

In just-a-minute

4311-E12

From 1 year to 2 years Free Extended Warranty



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- It requires only 1 minute! Simply by answering questions, warranty period is extended from 1 year to 2 years.
- ATAGO Logger NFC can also be downloaded at the same time.
(The registration page can be accessed from ATAGO website.)

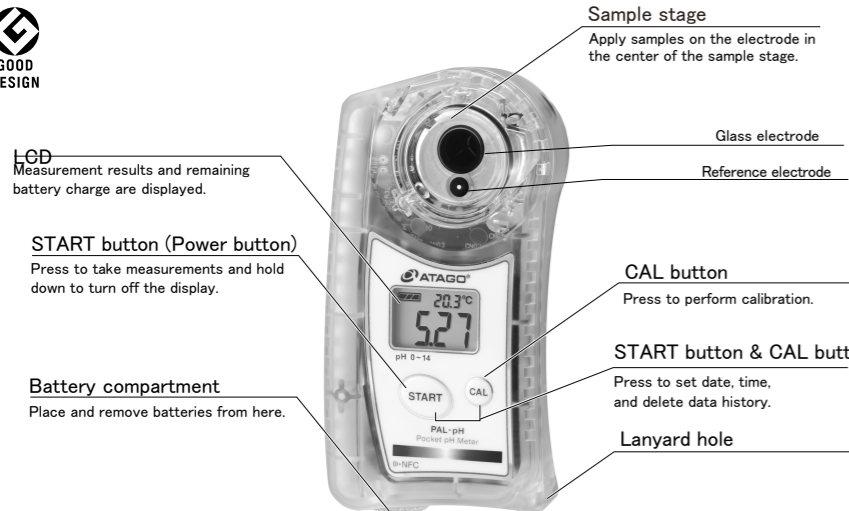
Digital Hand-held "Pocket" pH Meter

PAL-pH

Cat.No. 4311

ATAGO Instruction Manual

Parts



Contents

- Main unit...1
- Instruction Manual (this book)...1
- Calibration Report...1
- AAA batteries...2
- Standard solution for calibration...pH4.01...1 pH6.86...1 pH9.18...1
- PAL Silicone Cover...1

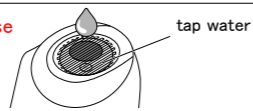
ATAGO instruments are rigorously inspected to ensure each unit meets the highest standards of quality assurance.

Introduction

Thank you for purchasing the instrument. Carefully read and follow all instructions. Keep this manual for future reference. A small amount of solution may leak from the reference electrode. This is normal and does not affect the unit's performance.

Important: Please Read and Follow Instructions Carefully Before Initial Use

- Place plenty of tap water and leave it for a while.
- ※Dry electrodes will result in abnormal measurement values.



Safety Instructions

Read and follow all safety instructions before operating the instrument. Failure to comply with the following instructions may result in personal injury or property damage.

WARNING

- Ensure safety when handling hazardous materials. Observe precautionary measures and use protective equipment. Be aware of the hazards of such chemicals and emergency response guidelines.
- ATAGO may not be held liable for any injury or damage arising in connection with handling of hazardous materials during the use of the instrument.
- Do not drop the instrument or subject it to strong physical shock.
- Do not attempt to repair, modify, or disassemble the instrument.

CAUTION

- Carefully read this manual to have basic knowledge of the function of each component.
- ATAGO is not liable for any loss and damage caused by the measurement and use of this instrument.
- ATAGO shall not be held responsible for any or all damages that may result from using the instrument for those other than its intended purpose (measurement of pH level of a liquid sample).
- If the standard solution for calibration comes in contact with hands or skin, immediately rinse with plenty of water.
- The glass electrode is fragile; be careful not to damage it. Glass shards may cause injury.
- Do not use metal tools, such as a spoon, as they may scratch the glass electrode, resulting in erroneous measurements.
- Do not measure organic solvents, oils, adhesives, cement, alcohol, surfactants, polymer solvents or hydrogen fluoride.
- Do not use water above 50°C to rinse the instrument.
- Only use the specified battery type. Observe proper polarities, properly aligning the anodes and cathodes.
- Store the instrument away from direct sunlight/heat sources and excessive amounts of dust/debris.
- Do not expose the instrument to a rapid change in ambient temperature.
- Do not subject the instrument to strong vibration.
- Do not subject the instrument to extreme cold temperature.
- Do not place the instrument under anything heavy.
- Loosen the battery compartment cover for air transportation.

