



User Manual

PCE-PH 26F / PCE-PH 28L pH Meter



User manuals in various languages (français, italiano, español, português, nederlands, türk, polski, русский, 中文) can be found by using our product search on: www.pce-instruments.com

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Contents

1	Safety notes	1
2	Specifications	2
3	Delivery scope	3
3.1	PCE-PH 26F	3
3.2	PCE-PH 28L	3
4	System description	3
4.1	Display	3
4.2	Keys	4
5	Measurement preparation	4
5.1	Insert batteries	4
5.2	Preparation of the buffer solution	4
5.3	Electrode control	4
5.4	Switch meter on / off	5
5.5	Basic settings	5
6	pH calibration	6
6.1	1-point calibration	7
6.2	2-point calibration	8
6.3	3-point calibration	9
7	Temperature calibration	10
8	pH measurement	11
9	Care and maintenance of the electrodes	11
10	Troubleshooting	11
11	Warranty	12
12	Disposal	12

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 Specifications

pH measurement	
Measurement range	-1.00 ... 15.00 pH
Accuracy	±0.01 pH
Resolution	0.01 pH
Calibration points	1, 2 or 3
Buffer solutions	USA (pH 4.01 / 7.00 / 10.01) and NIST (pH 4.01 / 6.86 / 9.18)
Automatic recognition of the buffer solution	yes
Temperature measurement	
Measurement range	0 ... 60 °C / 32 ... 140°F
Accuracy	±1 °C
Resolution	1 °C
Calibration points	1
General specifications	
Temperature compensation	0 ... 60 °C / 32 ... 140°F
Temperature of medium	0 ... 60 °C / 32 ... 140°F
Environmental conditions	0 ... 60 °C / 32 ... 140°F; <80 % RH
Batteries	2 x 1.5 V AAA
Weight	100 g / <1 lb
Total dimensions	
PCE-PH 26F	185 mm x Ø 40 mm / 7.3 x 1.6 in
PCE-PH 28L	240 mm x Ø 40 mm / 9.44 x 1.6 in
Electrode dimensions	
PCE-PH 26F	40 mm x Ø 26 mm / 1.6 in x Ø 1.02 in
PCE-PH 28L	75 mm x Ø 14 mm / 2.95 in x Ø 0.55 in

3 Delivery scope

3.1 PCE-PH 26F

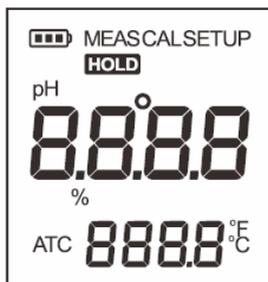
- 1 x pH meter PCE-PH 26F
- 1 x buffer 4.01 pH powder for 250 ml solution
- 1 x buffer 7.00 pH powder for 250 ml solution
- 1 x buffer 10.01 pH powder for 250 ml solution
- 2 x batteries 1.5 V AAA
- 1 x storage box
- 1 x user manual

3.2 PCE-PH 28L

- 1 x pH meter PCE-PH 28L
- 1 x buffer 4.01 pH powder for 250 ml solution
- 1 x buffer 7.00 pH powder for 250 ml solution
- 1 x buffer 10.01 pH powder for 250 ml solution
- 3 x container for calibration solution
- 2 x batteries 1.5 V AAA
- 1 x carrying case
- 1 x user manual

4 System description

4.1 Display



Icon	Description
MEAS	Measuring mode
CAL	Calibration mode
SETUP	Setup mode
HOLD	Measured value is stable
ATC	Automatic temperature compensation enabled
	Battery full (the icon disappears when the battery is flat)

Key	Function
MEAS / Hold	<ul style="list-style-type: none"> - Switches the meter ON/OFF - Freezes the reading. Press the key again to continue measurement. - Ends the calibration or adjustment and returns to measuring mode
CAL	<ul style="list-style-type: none"> - Press the key to start the calibration. - Press and hold the key to open the setup menu. - In setting mode, press the key to select the default option.
Enter	Confirms the entries

5 Measurement preparation

5.1 Insert batteries



1. Unscrew the union nut of the electrode and pull the electrode off the measuring device, observing correct axial alignment.
2. Insert two AAA batteries into the battery compartment. Observe correct polarity.
3. Align the guide groove with the electrode and carefully push the electrode into the meter. Screw the union nut of the electrode tight.

