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7909-0690Y1

Instructions for Use

Part 1 Basic Meter

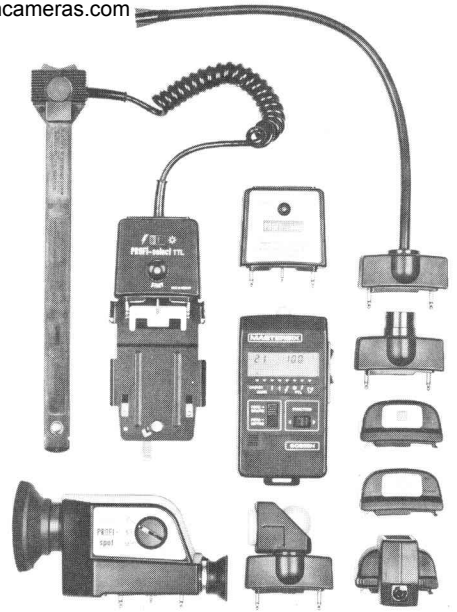
GOSSEN

MASTERSIX

Please unfold for
List of Contents
Part 1 "Basic Meter"

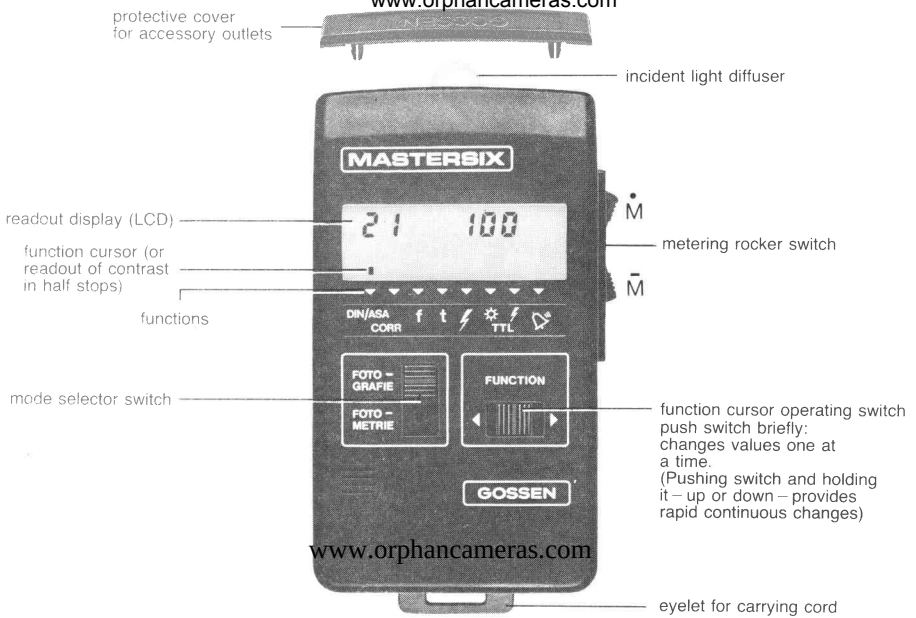
Part 2 "Attachments" is an integral part of these operating instructions. For convenience, this has been printed as a separate booklet.

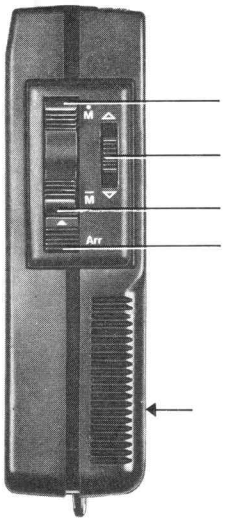
List of Contents
Part 2 "Attachments"



List of Contents

Part 1 "Basic Meter"





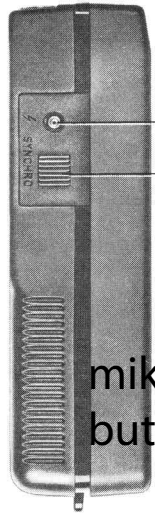
metering rocker switch

value change switch

metering rocker switch

rocker switch lock (off)
rocker switch lock (on
in the M setting)

battery compartment



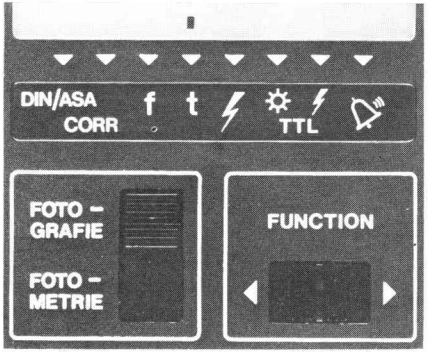
Co-ax socket for flash lead

button for firing flash
from the meter

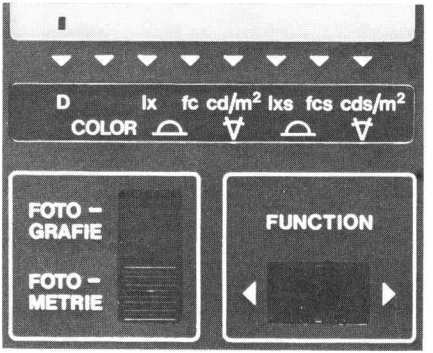
The MASTERSIX automatically switches off within 2 minutes.
Therefore there is no "off-switch".

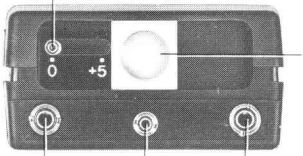
The MASTERSIX is switched off, when after display of the actual measured value DIN/ASA display appears again. This display does not reduce battery life.

meter set to photographic mode
and chosen shutter speed



meter set to photometric mode
and function D (density)

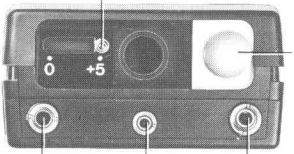




+5 stop range extender not in use (in "off" position)

hemisphere diffuser positioned for incident light use

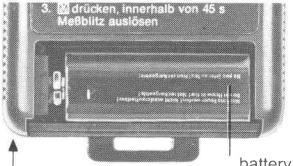
sockets for connecting attachments



+5 stop range extender placed in front of sensor window

hemisphere diffuser positioned for reflected light mode

sockets for connecting attachments



to close

to open

battery compartment open (showing battery data)

lid of battery compartment

Rear with instructions

Basic operation instructions
on the back of the meter.

For even greater convenience abbreviated
operating instructions and a Zone Scale
on stick-on labels are included (page 24/25).

Pull off covering foil and stick to your MASTERSIX meter

battery compartment

The MASTERSIX is a universal light measuring instrument made by GOSSEN which will measure and also calculate for you. The MASTERSIX reads photographic and photometric values, it calculates, stores in a memory and recalls values from there. Therefore it enhances the creative capabilities of each photographer especially when taking photographs of unusual scenes or under exceptional lighting conditions.

The MASTERSIX combines all advantages of modern microprocessor technology and the know-how GOSSEN has acquired from 50 years of manufacturing light meters. The microprocessor interlinks various light metering processes for supplying useful photographic or photometric measuring information.

There are 9 optional accessories which expand the capabilities of the MASTERSIX still further.

Here is an outline of some of the main features of the MASTERSIX and its attachments:

Full range of photographic and photometric readouts (in two function groups) – microprocessor controlled and monitored.

Reads flash as well as continuous light.

LCD digital readout in tenths of a stop.

Analogue indication of tendencies in half stops.

Direct analogue readout of the contrast range ± 4 stops.