(International Protection Classification IP65)

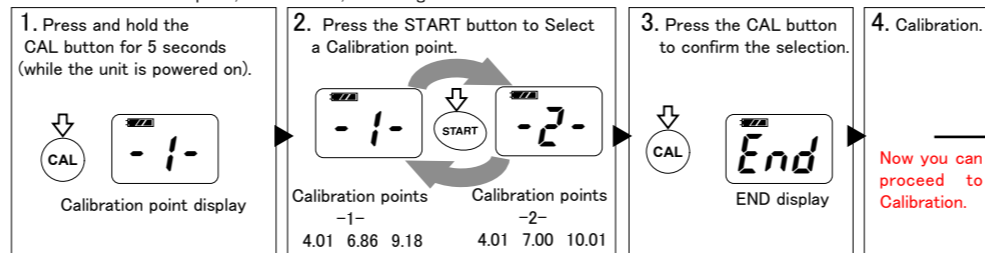
- The instrument is water-resistant, not waterproof, and should not be submerged.

(Chemical Resistance of Body Case)

- The body case is made of PC. Do not expose it to water vapor or solvents. See the list of "Solvents Harmful to Body Case."

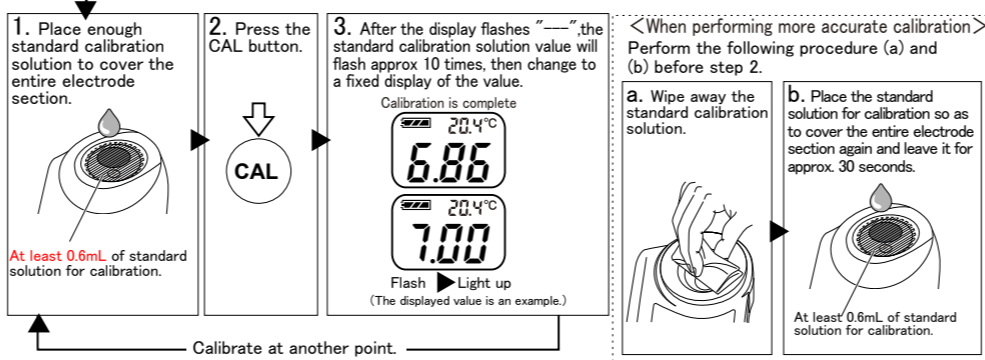
How to Select a Calibration Option

Select the Calibration option, either 1 or 2, according to values of the standards.



Calibration

- Calibration points -1-
Calibration can be done at 3 points (pH 4.01, pH 6.86, and pH 9.18).
If the sample is above pH 6.9, calibration can be done at 2 points (pH 6.86 and pH 9.18).
If the sample is less than pH 6.9, calibration can be done at 2 points (pH 4.01 and pH 6.86).
Press the CAL button to perform calibration for either pH 4.01, pH 6.86, or pH 9.18.
* If the power is not turned on, press the START button to turn on the power, then perform the following procedure.
- Calibration points -2-
Calibration can be done at 3 points (pH 4.01, pH 7.00, and pH 10.01).
If the sample is above pH 7.0, calibration can be done at 2 points (pH 7.00 and pH 10.01).
If the sample is less than pH 7.0, calibration can be done at 2 points (pH 4.01 and pH 7.00).
Press the CAL button to perform calibration for either pH 4.01, pH 7.00, or pH 10.01.
* If the power is not turned on, press the START button to turn on the power, then perform the following procedure.

