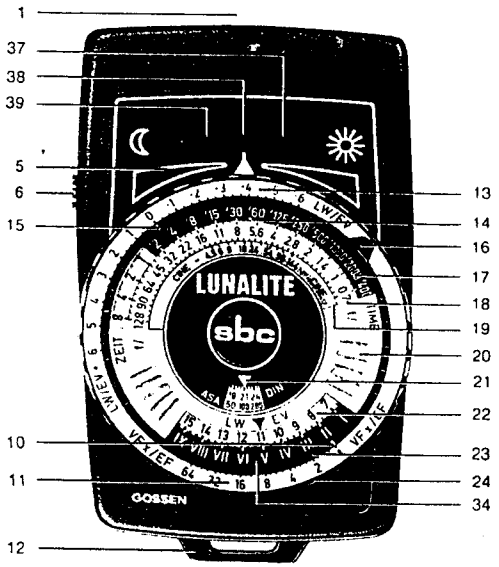
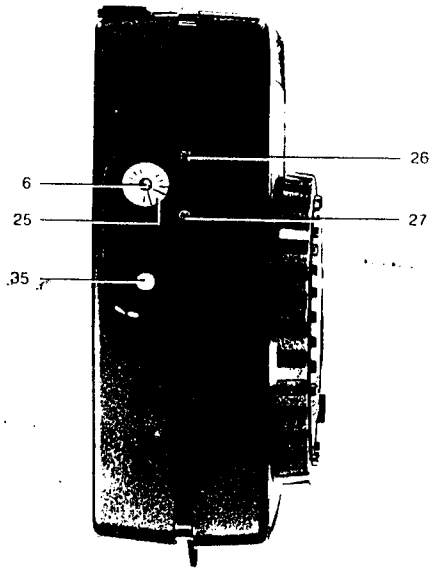

GOSSEN
LUNALITE





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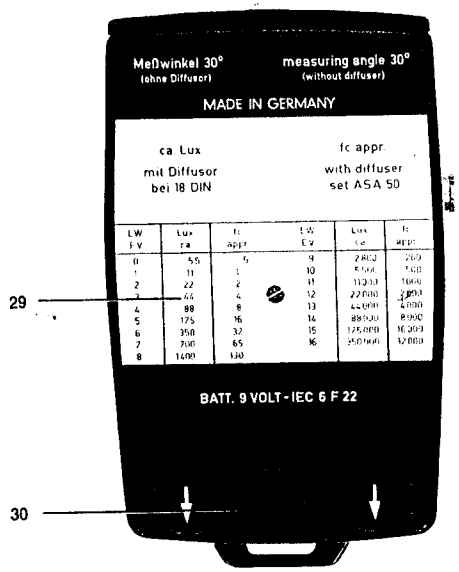
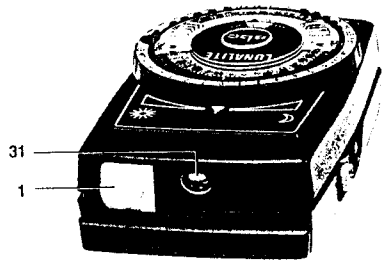




The LUNALITE

is one of the high quality precision meters

GOSSEN

is manufacturing for the light measuring technique.

Your LUNALITE is a very valuable meter, precisely manufactured and accurately calibrated. The built-in silicon photo diode (silicon blue cell) achieves an instant measuring response, even at extremely low light levels. Its superior filtration results in a spectral sensitivity of outstanding character. The LUNALITE will answer all questions which might arise concerning photographic exposure reliably and precisely. It will help you to determine the correct exposure data for photographs which will rank high above the average as to picture quality and creative composition. This instruction booklet will give you many valuable suggestions to assure you of getting consistantly good results.

Before you Start Measuring

Set the Film Speed

Turn the film setting disk (20) by its ribs until the DIN/ASA index number of your film is lined up with the white triangle (21) above the DIN/ASA scale window.

