

Thermo Scientific Orion Ion Selective Electrode Selection Guide

	Species	Cat. No.	Construction	Measurement Range	Optimum Temperature Range	Required Reference Electrode	Reference Filling Solution	Calibration Standards	Required ISA
	Ammonia standard (NH ₃)	9512BNWP ¹ 951201 ³	Gas sensing combination	5 x 10 ⁻⁷ to 1.0 M 0.01 to 17,000 ppm	0 to 50 °C	Included	951202	0.1 M NH ₄ Cl / 951006	951211 
	Ammonia high performance	9512HPBNWP ¹ 9512HP01 ³	Gas sensing combination	5 x 10 ⁻⁷ to 1.0 M 0.01 to 17,000 ppm	0 to 50 °C	Included	951209	0.1 M NH ₄ Cl / 951006	951011 
	Ammonium (NH₄⁺)	931801 ⁸	Plastic membrane half-cell	5 x 10 ⁻⁷ to 1.0 M 0.01 to 17,000 ppm	0 to 50 °C	900200	900002 inner / 900018 outer	1000 ppm as N / 951007	—
	Bromide (Br⁻) ionplus Design	9635BNWP ¹	ionplus Sure-Flow solid state combination	5 x 10 ⁻⁶ to 1.0 M 0.40 to 79,900 ppm	0 to 80 °C	Included	900063	0.1 M NaBr / 943506	940011
	Bromide (Br⁻)	9435BN ² 9435SC ⁴	Solid state half-cell	5 x 10 ⁻⁶ to 1.0 M 0.40 to 79,900 ppm	0 to 80 °C	900200	900002 inner / 900003 outer	0.1 M NaBr / 943506	940011
	Cadmium (Cd²⁺) ionplus Design	9648BNWP ¹	ionplus Sure-Flow solid state combination	1 x 10 ⁻⁷ to 0.1 M 0.01 to 11,200 ppm	0 to 80 °C	Included	900061	Consult user guide	940011
	Cadmium (Cd²⁺)	9448BN ² 9448SC ⁴	Solid state half-cell	1 x 10 ⁻⁷ to 0.1 M 0.01 to 11,200 ppm	0 to 80 °C	900200	900002 inner / 900003 outer	Consult user guide	940011
	Calcium (Ca²⁺) ionplus Design	9720BNWP ¹	ionplus Sure-Flow plastic membrane combination	5 x 10 ⁻⁷ to 1.0 M 0.02 to 40,100 ppm	0 to 40 °C	Included	900061	0.1 M CaCl ₂ / 922006 100 ppm CaCO ₃ / 923206	932011
	Calcium (Ca²⁺)	9320BN ²	Plastic membrane half-cell	5 x 10 ⁻⁷ to 1.0 M 0.02 to 40,100 ppm	0 to 40 °C	900100	900011	0.1 M CaCl ₂ / 922006 100 ppm CaCO ₃ / 923206	932011
	Carbon Dioxide (CO₂)	9502BNWP ¹	Gas sensing combination	1 x 10 ⁻⁴ to 1 x 10 ⁻² M 4.4 to 440 ppm	0 to 50 °C	Included	950202	0.1 M NaHCO ₃ / 950206 1000 ppm as CaCO ₃ / 950207	950210
	Chloride (Cl⁻) ionplus Design	9617BNWP ¹	ionplus Sure-Flow solid state combination	5 x 10 ⁻⁵ to 1.0 M 1.8 to 35,500 ppm	0 to 80 °C	Included	900062	0.1 M NaCl / 941706 100 ppm Cl ⁻ / 941707 1000 ppm Cl ⁻ / 941708	940011 or 941709 / CISA 
