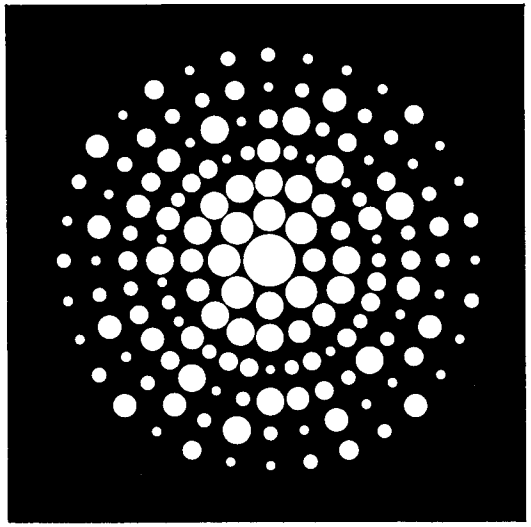
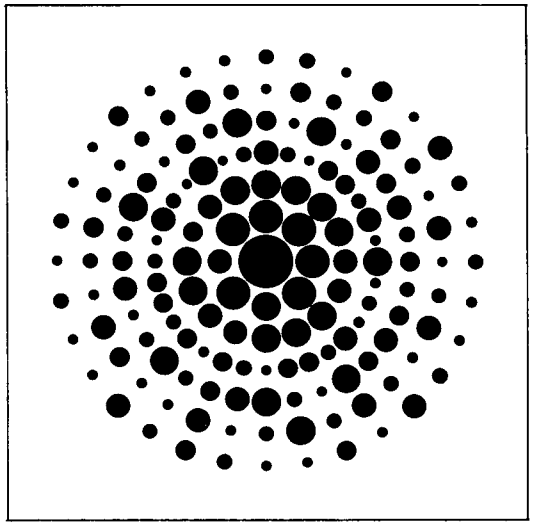
GOSSEN

Operating Instructions



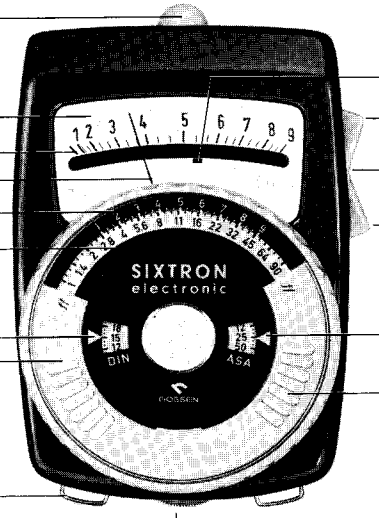


Your Sixtron-electronic Flash Meter

. . . is a new member of the world-famous GOSSEN family of precision meters for photographic purposes. It measures flash intensities by the most advanced electronic methods and thus joins the renowned, Lunasix and other fine GOSSEN meters in providing reliable exposure information.

Like all GOSSEN exposure meters, the SIXTRON-electronic is easy to use. It is cordless and may, therefore, be placed at any position or distance from the flash unit for convenient measuring under all conditions.

We suggest that, before you start using the meter, you read pages 2 to 7 to acquaint yourself with its specific features and operating principles. Once you are familiar with these, you will find it easy to follow the concise 6-point check list on the following page.



Spherical diffuser 1

Meter scale 2

Zero check-line 3

Meter needle 4

Transfer scale 5

f/stops (lens apertures) 6

DIN exposure index values 7

Film speed setting disk 8

Eyelets for neckstrap 9

Knurled ring for electric zero adjustment 10

11 Check mark for battery test

12 Forward wing for

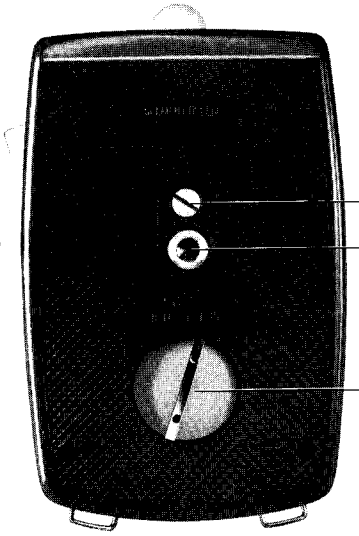
13 Rocker switch

14 Rear wing for flash measurement

15 ASA exposure index values

16 Ridges for film speed

Battery 15 V Type IEC 10 F 15
(see also page 8)