Built-in 5 stop range extender, e. g. for very powerful flashes.

Full range of 9 optional attachments available, automatic measured value adaptation.

Preprogramming for direct readout.

Programmable exposure corrections.

Integrated timer.

Two silicon blue cells, one for continuous light and one for flash.

Automatic averaging of measurements from separate readings (up to 15).

Converts photometric readouts into aperture and shutter speed combinations permitting scanning and selecting all exposure combinations of any value measured.

Provides choice of aperture or shutter priority.

Extra features and information when used as a flash meter.

Symbols for "under" or "over" range.

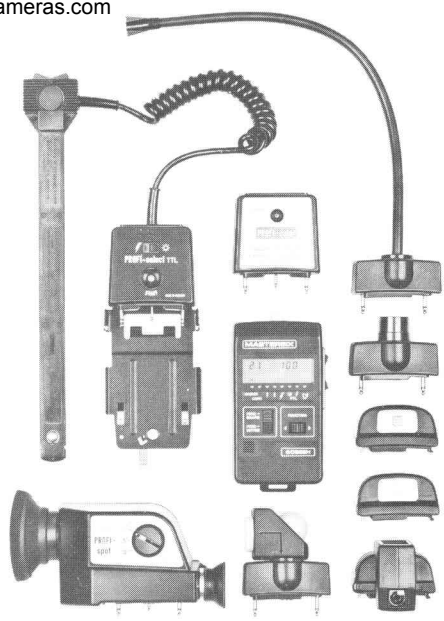
Automatic battery check.

In-built memory stores measurement values.

Automatic cut-off.

The MASTERSIX system comprises the basic exposure meter and nine optional attachments.

TELE	reduces the measuring angle to 15° or 7.5°.
PROFI-spot	for selective measurements, spot metering, at 10°, 5° or 1°.
PROFI-color	for measuring colour temperature and indication of correction filters.
REPRO	provides exposure information for copying.
PROFI-flex	especially suitable for macrophotography, for ground glass measurements of cameras and hard-to-reach areas.
PROFI-lux	facilitates professional incident light readings
PROFI-select TTL	for measuring at the film plane of view cameras.
PROFI-micro	assures convenient and precise measurement in micrography.
LAB	determines exposure data in darkroom printing and enlarging.



Battery

Your MASTERSIX is supplied with a 9 V alkaline battery. A suitable rechargeable 9 V battery may be used. The minimum life duration of such a battery is sufficient for about 2000 measurements. When the warning symbol "BAT" comes on in the display another 50 measurements (approx.) may be made.

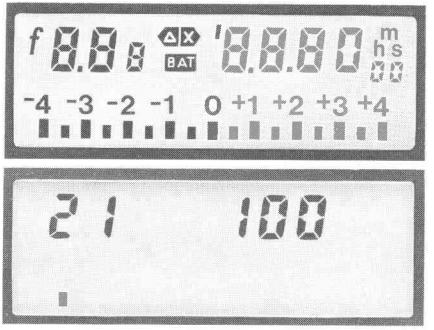
Changing the battery is easy: Slide off the battery compartment lid, remove exhausted battery, insert a fresh one into the compartment as indicated. Close the compartment lid.

Automatic circuit check

Immediately after battery insertion the microprocessor carries out a circuit check and all LCD indicators in the meter will go on at once confirming the meter's operational status. After the test this display will be replaced by 21 DIN/100 ASA the meter's preset film speed setting. (For technical data see page 30).

Changing the battery will cancel all values measured or stored in the meter.

BAT



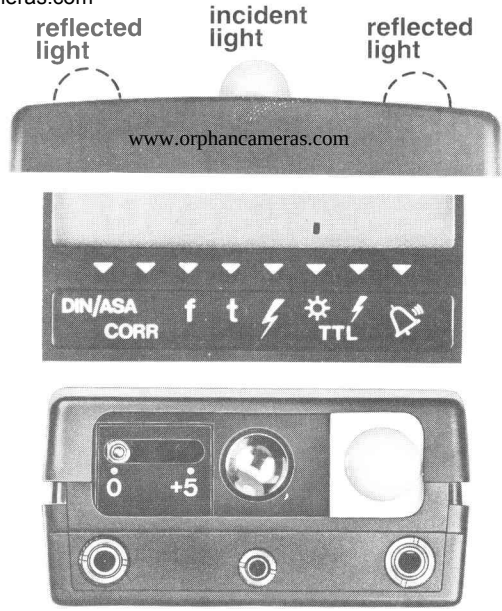
Measuring Methods

Incident light and reflected light:

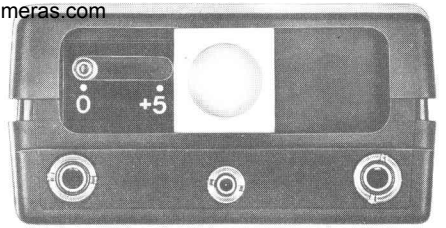
In the "FOTOGRAFIE" mode (photographic) the meter will measure either incident or reflected light for "f", "t" " ⚡ " functions.

TTL measurements direct in the film plane with continuous light and flash are possible only when the PROFI-select TTL attachment is coupled to the meter. (For more information see instructions part 2 "Attachments").

Position for the incident light hemisphere when reflected light readings are being taken. (Point the meter from the camera position towards the subject).



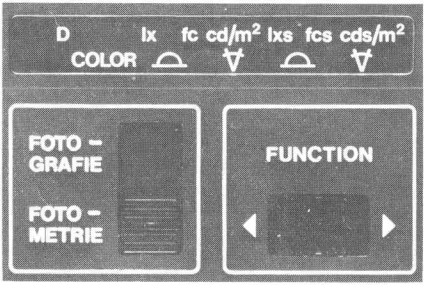
Position of the hemisphere for incident light readings ⌓ . (Point the meter from the subject towards the camera position).



In the "FOTOMETRIE" mode (photometric) cd/m^2 and cds/m^2 will require metering without hemisphere diffuser, i. e. in the reflected light mode. The functions lx, fc, lxs and fcs require the diffuser to be placed in front of the cell = incident light mode.

Density measurements (function D) can be made both in the reflected and incident light modes.

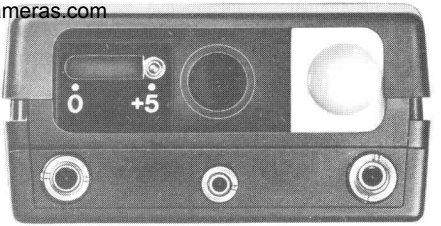
For measuring the colour temperature and determining filters (function "COLOR") the PROFI-color attachment must be coupled to the meter. Readings obtained without the COLOR attachment are not valid. (For more information see part 2 of the "Attachments" instructions).



Extending the sensitivity range by +5 stops

If, when measuring flash, you find that you are outside the meter's range (FLASH flashes), slide the extender to +5 position and take another reading. The factor is automatically programmed into the meter and so the readout will now be correct.

Make certain that you slide the 5 stop extender into the +5 or 0 position **completely,** dependent upon your needs. Care should be taken that the extender is in the "0" position when not needed.



Reminder symbol ΔX correction factors

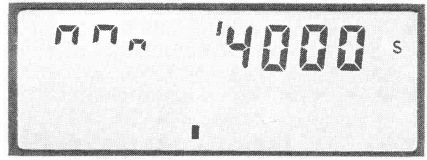
In the "FOTOGRAFIE" mode, once an exposure correction factor has been set into the meter, the exposure correction symbol will appear on the display. This will serve as a constant reminder that an exposure correction is in the meter's memory and that the reading has been adjusted for that correction factor. (See page 13).

