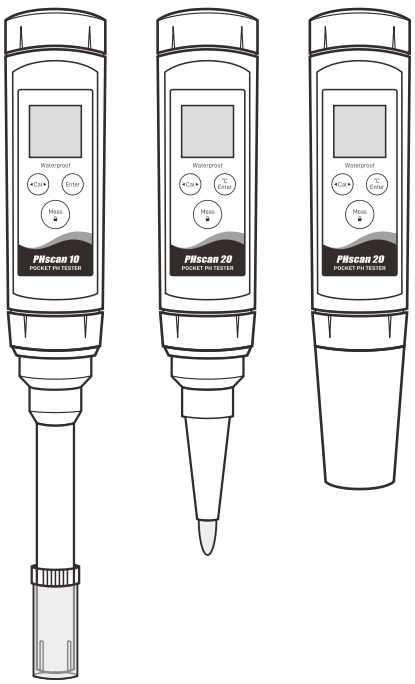
BANTE instruments

PHscan10/20 Pocket pH Tester

USER MANUAL



Bante Instruments Inc.

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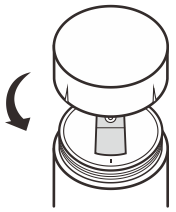
Overview

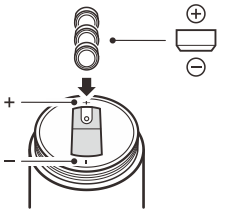
Thank you for selecting the PHscan series pocket pH tester. This user manual provides a step-by-step guide to help you operate the tester, please carefully read the following instructions before use.

Installing the Batteries

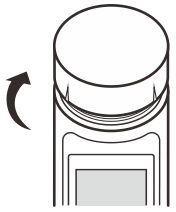
1. Remove the battery compartment lid.



2. Insert three LR44 alkaline batteries into the battery compartment, note polarity.



3. Replace the battery compartment lid to its original position and turn clockwise until tight.

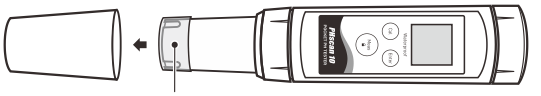


Keypad

Key	Function
Meas 🔒	• Switch the tester on or off • Lock or unlock measurement • Exit calibration and return to the pH measurement
Cal	• Start calibration • Select the pH buffer option
Enter	• Confirm the calibration or displayed option • Toggle between pH and temperature measurement modes (For PHscan20 tester only)

Prior to Use

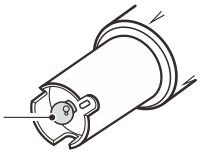
Remove the protective cap (and translucent cover) from the bottom of the tester. If some salt crystals deposited on the electrode, rinse with tap water to clean these deposits.



3M KCl solution

If tiny air bubbles are present inside the pH-sensitive glass membrane, gently shake the tester downward to remove air bubbles.

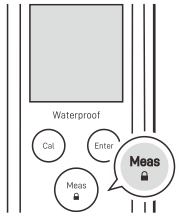
pH-sensitive glass membrane



If the glass membrane has dried out, soak the electrode in 3M KCl or pH 4.01 buffer solution for about 30 minutes. If above solutions are not available, use the tap water.

Switching the Tester On and Off

- Press the **Meas** key to switch on the tester.
- Press and hold the **Meas** key to switch off the tester.



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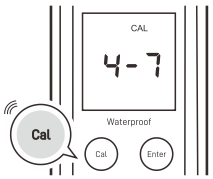
If you do not press any key within 8 minutes, the tester will switch off automatically to conserve energy.

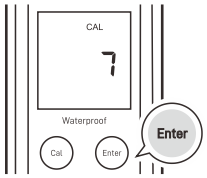
pH Calibration

The PHscan10/20 tester allows 2 points pH calibration. We recommend calibrating the tester during the first use or new electrode replaced. For better accuracy, regular calibration is recommended. Do not reuse the buffer solutions after calibration, contaminants in solution will affect the calibration and eventually the accuracy of the measurement.

