

Thank you for purchasing the Shinwa Digital pH Meter. Before using the product, please read the instructions contained in this manual to ensure correct use. After having read this manual, always keep it with you or in a safe place.

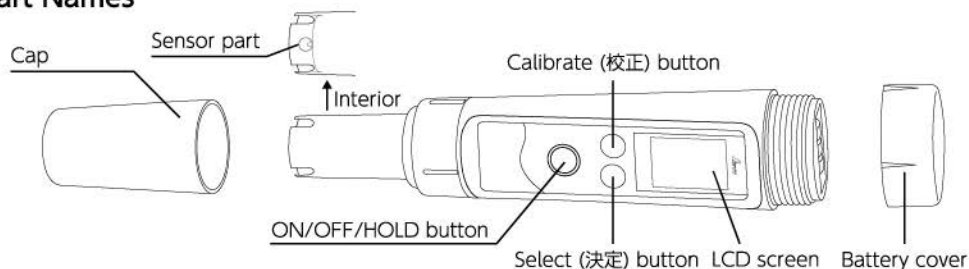
## ■ Use

- For measurement of pH
- For water quality tests in pools, drinking water tests, and fish farming management
- For pH management of soil in agricultural fields (When measuring soil pH, measure the supernatant of the solution mixed with a ratio of 1 part soil to 2.5 parts water.)

## ■ Features

- Compact size convenient for carrying
- Waterproof construction (IPX5 rating)
- Auto Power Off function that automatically turns off the device when approximately 8 minutes pass without operation
- Hold function
- With carry case

## ■ Part Names



## ■ Specifications

Measuring Range	pH1.0 - 14.0
Accuracy*	±pH0.1
Usable Liquid Temperature Range	5 - 35°C
Resolution	pH0.1
Waterproof	IPX5 rating
Power Source	3x Alkaline LR44 batteries or 3x Silver oxide SR44 batteries (Batteries included are for trial use only and may not last as long)
Auto Power Off	Approx. 8 minutes
Material	Body: ABS resin Sensor Part: Glass
Body Size	φ40 × 185 mm
Weight	110 g (including batteries)

\*After calibration with the reference solution, it will show the reproducibility when measured with the same reference solution.

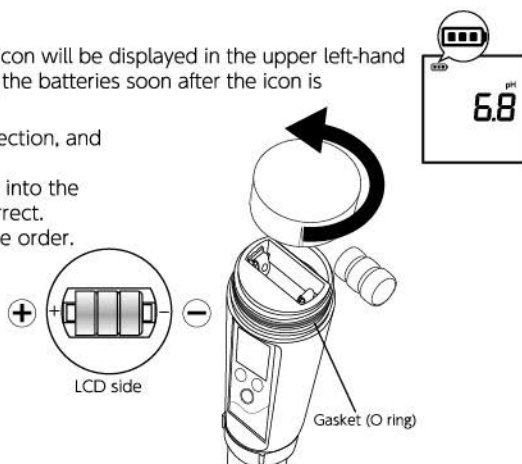
## ■ Changing the Batteries

When the battery power is running low, the battery icon will be displayed in the upper left-hand corner of the LCD screen. We recommend replacing the batteries soon after the icon is displayed.

1. Turn the battery cover in a counter-clockwise direction, and remove the old batteries.
2. Prepare 3 new LR44 or SR44 batteries, and insert into the device, making sure the + and - orientation is correct.
3. Replace the battery cover by following the reverse order.

\*Check to make sure that the gasket (O ring) has not come loose.

\*Close the battery cover securely.



## ■ Before Using

Please use only after referring to the section ■ Changing the Batteries and installing batteries.

## ■ Calibration

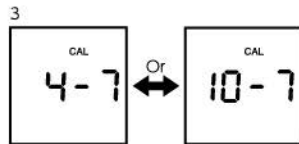
The device has been calibrated to pH7.0 and pH4.0 (acidic) before shipment, but follow the steps below to calibrate again when using.

Calibrate with pH4.0, pH7.0, or pH10.0 calibration solutions.

Please prepare calibration solutions of pH7.0 and pH4.0 when using it for something acidic, and calibration solutions of pH7.0 and pH10.0 when using it for something alkaline.

\*This device does not come with calibration solution. Please prepare our standard solution (Item Code 73033 for acidic calibration, or Item Code 73034 for alkaline calibration) or a commercially-available calibration solution.

1. Press the ON/OFF/HOLD button to turn on the device.
2. Rinse the sensor part with tap water, then rinse with the calibration solution that will be used for calibration after this.
3. Press and hold the Calibrate (校正) button for 3 seconds and the device will go into Calibration Mode, and "CAL" and "4-7" (acidic) will be displayed.

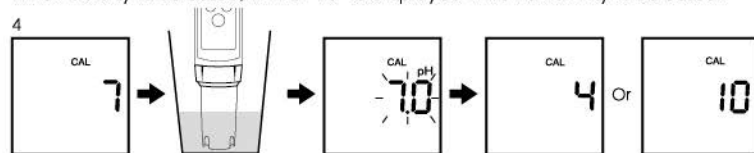


Press the Calibrate (校正) button again and the device will switch to "CAL" and "10-7" (alkaline).

Please choose either acidic or alkaline, and press the Select (決定) button.

