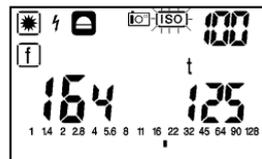


# Starlite

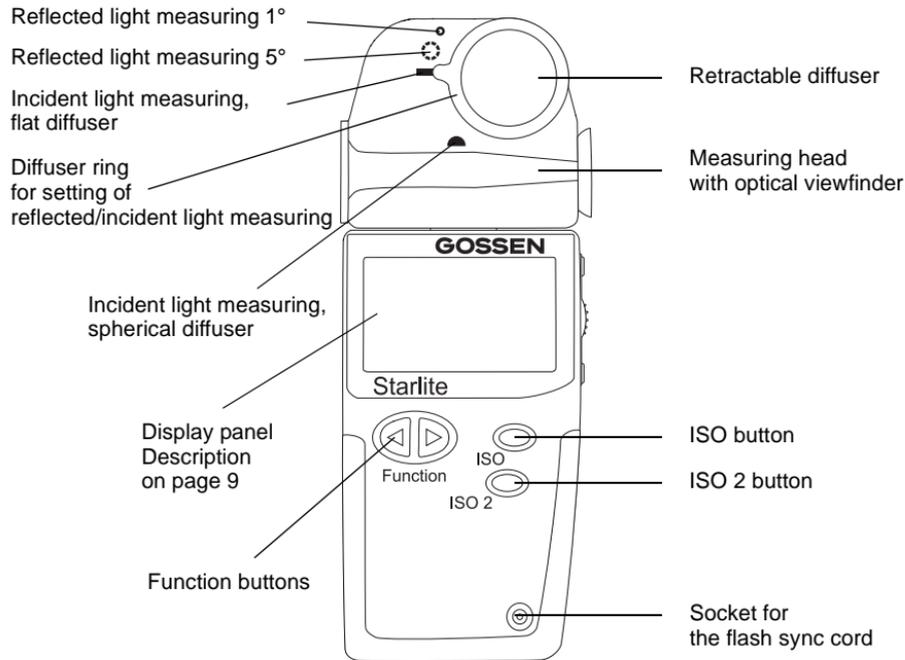
All-in-one

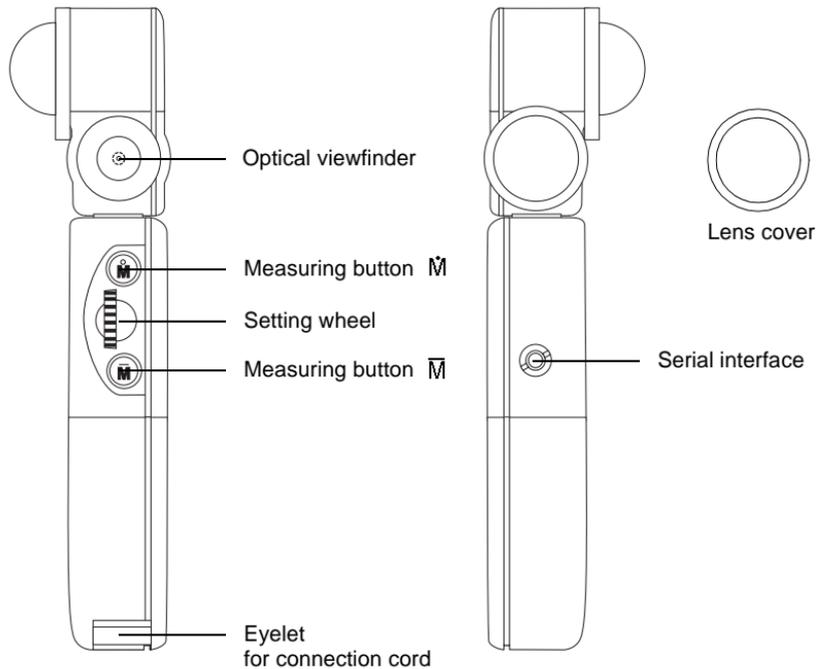
Operating Instructions

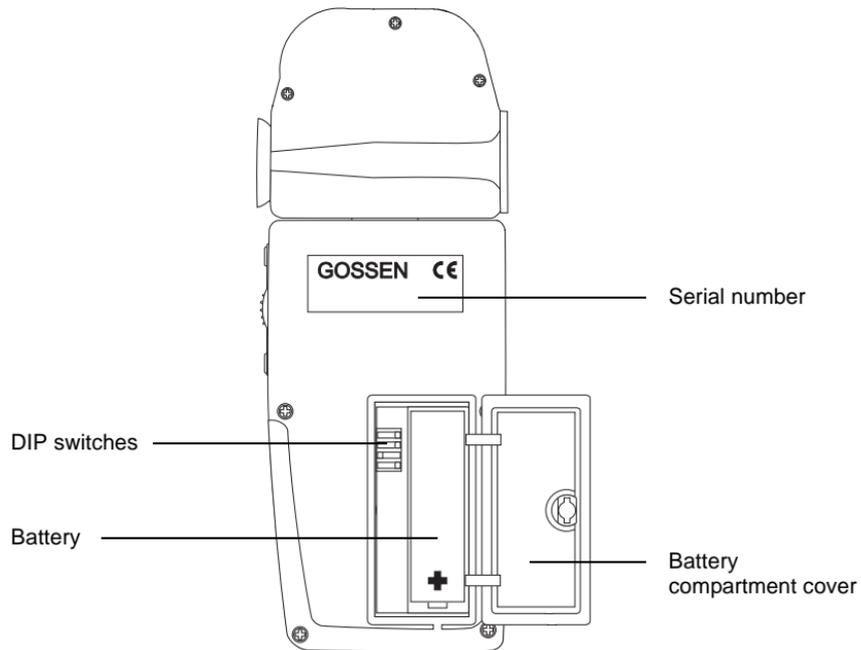


# GOSSEN

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Your **Starlite** is the top device in the GOSSEN-product range and represents a real all-in-one light meter. It combines a light meter for ambient and flash light, a CINE meter for cinematographers as well as a measuring instrument for lighting technology and photometry. And the clarity of the operating control elements and the digital display is still preserved. Functions used over and above the normal metering can be individually integrated by the user.

