SEKONIC SYSTEM METER

INSTRUCTION BOOK

model L-428

SEKONIC

Contents

FEATURES OF THE SEKONIC SYSTEM METER

1. High Accuracy

★ Silicon light sensing diode is employed as the light sensor element. Response is fast under both low and high illumination.

★ Stability and accuracy are advanced to a new level.

2. Easy to Employ

★ Switchable H and L range scales are evenly graduated for easy reading at any position.

★ Wide measuring range from EV −3 to +18.

★ Freely rotating light sensor section.
Rotation angle Right: 200°
Left: 100°

★ Meter pointer can be stopped at the deflected position (meter stop mechanism).

★ Switch lock mechanism can be employed in either ON (light measurement) or OFF (pointer stop & storage) positions.

3. Reliability

★ Internal circuitry utilizes high reliability electronic components and printed circuit module. Stable performance is maintained over long term usage.

4. Full Selection of Accessories

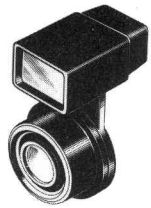
★ A complete range of accessories is available to make this a system meter with flexibility to meet intended applications.

★ Standard Accessories
Lumisphere, Lumidisc, Reflected Light Filter

★ Special Accessories (Sold Separately)

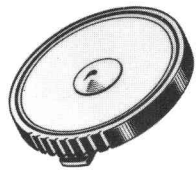
- Viewfinder (10° light receiving angle attachment)
- Enlarger Attachment (for enlarger exposure measurements)
- Pinpoint Attachment (for measuring light distribution on view camera focal plane)
- Microscope Attachment (for exposure measurements in photomicroscopy)
- Special Dials for Each Attachment
- Movie Dial (exposure and computing dial for movie photography)

SYSTEM METER COMPOSITION



Viewfinder (w/special dial)

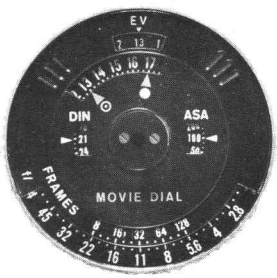
Enlarger Attachment (w/special dial)

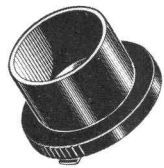


Pinpoint Attachment (w/special dial)

Movie Dial

Microscope Attachment (w/special dial)