4. When "7" is displayed on the LCD screen, immerse the sensor part in a calibration solution of pH7.0 and push the Select (決定) button.

After the calibration has started and the number blinks three times, "4" is displayed on the LCD screen when acidity is selected, while "10" is displayed when alkalinity is selected.

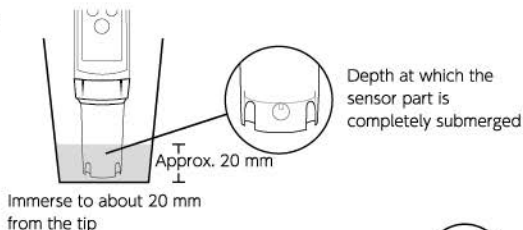


5. Once again, rinse the sensor part with tap water, then rinse with the calibration solution that will be used for calibration after this.
6. Immerse in a calibration solution (pH4.0 or pH10.0) of the numerical value displayed on the LCD screen, and press the Select (決定) button to start the calibration. Calibration is complete when the number blinks three times.

\*Pressing the ON/OFF/HOLD button while performing the operation above and you can cancel the calibration, and the device will go into Measurement Mode.

## How to Use

When using for the first time or after some time has passed, turn the device on after first immersing the sensor part in tap water for approximately 30 minutes, and use only after calibrating. Please see the section ■Calibration for details about the calibration method.



### How to Measure a Liquid's pH

1. Press the ON/OFF/HOLD button to turn on the device.
2. Immerse the sensor part in the liquid to be measured and read the numerical value.  
When you want to fix the numerical value, pressing the ON/OFF/HOLD button will display [ **HOLD** ] and fix the measured value (hold function). When you press the ON/OFF/HOLD button again, [ **HOLD** ] disappears and the fixation will be canceled.
3. Press and hold ON/OFF/HOLD button to turn the device off.

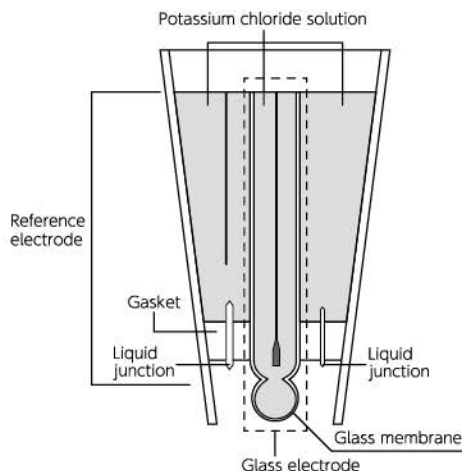


### How to Measure Soil pH

1. The ratio of soil to water in the container should be 1:2.5 and the solution should be mixed well.
2. Wait until the soil has settled.
3. Press the ON/OFF/HOLD button to turn on the device.
4. Immerse the sensor part in the supernatant in the container and read the value. When you want to fix the numerical value, pressing the ON/OFF/HOLD button will display [ **HOLD** ] and fix the measured value (hold function).  
When you press the ON/OFF/HOLD button again, [ **HOLD** ] disappears and the fixation will be canceled.
5. Press and hold the ON/OFF/HOLD button to turn off the device.  
\*Please do not insert directly into the soil as this will damage the sensor part.

## Sensor Part Maintenance

- After use, rinse off the sensor part with tap water, replace the attached cap after drying, then place it in the carry case.
- The sensor part of this device has a glass electrode containing potassium chloride solution and a reference electrode. When this part is exposed to air for a long time, the potassium chloride solution along the reference electrode may oxidize, causing crystals to form on the part's surface.  
If crystals form on the liquid junction, rinse it with tap water or immerse it in a potassium chloride solution for about 1 day to remove them.  
\*Do not touch the sensor part.  
\*Even if crystals form, they will not affect the measured values.



## ■----- Display Causes and Remedies

	Cause	▶	Remedy
When using	Not turned on	▶	Immerse in water and turn on
	Exceeding the measurement range	▶	Use within the measurement range

## ■Err Display Causes and Remedies

	Cause	▶	Remedy
When calibrating	Not immersed in calibration solution	▶	Thoroughly immerse the sensor part in the calibration solution
	The selected numerical value and the calibration reference value are different	▶	Check whether the calibration reference value matches the set value
	The calibration solution cannot be accurately calibrated due to discoloration, etc.	▶	Confirm again with new calibration solution

### Caution

- Do not use other than as intended.
- Do not bump, drop or handle this device roughly.
- Since the sensor part is made of glass, be careful when handling. Do not touch it directly.
- Do not use or store in a place with high temperature.
- Take care that iron powder, dirt, dust, water, etc. does not penetrate inside the device.
- Do not take apart the device under any circumstances.
- Keep out of the reach of children.
- If the device is dirty, wipe with a cloth soaked in water or a neutral detergent. Do not use benzine or thinner, etc.
- Remove the batteries when the device will not be used for a long time.
- We shall not be liable for any consequential, incidental, or indirect damages such as losses and lost profits to the customer as well as a third party resulting from the operation of this product, regardless of whether or not they were foreseeable or the possibility was reasonably foreseeable. However, this shall not apply in the case where there is willful or gross negligence or when the customer is a consumer according to the Consumer Contract Act. In the event that we are liable for the use of this product, we shall be liable for damages limited to an amount equal to the price of the product.