Starlite 2

Gossen Foto- und Lichtmesstechnik GmbH

Dome ring for setting of reflected/incident light measuring

Reflected light measuring 1°

Reflected light measuring 5°

Incident light measuring, flat dome

Incident light measuring, spherical dome

Display panel
Description
on page 9

Menu buttons

Retractable dome

Measuring head
with optical viewfinder

GOSSEN Starlite 2

ISO1 button

ISO2 button

Socket for
the flash sync cord

Menu

Optical viewfinder

Measuring button **M**

Setting wheel

Measuring button **AVR**

Service-
interface

Eyelet
for connection cord

GOSSEN CE

Serial number

DIP Switches

Battery

Battery
compartment cover

Your STARLITE 2 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 2 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 2 provides very accurate measuring results and is easy to operate.

Characterising of the STARLITE 2:

- 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 dome
- 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

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1 Preparation

1.1 Battery

The STARLITE 2 works with a 1.5 V AA battery (Alkaline-manganese.

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 2, 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.

ISO1	100/21°	🔺X	0/1,0
ISO2	50/18°		
f	5,6	**t**	1/125
EV	12	**Blitz**	f 1/60
f/s	24		
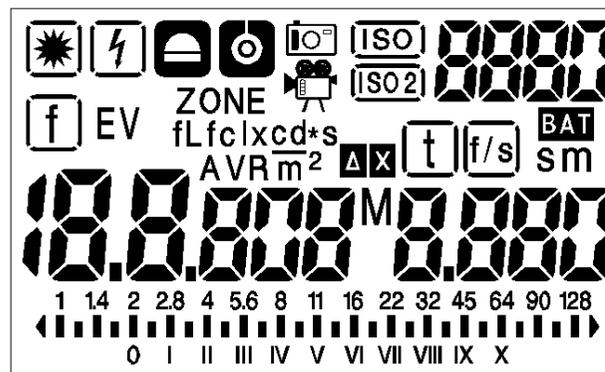
Warning!
Do not view and do not aim the meter directly at the sun.
You may not only damage your eye, but also ruin the light-sensitive cell.

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

In addition to the standard functions, your STARLITE 2 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 und 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/m²
1/2 t-Steps	2	1/1 t-Steps
CINE	1	STILL

DIP 4
DIP 3
DIP 2
DIP 1
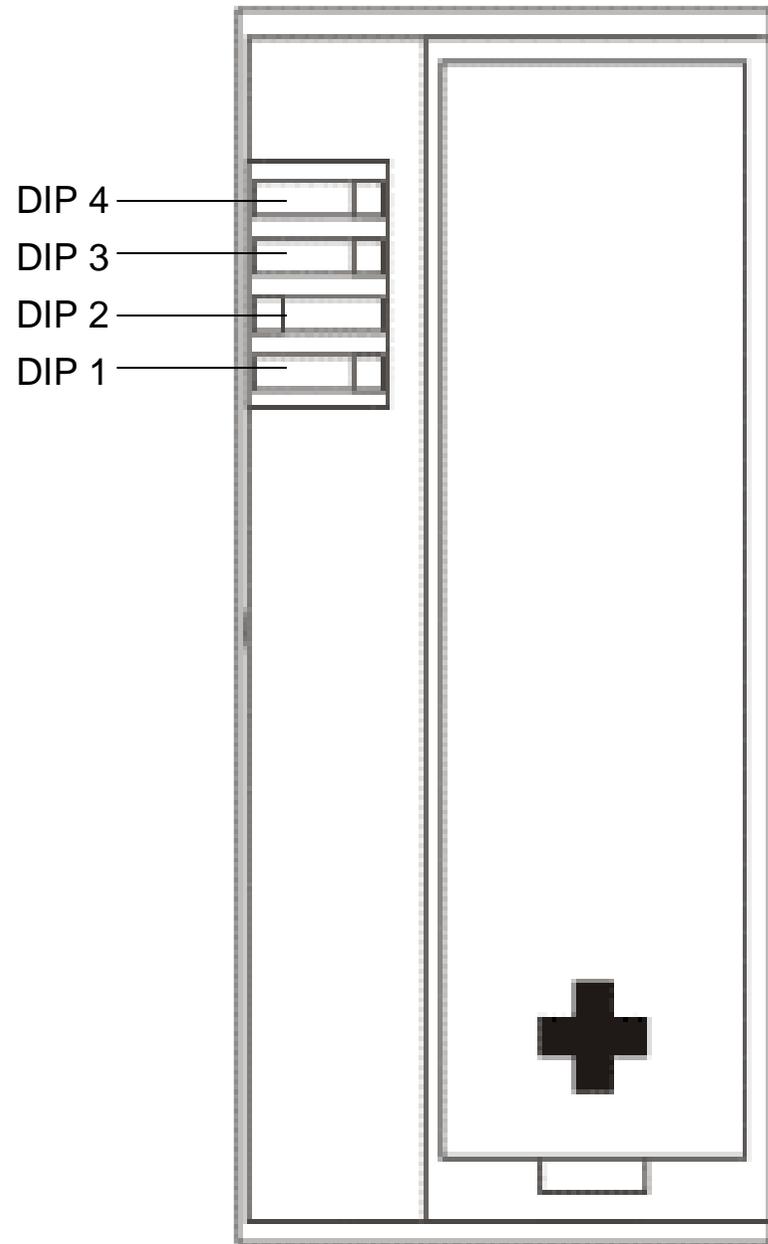
2 Display panel

2.1 The display panel and ist elements

1 Menu
 - Ambient light ☀
 - Flash light ⚡
2 Measuring head
 - Incident light measuring ⬒
 - Reflected light measuring ◉
3 Meter functions
 - Photography 📷
 - Cine / Photometry 🎥
4 Film speed **ISO1** - **ISO2**
5 Digital display of the film speed
6 Display signal **f** - **EV**
7 Display signal **Zone**
8 Display signal – Function correction value ▲X
9 Display signal **t** – **f/s**
10 Battery check warning signal
11 Display signal second (**s**) – minutes (**m**)
12 Display signal **AVR** u. **M** (memory)
13 Display signal photometry
 - Illuminance (**lx** – **fc**)
 - Luminance (**cd/m^2** – **fL**)
 - Time integral values
 (**lx*s** – **fc*s** – **cd/m^2 *s** – **fc*s**)
14 Analogue scale

15 left digital displays for
 - f-stop (**f**)
 - Exposure value (**EV**)
 - Correction values
 - Multiple flash calculation
 - Average (**f**) – Number of measurings
 - **Zone**
 - Ready for flash (**F**)
 - Photometric measuring values
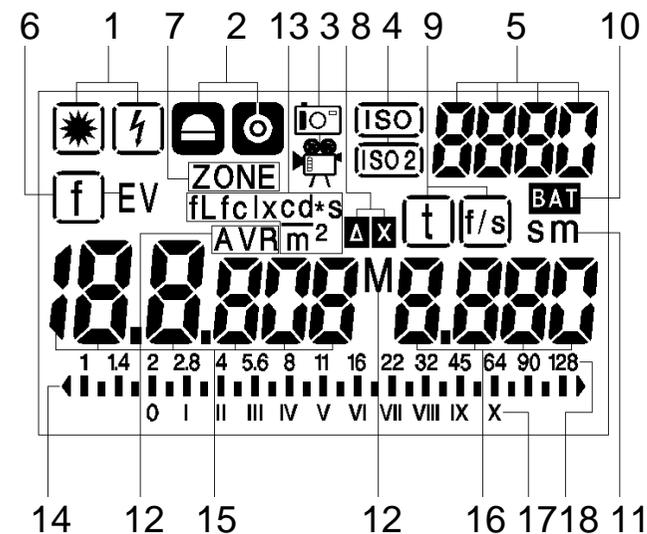
16 Right digital display for
 - Exposure time (**t**)
 - Extension factor – correction value
 - Flash calculation, number of flashes
 - Cine speeds (**f/s**)
17 Zone scale
18 Aperture scale