Make sure the black cover (16) conceals the red signal; the white index line (15) must be at the red "0", and the opposite white index line (10) at "1" (Standard Setting). You can rotate the inner setting ring (23) by its raised cleats or by the black cover (16) to adjust the setting (see page 7).

Replacing the Battery

The LUNALITE is using a 9 V battery of the type IEC 6 F 22 or a rechargeable battery IEC 6 LF 22*. It is being supplied with a commercially available Alkaline battery. As long as you can still clearly see the light emitting diodes, measurements can be taken with the LUNALITE. If the read-out is too feeble, the battery must be replaced. For this purpose, open the battery chamber (30) on the back of the LUNALITE by sliding the cover off in the direction of the arrows.

* These international standard designations correspond to the following brand names of batteries (just some examples):

Mallory MN 1604 (Alkali)	Varta Super 438	or the rechargeable
Daimon no. 332	Novel 006 P (T)	battery Varta 4022 for
Daimon no. 333	Novel 006 P	which a reasonably priced
Mallory M 1604	Maxell S-006 P (G)	battery charger is available

Measurement

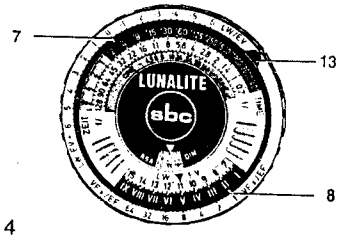
The two methods of measuring – reflected or incident light measurement – are described on pages 13 to 15. A hand held exposure meter like the LUNALITE is particularly well suited to the alternate application of either measuring method.

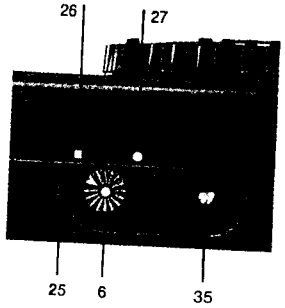
As the basic component of the LUNALITE system, furthermore, the LUNALITE provides the capability of programming for Extension Factors and Exposure Compensation Factors to give you direct read-outs without further calculations on your part (see page 7).

For measurements which will take somewhat longer the normal measuring cycle of the LUNALITE can be overridden for extended measuring times with the red measuring button (6) (see page 6).

Standard Setting

Measuring with the Standard Setting means that the red signal field is concealed by the black cover (16) and the white selector index (25) on the measuring button (6) is set at the square setting mark (26).





After the spherical diffusor (1) of the LUNALITE has been set for the desired measuring method, depress the red measuring button (6). The LUNALITE measures as long as this button is held down. When you release the button (6) the value measured at that moment will be automatically stored in the electronic memory of the LUNALITE for at least 60 sec.

Now press the green store-recall key (35) and rotate the computer ring (34) until only the central LED (38) will alone be on. The rotation direction indicators (5) will tell you in which direction – depending on the coming on of two other LED's (37) and (39) you will have to rotate the computer ring (24). You can now release the store key. You can also make this adjustment as long as the red button (6) is pushed without operating the store key (35). Read then suitable combinations of f/stops and exposure times (scales 17 and 18) or for motion picture cameras f/stops for a specific operating speed in frames per second (18 and 19); see also page 11.

As long as you do not move the computer ring (24) the measured value remains set on the scales.

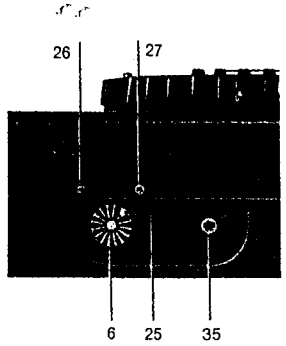
If you want to make a new measurement, push the red button (6), this clears the electronic memory. After releasing the measuring button the new measuring value will be stored.

