

LabSen[®] 213 Glass 3-in-1 pH Electrode User Manual

LabSen[®] electrochemical sensors are premium pH electrodes backed by proprietary sensor technologies and components from Switzerland. LabSen[®] 213 routine 3-in-1 pH electrode is suitable for routine lab use, integrates temperature sensor, especially suitable for high-precision pH measurement of scientific research and quality control.

Suitable Applications Table

	Ideal	Appropriate
Regular water solutions: hydroponics, pools and spas, environmental monitoring, aquaculture, aquariums, education, general purpose lab test, body fluid, etc.	X	
TRIS Buffer	X	
Drinking Water		X
Waste Water		X
Detergent		X
Liquid Soap		X
Beverage	X	
Wine	X	
Beer	X	
Salt Water	X	
High Temperature Solutions (up to 100°C)	X	

This probe has following features:

- Unique LabSen[®] Impact-resistant blue glass (see diagram-1), there is no danger of electrode breakage during normal use.
- Blue gel inner solution, does not flow and will not cause a bubble.
- Long life reference system, has better stability and service life.
- Fast heat conducting pH/Temp. combination structure (Swiss patented, Nr.699927), increase sensing speed by 40%, refer to diagram-2.

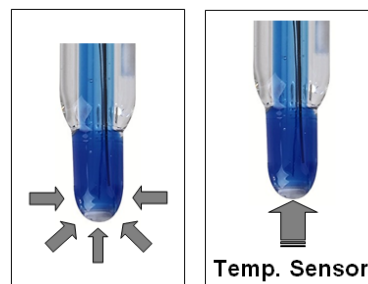


Diagram-1

Diagram-2

1. Technical Data

Measuring Range	(0-14) pH	Electrolyte	3M KCl
Temperature Range	(-5~100) °C	Soaking Solution	3M KCl
Shaft Material	Lead-free Glass	Temp. Probe	NTC 30kΩ
Membrane Shape	Cylindrical	Electrode Dimension	(Φ12×120) mm
Reference	Long Life	Connector	BNC/RCA
Junction	Ceramic	Cable	Φ5×1m

2. Use and Maintenance

- 2.1 Prior to measurement, remove the rubber plug to maintain pressure of the reference solution, keep consistent flow rate of reference solution and stable potentials of junction.
- 2.2 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 by using syringe or pipette.
- 2.3 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.
- 2.4 When not in use, the electrode 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 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 pure water or buffer solution for long.
- 2.5 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.
- 2.6 After 1-year of use, we recommend replace 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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