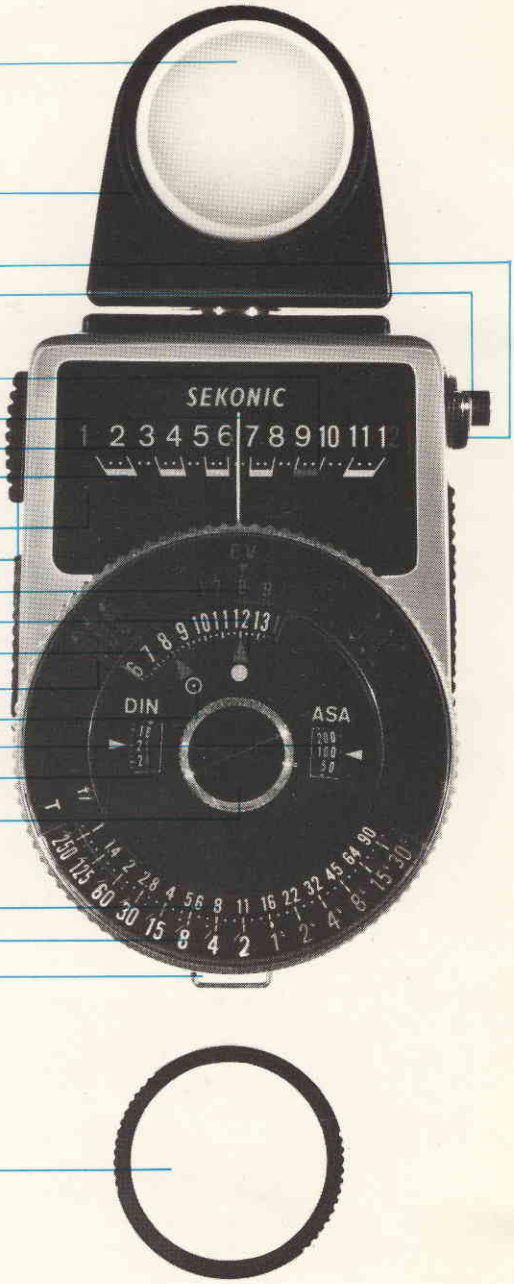


SPECIFICATIONS

Measuring System	Incident & reflected light (interchangeable dials & attachments available according to application) H & L 2-step switchable linear scale
Measuring Range	Incident light (w/Lumisphere): L Range = EV −3 ~ +8 (ASA100) H Range = EV +8 ~ 18 (ASA100) Reflected light (w/reflected light filter): L Range = EV +1 ~ 12 (ASA100) H Range = EV 12 ~ 22 (ASA100)
Accuracy	Within ±¼EV
Light Sensor Section	Incident light: Lumisphere & Lumidisc Reflected light: reflected light filter (40° light receiving angle), Viewfinder (10° light receiving angle) and various attachments Element: silicon photodiode, sensitivity compensation by filter
Scales	ASA = 0.8 ~ 25,000 DIN = 0 ~ 45 f/stop = 1 ~ 90 Exposure time = 1/4000 sec ~ 60 min EV = −7 ~ +24

Power Source	4 mercury batteries JIS #G13 (1.5V)
Electronic Circuitry	All-transistorized
Calibration Factor	C = 340 K = 12.5
Dimensions	136 x 65 x 47mm
Weight	Approx. 280g (incl. batteries)
Others	Battery checker mechanism Pointer lock mechanism Switch button lock mechanism
Standard Accessories	Lumisphere, Lumidisc, reflected light filter, strap
Special Accessories	Viewfinder, Enlarger Attachment, Pinpoint Attachment, Microscope Attachment, various special dials, and Movie Dial

NAMES OF PARTS



① Lumisphere

② Swiveling light sensor section

③ Lock lever

④ Switch button

⑤ Battery check mark

⑥ Pointer

⑦ Light scale

⑧ Scale plate

⑨ Zero mark

⑩ H-L Selector knob

⑪ EV scale

⑫ Incident light indicator mark

⑬ Dial light scale

⑭ Film sensitivity knob

⑮ Reflected light indicator mark

⑯ ASA scale

⑰ DIN scale

⑱ Dial mounting screw

⑲ f/number scale

⑳ Shutter scale

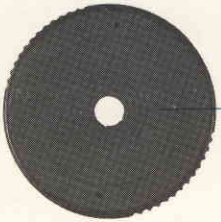
㉑ Strap bracket

㉕ Lumidisc

㉒ Battery check button

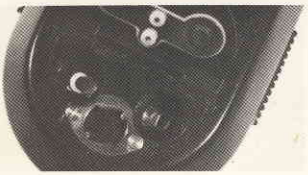
㉓ Battery cover

㉔ Battery cover lock screw

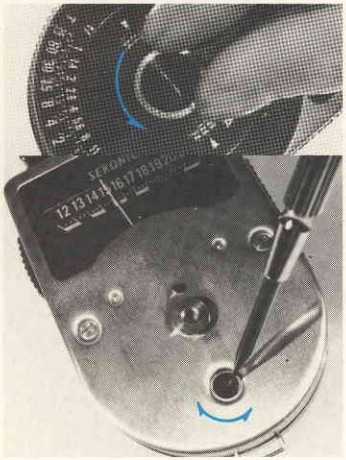


㉖ Reflected light filter

Confirm zero position before using.



Remove batteries and depress switch button.



Take out dial mounting screw and remove dial. Adjust by turning zero adjusting screw.

1. ZERO CHECK AND ADJUSTMENT

Before performing measurements, confirm that the meter pointer ⑥ properly indicates the zero mark ⑨.

Confirmation

- ★ Remove batteries and depress switch button ④ to release the meter lock. The pointer will deflect toward the left and should indicate the zero mark ⑨.
- ★ If the pointer deviates from the zero mark, perform adjustment.

Adjustment

- ★ With fingertips, turn the dial mounting screw ⑱ counterclockwise and remove the dial.
- ★ While switch button ④ is depressed, gently turn the zero adjusting screw with a screwdriver to align the pointer with the zero mark ⑨.

NOTE

- ★ Be sure to remove batteries before confirming zero position.
- ★ See next page for battery cover opening instructions.