Warnings of the limits of the measuring range

"Over" Range

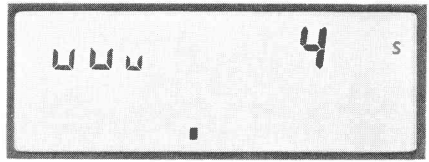
In the "FOTOGRAFIE" mode the readout ⊓⊓⊓ signals that the values measured are greater than the meter can read (for technical data see page 30).

Push the value change switch down to bring the settings back to within the performance range of the meter.



"Under" Range

The readout ⊔⊔⊔ signals that the values are below the indicating range of the meter. So move value change switch upwards.



Pulsing of the display

In the "FOTOGRAFIE" mode this signal warns you that the readout must not be used, because the values are under or over range or that the aperture or shutter speed preselected by you are unsuitable for that subject.

Acoustic signal (bleeper)

This audible signal indicates, in all functions, – except in timer mode – that the "readiness" time for operation has been exceeded (45 seconds for flash) or, in case of scene brightness measurements for averaging, more than 15 measurements have been put into the meter's memory.

Storing readings in the memory

Values measured and stored will be shown in the display for 2 minutes and retained in the memory until a new measurement is taken. Pushing the rocker switch M forward for metering will make the newly measured value be displayed immediately. The value is then stored in the meter memory. In the continuous light mode this will also change all the values in the memory except those which had been preselected or programmed. In the flash mode all values in the memory pertaining to the flash metering which have not been preselected will change.

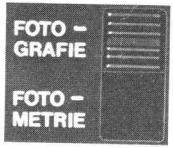
After the 2 minutes readout time the preselected film speed will appear on the display, this is regardless of the position of the function cursor.

Instantaneous readout of values

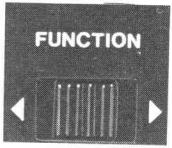
When pushing the rocker switch forward M you will obtain instantaneous readings of the appropriate values in the display which will stay there for 2 minutes after the last operation of the rocker switch. Rock the switch backward (M) for computing automatically the average value of up to 15 readings (page 19).

The MASTERSIX then switches off automatically, but the measured values remain stored and can be displayed either by using the mode selector switch, the function selector switch or the value change switch. Pressing M eliminates the stored value.

A stored reading can be recalled and displayed either by using the mode selector switch



together with the function selector switch

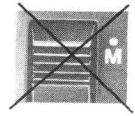


or

with the value change switch

If the cursor is already over the desired function, all one needs to do is to move one of these switches backwards and forwards to re-display the stored reading.

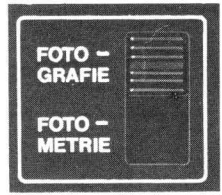
Pressing the measuring switch eliminates the stored reading.



Photographic functions — FOTOGRAFIE mode

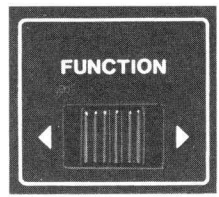
Setting the film speed

First ensure that the meter is adjusted for photographic readings (FOTOGRAFIE).



The film speed is also given in ISO (International Organisation for Standardization) in accordance with international standards. 100 ASA/21 DIN corresponds to ISO 100/21° for example.

Move the function selector switch until the cursor is above the DIN/ASA function.



To set the desired film speed push the value change switch up or down until you can read the film speed desired.

This selected film speed will be retained in the meter memory until you change it to a new setting as described above or until you change the battery.

Programming of correction factors

With the meter set at FOTOGRAFIE move the cursor to CORR.

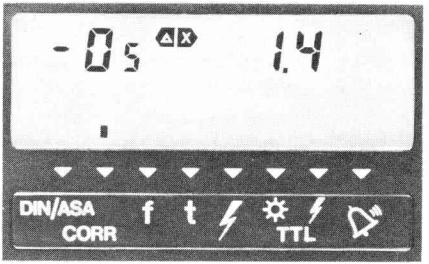
Set desired correction factor with the value change switch.

Example: −0.5 stops, factor 1.4

For preprogramming the correction factors necessary when using the attachments having no electrical connections with the meter see part 2 of the instructions "Attachments".

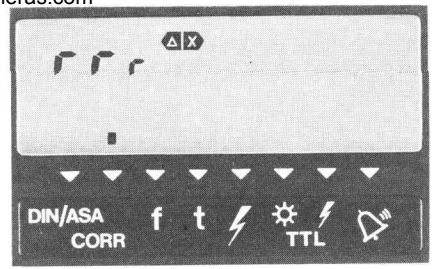
Note: A warning symbol will appear in the display as soon and as long as a factor is in the meter memory.

This will serve as a constant reminder that an exposure correction is in the meter's memory and that the reading has been adjusted automatically for that correction factor.

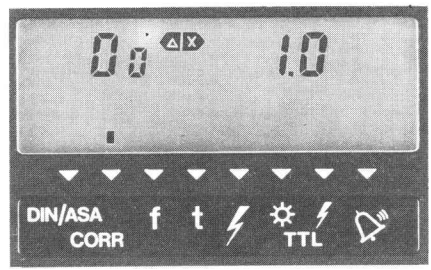


Eliminate the correction value by altering the value change switch or **quickly resetting the correction values:**

Set CORR mode.
Position diffusor to "Light measurement".
Press first rocker switch M̄, then M̈.
The surface should be evenly illuminated.



Display in CORR position when correction value has been eliminated.

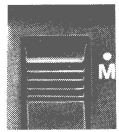


Measuring switch preselected aperture or shutter priority

Set meter to "FOTOGRAFIE" mode. Position diffuser for reflected light or incident light according to the desired measuring method.

Move indicator with the function selector switch to f or t. Select your desired method of measurement – either aperture or shutter priority.

Push rocker switch M forward for measuring. Each measuring operation takes one second.

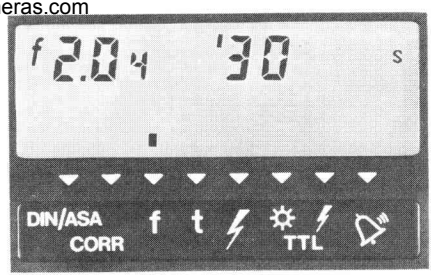


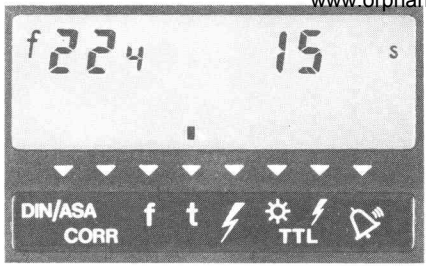
Select other suitable combinations of f/ stops and shutter speeds with the value change switch.

In modes f and t the shutter speeds always appear in the internationally standardized sequence as with most other cameras, but with intermediate values in increments of 1/10 stops. The high measuring accuracy of the MASTERSIX makes such fine incrementation of the display possible. These intermediate values are displayed with the f/number.

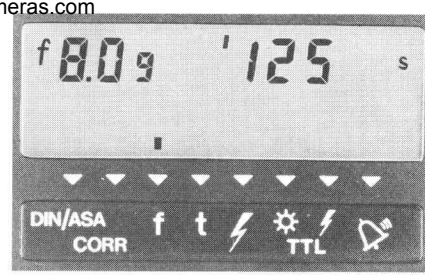
Example of a reading: f/number 2.0 + 0.4 stops, **close** the lens iris by 0.4 of a stop.

