

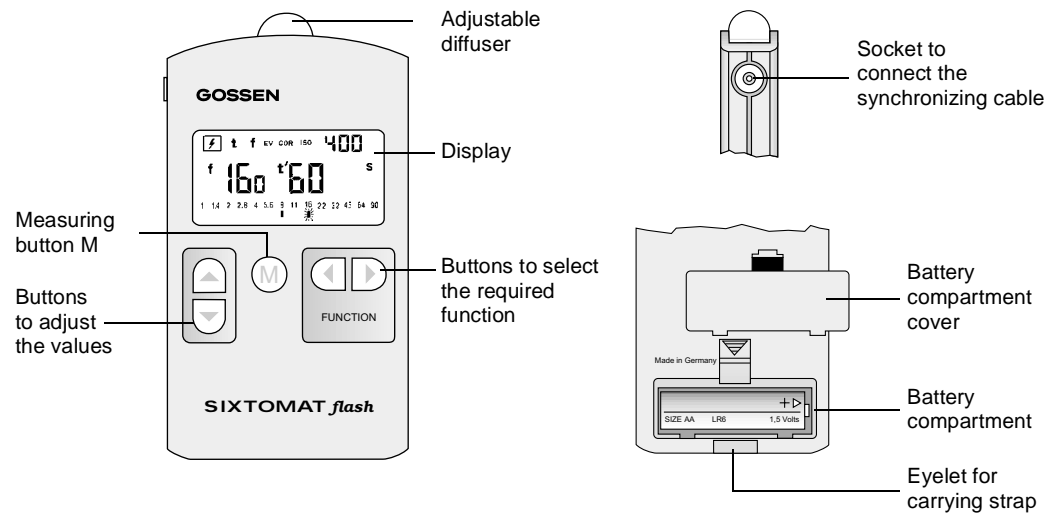
GOSSEN

Operating Instructions

15007 • 1/5.98



SIXTOMAT *flash*



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Your SIXTOMAT flash is an exposure meter with digital display from GOSSEN. It measures continuous light and flash, and it covers a wide measuring range with great accuracy.

A wealth of knowledge in the area of light metering, based on many decades of experience in the manufacture of exposure meters, is now being made available to the user, in the simplest manner possible, through microprocessor technology.

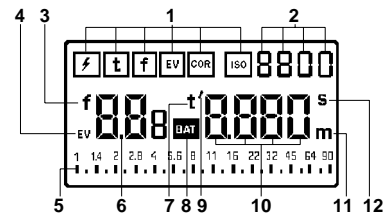
As a result of its precise calibration, the SIXTOMAT flash measures with the greatest accuracy, and operation is exceptionally simple and convenient.

Features characterising the SIXTOMAT flash:

- Measures incident and reflected light, flash (with cord or cordless) and the level of ambient light
- Microprocessor controlled
- Digital LCD display in tenth stops
- Analog contrast display in half stops
- Storage of settings and readings
- Programmable exposure correction
- Recall of all possible shutter speed/aperture combinations of a given reading
- Aperture or shutter priority preselection
- Extremely convenient to measure flash
- Covers the entire CINE scale (frames per second), including the TV standard 25 and 30 f.p.s.
- Warning when range is exceeded
- Automatic battery check
- Auto off

1 Display

1.1 The display and its elements



1 Functions

- Flash measurement
- Continuous light measurement with shutter priority
- Continuous light measurement with aperture priority
- Continuous light measurement with read-out of exposure values (EV)
- Entering the correction values
- Setting the film speed

2 Digital display of film speed DIN/ASA (ISO)

3 Display identification **f** for aperture

4 Display identification **EV** for exposure value (LW)

5 Analog aperture scale

6 Left-hand digital display

- Aperture **f**
- Exposure value **EV**
- Correction value stops
- Multiple flash
- Film speed in DIN

7 Display identification **t** for exposure time

8 Warning sign **BAT** for battery check

9 Display identification „/“ for fractions of a second

10 Right-hand digital display

- Exposure time **t**
- Exposure extension factor
- CINE (frames per second); symbol: \square
- Film speed in ASA

11 Unit symbol **m** = minutes

12 Unit symbol **s** = seconds

1.2 Display duration

The display is automatically shut off, i.e. there are no readings, if any control button of the SIXTOMAT flash has not been used for 2 minutes; the readings are stored.