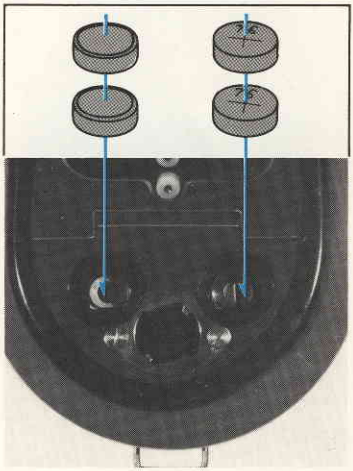
2. INSERTING BATTERIES

Four JIS #G13 (1.5V) mercury cells are employed for power. (Equivalent are Mallory MS-76H, Eveready S-76E, Ray-O-Vac RS76G)

- ★ Use a coin etc. to turn the battery cover lock screw ㉔ toward the O (Open) direction.
- ★ When lock screw disengages, gently raise the battery cover ㉓ to open it.
- ★ After observing battery polarities (+ & −) and the polarity markings of the battery compartment, insert two batteries into each receptacle. Both batteries in each receptacle should be faced the same way.
- ★ Replace the battery cover ㉓, press lightly with fingertips and turn the lock screw toward C (Close) to secure.

NOTE

- ★ Use caution when inserting batteries not to reverse (+ & −) polarities.
- ★ To prevent inadvertent switch closing from draining battery power when not in use, make it a habit to lock the switch button ④ in the OFF position.
- ★ When not using the meter for an extended period (more than a month), remove batteries and store in a dry place.



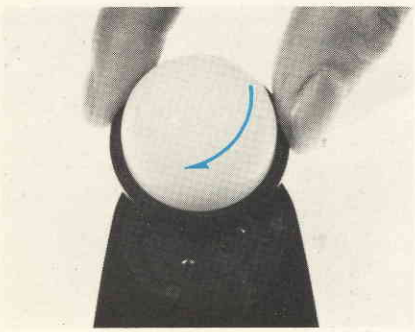
3. BATTERY CHECK

If the batteries have declined below their rated voltage, correct readings will not be obtained. Check the battery voltage before using.

- ★ Leave switch button ④ in the OFF position.
- ★ Depress battery check button ㉒ on rear of meter.
- ★ Pointer should indicate the red battery check mark ⑤. If it does not reach the mark, replace batteries.

EMPLOYING STANDARD ACCESSORIES

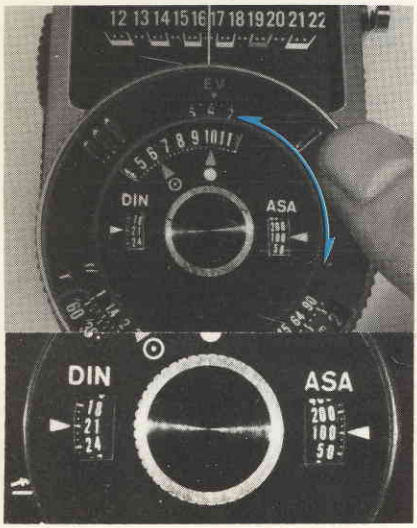
INCIDENT LIGHT MEASUREMENT



USE LUMISPHERE TO MEASURE INCIDENT LIGHT

1. INSTALL LUMISPHERE ON LIGHT SENSOR

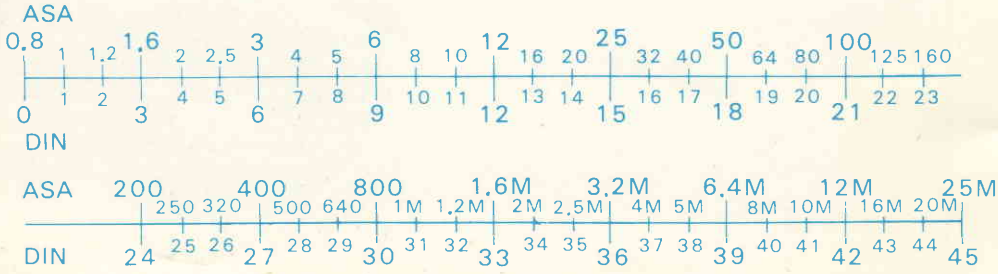
Align the white dot of the Lumisphere interior with the white dot of the light sensor mounting flange. Gently turn the Lumisphere clockwise to secure it.



