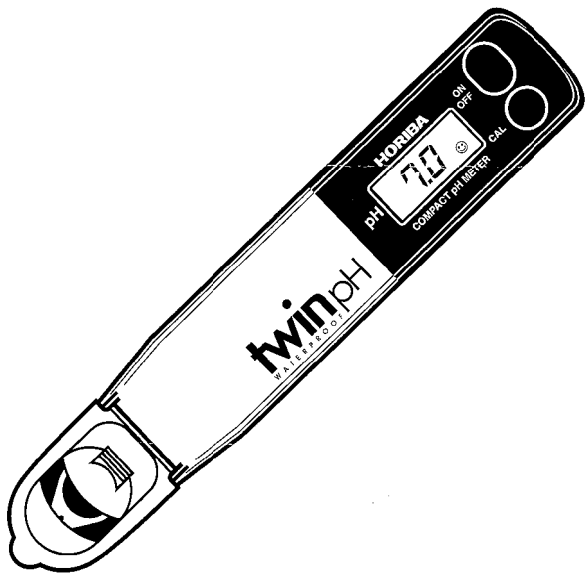


twin^{PH} meter B-213
WATERPROOF

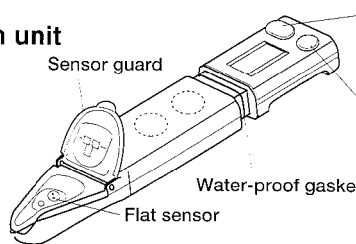
- The TWIN pH meter is of water-resistant construction. Even so, please do not attempt to make measurements by immersing the entire unit in the solution.



Please keep this Instruction manual for future reference.

Names of Components and Their Functions

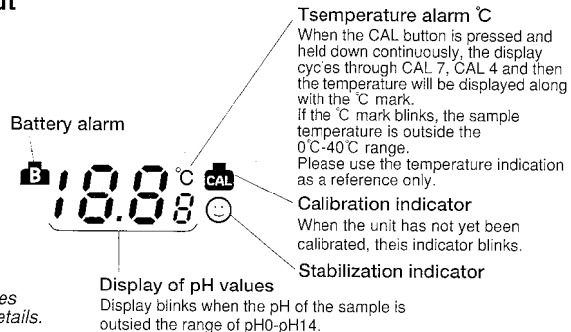
● **Main unit**



Power button
If none of the TWIN pH buttons are pressed for 60 minutes the power will auto matically turn off.

CAL button (calibration)
Holding this button down toggles the mode through CAL7→CAL4→Temp.→measure.

● **Readout**

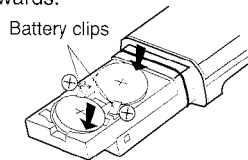


Page 6 gives package details.

Setup

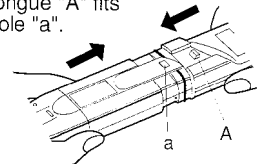
Batteries

Slide both batteries under battery clips with plus sides (+) upwards.



Sensor

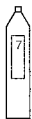
Slide the sensor onto the unit so that tongue "A" fits into hole "a".



For details, see page 7.

Calibration

● One-point calibration using pH 7 solution



You should calibrate the unit with the standard solution at least once a day.

1 Press the POWER button.

The pH meter automatically enters the measurement mode.

3 Press the CAL button once.

The readout will display the CAL symbol and the correction for pH 7.00.

Then the CAL symbol disappears and the readout shows around pH 7.0.

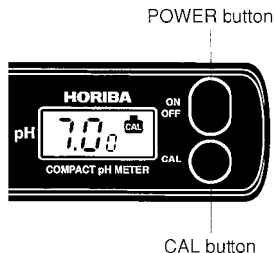
2 Apply the pH 7 solution.

Open the sensor guard and wet areas A and B of the sensor with pH 7 standard solution.