17 Screw for mechanical zero adjustment

18 Tripod socket

19 Battery chamber

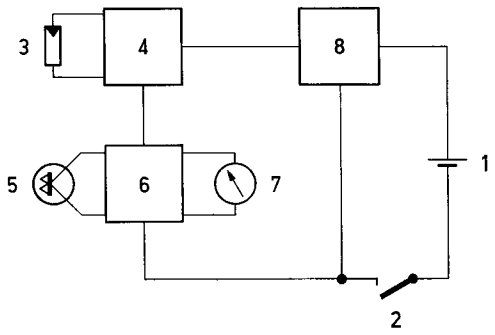
Operating check-list

1. Turn film speed setting disk (16) to set ASA value in window (15)
2. Check mechanical and electric zero positions (see page 13)
3. Briefly depress rear wing (14) of rocker switch (13) to activate instrument
4. Hold or place meter in measuring position
5. Operate flash unit
6. Read f/stop (6) at transfer scale value (5) of needle reading (2).
   Note: The indicated f/stop always applies to a shutter speed of $^1/_{100}$ – $^1/_{125}$ sec.

THE INSTRUMENT SWITCHES ITSELF OFF AUTOMATICALLY ABOUT 3 MINUTES AFTER SWITCH-ON.

You will find the following information helpful to understand the operating principle and functioning of your SIXTRON-electronic.

BLOCK DIAGRAM OF THE SIXTRON-electronic FLASH METER



1 Battery
2 Rocker switch
3 Silicon cell
4 Electronic trigger (switching circuit)
5 Silicon photo transistor
6 Integrating circuit
7 Meter
8 Terminating (switch-off) circuit

The SIXTRON-electronic measures the short high-intensity light pulses of electronic flash units. It integrates the total light energy (lumen seconds) in the same manner as the emulsion of the film does for its exposure within the flash duration.

Momentary pressure on the rear wing of the rocker switch (2) sets the meter for a 3-minute readiness period; however, this does not open the circuits for actual measurement. But, within less than a microsecond ($^1/_{1\,000\,000}$ sec) after the flash starts, the silicon cell (3) in conjunction with the transistorized triggering circuit (4) 'opens' the actual measuring circuit (5-6-7) which is kept active even for the longest flash duration normally encountered in electronic flash units. During this very short interval the color-corrected phototransistor (5) and its transistorized circuit (6) integrate the light of the flash and the ambient light. The resulting measurement is indicated by the meter needle (7) and remains 'locked in' until the terminating circuit (8) automatically disconnects the battery from the circuitry – or until a new measuring cycle is started by again depressing the rear wing of the rocker switch.

Detailed operating instructions

Your SIXTRON-electronic Flash meter is designed to give you consistently accurate measurements. Please follow the various operating steps carefully to assure correct results.

To facilitate exact reading, the meter scale has a mirror surface. Read the needle position in which the needle covers its own reflected image.

Carefully check the **mechanical** and **electric** zero settings and the condition of the **battery.**

Mechanical zero setting.

Like all precision measuring instruments, your SIXTRON-electronic permits mechanical zero setting of the meter needle. Normally such adjustment becomes necessary only if the instrument has had rough handling.

The mechanical zero setting can be checked only when the instrument is switched off (see „Operating Principle"). To verify the switched-off condition, turn the knurled ring (9); when switched off, the needle position should remain unchanged. If the needle is not at the zero check-line (3), turn the zero setting screw (17) on the underside of the meter until the meter needle is exactly on the zero setting line. The battery need not be removed for this test.

Electric zero setting.