- The stored values are recalled by depressing the function or value buttons
- Renewed measurement is instantly possible when the metering button is depressed.

The values of the last meter reading are stored until a new meter reading is taken.

The SIXTOMAT flash is fitted with separate memories for continuous light and flash measurement.

2 How the SIXTOMAT flash functions

2.1 Preparations

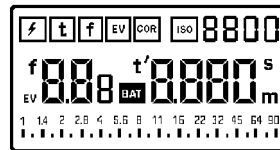
Battery

The SIXTOMAT flash operates with a 1,5 V AA-type battery (alkaline-manganese battery). Since the meter's power consumption is minimal, the battery will last for a long time. When the battery's capacity becomes exhausted, the **BAT** symbol appears on the display as a warning that the battery has to be replaced at the earliest possible opportunity.

Measurements cease to be possible if the display only indicates **BAT**. The battery must be immediately replaced.

To change the battery open the battery compartment of the SIXTOMAT flash. Remove the exhausted battery and insert the new one. Ensure correct polarity „+“ and „-“! Push back the battery compartment cover. Battery changing erases all stored values.

Self-Checking routine



The microcomputer performs a self-checking routine as soon as the battery has been inserted. Every possible display segment appears on the display during this routine. The duration of the self-checking routine is approximately 10 seconds, but it can be interrupted by depressing any button. The factory-programmed basic settings are automatically adjusted as soon as the self-checking routine has been completed.

Basic values

ISO	100/21°	COR	0/ 1.0
f	5.6	t	1/125
EV	12	Flash	f 5.6 1/60

2.2 Incident and reflected light measurement

With regard to its measuring possibilities and operation, the SIXTOMAT flash was designed for professional use. Due to its adjustable diffuser dome, the meter is easily adapted for the dedicated amateur and the professional photographer.

Incident light measurement leads to particularly precise exposures. With incident light measurement the SIXTOMAT flash is used with the diffuser dome in place, and pointed from the subject to the camera.

This guarantees a precise exposure in conformity with the correct tonal values of the subject. This is particularly important with inherently bright or dark subjects. Even in difficult exposure situations, for instance with contrasty subjects, incident light measurement with the diffuser results in far more accurate exposures to satisfy the most discerning professional requirements.

Measurement by the incident method is far more accurate and reliable to establish the correct exposure setting than the calculating of a mean value obtained with the reflected light measurement in your camera. In the latter case, the reading depends upon the range of contrasts of the subject. However, there is not always a uniform distribution of bright and dark areas of equal importance within the subject. Incident light measurement is also imperative with inaccessible subjects.

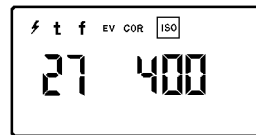
For this purpose it is necessary to select a point that has the same lighting level as the subject. And then a meter reading is taken that lies parallel with the projected connecting line between the actual subject and the camera. This very convenient method of light metering at a point with the same lighting level is highly recommended for outdoor shots. The measurement is performed with a complete „180°“ turn in front of the camera so that the reading is taken with the meter pointing towards the camera, i.e. opposite the actual picture shooting direction.

Incident light measurement, i.e. with diffuser, also gives a precise reading of the brightness range of the lighting. Both kinds of lighting – flash and continuous light – are measured with great accuracy by the incident light method with diffuser.

