



# User Manual

PCE-PWT 10 Conductivity Meter



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Last change: 18 April 2018  
v1.0



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## 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, etc.) 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 Introduction

Thank you for selecting the PCE-PWT 10 pocket salinity tester. This manual provides a step-by-step guide to help you operate the meter, please carefully read the following instructions before use. The following list describes the standard accessories of the tester. After unpacking, please check that all accessories are complete. If any are damaged or missing, please contact the nearest distributor.

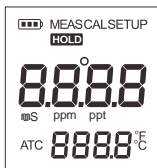
## 3 Keypad

PCE-PWT 10 pocket salinity tester has a succinct membrane keypad, names and symbols which describe each of the function key controls.

KEY	FUNCTION
MEAS/HOLD	<ul style="list-style-type: none"><li>● Power the tester ON/OFF.</li><li>● Freezes the measured values on the display, press the key again to resume measuring.</li><li>● In the calibration mode, exits calibration and returns to measurement mode.</li></ul>
□□□□□□□□	<ul style="list-style-type: none"><li>● Press the key to enter the calibration mode.</li><li>● Press and hold the key to enter setup menu.</li><li>● In the calibration mode, press the key to set calibration values.</li><li>● In the setup mode, press the key to select default option.</li></ul>
ENTER	<ul style="list-style-type: none"><li>● Confirms the calibration or displayed option.</li><li>● Toggles between conductivity and salinity measurement modes.</li></ul>

## 4 Display

The tester is equipped with a clear LCD display that is used to show measured value, mode indicators and unit indicators.



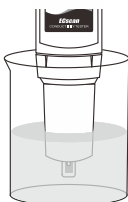
INDICATOR	DESCRIPTION
MEAS	Indicates tester is in the measurement mode
CAL	Indicates tester is in the calibration mode
SETUP	Indicates tester is in SETUP mode
HOLD	Indicates the measured value has been frozen
ATC	Indicates temperature compensation is enabled

## 5 Prior to Use

- Remove the electrode protective cap from tester.



- Soak the electrode for a few minutes in tap water to remove dirt and oil stains on the electrode.





## 6 Power On/Off

- Press MEAS key to turn on the tester, the display shows measured value.
- Press and hold the MEAS key for 5 seconds, the tester will turn off.
- If you do not press any key for 8 minutes, the tester will automatically turn off to conserve energy.

① To disable the auto-off function, please read the SETUP MENU section.

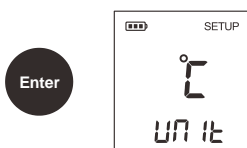
PARAMETER	DESCRIPTION	OPTION S	DESCRIPTION	DEFAULT
CAL	Calibration Point	1	1 point	•
		2	2 points	
		3	3 points	
UNIT	Temperature Unit	°C	Degrees Celsius	•
		°F	Degrees Fahrenheit	
°C	<b>Temperature Calibration</b>	CAL	Enters the temperature calibration mode	
HOLD	Auto-Hold	YES	Automatically freezes a stable reading	
		NO	Disable	•
OFF	Auto-Off	YES	Automatically turns off the tester	•
		NO	Disable	
RSt	Reset	YES	Restore factory settings	
		NO	Disable	•

## 7 Setting the Default Parameters

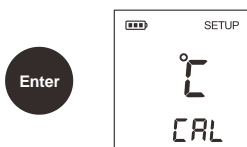
1. Press and hold the CAL key for 3 seconds to enter setup menu, the tester shows current selected number of calibration points.



2. Press CAL key again to select 1, 2 or 3 point calibration and press ENTER key to confirm. The tester goes to temperature unit selection mode, the display shows "°C/UNIT".



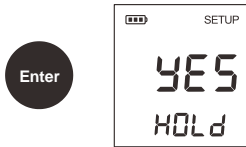
3. Press CAL key to select the temperature unit (°C or °F) and press ENTER key to confirm. The tester goes to temperature calibration mode, the display shows "°C/CAL".



4. If you do not want to perform temperature calibration, press ENTER key, the tester goes to the next option. If needed, press CAL key to enter the temperature calibration mode, the display shows current temperature reading.

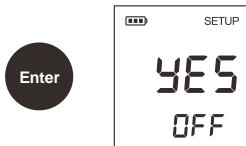


5. Press CAL key to set temperature value and press ENTER key to confirm. The tester shows "YES/HOLD" indicating that the auto-hold function is enabled.



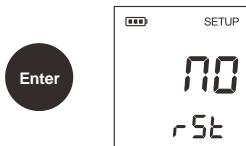
If the auto-hold function is enabled, the tester will automatically sense a stable endpoint reading and freeze it. If you disable this function, the tester allows the user to freeze the reading by pressing the HOLD key.

6. Press CAL key to enable or disable the auto-hold function and press ENTER key to confirm. The tester shows "YES/OFF" indicating that the auto-off function is enabled.



When the auto-off function is enabled, if you do not press any keys for 8 minutes, the tester will automatically turn off to conserve energy.