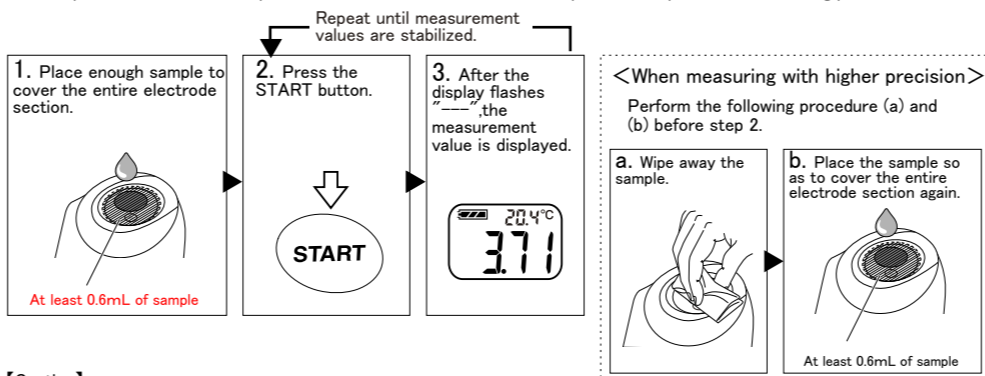


- [Caution]
- Perform calibration before initial use and at least once a month to maintain precision and accuracy.
 - Measure a standard calibration solution. When the measurement value falls outside of the expected range, perform calibration.
 - When the time lapsed since last measurement is more than 2 weeks, it is recommended to calibrate the instrument.
 - If the ambient temperature changes during the daily work with this instrument, it needs the calibration again.
- Additional refills of standard solutions for calibration can be purchased from ATAGO (sold separately).
Contact ATAGO for recommended standard solutions.

[Part No.]	Standard solution for calibration	[Part No.]	Standard solution for calibration
RE-99210	pH4.01 (volume: 500mL per bottle)	RE-99210	pH4.01 (volume: 500mL per bottle)
RE-99211	pH6.86 (volume: 500mL per bottle)	RE-99212	pH7.00 (volume: 500mL per bottle)
RE-99213	pH9.18 (volume: 500mL per bottle)	RE-99214	pH10.01 (volume: 500mL per bottle)
RE-99230	10mL pH4.01/pH6.86/pH9.18	RE-99231	10mL pH4.01/pH7.00/pH10.01

Measurement

* If the power is not turned on, press the START button to turn on the power, then perform the following procedure.



- [Caution]
- Do not splash water above 50°C. The plastic may warp, which may compromise the water resistance.
 - When measuring hot samples, place only the necessary amount and do not let it overflow from the sample stage well.
 - When hot water is necessary to clean off hardened samples, use water-soaked gauze around the sample stage and keep hot water away from the body case.
 - In rare cases, a measurement value may be displayed even if there is not sample placed on the electrode section. In such instances, simply place some sample on the electrode section and press the START button. Measurements will be taken normally.
 - When measuring samples such as strong acids and high alkaline, take a quick measurement and rinse off any remaining sample with tap water.

(LCD Auto Shut-off)

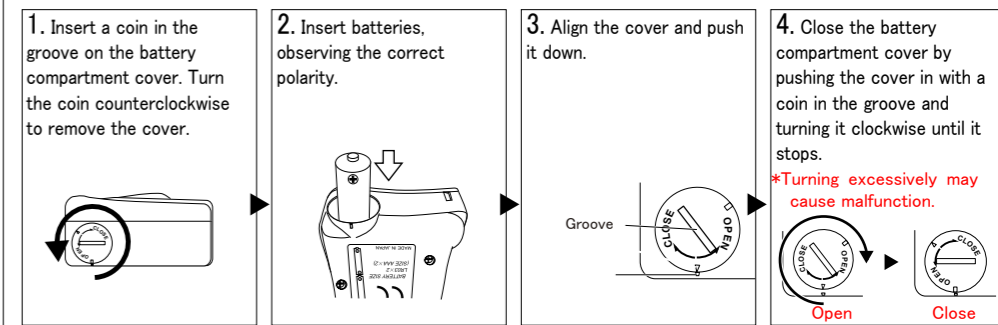
The instrument will turn itself off after 5 minutes of inactivity. To manually turn it off, hold down the START button for more than 2 seconds.

