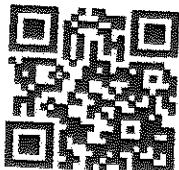
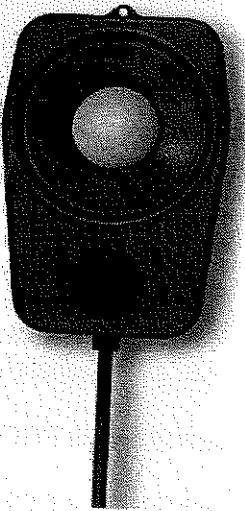
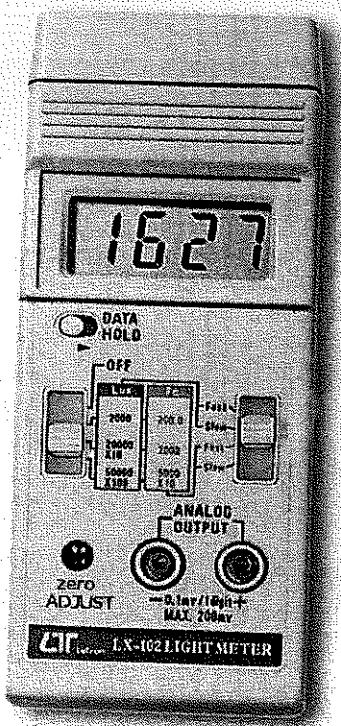


*0 to 50,000 Lux, 3 ranges, analog output*

# **LIGHT METER**

**Model : LX-102**



Your purchase of this LIGHT METER marks a step forward for you into the field of precision measurement. Although this LIGHT METER is a complex and delicate instrument, its durable structure developed. Please read the following instructions carefully and always keep this manual within easy reach.

**OPERATION MANUAL**

## TABLE OF CONTENTS

|  |   |
|--|---|
| 1. FEATURES.....   | 1 |
| 2. SPECIFICATIONS.....                                       | 1 |
| 2-1 General Specifications.....                              | 1 |
| 2-2 Electrical Specifications.....                           | 2 |
| 2-3 Spectrum for Light Sensor.....                           | 3 |
| 3. FRONT PANEL DESCRIPTION.....                              | 4 |
| 3-1 Display.....   | 4 |
| 3-2 Data Hold Switch.....                                    | 4 |
| 3-3 Power Off/Range Switch.....                              | 4 |
| 3-4 LUX/Fc Switch & Response Time Switch.....                | 4 |
| 3-5 Analog Output Terminal.....                              | 4 |
| 3-6 Battery Compartment/Cover.....                           | 4 |
| 3-7 Light Sensor.....  | 4 |
| 3-8 Zero Adjust VR.....                                      | 4 |
| 4. MEASURING PROCEDURE.....                                  | 5 |
| 5. MEASURING CONSIDERATION.....                              | 5 |
| 6. BATTERY REPLACEMENT.....                                  | 6 |
| 7. CORRECTION FACTOR FOR<br>DIFFERENT TYPES OF LIGHTING..... | 7 |

## 1. FEATURES

- \* Sensor used the exclusive photo diode & color correction filter, spectrum meet C. I. E. Photopic.
- \* Both Lux & Foot-candle measurement, wide range.
- \* Analog output, can connect the external recorder.
- \* High accuracy in measuring.
- \* Separate LIGHT SENSOR allows user to measure the light at an optimum position.
- \* Fast & Slow response time selector.
- \* LSI circuit provides high reliability and durability.
- \* LCD display allows clear read-out even at high ambient light level.
- \* Pocket size, easy to carry out & operation.
- \* Compact, light weight and excellent operation.
- \* Built-in low battery indicator.

