

Ion Selective Electrodes

Ammonia · Bromide · Cadmium



Parameter	Ammonia	Bromide	Cadmium		
Code	HI4101	HI4002	HI4102	HI4003	HI4103
Type	gas-sensing; combination	solid state; half-cell	solid state; combination	solid state; half-cell	solid state; combination
Measurement Range	1M to $1 \cdot 10^{-6}$ M 17000 to 0.02 mg/L (ppm) 14000 to 0.016 mg/L as N	1M to $1 \cdot 10^{-6}$ M 79910 to 0.08 mg/L (ppm)		0.1M to $1 \cdot 10^{-7}$ M 11200 to 0.01 mg/L (ppm)	
Optimum pH Range	>11	2 to 12.5	2 to 12.5	2 to 12	2 to 12
Temperature Range	0 to 40°C	0 to 80°C	0 to 80°C	0 to 80°C	0 to 80°C
Approximate Slope	-56	-56	-56	+28	+28
Body O.D.	12 mm	12 mm	12 mm	12 mm	12 mm
Insertion Length	120 mm	120 mm	120 mm	120 mm	120 mm
Body Material	Delrin®	epoxy	PEI	epoxy	PEI
Cable	1 m coaxial	1 m coaxial	1 m coaxial	1 m coaxial	1 m coaxial
Possible Applications	determination of ammonium, ammonia in wine, beer, water, waste water and soil	plants, soils, and as an indicator for titration		electroplating, battery construction, laboratory and as an indicator for titrations	
Connection	BNC	BNC	BNC	BNC	BNC

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Ion Selective Electrodes

Calcium · Carbon Dioxide · Chloride



Parameter	Calcium		Carbon Dioxide	Chloride	
Code	HI4004	HI4104	HI4105	HI4007	HI4107
Type	polymer membrane; half cell	polymer membrane; combination	gas-sensing; combination	solid state; half-cell	solid state; combination
Measurement Range	1M to 3·10 ⁻⁶ M 40080 to 0.12 mg/L (ppm)		1·10 ⁻² M to 1·10 ⁻⁴ M 440 to 4.4 mg/L (ppm)	1M to 5·10 ⁻⁵ M 35500 to 1.8 mg/L (ppm)	
Optimum pH Range	4 to 10	4 to 10	4.2 to 5.2	2 to 11	2 to 11
Temperature Range	0 to 40°C	0 to 40°C	0 to 40°C	0 to 80°C	0 to 80°C
Approximate Slope	+28	+28	+54	-56	-56
Body O.D.	12 mm	12 mm	12 mm	12 mm	12 mm
Insertion Length	120 mm	120 mm	120 mm	120 mm	120 mm
Body Material	epoxy/PVC	PEI/PVC	Delrin®	epoxy	PEI
Cable	1 m coaxial	1 m coaxial	1 m coaxial	1 m coaxial	1 m coaxial
Possible Applications	determination of free calcium in beverages, water, and seawater		determination of carbonates as CO ₂ in water, soft drinks and wine samples	determination of free chloride ions in emulsified food products, beverages, plants, soils and as an indicator for titration	
Connection	BNC	BNC	BNC	BNC	BNC

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Ion Selective Electrodes

Cupric · Cyanide



Parameter	Cupric		Cyanide	
Code	HI4008	HI4108	HI4009	HI4109
Type	solid state; half-cell	solid state; combination	solid-state; half-cell	solid state; combination
Measurement Range	0.1M to $1 \cdot 10^{-6}$ M 6355 to 0.06 mg/L (ppm)		0.01M to $1 \cdot 10^{-6}$ M 260 to 0.02 mg/L (ppm)	
Optimum pH Range	3 to 7		>11	>11
Temperature Range	0 to 80°C		0 to 80°C	0 to 80°C
Approximate Slope	+27		-56	-56
Body O.D.	12 mm		12 mm	12 mm
Insertion Length	120 mm		120 mm	120 mm
Body Material	epoxy		epoxy	PEI
Cable	1 m coaxial		1 m coaxial	1 m coaxial
Possible Applications	used as an indicator for titrations using chelates		determination of free cyanide ions in plating baths, waste water and in plant and soil samples	
Connection	BNC		BNC	BNC

