Sound Level Meter PCE-EV-KIT 3
Manual
Light Meter
PCE-174

Contents

1 Introduction

Thank you for purchasing the PCE-174 from PCE Instruments.
The PCE-174 light intensity meter is a precision device to measure Lux and Footcandle readings. The light intensity meter can be used to measure light levels in industry, agriculture and research.

2 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. There is no warranty of damages or injuries caused by non-observance of the manual.

- The device may only be used in the approved temperature range.
- The case should only be opened by qualified personnel of PCE Instruments.
- The instrument should never be placed with the user interface facing an object (e. g. keyboard side on a table).
- You should not make any technical changes to the device.
- The appliance should only be cleaned with a damp cloth / use only pH-neutral cleaner.

This user's handbook is published by PCE Instruments without any guarantee.

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

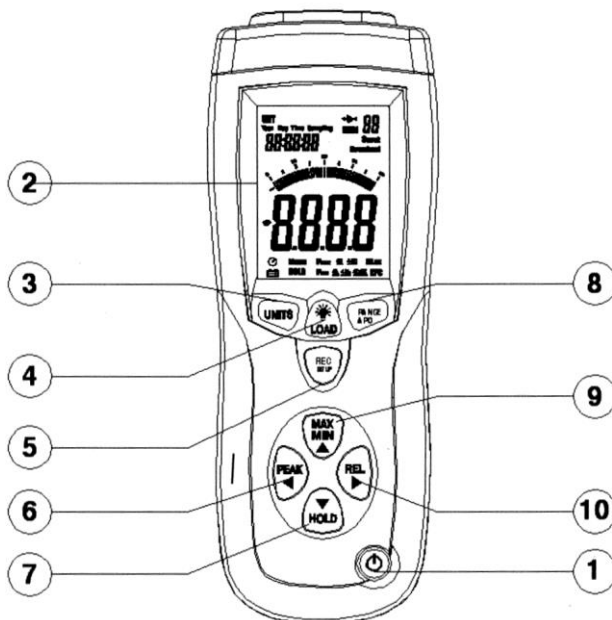If you have any questions please contact PCE Instruments.

3 Specification

Measurement range	400.0 / 4000 / lux 40.00 / 400.0 klux 40.00 / 400.0 / 4000 / fc 40.00 kfc
Resolution	0.1 / 1 / 10 / 100 lux 0.01 / 0.1 / 1 / 10 FootCandle
Accuracy	± 5% of measurement value ± 10 digits (<10,000 lux) ± 10% of measurement value ± 10 digits (>10,000 lux)
Reproducibility	± 3 %
Storage	16,000 values
Storage Interval	Between 2 and 99 seconds
Over-range display	OL= overload
Display-update	1.5 per second
Environmental conditions	0 … 40°C / 80% RH
Display	3¾ digits LCD-display
Supply	9 V block battery
Dimensions	Device: 203 x 75 x 50 mm (W x H x D) Light sensor : 115 x 60 x 20mm (W x H x D) Cable length: 150 cm
Weight	280g
Standards	Safety: IEC- 1010- 1; EN 61010- 1 EMV: EN 50081- 1; EN 50082- 1 DIN 5031 ; DIN 5032

Delivery contents
1 x Lux-measuring device PCE-174, 1 x light sensor, 1 x software, 1 x USB-cable, 1 x battery,
1 x device case, 1 x operating manual

4 System description

1. On/Off key
2. Display: 3¾ digits display
3. UNITS key: Press this key to switch to the measuring mode for footcandle (1 fc= 10.76 lux)
4. Backlight: Turn on and off
5. REC/SET key
6. PEAK key: Press this key to activate the peak value display.
7. HOLD key: The current value on the screen is frozen.
8. Range key: Press this key to select between different measurement ranges (e. g. 400.0/4000 lux).
9. MAX/MIN key: Press this key to select the maximum and minimum value.
10. REL key: Press this key to switch to comparative readings (zeroing).