The electronic circuitry requires also an electric zero setting. The meter needle should remain on the check-line (3) when the instrument has been switched on (by depressing the rear wing (14) of the rocker switch (13). If the needle is not on zero, turn the knurled ring (10) until the needle covers the zero check-line (3).

Battery check and battery change.

With normal use, the battery supplied with your SIXTRON-electronic lasts for several thousand measurements. However, it is advisable to check the battery condition from time to time. For a battery test an exact mechanical zero setting – as described above – is essential.

To check the battery, hold down the forward wing (12) of the rocker switch (13). The meter needle should point to the battery check mark (11). If the needle rests to the left of the check mark, a fresh battery must be used.

To replace the battery, unscrew the cover of the battery chamber (19) – a coin will be useful for this. Be sure to insert the fresh battery with proper polarity of the + and – contacts. After inserting a fresh battery, immediately make the battery test described above.

Film speed setting.

Turn the setting disk (8) by the raised ridges (16) until the ASA number of your film is set against the triangular white marker.

Flash measurement.

The actual measurement is made in the manner of incident light measurements: Point the meter from the subject towards the camera. Naturally, the proper position of light sources should be arranged before measurement.

Momentarily depress the rear wing (14) of the rocker switch (13); this switches your meter on and holds it in readiness for about three minutes. A test flash will give you the meter reading to set your f/stop for the actual exposure. When you operate your electronic flash equipment, the meter needle (4) is deflected to one of the values on the meter scale (2).

Reading difference between E. F. meter and incident light meter	Modification of f/stop setting indicated by E. F. meter (fractions of f/stops) with camera shutter speed setting:			
	1/25 — 1/30	1/50 — 1/60	1/200 — 1/250	1/400 — 1/500
	close down	close down	open up	open up
1	1	1/2	1/3	2/3
2	2/3	1/3	1/6	1/3
3	1/3	1/6	1/10	1/6
4	1/4	1/10	0	1/10
5	1/10	0	0	0

Example: E.F. meter indicates f/8; incident light meter indicates, for ambient light, f/5.6 at 1/125 sec. The reading difference is, therefore, one f/stop. Thus, if shutter speed is changed to 1/500 sec, above table shows that lens must be opened by 2/3 f/stop from the reading indicated by the E. F. meter.

The scale values are repeated on the transfer scale (5) in the upper part of the computer ring. You simply read the applicable f/stop at the measured value on the transfer scale. The meter needle remains in the deflected position until the electronic terminating circuit switches the meter off. However, if you want to take a further measurement, you can start a new measuring cycle by again pressing the rear wing of the rocker switch briefly.

A tripod socket is provided on the underside of your SIXTRON-electronic so that you may conveniently attach it to a tripod at the measuring position.

Change of Shutter Speed Setting

The circuitry of your SIXTRON-electronic is designed to indicate the f/stop which will produce correct film exposure — regardless of flash duration — with a shutter speed of 1/100 — 1/125 sec.

When, for any reason, a different shutter speed is used and if, at the same time, the ambient light is extremely bright, the indicated f/stop must be modified. The modification factor is obtained with two parallel measurements from the same subject position:

1. Normal measurement (flash and ambient light) with the SIXTRON-electronic.
2. Measurement of the ambient light only, using a reliable exposure meter — like the GOSSEN LUNASIX 3 — with its hemispheric diffuser placed before the CdS cell.

Naturally, both meters must be set for the same ASA film rating. Compare the f/stop indicated by the SIXTRON-electronic with the f/stop shown by the incident light meter for a shutter speed of 1/100 — 1/125 sec. Any difference between the two readings calls for f/stop modification as shown below:

Specifications

Measuring method:	Incident light measurement from subject to camera; the light falling on the subject is measured.
Light-sensitive cells:	One phototransistor, silicon One photoresistor, silicon (both cells are color-corrected)
Measuring angle:	180 degrees
Computer scales:	ASA 6 to ASA 6400 f/1 to f/90 (all scales linear with 1/3 increments)
Dimensions:	4" x 2 5/8" x 2 1/8"
Weight:	8 3/4 oz
Battery:	15 V (Type IEC 10 F 15) The above type number corresponds to: EVEREADY 504 BURGESS Y 10 RAY-O-VAC 220 and similar batteries.