Extended Measurement

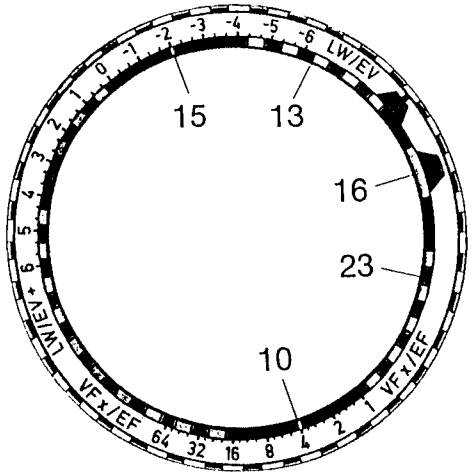
You can override the electronic storage to make measurements which require more measuring time (for example: extensive contrast measurements). For extended measuring, depress the red measuring button (6) and lock it in place by turning it so that the white selector index (25) is set at the round setting mark (27). Your LUNALITE now indicates the consecutive values of various measurements without storage, and the meter does not switch off automatically. Naturally, this also puts a heavier load on the battery.

To end the extensive measuring mode, depress the measuring button (6) and turn it to the left so that its white index (25) is set at the square setting mark (26) again. The value measured at the moment of releasing the button will be stored for approximately one minute, after which the LUNALITE switches itself off.

Please don't forget – after completing extensive measurement – to turn the white index of the measuring button to the square setting mark (26) so that the LUNALITE switches itself off after a minute.



Modification of Standard Exposure



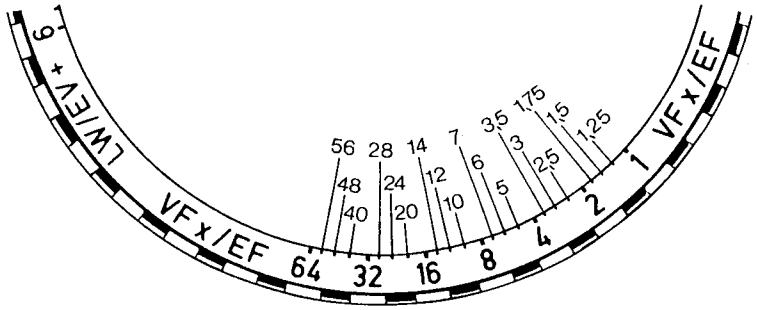
Specific modification of the standard exposure may be desirable or necessary for a number of different reasons, e.g. when using filters (filter factor or f/stop factors may be given), when using cameras with bellow extension, using extension rings, working with macro lenses, or to compensate for reciprocity failure (see page 18), or when using the zone system (page17).

You can set the applicable exposure value differences accurately on the outer scales (11) and (13): While holding the computer ring (24) rotate the inner setting ring (23) until one of the two white index lines (10) or (15) is set to the desired value. With such a setting the red signal under the cover (16) becomes visible to indicate, at a glance, that an extension factor or exposure value modification has been set on the scales.

Extension Factors

The scale for extension factors (11) is logarithmic. Intermediate factors indicated by scale lines are listed in the illustration.

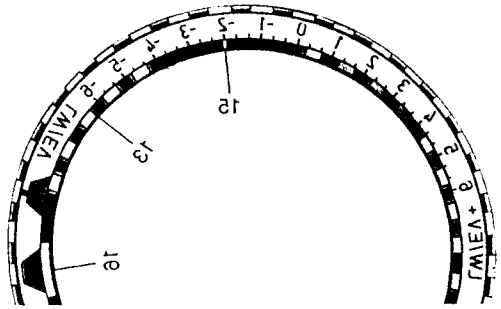
Example: You want to use a filter marked "4x". Set the white index line (10) of scale (11) to "4", as shown in the illustration on page 7. The filter factor will now be considered automatically in your measurements with the LUNALITE.



Exposure Value Modification

You can set an exposure value modification with the white index line (15) on the green scale (13).

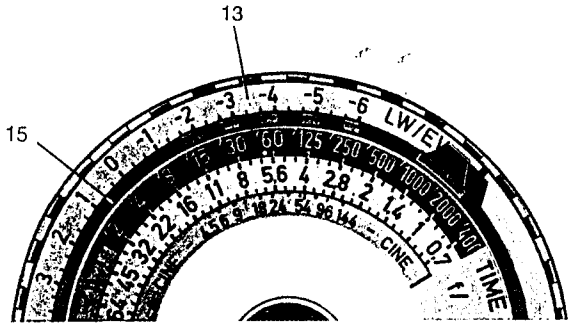
Example: If the filter is marked "–2EV" you set the white index line (15) of the green scale (13) to "–2". This factor will now be considered automatically.



