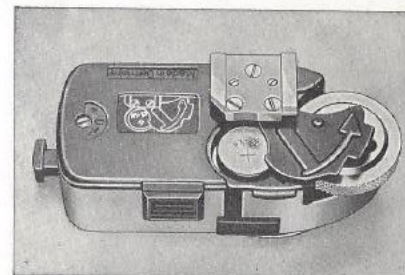
The mercury-oxide battery Mallory PX 625 has a life of approximately two years in normal use. To check its condition, push slide switch (4) in the direction of the light window (3) as far as it will go, and keep the switch in this position. The needle release button (1) should not be touched. If the battery is still good, the full width of the needle will be over the white check dot (11). If the lower edge of the needle is below the check dot, replace the battery with a new Mallory PX 625. To do this, set the shutter speed dial between 2 and 4 seconds by turning the knurled knob (5) in the direction of the arrow as far as it will go, lift it slightly, and continue to turn until the black triangle points between 2 and 4 on the shutter speed dial. You can now swing open the lid of the

battery housing in arrow direction at the base of the meter until the battery is exposed. When installing the new battery, please pay attention to the correct position according to instructions (14) on the bottom of the exposure meter. We recommend that you replace an old battery before going on any long trip. These batteries are available at your photo dealer.

Attention: Please use **Mallory PX 625** batteries only, if possible. They are especially manufactured for exposure meters. **Mallory PX 13** batteries will also operate, provided no readings are taken at lower temperatures than 10°C below freezing point (14°F). Both batteries have a lifetime of about 2 years at normal use.

There are other batteries on the market with the same dimensions, but of different voltages. These, however, could lead to wrong readings with the Leica-Meter MR. You can check the suitability of another battery of the same dimensions by testing it. If the needle is completely within the white check dot area (11), the battery is useable.

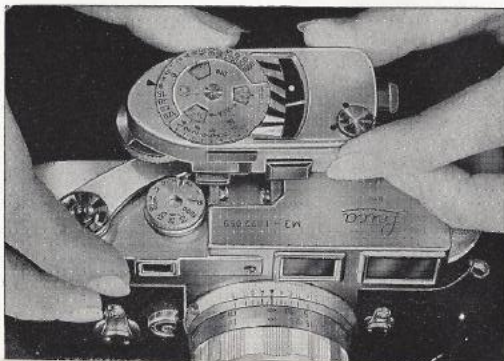
above: battery-housing partly open
below left: battery in order
below right: please change battery



Mounting the Leica-Meter MR on the Leica M 2 and M 3

Set the shutter speed dial of the Leica to "B". Turn the knurled knob (5) of the exposure meter in arrow direction as far as it will go. In this position, you can lift the knob slightly and then continue to turn in arrow direction. Now push the accessory foot (16) of the exposure meter into the accessory shoe of the Leica camera as far as it will go. To couple the meter with the shutter speed dial of the Leica, turn the knurled knob (5) back until it drops and locks into the shutter speed dial of the camera. Leica and exposure meter are now coupled. You can read off the shutter speed at the black triangle (6).

To remove the meter, again turn the knurled knob (5) to "B", lift and uncouple it by turning it in arrow direction.



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Selection of measuring range

The Leica-Meter MR has two measuring ranges, the red one for low light and the black one for high intensities. In the black measuring range, a stop is introduced into the path of light rays entering the meter. Set the appropriate measuring range by means of the selector switch (2). If, when using the second measuring range (black), you obtain figures which are below the third field, switch over to the first measuring range (red). It is easier to read off there. Always use the black measuring range outdoors to avoid "fatiguing" the photo resistor. It will not suffer any damage when used in bright light with the red setting, but the cell will take time to recover from the glare when you switch over to the black measuring range. For this reason, also avoid pointing the Leica-Meter MR at the sun in either range. Also, see to it that the selector switch (2) is always turned all the way to its stop and is kept in this position.

Acceptance angle of the Leica-Meter MR

The acceptance angle of the Leica-Meter MR is about equal to the angle of coverage of a 90 mm Leica viewfinder. With the meter mounted on the Leica M 2 or M 3, the 90 mm bright line frame of the viewfinder will outline the area from which you take a reading with your meter.



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Film speed and filter factors

Set the speed on the film-speed scale with ASA and DIN settings (8) according to the film used. A filter factor can be accounted for by dividing the ASA speed value by the filter factor, and then setting the resulting (lower) value on the ASA scale. If your film has a speed of 100 ASA for instance, and you work with a filter factor of 2,5, set the scale at 40 ASA.

Attention: Don't forget to reset the film speed scale to its original value when you shoot without filter again.

