TENMARS

LUX/FC Light Meter

TM-721
User's manual

HB2TM7210001

CONTENTS

1. Description

Measures light from visible luminaries equipped fluorescent, metal halide, high-pressure sodium and incandescent sources.

2. Safety Precaution

	CAUTION
⚠	Be extremely careful for the following conditions while measuring

- Do not operate the meter under the environment with explosive gas (material), combustible gas (material) steam or filled with dust.
- In order to avoid reading incorrect data, please replace the battery immediately when the symbol "[+-]" appears on the LCD.
- In order to avoid the damage caused by contamination or static electricity, do not touch the circuit board before you take any adequate action.
- Operating Environment: Indoors use. This instrument has been designed for being used in an environment of pollution degree 2.
- Operation Altitude: Up to 2000M.
- Operating Temperature & Humidity: 5°C ~ 40°C, 0%~ 80%RH.
- Storage Temperature & Humidity:

-10°C ~ 60°C, 0%~ 70%RH.

- EMC: EN61326-1(2006), IEC 61000-4-2(2008, IEC 61000-4-3(2006) + (2007).

3. Preface

The flux of light received in a unit area of a certain side being shown is popularly known as illumination. The measuring unit in both United Kingdom and America is known as footcandles light, but in Europe it is also known as meter candlelight.
One foot-candles light is the illumination of light that falls on one side which is one foot away from a one foot-candlelight and exactly intersecting with the light. Its abbreviated form is written as 1 Fc=1 Lm/ft, similarly, one-meter candlelight is the illumination of light that falls on a side which is one meter away from a one meter candlelight and exactly intersecting the light. It is also called Lux i,e. the flux of light being received in each sq. meter is called the illumination of one lumen.

1 FC=10.764 LUX, 1 LUX=0.09290 FC,
therefore,Nbr. of foot (meter) candlelight =

$$\frac{\text{Nbr. of Lumen}}{\text{Area(sq. foot or sq. meter)}}$$

Nbr. of Lumen=Nbr. of foot (or meter)x area

4. Features

- Overload Indication: LCD screen will show “OL” on the upper left-hand corner.
- Low battery Indication "  ".
- Sampling Rate: 2.5 times per second for digital display.
- Cosine Angular corrected.
- According to JIS C 1609:1993 and CNS 5119 general A class Specifications.
- Measuring lights source: all the visible light.
- Measuring intensities of illumination in Lux or footcandles.
- Many applications include: Warehouses, factories, office buildings, restaurants, schools, library, hospitals, photographic, many video, parking garages, museums, art galleries, stadiums, building security.
- Data hold.(HOLD)
- Maximum/Average/Minimum Hold.(MAX/MIN)
- Zero adjustment.(ZERO)
- Auto power off and disable function.
- Auto ranging.

5. Specifications

Display	9999 count, maximum display 9999	
Sensor	Silicon photodiode and filter	
Measuring Range	999.9,9999, 99990,400000 Lux 99.99,999.9,9999,40000 Footcandles	
Resulation	0.1,1, 10,100 Lux 0.01,0.1,1,10 Footcandles	
Accuracy	±3% ±3Lux(0~500Lux), ±3%(up 501 Lux) (Calibrated to standard incandescent lamp 2856°K) ±8% other visible light source	
Angle deviation from cosine characteristics	30°	±2%
	60°	±6%
	80°	±25%
Power Supply	2 batteries 1.5V AAA MN2400 LR03 AM4	
Battery life	About 200 hours	
Dimensions	133(L)x48(W)x23 mm (H) 5.3(L)x 1.9(W) x0.2(H) inch	
Weight	250g (include battery)	
Accessories	User's manual, carrying case, 1.5V battery*2	

6. Operation

6.1. LUX/FC Button:

Select LUX/FC.

6.2. CAL/ZERO Button:

- **Calibration of 1000 LUX:**

1. Prepare the 2856 °K /1000 Lux light source.
2. Press CAL button and POWER button more than 2 second the LCD will display CAL.
3. Unlocks buttons.
4. Press CAL button again more than 2 second the meter will shut down.
5. Correct succeed.

- **ZERO Button:**

Press the “ZERO” button for the zero adjustment if any digits appear on the LCD screen, when the light sensor cap is not attached “CAP” will be shown on the screen. Make sure that it is attached to the light sensor.

6.3. MAX/MIN/AVG Button:

Press “MAX/MIN” button simultaneously Lockup data maximum and average and minimum value of measure data. Press the “MAX/MIN” button for more than 1 second to disable this feature.