Specifications are subject to change without notice.

Cumulative flashes.

If your SIXTRON-electronic indicates that a single flash of your electronic flash unit requires a larger f/stop than you need for adequate depth of field, you may use several successive flashes for a still subject — and your meter will add up the total light from such flashes within the 3-minute readiness cycle of the meter!

An additive series of flashes may, for example, produce the following results:

	Needle reading (scale) (value)	f/stop for ASA 50
after the first flash	3	8
after the 2nd flash	4	11
after the 3rd flash	4,6	11/16
after the 4th flash	5	16

Any variations between the measured values of the individual flash impulses which you may discern in the process of additive flashing are due to the fact that electronic flash units do not necessarily have an identical lumen-second output from flash to flash; permissible tolerances — under existing ASA and DIN (German) standards — in effective light output range up to ± 20 % which equals ± 1/2 f/stop.

GOSSEN

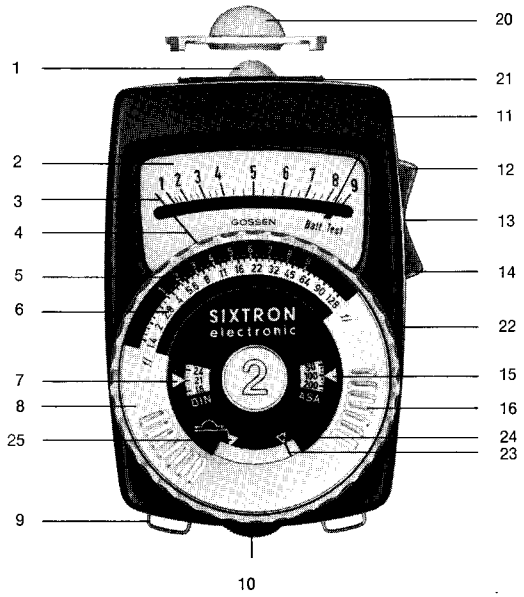
SIXTRON
electronic 2

Ergänzung der Gebrauchsanleitung

Supplement to Instructions of Use

Supplément au mode d'emploi

Suplemento a las instrucciones para su manejo



Ihr SIXTRON electronic 2 hat einen getrennten Zusatzdiffusor. Zum Messen sehr hoher Blitzintensitäten können Sie den Meßbereich um 5 Stufen erweitern und Blendenwerte von 1,4 bis 128 ablesen.

1. Der Zusatzdiffusor (20) wird mit einer einfachen Drehbewegung am SIXTRON electronic 2 befestigt. Sie legen den Zusatzdiffusor zunächst um 90° versetzt an die Kupplung (21) an und drehen ihn, bis er sich mit der Gerätevorderseite deckt.
2. Dann drehen Sie den Rechenring (22) im Uhrzeigersinn, bis die Markierungslinie (23) unter dem weißen Dreieck (25) steht.
3. Messen und Ablesen wie auf Seite 4 der Gebrauchsanleitung beschrieben.
4. Nach Entfernen des Zusatzdiffusors (20) – einfach um 90° drehen und abheben – stellen Sie die Markierungslinie (23) wieder unter das schwarze Dreieck (24).

Änderungen vorbehalten.

Your SIXTRON electronic 2 is being provided with a supplementary diffuser. When measuring high intensity flashes, you can extend the measuring range by 5 stops and read thus f-stops from 1.4 to 128.

1. To attach the supplementary diffuser (20) simply place it at a 90° angle on the adapter mount (21) and turn it until it clicks into position parallel with the front of the meter.
2. Then rotate the computer ring (22) clockwise until the black index line (23) is exactly opposite the white triangle (24).
3. Proceed with measuring and reading as described on page 4 of the instruction booklet.
4. For taking off the supplementary diffuser (20), just rotate it by 90° and lift it off. Then set the black index line again opposite the black triangle (24).

Alterations reserved.