Calibrating the meter along with film and camera

The Leica-Meter will give you exact exposure data for both black and white and color film if you set the film sensitivity recommended by the manufacturer. If, however, you personally prefer a picture that is slightly lighter or darker than average, you should adjust film, camera and exposure meter to each other by taking some test pictures. With these as guides, you can then adjust your meter setting, by resetting the film speed, to produce the quality you want.



How to operate the meter

Mount the meter on the Leica camera (see page 8). Press the frame selector lever toward the lens with your left middle finger. This will introduce the 90 mm frame in the finder. Aim at the subject through the 90 mm frame and with your left index finger push in the needle release button (1) as far as it will go. This will release the indicator needle to register the proper light value in the meter. After about 2 seconds, slowly release the button to lock the needle in position.

If you should occasionally employ the Leicameter MR detached from your camera, direct the meter toward the important subject areas. In such cases it is recommended to take a close-up reading (see page 14.2).

(You will find a description of the four basic measuring methods which can be used with the Leica-Meter MR as well as further references for taking pictures from page 13 onwards.)

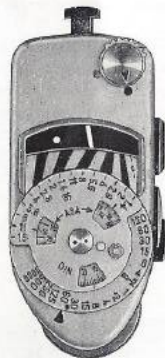


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You may evaluate the figures you obtain with your Leica-Meter MR as follows:

For a predetermined lens stop

Rotate the knurled knob (5) to line up (on the outer dial) the f stop number at which you have set your lens with the same channel in which the indicator needle has come to rest. Use the red scale when the measuring-range selector switch (2) is on red, and the black scale when it is on black. This automatically adjusts the camera shutter speed dial for the correct speed. The black triangle shows the shutter speed which is set. The example demonstrates $1/60$ sec. at stop 8.



For a predetermined shutter speed

Rotate the knurled knob until the black triangle is opposite your selected shutter speed. Set your lens to the f/stop number which is facing the same channel in which the needle has come to rest. Use the red scale with selector switch (2) on red and the black scale with the switch set on black.

The knurled knob (5) is coupled to the shutter speed dial of the Leica for speeds from 1 second to $1/1000$ sec. Intermediate speeds can be used with two exceptions: between $1/8$ sec and $1/15$ sec and $1/30$ and $1/50$ sec (the red dot between $1/30$ and $1/60$). Use these speeds only at their click stops.

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1. From camera position

In most cases, you will be able to use this method. Aim at the subject to be photographed from camera position using the 90 mm bright-line frame of the Leica. Possible reading errors are thus avoided, because you can isolate the important subject area with the viewfinder frame. For instance, if you want to photograph a landscape, you can eliminate the bright sky by pointing your Leica with attached Leica-Meter downward, until the bright sky disappears from the rangefinder picture, and then measure the exposure.

2. Close-up method

If subject and conditions permit, you can take a close-up reading from a distance of 6"—12" from that part of the subject which is most important to the picture. If in color photography, you want to render exact skin tones, a close-up reading is the best because it disregards all other parts.

Be sure that your own shadow does not fall on the subject area within the measuring angle of the exposure meter. Also, choose an area of medium tone compared to other parts of the subject to be photographed, unless you want to obtain special effects. When you take a reading of a face in a scene with other considerably brighter subjects, it is best to use a lens aperture which is smaller by one stop than the reading of the meter, to avoid over-exposure of the highlights.

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The red dot on the shutter speed scale (7) stands for $1/250$ th second. It is used for electronic flash synchronization. On the shutter speed dial of the Leica, it is marked with a red lightning symbol.

For shutter speeds longer than 1 second, uncouple the knurled knob (5) by lifting it in the position "B" and turn it as you would when taking off the meter (compare page 8). You can then read off the times above 1 second on the exposure meter.

Checking of indicator needle zero setting

If the indicator needle (with the battery removed and the needle release button pushed in [see battery testing]) doesn't point to zero, the zero position can be adjusted with a small screwdriver by turning the screw marked "0" (13) on the bottom of the exposure meter.

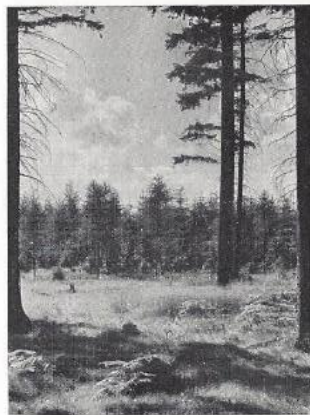
Four basic measuring methods

Now that you are familiar with your Leica-Meter MR, learn the following basic methods which are used for measuring the light reflected from the subject to be photographed. They take into account the narrow angle of acceptance of the Leica-Meter MR.

