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# Manual

## Multifunctional environmental meter PCE-EM883



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## Contents

|          |  |          |
|----------|--|----------|
| <b>1</b> | <b>Introduction .....</b>                                  | <b>3</b> |
| <b>2</b> | <b>Safety notes .....</b>                                  | <b>3</b> |
| <b>3</b> | <b>Specification .....</b>                                 | <b>4</b> |
| 3.1      | Technical specifications .....                             | 4        |
| 3.2      | Accessories .....  | 4        |
| <b>4</b> | <b>System description .....</b>                            | <b>5</b> |
| 4.1      | Measuring device .....                                     | 5        |
| 4.2      | Display description .....                                  | 6        |
| <b>5</b> | <b>Operation .....</b>                                     | <b>6</b> |
| 5.1      | Getting started .....                                      | 6        |
| 5.2      | Switch between temperature and humidity measurements ..... | 6        |
| 5.3      | Display backlight.....                                     | 6        |
| 5.4      | Data hold .....  | 6        |
| 5.5      | Select the measuring units .....                           | 6        |
| 5.5.1    | Wind speed .....   | 6        |
| 5.5.2    | Light .....  | 7        |
| 5.6      | ON/OFF button .....  | 7        |
| 5.7      | MODE button .....  | 7        |
| 5.8      | MAX/MIN recording .....                                    | 7        |
| 5.9      | Select the temperature unit .....                          | 7        |
| 5.10     | Sound level calibration procedure .....                    | 7        |
| <b>6</b> | <b>Contact.....</b>  | <b>8</b> |
| 6.1      | PCE Instruments UK .....                                   | 8        |
| 6.2      | PCE Americas .....   | 8        |

## 1 Introduction

Thank you for purchasing a multifunctional environmental meter from PCE Instruments.

This multifunctional environmental meter combines a sound level meter, a light meter, a wind meter and a thermometer and a hygrometer. This means, you only need one device to determine the key figures of the environmental conditions. Due to its compact design and low weight, the environmental meter is well-suited for measurements in the field.

## 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 not be used in altitudes of more than 2,000 meters.
- The device may only be used in approved temperature range (-20 ... +60 °C; 10 ... 90 % RH)
- The opening of the case should only be done by qualified personnel of the PCE Instruments.
- The instrument should never be placed with the user interface (e.g. keyboard side on a table)
- You should not make technical changes on the device
- The appliance should only be cleaned with a damp cloth / use only pH-neutral cleaner

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

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

If you have any questions please contact PCE Instruments.