The **Starlite** can be easily converted into a complete CINE meter for the cinematographer and their needs.

Due to the microprocessor technology, the user benefits from our knowledge on lighting technology which we have gained over decades of experience in the construction of light meters.

As a result of its precise calibration, the **Starlite** provides very accurate measuring results and is easy to operate.

Characterising of the **Starlite**:

- Splashwaterproof housing
- Digital stop display in 1/10 stop increments
- Automatic display illumination
- Shutter speeds in full or 1/2 time values
- Second ISO value
- Incident light measuring with spherical/flat diffuser
- Reflected light measuring, option of 1° or 5°
- Flash measuring (cord/cordless)  
Display of the ambient light portion  
Flash calculation with different measuring times  
Flash calculation for multiple flashes
- Analogue contrast display with f/stops in 1/2 stop increments
- Averaging of up to 9 measuring values
- Storage of settings and measuring values
- Configurable EV correction
- Measuring in accordance with the zone system.  
Direct display of the measuring values on the zone scale
- Special CINE meter, settable for shutter angles other than 180 degrees, conversion with formulas is not necessary
- Functional range of photometry  
Measuring of illuminance and luminance with ambient and flash light
- Key lock

## 1 Preparation

### 1.1 Battery

The **Starlite** works with a 1.5 V AA battery (Alkaline-manganese or corresponding rechargeable battery).

When the battery is running low, the **BAT** display appears in addition to the measured values as a warning to the user.

At this stage, it is advisable to replace the battery as soon as possible.

When **BAT** appears on the display alone, measurements can no longer be taken.

Replace the battery immediately.

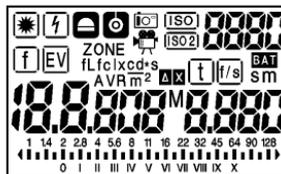
To replace the battery, open the battery compartment of the **Starlite**, remove the old battery and insert the new one. Observe the "+" and "-" polarity! Please close the cover of the battery compartment.

### 1.2 Self-test

After the new battery has been inserted, the micro-computer will carry out a self-test. Here, every display segment of the display panel appears. The self-test takes about 10 s. It can, however, be interrupted before by pressing any button.

As soon as the self-test is complete, the factory preset standard settings are activated.

<b>ISO</b>	100/21°	<b>Δ X</b>	0/1.0
<b>ISO2</b>	50/18°		
<b>f</b>	5.6	t	1/125
<b>EV</b>	12	Flash	f 1/60
<b>f/s</b>	24		



### Warning!

**Do not view and do not aim the meter directly at the sun**

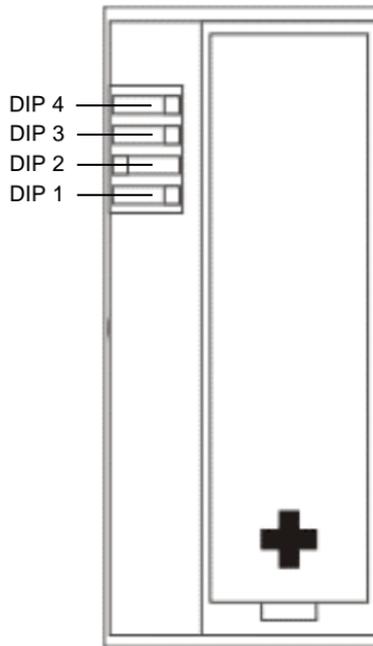
You may not only damage your eye, but also ruin the light-sensitive cell.

### 1.3 Selecting the function groups: DIP switches in the battery compartment

In addition to the standard functions, your **Starlite** features a range of additional characteristics and functions which can be selected using the "DIP switches" in the battery compartment.

- DIP 1 Selection STILL  – Photography   
CINE and PHOTOMETRY 
- DIP 2 Selection SHUTTER SPEEDS  
(1/1 or 1/2)
- DIP 3 Selection DISPLAY UNIT photometry
- DIP 4 Selection Measuring function – ZONES

Zone System	4	-
fc fL	3	lx cd/m <sup>2</sup>
1/2 t-Steps	2	1/1 t-Steps
CINE	1	STILL

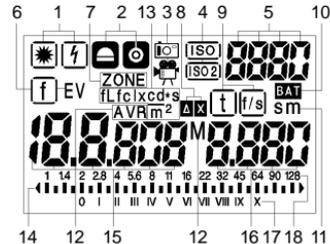


## 2 Display panel

### 2.1 The display panel and its elements

- 1 Function
  - Ambient light 
  - Flash light 
- 2 Measuring head
  - Incident light measuring 
  - Reflected light measuring 
- 3 Meter functions
  - Photography 
  - Cine / Photometry 
- 4 Film speed **ISO – ISO2**
- 5 Digital display of the film speed
- 6 Display signal **f – EV**
- 7 Display signal **Zone**
- 8 Display – Function correction value  
- 9 Display signal **t – f/s**
- 10 Battery check warning signal
- 11 Display signal seconds (**s**) – minutes (**m**)
- 12 Display signal average **AVR** and **M** (memory)
- 13 Display signal photometry
  - Illuminance (**lx – fc**)
  - Luminance (**cd/m<sup>2</sup> – fL**)
  - Time integral values (**lx\*s – fc\*s – cd/m<sup>2</sup>\*s – fL\*s**)

- 14 Analogue scale
- 15 Left digital displays for
  - f-stop (**f**)
  - Exposure value (**EV**)
  - Correction values
  - Multiple flash calculation
  - Average (**f**) – Number of measurements
  - **Zone**
  - Ready for flash (**F**)
  - Photometric measuring values



- 16 Right digital display for
  - Exposure time (**t**)
  - Extension factor– correction value
  - Flash calculation, number of flashes
  - Cine speeds (**f/s**)
- 17 Zone scale
- 18 Aperture scale

### 2.1.1 Automatic display illumination

When the lighting conditions are poor (about EV 4 or less), the background lighting of the display is switched on automatically for 10 seconds.

### 2.2 Display duration

If the **Starlite** display panel is idle for about 2 minutes, it is switched off automatically. The measuring values and the preset values remain stored in memory.

- By pressing anyone of the buttons, you can recall the measuring value from the memory.
- By pressing the measuring button  $\bar{M}$ , a new measurement is taken.