5.2 Preparation of the buffer solution

Prepare 3 sealable containers with at least 250 ml content. Open the bags with the buffer powder and put the contents of one bag into each container. Fill each container with 250 ml of distilled water and stir the liquid until the powder has completely dissolved.

5.3 Electrode control

Remove the protective cap from the electrode and check for damage. Damaged electrodes must be replaced.

Rinse off any salt crystals that may have settled from the storage solution under running water. The salt crystals develop naturally and are not a deficiency.

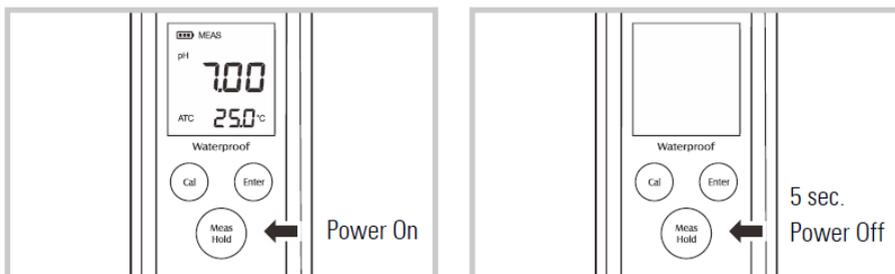
If the electrode has become dry, place it in a 3M KCL solution for at least 15 minutes. (storage solution for pH electrodes).

5.4 Switch meter on / off

To switch on the meter, press and hold the "MEAS" key until the display switches on.

Press and hold the "MEAS" key for 5 seconds to switch it off.

The auto-off function switches the unit off after 8 minutes without a key being pressed. The function can be enabled or disabled in the basic settings.

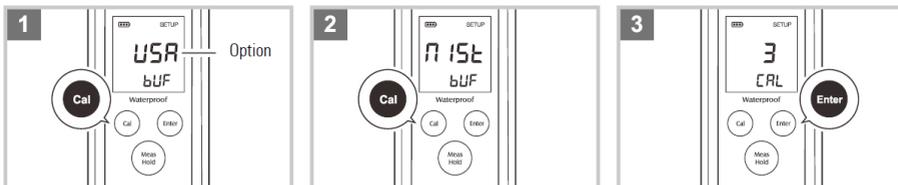


5.5 Basic settings

Press and hold the "CAL" key for 3 seconds to call up the basic settings.

Press the "CAL" key to call up the possible options of the adjustable items.

Press the "ENTER" key to confirm the selection and jump to the next item.



After confirming all selected items, the meter returns to measuring mode.

By pressing the "MEAS" key, you can return directly to measuring mode.

MENU ITEM	DESCRIPTION	OPTIONS		FACTORY SETTING
BUF	Selection of the calibration points	USA	USA (pH4.01/7.00/10.01)	USA
		NIST	NIST (pH4.01/6.86/9.18)	
CAL	Number of calibration points	1	1 point	2 points
		2	2 points	
		3	3 points	
UNIT	Selection of the temperature unit	°C	Celsius	°C
		°F	Fahrenheit	
°C	Temperature calibration	CAL	---	---
HOLD	Enables the hold function when the measured value is stable	YES	On	Off
		NO	Off	
OFF	The auto-off function switches the unit off after 8 minutes without any key being pressed	YES	On	On
		NO	Off	
RST	Reset to factory settings	YES	Yes	No
		NO	No	

After resetting the meter to factory settings, calibration is mandatory.

6 pH calibration

The devices allow a calibration of up to 3 points. To achieve high measurement accuracy, we recommend at least a 2-point calibration. The meter automatically recognises and calibrates to the following standard buffer values.

