



# Portable pH Meter

## LB-11PPH

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## 1. Introduction

**Portable pH meter LB-11PPH** is a microprocessor controlled unit with dual measurement function. Temperature compensation ensures improved accuracy and reliability. Automatic power off post thirty minutes of non-use prolongs battery life. It measures hydrogen-ion activity thus determining acidity or alkalinity of water-based solutions.

## 2. Features

1. Digital display of real time data
2. Automatic temperature compensation
3. Dual measurement ( pH and Conductivity )
4. No abnormal variations/shocks
5. No magnetic field interference ( except Earth's magnetic field )
6. Low battery indication
7. Auto power off (after 30 minutes)

## 3. Specifications

| Model No.                | LB-11PPH                   |
|--------------------------|----------------------------|
| Measurement range        | 0.1 ~ 14 pH                |
|                          | ± 1999 mV                  |
| Temperature compensation | 0 °C ~ 60 °C ( automatic ) |
| Resolution               | 0.01 pH ( ± 1 °C )         |
| Accuracy                 | 0.01 pH ( ± 1 °C )         |
| Working temperature      | 0 °C ~ 40 °C               |
| Humidity                 | < 85 %                     |
| Power consumption        | 2.0 W                      |
| Battery power            | 1.5 V                      |
| Dimensions               | 180 × 80 × 30 mm           |
| Weight                   | 0.5 kg                     |

## 4. Applications

Used in monitoring pH in chemical industry, laboratories, aquaculture, agriculture, quality control, electrochemical analysis, fish farming, food industry, swimming pools, printing industry, etc.

### 5. Working Principle

- **Environment temperature:** 0 to 40°C
- **Relative humidity:** <85%
- **Powder supply:** 4×1.5V
- NO abnormal vibrations or shocks.
- NO other magnetic-field interference except earth magnetic field.

## 6. Operations

### 6.1 Preparation

- Open the battery cover on the back of the meter, and put the 4×1.5V battery in.
- Take out the short-circuit plug from the electrode socket and plug it in with the electrode.
- Do NOT contaminate the electrode and keep it clean and dry.
- Switch on the meter to preheat for 5 min.

### 6.2 Calibration

- PH standard buffers valued at 4.00, 7.00, and 10.01 have to be used for calibration.
- Make sure the standard buffer is accurate and precise.
- Put the battery in and switch on the meter
- Plug in the electrode and wash in pure water, and then dry
- Use a thermometer to test the temperature of the solution and use increase button "A" and decrease button "V" to adjust the temperature of the display.

### 6.3 Positioning calibration

- Immerse the PH electrode in the standard buffer PH7.00 solution, and let it remain still after shaking slightly.
- After the reading is stable, press CAL and hold till it displays "CAL" on the screen. Release the CAL button.
- The meter will first display 7.00 for a few seconds and then display END, and then the calibrated value will display (the value varies from the temperature of the standard buffer. E.g., 7.00 under 25°C, 7.04 under 15°C).
- It means that the meter is now remembering the calibration results and that the calibration is done.

### 6.4 Slope calibration I

- Take out the PH electrode wash it in pure water, and dry.
- Immerse the PH electrode in the standard buffer PH4.00 solution and remain still after shaking slightly.
- After the reading is stable, press CAL and hold till it displays "CAL" on the screen. Release the CAL button.
- The meter will first display 4.00 for a few seconds and then display END, and then the calibrated value will display.
- It means that the meter is now remembering the calibration results and the calibration is done.

### 6.5 Test

- Immerse the PH electrode and temperature electrode in the test solution and remain still after shaking slightly.
- After the reading is stable, the PH value of the solution can be derived.

### 6.6 States

- The closer the temperature of the test solution to that of the standard solution, the higher the accuracy of the test result.
- “**PH/MV**” button is used to swiftly test between PH and MV.
- When swift to MV test mode, an ORP electrode or ion selective electrode will be needed.
- The meter can be 1, 2, or 3 points calibrated.
- If the test accuracy requirement is less than 0.01PH, you can use 1-point calibration.
- If the test solution is acid, users can choose 7.00 & 4.00 2-point calibration.
- If it is alkaline, users can choose 7.00 & 10.00 2 points calibration.
- But if the test range is large or the meter has been used for a very long time, 3-point calibration will be needed in the 3-point calibration is also required at the first use of the meter.
- Automatic temperature compensation setting, equipped with combined electrode, or temperature electrode to achieve the automatic temperature compensation.

### 7. Maintenance

- 1) Keep the plug and socket of the electrode clean and dry.
- 2) When the meter is not working, plug in the short-circuit plug to prevent humidity or dust from entering the meter to lower the consumption power.
- 3) When under test, DO NOT touch the lead-in conductor of the electrode, otherwise an error may occur.
- 4) When using powder to make a standard buffer solution, redistilled water or deionized water whose conductivity is less than  $2\mu\text{S}/\text{cm}$  is required and it needs to be boiled better.
- 5) The alkaline solution should be sealed in a polyethylene bottle.
- 6) The standard buffer should be reserved in the refrigerator ( $5\sim 10^{\circ}\text{C}$ ).
- 7) Normally, the validity period is 2- 3 months.
- 8) DO NOT use it when it has turbidity, mildew, or precipitate.
- 9) DO NOT use the standard buffer that is out of validity.
- 10) DO NOT recycle used standard buffer.
- 11) When calibrating, use the standard buffer whose pH value and temperature are close to the test solution.
- 12) When an electrode needs to be changed during operation, switch off the meter and then switch on. Calibrate before use.
- 13) DO NOT immerse the electrode in redistilled water for a long time.
- 14) Plug the electrode in the bottle which is full of protective solution.
- 15) To make an electrode protective solution, use 250ml PH4.00 powder, soluble in 250ml deionized water, and add 56g analytically pure KCL.
- 16) Stir thoroughly until it is dissolved completely.
- 17) DO NOT hit the head of the electrode to prevent the glass from breaking.
- 18) When the electrode has to move from 1 solution to another, wash and dry.
- 19) DO NOT scrub the glass ball.
- 20) The best way is to wash the electrode with the next testing solution.



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