LIGHT METER

PCE-LMD 10

User Manual

PCE-LMD 5 / PCE-LMD 10 Lux Meter

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v1.0

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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.
- 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.

If you have any questions please contact PCE Instruments. The contact details can be found at the end of this manual.

2   Delivery scope

1 x lux meter PCE-LMD 5 or PCE-LMD 10 incl. lux sensor
1 x USB cable
1 x PC software (PCE-LMD 10)
1 x service bag
1 x user manual

# 3   Accessories

USB mains adaptoNET-USB

4   Technical data

4.1   Specifications

Measurement range	0 ... 400 kLux 0 ... 40 kfc
Accuracy	±5 % of measured value ±10 digits at standard light A ±10 % of measured value ±10 digits
Repeatability	±2 %
Sampling rate	4 Hz
Sensor	Silicon photodiode with spectral filter
Peak Hold	Detection of the peak light intensity of the shortest 10 µS
Battery level indicator	flashes when the battery voltage is too low
Data logger (PCE-LMD 10)	32,000 sets of measured values
Power supply	3.7 V Li-Ion battery
Operating conditions	-10 ... 50 °C / <80 % RH
Storage conditions	-20 ... 50 °C / <80 % RH
Dimensions	Meter: 162 x 88 x 32 mm (6.38 x 3.46 x 1.26 ") Sensor: 102 x 60 x 25 mm (4.01 x 2.36 x 0.98")
Weight	approx. 320 g (0.70 lbs)

4.2   Sensitivity
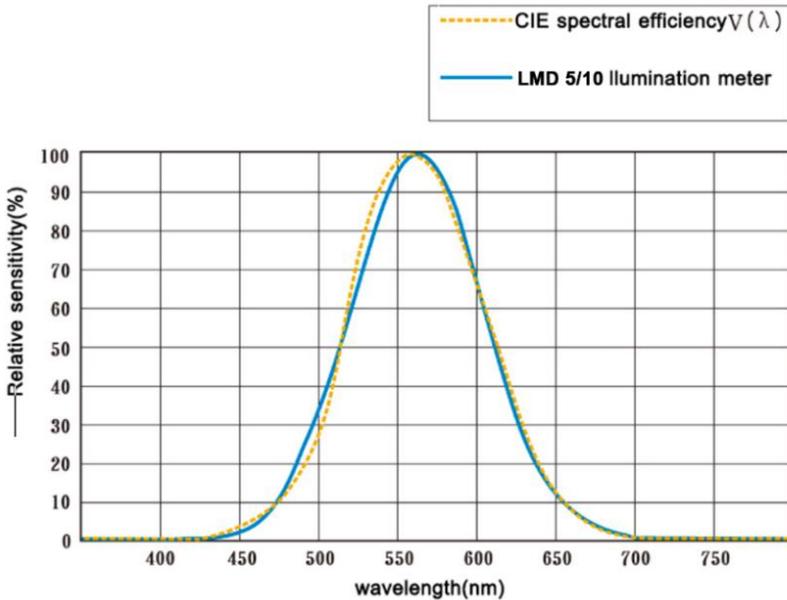
5   Device description

5.1   Key description

1. Sensor cable
2. LCD
3. Zero calibration key
4. HOLD key
5. ON/OFF key
6. Key for switching the unit
7. REL key (relative value)
8. PEAK key
9. MIN key (PCE-LMD 5) / MIN/MAX key (PCE-LMD 10)
10. MAX key (PCE-LMD 5) / REC key (PCE LMD 10 only)
11. Light sensor

Notice:
The micro USB socket is located at the bottom of the meter.
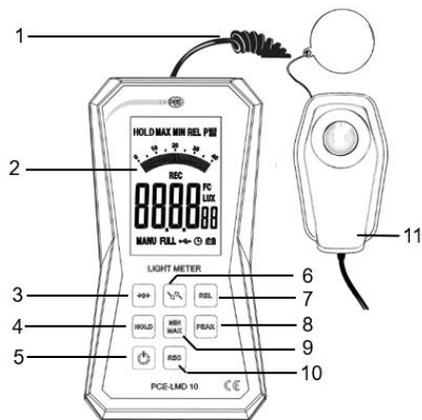
5.2   Display

1. MAX/MIN value
2. Relative value
3. PEAK value MAX/MIN
4. Freeze data
5. Analogue bar graph
6. Digital display
7. Icon for data storage
8. Unit: FC/LUX
9. Battery icon
10. Icon for full memory
11. USB icon
12. Automatic power off
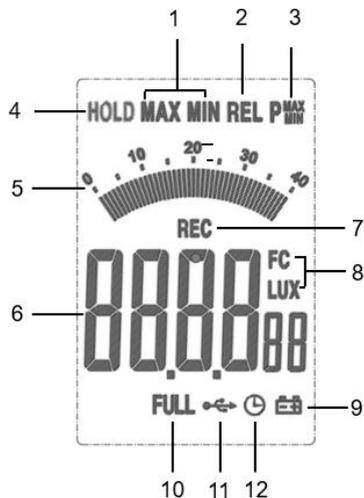
6   Operating instructions

6.1   Sensor

The light sensor is firmly connected to the meter by a spiral cable. Open the sensor protection cap, leaving the white sensor dome fully exposed. To avoid scratches and damage to the sensor dome, replace the protective cap when the meter is not in use.
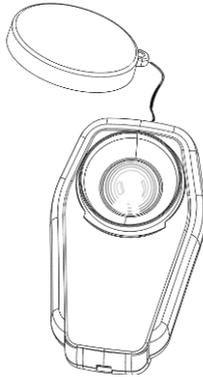
6.2   Switch on/off the meter

Press and release the 🔘 key to turn on the light meter and press and hold the same key for 3 seconds to turn off the light meter.