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 2 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 **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 2 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 2 by accident.
- Activating the key lock: press
  ISO1 and **IS02** simultaneously.
  OFF, ISO and IS02 appear for 3 seconds on the display. Then the instrument switches off automatically.
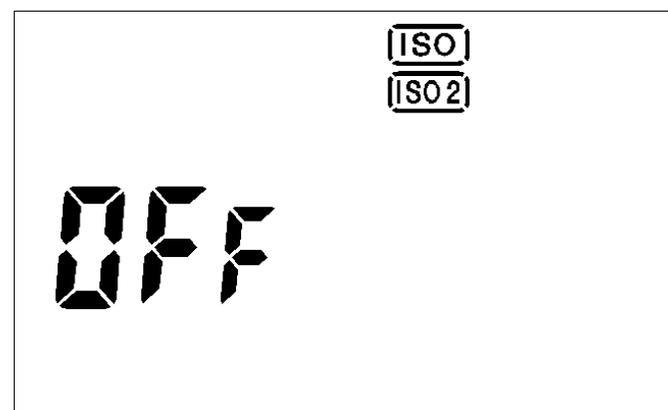
If you press any button, OFF, ISO and IS02 are displayed again for 3 seconds.
- Deactivating the key lock:
  press **ISO1** and **IS02** simultaneously.

3 Operating elements

3.1 ISO - IS02
Selecting the film speed

You can select two different film speeds with the
ISO1 and **IS02** buttons.

- Select the film speed by pressing and holding
"**ISO1**" or "**IS02**". ISO or IS02 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 2
memory.
The film speed you have selected, either **ISO1** or **IS02**,
appears in the top right corner of the display panel (IS02
as long as the **IS02** button is pressed).
When the **IS02** 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.
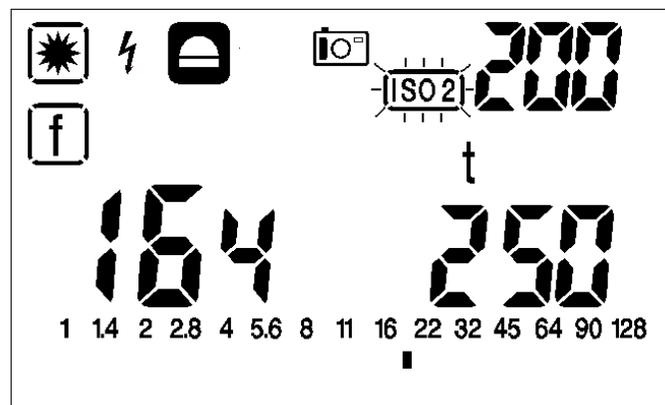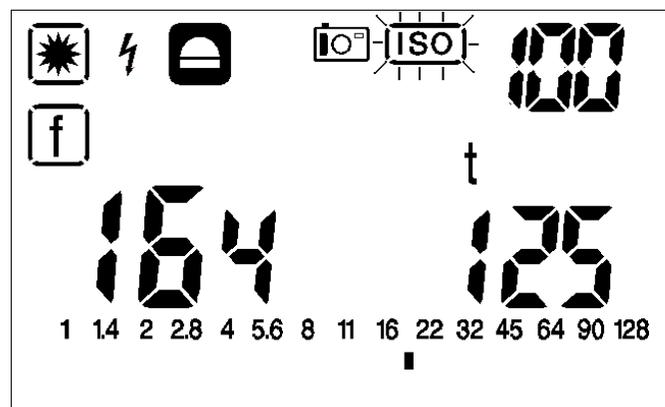
3.2   Menu ◖◗

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

Menu-
Buttons

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 – M and AVR

With the measuring button M you can trigger off a new measurement and delete all previous measuring values.
The measuring button AVR is used for calculation average values.
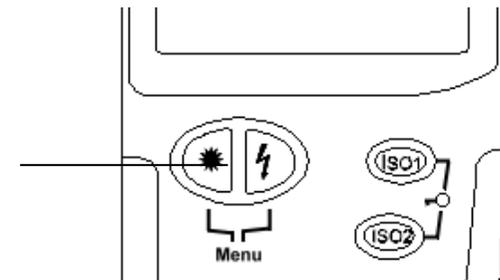
Setting wheel

Button AVR
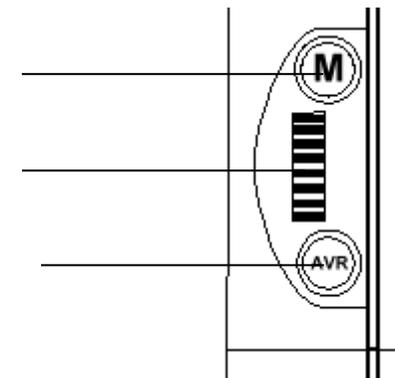
3.5 Measuring head with optical viewfinder 1° or 5° Flat dome- spherical dome

The measuring head is the optical control center of the STARLITE 2. 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°, selective measurement
- Incident light measuring, flat dome
- Incident light measuring, spherical dome

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 an even the smallest spots in the subject.
The viewing field is about 12°.