2. SETTING FILM SENSITIVITY

Set the sensitivity value of the employed film. Use the right side scale ⑯ for setting ASA, and the left side scale ⑰ for DIN.

- ★ With the fingertips, turn the film sensitivity knob ⑭ to set the proper value in the scale window.
- ★ ASA 100 and DIN 21 setting is shown in the photo.
- ★ Intermediate film sensitivities are as shown in the table.



3. SELECTING H OR L RANGE

H (high) and L (low) illumination measurements can be performed by simply sliding the H-L selector knob ⑩. The knob is coupled with the light scale ⑦, which also changes to display the appropriate range.

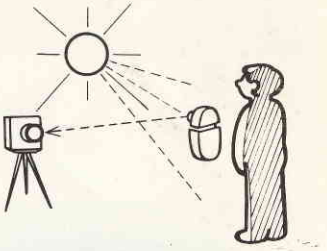
NOTE

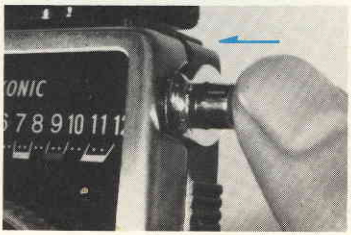
- ★ Perform initial measurement at the H range.
- ★ If the pointer deflects completely toward the left, switch to the L range and perform measurement.

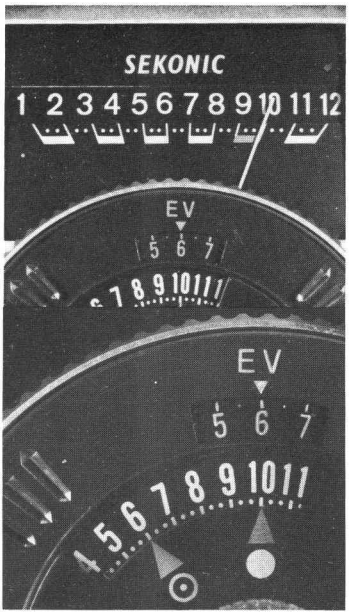
4. MEASUREMENT & EXPOSURE READING

a) From the location of the subject desired to be measured, point the Lumisphere toward the camera. (The light sensor section can be freely rotated.)

b) Hold the exposure meter properly and depress the switch button ④. The pointer will deflect according to the brightness. When the switch button is released, the pointer will hold at the deflected position.

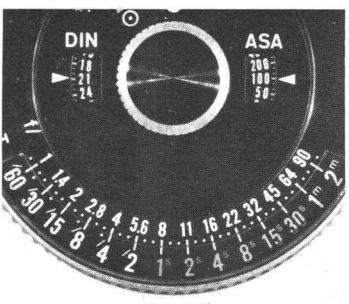






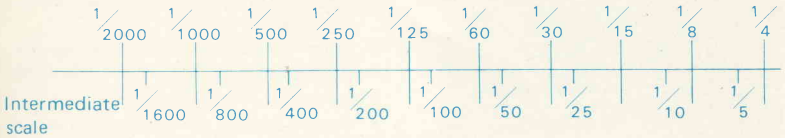
c) Read value of scale indicated by the pointer.
d) Transfer the value to the dial light scale ⑬. Turn the dial ring and align the value with the incident light indicator ▲.
e) At this time, the f/number scale ⑲ and shutter scale ⑳ combination becomes the proper exposure.

NOTE
With ASA100, if the pointer indicates 10 on the light scale, the proper exposure becomes 1/8sec at f/2.8, 4sec at f/16, 2min at f/90, etc.



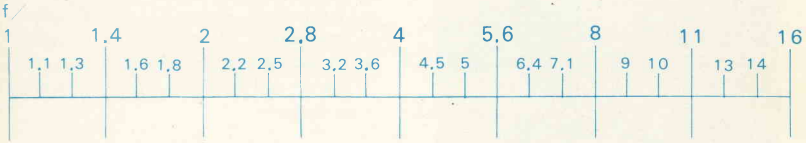
Shutter scale indications ⑳
★ White numeral indication
1/sec . . . /60 is 1/60sec
m (minutes) . . . 30m is 30 minutes
★ Red numeral indication
S (sec) . . . 15s is 15 seconds
★ Intermediate scales become as shown in the table.

