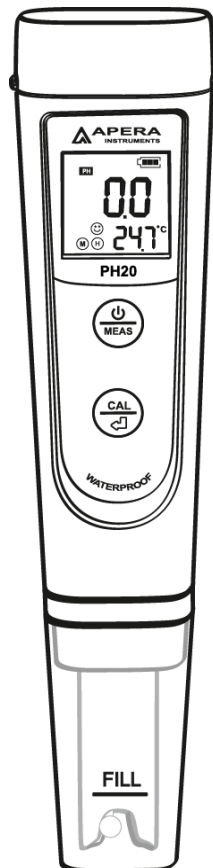


PH20 Value pH Tester Kit

User Manual



APER A INSTRUMENTS, LLC

aperainst.com

Thank you for purchasing the Apera Instruments PH20 Pocket pH Tester Kit. Please read this manual carefully before use in order to properly use and maintain the product.

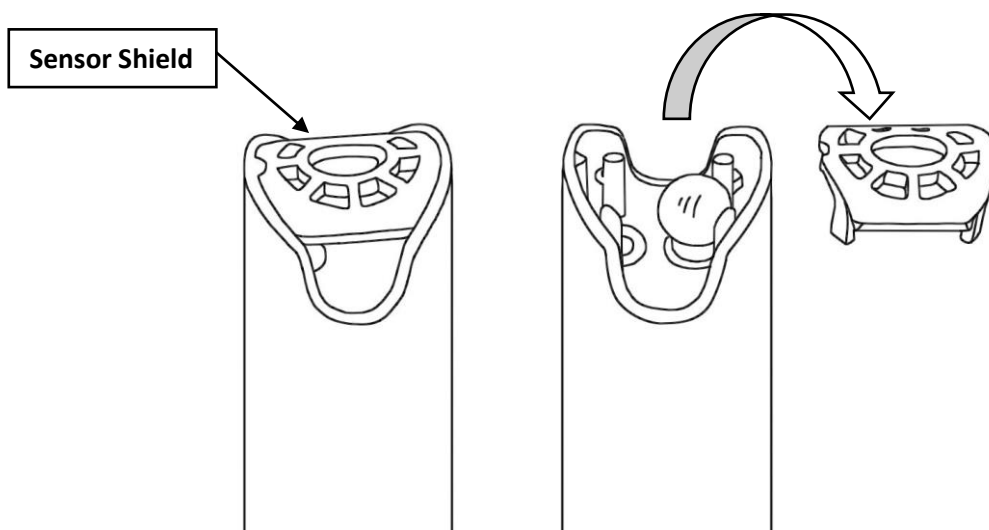
For video tutorials, please go to support.aperainst.com

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■ Latest Upgrade

The latest PH20 Tester comes with an upgraded probe structure, which is equipped with a sensor shield that prevents the glass sensor breakage from accidental collisions (see picture below). Users can remove the shield when rinsing and cleaning the sensor and put it back on afterwards.