5   Operation

1. Connect the device to the light sensor.
2. Press the on/off key to turn on the Lux-measuring device.
3. Remove the cover of the light sensor and hold it horizontally to the light source.
4. Select the desired unit, lux or fc.
5. The light intensity value is displayed on the screen. If "OL" appears, then the measurement value is outside of the measurement range. Please select a higher measurement range.
6. The measurement range is selected by pressing the **RANGE** key (e.g. 400.0/4000 lux).
7. Switch between the measuring modules Lux and Footcandle (1 fc= 10.76 lux) by pressing the **UNITS** key.
8. To freeze the current value on the screen, press the **HOLD** key. Press the key again to continue with the measurement.
9. To record the peak value, press the **PEAK** key. By briefly pressing the **PEAK** key, the maximum and minimum peak values can now be recorded.
10. Maximum and minimum values can be selected by pressing the **MAX/MIN** key.
11. To set the display to "0", press the **REL** key. The device will now deduct the current measurement value from the final value.
12. To turn the backlight on or off, press the **LOAD** key.
13. When the measurement procedure has been completed, put the cover back on the light sensor and turn off the device

6   Set time and sampling rate

1. Press the **REC** and **UNITS** keys simultaneously. The first digit of the time will begin to flash.
2. By pressing the **PEAK ◄** or **REL ►** key the appropriate selection may be selected (hour, minute, second, sampling rate, month, day, week, year).
3. The value of the range selected can be changed by pressing the **MAX/MIN ▲** key or the **HOLD ▼** key.
4. To exit, press the **REC** key and **UNITS** key simultaneously.

7   Manual save

1. Press the **REC/Setup** key to save manually.
2. The saved values can be viewed by pressing the **LOAD** key for approx. 3 seconds.
3. The memory locations can be viewed by pressing **MAX/MIN ▲** and **HOLD ▼** key.
4. To switch back to the standard mode, press the **LOAD** key for approx. 3 seconds.

8   Data log storage

1. Set the sampling rate as described in point 6.
2. Press the **REC/Setup** for approx.3 seconds, until the **MEM** display begins to flash.
3. Press the **REC/Setup** for approx.3 seconds and the saving will be complete.
4. Connect the light intensity meter to a USB port and the data log will be selected using the included software.

9   Delete saved data

Delete the manually saved data as follows:
Press the **LOAD** key and the **REC/Setup** key simultaneously until the symbol **MEM CL** appears on the screen to delete the saved data.
Delete the automatically saved data as follows:
Press the **REC/Setup** key whilst the device is turned off and keep it pressed **whilst turning on** the device until **DEL-MEM** appears on the screen.

10 Battery replacement

A battery warning indicator will appear on screen when the battery power is low. To replace the battery, remove the battery compartment cover with a screwdriver. Replace the 9V block battery with a new one and screw the battery compartment cover back on.

11 Maintenance

1. The outer casing can be cleaned with a damp cloth.
2. Do not store the device in areas of high humidity.

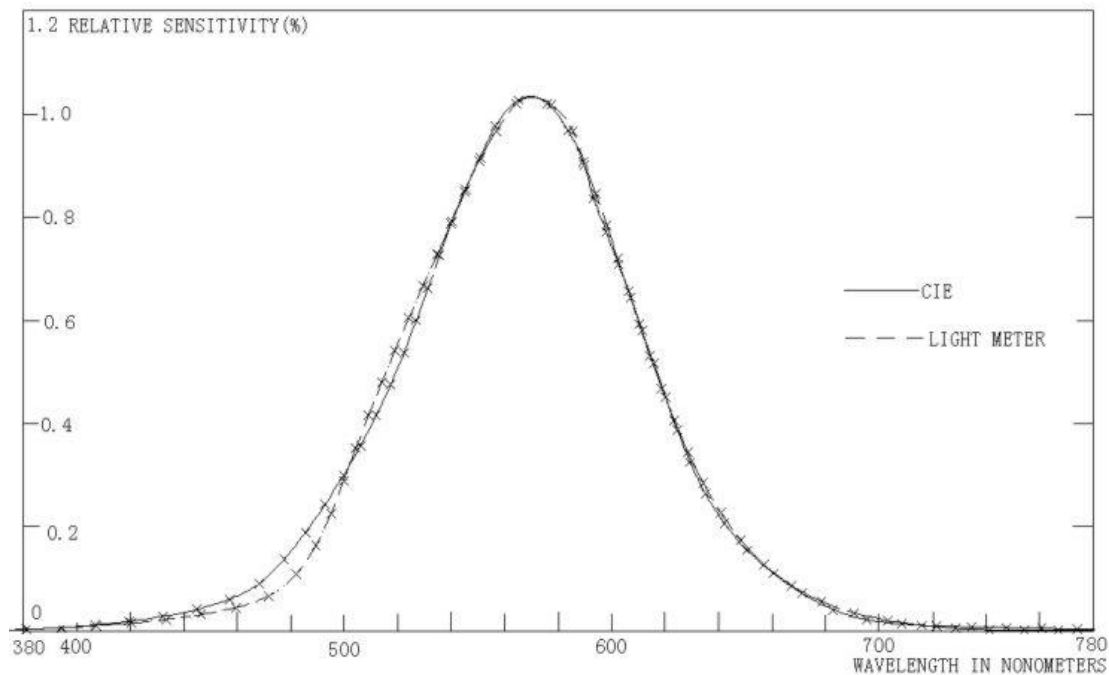## 12 Classification of the measurement results