When the f/number is preselected, this 1/10 stop display does not change until the next measurement is made.

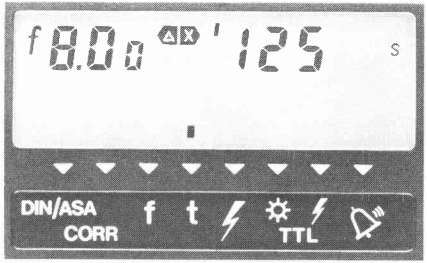




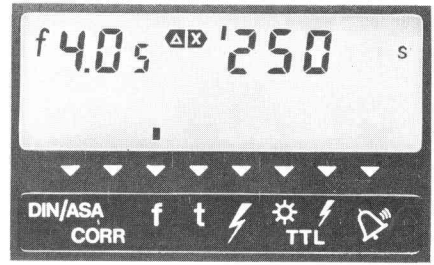
Preselected shutter speed (shutter priority) without preprogrammed correction value



Preselected f/number (aperture priority) without preprogrammed correction value



Preselected shutter speed (shutter priority) with preprogrammed correction value



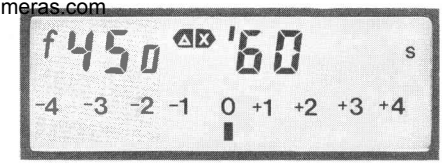
Preselected f/number (aperture priority) with preprogrammed correction value

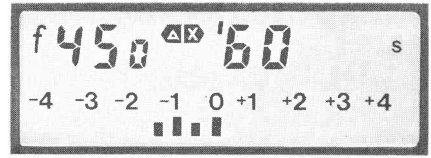
Measuring the subject brightness range

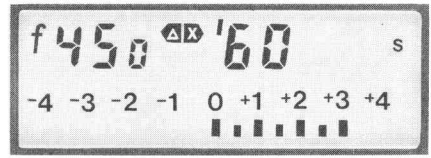
Aim the meter at the area you wish to measure, push rocker switch forward M and hold it down (continuous reading position). As you meter other areas of the scene the graphic display of the EV contrast scale below the exposure reading will indicate the relative brightness of other scene areas in half stop increments.

Our example shows the difference in brightness of that area as compared to the first reading −1.5 to +3 stops.

If the high-light or shadow reading is beyond the ±4 EV range of the contrast scale, the entire display will blink to signal that you are beyond the ±4 EV scale.

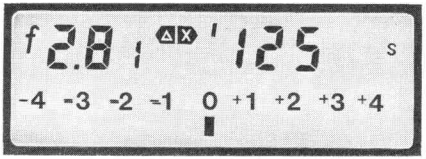






Evenness of illumination

This is the same measuring operation as for contrast measurements. You simply change the lights in the subject or scene until the function indicator will always remain on 0 when you aim the meter at various measuring areas while keeping the measuring switch M depressed.



Automatic averaging of readings in f and t modes

Aim meter at the area you wish to measure. Push the rocker switch M forward. Read the next area and push rocker back M and the meter will read the average value of those two measurements. Now aim meter at yet another area. Again push rocker back. Again the meter will compute and read a running average of up to 15 measurements. Beyond 15 measurements the meter will sound an acoustic signal.

Note: each measuring operation will take 1 second.

Flash measurement

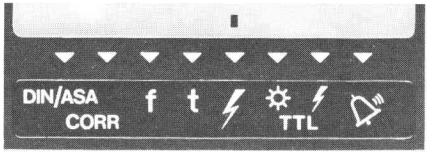
With the MASTERSIX you can take a reading cordlessly or you can attach a connection cord to the MASTERSIX and fire the flash from the meter.

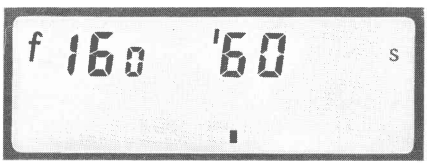
Position diffuser according to the chosen measuring method for incident light or reflected light.

Use the function selector to set the cursor (in the "FOTOGRAFIE" mode) to the "flash" function.

Preselect a shutter speed with the value change switch. The measuring time selected should be equal or longer than the flash duration as specified by the manufacturer of your flash unit.

Prepare the meter for measurement by rocking the measuring switch M forward. F appears in the LCD readout to indicate that the MASTERSIX is ready for you to fire the flash within the next 45 seconds. At the end of those 45 seconds the acoustic signal will sound. Push switch M once more and the meter will again be ready for measuring flash. Within the following 45 seconds the metering operation must be completed.



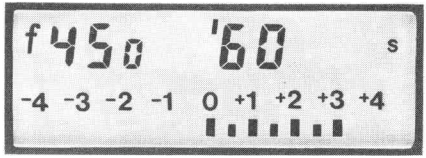


After the flash is fired the MASTERSIX will display the appropriate aperture reading to 0.1 stop.

Flash/daylight ratio

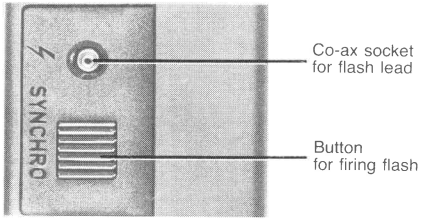
The contrast scale (the scale below the digital exposure information) will show how many stops the flash differs from ambient light.

Example: the flash has increased the ambient light by 3 stops.



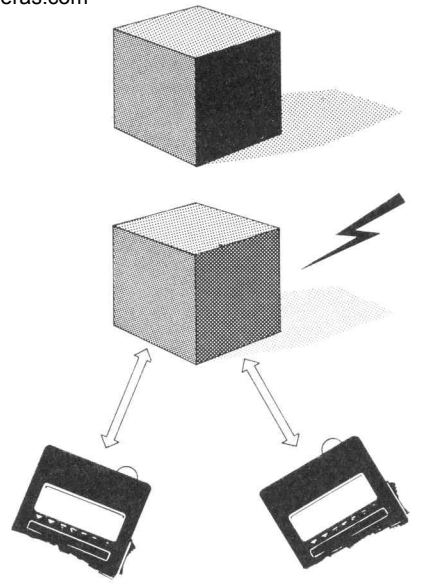
If the difference between ambient light and flash is greater than 4 stops then the contrast scale will no longer appear but only the function indicator.

Firing the flash: if you want to fire the flash from the meter, attach a cord to the connector at the meter and fire the flash by pressing the sync button.



After this first flash reading you can measure the contrast between the area where the flash is being used and those areas which were not reached, i. e. the light distribution as reproduced later in the picture.

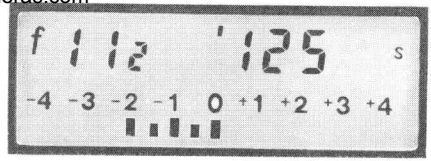
Press M and the original contrast reading will disappear. The MASTERSIX holds the first measurement in memory and now displays continuously the contrast between the first measurement and all subsequent measurements, with which areas not reached by the flash are measured.



Second and subsequent readings
with M depressed
Ambient light only

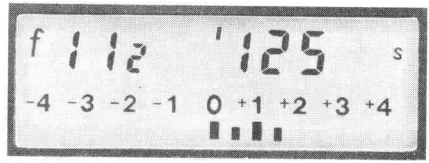
First Reading
M depressed
Flash and ambient light

Example: the area not brightened by the flash measured in the second reading is 2 stops under the area first measured.



M depressed

Example: the area now measured is by 1½ stops brighter than the area where the flash was used.



