

KUSAM-MECO®

AN ISO 9001:2008 COMPANY

DIGITAL LUX METER

Model - KM-LUX-200K

FEATURES :

- Precise & easy readout.
- High accuracy in measuring.
- LSI - circuit use provides high reliability & durability.
- Permits a wide range of light measurements.
- Low Battery Indication.
- Auto zero adjust.
- Compact, light-weight, & excellent operation.
- LCD display can clearly read out even in High Ambient Light
- LCD display provides low power consumption.
- Separate LIGHT SENSOR allows user take measurements at an optimum position.

GENERAL SPECIFICATIONS:

- **Display:** 3½ digits LCD Display with maximum reading of 1999.
- **Ranges:** 200, 2000, 20000, 200000Lux.(4 Ranges)
(20,000Lux range reading x 10, 200,000Lux range reading x 100)
20, 200, 2000, 20000FC (20,000FC range reading x 10).
- **Accuracy:** $\pm 3\% \text{rdg} \pm 0.5\% \text{ f.s.}$ ($\pm 5\% \text{rdg} \pm 10 \text{dgts}$ as $> 20,000 \text{Lux} / 2000 \text{FC}$ range)
(Calibrated to standard incandescent lamp at color temperature 2856K).
- **Over range display:** Highest digit of "1" is displayed.
- **Measuring Rate:** Approx. 2.0 time / sec.
- **Repeatability:** $\pm 2\%$
- **Photo Detector :** One silicon photo diode with filter.
- **Data Hold & Peak Hold Function.**
- **Operating Temperature:** 0°C to 40°C (32°F ~ 104°F)
- **Operating Humidity:** 0 ~ 80% R.H
- **Storage Temperature:** -10°C to 60°C (14°F ~ 140°F)
- **Storage Humidity:** 0 ~ 80% R.H
- **Power Supply:** DC 9V battery .
- **Dimension:** 149(H) x 71(W) x 41(D)mm
- **Photo Detector Dimension:** 100(H) x 60(W) x 28(D)mm
- **Photo Detector Lead Length:** Approx. 150cm
- **Weight:** Approx. 250g (including battery)
- **Standard Accessories:** Light Sensor, Instruction manual, Battery & Carrying case.



All specifications are subject to change without prior notice.

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DIGITAL LUX METER

Model - KM-LUX-99 / KM-LUX-200K

GENERAL INFORMATION

All models have a fast and accurate response. The sensors are cosine and color corrected and sealed to ensure long term stability. These meters come ready to use with 9V battery, Carrying Case, Instructions & 1 year warranty.

Light can be quantified in many ways, i.e., Lux, Lumens, Footcandles, Candle Power, Candelas, and so on. The two most popular scales are Lux, which is the European measure, and Footcandles which is the U.S. Scale.

Lux is a unit of illumination on one square meter which is one meter away from a uniform light source.

1 candela = 1 Lux.

Footcandles are a unit of illumination on one square foot which is one foot away from a uniform light source.

Light Measurement Conversion Factors

Abbreviations :

FC = Footcandle, Lux = Lux, Lumen = Lumen

Since : 1 FC = 1 Lumen / square foot,
and 1 Lux = 1 Lumen /
square meter

And;
1 square foot = 0.0929
square meters

Then;
1 Lux = 0.0929 Fc,
and 1 FC = 10.76 Lux.

How Light Meters Work

Most meters consist of a body, a photo cell and a readout. The light that falls on the photo cell has energy. This energy is transferred by the photo cell into electric current; the amount of current generated depends on the amount of light striking the cell. The meter then reads the electrical current and calculates the appropriate value of either Lux or Footcandles.

A key thing to remember about light is that it is usually made up of many different types (colors) of light at different wavelengths. The reading, therefore, is a result of the combined effects of all the wavelengths. A standard color can be referred to as color temperature and is expressed in degrees Kelvin. The standard color temperature for calibration of most light meters is 2856 degrees Kelvin which is more yellow than pure white.

Different types of light bulbs burn at different color temperatures. "KUSAM-MECO" meter readings will, therefore, vary with different light sources of the same intensity. This is why some lights seem "harsher" than others. See the chart below for suggested lighting levels for various applications.

What lighting levels do I need ?

The Australian standard for required workplace illumination **AS 1680.1.2006** offer the following advice :

Class of Task	Recommended Maintained illuminance lux	Characteristics of the activity / interior	Representative activities / interiors
Movement and Orientation	40	Interiors rarely visited with visual tasks limited to movement & orientation	Corridors, cable tunnels, indoor storage tanks; walkways
Rough Intermittent	80	Interiors requiring intermittent use with visual tasks limited to movement, orientation & coarse details.	Staff change rooms; live storage of bulky materials; dead storage of materials needing care; locker rooms; loading bays
Simple Workplace tasks	160	Any continuously occupied interior where there are no tasks requiring perception of other than coarse detail. Occasional reading of clearly printed documents for short periods.	Waiting Rooms, staff canteens; rough checking of stock; rough bench and machine work; entrance hall; general fabrication of structural steel; casting concrete; automated process monitoring; turbine halls.
Ordinary or Moderately easy work task	240	Continuously occupied interiors with moderately easy visual tasks with high contrasts or large detail	School chalkboards and charts; medium woodworking; food preparation; counters for transactions.
Moderately Difficult work tasks	320-400	Areas where visual tasks are moderately difficult with moderate detail or with low contrasts	Routine office tasks eg reading, typing, enquiry desks. Inspection of medium work; fine woodwork; car assembly
Difficult work tasks	600	Areas where visual tasks are difficult with small detail or with low contrasts	Drawing boards; most inspection tasks; proofreading; fine machine work; fine painting and finishing; colour matching.
Very Difficult work tasks	800	Areas where visual tasks are very difficult with very small detail or with very low contrasts	Fine inspection; paint retouching; fine manufacture; grading of dark materials; colour matching of dyes.
Extremely Difficult	1200	Areas where visual tasks are extremely difficult with extremely small detail or low contrasts. Visual aids may assist	Graphic arts inspection; hand tailoring; fine die sinking; inspection of dark goods; extra fine benchwork
Exceptionally Difficult	1600	Areas where visual tasks are exceptionally difficult with exceptionally small detail or with very low contrasts. Visual aids will be of advantage.	Finished fabric inspection; assembly of minute mechanisms, jewelry and watchmaking.

What to look for in light meters

For accurate measurement of illuminance you should ensure your light meter should have cosine and color correction. The cosine correction allows for the effects of light falling on the cell at oblique angles, colour correction is needed in order to match the spectral sensitivity of the human eye.

There are a number of cheap lightmeters in India, they are both cheap in Rupee terms and in construction- they have poor quality colour correction because of the lower quality colour correction filters they use. They tend not to fit the red or blue ends of the CIE V, lamda curve. Errors as much as 500% can occur in high pressure sodium or metal halide lighting.