## 2. SPECIFICATIONS

### 2-1 General Specifications

|               |  |
|---------------|--|
| Display       | 13 mm(0.5") LCD(Liquid Crystal Display).   |
| Measurement   | Lux, Ft-candle(Fc).  |
| Ranges        | Lux-0 to 50,000 Lux, 3 ranges.<br>Foot-candle: 0 - 5,000 Fc, 3 ranges.                       |
| Sensor        | Used the exclusive photo diode & color correction filter, spectrum designed to meet C. I. E. |
| Zero Adj.     | External adjust VR.  |
| Sampling Time | Approx. 0.4 sec.   |
| Response Time | Fast & Slow selector.  |

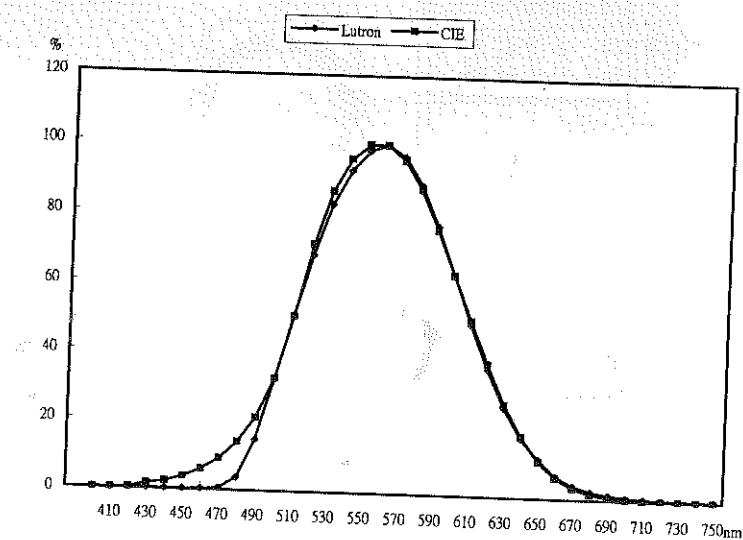
|                       |  |
|-----------------------|--|
| Over input indication | Indication of "1".   |
| Analog Output         | 0.1 mV/1 digits, max. output :200 mV.  |
| Operating Temperature | 0 °C to 50 °C(32 °F to 122 °F).  |
| Operating Humidity    | Less than 80% RH.  |
| Power Supply          | 006P DC 9V battery   |
| Power Current         | Approx. DC 2 mA.   |
| Weight                | 220 g/0.52 LB  |
| Dimension             | Main instrument:<br>163 x 70 x 30 mm (6.4 x 2.8 x1.2 inch).<br>Sensor probe:<br>85x55x12 mm(3.2x2.2x0.5 inch). |
| Accessories included  | Instruction manual.....1 PC.<br>Sensor probe.....1 PC.   |
| Optional Accessories  | Carrying Case, CA-03.  |

## 2-2 Electrical Specifications

| Lux        |                   |            |               |
|------------|-------------------|------------|---------------|
| Range      | In-range Display  | Resolution | Accuracy      |
| 2,000 Lux  | 0-1,999 Lux       | 1 Lux      | ±( 5 % + 2 d) |
| 20,000 Lux | 2,000-19,990 Lux  | 10 Lux     | ±( 5 % + 2 d) |
| 50,000 Lux | 20,000-50,000 Lux | 100 Lux    | ±( 5 % + 2 d) |

| Foot-candle (Fc) |                  |            |               |
|------------------|------------------|------------|---------------|
| Range            | In-range Display | Resolution | Accuracy      |
| 200 Fc           | 0-199.9 Fc       | 0.1 Fc     | ±( 5 % + 2 d) |
| 2,000 Fc         | 200-1,999 Fc     | 1 Fc       | ±( 5 % + 2 d) |
| 5,000 Fc         | 2,000-5,000 Fc   | 10 Fc      | ±( 5 % + 2 d) |

