pH Electrodes with Temperature Sensor

Code	HI1610D	HI1611D	HI1612D
Description	pH electrode	pH electrode	pH electrode
Reference	single, Ag/AgCl	single, Ag/AgCl	single, Ag/AgCl
Junction / Flow Rate	ceramic, single / 15-20 µL/h	ceramic, single	ceramic, triple / 40-50 µL/h
Electrolyte	KCl 3.5M + AgCl	gel	KCl 3.5M + AgCl
Max Pressure	0.1 bar	2 bar	0.1 bar
Range	pH: 0 to 13	pH: 0 to 14	pH: 0 to 12
Recommended Operating Temp.	0 to 70°C (32 to 158°F)	0 to 70°C (32 to 158°F)	-5 to 70°C (23 to 158°F)
Glass Type	GP (general purpose)	HT (high temperature)	LT (low temperature)
Tip /Shape	spheric (dia: 9.5 mm)	spheric (dia: 9.5 mm)	conic (12 x 12 mm)
Temperature Sensor	yes	yes	yes
Amplifier	yes	yes	yes
Body Material	glass	glass	glass
Cable	5-pole; 1 m (3.3')	5-pole; 1 m (3.3')	5-pole; 1 m (3.3')
Recommended Use	laboratory general use	continuous monitoring	emulsions, semi-solid samples
Connection	**HI1610D** DIN*	**HI1611D** DIN*	**HI1612D** DIN*
	* Recommended for use with HI8314 pH meter	* Recommended for use with HI8314 pH meter	* Recommended for use with HI8314 pH meter

Tips for the Most Accurate Measurements

Keep Electrode Hydrated

Ideally, pH electrodes should be kept in a storage solution when not in use. Placing the electrode in a small glass filled with storage solution is suitable. An option for pocket meters is to place a small piece of sponge into the meter's cap and pour storage solution into the cap to wet the sponge. Pouring off any excess solution beforehand, the cap can then be placed on the meter.

If a storage solution is not available the next best option is to use pH 4.01 buffer (pH 7.01 is also suitable to a lesser extent).

Clean Electrodes Before Use

Clean the junction of your electrodes once a day or at least once a week to prevent junction clogging and to maintain accuracy. Immerse the electrode in the proper cleaning solution for at least 15 to 20 minutes. Hanna offers a wide range of cleaning solutions for general purpose and specific applications.

Replace Electrodes Once a Year

If your electrode takes too long to stabilize a reading, or readings fluctuate wildly, it is most likely time to replace the electrode. The typical life span of any pH electrode is from 6 months to 1.5 years.

Additional Tips

- Calibration and storage solutions should be changed regularly (i.e. monthly).
- Calibrate the meter often if a high degree of accuracy is required.
- Remember that the calibration is as only as good the buffer being used (i.e. old or contaminated buffer may not have the same value on the label).
- Single-use calibration sachets, as opposed to bottles, ensure that your buffer solution is always fresh.
- If the meter takes an unusually long time to get a stable reading, the junction may be clogged.
- Rinse the probe with purified water after each use.