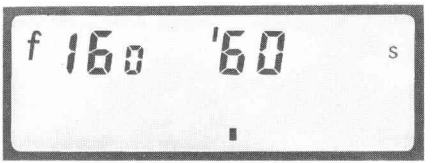
M depressed

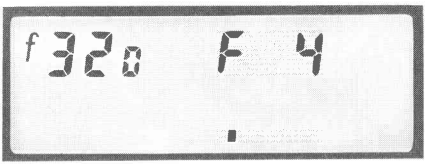
The contrast scale will blink on and off if the lighting contrast ratio is greater than + or − 4 stops.

Multiple flash computing

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 slide the value change switch until the desired f/number appears in the display (to the left). The MASTER-SIX instantly compares the number needed for the desired aperture and indicates that number in the display to the right.

Example: first aperture reading f/16,
at 1/60 second,
desired f/number 32





The indication F4 means that based on the light from the first flash you will need 4 flashes to shoot at f/32.

Using this method, the flash energy for multiple flash is therefore required only when taking the picture and not when measuring. Your batteries will last longer and the energy saved will be used for more flash pictures.

Pull off covering foil and stick to your MASTERSIX meter

Basic operating instructions for photographic mode. FOTOGRAFIE

DIN/ASA setting

1. Move function selector switch until the cursor is above DIN/ASA
2. Set desired film speed with ◀▭▶

Preselecting aperture or shutter priority

1. With the function switch move function cursor to f (aperture) or t (shutter speed)
2. Push M to take exposure reading
3. Push value change switch ◀▭▶ up or down for other equivalent exposure combinations of aperture/shutter speed

Measuring contrast

1. Push M, then meter various subject areas

To find an average of the readings

1. First measure with M
2. Take subsequent readings with M

Flash readings ϟ

1. Move function cursor to ϟ
2. Camera shutter time must be changed with the value change switch ◀▭▶
3. Push M and fire flash within 45 seconds

I ▼ II ▼ III ▼ IV ▼ V ▼ VI ▼ VII ▼ VIII ▼ IX

Functions TTL ☼ ϟ TTL

See part 2 of the instructions "Attachments".

In its TTL setting the MASTERSIX must be coupled with the PROFI-select TTL attachment to supply valid readings. This attachment will read directly the light in front of the ground glass of large format view cameras, – both for ambient light and flash.

Function timer ◁

Your MASTERSIX can time exposures or any other events from one second to 126 minutes. Just move the function switch until the cursor is at the timer function. During the last 5 seconds of the countdown an acoustic signal sounds once per second.

The time to be counted down in the timer can be selected in the mode t or measured in function f and then transferred to the timer.

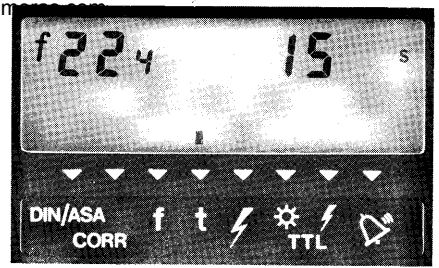
Set function selector to TIMER. The input or measured time will be transferred into the timer and shown in the display. Using the value change switch times can be conveniently changed in the range from 1 second to 126 minutes.

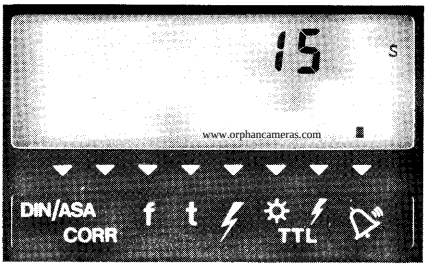
For times outside this range, under-range ⊔⊔⊔ or over-range ⊓⊓⊓ will be displayed.

Push the rocker switch M forward to start count-down. During the last 5 seconds of the count-down an acoustic signal sounds once per second, completion being signalled by a longer tone. Then the timer automatically resets itself back to the original time so that you can restart the count-down again.

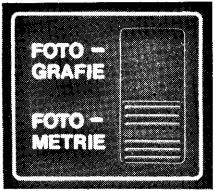
Pushing the rocker switch back M will stop the count-down, you can restart it by activating the rocker M again.

The timing function is lost when the meter is switched over to another function with the function switch.





The FOTOMETRIC functions



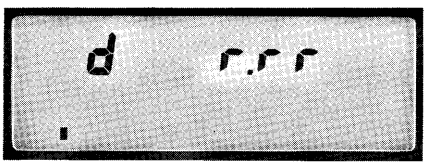
Density measurement

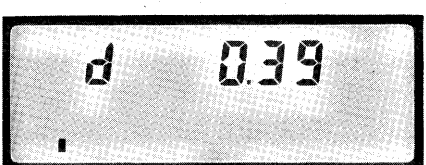
You can measure densities in the incident or reflected light mode.
For that purpose the capabilities of the MASTERSIX can even be enhanced by using the attachments LAB, PROFI-flex, REPRO. For more details see part 2 of the instructions for use "Attachments".

Move cursor to "D" with the function selector switch.

Aim MASTERSIX at a constant light source, rock switch M backward to take a reference reading, the display will show the indication. Then place negative or filter the density of which you wish to determine in front of the measuring aperture. Then push rocker switch M forward and the display will come on to show the density value.

Example: density 0.39
While taking the readings, lighting conditions must remain constant.

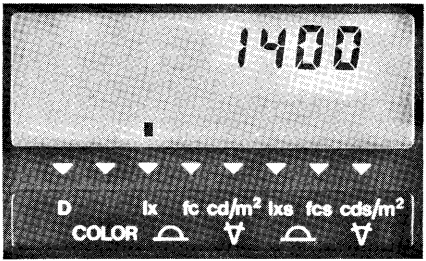




Function COLOR

For more details see part 2 of the instructions for use "Attachments".

In this mode the MASTERSIX must be coupled with the PROFI-color attachment to obtain valid readings of the colour temperature and correction filters. Readings made without the colour attachment cannot be used.



Functions lx, fc, cd/m²

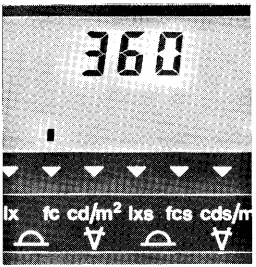
Set meter to "FOTOMETRIE" mode; set the desired function; position diffuser as indicated in the lower line of the scale inscriptions.

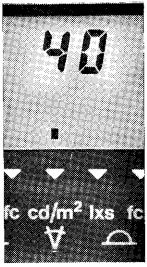
⌓ = incident light method with diffuser in the centre of meter top.

∀ = reflected light method with diffuser at either side of the meter.

For measuring push M̊

lx ⌓ (diffuser in
fc ⌓ the centre)
cd/m² ∀ (diffuser at the right or left edge of the meter)





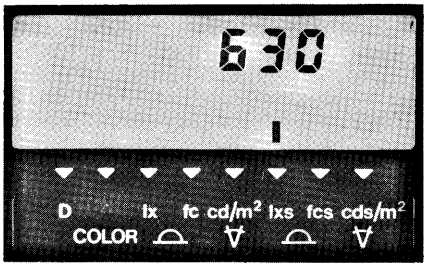
Functions lxs, fcs, cds/m²

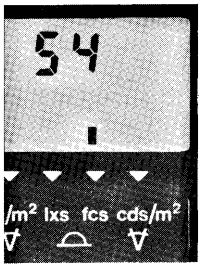
Set meter to the desired function.
Take care to place diffuser as indicated.

