

GOSSEN

SUPER
pilot

CdS

**Precision
Exposure Meter**

Operating instructions
7909-0105Y0

CONGRATULATIONS . . .

. . . on becoming the owner of a GOSSEN precision exposure meter! Your new SUPER PILOT CdS exposure meter is a product of GOSSEN GMBH, Erlangen, West Germany, manufacturers of precision electrical instruments since 1919, and one of the outstanding pioneers in the design of exposure meters. Many millions of Gossen meters are in use all over the world, and give their owners reliable service year after year. Well-known camera manufacturers have chosen Gossen exposure meters as components in their finest cameras. We know that you will be pleased with your Gossen meter and that it will give you faithful service for a long time to come. Please acquaint yourself with this fine instrument by reading the following pages with your SUPER PILOT at hand, thus getting off to a good start for consistently good results.

SUPER PILOT Operating Parts and Scales

Sliding spherical diffuser
for incident
light measurement

①

Indicator needle
Low range
switch/needle lock

②

③

Computer ring (coupled
to follow-pointer)

④

ASA film speed window

⑤

ASA setting disk

⑥

Eyelet for neck strap

⑦



Check field for
battery testing

Follow-pointer

Exposure time scale
(shutter speeds)

f-stop scale
(lens apertures)

Cine scale
(frames per second)

Ridges of
ASA setting disk

Scale for shutters
calibrated in EV
(Exposure Values)

⑧

⑨

⑩

⑪

⑫

⑬

⑭

Keep this page folded out when reading instructions, so that you can easily identify parts and scales.

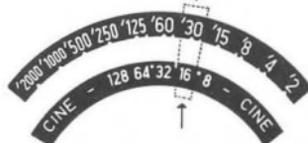
Reading the Scales



Earlier Shutter Speeds →

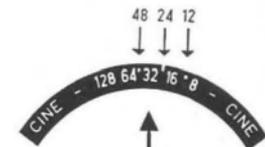
'2, '4, '8 etc. are fractions of seconds: $\frac{1}{2}$ - $\frac{1}{4}$ - $\frac{1}{8}$ sec. etc.
 Un-marked numerals 1, 2, 4 etc. are full seconds.
 1 m, 2 m, 4 m etc. are minutes
 1 h, 2 h are hours

corresponding exposure times (sec.)



Note: On certain motion picture cameras, the exposure time at normal speed (16 f.p.s.) is not $\frac{1}{30}$ second. Check the instructions for your camera!

Cine frames per second and intermediate markings for 48, 24, 12 frames per second.



17 Table of footcandle (Lux) equivalents

3 Low range switch/needle lock

15 Zero adjustment screw

18 Battery chamber

16 Push button for battery testing

Basic Setting

Turn the ASA setting disk (6) by its ridges (13) until the ASA number of your film is lined up with the index at the ASA window (5).

After this basic setting, your SUPER PILOT is ready for action, and no further setting is necessary as long as you use the same type of film, or film having the same ASA speed.

NOTE: You will find the ASA film speed printed on the film box or film instruction sheet supplied by the manufacturer.



Aiming the Meter



Reflected Light measurement: Push the sliding diffuser (1) to the extreme right or left (click stop) and point the SUPER PILOT **toward the subject**, as indicated by the arrow in the illustration.



Incident Light measurement: Push the sliding diffuser (1) to the middle (click stop) and point the SUPER PILOT **from the subject** toward the camera position, as indicated by the arrow in the illustration.

Reading the Measurement

The follow pointer (9) of the SUPER PILOT is coupled to the computer. While aiming the meter, turn the computer ring (4) until the indicator needle (2) is lined up through the center of the white circle on the follow pointer (9).

The SUPER PILOT now gives you complete exposure information in combinations of exposure times and f-stops (10 and 11), EV settings (14) or frames per second (12) with corresponding f-stops for motion picture cameras.

RED SIGNALS mean "off limits"! If the indicator needle (2) stops on a red signal during measurement, simply switch to the other measuring range before turning the computer ring. For example, if the white needle (2) stands on the **left** red signal, depress the low range switch (3) until you feel resistance; while holding down the switch, proceed with measuring and set the computer ring as usual. On the other hand, if the white needle (2) stands on the **right** red signal during a measurement, switch to the normal measuring range by letting go of the low range switch (3).