2-3 Spectrum for Light Sensor



### 3. FRONT PANEL DESCRIPTION

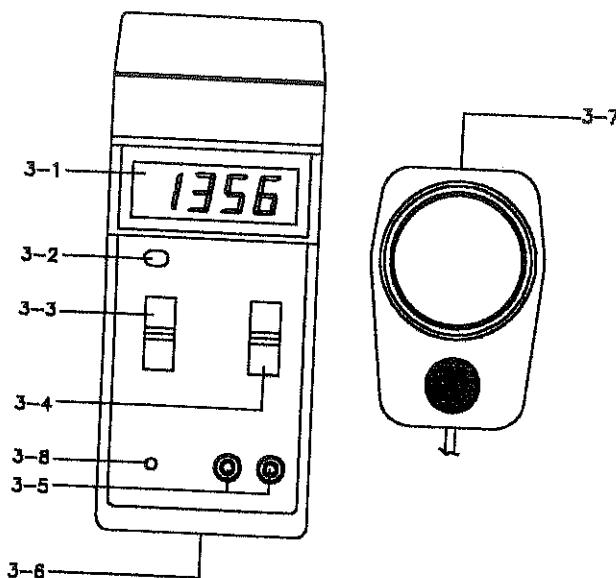


Fig. 1

- 3-1 Display
- 3-2 Data Hold Switch
- 3-3 Power Off/Range Switch
- 3-4 LUX/Fc Switch & Response Time Switch
- 3-5 Analog Output Terminal
- 3-6 Battery Compartment/Cover
- 3-7 Light Sensor
- 3-8 Zero Adjust VR

## 4. MEASURING PROCEDURE

- (1) Determine Lux or Ft-candle on slide switch(3-4, Fig.1)  
Determine the response time on slide switch(3-4, Fig.1),  
typical select to the "SLOW" position.
- (2) Select the max. range on the "Range Switch"(3-3, Fig. 1).
- (3) Hold the "Light Sensor"(3-6, Fig. 1) by hand & face  
the measuring light oppositely, then the Display(3-1,  
Fig. 1) will show light values directly.
- (4) During the measurement, if slide the "Data Hold Switch"  
(3-2, Fig. 1) to the "hold" position, then will freeze the  
display reading permanently.  
*Slide the "Hold Switch" to the left side will release the  
data hold function again.*

## 5. MEASURING CONSIDERATION

- (1) As the range of 20,000 Lux(2000 Fc) is designed  
to measure the light values  $\geq$ 2000 Lux(200 Fc). So  
if the measured light values less than 2000 Lux(200 Fc),  
please select the "Range Switch" to the lower range to let  
display reading show high resolution & be kept within high  
accuracy.
- (2) As the range of 50,000 Lux(5000 Fc) is designed  
to measure the light values  $\geq$ 20,000 Lux(2,000 Fc) So  
if the measured light values less than 20,000 LUX(2,000  
Fc) please select the "Range Switch" to the lower range to  
let display reading show high resolution & be kept within  
high accuracy.

(2) If blank the Light Sensor ( 3-7, Fig. 1 ) completely, the display value is not show zero value ( or near the zero value ), then can use the screw driver to adjust the " Zero Adjust VR " ( 3-8, Fig. 1 ) until the reading reach the zero value.

## 6. BATTERY REPLACEMENT

(1) When the left corner of the LCD display shows "LO BAT".  
Replacement of the battery is then needed.  
However measurement could still be taken for another few hours before the tester becomes inaccurate.

(2) Open the Battery Cover (3-6, Fig 1) at the back of tester and remove the battery.

(3) Replace with a 9V battery and reinstate the cover.

## 7. CORRECTION FACTOR FOR DIFFERENT TYPES OF LIGHTING

The light meter is calibrated under a precision " Standard light tungsten incandescent source of 2856°K".

If user intends to make measurements precisely under a different light source from

*"MERCURY LAMP",  
"FLUORESCENT LAMP",  
"SODIUM LAMP",  
"DAYLIGHT",*

Then the measurement value can be corrected (multiplied) using the following factors that compare the measuring reading values tested under the "Standard light tungsten source of 2856°K".

|                  |        |
|------------------|--------|
| MERCURY LAMP     | x 1.05 |
| FLUORESCENT LAMP | x 0.97 |
| SODIUM LAMP      | x 1.11 |
| DAYLIGHT         | x 0.95 |