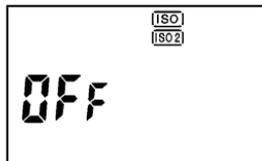
The measuring values of the last measurement remain stored in the memory until a new measurement is taken.

The **Starlite** has separate memories for ambient and flash light measuring.

### 2.3 Key Lock

It makes sense to activate the key lock to avoid switching on the **Starlite** by accident.

- Activating the key lock: press ISO and ISO2 simultaneously. OFF, ISO and ISO2 appear for 3 seconds on the display. Then the instrument switches off automatically.



If you press any button, OFF, ISO and ISO2 are displayed again for 3 seconds.

- Deactivating the key lock: press ISO and ISO2 simultaneously.

### 3 Operating elements

#### 3.1 ISO – ISO2

##### Selecting the film speed

You can select two different film speeds with the ISO and ISO2 buttons.

- Select the film speed by pressing and holding "ISO" or "ISO2". ISO or ISO2 will flash on the display panel.
- Set the desired ISO value using the setting wheel.

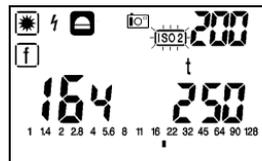
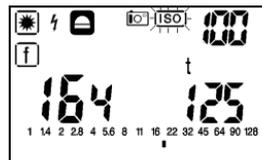
When another operating function is selected, the preset film speed is retained in the **Starlite** memory.

The film speed you have selected, either ISO or ISO2, appears in the top right corner of the display panel (ISO2 as long as the ISO2 button is pressed).

When the ISO2 button is pressed, the converted shutter speed/f-stop values are displayed on the basis of the last measuring. Therefore, you no longer have to carry out time consuming calculations when working with 2 films of different speeds.

If the film speed is changed, the last measuring value is converted to the new ISO settings.

The selected film speed is memorized until it is changed in accordance with the above mentioned procedure.



### 3.2 Function ◀ ▶

With the function buttons you can select the measuring modes ambient light  or flash light . Keep the function button pressed and select the sub-functions time preselection t, f-number preselection f or exposure value EV using the setting wheel.

### 3.3 Setting wheel

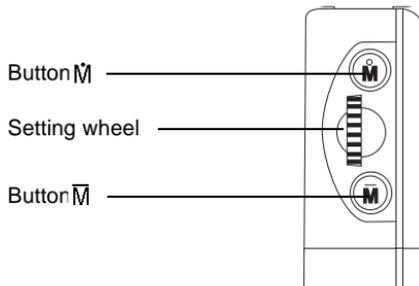
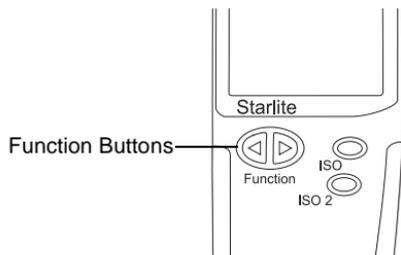
The setting wheel allows you to change values and functions.

- Presetting for ambient, flash and ISO
- Calling up shutter speed/f-stop combinations after measuring. Multiple flash calculation
- Allocation of zones
- Selection of shutter angles in the CINE function

### 3.4 Measuring buttons and

With the measuring button  you can trigger off a new measurement and delete all previous measuring values.

The measuring button  is used for calculating average values.



### 3.5 Measuring head with optical viewfinder 1° or 5°

#### Flat diffuser– spherical diffuser

The measuring head is the optical control center of the **Starlite**. The 270° rotating measuring head provides the basis for effective working in practice.

#### Caution:

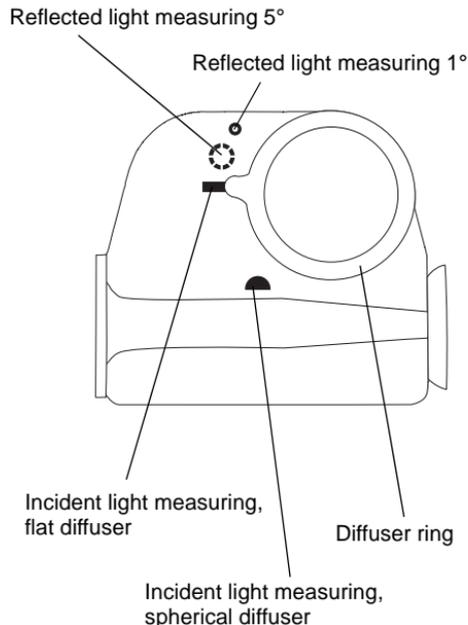
**Never try to overwind the built-in lock by force. Sooner or later this will cause the connection between measuring head and basic meter to break and will have to be repaired!**

The following measuring modes can be selected using the diffuser ring at the measuring head :

- Reflected light measuring 1°, spot measuring
- Reflected light measuring 5°
- Incident light measuring, flat diffuser
- Incident light measuring, spherical diffuser

The optical viewfinder with measuring angles of 1° and 5° for reflected light measuring is also located in the measuring head. Due to these measuring angles it is possible to precisely focus on even the smallest spots in the subject.

The viewing field is about 12°.



## 4 This is how the Starlite works

### 4.1 Incident and reflected light measuring

Your **Starlite** is designed for the enthusiastic amateur as well as for professional use. Its rotating measuring head is the optical "control center", and the following measuring functions can be set:

- Incident light measuring, diffuser raised: spherical measuring characteristics
- Incident light measuring, diffuser lowered: flat measuring characteristics
- Reflected light measuring with 5° measuring angle through the viewfinder
- Reflected light measuring with 1° measuring angle through the viewfinder

Thus, the meter can be conveniently used for all measuring methods including the zone system.

#### 4.1.1 Incident light – Spherical diffuser

Set "diffuser raised" with the diffuser ring at the measuring head. The symbol  appears on the display.

Taking measurements using the incident light method in particular can produce perfectly exposed shots. With the incident light mode, the **Starlite** measures with its diffuser the incident light

from the subject towards the camera.

This guarantees that the tone quality of the picture is equivalent to that of the subject.