Reflected light measuring 5°

Reflected light measuring 1°

Incident light measuring, flat dome

Incident light measuring, spherical dome

Dome ring
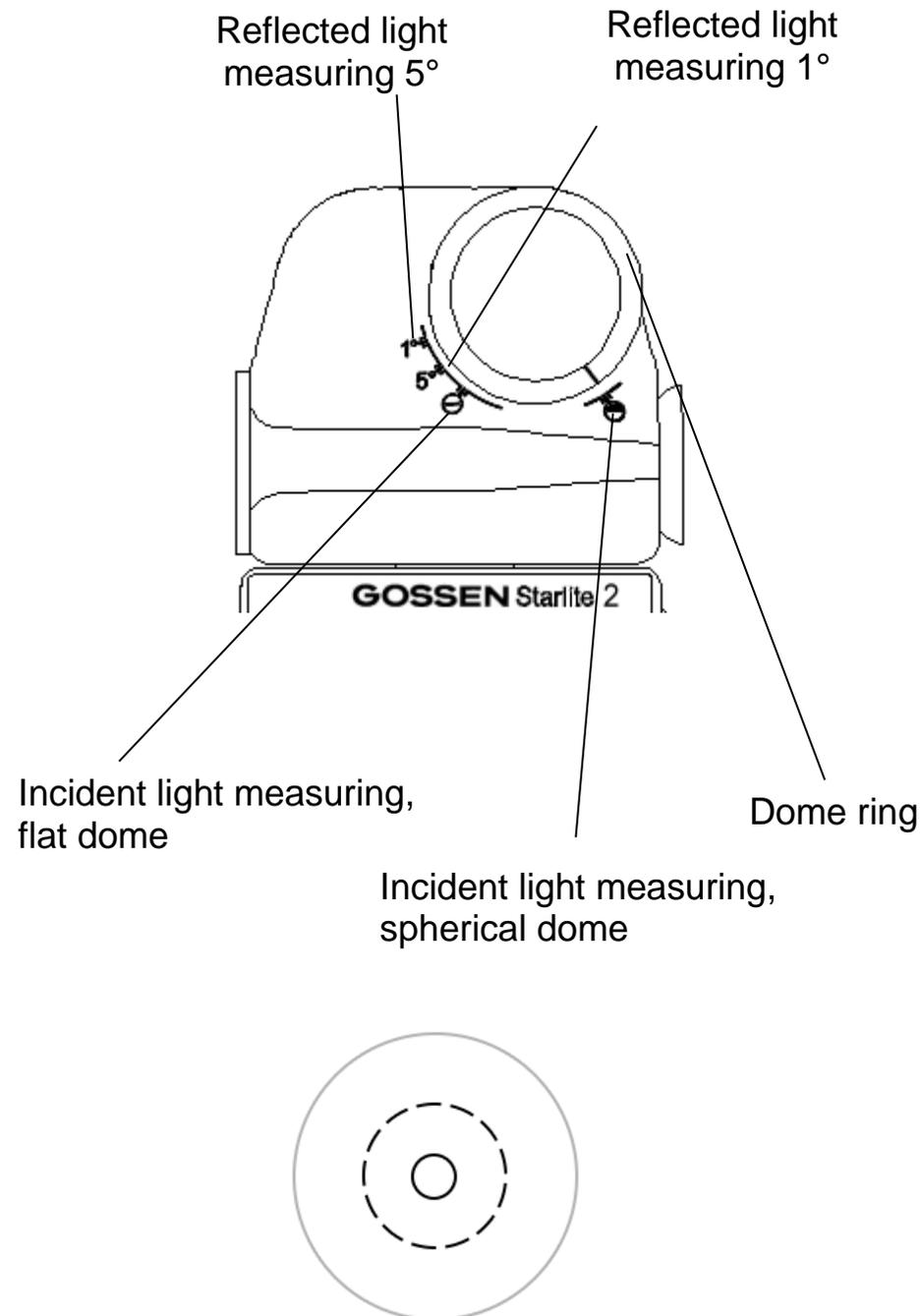
4. Incident and reflected light measuring

Your STARLITE 2 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, dome raised:
  spherical measuring characteristics
- Incident light measuring, dome 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 dome ⬒

Set "dome raised" with the dome ring at the measuring head. The symbol ⬒ appears on the display.
Taking measurements using the incident light method in particular can produces perfectly exposed shots.
With the incident light mode, the STARLITE 2 measures with its dome 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 light – Flat dome ⊖

The lowered/retracted dome having a flat characteristic is suitable for reproductions and for taking measurements for special lighting technology and photometry.
For this function, the "dome lowered" ⊖ with the dome ring at the measuring head must be set.

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4.1.3 Reflected light – 1° ⊙ Spot measuring

For this function, the setting ring at the base of the dome 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 2 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 M and AVR 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 2 on the analogue scale.

4.1.4 Reflected light – 5° ⬚ Selective measurement

For this function, the "Reflected light measurement 5°" must be set with the dome 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 ☀

- Select with the left menu button ◀ ambient light ☀ (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 □.
- Set the desired value using the setting wheel alone.

5.1 Aperture priority [f]

- Press the measuring button **M** to take a measurement.
- The measured exposure time **t** 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.

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.
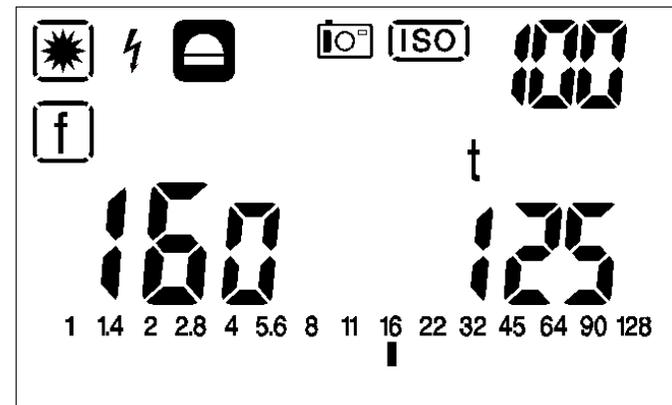
5.2   Exposure time priority ⌊t⌋

- Press the measuring button **M** to take a
  measurement.
- The measured f/stop appears on the left digital
  display (resolution in 1/10 stop increments) and is
  marked an 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 ½
  time values can be set by activating DIP switch 2.**
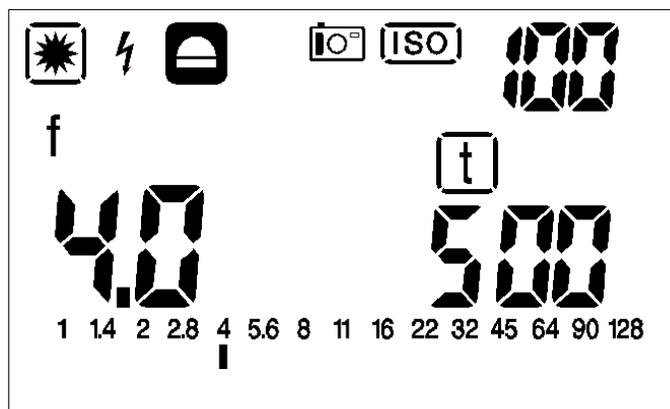
## 5.3   Exposure value ⌊EV⌋

- Press the button **M** 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.
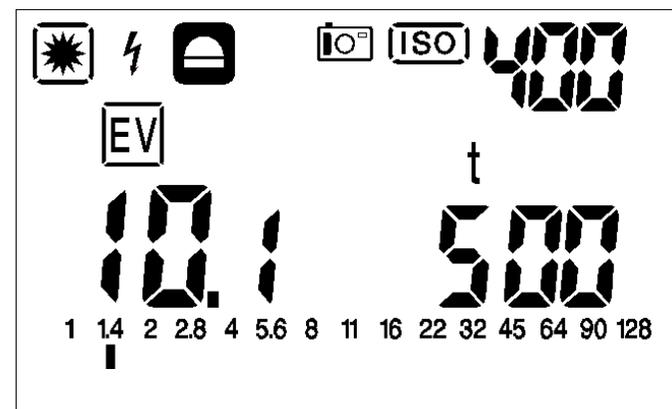
5.4 Contrast measuring
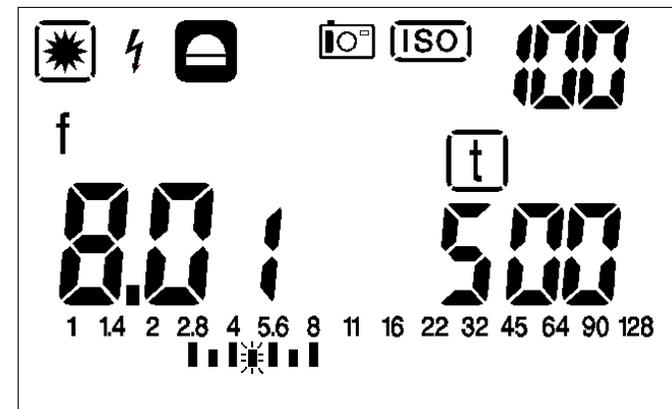###   in the t and EV functions