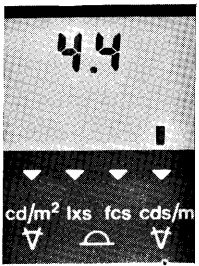
With the value change switch, select a time between ls and 1/1000 s as the measuring time.

Push rocker switch M forward. Then for one second the measuring time for the flash will appear in the display. If you want to change that measuring time for the flash measurement pushing rocker switch backward M will give you ample time.

lxs ⌓ (diffuser in
fcs ⌓ the centre)
cds/m² ∀ (diffuser right or left)







Technical Specifications

Measuring Ranges:

Ambient	EV −4 to EV 18/23* at 21 DIN/100 ASA
Flash	f/2.8 2/3 to 45 2/3/256 2/3*
Density	0.00 to 3.00 (△ 0.03)
Colour	2600K to 20000K
Light Intensity	0.175 to 700000 lx 0.016 to 64000 fc
Luminance	0.007 to 28000 cd/m²
Flash Power	28.8 to 7360/236000* lxs
Footcandle Seconds	2.7 to 684/21900* fcs
Flash Luminance	1.2 to 295/9440* cds/m²

Indicating Ranges:

DIN	1 to 60 DIN
ASA	1 to 800000 ASA
≙ ISO	1/1° to 800 000/60°
f/values	f/0.7 to f/90 9/10 (128)
Shutter Speeds	1/4000 sec. to 8 hours
Timer	1 sec. to 126 min.

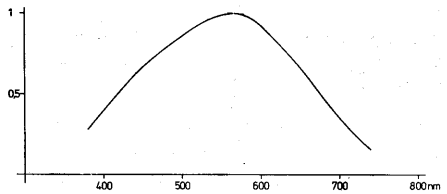
* In High Intensity Mode with 5 stop Range Extender

Other Data:

Flash measuring times	1/1000 to 1 sec.
Exposure Corrections	−7.9 to +7.9
Exposure Factors	EF 1.0 to 239
Readout in Display	for 2 min.
Values measured and preprogrammed in memory	until you intentionally change or cancel them
Readiness for flash readings	45 sec.
Reading of Contrast Ratio	over a range of ±4 stops
Sensors	2 silicon blue cells (sbc)
Measuring Angle	30° Reflected (ambient) 20° Reflected (flash) 180° Incident (ambient/flash)
Battery	9 Volt alkaline or rechangeable ni-cad
Dimensions	67×130×32 mm
Weight (with battery)	approx. 240 g

Spectral Sensitivity of the MASTERSIX

The MASTERSIX utilizes special filters in front of the light sensor to provide a relative spectral sensitivity that closely matches the spectral sensitivity distribution of films, for optimum compatibility.



Average relative spectral sensitivity of silicon blue cells according to manufacturers' indications.

The all-purpose MASTERSIX system

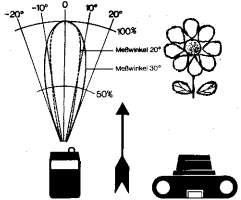
The multiple light measuring applications of the MASTERSIX itself can be further expanded when used with the wide range of 9 optional attachments. You just attach an accessory to the meter and proceed with the reading. The attachment having electrical contacts connect electronically with the MASTERSIX providing automatic calibration and direct readouts. Others require an exposure correction which can easily be preprogrammed into the meter for that purpose.

For detailed infomation on how to get the best out of your MASTERSIX when used with the attachments TELE, PROFI-spot, PROFI-color, REPRO, PROFI-flex, PROFI-lux, PROFI-select TTL, PROFI-micro and LAB, please see part 2 of the instructions for use "Attachments".

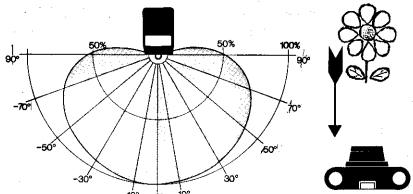
All attachments for GOSSEN exposure meters are compatible with the MASTERSIX, including MESS-SONDE and MICRO. For flash measurement with the MASTERSIX, no attachments are required.

Reflected Light Measurement — Incident Light Measurement

Reflected Light Measurement:
Move the spherical diffuser completely to the right or the left until it clicks into place. Point the MASTERSIX towards the subject as indicated by the arrow in the illustration. The measuring angle is 30° (ambient light) and 20° **(flash).**



Incident Light Measurement:
Move the spherical diffusor so that it clicks into place centered over the round window. Point the MASTERSIX from the subject toward the camera, as indicated by the arrow in the illustration. The measuring angle limitation is eliminated. The angle of coverage is 180° for both ambient light and flash.



When reading **reflected light,** the meter is pointed towards the subject and light reflected from the subject passes through a collecting lens onto the measuring cell within an angle of 30° (ambient light) or 20° (flash) – for further details see page 36 "Measuring fields of the MASTERSIX". The resultant reading depends on the intensity of the light and the reflecting properties of the scene. Thus, under identical illumination, the indication will be less by dark objects than by bright ones. The MASTERSIX computes the light and dark portions and indicates an average value. Therefore, if either dark or light areas predominate, better results will be obtained with the method of incident light measurement (page 32).

The small measuring angles of 30° or 20° respectively enable you to aim the meter precisely at the areas in your subject you wish to measure.

You can scan various parts of the scene to determine the degree of contrast in the subject. For grey card measurements the small measuring angle is an advantage. Care should be taken that only the grey card itself is being measured. To make such a measurement, place the grey card in the area of greatest importance in the scene.

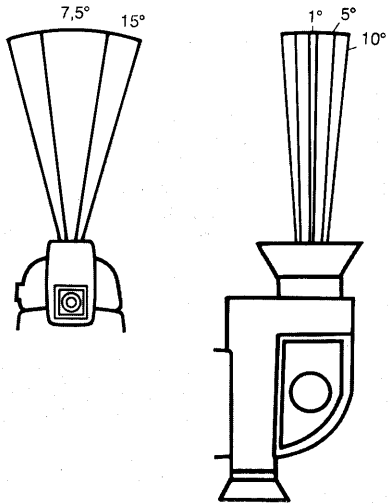
When **reading incident** light the spherical diffuser is placed in front of the measuring cell window and pointed towards the camera i.e. opposite direction to the subject being photographed. The diffuser should receive the same light intensity and distribution as that falling on the subject. The resulting measurement is primarily determined by the illumination while the reflecting properties of the scene will have only a minor influence on the measuring result. The method of incident light measurement is generally preferable, and you can prove with your MASTERSIX that this method generally leads to the best exposures under difficult conditions.

Incident light readings are most valuable when determining exposures where the subject is inaccessible or difficult to reach. You just take the **incident light reading at a substituted spot** which receives the same illumination as your subject. Instead of pointing the MASTERSIX toward the camera, point it parallel to an imaginary line from subject to camera. This convenient method of incident light measurement at a substitute spot readings is also recommended for standard outdoor scenes. Simply do an "about face" at the camera position and measure the light from the opposite direction to that which the camera is facing.

Small Measuring Angles

The measuring fields of the MASTERSIX correspond to the generally accepted 30° angle for continuous light and 20° angle for reading flash. You can reduce this already small angle with the PROFI-spot attachment, even further, to 10°, 5° or 1° or the TELE-attachment to 15° or 7.5° and, incidentally, adapt it to the angles of your tele lenses. For 24×36 mm the three measuring angles of 10°, 5° and 1° of the PROFI-spot, for example, correspond to focal lengths of 150mm, 300 mm and more than 1000 mm.