### 3 Specification

#### 3.1 Technical specifications

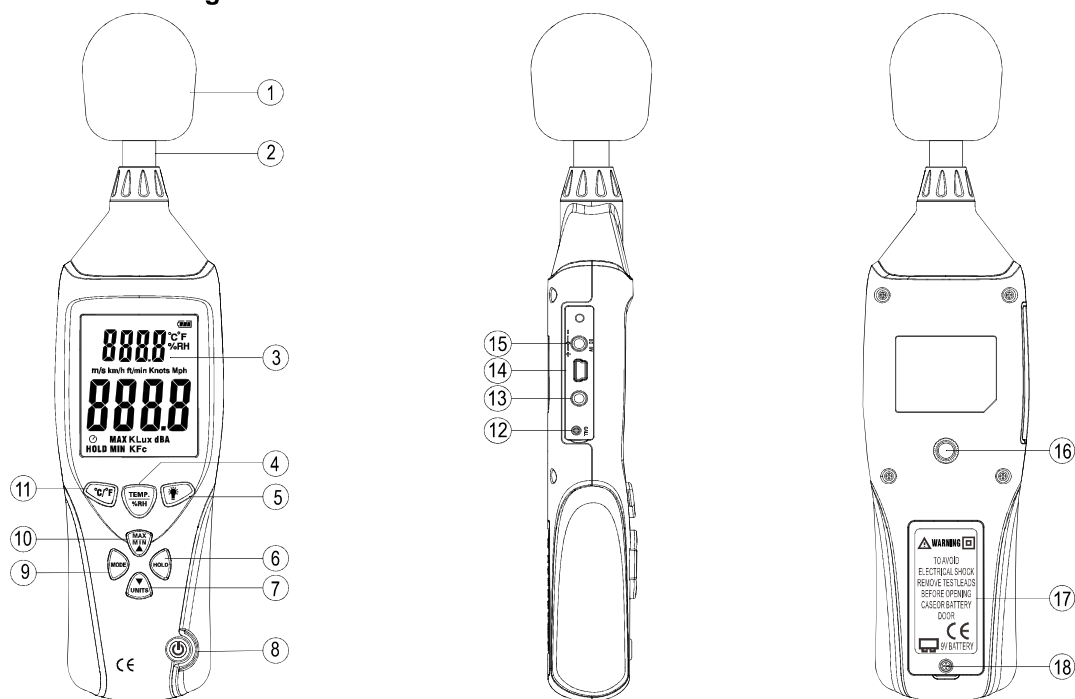
| Sound level            |   |
|------------------------|---|
| Applied Standard       | IEC61672-1 CLASS2   |
| Accuracy               | ±3.0 dB   |
| Display                | 4 Digits  |
| Resolution             | 0.1 dB  |
| Frequency response     | 31.5 Hz ... 8 kHz   |
| Measurement range      | Auto: 35 dB ... 130 dB                                      |
| Frequency weighting    | dBA   |
| Microphone             | ½ inch electric condenser microphone                        |
| Light                  |   |
| Measurement range      | 0 ... 200,000 lux; 0 Fc ... 20,000 Fc                       |
| Spectral response      | CIE photopic (CIE human eye response curve)                 |
| Spectral accuracy      | CIE Vλ function f1' ≤ 6%                                    |
| Cosine response        | f2' ≤ 2%  |
| Accuracy               | ±15 %   |
| Photo detector         | One silicon photo diode with filter                         |
| Air velocity           |   |
| Measurement range      | 0.5 ... 30.0 m/s  |
| Accuracy               | ±10 %   |
| Measurement units      | m/s, km/h, ft/min, knots, mph                               |
| Temperature            |   |
| Measurement range      | -40 ... +70 °C (-40 ... +158 °F)                            |
| Accuracy               | ±2.0 °C (±3.6 °F)   |
| Resolution             | 0.1 °   |
| Measurement units      | °C / °F   |
| Humidity               |   |
| Measurement range      | 10 ... 90 % RH  |
| Accuracy               | ±5 % RH   |
| Resolution             | 0.1 %   |
| General specifications |   |
| Data update            | 1 time/sec  |
| Maximum value          | MAX   |
| Minimum value          | MIN   |
| Data hold              | HOLD  |
| Auto power off         | Automatic power-off after approx.. 15 minutes of inactivity |
| Power supply           | 1 x 9 V battery (006P, NEDA1604 or IEC6F22)                 |
| Battery life           | Approx. 30 hours  |
| Operating conditions   | -20 ... +60 °C; 10 ... 90 % RH                              |
| Storing conditions     | -40 ... +60 °C; 10 ... 75 % RH                              |
| Dimensions             | 252 x 66 x 33 mm  |
| Weight                 | 568 g   |

#### 3.2 Accessories

- 1 x PCE-EM 883
- 1 x temperature and humidity probe
- 1 x anemometer probe
- 1 x light detector
- 1 x wind screen
- 1 x screw driver (for calibration screw)
- 1 x 9 V battery
- 1 x user's manual