**Contrast of the subject reflected light
measuring through the viewfinder**

- Keep the measuring button 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 M, the
 measured subject contrast range appears on the
 analogue scale.
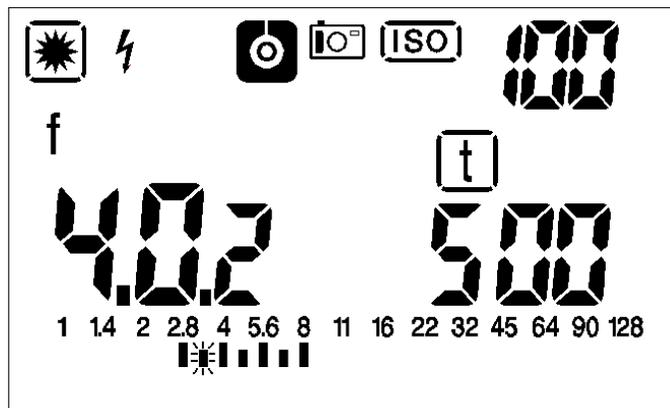
**Illumination contrast
with flat or spherical dome**
- Keep the measuring button M pressed to measure
 the different light sources.
- The first measuring value appears an the left digital
 display. It is constantly displayed as a reference
 value (e.g. main light source) during the course of the
 entire measuring process. The actual measuring
 value flashes on the analogue scale.
- After you release the measuring button 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 **M**.
- - With the average measuring button **AVR** 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 **AVR**, 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).
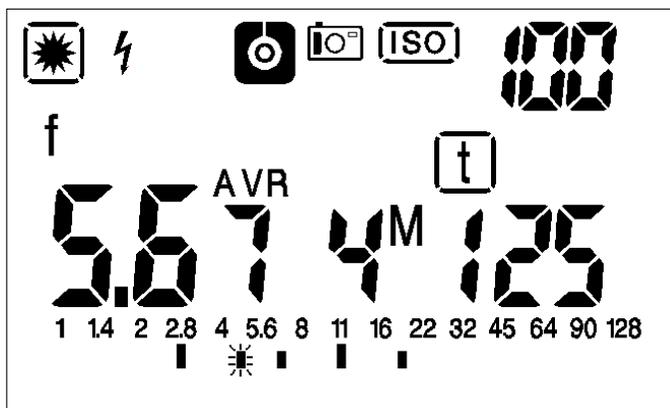
Incident light with flat or spherical dome

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.
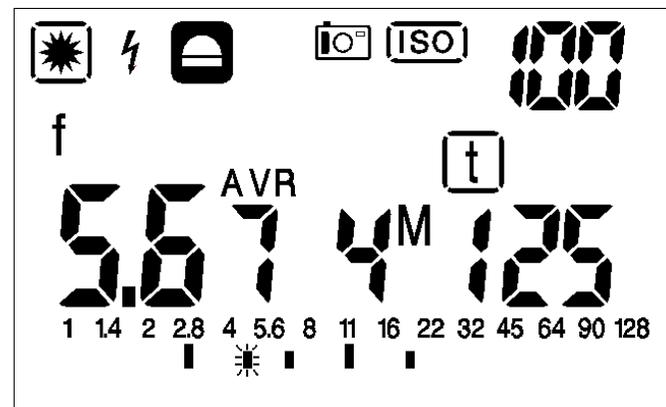
5.6 Selecting the exposure time values

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 2 can also be set
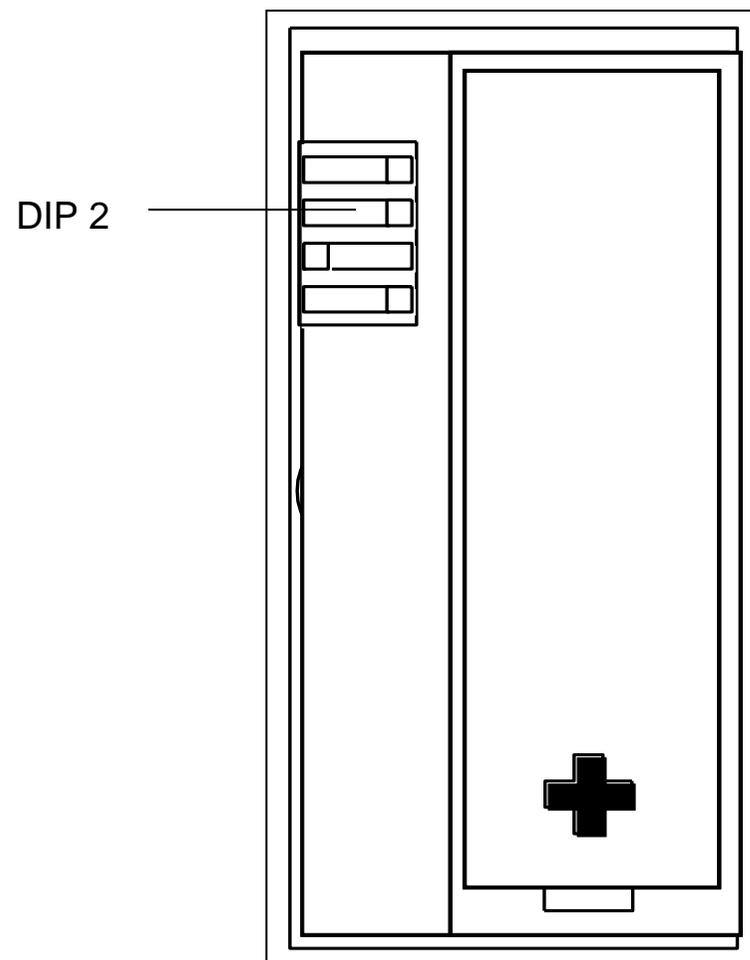additionally to half time values.
The selection is made activating the DIP 2 switch:
- 1/1 full time values
   Exposure times are displayed in 1/1 full time values
   or when using the CINE function, in the standard
   CINE film speeds.
- 1/2 half time values
   Exposure times are displayed in 1/2 half time values.
   With this function, additional CINE speeds are
   displayed.

DIP 2

5.7 Taking measurements in the zone system

This function is mainly used to cope with subject contrasts.
In addition to the influence of Illumination, there is a further possibility of optimizing the contrast range in the workflow.
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 2 and the zone system
The STARLITE 2 allocates different brightness ranges to predefined graduated zones of grey. Variations of these grey topes from the middle zone determine the exposure correction and the changes in the digital workflow.

