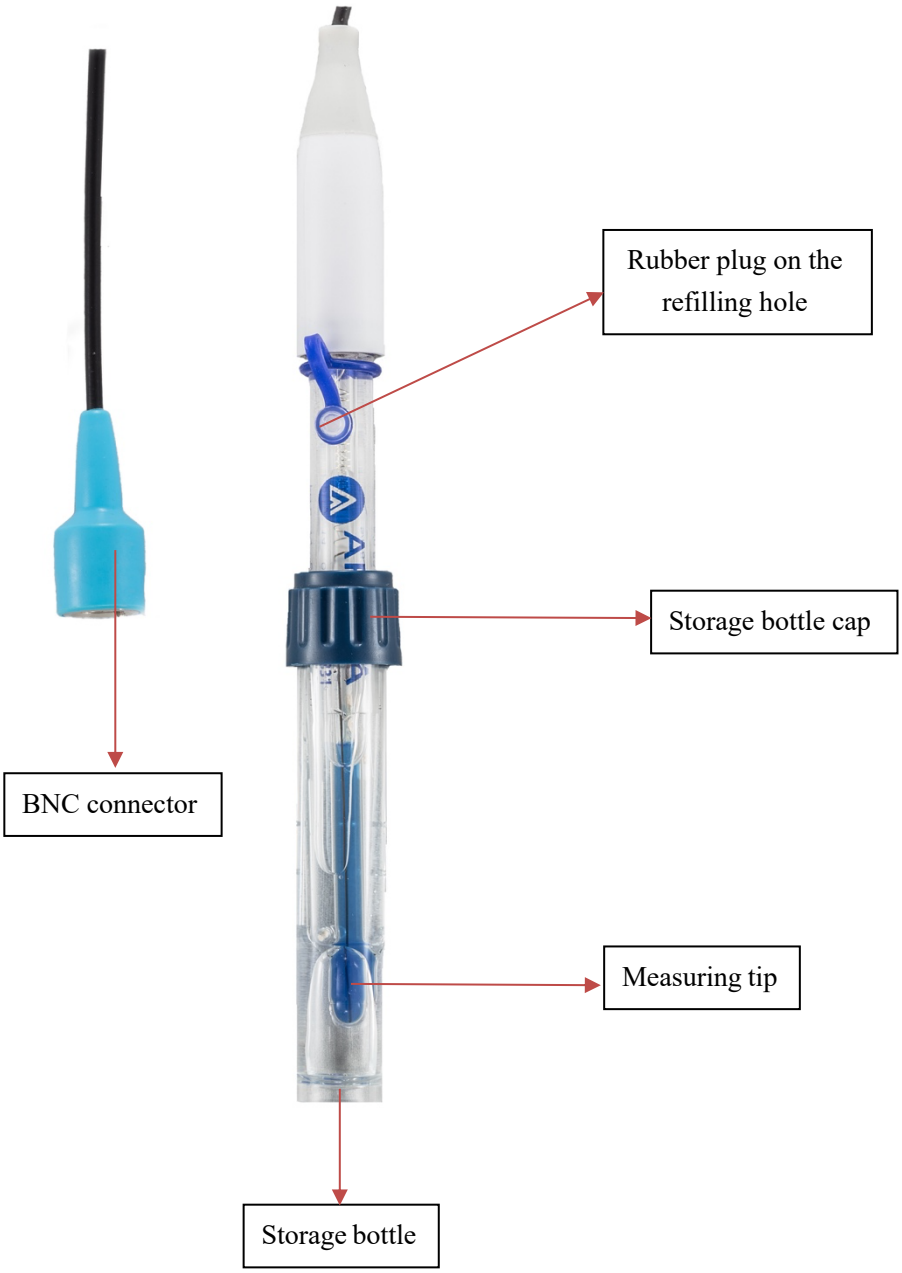
APERA® INSTRUMENTS

Fluid Precision since 1991

LabSen® 831 pH Electrode
User Manual



Built with proprietary sensor technology and premium materials from Switzerland, Apera LabSen® 831 HF pH Electrode is designed for professional pH measurement of solutions containing HF (Hydrofluoric) acid, and other strong acid solutions.

