GOSSEN

Gebrauchsanleitung
Instructions for Use

SIXTOMAT

digital

11438

Diffuser setting for **incident light measurement**

Diffuser setting for **reflected light measurement**

Battery compartment cover

Serial number

Battery compartment

Eyelet for carrying strap

25

Instructions for Use

Adjustable diffuser

Display
(see Section 1.1, page 28)

Measuring button M

Buttons to select the required function

Buttons to adjust the values

SIXTOMAT *digital*

24

Contents

26

Your GOSSEN **SIXTOMAT** *digital* is an exposure meter with digital display. It is intended for all continuous light measurements, and 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 very elaborate and precise calibration, the **SIXTOMAT** *digital* measures with the greatest accuracy, and operation is exceptionally simple and convenient.

Features that characterise the **SIXTOMAT** *digital*:

– Two measuring methods: Incident and reflected light
– Microprocessor controlled
– Digital LCD display in tenths stops
– Analog contrast display
– Storage of settings and readings
– Programmable exposure correction
– Recall of all possible paired settings of a given reading
– Aperture or shutter priority preselection
– 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

t	Shutter priority
f	Aperture priority
EV	Exposure value display ("EV")
COR	Entering the correction value
ISO	Setting the film speed

2 Digital display of film speed ASA (ISO)
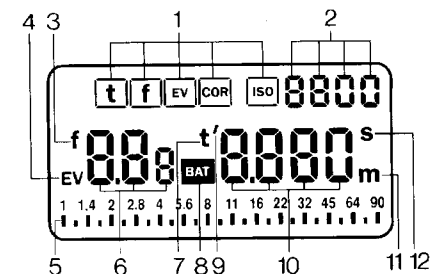3 Display identification **"f"** for aperture
4 Display identification **"EV"** for exposure value
5 Analog aperture scale
6 Left-hand digital display
   – Aperture **f**
   – Exposure value **EV**
   – Correction value stops
   – Film speed in DIN
7 Display identification **"t"** for exposure time

8 Warning sign **"BAT"** for battery check
9 Display identification **"/"** for fractions of a second
10 Right-hand digital display
   – Exposure time **t** (shutter speed)
   – Exposure extension factor
   – CINE (frames per second); symbol: ⌐
   – Film speed in ASA
11 Unit symbol **"m"** for minutes
12 Unit symbol **"s"** for seconds

1.2 Display duration

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

2 How the SIXTOMAT *digital* functions

2.1 Preparations

Battery
The **SIXTOMAT** *digital* 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** *digital*. 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
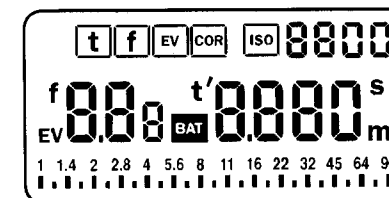
2.2 Incident and reflected light measurement

With regard to its measuring possibilities and operation, the **SIXTOMAT** *digital* was designed for professional use. Due to its adjustable diffuser dome, the meter is easily adapted to all measuring methods used in practice.

Incident light measurement leads to particularly precise exposures. With incident light measurement the **SIXTOMAT** *digital*, when used with the adjusted diffuser dome, points from the subject towards the camera to measure the incident light. 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 recommendable 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.

Parallel to this, the **SIXTOMAT** *digital* 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** *digital* on its analog scale (see Section 3.2.2 Contrast measurement on page 35).
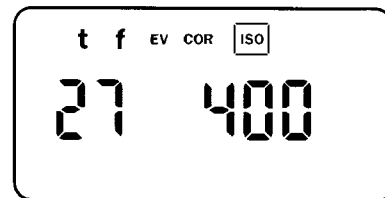
3 The individual functions

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** *digital* 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 The measuring functions

Shutter priority in function |t|,
a reading is taken for the corresponding aperture.(see Section 3.2.1, page 34).

Contrast measurement in function |t|,
(see Section 3.2.2, page 35).

Aperture priority in function |f|,
a reading is taken for the corresponding shutter speed (see Section 3.2.3, page 36).

Exposure value measurement in function |EV|,
the shutter speed is preselectable, and the aperture is given as an analog value (see Section 3.2.4, page 37).

CINE speed (frames per second) in function |t|
(see Section 3.2.5, page 37).