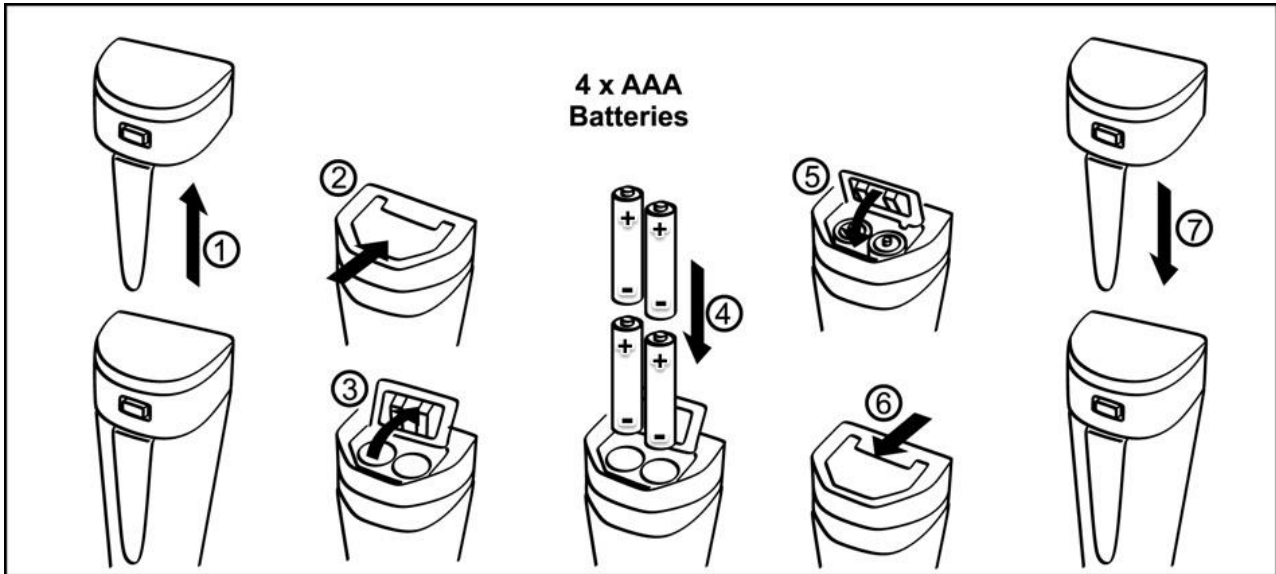
1. Battery Installation

Please install batteries according to the following steps. *Please note the correct direction of battery installation:

The Positive Side (“+”) OF EVERY SINGLE Battery MUST FACE UP.



(WRONG INSTALLATION OF BATTERIES WILL CAUSE DAMAGE TO THE TESTER AND POTENTIAL HAZARDS!)



2. Keypad Functions

■ Short press----- < 2 seconds

■ Long press----- > 2 seconds

| | |
|--|---|
| | 1. Short press to turn on, long press to turn off; 2. When turned off, long press to enter setup; 3. In settings, short press to change parameter; |
| | 1. When turned on, long press to enter calibration mode. 2. In calibration mode, short press to finish calibration; 3. In settings, short press to confirm changes. |

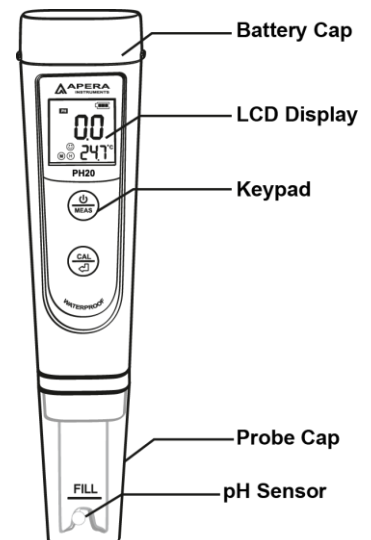
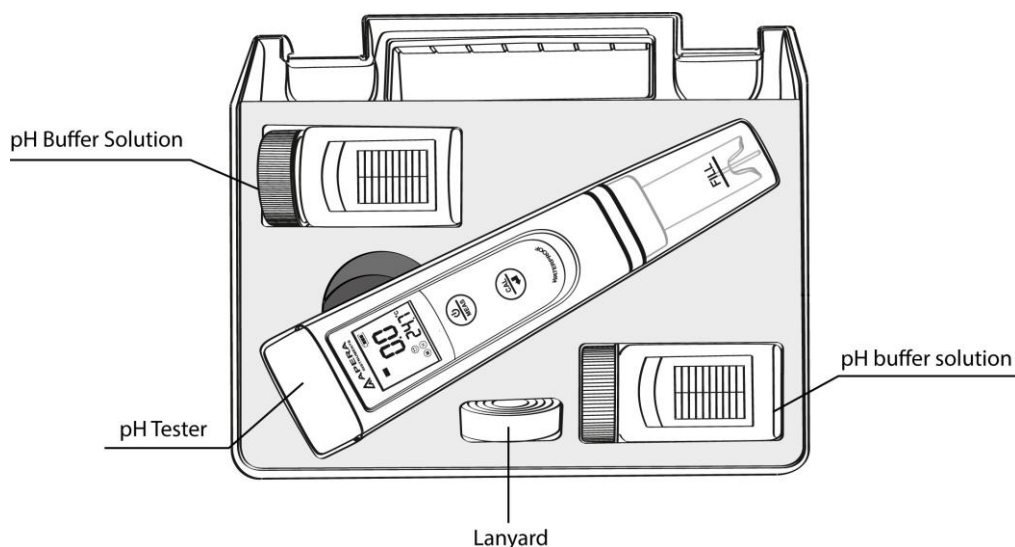