Taking measurements in the zone system
For using the zone system activate the switch DIP 4 in the battery compartment.
- Set the dome ring at the measuring head to the "reflected light - 1 °".
- Keep the left menu button ◀ pressed and select the sub-function **ZONE** using the setting wheel.
- Using the viewfinder, focus on the spot of the subject, which should still be shown up in the motif.
- Press the measuring button M. The meas. value will then be automatically allocated to zone V.
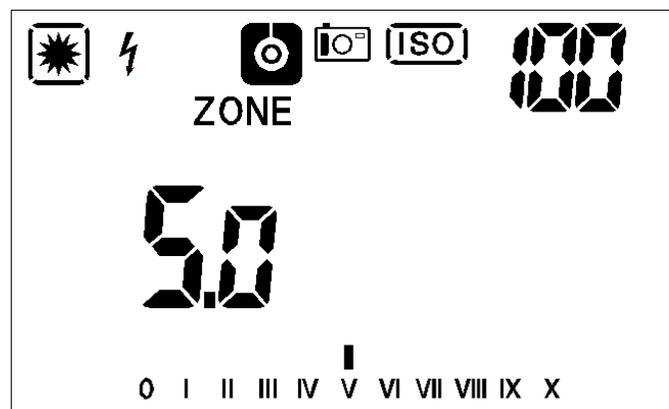
- Using the setting wheel, place the measuring value in the zone where the value should be, e.g. zone III.
- Now you can measure up to 8 further spots in the subject using the measuring button **AVR** - the most important brightest spot, which should still show detail in the subject, must be included.
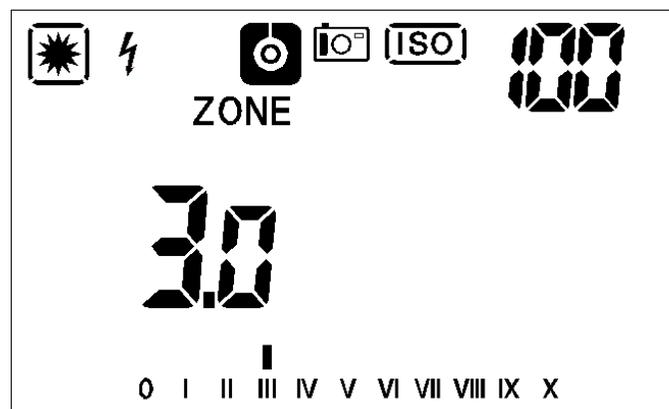
After each measurement using the measuring button **AVR** the following data are stored and displayed:
- the symbol **ZONE** and the last measured value are displayed on the left
- the number of measurements made are displayed on the right (4 measurements in the example)
- on the zone scale the currently 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 "ambient light" ✳ function 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.
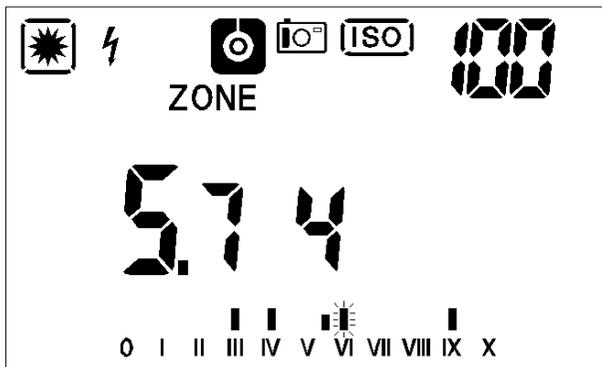
If, by mistake, you take a zone measurement in the incident light mode (flat or spherical diffuser), you are reminded by the flashing diffusor symbol ⬓ that you have to set the diffuser ring to 1 ° spot metering.

Black and white photography
Note down the subject contrast for the film development and adjust the development time in accordance with the contrast range.
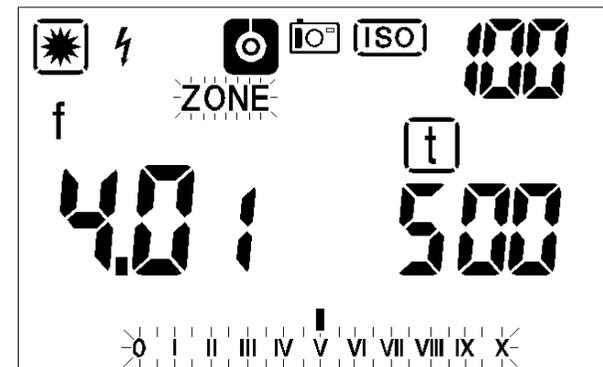
6 Measuring functions- Flash light ⚡

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/noncord). If
a sync cord is used, the flash is automatically triggered
and measured with the measuring button **M**.

6.1 Flash light measuring ⚡
- Select the menu ⚡ using the right menu 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 **M**. The
  STARLITE 2 is ready to measure for about 45 s (as
long as **F** is displayed on the display panel).
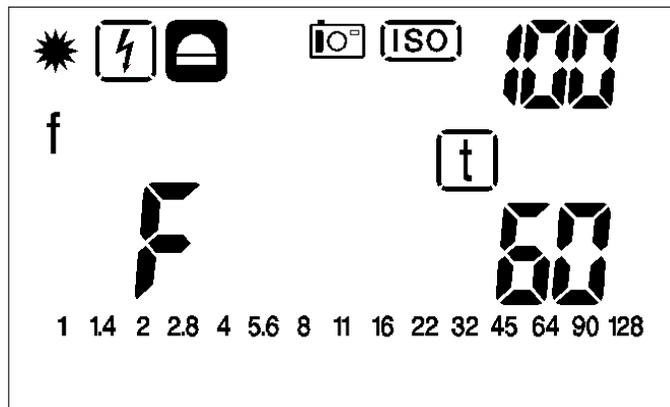
- Trigger flash
  When using a sync cord, the flash is triggered and
  measured automatically when pressing **M**.
- The measured f-number (sum of flash light and
  ambient light) appears both in the left digital display
  (resolution 1/10 stops) and as a flashing indicator in
  the analogue scale rounded 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.
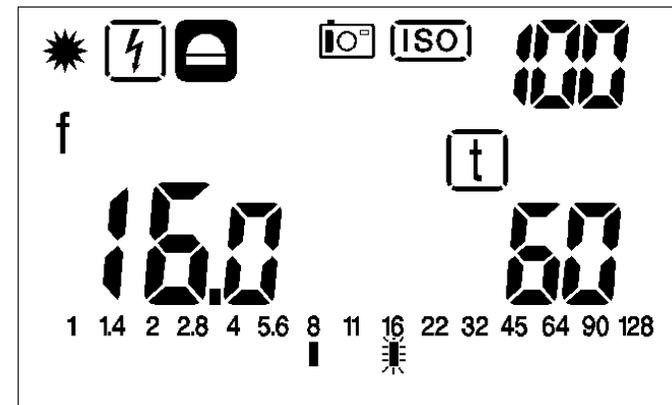
6.2 Flash calculation for changed measuring times

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 2 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.
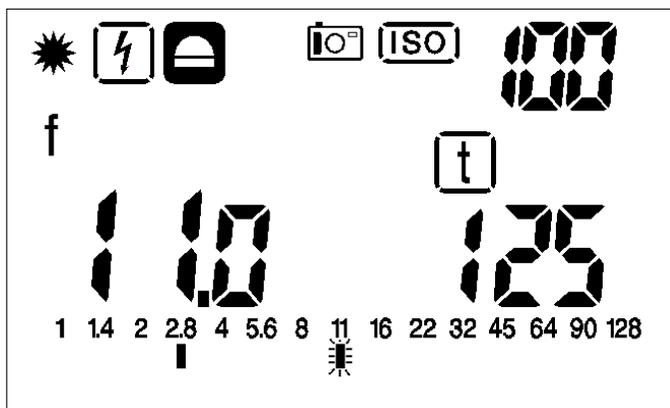
6.3 Multiple flash calculation

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 ⒡. Release the menu button and select the desired f-stop.

