

Introduction to Orion pH Electrodes

Thermo Electron offers the widest range of pH electrodes to meet the needs of any application. From critical measurements to simple checks, expect quality pH performance. Match any sample type with an Orion ROSS®, silver/silver chloride, or calomel internal reference. Exhibited by the many different shapes and sizes, Thermo Electron manufactures pH electrodes for almost any sample size and type.

Constructed in glass or epoxy bodies, our pH electrodes are ideal for the lab or field. With a variety of connections, use Orion pH electrodes on virtually any pH meter. The diversity of Orion pH electrodes allows you to choose the right electrode for any sample composition, volume, and temperature!

Orion No Cal® pH Electrodes

The world's first pH electrode that does not require calibration! The No Cal electrode will hold its calibration to ± 0.10 pH unit for one year, as long as the simple storage and care requirements are met. These electrodes utilize a unique reference system that allows for quick and accurate measurement of pH in the field. Just take it out of its storage chamber put it in your sample and measure.

Orion PerpHecT® Line

PerpHecT Electrodes, with either ROSS® or Ag/AgCl references, offer the most accurate pH measurements possible when used with PerpHecT pH meters containing our patented digital LogR™ technology. Only PerpHecT pH meters allow for direct temperature measurement and compensation from the pH electrode. Patented LogR technology makes it all possible; this system is based on using the electrical resistance of the glass-sensing bulb of the electrode as the temperature indicator.

Orion ROSS Ultra®/ ROSS® Line

The ROSS reference, a unique system developed by Thermo Electron, offers stable, fast results regardless of temperature or sample composition. The pH electrodes in the ROSS line contain the patented ROSS reference, giving you the best performance. The Best ...Just Got Better, ROSS Ultra line features greater stability, reliability, and renowned accuracy and temperature response plus a TWO year warranty. ROSS Sure-Flow® Electrodes have a unique reference junction that assures stable, drift-free potentials with an easy-to-clean design. See page 4 for the advantages of the Sure-Flow junction.

Orion AquaPro Professional Line

Thermo Electron's Orion AquaPro Professional line offers enhanced performance Ag/AgCl reference electrodes. The patented reference system and the double

junction design keep silver ions from contacting the sample. Improved electrode lifetime, low maintenance, fast response time and clean junctions are just some of the AquaPro benefits. Several styles make AquaPro electrodes the best choice for difficult applications.

Orion Specialty and ORP

New ORP Triode™ electrodes measure both oxidation-reduction potential and temperature with a single probe. These low maintenance and refillable versions offer accuracy and convenience in a rugged epoxy-bodied electrode.

Orion Standard Line

Silver/silver chloride (Ag/AgCl) references are widely used because of their accuracy and broad temperature range. Thermo Electron's Orion Standard Line offers a variety of electrodes for any application. Steam Sterilizable pH electrodes are also available in the Standard Line.

Orion Tris Calomel Line

Calomel, mercurous chloride, references are a value-priced alternative to ROSS for biotech samples, especially Tris buffers. The KNipHE® pH electrode simplifies pH measurements of meats using a unique spear-tip design with stainless steel blade.

Orion Double Junction Tris Line

Thermo Electron's new Double Junction electrode line features an isolated AG/AgCl reference system. They are offered as low maintenance gel electrodes or refillable. They offer an alternative to the hazardous calomel reference system.

Orion Economy Line

When price is a factor, try the Economy Line. Using sealed gel Ag/AgCl references, Economy Line pH electrodes require no filling solution for low maintenance. These pH electrodes are the ideal choice for student and rugged use.

Orion pHuture MMS™ Probes

Several Sure-Flow pHuture probes, designed for the pHuture MMS™ systems, allow fast, accurate multiple measurements from one probe.