Diagram - 1

3. What's in the Kit?

Diagram - 2



4. Preparation before Use

Things needed in addition to what's in the box







A cup of distilled water (8-16oz) for rinsing the probe, and clean tissue paper for removing excess water.

■ Note

Before shipment, the factory adds in some water droplets to the tester's cap to maintain a hydrated atmosphere for the probe. This ensures that the pH sensor keeps its sensitivity. Therefore, users can begin using their tester immediately upon receiving it. This practice of adding several drops of water into the cap is highly recommended for frequent users when storing the tester. However, if the tester has not been used for a long time (e.g. > 1 month) and doesn't perform as well as it used to be, users can soak it in 3M KCL (SKU: AI1107) solution overnight to recover its sensitivity.

* DO NOT use any other brand's storage solutions because different chemicals may be used and potential damage could be caused to the probe.

5. Calibration

- 1) Short press  to turn on. Rinse in distilled water; use clean tissue to dap off excess water.
- 2) Long press  to enter calibration mode (short press  to go back to measurement mode if you want to cancel the calibration).
- 3) Insert the probe in the 7.00 pH calibration solution to start 1st point calibration; Stir gently; leave it to stand; Wait for  to appear and stay on the screen (see Diagram 3); short press  to finish 1st point calibration; tester returns to measurement mode; calibration icon  displays on button left side of the screen.

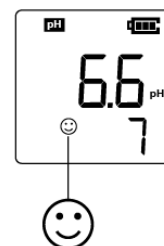




















Diagram - 3

- 4) Rinse probe in distilled water. Long press  to enter calibration mode; insert the probe in the pH 4.00 calibration solution to start the 2nd point calibration, stir gently; leave it to stand; wait for  to appear and stay on the screen; then short press  to finish the 2nd point calibration, tester returns to measuring mode, calibration icons   display on bottom left.
- 5) Repeat step 4) and use 10.01 pH standard buffer (sold separately) to perform 3rd point calibration.    will show up on bottom left.



■ Notes

- a) Tester will automatically recognize pH buffer solution, users can choose calibration points: 1 point, 2 points, or 3 points. But **the 1st point calibration must be in calibration solution of 7.00 pH, then followed by 2nd or 3rd point calibration.** For details, please refer to the following table:

| | Calibration Solution | Calibration icon | When to do |
|---------------------|-------------------------------|---|----------------------------|
| 1-point Calibration | 7.00 pH |  | Required Accuracy ≥ 0.3 pH |
| 2-point Calibration | 7.00 pH and 4.00 pH |   | Target pH level < 8.5 pH |
| | 7.00 pH and 10.01 pH |   | Target pH level > 8.5 pH |
| 3-point Calibration | 7.00 pH, 4.00 pH and 10.01 pH |    | Wide measuring range |

- b) Automatic self-diagnostic information: In calibration mode, when the measured value hasn't been stable yet ( is not staying on LCD), pressing  will cause LCD to display "Er2"). For more details, please refer to Section 8.
- c) Only pH 4.00 and pH 7.00 buffer solutions are included in the test kit, pH 10.01 is not. Users can purchase it separately if needed (when your target pH level is >8.5 pH).
- d) Keeping the standard calibration buffers in good condition is the foundation of taking reliable pH measurements. The bottled buffers (2 oz.) can be used for about 10 times as long as they are not contaminated (make sure they are tightly closed when not in use). After that, we recommend replacing them with fresh ones to keep the accuracy.

6. Measurement

- 1) Short press  to turn on the tester. Rinse the probe in distilled water. Then shake off excess water and dap with tissue paper.
- 2) Stir the probe in your sample solution to accelerate stabilization and leave it to stand. Record the readings after  comes up and stays on screen.