USA standard buffer pH 4.01, 7.00, 10.01

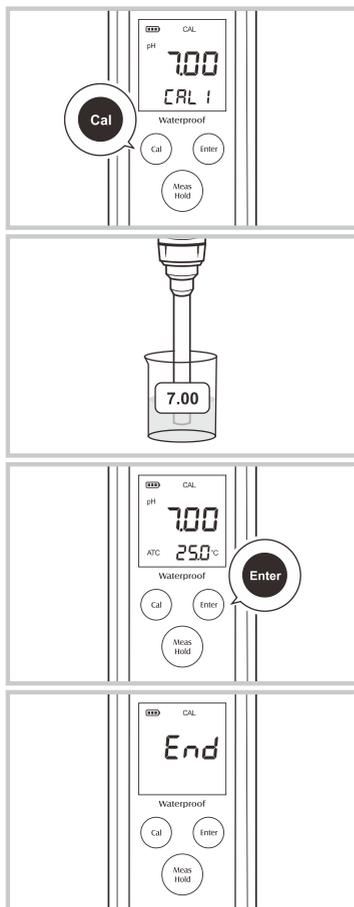
NIST standard buffer pH 4.01, 6.86, 9.18

The 1-point calibration can only be performed with pH 7.00 or pH 6.86, otherwise the calibration will not be accepted.

The meter must be calibrated before first use.

Regular calibration is recommended to ensure measurement accuracy. DO NOT reuse the pH buffer solution after calibration as impurities in the solution will affect the calibration and eventually the accuracy of the measurement.

6.1 1-point calibration



6.1.1 The 1-point calibration must be selected in the basic settings.

6.1.2 Rinse the electrode with distilled water. Press the "CAL" key.

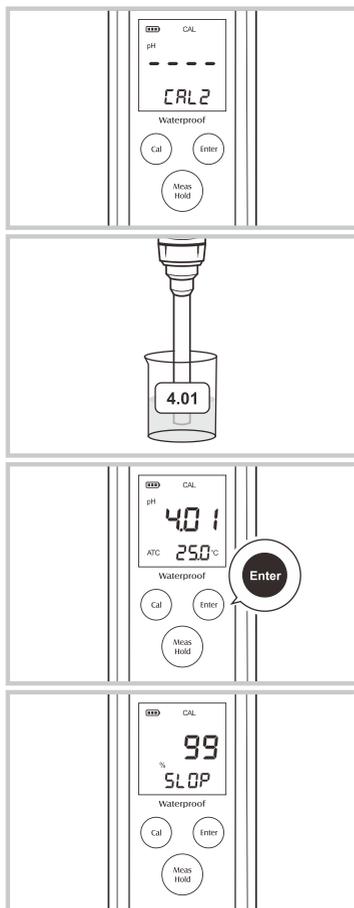
Depending on the setting, the display shows "pH 7.00/CAL1" or "pH 6.86/CAL1".

6.1.3 Immerse the electrode in the pH 7.00 (or pH 6.86) buffer solution with the end of the electrode completely immersed in the calibration solution. Gently stir the solution with the electrode to obtain a homogeneous solution.

6.1.4 Press the "ENTER" key. The meter starts the calibration.

6.1.5 After the measured value has stabilised, the display shows "End". The calibration is completed.

6.2 2-point calibration



6.2.1 The 2-point calibration must be selected in the basic settings.

6.2.2. Carry out the calibration of the first calibration point as described under 6.1.2. ... 6.1.4.

The display shows "CAL 2".

6.2.3 Rinse the electrode with distilled water. Immerse the electrode in the pH 4.01 or pH 10.01 (pH 9.18) buffer solution with the end of the electrode completely immersed in the calibration solution. Carefully stir the solution with the electrode to obtain a homogeneous solution.

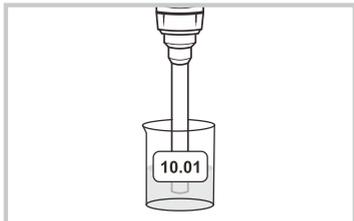
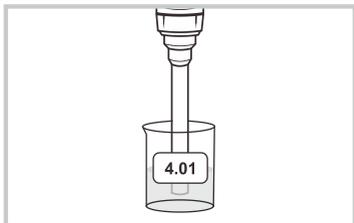
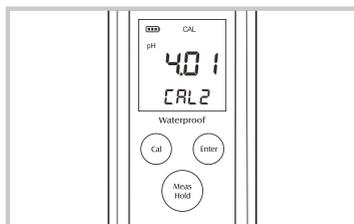
6.2.4 Press the "ENTER" key.

The meter automatically detects the selected calibration liquid and starts the calibration.