Select the required function with the corresponding function buttons:

3.2.1 Shutter priority mode

–   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 measuring button **M**.
–   The measured aperture stop appears on the left-hand digital display (accuracy: 1/10th stops), also as a rounded-off mark in the analog aperture scale.
–   Select alternative aperture/shutter speed-combinations with the value buttons.
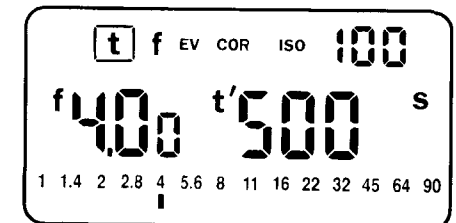
3.2.2 Contrast measurement

- 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) throughout the entire measuring procedure.
- 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.

  Contrast range of the subject:
 without diffuser.
  Contrast of illumination:
  with diffuser on.


```
⊞t⊞ f  EV  COR  ISO  100
f4.0    t'500           s
1 1.4 2 2.8 4 5.6 8 11 16 22 32 45 64 90
```
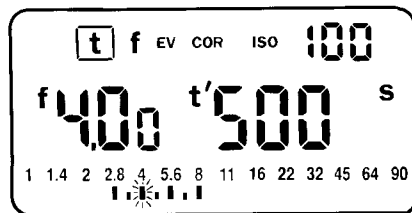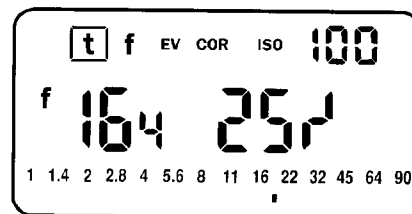
3.2.4 Exposure value "EV"

- Select ⊞EV⊞ with the function buttons.
- Measure by pressing the measuring button **M**.
- The measured exposure value appears on the left-hand digital display (accuracy: 1/10th 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.


```
t  f  ⊞EV⊞ COR  ISO  400
EV 12.1  t'60          s
1 1.4 2 2.8 4 5.6 8 11 16 22 32 45 64 90
```
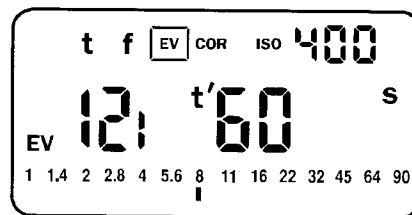
3.2.5 CINE scale (frames per second)

- Select ⊞t⊞ with the function buttons.
- Select the desired speed (f.p.s.) with the value buttons. For this purpose exceed 1/8000th s. After approx. 1 second the meter switches over to CINE speeds. The symbol ⌐ appears on the display. The cine speeds can be preset between 8 and 64 frames/second.


```
⊞t⊞ f  EV  COR  ISO  100
f16.4   25⌐
1 1.4 2 2.8 4 5.6 8 11 16 22 32 45 64 90
```

3.2.3 Aperture priority mode

- Select ⊞f⊞ with the function buttons.
- Set the desired aperture with the value buttons.

Note:
The intermediate 1/10th 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 measuring button **M**.
- The measured shutter speed appears on the right-hand digital display – Automatic adaptation of the aperture in 1/10th stops to the measured shutter speed.
- Select other paired aperture/shutter values with the value buttons.


```
t  ⊞f⊞ EV  COR  ISO  100
f22.0   t'30           s
1 1.4 2 2.8 4 5.6 8 11 16 22 32 45 64 90
```

- Measure by pressing the measuring button **M**.
- The measured aperture appears on the left-hand digital display (accuracy: 1/10th stop), and additionally as a rounded-off mark in the analog aperture scale.

The displayed aperture applies to a 180 degree shutter blade.
Enter a COR value in the function ⊞COR⊞ for other shutter blades as an extension factor
  V = 180°: open aperture angle
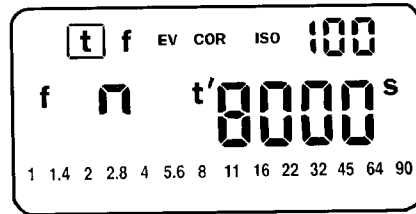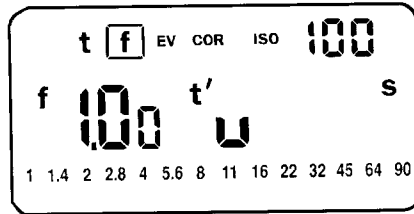
3.3 Measurements outside the measuring range