Parallel to this, the SIXTOMAT flash also offers the reflected light measuring method. In this mode the diffuser dome is pushed aside to the left or right, and the meter is pointed from the camera towards the subject. The meter now only measures the light reflected by the subject. Consequently, the reading always depends upon the inherent brightness of the subject!! This means that inherently brighter subjects are not precisely measured and therefore rendered darker. If readings are to be taken exclusively by the reflected light measuring method, then it is advantageous for the professional to use a grey card (18 % reflection) in this mode. The reflected light method is used to measure the subject contrast which is displayed by the SIXTOMAT flash on its analog scale (see Section 3.2.4 Contrast measurement, page 12).

3 The individual functions

3.1 Setting the film speed



- Select **ISO** with the function buttons
- Adjust the required ISO value with the value buttons (display left: DIN value, right: ASA value)

Once the film speed has been set, it is transferred to the memory of the SIXTOMAT flash when the meter is adjusted to any operating function, and remains visible on the top right-hand side of the digital display.

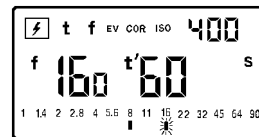
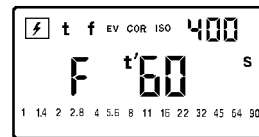
Any change of the film speed directly influences the stored paired aperture and shutter values. The selected film speed is retained in the memory until it is changed in the described manner.

3.2 Measuring functions – Continuous light measurement


- **Shutter priority** in function **t**:
a reading is taken for the corresponding aperture (see Section 3.2.3 Shutter priority mode – Continuous light measurement, page 11)
- **Contrast measurement** in function **t**:
(see Section 3.2.4 Contrast measurement, page 12)
- **Aperture priority** in function **f**:
a reading is taken for the corresponding shutter speed (see Section 3.2.5 Aperture priority mode, page 12)
- **Exposure value measurement** in function **EV**: the shutter speed is preselectable, and the aperture is given as an analog value (see Section 3.2.6 Exposure value EV, page 13)
- **CINE** (frames per second) in function **t**: (see Section 3.2.7 CINE scale (frames per second), page 13)

Select the required function with the corresponding function buttons.

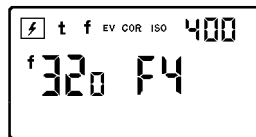
3.2.1 Flash readings



Readings can be taken with or without synchronizing cable. When used in conjunction with a synchronizing cable the flash is fired by depressing the (M) button – the flash is automatically fired and measured.

- Select  with the function buttons
 - Adjust the desired synchronizing speed with the value buttons. Synch range from 1 s to 1/1000 s (including 1/90 s)
 - Depress the measuring button (M).
- SIXTOMAT flash is operable for metering for a period of 45 s (meter readiness prevails as long as F remains visible on the display)
- Fire the flash
 - The measured aperture (total of flash and continuous light) appears on the left digital display, and as a flashing mark on the analog aperture scale. The aperture for the share of continuous light is additionally indicated on the aperture scale (in our example f/8).

3.2.2 Multiple flash

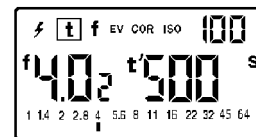


Occasionally the light output from a single flash may not be sufficient to enable you to work at the aperture desired. When this happens, simply push the top value button until the desired f/number appears in the display.

The digital shutter speed display disappears, to be replaced by information on the number of flashes that have to be fired for the desired f-stop (e.g.: F4 = 4 flashes).

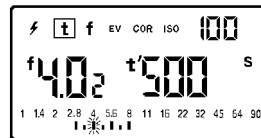
The SIXTOMAT flash will calculate up to a maximum of 10 flash sequences.