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2. Close-up method



1. From camera position

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3. Substitute object method

Sometimes it is not possible to measure the actual subject you want to photograph. This problem occurs frequently with remote objects and even with closer subjects when fences, windows or other things prevent a close enough approach. It also occurs with relatively small objects. In these cases, you can easily measure a substitute object, if the illumination on it is the same as that on the subjects to be photographed. One good substitute object is the palm of your own hand; hold it so that it is illuminated in the same way as the part of the object to be photographed. However, the substitute object must have a tone similar to that of the actual subject. If this is not the case, you will have to expose more or less than the meter reading according to the difference in tone.

4. Range-of-brightness contrast measurement

Use this measuring method when your subject is contrasty, and if there are many different tones of brightness. In its simplest form, this measuring method consists in measuring both the brightest and darkest parts of the subject, which are important to the picture. To do this, aim through the viewfinder of the Leica at each of the two parts, noting the exposure for each. Then select an exposure which is in between these two values. For instance, if you need $f/11$ for the brightest part, and $f/2.8$ for the darkest part with the same shutter speed, use $f/5.6$ for the exposure, at the same shutter speed. This aperture is halfway between the two extremes.

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General hints for measuring

Here are some tips for selecting the subject areas to measure, and for adjusting the exposure in special cases:

Almost every subject is composed of areas differing in brightness. If you aim at a very dark spot with your Leica-Meter, you will obtain over-exposure for the rest of the picture. If, on the other hand, you aim at the brightest part of the object, you will get an under-exposure. But if you select an area of medium brightness (unless you want to obtain special effects) or a range in which bright and dark parts are equally represented, and use this for reading the exposure, the bright and dark parts in the picture will retain a more natural effect in the picture.

Exception: With color reversal (transparency) films, overexposure results in considerably less attractive pictures than does underexposure. So, always use the **brighter areas** of the subject for measuring (but not white ones). Expose for the highlights.

Below are some special situations in which correction of the measured exposure time is generally necessary:

Snow pictures

If there is more than 80% snow in the measuring area, open up one f /stop.

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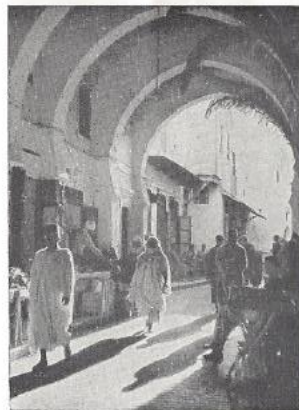


3. Substitute object method

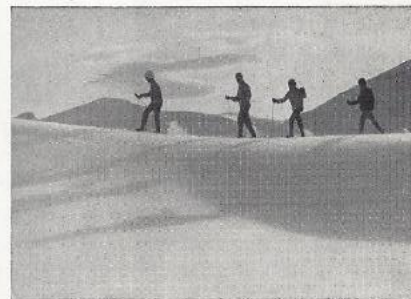


4. Range-of-brightness contrast measurement

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Photograph showing tones of different brightness



Snow scene

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Night scenes

Pictures taken at night and those containing large areas of dimly-lit subject matter require exposure adjustment.

A correct reading can be obtained only if you can make a close-up reading of the most important subject area (see page 14). If this is not possible, you can reduce the exposure by 1-2 stops according to how much of the picture area is dimly lit. For instance, a spot-light illuminates only a small part of the scene in a show. The meter, seeing a large dark area as well as a small bright one, would indicate too high an aperture.

Side- and back-light

When taking photographs against the light, as, for instance, outdoors with the sun low, there are three possible exposures, each of which gives a different effect:

- when the brightest areas are correctly exposed, objects or persons appear in silhouette.
- when the brightest areas are overexposed, shadows in objects or persons are correctly exposed.
- when the brightest areas are slightly overexposed, shaded areas are slightly underexposed.

In the first case, you would aim the meter at the brightest areas, in the second case at the shadows (Close-up readings. See page 14). In the third case, you measure the shaded parts and expose by about one f/stop less than indicated.

When taking side-lit pictures, it is best to use the range-of-brightness contrast measurement (see page 16) whereby you determine the exposure by measuring the brightest and darkest portions.

Stage photograph



Back-light photograph

Technical Data

Calibration values of the Leica-Meter MR

Channel	1	2	3	4	5	6	7	8	9	
Range 1 (red)	1.6	3.2	6.4	12.5	25	50	100	200	400	asb
	0.15	0.3	0.6	1.15	2.3	4.6	9.2	18.4	37	ftl
Range 2 (black)	200	400	800	1600	3200	6400	12500	25000	50000	asb
	18,4	37	75	150	300	600	1150	2300	4600	ftl

Units of luminance: Apostilbs (upper row) and Foot-Lamberts (lower row)

A measurement at 100,000 apostilbs/9200 footlamberts is possible. The indicator needle will then pass channel 9 in range 2.

Angle of acceptance

horizontal about 21°, vertical about 16°.

This angle of acceptance is equal to double the angle of acceptance according to DIN 19010 resp. to double the specific acceptance angle according to ASA PH 2.12—1961.