Intermediate Shutter Scale Indications



Intermediate f/number Scale Indications ⑲

★ Intermediate values indicated by the small white dots are as shown in the table below.



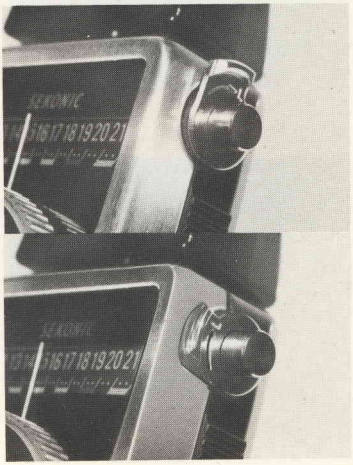
SWITCH BUTTON LOCK

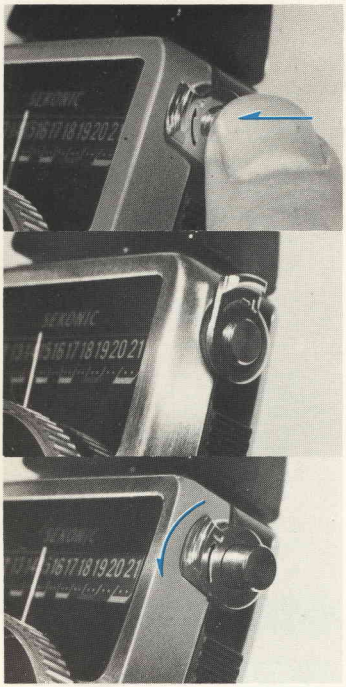
The switch button ④ is provided with a convenient locking mechanism. It can be locked at either the ON or OFF position.

a) **Lock at OFF position**

★ Prevents inadvertent depressing of the switch button during transportation and storage from causing unnecessary battery drain.

★ With the switch button ④ in the OFF position, turn the lock lever ③ toward the L mark.





b) Lock at ON Position

★ Convenient when performing measurements without pointer being stopped.

★ With the switch button ④ in the depressed position, turn the lock lever ③ toward L.

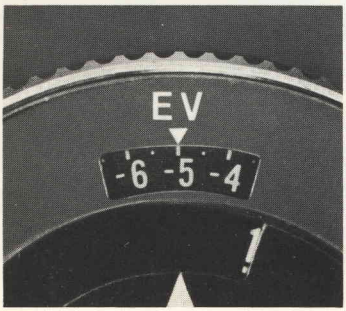
★ Switch button remains locked when finger is lifted from button.

★ Since extended use causes battery drain, employ this feature only when necessary.

c) Releasing lock lever

★ Turn lock lever ③ in direction opposite L. Lock will be released.

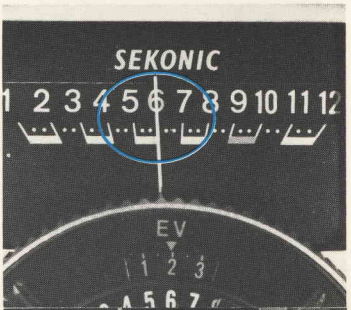
★ If locked in the ON position, the switch will become OFF as the lock is released.



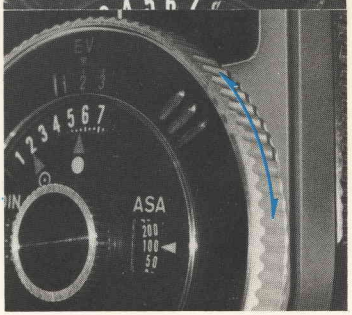
5. EXPOSURE VALUE (EV READING)

When employing a light value system shutter and f/stop combination camera, it is convenient to set by reading this exposure value.

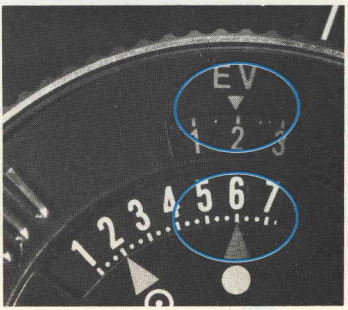
a) Read light scale value indicated by the pointer.