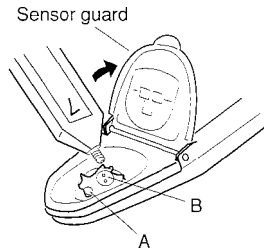
After calibration

Rinse the sensor with water and blot it dry with a tissue or soft cloth.

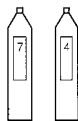
This example is at a room temperature of 25°C or 77°F.



3



● Two-point calibration using both pH 4 and pH 7 solutions



2-point calibration is done using pH 7 and pH 4 standard solutions in a process similar to that described on the previous page for 1-point calibration.

2-point calibration gives even more accurate measurement results.

1 Do the pH 7 calibration.

First, do the pH 7 calibration as described above.

3 Press and hold the CAL button.

The readout will display the CAL symbol and the correction for pH 4.01.

Then the CAL symbol disappears and the readout shows around pH 4.0.

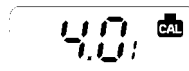
2 Apply the pH 4 solution.

Then, wet the entire area from A to B on the sensor with pH 4 standard solution.

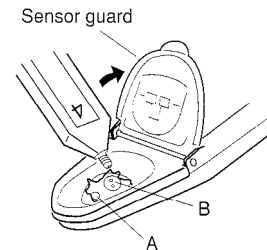
After calibration

Rinse the sensor with water and blot it dry with a tissue or soft cloth.

This example is at a room temperature of 25°C or 77°F.



If the CAL mark blinks, the unit has not been successfully calibrated. Try it once more, this time verifying that the correct standard solution has been used.



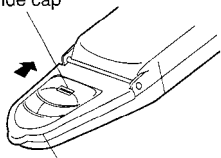
4

Making Measurements

1. Applying the sample solution to the TWIN pH sensor. There are three ways to apply the sample solution to the sensor.

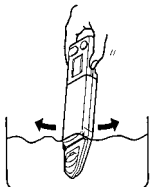
Immersion measurement

Slide cap



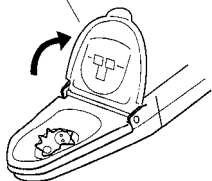
Sensor guard

Open the slide cap of the sensor guard and immerse the sensor in the sample solution.

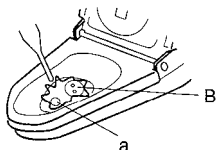


Flat surface measurement

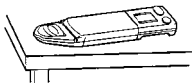
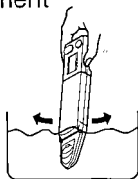
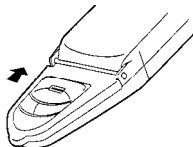
Sensor guard



Open the sensor guard and wet the entire area from A to B with the sample solution.



Spooning-out measurement



Open the slide cap and immerse the sensor in the sample.

Swirl the sensor and scoop out a bit of solution.

Make sure that the solution covers the entire area from A to B when level.

2. Read the figure displayed when the stabilization indicator appears.
3. When you have completed the measurement, discard the sensor solution, rinse the sensor in tap water, and wipe the sensor dry.

Note: The TWIN pH meter is of water-resistant construction. Even so, please do not attempt to make measurements by immersing the entire unit in the sensor solution.

If, by mistake, the unit is dropped into the sensor solution, retrieve it immediately and dry it off as quickly and thoroughly as possible.

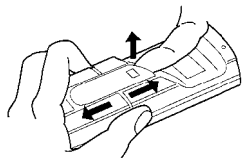
After Measurement

1. Press the POWER button to turn off the power.
2. Wash the sensor with tap water and blot the water from the sensor with a tissue or soft cloth.
3. Close the slide cap of the sensor guard and store your twin pH in a safe, dry place.

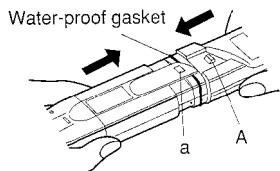
Note: Never let the unit stand for long periods of time without thoroughly drying it off.

Replacing the Sensor

When replacing the sensor, be sure that the unit is turned OFF.



1. Disconnecting the sensor
Push the tongue (located on the back of the unit body) and slide the sensor away from the unit body. Then pull out the sensor all the way from the main unit body.