The STARLITE 2 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 2 will calculate up to a max. of 9 flash sequences.
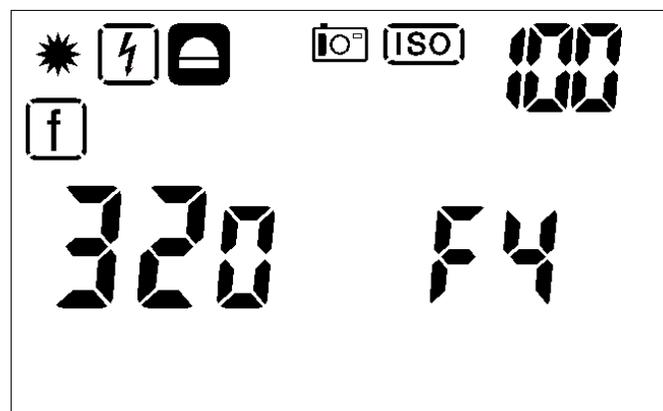
6.4　Average value

- Take first measurement using measuring button **M**
- Messure up to a further 8 flashes using the
  average value measuring button **AVR** .
  The individual measurements are shown an 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 **AVR** , the average
  value of all previous measurements is always
  displayed. The average value **AVR** is shown in the
  digital display:
  at the left ⚡ 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).
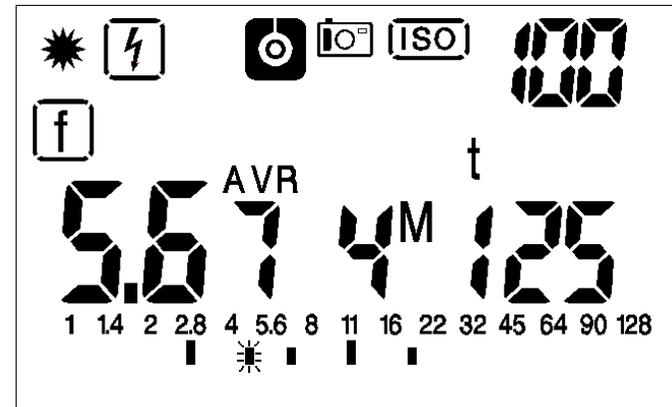
7 Taking a measuring outside the measuring range - display range

7.1 Taking a measurement outside the measuring range

- There is no usable measuring result outside the measuring range of the STARLITE 2.
- If it is too dark or too bright during the measurement, Err (= Error) appears in the left digital display.
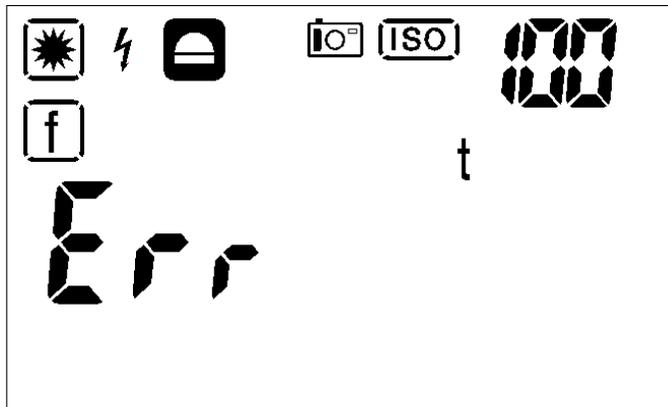
7.2 Taking a measurement outside the display range

If the symbol **uu** or **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
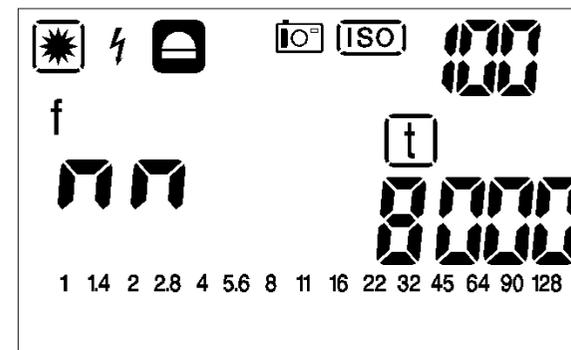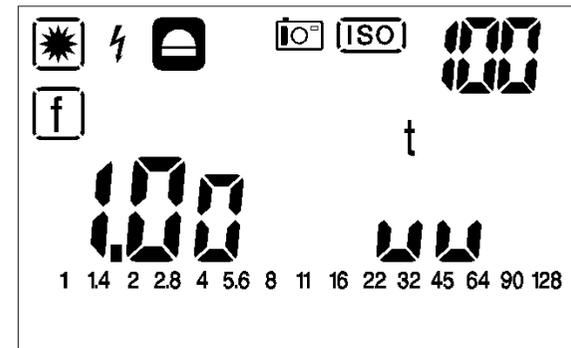
8 Setting and measuring correction values and extension factors

8.1 Setting correction values

- By simultaneously pressing both menu 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 ±9.9 exposure value stop increments.

For correction values which extend the exposure a " - " appears in front of the number.
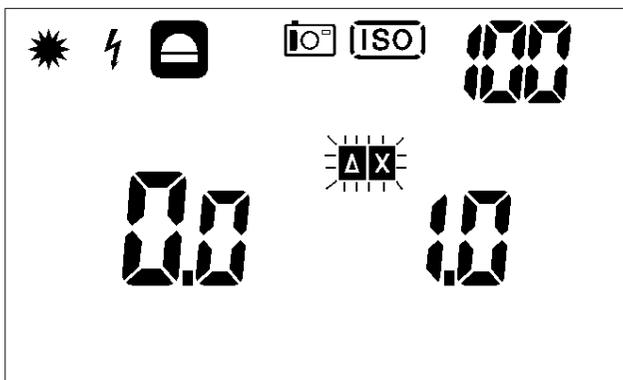
Example:
-3.1 stops correspond to the extension factor 8.6. For corrections which shorten the exposure, only the left display appears as EV difference in stop increments. By pressing one of the menu buttons (◀ or ▶) the correction value is stored in the memory of the STARLITE 2. The symbol ΔX appears in the display.
The correction value is automatically taken into account in all measuring functions (except for the photometry).
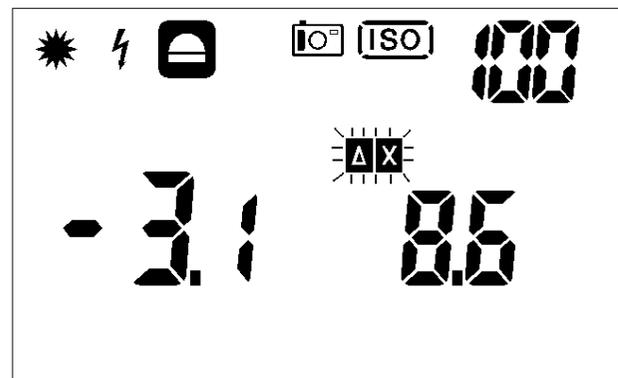
8.1.1 Measuring correction values ⊿⊠

Correction values can also be measured directly.
An evenly illuminated surface and constant light level
are required.
Use the STARLITE 2 in the reflected light mode at
1 ° or 5°.
In the function ⊿⊠, a reference measurement can be
taken by pressing the measuring button **M**.
Designation **rF - -** in the digital display.
Then, hold the filter in front of the viewfinder and press
the measuring button **AVR**.
The light reducing effect will be indicated automatically in
the display as EV stop and extension factor.
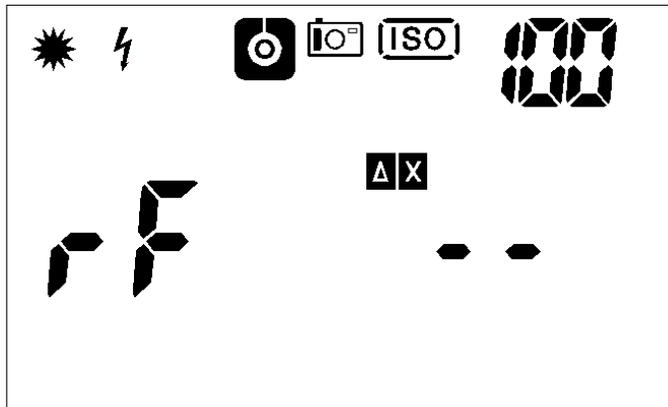
8.1.2 Deleting correction values