3.2.3 Shutter priority mode – Continuous light measurement



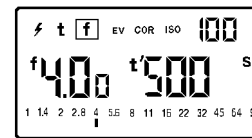
- Select **t** with the function buttons (the last stored value appears on the display)
- Adjust the desired shutter speed with the value buttons
- Measure by pressing the meas. button **M**
- The measured aperture appears on the left-hand digital display (accuracy: 1/10 stops), also as a rounded mark in the analog aperture scale
- Select alternative aperture/shutter speed-combinations with the value buttons

3.2.4 Contrast measurement



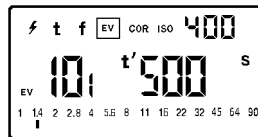
- Select **t** with the function buttons
- Keep the measuring button **M** depressed while aiming the meter at various areas of the subject. The analog aperture scale displays the f-stop series between two extreme values, and with the actual measured value flashing. The first measured f-stop is displayed on the left-hand side of the display (it remains displayed as a reference value (e.g. of a grey card)).
- After the measuring button is released, the entire measured contrast range is displayed on the analog aperture scale, and the last measured value will cease to flash.

3.2.5 Aperture priority mode



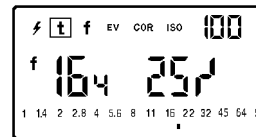
- Select **f** with the function buttons
- Set the desired aperture with the value buttons. The intermediate 1/10 stop values stored from the last measurement appear when the aperture is preset. These are invalid because the valid 1/10th stops will only appear after the next meter reading is taken.
- Measure by pressing the meas. button **M**
- The measured shutter speed appears on the right-hand digital display
- Automatic adaptation of the aperture in 1/10 stops to the measured shutter speed
- Select other paired aperture/shutter values with the value buttons

3.2.6 Exposure value EV



- Select **EV** with the function buttons
- Measure by pressing the meas. button **M**
- The measured exposure value appears on the left-hand digital display (accuracy: 1/10 stops), and the aperture as a rounded-off mark in the analog aperture scale
- Select with the value buttons other paired aperture/shutter speed values corresponding with this exposure value.

3.2.7 CINE scale (frames per second)



- Select **t** with the function buttons
- Select the desired Cine speed (f.p.s.) by increasing the shutter speed setting beyond 1/8000 sec. After approx. 1 second the meter switches over to CINE speeds. The symbol Γ appears on the display. The CINE speeds can be preset between 8 and 64 frames/second.
- Measure by pressing the meas. button **M**
- The measured aperture appears on the left-hand digital display (accuracy: 1/10th stops), and additionally as a rounded-off mark in the analog aperture scale

The displayed aperture applies to a 180° shutter blade. Enter a COR value in the function **COR** for other shutter blades as an extension factor.
 $V = 180^\circ$: open aperture angle

3.3 Measurements outside the measuring range

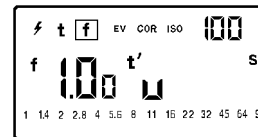


- The SIXTOMAT flash will not produce any useful readings outside its measuring range
- If it is too dark or too bright, an **E** (= Error) appears on the left-hand digital display, and alongside it **L** for too dark, or **R** for too bright

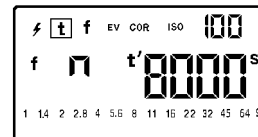
3.3.1 Display outside the display range

If the symbol **L** or **R** appears on the right or left digital display it indicates that the taken reading is outside the meter's display range.

With **L** actuate value button **▲** to enter the display range.



With **R** actuate value button **▼** to enter the display range.



3.4 Setting and measuring correction values
(see Section 3.4.4 Important remarks concerning correction values, page 17)

3.4.1 Setting correction values



- Select **COR** with the function buttons (the last valid correction value appears on the display)
- Enter or change the correction value with the value buttons

The extension factor is shown in the right-hand digital display, and the correction value in stops in the left-hand section.

Enter in 1/10th stops (small figure) within a range of ± 7.9 exposure value stops.

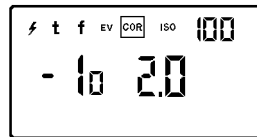
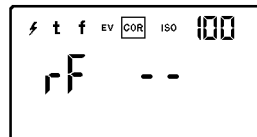
A figure preceded by „-“ indicates an exposure extending correction.