7. Press CAL key to enable or disable the auto-off function and press ENTER key to confirm. The tester shows "NO/RST" indicating it will not reset the tester.



#### **WARNING:**

Reset function will restore the tester back to factory default settings, all calibration values and selected parameters will be reset.

8. Press CAL key to enable or disable the reset function. Press ENTER key to confirm, the tester returns to measurement mode. Setting is completed.

#### **EXIT THE SETUP MENU:**

During the setup mode, press MEAS key, the tester will return to measurement mode immediately.



## 8 Conductivity Calibration

PCE-PWT 10 pocket salinity tester allows up to 3 points calibration in the conductivity mode. To ensure higher accuracy, we recommend that you perform 3 points calibration or select a standard value close to the sample value you are measuring. The tester will automatically detect these conductivity standard solutions and prompt the user to calibrate the meter. When the calibration is done, all new calibration values will automatically override existing data. The following table shows acceptable conductivity range of calibration solution for each measuring range.

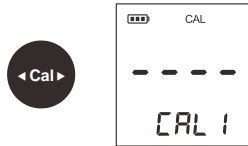
MEASURING RANGE	CALIBRATION RANGE	SOLUTION	DEFAULT
0~20 $\mu$ S/cm	7~17 $\mu$ S/cm		10 $\mu$ S/cm
20~200 $\mu$ S/cm	70~170 $\mu$ S/cm		84 $\mu$ S/cm
200~2000 $\mu$ S/cm	700~1700 $\mu$ S/cm		1413 $\mu$ S/cm
2~20mS/cm	7~17mS/cm		12.88mS/cm

Ensure that you use fresh conductivity standard solution during the calibration. Do not reuse calibration solutions as it may be contaminated and affect the calibration and accuracy of measurement.

## 9 Single Point Calibration

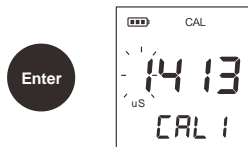
1.1 Rinse the conductivity electrode with distilled water, then rinse with a small amount of calibration solution.

1.2 Press CAL key, the tester enters the calibration mode.

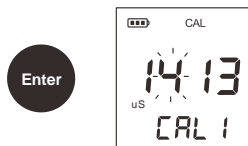


1.3 Dip the conductivity electrode into the calibration solution, the tester immediately shows current calibration standard (e.g., 1413 $\mu$ S/cm).

1.4 Press ENTER key, the default calibration value begins flashing.



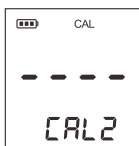
1.5 Press CAL key to set each digit, press ENTER key to confirm. When the setting is done, ensure the displayed value matches your calibration standard.



1.6 Press ENTER key to start the calibration. Wait for the reading to stabilize, the display shows "END". The tester returns to measurement mode automatically. Single point calibration is completed.

## 10 2 Point Calibration

1. Make sure that you have selected 2 points calibration in the setup menu.
2. Repeat steps 1.2 to 1.6 above, when the first calibration point is done, the display will show "CAL2". The tester prompts you to continue with second point calibration.



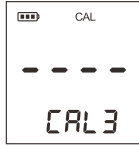
3. Dip the electrode into the calibration solution, the tester automatically shows current calibration standard (e.g., 12.88mS/cm).



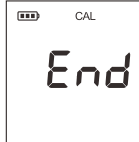
4. Press ENTER key, the default calibration value begins flashing.
5. Press CAL key to set each digit, press ENTER key to confirm. When the setting is done, ensure the displayed value matches your calibration standard.
6. Press ENTER key to start the calibration. Wait for the reading to stabilize, the display shows "END". The tester returns to measurement mode. Second point calibration is completed.

## 11 3 Point Calibration

1. If you have selected 3 points calibration in the setup menu, when second calibration point is done, the display will immediately show "CAL3". The tester prompts you to continue with third point calibration.



2. Repeat the above steps until the display shows "END", the tester returns to measurement mode. Calibration is completed.

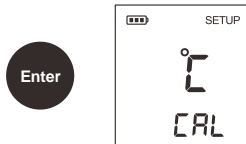


① Performing the conductivity calibration will simultaneously calibrate the corresponding salinity value.

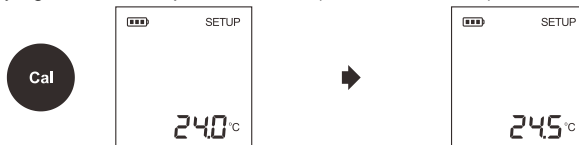
## 12 Temperature Calibration

During the measurement, if the temperature reading displayed differs from that of an accurate thermometer, you need to calibrate the tester.

1. Press and hold the CAL key for 3 seconds to enter setup menu.
2. Press ENTER key until tester shows the "°C/CAL" or "°F/CAL".



3. Press CAL key to enter the temperature calibration mode.
4. Press CAL key again to set temperature value (Resolution: 0.5°C).



