User Manual

PCE-LED 30 Light Meter

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v1.0

Contents

1   Safety notes

Please read this manual carefully and completely before you use the device for the first time. The device may only be used by qualified personnel and repaired by PCE Instruments personnel. Damage or injuries caused by non-observance of the manual are excluded from our liability and not covered by our warranty.

- The device must only be used as described in this instruction manual. If used otherwise, this can cause dangerous situations for the user and damage to the meter.
- The instrument may only be used if the environmental conditions (temperature, relative humidity, …) are within the ranges stated in the technical specifications. Do not expose the device to extreme temperatures, direct sunlight, extreme humidity or moisture.
- Do not expose the device to shocks or strong vibrations.
- The case should only be opened by qualified PCE Instruments personnel.
- Never use the instrument when your hands are wet.
- You must not make any technical changes to the device.
- The appliance should only be cleaned with a damp cloth. Use only pH-neutral cleaner, no abrasives or solvents.
- The device must only be used with accessories from PCE Instruments or equivalent.
- Before each use, inspect the case for visible damage. If any damage is visible, do not use the device.
- Always place the protective cap on the sensor after use to protect the photodiode.
- If you do not use the meter for a longer period of time, remove the batteries and observe the specified storage conditions.
- Do not use the instrument in explosive atmospheres.
- The measurement range as stated in the specifications must not be exceeded under any circumstances.
- Non-observance of the safety notes can cause damage to the device and injuries to the user.

We do not assume liability for printing errors or any other mistakes in this manual.

We expressly point to our general guarantee terms which can be found in our general terms of business.

2   Specifications

2.1   Technical specifications

Measurement ranges	40 / 400 / 4000 / 40000 / 400000 lx 40 / 400 / 4000 / 40000 fc
Units of measurement	lux, foot-candles
Accuracy	±3 %
Reproducibility	+3% (calibrated to standard incandescent lamp 2856 K and corrected LED daylight spectrum) 6 % other visible light source
Sensor	silicone photodiode with built-in filter
Sampling rate	2.5 measurements per second
Measurable light sources	white LED and any other visible light
Display	max. Display: 3999 display of 40000 / 40000 lx and 40000 fc as klx and kfc respectively
Overrange indicator	OL (overload)
Internal memory	99 measured values
Measuring functions	Hold Max/Min/AVG Hold zero adjustment automatic power-off automatic range selection
Power supply	3 x 1.5 V AAA battery
Battery level indicator	yes
Standards	EMC:EN61326-1 (2006) IEC61000-4-2 (2006) IEC61000-4-3 (2006) + (2007) JIS C1609:1993 CNS 5519
Operating conditions	+5 ... +40 °C / 41 … 104 °F 0 ... 70 % RH
Storage conditions	-10 ... +60 °C 0 ... 70 % RH / 14 … 140°F
Sensor cable length	approx. 1.5 m / 4.9 ft
Dimensions	165 x 85 x 32 mm / 6.5 x 3.3 x 1.3 in
Weight	approx. 250 g / <1 lb

2.2   Delivery scope

1 x PCE-LED 30 light meter
1 x light sensor with protective cap
1 x device bag
1 x user manual

3   Device description

1. Display
2. LX/FC/CD key
3. Zero key
4. On/off key
5. ▼ key
6. HOLD key / light source
7. MEM/READ key
8. ▼ key
9. Light sensor

4   Preparation

4.1   Battery replacement

A battery icon is shown on the display. If a low battery voltage is displayed, you must replace the batteries.
To do this, proceed as follows:

1. Loosen the screw on the battery compartment cover on the back of the device.
2. Open the battery compartment and remove the old batteries.
3. Insert 3 new 1.5 V AAA batteries. Make sure the polarity is correct.
4. Close the battery compartment and tighten the screw.

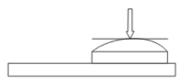*Note:*   *Replace the batteries when the battery voltage is low to avoid inaccurate readings.*

5   Operation

5.1   Making a measurement

During a measurement, the sensor should always be aligned as perpendicular as possible to the incident light.

5.1.1   Standard measurement

To carry out a standard measurement, proceed as follows:

1.   Press the On/off key to switch on the meter.
2.   Remove the sensor cap and position the sensor at right angles to the incident light.
3.   Use the LX/FC/CD key to select LUX or FC as the unit.
4.   Press the HOLD key to freeze the value shown on the display.
5.   Replace the sensor cap on the sensor after measuring.