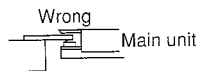
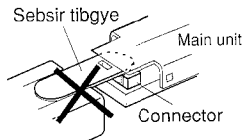


2. Connecting the sensor
Slide the sensor onto the unit body so that tongue "A" (on the back of the unit body) fits into hole "a" as shown. It is now ready to use.

Note: Be careful not to twist the water-proof gasket.

Precautions

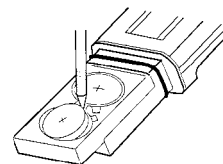
- As shown here, make sure that the sensor tongue is inserted correctly in between the main unit case and the connector. Do this carefully so as not to damage the connector.
- The sealing effect of the water-proof gasket will deteriorate if it becomes damaged or contaminated. Should this happen, the gasket should be replaced. Under normal operations, the gasket should last approximately two years before it needs to be replaced.
- When removing the sensor, carefully wipe off any drops of solution remaining on the waterproof gasket. Water must never be allowed to get inside the unit.



Replacing the Batteries

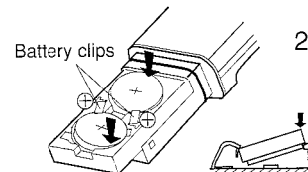
When replacing the batteries, be sure that the unit is turned OFF.

When a battery is low, you may not be able to turn on or off the power. Please change the batteries early to avoid this.



1. Removing the batteries
Use a ball-point pen or other instrument to pry the batteries out from under the clips as shown.

Note: Always replace both batteries; never use a new battery with an old one.



2. Inserting the batteries
Slide both batteries under the battery clips as shown so the plus sides (+) are facing upwards. Be sure to use only CR2032-type batteries.

Troubleshooting

<u>Problem</u>	<u>Action</u>
• No power when the POWER button is pushed.	• Check that the batteries are correctly installed. • Replace the batteries.
• Sensor response is slow, measured value is unstable, or calibration cannot be made.	• If the TWIN pH meter has not used for a few days, drip some pH 7 standard solution onto the sensor, wait for 2-3 hours, and measure again. • Replace the sensor.
• Measured value does not change when the sample is changed.	• Replace the sensor.
• Display of 0.0 blinks during measurement. Temperature warning °C blinks.	• Replace the sensor.

Precautions in Handling the Unit

WARNING

- If the standard solution touches comes into contact with your skin, quickly flush it off with water. If the standard solution gets into your eyes, immediately rinse your eyes with water and consult a doctor as soon as you can!
- Exhausted batteries should never be placed within reach of children.

Caution: The TWIN pH meter is of water-resistant construction. Even so, please do not attempt to make measurements by immersing the entire unit in the solution.

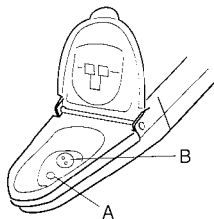
If, by mistake, the unit is dropped into the sensor solution, retrieve it immediately and dry it off as quickly and thoroughly as possible.

• Always take sufficient care in handling the pH meter

- The unit should never be dropped or be subjected to excessive force.
- The unit should not be allowed to stand in direct sunlight or be subject to high temperature or high humidity.
- The unit should not be washed with organic solvents.

• Sensor

- At low humidity, Area A of the sensor may show a film of white powder-like substance. At high humidity Area A may become moist. These are normal conditions and do not indicate any abnormality. Before you use your TWIN pH meter, wipe or rinse off any powder film or moisture that has formed.
- Area B of the sensor is made of very thin glass. The sensor, the body, and the attachments should be stored out of reach of children. If the glass is broken, detach the sensor from the body and carefully wrap it newspaper or other wrapping material before throwing it away.



• Note that the sensors have a limited life-span and are considered as disposable items that periodically need replacing should they break or begin to lose sensitivity. It is not possible to repair broken or defective sensors.