These small measuring angles also enable you to take **spot readings** by scanning the high light and shadow portions of the subject so you can determine contrast range and scene brightness.



In **close-up measurements** the MASTERSIX concentrates on the most important parts of a scene. The small acceptance angles make measurements more convenient and more precise.

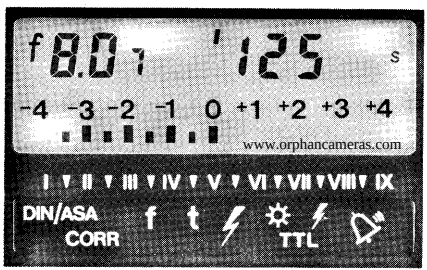
Zone System

There are times when the lighting range cannot be brought within the limits of film and paper contrast ranges. When these situations arise, the zone system can be used. In doing so, detail can be recorded which would otherwise be lost. A complete discussion of this technique is far beyond the range of this instruction booklet.

The MASTERSIX is well suited for using the zone system because of its null metering method on the contrast scale. For this purpose, the figures I to IX are used. Based on the important parts of your subject when the bargraph in the contrast scale is on zero the range from high-light to shadows in the scene are measured. Their variance from the middle zone determines the amount of exposure correction and processing modification that is needed.

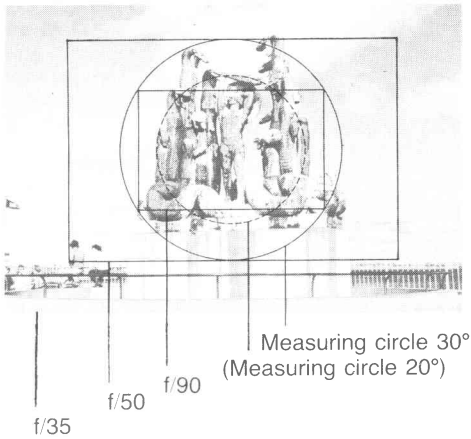
Depending on the nature of the cont range and also in case of extreme con the standard exposure is not applied, modified exposure must be used accor ing to the contrast range (sometimes 1 to 2 stops) in order to receive proper exposure for the most important highlight and shadow parts. This may entail some loss of detail in the less important areas.

The zone scale is included as a stick-on label (page 24/25). You just stick it on the meter front as shown below.

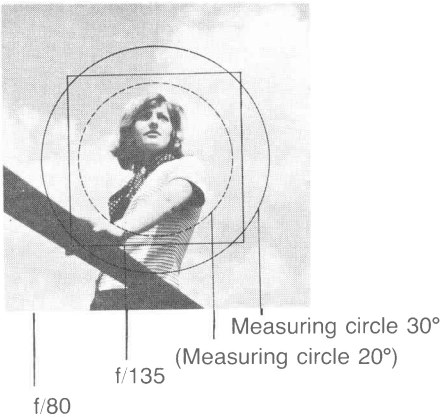


Measuring Circle of the MASTERSIX with ambient light

You can evaluate the size of the measuring areas by comparing them with the view finder image.



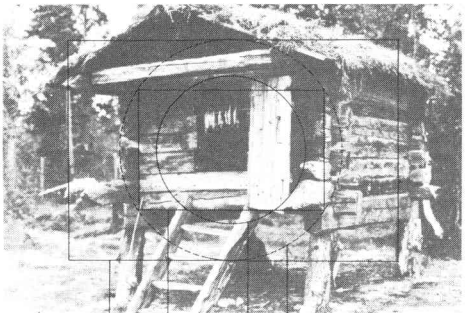
Size 24×36 mm



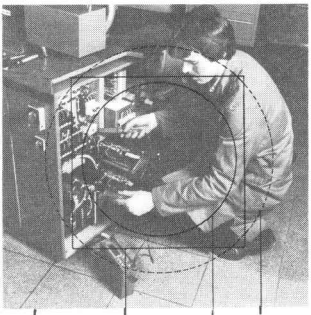
Size 6×6 mm

Measuring Circle of the MASTERSIX with flash

You can evaluate the size of the measuring areas by comparing them with the view finder image.



Size 24×36 mm



Size 6×6 cm

Useful Hints – Photometric Values

Cine Use

To use the MASTERSIX for motion picture work please refer to the chart below. First set the meter to the "t" mode and programme it for the shutter speed indicated in your camera's instruction manual. For many cine settings and exposure correction will have to be programmed as indicated in the chart below.

Cine speeds	t set shutter speed to	Use correction CORR
4.5	1/8 s	−0.4/1.3
6	1/8 s	−0.8/1.7
8	1/15 s	–
9	1/15 s	−0.4/1.3
16	**1/30 s**	–
18	1/30 s	−0.4/1.3
24	1/30 s	−0.8/1.7
32	1/60 s	–
54	1/60 s	−0.9/1.9
64	1/125 s	–
96	1/125 s	−0.8/1.7
128	1/250 s	–
144	1/250 s	−0.4/1.3

Preselecting the shutter speed

When shooting action, you generally need a faster shutter speed to obtain sharp images. To create a more realistic feeling of motion you can, from the very start, preselect an appropriate short shutter speed in your MASTERSIX.

Preselecting an aperture

For maximum depth of field you should preselect a suitable aperture in your MASTERSIX for perfect results.

Average Readings

In order to assure proper exposure for scenes having a wide range of highlight and shadows the contrast range of the scene must be determined. If necessary corrective action must be taken to make sure that the contrast range will not exceed the limits of the film. The MASTERSIX can easily measure the highlight and shadow areas of the scene and then average the readings. Normally it will be sufficient to take about 5 readings and then average them.

Preprogrammable exposure corrections

The MASTERSIX gives you exact exposure information. However, if your results are not perfectly satisfying, remember that all sorts of tolerances may influence the outcome of your photographs. For example

- the "true" sensitivity of your film may differ somewhat from the one indicated on the package;
- the "true" shutter speeds of your camera may differ somewhat from the values shown on the shutter speed dial;
- the "true" apertures of the lens may differ somewhat from those engraved on the aperture scale of the lens;
- the film processing may not always be identical.

We have already mentioned the purely subjective considerations and matters of taste which enter into any assessment of picture quality.

But, you can adapt your MASTERSIX to the characteristics of your camera, your favourite film, your type of processing, your projector!

Use a reversal colour (slide) film; select several "normal" scenes; take careful reflected and incident light measurements. Then make two series of 5 exposures of each of the selected scenes – one series based on the reflected light, the other on the incident light reading. In addition to an exposure made at the exposure indicated by your MASTERSIX, make one exposure each at a full stop and one-half stop more and less exposure than indicated. Light conditions during the test series should remain constant. Make complete notes of the readings and any special conditions. Finally, when you have your finishes transparencies, select the ones which, in your judgement, are "perfect" and check them against your notes on exposure. Should you find that you prefer transparencies made with altered exposures, you can easily preprogramme that correction value into your MASTERSIX and all subsequent readings will be automatically adjusted (page 13).

Contrast and optimum exposure

Films and photographic papers are more limited in tonal range than the human eye. Therefore it is important to determine the emulsions range capability to find out, if the subject matter is in acceptable limits. The MASTERSIX is ideally suited for this purpose. In the incident light mode you can easily measure the contrast of lighting; in the reflected mode you can determine the scene brightness range. The contrast scale gives readings in the range of ±4 stops; contrast beyond that range are also beyond the acceptance of normal films and papers.

You will not usually get the right exposure for your subject if you only take readings of the brightest and darkest parts. You should either seek out an overage grey on the subject as your measuring point or take an average value of the readings at the brightest and darkest points. The MASTERSIX will calculate the mean value for you automatically (page 38).