This is especially important for very bright or dark subjects. Even under very difficult photographing conditions, as for example with subjects which have a lot of contrast, the incident light measuring method is a much more reliable way of producing well-exposed and professional pictures.

#### 4.1.2 Incident – Flat diffuser

The lowered/retracted diffuser having a flat characteristic is suitable for reproductions and for taking measurements for special lighting technology and photometry.

For this function, the "diffuser lowered"  with the diffuser ring at the measuring head must be set.



#### Note!

When using the incident light mode with the setting flat diffuser  at the diffuser ring, the display nevertheless will show the symbol .

#### 4.1.3 Reflected light – 1° Spot measuring

For this function, the setting ring at the base of the diffuser must be set to the "Reflected light – 1°" symbol. The symbol  appears on the display.

In the viewfinder, the measured area corresponds to the inner, smaller circle.

Your **Starlite** offers reflected light measuring with 1° (spot measuring) via the viewfinder in the measuring head. When you look through the viewfinder, you can measure using the measuring buttons  $\bar{M}$  and  $\bar{M}$  from the camera towards the object. This way, even the details of a subject can be accurately measured and analysed through the viewfinder. Now, only the light reflected from the subject is detected.

When using the reflected light mode, the measuring values always depend on the reflection of the subject!

As a result of this, bright subjects are reproduced darker and are therefore not properly exposed.

If the exposure measurement is carried out in accordance with the reflected light measuring method, it is advantageous to use a grey chart (18% diffuse reflection). Furthermore, you can also be given the average values of up to 9 measuring values. The different contrast measuring values are displayed on the analogue aperture scale. Subject contrast is measured with the reflected light measuring method and displayed by the **Starlite** on the analogue scale.

#### 4.1.4 Reflected light– 5°

For this function, the "Reflected light measurement 5°" must be set with the diffuser ring at the measuring head.

The symbol  appears on the display.

In the viewfinder, the measuring area corresponds to the outer, wider circle.

The functions and notes of chapter 4.1.3, page 15 also apply here.

## 5 Measuring functions – Ambient light $\star$

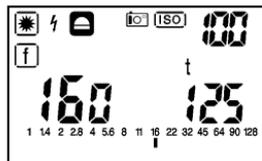
- Select with the left function button  $\blacktriangleleft$  ambient light  $\star$  (the last stored measuring value appears in the display).
- Keep the function button pressed down and select the corresponding sub-function using the setting wheel. This function is displayed in a frame  $\square$ .
- Set the desired value using the setting wheel alone.

### Note:

When preselecting f-stop, the stored values of the last measurement are displayed in 1/10 stop increments. These are, however, irrelevant, since a new reading has to be taken.

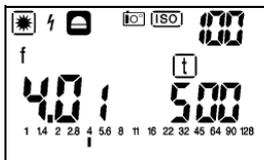
### 5.1 Aperture priority $\square$ f

- Press the measuring button  $\text{M}$  to take a measurement.
- The measured exposure time appears on the right digital display. The f-number is automatically adjusted to the time measured in 1/10 stop increments. Furthermore, the f-number, which is rounded to 1/2 stop increments, is displayed as a mark on the analogue scale.
- Other shutter speed/f-stop combinations can be selected using the setting wheel.



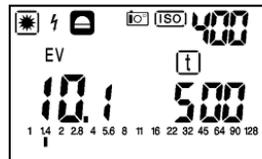
## 5.2 Exposure time priority

- Press the measuring button  to take a measurement.
- The measured f/stop appears on the left digital display (resolution in 1/10 stop increments) and is marked on the analogue scale, rounded to 1/2 stop increments.
- Select other paired f/stop-exposure time values with the setting wheel.
- **Instead of the full exposure time values, also 1/2 time values can be set by activating DIP switch 2.**



## 5.3 Exposure value EV

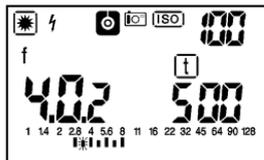
- Press the button  to measure.
- The measured exposure value EV appears on the left digital display (resolution in 1/10 stop increments) and the f/stop is marked additionally on the analogue scale rounded to 1/2 stops.
- Select other paired f/stop-exposure time values with the setting wheel.



## 5.4 Contrast measuring in the t and EV functions

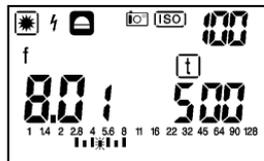
### Contrast of the subject Reflected light measuring through the viewfinder

- Keep the measuring button  $\bar{M}$  pressed and focus on the various areas of the subject to be measured.
- The first measuring value appears on the left digital display. It is constantly displayed as a reference value (e.g. measurement on a grey chart) during the course of the entire measuring process. The actual measuring value flashes on the analogue scale.
- After releasing the measuring button  $\bar{M}$ , the measured subject contrast range appears on the analogue scale.



### Illumination contrast with flat or spherical diffuser

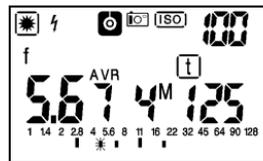
- Keep the measuring button  $\bar{M}$  pressed to measure the different light sources.
- The first measuring value appears on the left digital display. It is constantly displayed as a reference value (e.g. main light source) during the course of the entire measuring process. The actual measuring value flashes on the analogue scale.
- After you release the measuring button  $\bar{M}$ , the total illumination contrast measured appears on the analogue scale.



## 5.5 Averaging value AVR in the t and EV functions

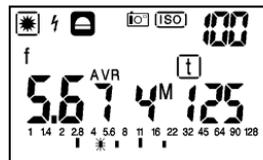
### Reflected light measuring through the viewfinder

- The first measurement is to be taken with the measuring button  $\bar{M}$ .
- With the AVR measuring button  $\bar{M}$  you can measure up to 8 further contrast spots. The single measuring values are displayed on the analogue scale (identical measuring values are only displayed once, but are taken into consideration when the average is calculated). After each measurement with  $\bar{M}$ , the average of all previous measuring values is displayed. The average AVR appears on the left digital display: f or EV with f-numbers in 1/10 increments and flashing on the analogue scale, rounded to 1/2 stop increments. In the middle of the display, the number of measurements  $M$  is displayed (4 measurements in the example).