• Batteries

- Note that the batteries supplied with your TWIN pH meter at time of purchase are trial samples and may have a shorter life than normal.
- Replace both batteries simultaneously.
- Exhausted batteries should never be thrown into a fire or recharged.
- When a battery is low, you may not be able to turn on or off the power. Please change the batteries early to avoid this.

• Water-proof gasket

- The sealing effect of the water-proof gasket will deteriorate if it becomes damaged or contaminated. Should this happen, the gasket should be replaced. When replacing the gasket be sure that it is seated properly without any twisting.

• Sample

- The following types of sample solutions should be avoided because they may damage the sensor and shorten its life: organic solvents, oils, adhesives, cement, alcohols, strong acids (pH 0–2), strong alkalis (pH 12–14), and surfactants.
- The readout during calibration is not the pH value measured, but the calculated pH value of the standard solution at the measured temperature.

Specifications

Model	B-213
Measurement type	Glass electrode method
Readout	LCD
Measurement range	pH 2–pH 12
Repeatability	±0.1 pH
Temperature range for pH measurement	5°–40°C
Display range	pH 0 to 14
Display resolution	0.01 pH
	Automatic <i>two-point</i> calibration (calibration value back-up function)
Functions	Water-proof configuration Automatic power shut-off Immersion, flat surface, and spooning-out measurements
Dimensions	165 × 29 × 19 mm (excluding protrusions)
Power supply	Two 3V lithium batteries, CR-2032
Case Material	ABS resin

THIS EQUIPMENT HAS BEEN TESTED AND FOUND TO COMPLY WITH THE LIMITS FOR A CLASS B DIGITAL DEVICE, PURSUANT TO PART 15 OF THE FCC RULES.

The contents of this instruction manual are subject to change without prior notice.

Warranty

This product has been brought to you having passed strict quality control and inspections. Should any malfunction occur during the course of normal use, the TWIN pH meter shall be repaired or replaced free of charge in accordance with the stipulations laid down herein.

The term of this warranty shall be for 12 months from date of purchase.

This warranty excludes batteries, sensor, and accessories.

Stipulations of warranty

1. The product (the TWIN pH meter excluding batteries, sensor, and accessories) shall be repaired or replaced free of charge should any malfunction occur during the course of normal use if returned within the warranty period (12 months from date of purchase). Return TWIN pH meter with proof of purchase date.

Repair and/or replacement expenses shall be charged to the customer in the following instances within the warranty period. All incidental costs, such as postage, shall be also born by the customer.

- 1) When the date of purchase and supplier name is not written on the warranty.
- 2) When malfunction or damage has occurred due to misuse, abuse, or improper handling as noted in the *Instruction Manual*.
- 3) When the TWIN pH meter has been repaired or dismantled by persons other than a HORIBA-designated agent or service shop.
- 4) In the event of changes in external appearance, such as scratches or dirt caused during use or battery fluid leakage.
- 5) In the event the unit has been subject to improper handling, dropping, or to accidents such as fire, earthquake, flood, or theft.
- 6) When replacing periodically renewable components and accessories, e.g., sensors, batteries.
- 7) When the cause of malfunction lies not in the TWIN pH meter itself.
- 8) When this warranty is not presented or when the necessary particulars have not been filled in on the warranty card.

Our obligation under this warranty is to repair or replace the TWIN pH meter free of charge in accordance with the conditions laid down herein. Accordingly, this warranty does not limit your specific legal rights.

In order to register your TWIN pH meter properly under our warranty, this card must be completed and promptly mailed to the nearest Horiba office listed below.

At times the response may be slow at first, especially after the unit has been stored for a few days. Drip some pH 7 solution onto the sensor and wait for 2 to 3 hours. This will make the response faster.

PLEASE RETURN IMMEDIATELY

Product name	B-213	MFG No.	
Your name: _____			
Company / Facility: _____			
Address: _____ _____			
Phone: _____			
Date of Purchase: _____			
Purchased from: (Store Name) _____ (Address) _____ _____			

This warranty is not valid unless all items are filled in correctly. This warranty cannot be reissued.