

## pH Electrode basics

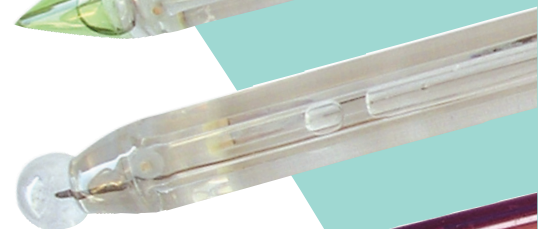
The pH electrode, due to the nature of its construction, needs to be kept moist at all times. In order to operate properly, glass needs to be hydrated. Hydration is required for the ion exchange process to occur. If an electrode should become dry, it is best to place it in some tap water for a half hour to condition the glass.

pH electrodes are like batteries; they run down with time and use. As an electrode ages, its glass changes resistance. This resistance change alters the electrode potential. For this reason, electrodes need to be calibrated on a regular basis. Calibration in pH buffer solution corrects for this change. Calibration of any pH equipment should always begin with buffer 7.0 as this is the "zero point." The pH scale has an equivalent mV scale. The mV scale ranges from +420 to -420 mV. At a pH of 7.0 the mV value is 0. Each pH change corresponds to a change of approx.  $\pm 60$  mV. As pH values become more acidic the mV values become greater. pH electrodes have junctions which allow the internal electrolyte solution of the measuring electrode to leak out into the solution being measured.

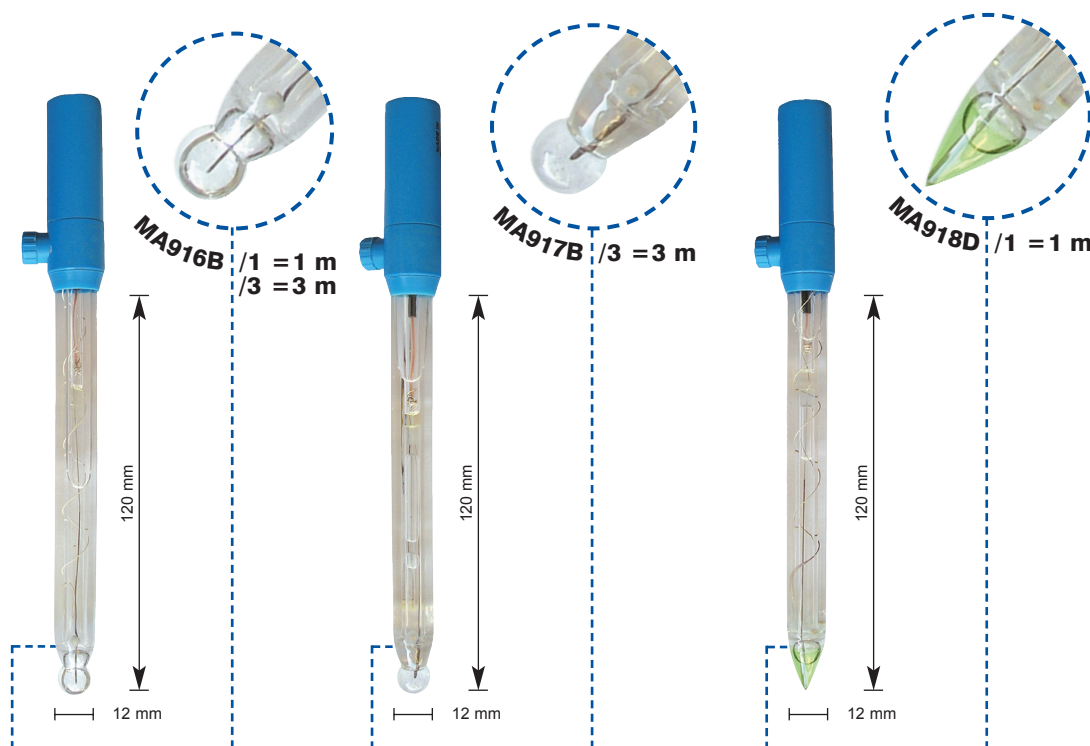
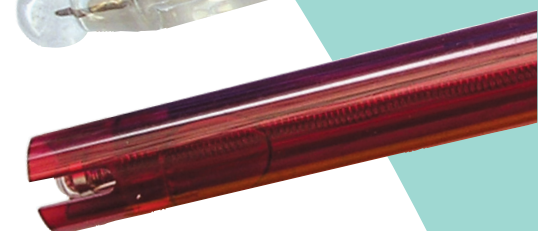
### Glass Conic Tip Sensor



### Glass Spheric Sensor



### Epoxy Electrode



Model	MA916B/1-MA916B/3	MA917B/1	MA918B/1
Measuring Range	0 to 13 pH	0 to 14 pH	0 to 12 pH
Temperature Range	-5 to 100°C (23 to 212°F)	0 to 100°C (32 to 212°F)	-5 to 100°C (23 to 212°F)
Shaft Material	glass	glass	glass
Reference Electrolyte	KCl 3.5M + AgCl	KCl 3.5M	KCl 3.5M + AgCl
Reference Junction	ceramic, single	ceramic, single	ceramic, triple
Reference Type	single, Ag/AgCl	double, Ag/AgCl	single, Ag/AgCl
Shape of membrane	spheric	spheric	conic
Max pressure	0.1 bar	0.1 bar	0.1 bar
Connector Type	BNC	BNC	BNC
Cable length	coaxial, 1 or 3 m	coaxial, 1 m	coaxial, 1 m
Shaft length	120 mm	120 mm	120 mm
Diameter	12 mm	12 mm	12 mm
Application	laboratory applications	laboratory applications	laboratory applications