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Ion Selective Electrodes

Fluoride · Iodide



Parameter	Fluoride			Iodide	
Code	HI4010	HI4110	FC301B	HI4011	HI4111
Type	solid state; half-cell	solid state; combination	solid state; half-cell	solid state; half-cell	solid state; combination
Measurement Range	1M to 1·10 ⁻⁶ M Sat. to 0.02 mg/L (ppm)			1M to 1·10 ⁻⁷ M 127000 to 0.01 mg/L (ppm)	
Optimum pH Range	5 to 8	5 to 8	5 to 8	2 to 13	2 to 13
Temperature Range	0 to 80°C	0 to 80°C	0 to 80°C	0 to 80°C	0 to 80°C
Approximate Slope	-56	-56	-56	-56	-56
Body O.D.	12 mm	12 mm	12 mm	12 mm	12 mm
Insertion Length	120 mm	120 mm	120 mm	120 mm	120 mm
Body Material	epoxy	PEI/epoxy	epoxy	epoxy	PEI
Cable	1 m coaxial	1 m coaxial	1 m coaxial	1 m coaxial	1 m coaxial
Possible Applications	determination of free fluoride in potable water, soft drinks, wine, plants, emulsified food products, plating and pickling acids			determination of free iodide ions in emulsified food samples (iodized table salt), plants and for titration	
Connection	BNC	BNC	BNC	BNC	BNC

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HI4012 · HI4112 · HI4013 · HI4113 · HI4014 · HI4114

Ion Selective Electrodes

Lead/Sulfate · Nitrate · Potassium



Parameter	Lead/Sulfate		Nitrate		Potassium	
Code	HI4012	HI4112	HI4013	HI4113	HI4014	HI4114
Type	solid-state; half cell	solid-state; combination	polymer membrane; half cell	polymer membrane; combination	polymer membrane; half cell	polymer membrane; combination
Measurement Range	0.1M to $1 \cdot 10^{-6}$ M 20700 to 0.21 mg/L (ppm)		1.0M to $1 \cdot 10^{-5}$ M 6200 to 0.62 mg/L (ppm) 1400 to 0.4 mg/L (ppm) as N		1.0M to $1 \cdot 10^{-6}$ M 39100 to 0.039 mg/L (ppm)	
Optimum pH Range	4 to 7	4 to 7	3.0 to 8	3.0 to 8	1.5 to 12.0	1.5 to 12.0
Temperature Range	0 to 80°C	0 to 80°C	0 to 40°C	0 to 40°C	0 to 40°C	0 to 40°C
Approximate Slope	+27	+27	-56	-56	+56	+56
Body O.D.	12 mm	12 mm	12 mm	12 mm	12 mm	12 mm
Insertion Length	120 mm	120 mm	120 mm	120 mm	120 mm	120 mm
Body Material	epoxy	PEI	epoxy/PVC	PEI/PVC	epoxy/PVC	PEI/PVC
Cable	1 m coaxial	1 m coaxial	1 m coaxial	1 m coaxial	1 m coaxial	1 m coaxial
Possible Applications	determination of lead ions in plating baths and as an indicator for titrations		determination of free nitrate in natural waters (fresh and sea), and in emulsified food and plant samples		determination of potassium ions in wine, waters, soils and biological samples	
Connection	BNC	BNC	BNC	BNC	BNC	BNC

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Ion Selective Electrodes

Silver/Sulfide · Sodium · Reference



Parameter	Silver/Sulfide		Sodium	Reference
Code	HI4015	HI4115	FC300B	HI5315
Type	solid state; half-cell	solid state; combination	glass combination	N/A
Measurement Range	1.0M to $1 \cdot 10^{-6}$ M 107900 to 0.11ppm (Ag ⁺) 1.0M to $1 \cdot 10^{-7}$ M 32100 to 0.003 ppm (S ²⁻)	Ag ⁺ 1.0M to $1 \cdot 10^{-6}$ M 107900 to 0.11ppm S ²⁻ 1.0M to $1 \cdot 10^{-7}$ M 32100 to 0.003 ppm	1M to $1 \cdot 10^{-5}$ M 22990 to 0.23 ppm	N/A
Optimum pH Range	2 to 8 (Ag ⁺) 12 to 14 (S ²⁻)	Ag ⁺ 2 to 8 S ²⁻ 12 to 14	9.75 to 14 pH	N/A
Temperature Range	0 to 80°C	0 to 80°C	0 to 80°C	0 to 85°C
Approximate Slope	+56 (Ag ⁺) / -28 (S ²⁻)	+56 Ag ⁺ / -28 S ²⁻	+57	N/A
Body O.D.	12 mm	12 mm	12 mm	12 mm
Insertion Length	120 mm	120 mm	120 mm	120 mm
Body Material	epoxy	PEI	glass	PEI
Cable	1 m coaxial	1 m coaxial	1 m coaxial	1 m coaxial
Possible Applications	used as an indicator for titrations using silver nitrate; for the determination of sulfide ions in waters, paper liquors, natural waters and soils.		water, soil, food products, soup, dairy, brines, soft drinks, beer, wine and laboratory	used to complete electrical circuit and to provide stable reference voltage for ISE half-cells
Connection	BNC	BNC	BNC	BNC

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