■ Notes







- a) After each test, users should rinse the pH probe thoroughly with distilled water or purified water and remove excess water before the next test. Warm soap water and a soft brush can be used to remove tough contaminants on the glass sensor.
- b) When testing purified water like RO water or distilled water, it will take longer for the readings to get fully stabilized (typically 2-5 minutes).
- c) Do NOT store probe in purified water because that will cause permanent damage to the pH electrode. Purified water is only recommended for rinsing the probe.

7. Parameter Setting

7.1 Settings table




| Prompt Mark | Parameter Setting Content | Code | Factory Default Setting |
|-------------|---|------------|-------------------------|
| P1 | Select pH buffer series | USA – NIST | USA |
| P2 | Select temperature unit | °F – °C | °F |
| P3 | Back to factory default setting (erase calibration record) | No – Yes | No |

7.2 Parameter Setting

When **turned off**, long press  to enter setup → short press  to switch P1-P2-P3 → Short press , parameter flashing → short press  to choose, short press  to confirm parameter change → Long press  to go back to measurement mode.




7.3 Parameter Setting Instruction

Select standard pH buffer solution (P1): There are two options of standard buffer solutions: USA series and NIST series (refer details to the following table).

| Icons | | pH standard buffer series | |
|-------------------------|---|---------------------------|-------------|
| | | USA series | NIST series |
| Three-Point calibration |  | 4.00 pH | 4.01 pH |
| |  | 7.00 pH | 6.86 pH |
| |  | 10.01 pH | 9.18 pH |

8. Common Problems

The tester has self-diagnosis function to help you fix common problems:

| Symbol | Self-Diagnosis information | How to fix |
|-------------|--|--|
| <i>Er 1</i> | Wrong pH calibration solution, which exceeds the recognizable range of the meter. | <ol style="list-style-type: none"> 1. Check if the correct buffer is used (1st point calibration must be 7.00 pH). 2. Check if buffer is expired or contaminated. 3. Check if probe is damaged. 4. Check if there is any air bubble in the glass bulb sensor |
| <i>Er 2</i> |  Is pressed before measurement is stable ( appears and stays) | Wait for the smiley face to appear and stay, then press  |

* If any air bubbles are found inside the sensor shield, shake the probe in sample solution with force to remove them. The existence of air bubbles will cause unstable measurements.

* For more FAQs, go to support.aperainst.com

9. Technical Specifications

| | | |
|-------------|------------------------------------|-------------------------|
| pH | Range | 0 – 14.0 pH |
| | Resolution | 0.1 pH |
| | Accuracy | ±0.1 pH |
| | Calibration Points | 1 – 3 points |
| | Automatic Temperature Compensation | 0 – 50 °C (32 – 122 °F) |
| Temperature | Range | 0 – 50 °C (32 – 122 °F) |
| | Resolution | 0.1 °C |
| | Accuracy | ±0.5 °C |

10. Icons and Functions

8.1 Calibration points indication: (L) (M) (H)

8.2 Stable Measurement: 😊 appears and stays on the screen

8.3 Self-Diagnostic information: **Er1, Er2**

8.4 Low-Voltage warning: 🔋 flashes, reminder of battery replacement

8.5 Auto Power-Off in 8 minutes if no operation.

11. Warranty

We warrant this instrument to be free from defects in material and workmanship and agree to repair or replace free of charge, at option of APERA INSTRUMENTS, LLC, any malfunctioned or damaged product attributable to responsibility of APERA INSTRUMENTS, LLC for a period of TWO YEARS (SIX MONTHS for the probe) from the delivery.

This limited warranty does not cover any damages due to:

Transportation, storage, improper use, failure to follow the product instructions or to perform any preventive maintenance, modifications, combination or use with any products, materials, processes, systems or other matter not provided or authorized in writing by us, unauthorized repair, normal wear and tear, or external causes such as accidents, abuse, or other actions or events beyond our reasonable control.

APERA INSTRUMENTS, LLC

Address: 6656 Busch Blvd, Columbus Ohio 43229

Tel: 1-614-285-3080

Email: info@aperainst.com

Website: aperainst.com