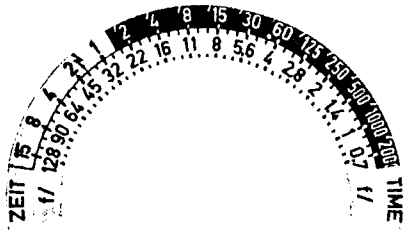
Modification of Exposure Times

In the event that exposure time tolerances of your camera, or the sensitivity of your film require shorter exposure, you can also set the applicable values on the green scale (13), by increasing the exposure value.

Example: You have determined that, for optimal results, 2/3 less exposure is required. Set the white index line (15) at "+2/3" (higher exposure value). This factor is then automatically considered when you read the exposure scales.



Reading the Scales



'2, '4, '8 are fractions of seconds.

Un-marked numerals 1, 2, 4 are full seconds.

1^m, 2^m, 4^m etc. are minutes.

1^h, 2^h, etc. are hours.

The un-numbered white dot between '30 and '60 is the reading point for cinematographers (1/50 sec).

CINE frames per second (intermediate values)

CINE f.p.s. and corresponding exposure times.

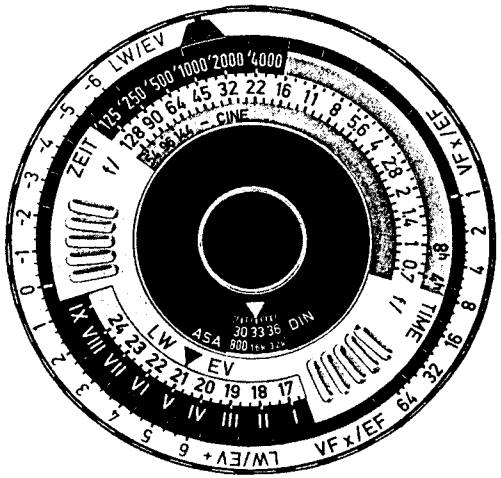
Note: On some motion picture cameras, the exposure time at 18 f.p.s. is not 1/36 second.

Please check instructions for your camera!

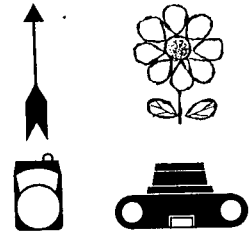
Extreme Film Sensitivities

When using exceptionally "fast" or "slow" films, the computer may, in extreme cases, show scale position as illustrated here. In these cases, exposure times are shown opposite small and large f-stops.

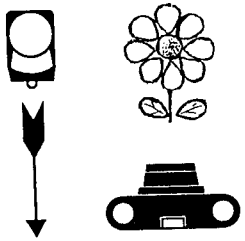
Here only the exposure times indicated in the upper half of the computer ring apply.



Reflected Light Measurement – Incident Light Measurement



Reflected Light Measurement. Move the spherical diffuser (1) all the way to the right until it clicks into place. Point the LUNALITE **toward the subject,** as indicated by the arrow in the illustration. The measuring angle is 30°.



Incident Light Measurement. Move the spherical diffuser (1) so that it clicks into place centered over the round window. Point the LUNALITE **from the subject toward the camera,** as indicated by the arrow in the illustration. The measuring angle limitation is eliminated.

In **reflected light measurement** (from camera toward subject), the LUNALITE measures the light reflected by objects within a 30° angle. The resultant reading depends on the intensity of the illumination and on the reflecting properties of the scene. Thus, under identical illumination, the indicator needle will be deflected less by dark objects than by bright ones. The LUNALITE adds the light and dark portions and indicates an average value. Therefore, if either dark or light areas predominate, better results will be obtained with the method of incident light measurement (page 15) or the use of the zone measuring system (page 17).