	Chloride (Cl⁻)	9417BN ² 9417SC ⁴	Solid state half-cell	5 x 10 ⁻⁵ to 1.0 M 1.8 to 35,500 ppm	0 to 80 °C	900200	900002 inner / 900003 outer	0.1 M NaCl / 941706 100 ppm Cl ⁻ / 941707 1000 ppm Cl ⁻ / 941708	940011 or 941709 / CISA 
	Chloride (Cl⁻)	931701 ⁸	Plastic membrane half-cell	5 x 10 ⁻⁶ to 1.0 M 0.18 to 35,500 ppm	0 to 50 °C	900200	900002 inner / 0.1 M KCl outer	0.1 M NaCl / 941706 100 ppm Cl ⁻ / 941707 1000 ppm Cl ⁻ / 941708	None required
	Chlorine (Cl₂)	9770BNWP ¹ 9770SC ⁴	Solid state combination	1 x 10 ⁻⁷ to 3 x 10 ⁻⁴ M 0.01 to 20 ppm	0 to 50 °C	Included	None required	100 ppm as Cl ₂ / 977007	977010 / iodide reagent 977011 / acid reagent 
	Cupric (Cu²⁺) ionplus Design	9629BNWP ¹	ionplus Sure-Flow solid state combination	1 x 10 ⁻⁸ to 0.1 M 6.4 x 10 ⁻⁴ to 6350 ppm	0 to 80 °C	Included	900063	0.1 M Cu(NO ₃) ₂ / 942906	940011
	Cupric (Cu²⁺)	9429BN ² 9429SC ⁴	Solid state half-cell	1 x 10 ⁻⁸ to 0.1 M 6.4 x 10 ⁻⁴ to 6350 ppm	0 to 80 °C	900200	900002 inner / 900003 outer	0.1 M Cu(NO ₃) ₂ / 942906	940011
	Cyanide (CN⁻) ionplus Design	9606BNWP ¹	ionplus Sure-Flow solid state combination	8 x 10 ⁻⁶ to 1 x 10 ⁻² M 0.2 to 260 ppm	0 to 80 °C	Included	900062	Consult user guide	951011 
	Cyanide (CN⁻)	9406BN ² 9406SC ⁴	Solid state half-cell	8 x 10 ⁻⁶ to 1 x 10 ⁻² M 0.2 to 260 ppm	0 to 80 °C	900200	900002 inner / 900003 outer	Consult user guide	951011 
	Fluoride (F⁻) ionplus Design	9609BNWP ¹ 960900 ³	ionplus Sure-Flow solid state combination	1 x 10 ⁻⁶ M to saturated 0.02 ppm to saturated	0 to 80 °C	Included	900061	0.1 M NaF / 940906 100 ppm F ⁻ / 940907 1 ppm F ⁻ w/TISAB II / 040906 2 ppm F ⁻ w/TISAB II / 040907 10 ppm F ⁻ w/TISAB II / 040908	940909 / TISAB II 940911 / TISAB III
	Fluoride (F⁻)	9409BN ² 940900 ³ 9409SC ⁴	Solid state half-cell	1 x 10 ⁻⁶ M to saturated 0.02 ppm to saturated	0 to 80 °C	900100	900001	0.1 M NaF / 940906 100 ppm F ⁻ / 940907 1 ppm F ⁻ w/TISAB II / 040906 2 ppm F ⁻ w/TISAB II / 040907 10 ppm F ⁻ w/TISAB II / 040908	940909 / TISAB II 940911 / TISAB III
	Fluoroborate (BF₄⁻)	9305BN ²	Plastic membrane half-cell	7 x 10 ⁻⁶ to 1.0 M 0.6 to 86,800 ppm	0 to 40 °C	900200	900002 inner / dilute ISA outer	Consult user guide	930711