### Incident light with flat or spherical diffuser

Correspondingly, you can determine the average value of the illumination of the various lights with the above mentioned procedure. To do this, you can measure for example your main, fill-in and background light individually in the studio.

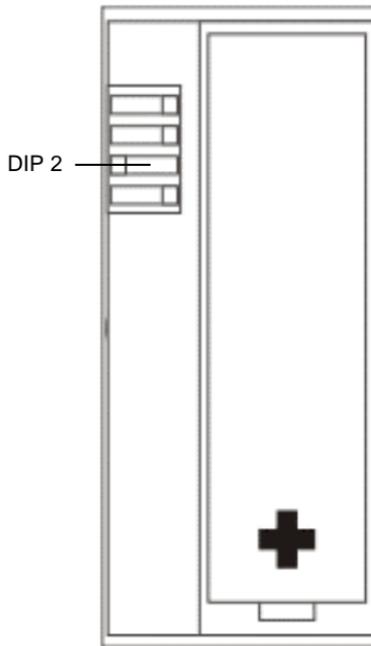


## 5.6 Selecting the exposure time values

In addition to the standard full time values, also half time values (1/2 TV) can be set at some cameras. For this reason, the **Starlite** can also be set additionally to half time values.

The selection is made activating the DIP 2 switch:

- 1/1 full time values  
Exposure times are displayed in 1/1 full time values or when using the CINE function, in the standard CINE film speeds.
- 1/2 half time values  
Exposure times are displayed in 1/2 half time values. With this function, additional CINE speeds are displayed.



## 5.7 Taking measurements in the zone system

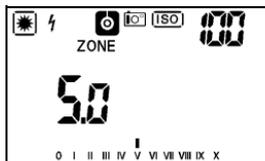
This function is mainly used to cope with subject contrasts in the field of black and white photography.

In addition to the influence of illumination, there is a further possibility of optimizing the contrast range of film and paper.

The zone system allows details to be reproduced in the picture which otherwise would not be visible and would be lost. A detailed analysis of this technique would, however, go beyond the scope of these instructions.

### 5.7.1 The Starlite and the zone system

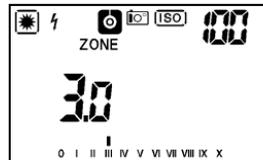
The **Starlite** allocates different brightness ranges to predefined graduated zones of grey. Variations of these grey tones from the middle zone determine the exposure correction and the changes in the development process, which are to be applied correspondingly.



## Taking measurements in the zone system

For using the zone system activate the switch DIP 4 in the battery compartment.

- Set the diffusor ring at the measuring head to the „reflected light – 1°“.
- Keep the left function button ◀ pressed and select the sub-function ZONE using the setting wheel.
- Using the viewfinder, focus on the darkest spot of the subject, which should still be shown up in the negative.
- Press the measuring button  $\bar{M}$ . The meas. value will then be automatically allocated to zone V.
- Using the setting wheel, place the measuring value in the zone where the darkest value should be, e.g. zone III.
- Now you can measure up to 8 further spots in the subject using the measuring button  $\bar{M}$  – the most important brightest spot, which should still show detail in the negative, must be included.

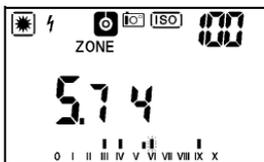


After each measurement using the measuring button  $\bar{M}$  the following data are stored and displayed:

- the symbol ZONE and the last measured value are displayed on the left
- the number of measurements made are displayed on the right (4 measurements in the example)
- on the zone scale the currently measured values are indicated (identical values only once) and the average of the brightest and the darkest spot as a flashing dot

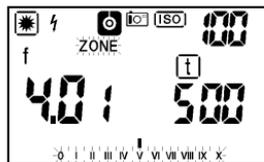
When the measuring process is completed and you then switch over to the function „ambient light“  $\star$  and the desired measuring function, the value measured in the zone V is displayed as shutter speed/f-stop combination. Additionally, the flashing ZONE symbol is displayed.

Now, you can select further shutter speed/f-stop combinations using the setting wheel.



If, by mistake, you take a zone measurement in the incident light mode (flat or spherical diffuser), you are reminded by the flashing diffuser symbol  $\square$  that you have to set the diffuser ring to 1° spot metering.

Note down the subject contrast for the film development and adjust the development time in accordance with the contrast range.

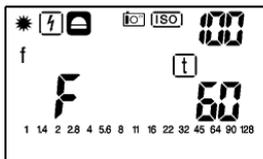


## 6 Measuring functions– Flash light

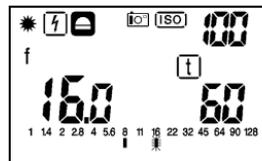
In essence, flash measuring can be carried out in all diffuser settings (incident or reflected light measuring modes). Furthermore, flashes can be measured with or without a sync cord (cord/non-cord). If a sync cord is used, the flash is automatically triggered and measured with the measuring button  $\bar{M}$ .

### 6.1 Flash light measuring

- Select the function  $\blacktriangleright$   using the right function button (the last stored measuring value appears).
- The function is displayed with .
- Set the desired measuring time (sync speed) using the setting wheel. The measuring times range from 1 s to 1/1000 s.
- Press the measuring button  $\bar{M}$ . The **Starlite** is ready to measure for about 45 s (as long as F is displayed on the display panel).



- Trigger flash  
When using a sync cord, the flash is triggered and measured automatically when pressing  $\bar{M}$ .
- The measured f-number (sum of flash light and ambient light) appears both in the left digital display (resolution 1/10 stops) and as a flashing indicator in the analogue scale rounded to the nearest 1/2 f-number.  
In addition to this, the f-stop for the share of the ambient light is displayed on the analogue scale, not flashing.

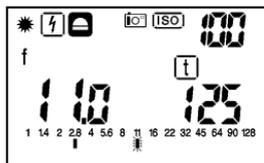


## 6.2 Flash calculation for changed measuring times

If the measurement shows that the ambient light part in relation to the flash light part does not correspond to your wishes in the overall lighting, the **Starlite** calculates on the basis of the measurement taken the influence of altered measuring times.

Other measuring times can be set directly using the setting wheel without taking another measurement. The calculation of the new result appears directly on the display.