- The **SIXTOMAT** *digital* 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 " ⊔ " for too dark, or " ⊓ " for too bright.


```
t  ⊞f⊞ EV  COR  ISO  100
Eu
```
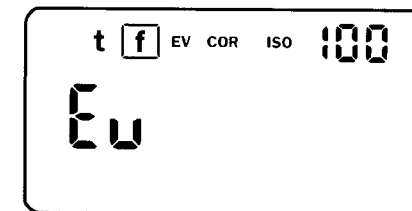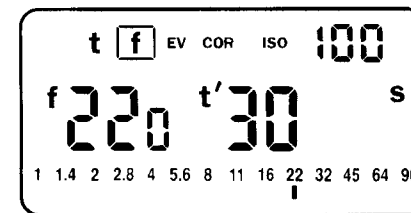
3.3.1 Display outside the display range

- If the symbol " ⎵ " or " ⎴ " appears on the right or left digital display it indicates that the taken reading is outside the meter's display range.

- With " ⎵ "actuate value button ▲ , to enter the display range.

- With " ⎴ "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)

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.
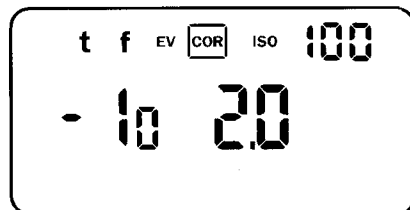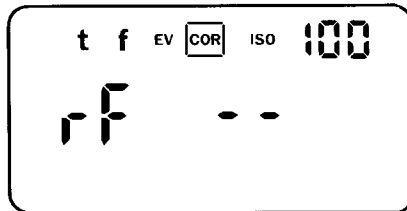
3.4.2 Measuring correction values

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** *digital*.

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.
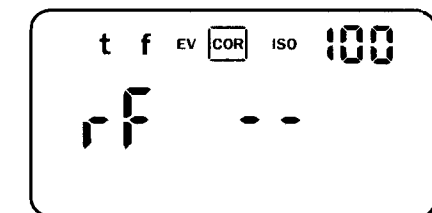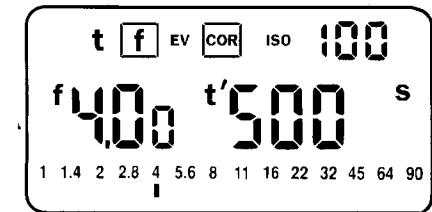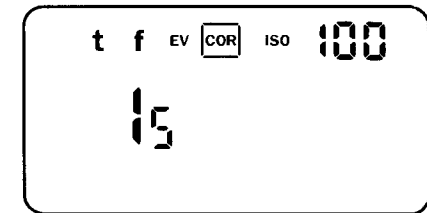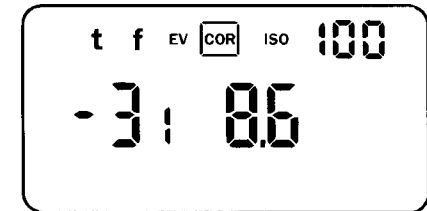
3.4.4 Important remarks concerning correction values

The **SIXTOMAT** *digital* 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 the 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** *digital* to the 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** *digital*. 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.

43

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** *digital*.

Wih your correction, the **SIXTOMAT** *digital* will give precise readings to produce optimal exposure results.

4 Service remarks

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

GOSSEN-METRAWATT GMBH
Service
Thomas-Mann-Straße 16-20
D-90471 Nürnberg
Germany

or to the GOSSEN Agency in your country.

44

5 Technical Data

Measuring methods	Incident light Reflected light
Sensor	Silicon blue cell photodiode
Measuring range (at ISO 100/21°)	EV – 2.5 to + 18
Repeatable accuracy	± 0.1 EV
Exposure times	1/8000 sec. to 60 minutes
Aperture stops	f/1 to f/90 9/10
Cine speeds	8 to 64 f.p.s., incl. 25 and 30 (TV)
Adjustable and measurable correction values and	– 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°
Battery	1x 1.5 V AA-type; battery condition indication
Accessories	Case, neck strap, battery, and Operating Instructions
Dimensions	approx. 65 x 118 x 19 mm
Weight (without battery)	approx. 95 g

45

Another two state-of-the-art meters from the GOSSEN range:

SPOT-MASTER
1°-Spotmeter for
 Flash
 ambient light
 and
 zone system
All settings, readings, and subject can be seen together in the viewfinder.

COLORMASTER 2F
COLORMASTER 3F
Colour temperature meter for
 Flash
 and
 ambient light
Direct display of mired filter values and the Kodak-Wratten filter values.

46