PCE have provided the following table to be used as a guide when using the light intensity meter in different environments. The table shows the standard settings to be used when using the light intensity meter indoors. When using outdoors, considerably higher readings are to be expected (e.g. 30.000 lux or 100.000 lux in sunlight). These values are only approximate values and PCE cannot accept any liability for their accuracy.

Lighting area	Type of work/ work room	luminous intensity range
School area	Carrying out experiments	700 - 1500 lux
	Writing on the board	700 - 1500 lux
	Graphical designs	700 - 1500 lux
	Hallways	150 - 300 lux
	General classrooms	150 - 300 lux
	Reading room	700 - 1500 lux
	Canteen	300 - 700 lux
Office area	Computer room, Computer work	1500 - 3000 lux
	Technical drawings	1500 - 3000 lux
	Holding of meetings	300 - 700 lux
	Canteen	150 - 300 lux
	Reception	300 - 700 lux
Factory area	Production hall	1500 - 3000 lux
	Development office	700 - 1500 lux
	Planning office	700 - 1500 lux
	Laboratory studies	1500 - 3000 lux
	Packing products	700 - 1500 lux
	Warehouse	300 - 700 lux
	Electrical rooms	150 - 300 lux
Hospital area	Visitors room	300 - 700 lux
	Training	300 - 700 lux
	Anatomical training	300 - 700 lux
	First aid / Treatment room	700 - 1500 lux
	Pharmacy sector	700 - 1500 lux
	Reading in hospital bed	150 - 300 lux
	Radiotherapy room	70 - 150 lux
	Washroom	150 - 300 lux
Hotel area	reception	700 - 1500 lux
	Entrance area	300 -700 lux
	Banquet	300 - 700 lux
	Offices	150 - 300 lux
	Restaurant	150 - 300 lux
	Toilet	150 - 300 lux
	Washrooms	150 - 300 lux
	Bar	70 - 150 lux
	Hallways	70 - 150 lux

	Stairs	70 - 150 lux
Business area / shops	Shop window	1500 - 3000 lux
	Exhibition room	1500 - 3000 lux
	Packing area	700 - 1500 lux
	Common room	300 - 700 lux
	Meeting room	300 - 700 lux
	Toilet	150 - 300 lux
	Stairs	70 - 150 lux