**Note:**  
In the event of altered measuring times, you must ensure that the flash light duration is not longer than the preselected measuring time. If this is the case, a new measurement must be taken.

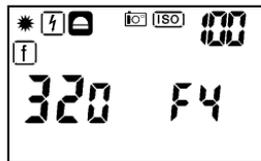


## 6.3 Multiple flash calculation

Occasionally, the light output from a single flash may not be sufficient to enable you to work at the aperture desired. In that case, you can preselect the desired f-stop. Keep the right function button ► depressed and select with the setting wheel the sub-function **f**. Release the function button and select the desired f-stop.

The **Starlite** calculates on the basis of the measurement already taken the number of flashes required for the desired f-stop. The digital display of the time disappears and the number of flashes required is indicated, (e.g. F4 = 4 flashes)

The **Starlite** will calculate up to a max. of 9 flash sequences.



## 6.4 Average value

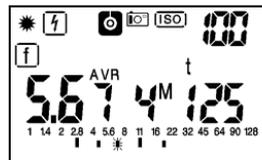
- Take first measurement using measuring button  $\bar{M}$
- Measure up to a further 8 flashes using the average value measuring button  $\bar{M}$ .

The individual measurements are shown on the analogue scale (identical values are only displayed once, but are taken into account in the calculation of the average value).

After each measurement with  $\bar{M}$ , the average value of all previous measurements is always displayed. The average value AVR is shown in the digital display:

at the left  $\bar{f}$  with fine adjustment in 1/10 stop increments and shown as a flashing mark in the analogue scale, rounded to the nearest 1/2 f-stop. However, the ambient light portion is not indicated.

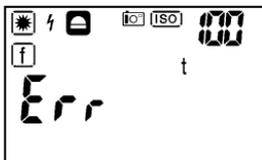
In the centre of the display, the number of measurements M taken is indicated (in the example 4 measurements).



## 7 Taking a measuring outside the measuring range – display range

### 7.1 Taking a measurement outside the measuring range

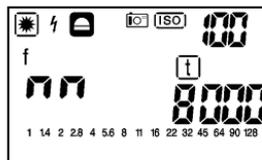
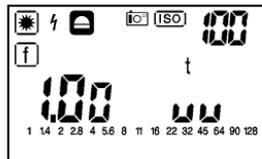
- There is no usable measuring result outside the measuring range of the **Starlite**.
- If it is too dark or too bright during the measurement, Err (= Error) appears in the left digital display.



### 7.2 Taking a measurement outside the display range

If the symbol uu oder nn appears in the right or left digital display, the measurement has been taken but the result is outside the display range.

- Use setting wheel to move into the display range



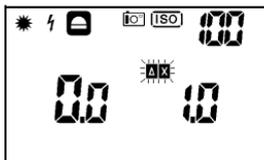
## 8 Setting and measuring correction values and extension factors

### 8.1 Setting correction values

- By simultaneously pressing both function buttons (◀ and ▶) you reach the function **ΔX**-correction values.
- The last valid correction value appears in the display.
- The desired correction value can be entered or altered using the setting wheel.

The extension factor is shown in the right digital display, and the correction value is indicated in stops. Input in 1/10 EV (small digits) in the range of  $\pm 9.9$  exposure value stop increments.

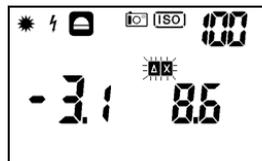
For correction values which extend the exposure a "-" appears in front of the number.



### Example:

–3.1 stops correspond to the extension factor 8.6. For corrections which shorten the exposure, only the left display appears as EV difference in stop increments. By pressing one of the function buttons (◀ or ▶) the correction value is stored in the memory of the **Starlite**. The symbol **ΔX** appears in the display.

The correction value is automatically taken into account in all measuring functions (except for the photometry).



### 8.1.1 Measuring correction values $\Delta X$

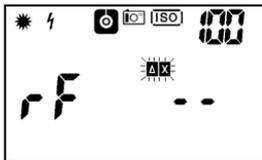
Correction values can also be measured directly. An evenly illuminated surface and constant light level are required.

Use the **Starlite** in the reflected light mode at  $1^\circ$  or  $5^\circ$ .

In the function  $\Delta X$ , a reference measurement can be taken by pressing the measuring button  $\bar{M}$ . Designation rF - - in the digital display.

Then, hold the filter in front of the viewfinder and press the measuring button  $\bar{M}$ .

The light reducing effect will be indicated automatically in the display as EV stop and extension factor.



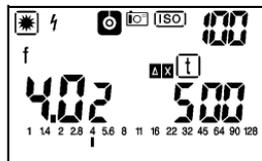
### 8.1.2 Deleting correction values

In the function  $\Delta X$  correction values (chapter 8.1, page 27) you have two possibilities of deleting pre-programmed correction values:

- by manually resetting using the setting wheel to EV 0 and extension factor 1.0 or
- by pressing the measuring button  $\bar{M}$  (display rF - -)
- quit the correction value function using the function button ( $\blacktriangleleft$  or  $\blacktriangleright$ )

Correction value is deleted.

Symbol  $\Delta X$  has disappeared from the display.



## 9 CINE meter for cinematographers – PHOTOMETRY

By actuating the DIP 1 switch, the **Starlite** can be converted easily and quickly into a fully functional CINE meter. At the same time switch on the function photometry.

### CINE meter

- Select reflected light or incident light mode at the measuring head.
- Using the left button, press function  ambient light .

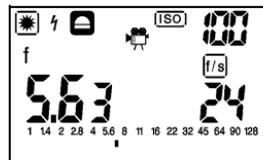
### 9.1 Preselecting the Cine speeds

- Press and hold the left function button  and using the setting wheel set the speed 'f/s'. The function is shown in the display as .
- Set the desired CINE speed using the setting wheel.
- Contrast (chapter 5.4, page 18) and average value measurements (chapter 5.5, page 19) can also be carried out.

Using the switch DIP 2 additional CINE speeds can be switched on.

### 9.2 Taking measurements in the CINE function

- Take a measurement by pressing the measuring button .
- The measured f-stop appears both in the left digital display (resolution 1/10 stop increments) and as an indicator in the analogue aperture scale rounded to the nearest 1/2 f-stop.