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	Iodide (I⁻) ionplus Design	9653BNWP ¹	ionplus® Sure-Flow® solid state combination	5 x 10 ⁻⁸ to 1.0 M 5 x 10 ⁻³ to 127,000 ppm	0 to 80 °C	Included	900063	0.1 M NaI / 945306	940011
	Iodide (I⁻)	9453BN ² 9453SC ⁴	Solid state half-cell	5 x 10 ⁻⁸ to 1.0 M 5 x 10 ⁻³ to 127,000 ppm	0 to 80 °C	900200	900002 inner / 900003 outer	0.1 M Na / 945306	940011
	Lead (Pb²⁺) ionplus Design	9682BNWP ¹	ionplus Sure-Flow solid state combination	1 x 10 ⁻⁶ to 0.1 M 0.2 to 20,700 ppm	0 to 80 °C	Included	900062	0.1 M Pb(ClO ₄) ₂ / 948206 0.1 M Na ₂ SO ₄ / 948207	Consult instruction manual
	Lead (Pb²⁺)	9482BN ² 9482SC ⁴	Solid state half-cell	1 x 10 ⁻⁶ to 0.1 M 0.2 to 20,700 ppm	0 to 80 °C	900200	900002 inner / 900003 outer	0.1 M Pb(ClO ₄) ₂ / 948206 0.1 M Na ₂ SO ₄ / 948207	Consult instruction manual
	Nitrate (NO₃⁻) ionplus Design	9707BNWP ¹	ionplus Sure-Flow plastic membrane combination	7 x 10 ⁻⁶ to 1.0 M 0.1 to 14,000 ppm as N	0 to 40 °C	Included	900046	0.1 M NaNO ₃ / 920706 1000 ppm N / 920707 100 ppm N / 930707	930711 or 930710 / nitrate ISS
	Nitrate (NO₃⁻)	9307BNWP ¹	Plastic membrane half-cell	7 x 10 ⁻⁶ to 1.0 M 0.1 to 14,000 ppm as N	0 to 40 °C	900200	900002 inner / 900046 or ISA outer	0.1 M NaNO ₃ / 920706 1000 ppm N / 920707 100 ppm N / 930707	930711 or 930710 / nitrate ISS
	Nitrogen Oxide (NO_x)	9546BN ²	Gas sensing combination	4 x 10 ⁻⁶ to 5 x 10 ⁻³ M 0.18 to 230 ppm	0 to 50 °C	Included	954602	0.1 M NaNO ₂ / 954606	956410 
	Perchlorate (ClO₄⁻)	938101 ⁸	Plastic membrane half-cell	7 x 10 ⁻⁶ to 1.0 M 0.7 to 99,500 ppm	0 to 40 °C	900200	900002 inner / dilute ISA outer	Consult user guide	930711
	Potassium (K⁺) ionplus Design	9719BNWP ¹	ionplus Sure-Flow plastic membrane combination	1 x 10 ⁻⁶ to 1.0 M 0.04 to 39,000 ppm	0 to 40 °C	Included	900065	0.1 M KCl / 921906	931911
	Potassium (K⁺)	9319BN ²	Plastic membrane half-cell	1 x 10 ⁻⁶ to 1.0 M 0.04 to 39,000 ppm	0 to 40 °C	900200	900002 inner / dilute ISA outer	0.1 M KCl / 921906	931911
	Silver/Sulfide (Ag⁺/S²⁻) ionplus Design	9616BNWP ¹	ionplus Sure-Flow solid state combination	1 x 10 ⁻⁷ to 1.0 M 0.01 to 107,900 ppm as Ag ⁺ 0.003 to 32,100 ppm as S ²⁻	0 to 80 °C	Included	900062 for Ag ⁺ /S ²⁻ 900067 for Ag ⁺ 900061 for S ²⁻	Consult user guide	940011 for Ag ⁺ 941609 for S ²⁻ 
	Silver/Sulfide (Ag⁺/S²⁻)	9416BN ² 9416SC ⁴	Solid state half-cell	1 x 10 ⁻⁷ to 1.0 M 0.01 to 107,900 ppm as Ag ⁺ 0.003 to 32,100 ppm as S ²⁻	0 to 80 °C	900200	900002 inner / 900003 outer	Consult user guide	940011 for Ag ⁺ 941609 for S ²⁻ 
	Sodium (Na⁺)	8611BNWP ¹	ROSS® Sure-Flow combination	1 x 10 ⁻⁶ M to saturated 0.02 ppm to saturated	0 to 100 °C	Included	900010 or 900012 for low level Na ⁺	10 ppm Na ⁺ / 941105 100 ppm Na ⁺ / 941107 1000 ppm Na ⁺ / 841108 KA standard kit, 1 M NaCl with ISA / 650700 0.1 M NaCl / 941706	841111 841113 / reconditioning solution
	Sodium (Na⁺)	8411BN ²	ROSS half-cell	1 x 10 ⁻⁶ M to saturated 0.02 ppm to saturated	0 to 100 °C	800300 or 800500U	900010 or 900012 for low level Na ⁺	10 ppm Na ⁺ / 941105 100 ppm Na ⁺ / 941107 1000 ppm Na ⁺ / 841108 KA standard kit, 1 M NaCl with ISA / 650700 0.1 M NaCl / 941706	841111 841113 / reconditioning solution
	Sodium (Na⁺)	9811BN ²	Micro combination	1 x 10 ⁻⁶ M to saturated 0.02 ppm to saturated	0 to 80 °C	Included	900004	0.1 M NaCl / 941706	841111
	Surfactant	9342BN ²	Plastic membrane half-cell	Endpoint indicator	0 to 40 °C	900200	900002 inner / 810007 outer	0.5 M Hyamine titrant / 654201	654203 / sample additive
	Thiocyanate (SCN⁻)	9458BN ²	Solid state half-cell	5 x 10 ⁻⁶ to 1.0 M 0.29 to 58,100 ppm	0 to 50 °C	900200	900002 inner / 900003 outer	Consult user guide	940011
	Water Hardness (X²⁺)	9332BNWP ¹	Plastic membrane half-cell	6 x 10 ⁻⁶ to 1.0 M	0 to 50 °C	900100	900011	100 ppm CaCO ₃ / 923206 0.1 M CaCl ₂ / 922006	None required

 Compliant with EPA testing method

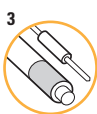
 Signifies a hazardous solution. See terms and conditions for important shipping information at www.thermo.com/water.



BNC



BNC connector



US Standard



Screw Cap

Key Information

1). BNC Waterproof connector **2).** BNC connector **3).** US Standard connector
4). Screw Cap connector, requires separate cable **8).** Module only, requires separate
 93 Series electrode handle (9300BNWP, 930000, or 9300SC)
All cap diameters are 16 mm at bottom of cap. **All** cable lengths are 1 meter.