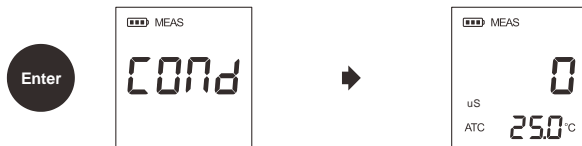
5. Press ENTER key to confirm, the display shows next option.
6. Press MEAS key, the tester returns to measurement mode. Calibration is completed.

### EXIT THE CALIBRATION:

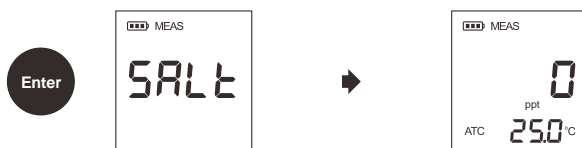
During the calibration process, press MEAS key, the tester will return to measurement mode.

### 13 Switching the Measurement Mode

In the salinity mode, press ENTER key until the display shows "COND". The tester now enters conductivity measurement mode



Press ENTER key again, the tester returns to salinity mode.

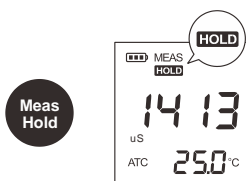


### 14 Measurement

Rinse the electrode with distilled water. Dip the electrode into the sample solution. Stir the tester gently. Wait for the reading to stabilize and record the measured value on the display.

### 15 Hold Function

PCE-PWT 10 pocket salinity tester contains two data hold modes. When the Auto-Hold function is enabled, the tester will automatically sense a stable endpoint reading and freeze it, "HOLD" indicator appears on the display. If the Auto-Hold function is disabled, press HOLD key, the tester will immediately freeze currently displayed value. Press the key again to resume measuring.



### 16 Electrode Care and Maintenance

- After each use, the conductivity electrode should be rinsed thoroughly in deionized water.
- If there is a build-up of solids inside the measurement area of the cell, these should be removed very carefully with a cotton bud soaked in solvent, taking care not to touch the metal parts of the inner cell.

## 17 Electrode Replacement

When the tester fails to calibrate or gives fluctuating readings for calibration standards, you will need to replace the electrode module.

Twist the electrode collar counter clockwise, pull the old electrode module away from the tester.



Align the slot on the new electrode module, gently push the module into the tester.



Twist the electrode collar clockwise until it is tight. Installation is complete.

## 18 Replacing the Batteries

If the battery indicator is disappearing during use, you will need to replace the batteries.

1. Twist the electrode collar counter clockwise, pull the electrode module out from the tester.
2. Insert two “AAA” batteries into the battery compartment, note polarity.



3. Align the slot on the electrode module, push the module into the tester. Twist the electrode collar clockwise until it is tight.

## 19 Troubleshooting

LCD DISPLAY	CAUSE	CORRECTIVE ACTION
- - -	Electrode dried out	Soak the conductivity electrode in tap water for 10 minutes
	Measured value is out of range	Check the electrode whether clogged, dirty or broken
Err	Incorrect calibration solutions	Using the fresh conductivity standard solutions for calibration
	Setting value does not match calibration solution	Reset the calibration value
	Electrode is broken	Replace the electrode module

## 20 Specifications

Salinity	Model	PCE-PWT 10
	Range	0.00~10.00ppt
	Accuracy	± 1% F.S
	Resolution	0.01ppt
Conductivity	Range	0~20.00, 200.0, 2000μS/cm, 20.00mS/cm
	Accuracy	± 1% F.S
	Resolution	0.01, 0.1, 1
	Calibration Points	1 to 3 points
	Calibration Solutions	10μS/cm, 84μS/cm, 1413μS/cm, 12.88mS/cm
Temperature	Range	0~60°C, 32~140°F
	Accuracy	± 1°C
	Resolution	0.1°C, 0.1°F
	Calibration Points	1 point
	Calibration Range	Measured value ± 10°C
Others	Temperature Compensation	0~60°C, 32~140°F
	Temperature Coefficient	2%/°C
	Cell Constant	K=1
	Normalization Temperature	25°C, 77°F
	Hold Function	Manual or Automatic
	Power Off	Manual or Automatic (8 minutes after last key pressed)
	Sensor Type	Order Code: ECSCAN-C1-10K
	Power Requirements	2x 1.5V "AAA" Batteries
	Dimensions	185(L)× 40(Dia.)mm
	Weight	100g



## 21 Delivery Content

1 x Conductivity meter PCE-PWT 10  
2 x 1.5 V AAA batteries  
1 x plastic box  
1 x user manual

## 22 Optional accessories

PCE-CDS-15 250ml; potassium chloride; 15  $\mu\text{S}/\text{cm}$  (12 months shelf life)  
PCE-CDS-84 250ml; potassium chloride 0,005 mol/l; 84  $\mu\text{S}/\text{cm}$  (12 months shelf life)  
PCE-CDS-1413 500ml; potassium chloride 0,01 mol/l; 1413  $\mu\text{S}/\text{cm}$  (18 months shelf life)  
PCE-CDS-12,88 500ml; potassium chloride 0,1 mol/l; 12,88 mS/cm (18 months shelf life)

## 23 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.

## 24 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.





## PCE Instruments contact information

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