Orion pH Electrodes



Orion No Cal pH Electrode



Orion ROSS Ultra Electrodes

Orion pH Electrode Specifications

Selecting the Correct Orion Electrode						
Required pH Precision	0.01	0.01	0.02	0.02	0.02	0.05 to 0.1
Sample Type or Condition	PerpHecT® Line	ROSS Ultra®/ROSS® Line	Standard Line	AquaPro/Tris Line/ Double Junction	Micro Line*	Economy Line
General Purpose Most sample types	82-02, 82-56, 82-72, 92-02, 92-06, 92-07, 92-56, 92-72	81-01/80-03, 81-01/80-05U, 81-01/80-05, 81-02, 81-02U, 81-04, 81-04U, 81-56, 81-56U, 81-72	91-01/90-01, 91-02, 91-04, 91-07, 91-09, 91-56, 91-57, 91-62, 91-65, 91-72	71-02, 91-02AP, 91-04AP, 91-56AP, 9120DJWP, 9107APMD, 9156DJWP		91-06
Biological/Pharmaceutical Proteins, Tris, Enzymes	82-02, 82-03, 82-72, 92-72	81-01/80-05, 81-01/80-05U, 81-02U, 81-03U, 81-65, 81-72	91-01/90-02, 91-65, 91-67, 91-72	71-02, 71-03, 71-10, All AquaPro, D/J Tris		
Education/Student Use	82-56, 92-06, 92-07, 92-56	98-30, 81-56/81-56U, 81-65	91-07, 91-09, 91-56, 91-57, 91-65	91-04AP, 91-56AP, 9107APMD, 9156DJWP		91-06
Emulsions Foods, Cosmetics, Oils	82-72, 92-72	81-01/80-03, 81-65, 81-72	91-61/90-01, 91-65, 91-72	All AquaPro, D/J Tris		
Petroleum Products, Paint	82-72, 92-72	81-01/80-03, 81-72	91-61/90-01, 91-72	91-04AP		
Extreme pH - pH > 12 or < 2	82-72, 92-72	81-01/80-03, 81-65, 81-72	91-01/90-01, 91-65, 91-72	91-02AP, 91-03AP, 91-04AP, 9102DJWP		
Acid/Fluoride			93-01/90-02			
Flat Surfaces - Foods, Cheese, Paper, Agar	82-35	81-35, 81-35U	91-67	91-35AP		91-36
Harsh Environments Field or Plant Use	82-56, 92-06, 92-07, 92-56	81-56, 81-56U, 81-65, 81-72	91-07, 91-09, 91-56, 91-65	91-04AP, 91-56AP, 9107APWP, 9156DJWP		91-06
Rugged Use	82-56, 92-06, 92-07, 92-56	81-01/80-03, 81-01/80-05, 81-01/80-05U, 81-04, 81-04U, 81-56, 81-56U, 81-65	91-61/90-01, 91-04, 91-07, 91-09, 91-56, 91-57, 91-62, 91-65	91-04AP, 91-15AP, 91-35AP, 91-56AP, 9107APWP, 9156DJWP		91-06
High Ionic Strength Acids, Bases, Brines	82-72, 92-72	81-01/80-03, 81-65, 81-72	91-01/90-02, 91-65, 91-72	All AquaPro		
Large Sample Sizes Tall Flasks or Bottles					98-26	91-26
Low Ionic Strength Treated Effluent	82-02, 82-72, 92-02, 92-72	81-01/80-03, 81-02, 81-02U, 81-62, 81-65, 81-72	91-01/90-01, 91-61/90-01, 91-02, 91-62, 91-65, 91-72	71-02, 9102DJWP	98-26	91-26
Non-Aqueous Solvents, Alcohols, etc.	82-72, 92-72	81-01/80-03, 81-65, 81-72	91-61/90-02, 91-72	91-04AP		
Semi-Solids - Fruit, Meat, Cheese	82-63	81-63	91-63	71-20, 91-35AP, 9120APWP		
Small Sample Sizes - Test Tubes, Small Flasks	82-03, 82-35, 92-03, 82-63	81-03, 81-03U, 81-15, 81-35, 81-35U, 81-63, 81-75	91-03, 91-67	71-10, 91-15AP, 91-35AP, 9110DJWP	98-02, 98-03, 98-10, 98-26	91-16, 91-26
NMR Tubes					98-26	
Micro-titer Plates			91-67		98-03	
Steam Sterilizable			91-90, 91-91, 91-92, 91-93, 91-94, 91-95			
Titration		81-01/80-03, 81-62, 81-66	91-64, 91-66			
Viscous - Slurries, Suspended Solids, Sludges	82-72, 92-72	81-01/80-03, 81-65, 81-72	91-61/90-01, 91-65, 91-72			
Waters - Acid Rain, Boiler Feed, Distilled, Rain, Well	82-02, 82-72, 92-02, 92-72	81-01/80-03, 81-02, 81-02U, 81-62, 81-65, 81-72	91-01/90-01, 91-02, 91-65, 91-72	71-02, All AquaPro, D/J Tris		
Drinking, Tap	82-02, 82-72, 82-56, 92-02, 92-06, 92-07, 92-72	81-02, 81-02U, 81-04, 81-04U, 81-65, 81-72	91-01/90-01, 91-02, 91-04, 91-07, 91-09, 91-57, 91-65, 91-72	71-02, All AquaPro, D/J Tris		91-06
Sea water	82-72, 92-72	81-01/80-03, 81-65, 81-72	91-02/90-02, 91-65, 91-72	All AquaPro		
Wastewater	82-72, 92-07, 92-72	81-01/80-03, 81-65, 81-72	91-61/90-01, 91-07, 91-09, 91-57, 91-62, 91-65, 91-72	All AquaPro		91-06

For more information, please contact us:

ExpotechUSA

10700 Rockley Road

Houston, TX -77099

USA

Phone: 281.496.0900

Fax: 281-496-0400

E-mail: sales@ExpotechUSA.com

Website: www.ExpotechUSA.com