In the function ⊿⊠ - 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 **M**
  (display **rF - -**)
- quit the correction value function using the
  menu button (◀ or ▶)
Correction value is deleted.
Symbol ⊿⊠ has disappeared from the display.
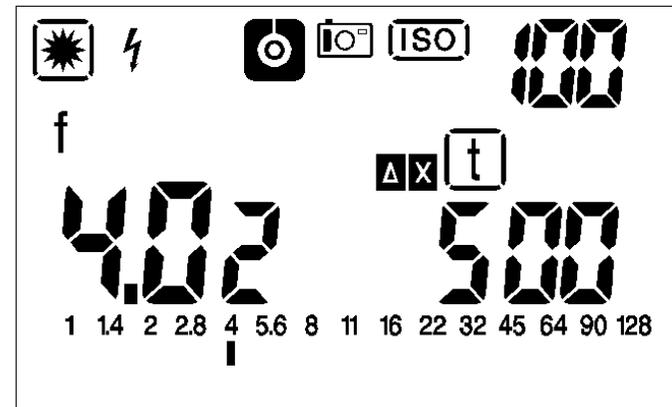
9 CINE meter for cinematographers - PHOTOMETRY

By actuating the **DIP 1** switch, the STARLITE 2 can be converted easily and quickly into a fully functional CINE meter. At the same time switch on the function photometry.

CINE metere 📹

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

9.1 Preselecting the Cine speeds f/s
- Press and hold the left menu button ◀ and using the setting wheel set the speed "f/s". The function is shown in the display as f/s
- 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 M
- 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.
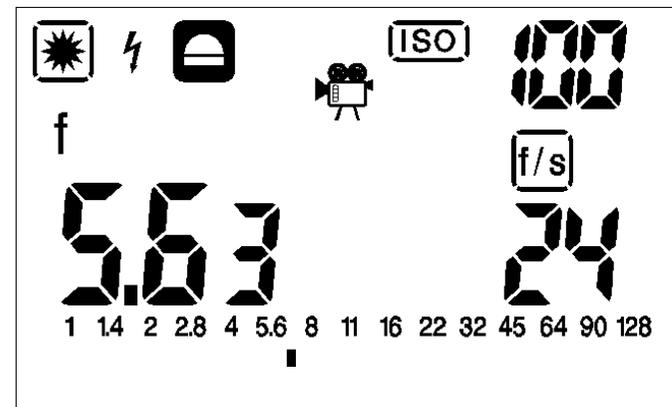
9.3 Setting the shutter angle

The shutter angle in the STARLITE 2 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 menu 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 menu button (◀ or ▶) you move back into the measuring function. The selected angle is shown in the display with the symbol ∆x.
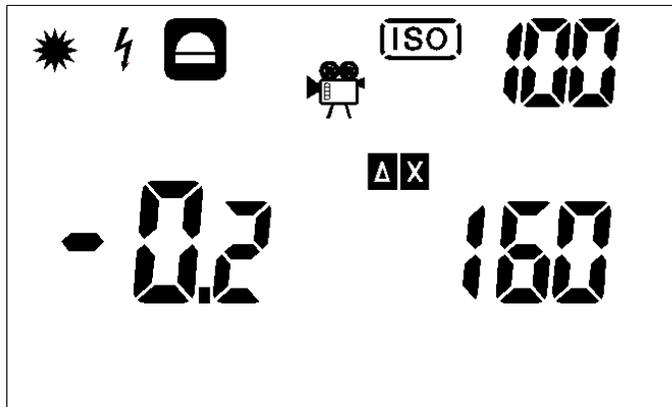
A shutter angle other than 180° has a direct influence on all measuring functions in the CINE function; corrected measuring values are shown directly in the display.

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.
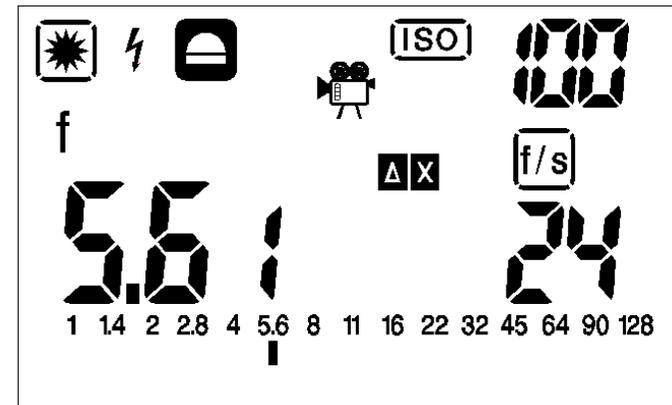
10 Photometry

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, cd/m^2**: the photometric incident measurement values are displayed in the standardised units (lx, lxs, cd/m^2, 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 menu 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 diffuser.
    When setting the dome 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 Ⓜ.
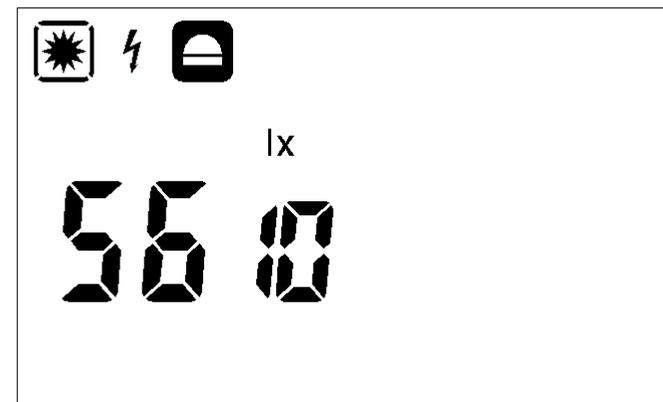
10.3 Measuring the luminance candela / m^2 (cd/m^2) or footLambert (fL)

- Set the measuring head to reflected light measuring **1°** ⊙ or **5°** ◑. 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 **M** The selected display unit and measured luminance are displayed.
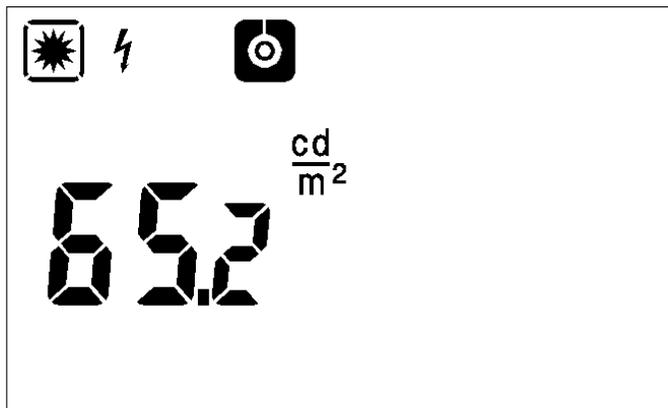
10.4 Measuring time-integral values (lxs, fcs, cds/m^2, fLs)

- 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 menu button ▶ 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 **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.
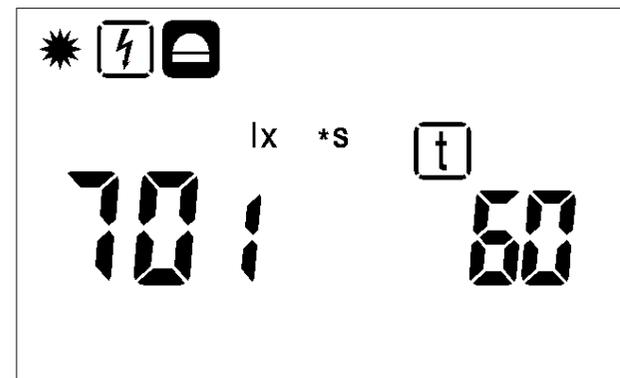
11   Practical Tips

Programming Influencing Quantities
Your STARLITE 2 ascertains precise exposure data in accordance with DIN 19010. In the event that you're not satisfied with the results, keep in mind that there are related influencing quantities which may effect how well your image recordings turn out, for example:

"Actual" film speed may differ.

