

Sr.No.	Description	Qty. Required
1.	<u>Ion Selective Electrode Meter (as per attached specifications)</u> With temperature (pt 100/1000), ORP and pH sensor including Combined platinum electrode	01 No.
2.	ISE Combination Solid state Electrodes (compatible with measuring system) i. Ammonia (17000 to 0.02 ppm) ii. Bromide (78000 to 0.08 ppm) iii. Carbon Dioxide (400 to 1 ppm) iv. Oxygen (15000 to 1.5 ppm) v. Cyanide(250 to 0.02 ppm) vi. Fluoride (Sat. to 0.02 ppm) vii. Iodide( 125000 to 0.01 ppm) viii. Sulfate( 20700 to 0.2 ppm) ix. Sulfide(32000 to 0.003 ppm) x. Sulfite (30000 to 0.03 ppm) xi. Nitrite(6000 to 0.5 ppm ) xii. Nitrate(6000 to 0.5 ppm) xiii. Phosphate ( 20000 to 0.5 ppm) xiv. Chloride(35000 to 1.8 ppm)	01 No. 01 No. 01 No. 01 No. 01 No. 01 No. 01 No. 01 No. 01 No. 01 No. 01 No. 01 No. 01 No.
3.	ISE standard for all Electrodes: 500 mL x2	01 for each electrode
4.	Gas sensors fill solution: 30mLx10	01 No. for each electrode
5.	Include: Specific "Solutions" for ISE Sensors, Ionic strength Adjusters, reference fill solutions etc.	
6.	Reference chart and other required supportive solutions  Spares and accessories for 5 year smooth operation  Make: USA, UK, Europe, Japan <i>or Equivalent</i>	

Specifications**Ion selective electrode meter**

Model: HI 4222 pH/ISE Bench Meter HANNA or Equivalent

**pH**

Range -2.00 to 20.00; -2.000 to 20.000 pH  
 Resolution 0.1 pH; 0.01 pH; 0.001 pH  
 Accuracy  $\pm 0.1$  pH;  $\pm 0.01$  pH;  $\pm 0.002$  pH

**mV**

Range  $\pm 2000$  mV  
 Resolution 0.1 mV  
 Accuracy  $\pm 0.2$  mV

**ISE**

Range  $1 \times 10^7$  to  $9.99 \times 10^{10}$  concentration (choice of units)  
 Resolution 1; 0.1; 0.01; 0.001 concentration  
 Accuracy  $\pm 0.5\%$  (monovalent ions);  $\pm 1\%$  (divalent ions)

**Temperature**

Range -20.0 to 120.0°C; -4.0 to 248.0°F; 253.15 to 393.15K  
 Resolution 0.1°C; 0.1°F; 0.1K  
 Accuracy  $\pm 0.2^\circ\text{C}$ ;  $\pm 0.4^\circ\text{F}$ ;  $\pm 0.2\text{K}$

Relative mV Offset Range:  $\pm 2000$  mV

Input Channels: 2

**Calibration Check**

Status of electrode condition and response time;  
 Status of the buffer solutions during calibration

**pH Calibration**

Automatic, up to 5 points with 8 standard buffers (pH 1.68, 3.00, 4.01, 6.86, 7.01, 9.18, 10.01, 12.45) + 5 custom buffers

**ISE Calibration**

Automatic, up to 5 points with 5 fixed standard solutions available for each measurement unit + 5 custom solutions

Temperature Compensation: Automatic or manual from -20.0 to 120.0°C (-4 to 248°F)

pH electrode: Included

Temperature probe: stainless steel probe

Log-on-demand: 100 lots, 5000 samples per lot

Logging Intervals: 1, 2, 5, 10, 30 seconds

PC Connection: Opto-isolated USB and RS232

Display: LCD

Menu Languages English

Input impedance  $10^{12}$  ohm

Power: 12 VDC adapter for 220 V (included)

Environment: 0 to 50°C (32 to 122°F) 95% RH