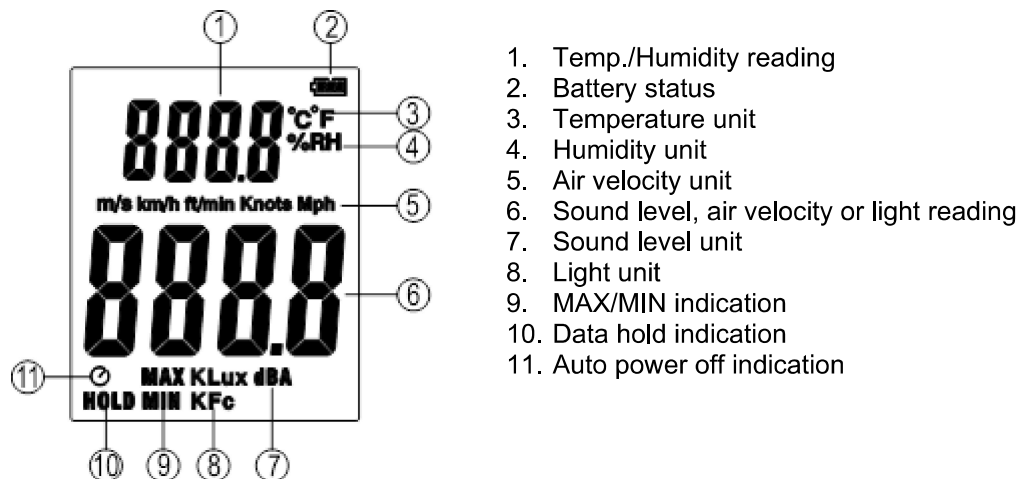
## 4 System description

### 4.1 Measuring device



1. Microphone wind screen
2. Mikrophone
3. LCD display
4. Temp. / humidity button
5. Backlight button
6. HOLD button
7. Unit selection button
8. Power ON/OFF button
9. Funktion button
10. MAX / MIN button
11. °C / °F selection button
12. Potentiometer calibration for sound level (calibration screw)
13. Connection for anemometer and photometer probe
14. Connection for temperature and humidity probe
15. Connection for external power supply (9 V DC; OD: 3.5 mm; ID: 1.35 mm)
16. Tripod nut
17. Battery compartment
18. Battery compartment screw

## 4.2 Display description




## 5 Operation

### 5.1 Getting started

1. Open the battery compartment and install a 9 V battery.
2. Close the battery compartment and tighten the screw.
3. Turn on the device.
4. Select the desired measuring function.

Note:

- If the battery status indication  appears on the display, you should replace the battery.
- You can hold the device in your hand or you can use a tripod when performing measurements.
- When performing sound level measurements, the best measuring distance from microphone to the sound source is about 1 – 1.5 m.
- If you want to use an external power supply, use the connection on the side of the device (see #15 in chapter 4.1).

### 5.2 Switch between temperature and humidity measurements

To switch between temperature and humidity measuring, press the “TEMP/%RH” button (see chapter 4.1).

### 5.3 Display backlight

To turn on the display backlight, press the backlight button on the device (see chapter 4.1). Press the button again, to turn the backlight back off. The display backlight automatically turns off after approx. 30 seconds of inactivity.

### 5.4 Data hold

Press the “HOLD” button once to activate the display hold function. The hold indication should now appear and the current reading is frozen on the display. To return to the normal measuring mode, just press the “HOLD” button again.

### 5.5 Select the measuring unit

#### 5.5.1 Wind speed

To change the measuring unit of the wind speed, press the “UNITS” button when wind speed measuring is active. You can choose between m/s, km/h, ft/min, knots and mph.

### 5.5.2 Light

To change the measuring unit of the light, press the “UNITS” button when light measuring is active. You can choose between lx and Fc.

### 5.6 ON/OFF button

By pressing the “ON/OFF” button once, you can turn the device on. To turn the device off, you have to press and hold the “ON/OFF” button for 3 seconds.

### 5.7 MODE button

If the device is turned on, press the “MODE” button to select the desired function. You can choose between sound level, air velocity and light.

### 5.8 MAX/MIN recording

When in measuring mode, press the “MAX/MIN” button once to activate the capturing of the maximum value. A “MAX” indication appears and the maximum value is shown on the display. To activate the minimum value capturing, press the “MAX/MIN” button again. The display now shows the minimum value, as well as a “MIN” indication. To exit the “MAX/MIN” mode just press the “MAX/MIN” button once more.

### 5.9 Select the temperature unit

To change the temperature unit, press the “°C/°F” button. You can choose between °C and °F.

### 5.10 Sound level calibration procedure

You can calibrate the device for sound level measurements by using an optional calibrator. To do so, follow these steps:

1. Set the frequency weighting of the calibrator to A-weighting (dBA).
2. Carefully insert the microphone into the insertion hole of the calibrator (94 dB @ 1kHz).
3. Turn on the calibration and use the potentiometer (calibration screw) on the side of the device (see #12 in chapter 4.1) to adjust the displayed value, until 94.0 dB is shown.

Note: Every device is calibrated before the delivery. We recommend a recalibration once a year.

## 6 Contact

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

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