13 Spectral sensitivity characteristics

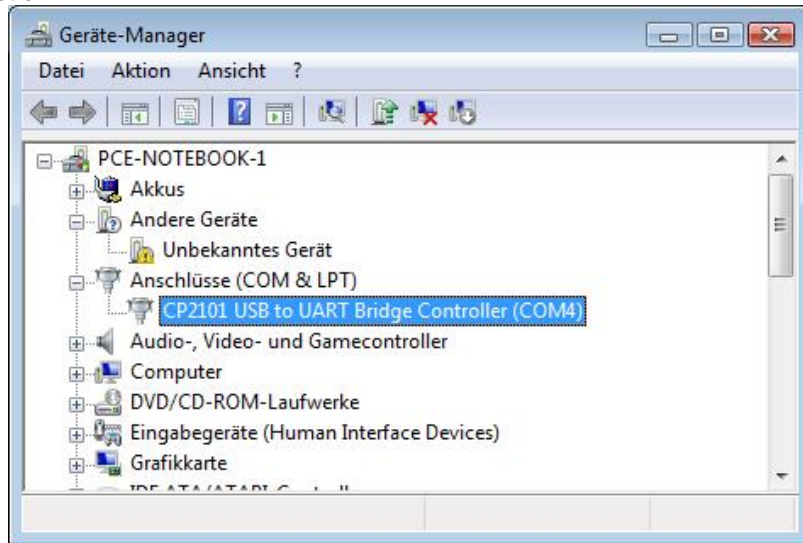The devices light sensor fulfils the C.I.E (International Commission on Illumination) spectral curve as displayed below:
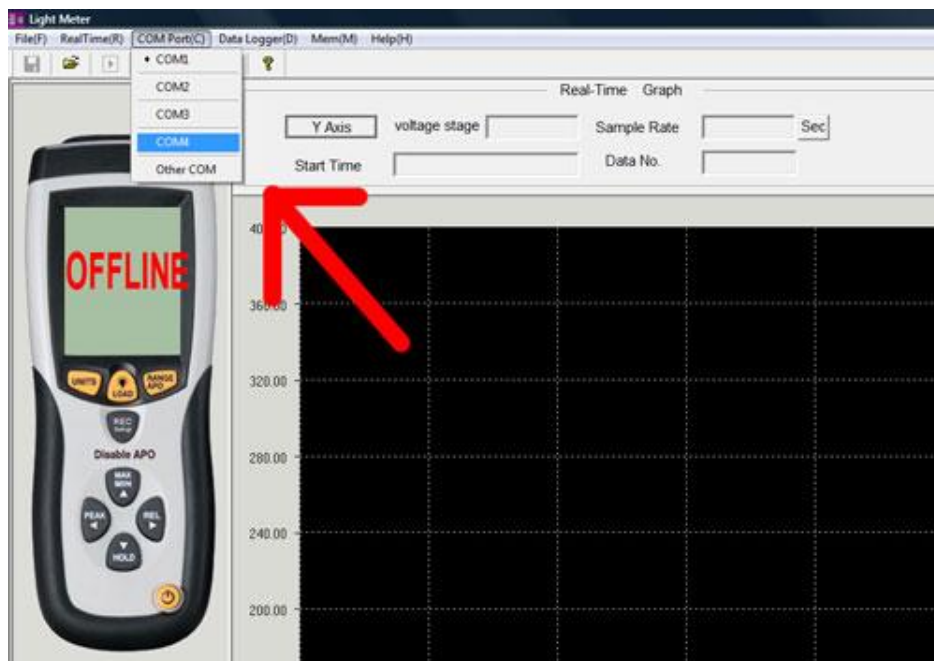

Software installation
Place the software CD into the drive and double click "Setup". The installation window appears. Click "Next". To install the software, click on the install button. After the software has been successfully installed, click "Finish" to complete the installation.
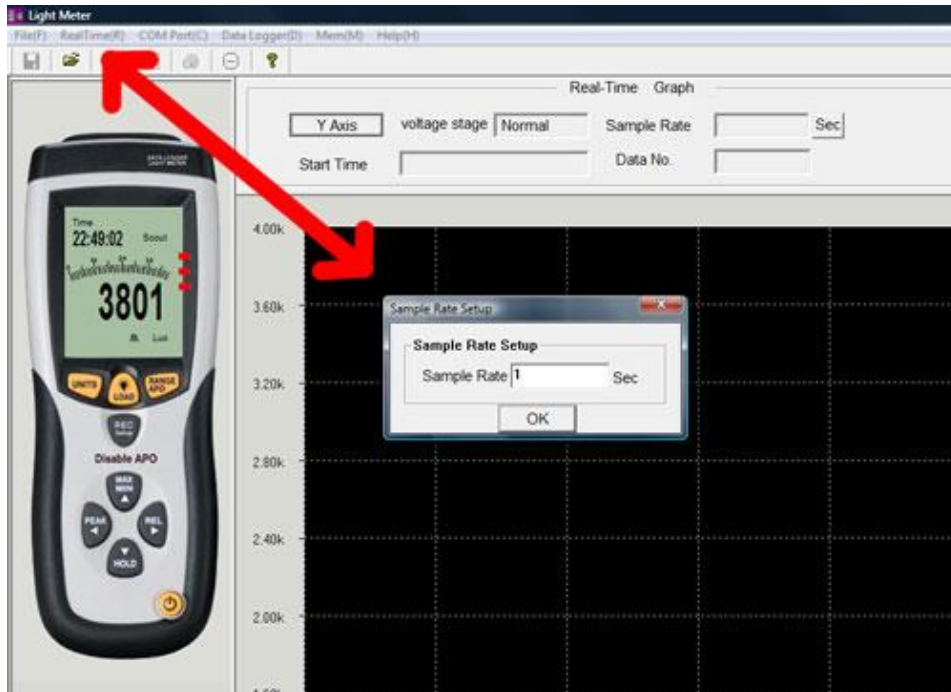
Launching the software

