



LabSen® 223 Combination pH/Temperature Electrode for Viscous and Low Ion Concentration Samples

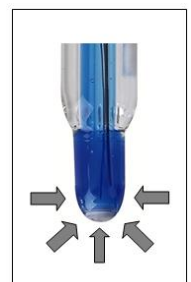
User Manual

LabSen electrochemical sensors are premium pH electrodes with manufacturing technology and key components imported from Switzerland. The LabSen® 223 Combination pH/Temp. Electrode is designed for precise pH measurement in viscous and low ion concentration samples

	Ideal	Appropriate
Titration	X	
Titration (non-aqueous)	X	
Low Ion Concentration Solutions	X	
Drinking Water	X	
Distilled Water	X	
Purified Water (ex. RO Water)	X	
Deionized Water		X
Effluent		X
Turbid Water Solutions		X
Kombucha		X
Wine		X
Beer		X
Paint (water-based)	X	
Serum	X	
Syrup	X	

This probe has the following features:

- Impact-resistant membrane (see the right picture), there is no danger of electrode breakage during normal use.
- Movable sleeve, able to adjust infiltration rate of electrolyte.
- Blue gel inner solution, does not flow and will not cause a bubble.
- Long-life reference system, has better stability and service life.
- Built-in temperature sensor for ATC

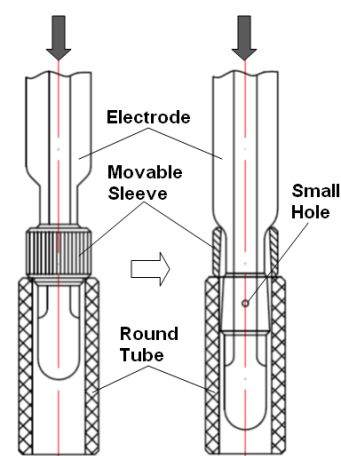


1. Technical Data

Measuring Range	(0-14) pH	Electrolyte	3M KCl
Temperature Range	(-5~80) °C	Soaking Solution	3M KCl
Shaft Material	Lead-free Glass	Electrode Dimension	(Φ12×130) mm
Membrane Shape	Cylindrical	Connector	BNC
Reference	Long Life	Cable	Φ3×1m
Junction	Movable Sleeve	Temperature Sensor	300KΩ

2. How to Use the Movable Sleeve

As shown on the right picture, reference solution flows out of the small hole, seeps through the surface of movable sleeve. You may adjust the degree of firmness when use. The looser the movable sleeve is, the faster the reference solution's flow speed is, meaning you will get stabilized readings in a shorter time. Purified water and low ion concentration solutions measurements require faster flow speed. The electrode must be recalibrated after tightness adjustment.



To loosen the movable sleeve, push up the movable sleeve. If it is too tight to push up, please refer to the right picture: insert the probe into the orange round tube (the accessory comes with the probe), and press down the electrode with force, then the movable sleeve will be loose. And then screw counter-clockwise to loosen the movable sleeve or clockwise to tighten it.

Please unplug the blue rubber plug on the refilling hole when adjusting the movable sleeve, this enables the reference solution to flow out of the small hole; then slowly rotate and adjust the movable sleeve, so that there will be no air remaining in the surface of the movable sleeve, which can greatly affect the correct measurement.

3. Usage and Maintenance

3.1 Prior to measurement, remove the blue rubber plug to maintain proper air pressure of the reference solution, keeping consistent flow rate of the reference solution and stable potentials of the junction.

3.2 After a period of usage, the reference solution will run low. Whenever the level falls to 1/2 height of the electrode, add 3M KCL solution to the refilling hole with a syringe or pipette.

3.3 If reference solution is contaminated and needs replacement, unplug the blue rubber plug, loosen the movable sleeve (see section 2), the reference solution will flow out quickly. Once the reference solution runs out, use a syringe to add purified water through the refilling hole to rinse the electrode cavity; then rinse again with 3M KCL to remove the remaining purified water; Tighten the movable sleeve, refill 3M KCL solution with a syringe; then loosen the movable sleeve to let the solution flows out a bit, and slowly twist it clockwise to tighten, so that air can be avoided in the surface of movable sleeve.

3.4 The connector of the electrode should be kept clean and dry. If contaminated, please clean it with medical cotton and absolute alcohol and blow dry to prevent the short circuit of the electrode and slow reaction of electrode.

3.5 The electrode's measuring tip should be soaked in the storage bottle containing 3M KCL storage solution to keep the membrane hydrated and junction unblocked. When measuring, please unscrew the bottle cap, pull out the electrode and rinse it with deionized or distilled water. After using, please put the electrode back into the bottle and screw tight the cap. Clean the bottle and replace the storage solution if the storage solution gets turbid or mildewed. The electrode should never be soaked in purified water or buffer solution for long.

3.6 After 1-year of use, we recommend replacing the aged electrode to achieve the best accuracy.

3.7 Please avoid measuring dehydrated medium like strong acid or alkaline solution, absolute ethyl alcohol and concentrated sulfuric acid. In case of measuring such solution, please try to reduce the immersion time and clean it carefully after use.

3.8 After 1-year of use, we recommend replacing the electrode for best accuracy.

Limited Warranty

We warrant this electrode to be free from defects in material and workmanship and agrees 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 **six months**. Warranty period is the time limit to provide free service for the products purchased by customers, not the service life of the tester or electrodes.

This limited warranty does not cover any damages due to:

- i. transportation;
- ii. storage;
- iii. improper use;
- iv. failure to follow the product instructions or to perform any preventive maintenance;
- v. modifications;
- vi. combination or use with any products, materials, processes, systems or other matter not provided or authorized in writing by us;
- vii. unauthorized repair;
- viii. normal wear and tear; or
- ix. external causes such as accidents, abuse, or other actions or events beyond our reasonable control.

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