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Digital Lux Meter

Code: 343650

Operating Instructions

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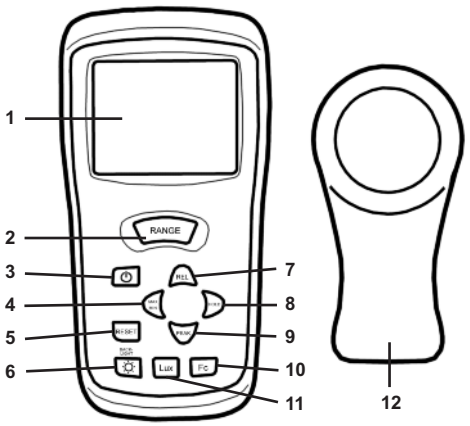
Digital Lux Meter

I) Instruction
- The digital illuminance meter is a precision instrument used to measure illuminance (lux, footcandles) in the field.
- It meets CIE photopic spectral response.
- It is fully cosine corrected for the angular incidence of light.
- The illuminance meter is compact, tough and easy to handle owing to it's construction.
- The light sensitive component used in the meter is a very stable, long-life silicon photo diode and spectral response filter.

II) Features
- Light measuring levels ranging from 0.01lux~0.1klux/0.01fc~0.01kfc, repeatedly.
- High accuracy and rapid response.
- Data hold function for holding measuring values.
- Unit and sign display for easy reading.
- Automatic zeroing.
- Meter corrected for spectral relative efficiency.
- Correction factor need not be manually calculated for non-standard light sources.
- Short rise and fall times.
- Peak-hold function for tracing peak signal of light pulse with least duration 10μs and keeping it.
- Capable of selecting measuring mode in lux or fc scale alternatively.
- Auto power off after 30 minutes.
- Maximum and minimum measurements.
- Relative reading and reset function.
- Easy to read large backlit display.

III) Specifications
- Display: 3¾ digit LCD with high speed 42 segment bargraph.
- Measuring range: 40.00lux, 400.0lux, 40.00klux and 400.0klux/40.00fc, 400.0fc, 4000fc and 40.00kfc NOTE: 1fc = 10.76lux, 1klux=1000lux, 1kfc = 1000fc
- Overrange display: LCD will show "OL" symbol.
- Spectral response: CIE Photopic (CIE human eye response curve).
- Spectral accuracy: CIE Vλ function f1'<6%
- Cosine response: f2'<2%
- Accuracy: ±5%rdg±0.5%f.s.
- Repeatability: ±3%
- Sampling rate: 13.3 times/sec of analogue bar graph indication; 1.3 times/sec of digital display.
- Photo detector: One silicon photodiode and spectral response filter.
- Operating temperature and humidity: 0ºC to 40ºC (32ºF to 104ºF) and 0% to 80%RH
- Storage temperature and humidity: -10ºC to 50ºC (14ºF to 140ºF) and 0% to 70%RH
- Power source: 1x 9V battery
- Photo detector lead length: 150cm (approx)
- Photo detector dimensions: 115(L) x 60(W) x 20mm(D)
- Meter dimensions: 170(L) x 80(W) x 40mm(D)
- Weight: 390g
- Accessories: Carry case, instruction manual, battery.

IV) Name of Parts and Positions

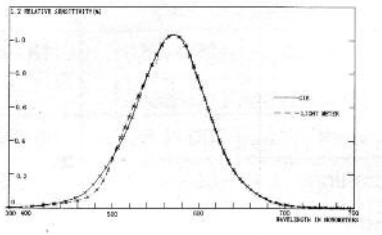


1. LCD Display: 3¾ digit display with a maximum reading of 3999 and the indicating signs of measured values, unit function symbols and decimal points, etc. are displayed.
2. Range Selector Key: it indicates 40.00lux, 400.0lux, 4000lux, 40.00klux and 400.0klux/40.00fc, 400.0fc, 4000fc, 40.00kfc total 5 ranges for lux and 4 ranges for fc.
3. Power Control Key: The power switch key turns the illuminance meter ON or OFF.
4. MAX/MIN Key: Maximum and minimum reading recorder control key.
5. RESET Key: Push function reset control key.
6. BACK-LIGHT Key: Back light control key.
7. REL Key: Relative reading control key.
8. Data-Hold Key: Data hold control key.
9. Peak Hold Key: Peak hold recorder control key.
10. Lux Key: Pressing the lux key selects taking measurement of illuminance in lux scale.
11. Fc Key: Pressing the fc key selects taking measurement of illuminance in footcandle scale; 1 footcandle = 10.75lux.
12. Photo detector.