5.1.2   Luminous intensity measurement

To carry out a luminous intensity measurement, proceed as follows:

1.   Press the On/off key to switch on the measuring instrument.
2.   Remove the sensor cap and position the sensor as perpendicular as possible to the incident light.
3.   Press and hold the LX/FC/CD key until "CD" appears on the display.
4.   Press the ▲ or ▼ key to select ft (feet) or m (metres) and then press the LX/FC/CD key to confirm.
5.   Use the ▲ and ▼ keys to enter the distance between the sensor and the light source and then press the LX/FC/CD key to confirm.
The luminous intensity is calculated using the following formula:
Luminous intensity (cd) = illuminance (LUX) x distance² (m²)
The distance to the light source can be 0.01 ... 30.47 m (0.01 ... 99.99 ft).

5.2 Functions

5.2.1 Hold function

The currently displayed measured value can be frozen on the display by pressing the HOLD key. "HOLD" also appears on the display.
Press the HOLD key again to unlock the display.

5.2.2 Zero function

If the device displays incomprehensible values, you can use the zero function. To do this, place the protective cap on the sensor and press the zero key. If the protective sensor cap is not fitted, the display will show "CAP". If the sensor protection cap is fitted, the device sets the displayed illuminance to 0.

5.2.3 MAX/AVG/MIN function

The device can show the maximum, minimum or average value on the display. To do this, press the ▲ key. The display now shows "MAX" as well as the maximum value since the function was activated. You can now use the ▲ key to switch between the maximum ("MAX"), minimum ("MIN") and average value ("AVG") display.
Press and hold the ▲ key to exit the function.

5.2.4 Change unit of measurement

Press the LX/FC/CD key to switch between the units "LX" (lux) and "FC" (foot-candles).

5.2.5 Memory

MEM (memory)
Press the MEM/READ key to save the current measured value. When saving, "M" and the memory location number ("NO. 01" ... "NO.99") appear briefly in the top left of the display.

Read (read memory)
Press and hold the MEM/READ key until an "R" symbol and the memory location display "NO. XX" appears. You can now navigate between the individual memory locations using the ▲ and ▼ keys. The measured values of the individual memory locations are shown in the measured value display.
To return to measuring mode, press and hold the MEM/READ key.

Clear (delete memory)
When the measuring device is switched off, press the MEM/READ and the On/off keys simultaneously. The display now shows "CLR" and all saved measured values are deleted.

5.3 Settings

5.3.1 Light source

You can create 9 different light sources and switch between them.
To do this, press and hold the HOLD key until the number after "L" flashes at the bottom of the "Light Source" display.
You can now use the ▲ and ▼ keys to select the light source you want to adjust. Then press the HOLD key.
The correction factor now starts to flash to the right of the selected light source. You can change this using the ▲ and ▼ keys. Values between 0.001 and 1.999 are possible.
To exit this mode again and use the selected light source, press and hold the HOLD key.

Example: Measured value x correction factor = displayed measured value
                200.0 lx x 1.008 = 201.6 lx

Note: *A correction factor of 1.000 corresponds to a CIE standard light source.*

5.3.2 Automatic power-off

If the automatic power-off function is activated, the meter switches off automatically after approx. 5 minutes of inactivity.

To activate or deactivate the automatic power-off function, press and hold the On/off key. When the function is active, a " ⟳ " icon appears on the left of the display. When the function is inactive, the icon disappears.
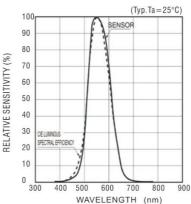
6   Further information

Recommended illuminance levels:
Recommended illuminance levels for workplaces and premises can be found in DIN EN 12464-1 and ASR 3.4.

Spectral sensitivity:
Relative spectral sensitivity according to JIS C 1609-1993:
Peak sensitivity: 550 nm

Adjusted spectrum (daylight LED):

7 Contact

If you have any questions, suggestions or technical problems, please do not hesitate to contact us. You will find the relevant contact information at the end of this user manual.

8 Disposal

For the disposal of batteries in the EU, the 2006/66/EC directive of the European Parliament applies. Due to the contained pollutants, batteries must not be disposed of as household waste. They must be given to collection points designed for that purpose.

In order to comply with the EU directive 2012/19/EU we take our devices back. We either re-use them or give them to a recycling company which disposes of the devices in line with law.

For countries outside the EU, batteries and devices should be disposed of in accordance with your local waste regulations.

If you have any questions, please contact PCE Instruments.

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