### 9.3 Setting the shutter angle

The shutter angle in the **Starlite** is preset at the factory to 180°.

If you are working with other angles which vary from the shutter angle 180°, you can enter these directly.

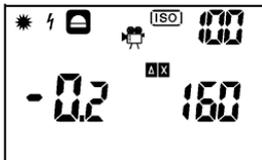
Therefore, no need for lengthy calculation.

- Simultaneously press both function buttons (◀ and ▶).

The current angle appears in the right display.

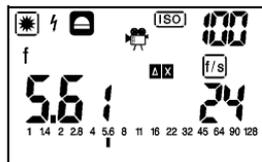
- Set the required angle in 5° stop increments using the setting wheel.
- By pressing a function button (◀ or ▶) you move back into the measuring function.

The selected angle is shown in the display with the symbol  $\Delta X$ .



A shutter angle other than 180° has a direct influence on all measuring functions in the CINE function; corrected measuring values are shown directly in the display.

**These angle correction values do not influence the measuring results in the photometry function. Unlike in the photo functions, correction entries cannot be made here.**



## 10 Photometry

### 10.1 Selecting the photometric display unit

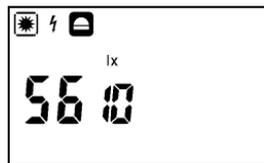
Use the DIP 1 switch to change over to the functions CINE/Photometry. With the DIP 3 switch, you can select either the standardized measuring units or special ones used in certain English speaking countries.

- lx,  $\text{cd/m}^2$ : the photometric incident measurement values are displayed in the standardised units (lx, lxs,  $\text{cd/m}^2$ ,  $\text{cds/m}^2$ ).
- fc, FL: the photometric incident measurement values are displayed in Anglican measuring units (fc, fcs, fL, fLs). This means the values do not have to be converted.
- Press and hold the left function button ◀ and select the sub-functions illumination or luminance using the setting wheel.

Depending on the DIP 3 switch setting, lx or fc will appear in the display.

### 10.2 Measuring the illumination Lux (lx) or footcandle (fc)

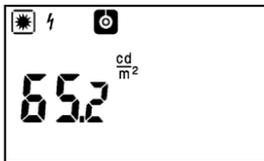
- Set the measuring head to incident light measuring – flat diffusor.  
When setting the diffusor at the measuring head to spherical, an error indication will appear (flashing ).
- Aim the measuring head in the direction of the illumination source.
- Take a measurement using the measuring button M.



### 10.3 Measuring the luminance candela / m<sup>2</sup> (cd/m<sup>2</sup>) or footLambert (fL)

- Set the measuring head to reflected light measuring  $-1^\circ$   or  $5^\circ$  . The luminance function is set and shown in the display.
- Focus on the subject to be measured via the viewfinder
- Take a measurement using the measuring button  $\bar{M}$

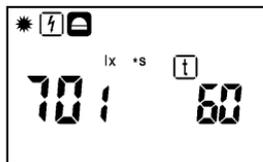
The selected display unit and measured luminance are displayed.



### 10.4 Measuring time-integral values (Ix, fcs, cds/m<sup>2</sup>, fLs)

- Set measuring head to reflected light or incident light measuring. The corresponding display unit is set and shown in the display.
- Set with the right function button  $\blacktriangleright$  the function flash light .
- Pre-select the desired measuring time using the setting wheel; this can be found on the right hand side of the display panel. Activated half time stop increments are also displayed.
- Start flash measuring using the measuring button  $\bar{M}$  – cord/noncord (chapter 6.1, page 23).
- The measured value, which is calculated to 1 second, is shown in the pre-selected display unit.

By preselecting the measuring time, the ambient light part is correspondingly taken into account.



## 11 Practical tips

### Pre-programming influence values

The **Starlite** determines precise exposure data in accordance with DIN 19010. Should you not be satisfied with your results, remember that there are independent factors which can affect the success of your shot:

For example:

- The "true" speed of your film can differ from that which is stated on the packaging.
- The "true" shutter speeds of your camera can be different from the speeds given.
- The "true" apertures of your camera can differ from those stated.
- Differences can occur in the development of your film and the pictures.

In addition, there are purely subjective aspects and the question of personal taste in the evaluation of finished pictures.

However, you can set your **Starlite** to the particular features of your camera, the brand of film, your developing method and your subjective evaluation.

We recommend the following methods:

Take the reflected light and incident light measurements of several normal subjects (grey chart and color charts are extremely suitable for this) and make a series of exposures using values given by your **Starlite** for each of these on your film. The first shot is exposed with the exposure data shown by the **Starlite**. For the subsequent shots, these exposure data are reduced and increased up to one f-number depending on the raster of the lens. The lighting conditions may not change during these exposures.

From the developed pictures you choose the optimal shots, based on your own personal taste, and compare the data thereof with the measurements. If it turns out that you prefer shots that were made with an altered value, you can programme this value into your **Starlite** via the function correction value (chapter 8.1, page 27).

## 12 Contrast and optimal exposure

The basic rules for optimal exposure are that the brightest areas on the color reversal film (slide) or the darkest areas on the negative must be sufficiently defined. Personal taste and intentions in terms of artistic form can of course make these rules null and void. For this reason, only general recommendations on optional exposure can be made.

In comparison to the human eye, film and paper material can only process a small degree of contrast – it is important that this fact be kept in mind. With the **Starlite** you can determine illumination contrast by way of the incident light measuring method and subject contrast using the reflected light measuring method. In both cases the analogue display shows the contrast.

The proper exposure for your subject can not be achieved if you measure the brightest and darkest areas. These should be either a medium grey in the subject or should form the average value from the measurement results of the brightest and darkest areas. The **Starlite** calculates the average value for you automatically. If you discover that the subject contrast is greater than can be processed by your film, you can brighten up the shade, for example with an umbrella or using a flash, which will reduce the subject contrast. When considering the subject contrast from an average value, the following rules of thumb apply:

### **Negative film**

If the difference between important bright and dark areas does not exceed two stops (EV) between important bright and dark areas are not exceeded, each value in between these values could be used as the setting value; for greater demands the average value is more suitable. In most cases, you will achieve a reasonable shot. Rather dense negatives produce poorer defined contours.