Open the software and connect the device with the provided USB cable to the computer. The software shows that the device is offline. The current connection can be selected by clicking COM Port, to establish a connection.
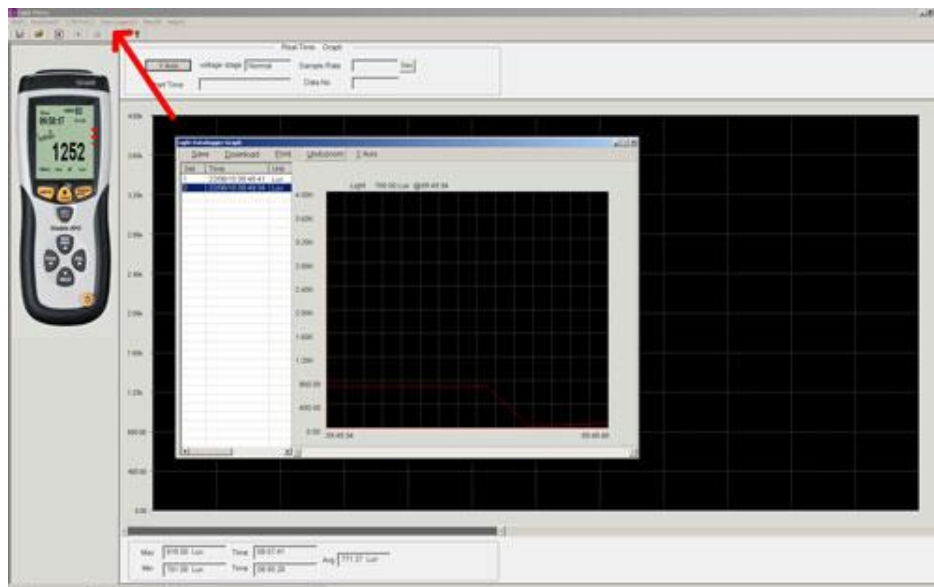

Select an appropriate COM Port on the PC for the measuring device. Then select the same COM Port using the software on the measuring device.
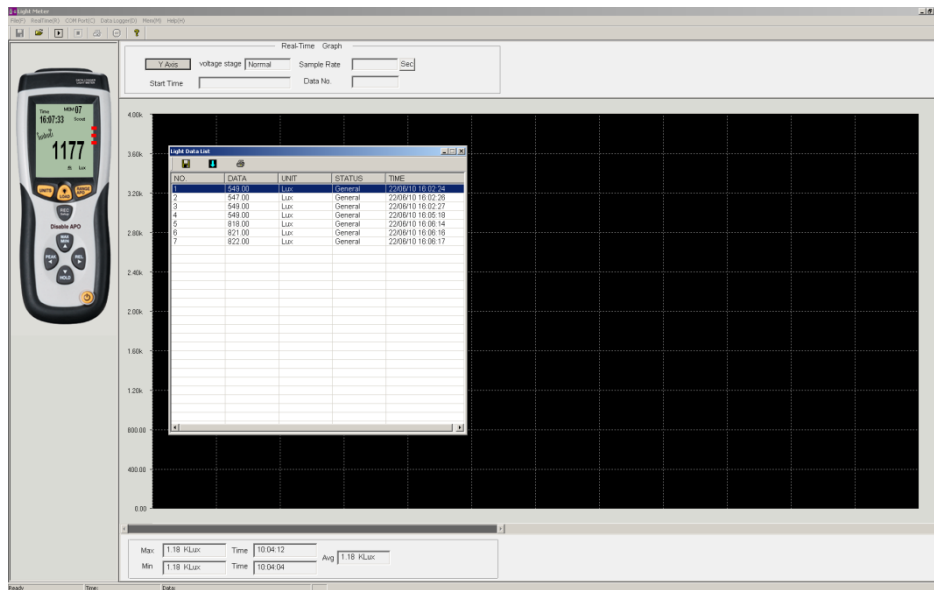
The real-time recording can be set by entering the measurement rate (e. g. measurement every second).

Data log read out:

Read out of measurement data:

14 Disposal

For the disposal of batteries, 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.

If you have any questions, please contact PCE Instruments.

15 Contact

If you have any questions about our range of products or measuring instruments please contact PCE Instruments.

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