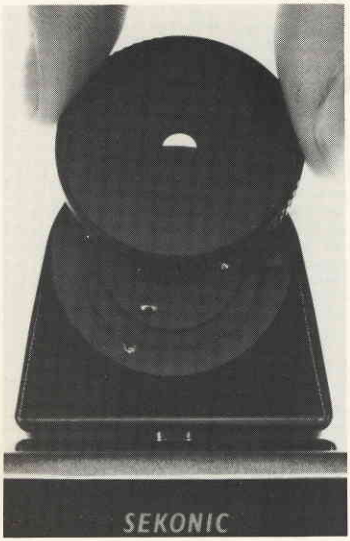
b) Transfer the value to the dial light scale ⑬. Turn the dial ring and set value to the incident light indicator mark ⑫. (During reflected light measurement, set to reflected light indicator mark ⑮).



c) The value indicated on the EV scale ⑪ by the arrow becomes the proper exposure value.



REFLECTED LIGHT MEASUREMENT

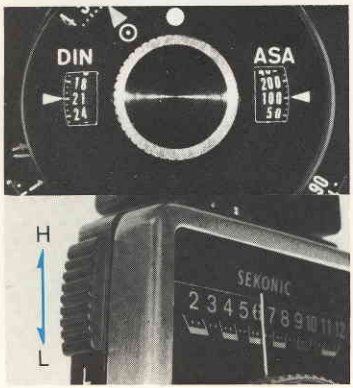


USE REFLECTED LIGHT FILTER TO MEASURE REFLECTED LIGHT

1. INSTALLING REFLECTED LIGHT FILTER TO LIGHT SENSOR SECTION

The reflected light filter is employed when measuring the light reflected from the subject (illumination). In addition to determining subject contrast, it can also be employed when incident light measurements are difficult to perform.

- ★ Install the reflected light filter in the same manner as the Lumisphere.
- ★ Remove the Lumisphere by turning it counter-clockwise.
- ★ Align the reflected light filter with the light sensor positioning mark and turn it clockwise to secure.



2. FILM SENSITIVITY SETTING

- ★ Setting is the same as for incident light measurement. See Page 12.

3. H-L RANGE SELECTION

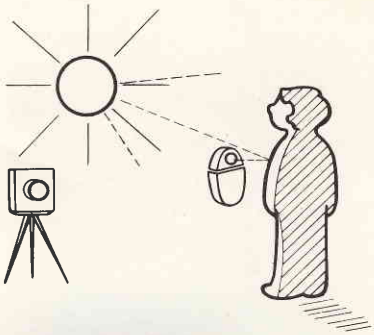
- ★ Same as for incident light measurement. See Page 13.

4. MEASUREMENT & EXPOSURE READING

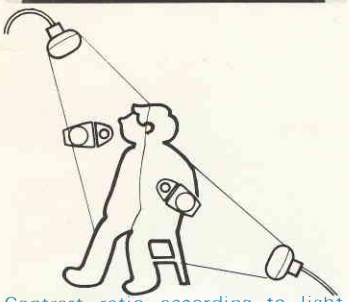
a) Point the reflected light filter towards the desired location of the subject to be measured. (Light sensor section rotates freely.)
b) Measure as close to the subject as possible and take readings from important subject areas. Use adequate care at this time not to induce the exposure meter shadow etc. into the area to be measured.
c) Depress the switch button ④ and read the value indicated by the pointer.
d) Transfer the value to the dial light scale ⑬. Turn the dial ring and align the value with the reflected light indicator mark ▲ ⑮.
e) The f/stop scale ⑲ and shutter scale ⑳ combination at this time is for proper exposure.

NOTE

★ Use caution not to misinterpret the incident light indicator mark ▲ ⑫ for the reflected light indicator mark ▲ ⑮.
★ A standard reflectance hand-screen (sold separately) can be employed during reflected light measurement to provide the correct value.



CONTRAST MEASUREMENT



Contrast ratio according to light scale value difference is as indicated in the table.

Light scale difference	Contrast ratio
1	2:1
1½	3:1
2	4:1
3	8:1
4	16:1
5	32:1

USE LUMIDISC TO MEASURE CONTRAST

1. INSTALL LUMIDISC TO LIGHT SENSOR

The illumination contrast between the main light and fill-in light contrast can be measured to control the illumination.

- ★ Install the Lumidisc in the same manner as the Lumisphere.
- ★ Turn counter-clockwise to remove, and clockwise to install.