When photographing landscapes with a large share of bright sky it is advisable to hold the LUNALITE slightly downward when measuring. Also close-up measuring is recommended. The small measuring angle of 30° permits carefully aimed measurements. You can "sample" various parts of the scene to determine how contrasty or balanced the subject is in its overall brightness.

With the TELE attachment you can reduce the measuring angle of the LUNALITE to 15° or 7,5° (see page 21).

In **incident light measurement** (from subject toward camera) the LUNALITE measures all the light falling on that part of the subject which faces the camera. The resulting measurement is primarily determined by the illumination while the reflecting properties of the scene can have only a minor influence on the measuring result. The method of incident light measurement is generally preferable, and you can prove with your LUNALITE that this method leads more assuredly to good exposures under difficult conditions – such as contrasty subjects – than reflected light measurement.

With inaccessible subjects, take the incident light measurement at a substitute spot which receives the same illumination as the subject. Instead of pointing the LUNALITE toward the camera, point it parallel to an imaginary line from subject to camera.

Comparison Tables on the Back of the LUNALITE

Light Intensities in lux and footcandles

The table (29) on the back of the LUNALITE shows the approximate values of light intensity in lux (lx) or footcandles (fc) corresponding to the Exposure Values (EV) (22) obtained by the **incident light measuring method** with the film speed set at 18 DIN/ASA 50.

The LUNALITE cannot be used as a precision luxmeter, because precise light intensity measurements can only be made by means of a flat light sensitive surface. The spherical diffusor of the LUNALITE exposure meter is primarily designed for collecting the photographically effective light. Photographic subjects are usually three dimensional and receive light from many different directions (sun, sky, reflections from buildings, trees, ground, etc.)

Luminance in candela per square meter

Reflected light measurement indicates the light reflected by the subject i.e. luminances. The measured value indicates how much light the area (m^2) radiates. The unit value is "candela per square meter" (cd/m^2).

For comparison purposes between the two measuring methods: the measured values for reflected light measurement expressed in cd/m^2 are approximately 1/24 of the lux values obtained in incident light measurement. Examples:

Exposure values (EV) at 18 DIN	0	1	2
lx (incident light measurement)	5,5	11	22
cd/m^2 (reflected light measurement)	0,22	0,44	0,88

Zone System

There are times when the lighting range cannot be brought within the acceptance limits of the film and paper contrast ranges. When these situations arise, the zone system can be used. In doing so, detail can be recorded which would otherwise be lost. A complete discussion of this technique is far beyond this instruction booklet.

The LUNALITE is well suited for using the zone system because of its measuring principle. For this purpose, the computer ring (24) of the LUNALITE shows the figures I to IX (34). Based on the important parts of your subject (zone V when the central diode (38) is on) the range from high-light to shadows in the scene are measured. Their variance from the middle zone determines the amount of exposure correction and processing modification that is needed.

Depending on the nature of the contrast range and also in case of extreme contrast the standard exposure is not to be applied, but a modified exposure must be used according to the contrast range (sometimes 1 to 2 stops) in order to receive proper exposure for the most important high-light and shadow parts. This may entail that some detail in the less important areas will be lost.

Reciprocity Effect

Photography under poor light conditions may require exceptionally long exposure times. In such circumstances, films of all types and makes are subject to a phenomenon called "reciprocity effect": Measured exposure times must be increased to avoid underexposure. Films of various types and makes react differently to such longer exposures; therefore the reciprocity effect was not considered in the computer scales of the LUNALITE.

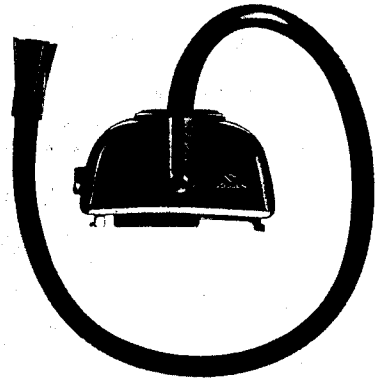
The reciprocity effect may cause shifts in the colour balance of all colour films. They can be compensated by using correction filters.