Example:

-3.1 stops equal factor 8.6.

In the event of an exposure shortening correction, only the left-hand display appears as an exposure value difference in stops.

3.4.2 Measuring correction values



Correction values can also be directly measured. However, measurement does require constant light.

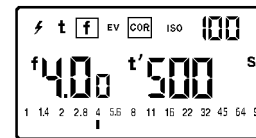
Depression of the measuring button initiates a reference measurement that is identified on the digital display by rF --.

Insert the light-reducing filter (e.g. neutral density filter) in the optical path, and press the measuring button.

The light reducing factor in stops, and the extension factor, automatically appear on the display.

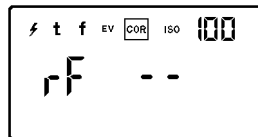
Pressing the function buttons transfers the correction values to the memory of the SIXTOMAT flash.

The box around **COR** still appears when a correction value was entered.



The COR value is now automatically considered in all subsequent measuring functions.

3.4.3 Cancelling correction values



- Select **COR** with the function buttons
- Press measuring button (display **rF --**)
- Select any other function with a function button
- Correction value is cancelled, and the box around **COR** disappears

3.4.4 Important remarks concerning correction values

The SIXTOMAT flash is a precision meter calibrated with great accuracy to provide exact exposure data. Should you still not be satisfied with the results, then you should remember that there are independent variables that can influence the success of your exposures.

For instance:

- the „true“ speed of your film can deviate from that on the pack
- the „true“ shutter speeds and f-stops on your camera can differ slightly from the rated values
- Deviations can arise when the film is processed

To above must be added purely subjective factors and matters of personal preference in the assessment of the finished photos. However, you can calibrate your SIXTOMAT flash to characteristics of your camera, your brand of film, your processing methods, and to your projector.

We recommend the following procedure:

Take the readings of a few normal subjects with the utmost care by the reflected and incident light measuring methods, and take five shots of each subject on colour reversal film. The first picture should be exposed with the exposure settings supplied by the SIXTOMAT flash. The exposure settings for the remaining shots are then increased and decreased, respectively, by half an f-stop and then a full f-stop. Make a note of the shooting conditions. These must not change while the five shots are being taken. Now select from the processed pictures the one you consider to be optimal and compare its settings with the meter readings.

If you find that you prefer exposures taken with settings that differ from those supplied by the meter, then these settings can be programmed into your SIXTOMAT flash. With your correction, the SIXTOMAT flash will give precise readings to produce optimal exposure results.

4 Service remarks

In the event that your SIXTOMAT flash is not working to your complete satisfaction, please send it to:

GOSSEN Foto- und Lichtmeßtechnik GmbH
Lina-Ammon-Str. 22
D-90471 Nürnberg
Tel.: 0911 / 8602-180
Fax: 0911 / 8602-142

or to the GOSSEN Agency in your country.

5 Technical data

Measuring methods	Incident light Reflected light Contrast measurement Flash (cord/cordless) Indication of ambient light share Calculation for multiple flash Programmable exposure correction	Flash synch speeds (meas. time)	1 to 1/1000 including 1/90 s
		CINE values	8 to 64 including 25 and 30 TV)
		Adjustable and measurable correction values	-7.9 to +7.9
		Extension factors	1.0 to 240
		Film speeds	ISO 3.2/6° to 8000/40°
		Acceptance angle for reflected light	25°
Sensor	Silicon blue cell photodiode	Battery	1 x 1.5 V AA-type, battery condition indication
Measuring range (with ISO 100/21°)	LW -2.5 to +18	Accessories	Case, neck strap, battery and operating instructions
Repeatable accuracy	±0.1 EV		
Exposure times	1/8000 s to 60 min	Dimensions	ca. 65 x 118 x 19 mm
Aperture stops	f/1 to f/90 9/10	Weight	ca. 95 g (without battery)
Measuring range flash (with ISO 100/21°)	f/1 to f/90		

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