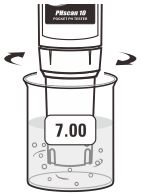
1. Press and hold the **Cal** key to enter the calibration mode. Press the key again to select the pH buffer option (pH 4-7 or 10-7).



2. Press the **Enter** key, the tester shows the first calibration point 7.

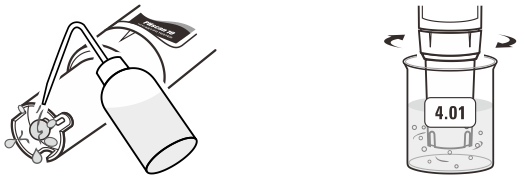


3. Rinse the electrode with distilled water, place the electrode into the pH 7.00 buffer solution, stir the tester gently to create a homogeneous solution.

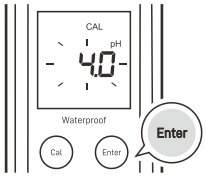


4. Press the **Enter** key, the tester begins the calibration. When the reading has stabilized, the calibration value will automatically flash three times indicating that the first calibration point is completed, the display shows CAL 4 (or CAL 10).

5. Rinse the electrode with distilled water, place the electrode into the pH 4.01 (or 10.01) buffer solution, stir the tester gently.



6. Press the **Enter** key to begin the calibration. When the reading has stabilized, the calibration value will automatically flash three times and the CAL icon disappears from the display. Calibration is completed.

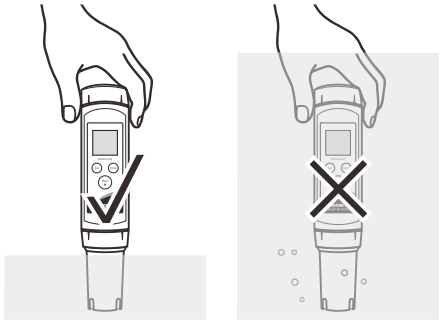


- During the calibration, if the display shows Err indicating that the measured mV value for the current calibration point deviates by more than 60 mV (approximately ±1 pH) from the theoretical value of the pH buffer. The calibration will not be accepted. Please check the electrode and make sure the buffer solutions are fresh and uncontaminated.
- To exit the calibration without saving calibrated values, press the **Meas** key.

Measurement

pH Measurement

Rinse the electrode with distilled water, place the electrode into the sample solution and stir gently. Note, DO NOT completely immerse the tester in water. Wait for the measurement to stabilize and record the reading.



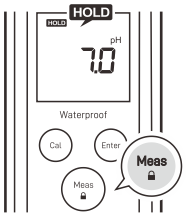
If your tester installed a spear tip electrode or flat surface electrode (refer to the ***Optional Accessories > pH Electrodes*** section) and the samples are soft solid or semi-solid, wet the sample with clean water, then slight pressure the electrode to take measure. Note that the pH-sensitive membrane must be fully touched with sample surface.

Temperature Measurement

This function is applicable to PHscan20 tester only.

- Press the **Enter** key, the tester shows the temperature readings.
- Press the key again to return to the pH measurement.

- During the measurement, never wipe the pH-sensitive membrane as this will cause static interference, blot dry with a lint-free tissue to remove waterdrops on electrode.
- Press the 🔒 key, the tester will lock the measurement, the HOLD icon appears on the display. Press the key again to resume measurement.



- If the display shows ---- indicating the measurement exceeds the range, remove the tester from the sample immediately.

Electrode Maintenance and Replacement

Cleaning the Electrode

- Since the pH-sensitive membrane is susceptible to contamination, make sure that rinse the electrode thoroughly with distilled water after use.
- If your sample contains the oil or grease, soak the electrode in mild detergent or electrode cleaning solution for at least 15 minutes, then rinse with distilled water.
- If you do not use the tester for a period longer than 1 month, store the electrode in 3M KCl solution or electrode storage solution.

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DO NOT store the electrode in distilled or deionized water, which will deplete the hydration layer of the pH-sensitive membrane and render the electrode useless.

Replacing the Electrode

If the tester fails to calibrate or gives fluctuating readings, you should consider replacing the electrode.