Your camera's "actual" shutter speeds may deviate somewhat from the nominal values.

Your camera's "actual" f-stops may differ from those specified.

Deviations may occur while developing negatives and prints.

And all of this is compounded by subjective factors and personal taste when evaluating finished pictures.

However, you can adapt your STARLITE 2 to your camera's individual characteristics, your workflow and your own subjective evaluation criteria.

We recommend the following method: Carefully measure several standard objects (gray charts, gray step wedges and color charts are very well suited to this end) after performing object and incident light measurement, and complete a series of exposures for each using the value ascertained by your STARLITE 2. The first image is recorded with the exposure value displayed by the STARLITE 2. This exposure value is increased or reduced by up to one f-stop for the following images, depending upon lens resolution. Lighting conditions must remain unchanged during recording of all images. Pick out the best image from the developed or printed pictures according to your taste, and compare its data with the measurements. If images recorded with a changed value look better to you, you can program the corresponding value into your STARLITE 2 with the help of the **correction values** function (see section 8.1 on page 27).

Contrast and Ideal Exposure

The basic rules for ideal exposure specify that the brightest and darkest parts of the image must show adequate detail. Personal taste and creative artistic intent may, of course, render these rules null and void. Thus only general recommendations can be provided regarding the subject of ideal exposure.

It's important to consider the fact that the final product (photo, print etc.) is only capable of processing a small contrast range in comparison with the human eye. With the STARLITE 2, you can determine lighting contrast with the incident light measurement method and object contrast with the object measurement method. In both cases, contrast is shown at the analog display.

It usually isn't possible to determine correct exposure for your motif by measuring the brightest and darkest points. These should be either a medium gray within the motif, or the mean value of the measurement results for the brightest and darkest points. The mean value is calculated automatically by the STARLITE 2. If you make sure that object contrast is greater than your workflow is capable of processing, you can brighten up shadows, for example with a brightening screen or a flash, and thus reduce object contrast.

When object contrast is taken into consideration by means of mean value generation, the following rules of thumb apply:

Negative Film

If two steps (exposure values) are not exceeded between bright and dark areas which are important for the image, each intermediate value could basically be used as a setting value (the mean value is more appropriate for more exacting demands). This produces a usable picture in most cases.

Denser negatives result in reduced definition.

In the case of negative film, the lowest, but nevertheless still printable density is important, and it's thus better to overexpose a bit rather than to underexpose.

Digital Photography – Color Transparency Film

In comparison with negative film, color transparency film is capable of managing greater object contrast, but its practically useful exposure latitude is significantly smaller.

Measurement of object contrast is the basis for deciding whether or not the motif can be reproduced realistically. If the motif necessitates nothing further, it's advisable to measure against the lights.

In the case of color transparency film, the important bright parts of the image are most significant. Keep this in mind, and remember that it's better to underexpose a bit rather than to overexpose. In this way, the colors appear more luminous and rich.

Nighttime Atmosphere
If you want to accurately capture a nighttime atmosphere with a lot of darkness and very little detail, it's best to use less exposure time than indicated by your STARLITE 2, in order to assure that the image doesn't look like a daytime recording. There are no fixed rules in this case. In order to gain experience, start with image recordings for which you can use the values displayed at the STARLITE 2 without changing them.

In the Snow
Due to the surrounding snow-covered landscape, object measurement will generally result in too little exposure. Portions of the motif which are important for the image would be underexposed due to the extraordinarily high reflectivity of snow. In order to adjust the measurement, record the image at plus 1 to 1½ exposure values.
However, incident light measurement is the better solution. It provides correct measurement results in a direct fashion. If you want to include special effects, for example emphasize fine nuances in shadows within the snow, subtract roughly ½ of a step from the adjusted value.

You can measure any photographic scene correctly with the STARLITE 2. Don't forget that too much may be demanded of the film itself in the event of extremely high object contrast.

The Zone System

Use of the zone system allows the photographer to evaluate differing brightness within the motif from an exposure standpoint such that (adapted to the output medium) an adequate tonal range and sufficient detail are present, even in bright and dark areas within the motif.

The measurement results obtained with the light meter correspond to the mean gray tone (18% reflection) in the zone V tone scale. Thanks to consistent application of the definitions for the individual zones, the STARLITE 2 is capable of allocating the measured value to a given zone specified by the photographer. This value, ascertained with zone 5, is set in the defined zones depending upon the effect to be achieved in the output medium.
In actual practice, for well know reasons, the digital photographer looks for this first measured value in the brightest part of the motif which still shows adequate detail.

This eliminates exposure uncertainty to a great extent, because with the system, the photographer is able to visually plan the final results in advance before each image is recorded.

Definitions According to Ansel Adams

Shadow zones
I Nearly black:
    blackening without detail,
    noticeable differences to zone 0
II Gray-black:
    insinuated detail,
    very dark shadows, black clothing,
    black textiles,
    dark pine forest in shadows
III Very dark gray:
    shadows with detail,
    forest in sunlight, moist earth

Medium gray tones
IV Dark gray:
    dark foliage and grass, stone, woodwork,
    shadow zones in portraits,
    sky with red filter
V Neutral gray or medium gray:
    grey tones with 18% reflection,
    gray chart, average detail in wood,
    stone, dark skin colors
VI Light gray:
    light skin color, bright blue sky,
    light colored stone,
    shadows on snow with sunlight

Bright zones
VII Very light gray,
    very light skin colors,
    bright textiles, snow with light from the side
VIII White with detail,
    brightest parts of the motif which still show detail,
    snow with detail,
    highlights on skin,
IX White without detail,
    polished surfaces,
    snow with sunlight from the front

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12   Technical data

Measuring capabilities
    Incident light measuring
    (option of flat or spherical dome)
    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 f1128
    Reflected 1°   f/2.8 to f/128
    Reflected 5°   f/1.4 to f/128
Measued 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
  Ix, fc, cd/m², fL, lxs, fcs, cds/m², 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)
Battery life
  For over 5000 measurings with alkaline-mangan
  batteries, with an assumed flash measurement
  proportion of 30 % and activated display
  illumination of 3 %
Dimensions
  approx. 16.4 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^2; 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^2; 0.1 to 500 fLs

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13   Service Interface

The STARLITE 2 has a built-in serial port on the outside of the housing. The devices are calibrated at the factory via this interface.

14   Service

No special maintenance is required, if the STARLITE 2 is handled correctly. Keep the outside surface clean. Use a slightly dampened cloth for cleaning. Do not use cleansers, abrasives or solvents.

Should the meter nevertheless not work to your satisfaction, please send the STARLITE 2 to:

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