6.2.5 After the measured value has stabilised, the display shows the slope of the electrode in % and then displays "End".

The 2-point calibration is completed.

6.3 3-point calibration



6.3.1 The 3-point calibration must be selected in the basic settings.

6.3.2. Carry out the calibration of the first calibration point as described under 6.1.2. ... 6.1.4.

The display shows "pH 4.01" and "CAL 2".

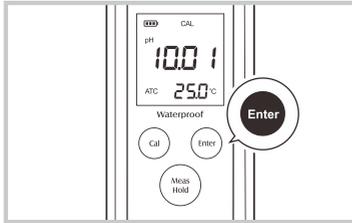
6.3.3 Rinse the electrode with distilled water
Immerse the electrode in the pH 4.01 buffer solution with the end of the electrode completely immersed in the calibration solution. Stir the solution carefully with the electrode to obtain a homogeneous solution.

6.4.4 Press the "ENTER" key.

The meter starts the calibration.

6.3.5 After the measured value has stabilised, the display shows the slope of the electrode in %, followed by "pH 10.01" (pH 9.18) and "Cal 3".

6.3.6 Rinse the electrode with distilled water
Immerse the electrode in the pH 10.01 (pH 9.18) buffer solution with the end of the electrode completely immersed in the calibration solution. Gently stir the solution with the electrode to create a homogeneous solution.



6.3.7. press the "ENTER" key.

The meter starts the calibration.

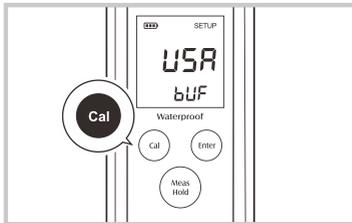
6.3.8 After the measured value has stabilised, the display shows the slope of the electrode in % and then displays "End".

The 3-point calibration is completed.

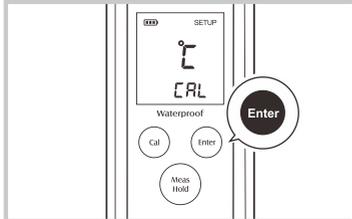
Press the "MEAS" key to return to measuring mode even during calibration.

7 Temperature calibration

When deviating temperature values are displayed, you can adjust them in the corresponding menu item.



7.1. Press and hold the "CAL" key for 3 seconds to call up the basic settings.

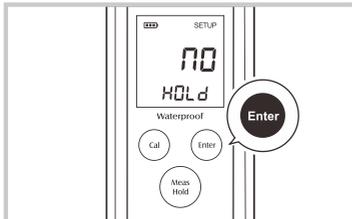


7.2. Press the "Enter" key repeatedly until the display shows "°C" and "CAL" or "°F" and "CAL".



7.3 Press the "CAL" key.

7.4 Press the "CAL" key again until the temperature display matches the actual temperature.



7.5 Press the "ENTER" key to confirm your entry.

7.6 Press the "MEAS" key to return to measuring mode.

8 pH measurement

Check the electrode as described in chapter 5.3 and switch on the meter, see chapter 5.4.

Rinse the electrode with distilled water.

Immerse the electrode in the medium with the end of the electrode completely immersed in the medium. Move the electrode slightly back and forth to make good contact with the measuring medium.

Read the result after stabilisation.

With the automatic "Hold" function switched on, the measurement result remains on the display after stabilisation. (see basic settings)

9 Care and maintenance of the electrodes

For best results, always keep the glass-sensitive membrane moist.

Make sure that the electrode is thoroughly rinsed with distilled or deionised water after use.

If you do not use the meter for a long period of time, store the electrode in the 3M KCL solution. (Storage solution PCE-SSOxxx)

If the meter cannot be calibrated or shows fluctuating readings for calibration standards, you must replace the electrode.

Remove and attach the electrode in the same way as described in chapter 5.1.

10 Troubleshooting

Display indication	Cause of error	Troubleshooting
---	Electrode too dry	Place the electrode in a 3M KCL solution for at least 15 minutes. (Storage solution)
	Overrange	Check whether the electrode is dirty or the glass body is defective.
Err	Wrong buffer solution	Use the correct buffer solution.
	Electrode defective	Replace the electrode.



11 Warranty

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

12 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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