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

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

3. Twist the electrode collar clockwise until tight.

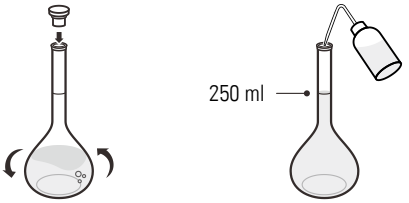
Appendix

Preparation of pH Buffer Solutions

The PHscan10/20 tester is packaged with pH 4.01/7.00/10.01 buffer sachets required for calibration.

1. Half fill a 250 ml volumetric flask with distilled water and add the pH 7.00 buffer reagent.

2. Swirl the volumetric flask gently to dissolve the reagent and fill to the mark with distilled water.



3. Cap and upend the volumetric flask several times to mix solution.

- Preparation of pH 4.01 and 10.01 buffer solutions are the same as above.
- Prepared buffer solution should be stored in hermetically sealed glass container and avoid direct sunlight.

Preparation of Electrode Storage Solution

Dissolve 24.6 grams of analytical grade KCl reagent in 100 ml distilled water.

Optional Accessories

Electrode Cleaning Solutions

Order Code	Description
PHCS-A	For removing acidic deposits, 480 ml
PHCS-B	For removing bacterial contaminants, 480 ml
PHCS-G	For removing oil and grease, 480 ml
PHCS-O	For removing organic contaminants, 480 ml
PHCS-P	For removing protein residues, 480 ml

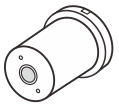
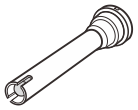
Electrode Storage Solution

Order Code	Description
PHCS-ES	For maintaining pH electrodes, 480 ml

pH Buffer Solutions

Order Code	Description
PHCS-USA	pH 4.01, 7.00, 10.01 buffer solutions, 480 ml

pH Electrodes

	Order Code and Description
	E-PHscan-**ST**-100K • Round pH-sensitive membrane • For measuring general water samples (non-high temperature, non-viscous, non-corrosive liquids)
	E-PHscan-**FT**-100K • Flat surface pH-sensitive membrane • For measuring semi-solid, gel and viscous samples, such as paint, dye, printing ink, paper, textile, cream, ointment, yogurt, jam, sauce, vegetable, fruit, meat, etc.
	E-PHscan-**LT**-100K • Round pH-sensitive membrane • Electrode dimensions: 75 × 12.5 (Dia.) mm • For measuring samples in small containers, such as test tube, small jar, beverage bottle, etc.

Tester Specifications

Model	PHscan10
Range	0.0 to 14.0 pH
Resolution	0.1 pH
Accuracy	±0.1 pH
Calibration Point	2 points
pH Buffer Option	USA (pH 4.01, 7.00, 10.01)

Model	PHscan20
pH	
Range	0.00 to 14.00 pH
Resolution	0.01 pH
Accuracy	±0.05 pH
Calibration Point	2 points
pH Buffer Option	USA (pH 4.01, 7.00, 10.01)
Temperature Compensation	0 to 60°C, automatic
Temperature	
Range	0 to 60°C
Resolution	1°C
Accuracy	±1°C

General Parameters

Operating Temperature	0 to 50°C (32 to 122°F)
Storage Temperature	0 to 60°C (32 to 140°F)
Relative Humidity	< 80% (non-condensing)
IP Rating	IP65
Display	LCD, 21 × 21 mm (0.82 × 0.82 in.)
Power Requirements	3 × 1.5V LR44 alkaline batteries
Auto-Off	8 minutes after last key pressed
Dimensions	185 (L) × 40 (Ø) mm (7.28 × 1.57 in.)
Weight	100 g (3.5 oz.)

Disposal

This product is required to comply with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive 2002/96/EC and may not be disposed of in domestic waste. Please dispose of product in accordance with local regulations at the collecting point specified for electrical and electronic equipment.

Warranty

The warranty period for tester is one year from the date of shipment.
Above warranty does not cover the electrode and pH buffer solutions.
Out of warranty products will be repaired on a charged basis.
The warranty on your tester shall not apply to defects resulting from:

- Improper or inadequate maintenance by customer
- Unauthorized modification or misuse
- Operation outside of the environment specifications of the products

For more information, please contact the supplier.

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