



## ALPHA® Laboratory pH Electrodes Combination Electrodes, Sensing and Reference Half Cells



### Combination Electrodes

MOST POPULAR MODELS HIGHLIGHTED!

To Order (Specify Model Number)						
Model No. BNC	Model No. U.S. Std.	Applications/Features	Length mm (in)	Diameter mm (in)	pH Range	Temp. °C (°F)
PHE-2171	PHE-2171-U	Flat surface for measurement of meats or agar plates	110 (4.3)	12 (0.47)	0 to 12	0 to 100 (32 to 212)
PHE-2161	PHE-2161-U	Soil pH measurements, (directions included)	110 (4.3)	12 (0.47)	0 to 13	0 to 100 (32 to 212)
PHE-2191	PHE-2191-U	High junction flow rate for difficult samples (slurries, emulsions, high-purity water)	110 (4.3)	14 (0.55)	0 to 13	0 to 110 (32 to 230)
PHE-2791	PHE-2791-U	High junction flowrate with calomel reference	110 (4.3)	14 (0.55)	0 to 13	-5 to 60 (23 to 140)
PHE-2291	PHE-2291-U	High junction flowrate with double junction	110 (4.3)	14 (0.55)	0 to 13	0 to 110 (32 to 230)

### Sensing Electrodes

To Order (Specify Model Number)						
Model No. BNC	Model No. U.S. Std.	Applications/Features	Length mm (in)	Diameter mm (in)	pH Range	Temp. °C (°F)
PHE-3011	PHE-3011-U	Fast response (ideal for measurement at low temperatures)	150 (5.9)	12 (0.47)	0 to 14	0 to 100 (32 to 212)
PHE-3019	PHE-3019-U	High pH measurement	150 (5.9)	12 (0.47)	0 to 14	0 to 100 (32 to 212)

### Reference Half Cells

To Order (Specify Model Number)					
Model No. BNC	Applications/Features	Length mm (in)	Diameter mm (in)	pH Range	Temp. °C (°F)
PHE-3711	Double junction reference half cell	150 (5.9)	12 (0.47)	–	0 to 100 (32 to 212)
PHE-3111	General purpose reference half cell	150 (5.9)	12 (0.47)	–	0 to 100 (32 to 212)
PHE-3211	Double junction reference half cell with 10% KNO <sup>3</sup> salt bridge	110 (4.3)	12 (0.47)	–	0 to 130 (32 to 266)
PHE-3217	PTFE double junction reference, for difficult or dirty solutions	127 (5.0)	12 (0.47)	–	0 to 100 (32 to 212)

Ordering Examples: PHE-2191, high junction flow rate electrode, \$103. PHE-3211, half cell, \$62.



PHE-3011, \$49

PHE-3211, \$62

PHE-3711, \$63

PHE-3111, \$53



### Accessory

Model No.	Price	Description
ES-2278	\$99.95	Reference Book: Statistics for Environmental Engineers

Reference Type	Liquid Junction	Body Material	Refillable or Gel	R @ 25°C (77°F) MΩ	Price
Ag/AgCl	Annular Ceramic	Glass	Refillable	300	\$103
Ag/AgCl	Annular Ceramic	Glass	Refillable	150	85
Ag/AgCl	Sleeve	Glass	Refillable	100	103
Calomel	Sleeve	Glass	Refillable	100	114
Ag/AgCl Double	Sleeve	Glass	Refillable	100	124

Reference Type	Liquid Junction	Body Material	Refillable or Gel	R @ 25°C (77°F) MΩ	Price
-	-	Glass	-	50	\$49
-	-	Glass	-	50	49

Reference Type	Liquid Junction	Body Material	Refillable or Gel	R @ 25°C (77°F) MΩ	Price
Ag/AgCl Double	Ceramic	Glass	Refillable	-	\$63
Ag/AgCl	Ceramic	Glass	Refillable	-	53
Ag/AgCl Double	Ceramic	Glass	Refillable	-	62
Ag/AgCl Double	PTFE	Epoxy	Refillable	-	105

All electrodes supplied with 1 m (3 ft.) of cable. Reference half cells have pin connectors. Comes with complete operator's manual.

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