6.4. Data Hold Button:

Freezes the reading present on the LCD screen at the moment the button is pressed.

6.5. Power Button:

Press the ”  ” button more than 2 second to power on the meter.

6.6. Auto Power:

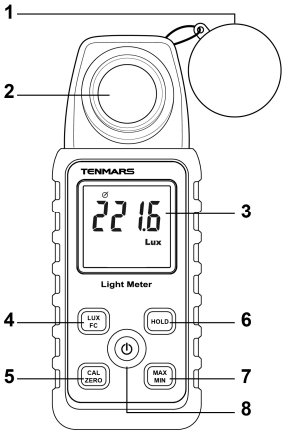
To save battery life, the meter powers down automatically after approximately 12 minutes of inactivity.

6.7. Enable/Disable Auto Power Off

Power Off by pressing the ”  ” button more than 2 second the LCD “” symbol will disappear or enable.

7. Instrument Description

1. Photo detector cover.
2. Photo detector.
3. Display (LCD).
4. Lux/Fc button.
5. Calibration and ZERO button.
6. Data hold button.
7. Maximun/Average/minimum button.
8. Power Button: ON/OFF.

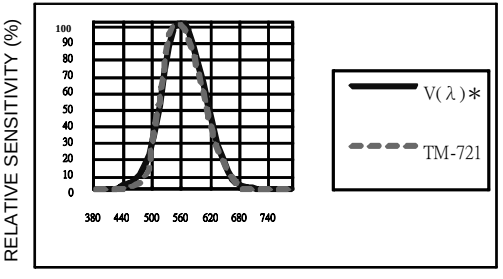


8 RELATIVE SPECTRAL (SENSITIVITY)

The deviation from the comparative standards for luminosity is determined by JIS standard C 1609-1993.

Peak sensitivity wavelength: 550 nm .

Typ. Ta=23℃

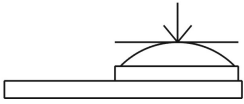


∗CIE luminous spectral luminous

9 Attention

- Set for referring the testing of source of light is located at the right top end (0 degree) of the light sensor ball plane.

Light Source 0 degree



- When the meter is not in use, please keep the cap of the light sensor in its place to avoid the photo diode from wearing out.
- When it is not in use for a long time, please take the batteries away. And avoid keeping it in a place of high temperature and humidity.

10 Recommended Levels of Illumination

Suitable levels of illuminance
(According to the JIS standard Z 9110-1979)

- **Offices**

Illuminance (lux)	Place
1500 to 750	Offices, designing, drawing rooms
750 to 300	Offices, conference rooms, computer rooms
300 to 100	Workrooms, corridors, stairways, restrooms
75 to 30	Indoor emergency stairways

- **Factories**

Illuminance (lux)	Place
3000 to 1500	Where such work as assembling, inspecting testing, selecting, extremely precision visual work
1500 to 750	Assembling, inspecting, testing, selecting, precision visual work
750 to 300	Assembling, inspecting, testing, selecting and visual ordinary work
300 to 150	Wrapping and packing
75 to 30	Indoor emergency stairways

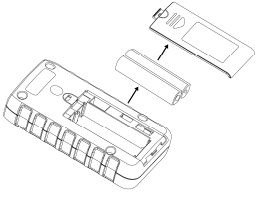
- **Schools**

Illuminance(lux)	Place
1500 to 300	Precision drawing or drafting, precision experimenting, library
750 to 200	Classrooms, library reading rooms, staff rooms, gymnasia
300 to 75	Lecture halls, assembly rooms, locker rooms, corridors, stairways and restrooms
75 to 30	Warehouses and emergency stairways
10 to 2	School passages

11 Battery Replacement

	WARNING
⚠	If the symbol " [-+]" appears on the LCD, please replace the battery immediately

1. Remove the battery cover
2. Replace the battery.
3. Install the battery cover.



12. END OF LIFE

Caution : this symbol indicates that equipment and its accessories shall be subject to a separate collection and correct disposal

TENMARS

Professional Electrical and Environment Test & Measurement Instruments:

LED light meter, Temperature & Humidity meter,Infrared Thermometer, Sound level meter Light meter, EMF meter, UV Light meter, RF meter, Hot wire Anemometer, CO meter Anemometer, Lan cable tester, CO_2 meter, Solar power meter, Radiation meter, Clamp meter, Multimeter, Phase Rotation test, Digital Insulation tester

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