2. MEASUREMENT & CONTRAST READING

a) Hold the exposure meter at the subject position and point the Lumidisc correctly toward the center of the main light source.

b) Depress the switch button ④ and read the value indicated by the pointer.

c) In the same manner, read the value of the fill-in light source. Take care not to allow the main light source to interfere with the measurement. Point the Lumidisc toward the center of the fill-in light source.

d) Obtain the difference between the main and fill-in light sources. If the difference is 1, for example, the contrast ratio becomes 2 : 1.

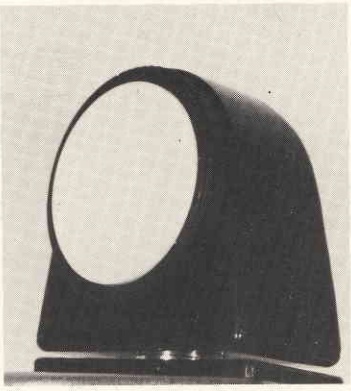
e) To determine exposure, install the Lumisphere and measure by general incident light method.

ILLUMINANCE MEASUREMENT (LUX)

1. INSTALL LUMIDISC TO LIGHT SENSOR

By employing the Lumidisc, the instrument can be used as an illumination meter.

★ Install Lumidisc to light sensor in same manner as Lumisphere.



2. MEASUREMENT & READING

a) Place so that Lumidisc is parallel with surface to be measured.

b) Depress switch button ④, pointer will deflect according to the brightness. At the stopped position, release the switch button and the pointer will hold at the deflected position.

c) If the pointer deflects completely toward the left, switch to the L scale with the H-L knob.

d) Read the light scale value indicated by the pointer and determine the illumination (lux) from the table.

e) To determine intermediate values, multiply by the following factors:

+1/3. . . .1.26
+1/2. . . .1.41
+2/3. . . .1.59

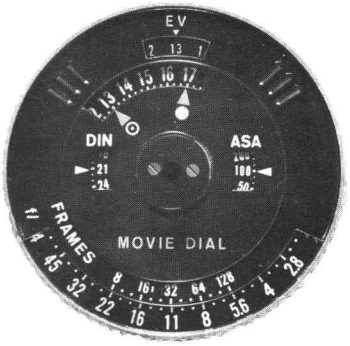
EXAMPLE:

★ Assume a light scale indication of 9-1/3. The illumination for 9 according to the table is 110. Multiply 110 by the +1/3 factor, 1.26.
Thus:
110x1.26=138.6 lux

★ In the same manner:
9-1/2 becomes 155 lux
and:
9-2/3 becomes 175 lux

Light scale	Lux	Light scale	Lux
1	0.42	12	880
2	0.85	13	1,750
3	1.7	14	3,500
4	3.4	15	7,000
5	7	16	14,000
6	14	17	28,000
7	28	18	56,000
8	55	19	112,000
9	110	20	224,000
10	220	21	448,000
11	440	22	895,000

SPECIAL ACCESSORIES (SEPARATELY SOLD)



The following special accessories are available to compose the System Meter. A detailed instruction book is included in each separate set.

1. **Movie dial**
Employed when performing movie photography.

2. **Viewinder with special dial**
Employed when measuring reflected light at the camera position or closeup subject. Light receiving angle is 10° and since the actual measured portion can be confirmed by eye, accurate exposure measurements can be performed.

3. **Enlarger attachment with special dial**
Employed for measuring exposure in enlarging.

4. **Pinpoint attachment with special dial**
Employed for measuring light distribution on view camera focal plane.

5. **Microscope attachment with special dial**
For exposure measurements in photomicroscopy.

HANDLING CAUTIONS

Since the System Meter L-428 is a precision instrument, caution is recommended concerning the following points.

a) Avoid dropping or applying strong shock to the Meter.
b) Do not store in locations with high temperature or humidity.
c) Avoid storing in locations with magnetic fields or where insecticides have been used (metal cabinets, dressers, etc.)
d) Avoid scratching the Lumisphere and Lumidisc, and always keep them clean. (When soiled, they can be washed thoroughly in a lukewarm soap and water solution.)

In event of malfunction, bring or send the Meter to the nearest SEKONIC sales office or Authorized Service Station.
If necessary to ship the Meter to a Service Station, be sure to wrap in shock-absorbing material at least 3cm (1-1/4 in) thick, then pack in a strong corrugated box.