

HI 4521 • HI 4522

Research Grade Meters with Calibration Check™ and USP pH/ORP/ISE and EC/TDS/Resistivity/Salinity and Temperature

- Up to eight measurement parameters
- Two input channels
pH/ORP/ISE and EC/TDS/Resistivity/Salinity
- pH Calibration Check™
- Five point pH and ISE calibration with standard and custom buffers
- USP 645 method, ISE incremental methods and salinity scales
- Fully customizable
- Large log memory with different logging methods



HI 4521 and HI 4522 are research grade, benchtop instruments that feature 8 measurement ranges: pH, ORP (Oxidation Reduction Potential), ISE (HI 4522 only), conductivity, resistivity, TDS, salinity and temperature. These instruments incorporate dual channels with a separate temperature input and support the external reference electrodes required by half cell pH and ISE sensors.

The user interface is customizable and capable of displaying two channels at the same time, showing the measurements in various modes: basic measurement with or without GLP information, graph or logging data.

These instruments offer multi-language support and contextual help is available through a dedicated Help key. Clear tutorial messages and directions are available on-screen to quickly and easily guide users through all measurement and calibration procedures to ensure measurements and calibrations are performed properly.

HANNA's pH Calibration Check™ diagnostics system ensures accurate readings every time by alerting users of potential problems during the calibration process. The Calibration Check™ system eliminates erroneous readings due to dirty or faulty pH electrodes or contaminated pH buffer solutions. After the guided calibration process, electrode condition is evaluated and an indicator is displayed informing the user of the overall pH electrode status.

Automatic, semiautomatic and manual pH calibration is available in up to five points, with eight standard (1.68, 3.00, 4.01, 6.86, 7.01, 9.18, 10.01 and 12.45) and up to five custom buffers. The Out of Calibration Range and Cal Due features alert the user in the event the measurement is far from the calibration point or when the meter is due for recalibration. Proper, scheduled calibrations are crucial for accurate and repeatable measurements.

HI 4522 features up to five point Manual Selection and Custom Standard ISE calibration with up to five standard solutions and up to five custom solutions with or without temperature compensation. From the on-screen list, users can select their ISE electrode parameter along with its standard configuration profile or create their own.

Up to a four point automatic or custom standard conductivity calibration can be performed in up to four points as well as probe cell constant. One fixed point salinity calibration can be performed on the Percent Scale only. Three salinity ranges are available: practical scale, natural sea water scale and percentage scale.

Up to ten profiles can be saved and recalled eliminating the need to reconfigure each time when a different probe is used. User definable configurations can include: temperature compensation in accordance with each parameter, isopotential points for pH and ISE, measurement units of ISE concentrations and ISE electrode type, temperature units, EC temperature reference, EC temperature coefficient, EC probe type, and cell constant.

Three selectable logging modes are available: Automatic, Manual and AutoHold logging. Up to 100 logging lots with up to 10,000 records each can be stored for automatic or manual modes along with up to 200 USP reports, and up to 100 ISE methods reports. Automatic logging features a selectable area and sampling period while GLP information includes complete data about user calibration of each parameter and identification information for the instrument, user, and company. Data can be transferred to a PC via the opto-isolated RS232 or USB ports and HI 92000 software (optional).