For negatives, the smallest density that can copy is important - thus, you should use more exposure rather than too little.

### **Color reversal film**

In comparison to a negative film, a color reversal film can deal with greater subject contrast, but offers far less scope for usable exposure.

Measuring the subject contrast is the basis for the decision as to whether the subject can be reproduced realistically. Unless the subject requires something else, we recommend that the exposure should be based on the highlights.

For color reversal films, the bright areas that are crucial for the shot are important. Bear this in mind, and use somewhat shorter rather than longer exposure. This produces more brilliant and richer colors.

### **Night atmosphere**

If you wish to realistically capture the night atmosphere with a lot of dark and little detail, you must use less exposure than your **Starlite** displays. This will prevent your photo being similar to a daytime shot. However, the Schwarzschild effect often has the same effect as less exposure.

There are no set rules for this. In order to obtain experience, take your first shots with unaltered values that are given by the **Starlite**.

### **Schwarzschild effect**

Shots with little light require particularly long exposure times. For all brands of film, what is known as the Schwarzschild effect occurs here: The measured times must be increased for the shot to avoid under-exposure. Various types of film show the effect to different degrees.

This is why it is not taken into account in the **Starlite**. In general, this effect does not occur for exposures below 1/10 s.

Some types of color film come with special information or notes with instructions for shots with long exposure times. But the most up-to-date information can always be directly obtained from the film manufacturer. The Schwarzschild effect can also lead to color alterations, which can then be rectified with a color correction.

### **In snow**

For snow-covered landscape, the reflected light measuring method will produce insufficient exposure. Due to the particularly high degree of reflection of snow, important areas of the subject would be under-exposed.

For measurement adjustment, use 1 to 1.5 EV higher.

But the better solution is of course to use the incident light measuring method, which produces precisely the right measurement result. If you wish to achieve particular effects, such as subtle shade nuances in the snow, reduce your exposure by approximately 1/2 stop.

With the **Starlite** you can obtain the precise and suitable exposure data for every photographic subject. Bear in mind that the film material may not be able to cope with extraordinarily strong subject contrasts.

### 13 Technical data

#### Measuring capabilities

- Incident light measuring  
(option of flat or spherical diffusor)
- Reflected light measuring,  
(measuring angle 1° or 5°, viewing field ca. 12°)
- Analogue and digital display
- Contrast measuring
- Average value calculation  
(from up to 9 measuring values)
- Flash light measuring (Cord/Noncord)
- Display of ambient light portion
- Multiple flash calculation
- Zone system
- CINE Meter (preset shutter angle 180°,  
other angles adjustable in 5° steps)
- Photometry (illumination, luminance,  
flash power and luminance)

#### Light sensor

- 2 Sbc silicon photo diodes, color-corrected

#### Shortest measurement distance

- approx. 100 cm

#### Measuring range of ambient light (at ISO 100/21°)

- Incident EV -2.5 to +18
- Reflected 1° EV 2.0 to +18
- Reflected 5° EV 0 to +18

#### Measuring range, at flash light (for ISO 100/21°)

- Incident f/1.0 to f/128
- Reflected 1° f/2.8 to f/128
- Reflected 5° f/1.4 to f/128

#### Measured value processing

- digital

#### Repeatability

- ±1 digit (= 0.1 EV)

#### Film speeds

- ISO 3/6° to ISO 8000/40° (in 1/3 steps)

#### Apertures

- f/0.5 to f/128

#### Shutter speeds

- Standard speeds: 1/8000 s to 60 min
- adjustable additionally:  
s: 1/6000, 1/3000, 1/1500, 1/750, 1/350,  
1/180, 1/90, 1/45, 1/20, 1/10, 1/6, 1/3,  
1/0,7, 1.5, 3, 6, 10, 20, 45  
m: 1.5, 3, 6, 10, 20, 45

#### Flash measuring times (sync speeds)

- 1 s to 1/1000 s

Flash calculation for altered measuring times

1 s to 1/1000 s

Multiple flash calculation

up to 9 flashes

CINE speeds

Standard values:

8,12,16,18, 24, 25, 30, 32, 50, 64

adjustable additionally:

2, 3, 4, 6, 36, 40, 48, 60, 72, 96, 120, 128, 150,  
200, 240, 255, 300, 360

Other measuring ranges and display values in

lx, fc, cd/m<sup>2</sup>, fL, lxs, fcs, cds/m<sup>2</sup>, fLs

Other displays

Meas. function, range over and range under  
(for measuring and display), battery check

Analogue scale

f/1.0 to f/128, zone 0 to X

Correction values/extension factors

EV -9.9 to +9.9 / EF 1.0 to 955

Key lock

Battery

1.5 V (AA) or a 1.2 V rechargeable battery

Battery life

For over 5000 measurings with alkaline-man-  
gan batteries, with an assumed flash  
measurement proportion of 30 % and acti-  
vated display illumination of 3 %

Dimensions

approx. 164 x 66 x 26 mm

Weight without battery

approx. 195 g

Included accessories

Case, strap, battery

Instruction manual

Brief operating instructions

Operating temperature range

-10°C to +50°C

Storage temperature range

-20°C to +60°C

Humidity

IP class 54, water-splash resistant

Illumination

0.5 to 199900 lx; 0.05 to 50000 fc

Luminance

0.2 to 30000 cd/m<sup>2</sup>; 0.05 to 9000 fL

Flash illumination

2 to 30000 lxs; 0.2 to 3000 fc\*s

Flash luminance

0.3 to 1800 cds/m<sup>2</sup>; 0.1 to 500 fLs

## 14 Serial interface

On the outside of the **Starlite** there is an integrated serial interface.

## 15 Service

If repair or adjustment should ever become necessary, please send your **Starlite** carefully packed to:  
Bogen Photo Corp.  
565 East Crescent Avenue  
Ramsey, NJ 07446-0506  
[www.bogenphoto.com](http://www.bogenphoto.com)

## Recommend books:

The Negative – Anselm Adams  
The Zone System – Hank Roelfsema  
The Art of Photography – Bruce Barnbaum  
Beyond the Zone System – Phil Davis

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[www.bogenphoto.com](http://www.bogenphoto.com)

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