Should you establish that the contrast on your subject is greater than your film can cope with, you can lighten the shadow, for example, with a brightening screen or with a flash, thereby reducing the contrast.

When taking the contrast of your subject into account by averaging, the following rules-of-thumb generally apply.

Negative film

Provided the contrast between important bright parts and dark parts does not exceed two aperture stops, each intermediate value could be used as a setting; in more demanding situations the mean value is more appropriate. An acceptable picture will be obtained in this way in most cases.

Dense negatives produce poor sharpness of outline. With a reading difference of, say, f/4 to f/11, the best reproduction of detail can usually be expected with f/8.

If the important light and dark parts are within two stops of each other, a better result will usually be obtained with the less-generous exposure.

Example: reading-difference f/4 to f/8; aperture setting f/8.

Colour reversal film

Compared with negative film, a colour reversal film can cope with a greater contrast, but its practical exposure-tolerance is considerably lower.

Measurement of the subject contrast is the basis for the decision as to whether, under given lighting conditions, the subject can or cannot be faithfully reproduced. If the subject does not call for special treatment, it is recommended that the exposure be based on the highlights.

For **photographs with a long-focal-length objective lens,** you can generally match your measuring field to the field of the photograph, if you use the TELE or PROFI-spot attachment in conjunction with your MASTERSIX.

Normally, optimal exposure requires that the brigthest portions of a colour transparency (colour slide) and the darkest portions of a colour- or black-and-white print, should still show adequate detail. Personal taste, artistic creativity and other considerations may, of course, change such basic rules. However, the following general recommendations may be noted:

In **reversal colour** (transparency) film the lighter portions of a scene usually determine the exposure. Please keep this in mind and, preferably, use somewhat shorter rather than overexposure. Colours will be more brilliant and saturated.

For colour- or black-and-white **negative films,** however, the shadow portions must be given special consideration. Use over- rather than underexposure.

Light metering enhances creativity

Light creates photographs. While you can hardly influence lighting conditions outdoors, you can achieve outstanding pictures indoors by your own creative use of lighting. Remember, however, that film has only a limited contrast range.

If you want to achieve soft lighting with little or no contrast – as in high key subjects – arrange your lights so that you get identical meter readings at different areas of the subject and background (if any). All measurements should be taken in the incident light mode. The background should be more strongly lit. Experience indicares twice as strongly.

Night Pictures

To preserve the night effect of darkness with little detail, you should actually use less exposure than the MASTERSIX indicates so that the result does not look like a daylight scene. However, "reciprocity failure" often produces the same results as shorter exposures, but there are no definite rules about it. To gain experience, start out with night exposures indicated by your MASTERSIX.

Reciprocity failure

Photographs in poor light require particularly long exposure times. With all makes of film a so-called "reciprocity failure" occurs. The measured times have to be extended for the photograph in order to avoid under-exposure. Different types of film exhibit the effect in differing degrees.

It is unlikely to occur at exposures under 0.1 sec. This is the reason for it not being taken into consideration with the MASTERSIX.

For some types of colour film, there are special data-sheets or codes of practice with directions for photographs with long exposure times. Up-to-date information should in any case be obtained directly from the film manufacturer.

Reciprocity failure can also cause colour displacement. This should be compensated with correction filters.

Snow

In a snow-covered landscape, a reflecte light measurement will almost always inc cate too short an exposure; because the snow's high reflectance, important parts of the scene (people, houses, or trees in the foreground) would be underexposed. Therefore, exposure modification of 1 to 1½ stops longer exposure is advisable.

It would be simpler to use the incident light measurement method because it indicates correct exposure directly. If you want special effects – for instance an emphasis on the subtle shadows in the snow – modify the reading to ½ – 1 stop shorter exposure.

Your MASTERSIX makes such modifications easy for you.

Your MASTERSIX enables you to measure any subject or scene accurately. Remember, however, that extreme contrasts may exceed the contrast range of your film.

Explanation of measured quantities

Density (D)

Let us assume that a grey filter has a transmission of 50 %, the light falling on it is 100 %. The filter reduces the light from 100 % to 50 %, i.e. 2:1 – by the factor 2 = 1 EV. Or expressed another way: density D = log (100 % : 50 %) 0.3
Consequently a filter of 50 % has a density of 0.3 = light attenuation 1 EV. Thus a filter of 20 % has a density of d = log (1 : 0.2) = 0.7.

Colour temperature

The colour composition of the light, i.e., its spectral distribution, is characterized by the colour temperature in Kelvin (K). It can be measured with the MASTERSIX, using the PROFI-color attachment (see page 62).

Light intensity in lux and footcandles (lx/fc)

Lux is the international standard for measuring light intensities and adapted to the characteristics of the human eye. In English speaking countries this value is expressed in footcandles.

1 footcandle = 1 fc = 10.764 lx

The MASTERSIX gives direct readings either in lux or footcandles.

The MASTERSIX permits you to take lux/fc readings for exposure purposes. It gives direct readouts of light falling on a surface (this is useful when doing copying work) or for metering the lighting levels for professional motion picture and television productions. We recommend the use of the swivel head attachment PROFI-lux with the MASTERSIX for these purposes.

For more information see part 2 of the instructions "Attachments".

The MASTERSIX readings in lux and footcandles as well as those in lux seconds and footcandle seconds are values rounded off according to practical requirements. The conversion factor of 10.76 is adequately taken into consideration. For measuring the light intensities according to the Standard Specifications. GOSSEN also supply special luxmeters, such as the PANLUX electronic, MAVOLUX electronic and MAVOLUX digital. An additional luminance attachment provides luminance readings.

Luminance (cd/m^2)

The international standard is cd/m^2 (candela per m^2).

Luminance signifies the brightness of a surface, just as it is seen by the human eye. It is **the** measuring value in light-metering which resembles most closely the human eye's capabilities for perceiving and evaluating light.

Quantity of Light (lxs, fcs)

The absolute light value of an electronic flash can be measured with the MASTERSIX. During the measuring time the quantity of light emitted by the flash is being calculated. The optoelectronic circuits of the MASTERSIX will register the light intensity in lux or footcandles during the measuring time and give readout of this quantity of light in luxseconds or footcandle-seconds.

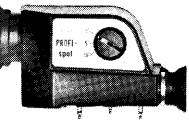
Quantity of Luminance (cds/m^2)

This measuring value is based on the luminance unit cd/m^2. It signifies e.g. when flash is used the summing up of the luminance during the flash duration expressed in seconds.

Part 2 "Attachments" is an integral part of these operating instructions. For convenience it has been printed as a separate booklet.

The use of the MASTERSIX-system attachments is described in the separate second part of this manual.

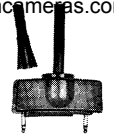
TELE
reduces the measuring angle to 15° or 7.5°
Page 54



PROFI-spot
for selective measurements and spot metering at 10°, 5° or 1°.
Page 58

PROFI-color
for measuring colour temperature and indication of correction filters.
Page 62.

REPRO
provides exposure information for copying.
Page 74



PROFI-flex
particularly suitable for macrophotography, for ground-glass measurements of cameras and inaccessible areas.
Page 77

PROFI-lux
facilitates professional incident light readings.
Page 82

PROFI-select TTL
for measuring at the film plane of large-format view cameras.
Page 86

PROFI-micro
ensures convenient and precise measurement in micrography.
Page 94

LAB
determines exposure data for darkroom printing and enlarging.
Page 98