V) Operating Instructions
1. Power up: Press the power key to turn the meter ON or OFF.
2. Selecting the lux or fc scale: Set the range selection switch to desired lux or fc range.
3. Remove the photo detector cap and face it at the light source in a horizontal position.
4. Read the illuminance nominal from the LCD display.
5. Overrange: If the instrument only displays "OL", the input signal is too strong and a higher range should be selected.
6. Data-Hold mode: Press the HOLD key to select data-hold mode. When HOLD mode is selected, the illuminance meter stops all further measurements. Press the HOLD key again to to exit data-hold mode. Normal operation is resumed.
7. Peak-Hold recorder mode: Press and hold down PEAK key until display shows the word "CAL", then press PEAK key to cycle through Pmax and Pmin recorder modes and expose the photo detector to light pulse measuring field. Press and hold down PEAK key 2 seconds to exit PEAK recorder mode. Normal operation is resumed.
8. Maximum and Minimum recorder mode: Press MAX/MIN key to cycle through Maximum (MAX) reading, Minimum (MIN) reading and current reading (MAX/MIN blink) recorder mode. Press MAX/MIN key 2 seconds to exit this mode.
9. Relative reading mode: Press REL key to enter Relative mode. The display shows zero value and the current reading will be stored as a zero-in value. Press again to exit this mode.
10. Reset mode: Every time this key is pressed the active function (HOLD, MAX/MIN, REL, PEAK), auto-power-off function and counter will be reset.
11. Back-light function: Press the Backlight key to turn on. Press again to turn off.
12. When the measurement is completed, replace the photo detector cap and turn the meter off.

VI) Battery Check-Up and Replacement
1. When the battery power is not sufficient, LCD will display low battery and replacement of one new battery is required.
2. After turning off the meter, disconnect the battery cover with a screwdriver.
3. Disconnect the battery from the instrument and replace it with a standard 9V battery and replace the cover.

VII) Spectral Sensitivity Characteristic
To the detector, the applied photo diode with filters makes the spectral sensitivity characteristic almost meet C.I.E. (INTERNATIONAL COMMISSION ON ILLUMINATION) Photopic curve V(λ) as the following chart describes.



VIII) Maintenance
1. The white plastic disc on top of the detector should be cleaned with a damp cloth when necessary.
2. Do not store the instrument where temperature or humidity is excessively high.
3. The reference level, as marked on the face plate, is the tip of the photo detector globe.
4. The calibration interval for the photo detector will vary according to operational conditions, but generally the sensitivity decreases in direct proportion to the product of luminous intensity by the operational time. In order to maintain the basic accuracy of the instrument, periodic calibration is recommended.

IX) Recommended Illumination
1fc = 10.76lux

Locations		Lux	fc
Office	Conference/ Reception Room	200~750	18~70
	Clerical Work	700~1,500	65~140
	Typing/Drafting	1,000~2,000	93~186
Factory	Visual work at production line	300~750	28~70
	Inspection Work	750~1,500	70~140
	Electronic parts assembly line	1,500~3,000	140~279
	Packing work, Entrance passage	150~300	14~28
Hotel	Public Room, Cloakroom	100~200	9~18
	Reception	200~500	18~47
	Cashier	750~1,000	70~93
Store	Indoors Stairs Corridor	150~200	14~18
	Show Window, Packing Table	750~1,500	70~140
	Forefront of Show Window	1,500~3,000	140~279
Hospital	Sickroom, Warehouse	100~200	9~18
	Medical Examination Room	300~750	28~70
	Operating Room, Emergency Treatment	750~1,500	70~140
School	Auditorium, Indoor Gymnasium	100~300	9~28
	Classroom	200~750	18~70
	Laboratory, Library, Drafting Room	500~1,500	47~140