NEEDLE LOCK. If the light is so poor that you cannot observe the movement of the needle – or read the scales – simply press down the low range switch (3) to the point of resistance for several seconds; then push it down all the way (past the initial resistance) and **hold it down**. This locks the needle in the reading position so that you can take the SUPER PILOT to better light while setting the computer ring and reading the scales.

Testing the Battery

The life of the Mallory PX 13 battery supplied with your SUPER PILOT depends on your use of the meter. If you keep your SUPER PILOT closed in its case except for actual light measurements, the battery will attain its maximum life of about 2 years. It is advisable to check the condition of the battery from time to time: Press the yellow button (16) on the underside of the SUPER PILOT while observing the indicator needle (2); during the battery test, the needle should point to the check field (8). Otherwise, a fresh battery must be used. To replace the battery, turn the cover of the battery chamber (18) under slight pressure to the left. Make sure you use only **Mallory PX 13** batteries in your SUPER PILOT.

After inserting the fresh battery, make the battery test described above.

Testing the Zero Position

To test the zero position of the indicator needle, first remove the battery from the SUPER PILOT. Turn the computer ring (4) counter-clockwise all the way. The indicator needle (2) should now rest above the left edge of the left red signal. To adjust the needle position, turn the zero adjustment screw (15) on the underside of the SUPER PILOT.

Helpful Facts about Light Measurement *

In **reflected light measurement**, the SUPER PILOT measures the light reflected by objects within a certain area. Therefore, the resultant reading depends not only on the intensity of the illumination, but also on the color and brightness of the objects themselves. Thus, under identical illumination, the indicator needle will be deflected less by dark objects than by bright ones. In an over-all measurement, the SUPER PILOT will indicate the average brightness of all objects in a scene.

The narrow measuring angle of the SUPER PILOT is a particular advantage: It permits very accurate, carefully aimed measurements and, when you measure various parts of a scene or subject, the highly responsive indicator needle of your SUPER PILOT tells you very clearly whether a scene has uniform distribution of brightness or not.

If the scene contains strong contrasts in brightness or color, it is preferable to measure that part of the scene which requires the most accurate exposure. For black-and-white or color negative films, this is usually a darker area which is to show details in the final print; for color slide or movie films, however, the lighter areas are usually favored. To measure such important areas, get closer to the subject but not so close that your own shadow or that of the SUPER PILOT falls on the subject. This method is called: **close-up reading**.

*) See illustrations on page 2.

In **incident light measurement** – from the subject towards the camera – the SUPER PILOT measures all the light which illuminates that part of the subject which faces the camera. Naturally, neither the color nor the brightness of the subject itself is considered by this measurement. The incident light measurement is particularly useful for subjects with strong contrasts of brightness or color.

With inaccessible subjects, take the incident light measurement at a substitute spot which receives the same illumination as the subject. But, instead of pointing the SUPER PILOT towards the camera, point it parallel to an imaginary line from the object to the camera.

Incident light measurement at a substitute spot of equal illumination is also convenient for many regular outdoor scenes. Frequently, the spot where you stand with the camera gets the same illumination as the scene which you intend to photograph, in which case you merely do "about face" with your SUPER PILOT and measure the light exactly opposite to the direction of the camera.

Setting your own “Standards”

Although general standards have been established for film speeds, camera shutters, lens apertures etc., it is possible that – for one reason or another – the results you get by using all these standards, do not please you. This may be due to slight deviations of shutter speeds, f-stops, processing; on the other hand, you may prefer lighter or darker results than the established standard. Critical photographers usually make actual performance tests of all their equipment to establish their very own standard of film speed ratings to harmonize with their particular camera, lenses, projectors etc. If your color slides are consistently too light, simply set your SUPER PILOT for a higher film speed number; if they are too dark, use a lower number.

Long Exposures – Reciprocity Effect

Film manufacturers base the published speed ratings of photographic emulsions on average conditions of exposure times and illumination under which such emulsions are “normally” intended to be used. However, under “abnormal” conditions calling for long exposure times, films lose speed; moreover, reversal color films also lose their normal color balance. This behavior of photographic emulsions is due to a phenomenon called “reciprocity effect”.

Films of various types and makes react differently to extended exposure times, and it is impractical to incorporate the many possible variations in the SUPER PILOT scales.