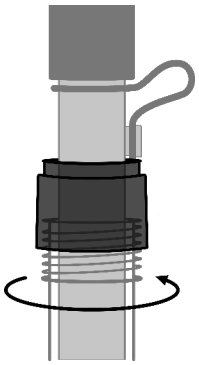
Features

- Built with LabSen HF glass membrane designed for precise measurement in strong acid solutions, and is resistant to hydrofluoric corrosion (1g/L).
- No more air bubbles inside the glass membrane thanks to the Swiss blue gel electrolyte.
- The silver ion trap reference system significantly increases measuring stability and extends service life.

Technical Specifications

Measuring Range	0 – 11 pH
Temperature Range	0 – 100°C
Membrane Type	HF
Body Material	Lead-free Glass
Reference	Silver ion trap
Junction	Ceramic
Reference Solution	3M KCL
Soaking Solution	3M KCL
Membrane Resistance	< 400MΩ
Electrode Dimension	(Φ12×120) mm
Connector	BNC
Cable	Φ3×1m

How to use



1. Connect the electrode to the BNC connector of your pH meter.
2. Before measuring, twist off the storage bottle cap (see graph on the right), pull out the electrode and rinse it off with distilled or deionized water.
3. Unplug the blue rubber plug to maintain a smooth electrolyte flow.
4. Perform at least a two-point calibration before measuring after connecting the new electrode to your pH meter.
5. Measurement suggestions for HF-containing solutions:
   - 5.1. Use a PTFE container while testing solutions containing hydrofluoric acid.
   - 5.2. The electrode can measure HF solution less than 0.1mol/L (pH≈2.1) within 3 minutes each time.
   - 5.3. When measuring HF solution around 0.5mol/L (pH≈1.8), after a long test, if the membrane is obviously dissolved, the service life will be shortened. Our recommendation is to avoid such tests or test faster, less than 2 minutes each time.
   - 5.4. The electrode is not suitable to measure HF solution more than 0.5mol/L (pH＜1.8), which will cause the electrode to perform at a poorer level or even be damaged.
   - 5.5. After a while of usage, potential drift and slow response may occur to the electrode. Please re-calibrate after soaking it in 3M KCL for more than half an hour. Stirring is recommended while measuring to speed up stable measurement.
6. After using, put the electrode back into the storage bottle, twist on the bottle cap, and plug in the refilling hole.

Maintenance

1. When not in use, the electrode should be soaked in the storage bottle containing 3M KCL soaking solution (SKU: AI1107) to keep the glass membrane and junction in a healthy condition. Clean the bottle and replace the soaking solution if it gets contaminated. The electrode should never be stored in pure water such as deionized or distilled water.
2. The reference solution will run low as you use the electrode. Whenever the solution level falls to 1/2 height of the electrode, add 3M KCL solution (SKU: AI1107) to the refilling hole (unplug the blue rubber plug) using a syringe or pipette.
3. The electrode is only as accurate as it is clean. Always thoroughly rinse off the probe before and after each measurement with pure water in a container or with a wash bottle.
4. For tough contaminants, soak the electrode in Apera cleaning solution (AI1166) for 30 minutes. Then use

a soft brush to remove the contaminants. Afterwards, soak the electrode in 3M KCL solution (SKU: AI1107) for at least 1 hour. Rinse it off, then re-calibrate it before using again.

5. The connector of the electrode should be kept clean and dry. If contaminated, please clean it with medical cotton and isopropyl alcohol and blow-dry it to prevent short circuit of the electrode or slow response of the electrode.
6. The electrode should avoid testing strong alkaline solutions, as well as dehydrating media such as absolute ethanol and concentrated sulfuric acid. If testing such solutions, the immersion time should be minimized and the electrode should be carefully cleaned after use.
7. Every pH electrode will eventually age and fail. The typical service life of Apera pH electrodes is 12-24 months depending on the frequency of usage and how well you keep it clean and properly stored. We recommend replacing your electrode every 12-18 months to ensure the best performance.

Warranty

We warrant this electrode to be free from defects in material and workmanship and agree 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 from the delivery.

This limited warranty does NOT cover any damages due to:
Accidental damage, transportation, storage, improper use, failure to follow the product instructions or to perform any preventive maintenance, unauthorized repair or modifications, normal wear and tear, or other external causes or actions beyond our reasonable control.

To get the fastest warranty fulfillment, go to **support.aperainst.com** and click **"New Support Ticket"** on the upper right corner. Fill out the form and click submit, one of our customer care specialists will help you fulfill the warranty within one business day.

APERA INSTRUMENTS, LLC

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