Some film types come provided with special data sheets containing instructions for very long exposures. In other instances, it is recommendable to contact major colour processing laboratories or film manufacturers direct asking them for specific data.

The LUNALITE System

Optional attachments available for the LUNALITE: By means of those attachments the capability of the LUNALITE can be expanded for use in the most diverse special fields of photography, thus helping you to master even difficult problems:

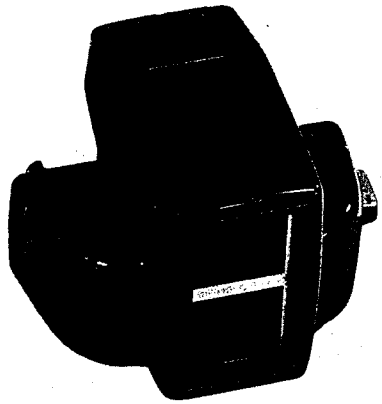
1. The MEASURING PROBE for selective measuring on the ground glass of the camera, on a standard grey card, for densitometric measurements.
2. The TELE attachment reduces the measuring angle from 30° to 15° or 7.5°.
3. The MICRO attachment provides precise measuring in photomicrography.
4. The LAB attachment ensures correct exposure when enlarging.
5. The REPRO attachment facilitates measuring in copying work.



MEASURING PROBE

This attachment is suitable for selective measurements on the ground glass of the camera, also for spot measuring at otherwise inaccessible locations, for micro and macro photography, for determining the contrast of negatives and also for densitometric measurements.

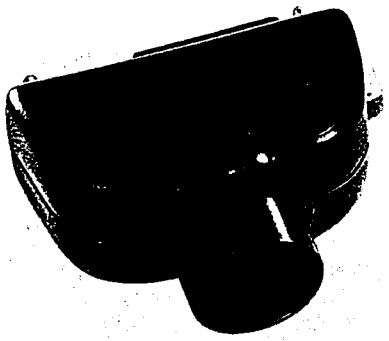
Each accessory is supplied with complete instructions for its specific applications.



TELE attachment

The TELE reduces the measuring angle to 15° or 7.5°. The LUNALITE together with the TELE is thus ideally suited for selective readings of various important parts of the scene or subject and for measuring contrasts. The viewfinder will show you which parts of the subject you are actually measuring.

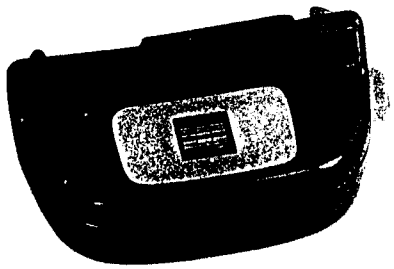
Each accesory is supplied with complete instructions for its specific applications.



MICRO attachment

The LUNALITE together with the micro attachment allows convenient and reliable exposure measurements when taking photomicrographs. The attachment fits the ocular tube of all microscope types.

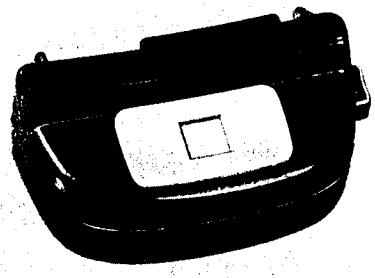
Each accessory is supplied with complete instructions for its specific applications.



LAB attachment

The LAB attachment will eliminate guesswork in darkroom printing and enlarging. It determines contrast range and correct exposure time.

Each accessory is supplied with complete instructions for its specific applications.



REPRO attachment

With the REPRO attachment on the LUNALITE it is possible to obtain exposure values of flat copy such as painting, documents and photographic prints. It also permits measurements of light transmitted through slides or other translucent material being copied.

Each accessory is supplied with complete instructions for its specific applications.

If repair or adjustment should ever become necessary, send your LUNALITE, carefully packed, to:

GOSSEN GMBH
Servicestelle B
Nägelsbachstrasse 25
D-8520 Erlangen

or to the GOSSEN agency in your own country.

To expedite handling please send your LUNALITE **only – without case and neck strap or other accessories.**