LabSen® 553 Professional Spear pH/Temp. Electrode
User Manual

Backed by proprietary Swiss sensor technology and materials, the LabSen 553 Professional Spear Combination pH Spear Electrode is designed for testing soil directly.

- Long-Life Reference System – composed of a glass tube, AgCl and a reference silver wire. The top end of the slim glass tube is stuffed with cotton, which prevents the reaction between AgCl and electrolyte when temperature changes. It improves the stability of reference electrode and prolong the service life of the electrode.
- Polymer Electrolyte – The solid polymer electrolyte makes the electrode hard to be contaminated and maintenance-free.
- Built-in Temperature Sensor
- Special Glass Membrane – The LabSen 553 pH electrode adopts a spear sensor tip, which is ideal for directly testing semi-solid/solid samples like soil.

1. Technical Data

Measuring Range	(0-14) pH	Electrolyte	3M KCl
Temperature Range	(0~60) ℃	Soaking Solution	3M KCl
Shaft Material	PVC Plastic	Electrode Dimension	Electrode (Φ15×90) mm Measuring Tip (Φ6×25) mm
Membrane Shape	Conical		
Reference	Long Life	Connector	BNC+RCA
Junction	Ceramic+Single Pore	Cable	Φ3×1m

2. Usage and Maintenance

2.1 After long time exposure in air, Polymer electrolyte will cause shrinkage. It will not happen in measurement status. The electrode must be soaked in 3M KCl solution for storage.

2.2 The transparent polymer gel electrolyte will inflate and ooze out a bit when it's soaked in KCL solution. This will not affect the measurement of the electrode, and it will happen more frequently with newer electrodes. This is actually a "self-clean" function especially when the junction gets contaminated. Just wipe off the inflated gel with clean tissue and continue to use the electrode as normal.

2.3 The electrode's measuring tip should be soaked in the soaking bottle containing 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 and mildewed. The electrode should NEVER be soaked in purified water or buffer solutions for long.

2.4 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.

2.5 Spear pH Electrode is suitable for measure wet solid or semi-solid medium When piercing sample medium, do not use excessive force. If the sample medium is too hard (such as meat), please cut a small hole before piercing the electrode into it.

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

2. How to Test Soil pH Directly

a) If soil is dry, add small amount of distilled or RO water to moisten the soil (**do NOT add tap water since it will affect the pH value significantly**). Ideally wait 24 hours before you take a measurement.

b) Insert the pH connector (blue one) to the pH socket, and twist it clockwise to lock in; Insert the temperature connector to the temperature socket.

c) Rinse the probe with distilled water/RO water before inserting it to the soil.

d) If measuring outside of solution, rockwool or small pots, remove the top 5cm/2inch soil from the surface of the sample area. **Insert the probe approximately 4 to 6 inches (10 to 15cm) into the soil samples from various locations (3 to 4)**, wait for the stable readings before recording (smiley face icon stays on the screen).

e) Users can press the M+ button to save the stable readings on the meter. **Then take the average of the measured data as the representative pH level of the sample area.**

f) Do **NOT** use extra force to insert probe. If you feel like the probe can't be inserted any deeper, stop inserting. The spear tip could break.

g) Rinse off the soil residue between tests using distilled water for the best results. Use the probe cleaning brush in the case if needed.

h) Performing calibration of the meter at least every two weeks to ensure accuracy. Refer to section 3.2 for calibration process.

i) 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.

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

3. Limited 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:

Transportation, storage, improper use, failure to follow the product instructions or to perform any preventive maintenance, modifications, combination or use with any products, materials, processes, systems or other matter not provided or authorized in writing by us, unauthorized repair, normal wear and tear, or external causes such as accidents, abuse, or other actions or events beyond our reasonable control.

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