SPECIFICATIONS		HI 4521	HI 4522
pH	Range	-2.000 to 20.000 pH	
	Resolution	0.1 pH; 0.01 pH; 0.001 pH	
	Accuracy	±0.1 pH; ±0.01 pH; ±0.002 pH ±1 LSD	
mV	Range	±2000 mV	
	Resolution	0.1 mV	
	Accuracy	±0.2 mV ±1 LSD	
ISE	Range	-	1 x 10 ⁻⁶ to 9.99 x 10 ⁻³ concentration
	Resolution	-	1; 0.1; 0.01; 0.001 concentration
	Accuracy	-	±0.5% (monovalent ions); ±1% (divalent ions)
Conductivity	Range	0.000 to 9.999 µS/cm; 10.00 to 99.99 µS/cm; 100.0 to 999.9 µS/cm; 1.000 to 9.999 mS/cm; 10.00 to 99.99 mS/cm; 100.0 to 999.9 mS/cm; 1000 mS/cm	
	Resolution	0.001 µS/cm; 0.01 µS/cm; 0.1 µS/cm; 0.001 mS/cm; 0.01 mS/cm; 0.1 mS/cm	
	Accuracy	±1% of reading (±0.01 µS/cm)	
	Cell Constant	0.0500 to 200.00	
	Cell Type	2, 4 rings	
	Calibration Type	auto standard recognition, user standard single point / multi point calibration	
	Calibration Reminder	yes	
	Temperature Coefficient	0.00 to 10.00 %/°C	
	Reference Temperature	15.0 °C to 30.0°C	
	Profiles	up to 10	
	USP Compliant	yes	
Resistivity	Range	1.0 to 99.9 Ohms x cm; 100 to 999 Ohms x cm; 1.00 to 9.99 kOhms x cm; 10.0 to 99.9 kOhms x cm; 100 to 999 kOhms x cm; 1.00 to 9.99 MOhms x cm; 10.0 to 100.0 MOhms x cm	
	Resolution	0.1 Ohms x cm; 1 Ohms x cm; 0.01 kOhms x cm; 0.1 kOhms x cm; 1 kOhms x cm; 0.01 MOhms x cm; 0.1 MOhms x cm	
	Accuracy	±2% of reading (±1 Ohm x cm)	
TDS	Range	0.000 to 9.999 ppm; 10.00 to 99.99 ppm; 100.0 to 999.9 ppm; 1.000 to 9.999 ppt; 10.00 to 99.99 ppt; 100.0 to 400.0 ppt actual TDS (with 1.00 factor)	
	Resolution	0.001 ppm; 0.01 ppm; 0.1 ppm; 0.001 ppt; 0.01 ppt; 0.1 ppt	
	Accuracy	±1% of reading (±0.01 ppm)	
Salinity	Range	practical scale: 0.00 to 42.00 psu; natural sea water scale: 0.00 to 80.00 ppt; percent scale: 0.0 to 400.0%	
	Resolution	0.01 for practical scale/natural sea water scale; 0.1% for percent scale	
	Accuracy	±1% of reading	
Temperature	Range	-20.0 to 120°C; -4.0 to 248.0°F; 253.15 to 393.15K	
	Resolution	0.1°C; 0.1°F; 0.1K	
	Accuracy	±0.2°C; ±0.4°F; ±0.2K (without probe)	
Calibration	pH	automatic, up to five point calibration, eight standard buffers available (1.68, 3.00, 4.01, 6.86, 7.01, 9.18, 10.01, 12.45), and five custom buffers	
	ISE	-	automatic, up to five point calibration, 5 fixed standard solutions available for each measurement unit, and 5 user defined standards
	Conductivity	auto standard recognition, user standard single point/multi-point	
	Salinity	percent scale-1 point (with HI 7037 standard)	
pH Calibration Check™		yes	
Relative mV Offset Range		±2000 mV	
Input Channel(s)		1 pH/ORP + 1 EC	1 pH/ORP/ISE + 1 EC
GLP		cell constant, reference temperature/coefficient, calibration points, cal time stamp, probe offset for conductivity	
Temperature Compensation	pH	automatic or manual from -20.0 to 120.0°C/-4.0 to 248.0°F/253 to 393K	
	EC	disabled, linear and non-linear (natural water)	
pH Electrode		HI 1131B glass body pH electrode with BNC connector and 1 m (3.3') cable (included)	
EC Probe		HI 76312 platinum, 4-ring conductivity/TDS probe with internal temperature sensor and 1 m (3.3') cable (included)	
Temperature Probe		HI 7662-T stainless steel temperature probe with 1 m (3.3') cable (included)	
Logging	Record	100 lots with 10,000 record/lot	
	Interval Type	settable between 1 and max log time	
Replatinization		automatic, log on demand, auto HOLD	
Display		yes	
PC Connection		color graphic LCD with on-screen help, graphing, language selection and custom configuration	
Power Supply		USB and RS232	
Environment		12 VDC adapter (included)	
Dimensions / Weight		0-50°C (32 to 122°F) (273 to 323K) RH max 95% non-condensing	
		160 x 231 x 94 mm (6.3 x 9.1 x 3.7") / 1.2 Kg (2.64 lbs.)	

ORDERING INFORMATION

HI 4521-01 (115V), HI 4521-02 (230V), HI 4522-01 (115V) and HI 4522-02 (230V) are supplied with HI 76312 conductivity/TDS probe, HI 1131B pH electrode, HI 7662-T temperature probe, HI 70004 pH 4.01 buffer solution sachet, HI 70007 pH 7.01 buffer solution sachet, HI 700661 electrode cleaning solution sachet (2), HI 7071S electrolyte solution (30 mL), HI 76404N electrode holder, 12 VDC adapter and instructions.

SOLUTIONS

HI 6004 pH 4.010 buffer solution, 500 mL
 HI 6007 pH 7.010 buffer solution, 500 mL
 HI 6010 pH 10.010 buffer solution, 500 mL
 HI 7030L 12880 µS/cm cal. solution, 500 mL
 HI 7031L 1413 µS/cm calibration solution, 500 mL
 HI 7033L 84 µS/cm calibration solution, 500 mL
 HI 7034L 80000 µS/cm cal. solution, 500 mL
 HI 7035L 111800 µS/cm cal. solution, 500 mL

HI 7039L 5000 µS/cm cal. solution, 500 mL
 HI 7037L Salinity standard solution, 500 mL
 HI 7061L Electrode cleaning solution, 500 mL
 HI 70300L Electrode storage solution, 500 mL

ACCESSORIES

HI 92000 Windows® compatible software
 HI 920013 USB cable for PC connection

For a complete list of Solutions and Electrodes, see the end of pH Section 3, ISE Section 4 and Conductivity Section 6.