It is advisable to write to the film manufacturer for information concerning the necessary exposure correction and filtering for color correction of the specific film which you plan to use with extended exposure times.

Footcandle Measurement

The table on the back of the SUPER PILOT shows footcandle and Lux values (1 ft-c = 10.76 Lux) corresponding to the SUPER PILOT scale readings obtained by **incident light measurement**. The SUPER PILOT should not be considered a full-fledged footcandle meter because, strictly speaking, footcandles of illumination can be measured only by means of a flat interception screen. The SUPER PILOT has a spherical diffusing screen and thus achieves superior collection of the photographically effective illumination: **Photographic subjects are usually three-dimensional and they are illuminated from many different directions (sun, sky, reflections from buildings, trees, ground, etc.).** However, the footcandle table can be of practical value for measuring direct light beams (arc lights, spots). For footcandle measurement, set the ASA speed at 50; push the sliding diffuser to the middle (click stop). Take the reading on the red EV scale and find the corresponding footcandle value on the back of the SUPER PILOT. Example: EV 6 = 32 ft-c.

Your Gossen SUPER PILOT

is a valuable precision instrument, made with great care and accurately calibrated. It deserves your good care! The wide measuring range – down to very dim illumination – which you get in your SUPER PILOT, is due to its special photo resistor element. Like the highly sensitive nerves of your own eyes, the photo resistor should not be exposed **unnecessarily** to bright light for extended periods. While the element does not change its permanent properties under long exposure to light, it tends to retain the impression of light for a while. If the previous impression was “dark”, you can be sure of utmost measuring accuracy. Therefore, always keep your SUPER PILOT closed in its case when you are not actually using it!

The battery and zero position tests described on page 4 enable you to check the proper functioning of your SUPER PILOT.

Measuring comparisons of your SUPER PILOT with similar or other types of exposure meters cannot be made properly without special laboratory equipment (optical bench).

Do not attempt to open or repair your SUPER PILOT. See Service information on following page.

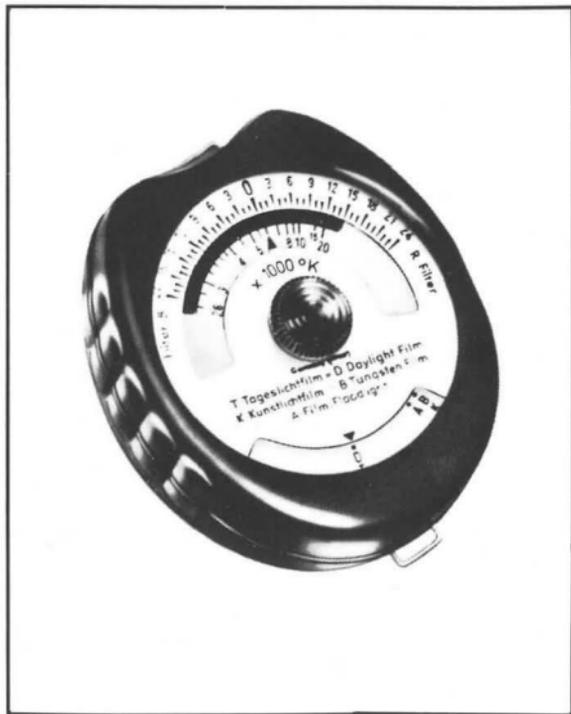
Service

Each new Gossen SUPER PILOT CdS exposure meter is supplied with an Import Certificate/Warranty Card.

If repair or adjustment should become necessary, send the meter (directly or through an authorized dealer), carefully packed and prepaid to:

Gossen Service Department
Berkey Marketing Companies Inc.
25-20 Brooklyn-Queens Expressway West
Woodside NY 11377

The package should be accompanied by a description of the trouble encountered.



GOSSEN SIXTICOLOR

Color Temperature Meter and Filter Indicator

Eliminates costly trial exposures and "offcolor" results. At a glance, this compact instrument shows the color temperature of the light source (2,600 to 20,000 K) and, simultaneously, indicates the correction filter required for correct color balance with any type of color film. The Gossen SIXTICOLOR is an important aid for every user of color film in still or motion picture photography.

Ask your dealer for a demonstration!

Notes

Manufacturer

GOSSEN GMBH

D-8520 Erlangen – West Germany



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