Calibration and Measurement Guidelines

- When the electrodes are dry after long period of not being used: Tap water. Place plenty of tap water and leave it for a while.
- Do not damage the electrodes. Do not use metal tools.
- Be careful not to scratch the electrodes.
- The insufficient amount of sample will result in abnormal measurement or calibration. At least 0.6mL.
- Initial measurements may fluctuate with hot or cold samples. Wait for the instrument to acclimate to the sample temperature, then press the START button. Alternatively, press the START button multiple times until measurements become stable.

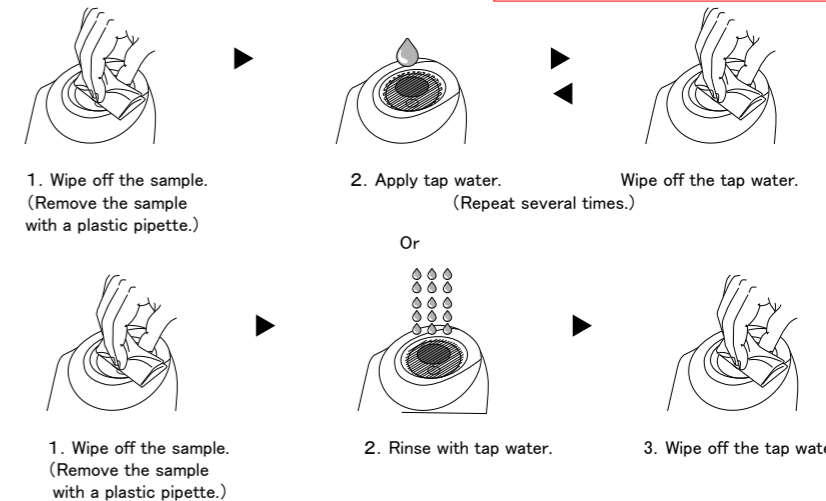
Replacing the Batteries

- [Caution]
- Please remove the tape in the battery compartment before first use.
 - Fasten the battery compartment cover tightly to prevent water ingress or poor connection, which will cause erroneous measurements. Push the cover in firmly and turn.
 - When the O-ring on the cover is dirty or damaged, the water resistance may be compromised.
 - When the battery icon indicates the low power level (), replace both batteries with a brand new set of AAA alkaline batteries (1.5V).
 - Static images may occasionally appear on LCD. Such retained pixel charges do not indicate a faulty display, consume the battery power, or affect the instrument's performance in any way.
 - Check the expiration dates on batteries before purchase.
 - Calibrate the instrument after the batteries are replaced.



Cleaning

- [Caution]
- Do not scratch the electrode.
 - The instrument is water-resistant, not waterproof, and should not be submerged.
 - For samples containing oils or fats: Clean oily residues on the electrode section with ethyl alcohol. Then rinse the electrode section with tap water thoroughly.



Error Messages

- The following messages alert the user when an operation has failed.
- Lo: The battery is low. Display will turn off after 10 seconds.
 - EEE: The START button was pressed with nothing on the electrode section.
 - LLL: The sample measured is outside the measurement range. The START button was pressed with nothing on the electrode section.
 - AAA: The CAL button was pressed with nothing on the electrode section.
 - HHH: The detection temperature was over 45°C. A pH value was displayed (accuracy is not guaranteed).
 - LLL: The detection temperature was less than 5°C. A pH value was displayed (accuracy is not guaranteed).