6.3   Select units

Press the ↘↖ key to select LUX or FC (Foot Candle) as the unit for measurements.

6.4   Measurement

Open the sensor protection cap.
Position the sensor at a point perpendicular to the light source.
Read the value on the LCD.

Note:
During the measurement, make sure that no shadow or reflective light enters the light sensor dome.

6.5   Max/Min mode

1. Press the MAX (PCE-LMD 5) or MAX/MIN (PCE-LMD 10) key once. The "MAX" icon will appear on the LCD and the maximum value will be displayed on the LCD until a higher value is measured.
2. Press the MIN (PCE-LMD 5) or MAX/MIN (PCE-LMD 10) key again. The "MIN" icon will appear on the LCD and the minimum value will be displayed on the LCD until a lower value is measured.
3. Press the MAX/MIN key again. The MAX MIN icon will flash on the LCD and the real-time value will be displayed. Now the MAX and MIN values are recorded.
4. Press the MAX/MIN key again. This will take you back to step 1.
5. To exit the MAX-MIN mode, press and hold the MAX/MIN key for approximately 2 seconds until the "MAXMIN" icon disappears from the LCD.

6.6   Hold data

Press the "HOLD" key. The digital reading is held and the "HOLD" icon appears on the LCD. Press the "HOLD" key again to return to normal operation.

Note:
When the Data Hold function is activated, the analogue bar graph above the measured value changes according to the current light intensity.

6.7   Hold a PEAK value

The peak hold function allows the lux meter to detect the light pulse rising or falling to 10 µs.

1. Press the PEAK key. The "Pmax" icon will appear on the LCD. The lux meter measures the MAX light pulse and displays the MAX value. The data will be updated until a higher value is detected.

2. Press the PEAK key again. The "Pmin" icon will appear on the LCD. The lux meter will display the MIN light pulse value. The data will be updated until a lower value is detected.

3. To exit the Peak Hold function, press the PEAK key for approximately 2 seconds until the "Pmax" or "Pmin" icon disappears from the LCD.

6.8   Relative value

The relative value is the difference in value between the current light value and the saved reference light value.

To save a reading as a reference light value, press the REL key when the desired reference value is displayed on the LCD. The value displayed thereafter will be the relative value of that saved value.

For example: with the saved reference value 80 lux, if the current light value is 100 lux, the meter will display 20 lux. To retrieve the reference value, press the REL key again. The value will be displayed and the REL icon will flash on the LCD.

To exit REL mode, press and hold the REL key for approximately 2 seconds until the REL icon on the LCD disappears.

6.9   Backlight

If no key is pressed for 60 seconds in APO (auto power off) mode or recording mode, the backlight will automatically dim to save battery power. Press any key to increase the brightness again. In non-APO mode, the backlight is always very bright.

6.10   Recording mode (PCE-LMD 10 only)

The lux meter has a data logging function. Before starting the recording function, connect the light meter to the PC via Micro-USB and set up the parameters via the Smart Logger software. Set the start mode to "by key" and disconnect the light meter from the PC after setup. Press the REC key on the lux meter to start recording. The REC icon will start flashing and will be displayed on the LCD.

Do not turn off the meter during recording mode. When the set number of data is reached, the lux meter will be turned off automatically. When the memory is full, the FULL icon appears at the bottom of the LCD. When enough data have been deleted, the FULL icon disappears.

Notice:
If the lux meter is turned off during recording, connect it to the PC and set up the parameters again after turning it on before starting recording again. Otherwise, the ERR icon will be displayed on the LCD when you press the REC key for recording.

6.11   Auto Power Off

The APO function is set to ON by default. To turn off the APO function, press the 🔘 key lightly. To extend the battery life, the lux meter will automatically turn off after about 10 minutes when not in use.

In record mode or when the meter is connected via USB, the APO function is automatically disabled until the memory is full or the set number of records is reached.

If value drift occurs after prolonged use of the light meter, it can be calibrated with the zero calibration function.

Cover the sensor dome with the sensor protection cap.

Press the zero key. The "CAL" icon will appear on the LCD.

Press the Zero key until the "CAL" icon disappears from the LCD, then release the key when 0.0 lux is displayed.

Note:

If the light sensor is not covered, "ERR" is displayed when the zero key is pressed.

7 Maintenance and cleaning

7.1 Cleaning and storage

1. The white plastic sensor dome should be cleaned with a damp, soft cloth if necessary.
2. Store the light meter in an area with moderate temperature and relative humidity.

7.2 Charging the battery

When the battery power is insufficient, the battery icon appears on the LCD and flashes. Use the DC 5V power adaptor to connect to the micro USB charging port on the bottom of the meter. The battery icon on the LCD will indicate that the battery is charging and will disappear when the battery is fully charged.

8 Warranty

You can read our warranty terms in our General Business Terms which you can find here: https://www.pce-instruments.com/english/terms.

9 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.

www.pce-instruments.com

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