

HI 4221 • HI 4222

Research Grade Meters with Calibration Check™ pH/ORP/ISE and Temperature

- Two input channels (HI 4222)
pH/ORP/ISE and temperature
- pH Calibration Check™
- Five point pH and ISE calibration with standard and custom buffers
- ISE incremental methods
- User customizable interface for one (HI 4221) or two (HI 4222) channels
- Fully customizable
- Large log memory with different logging methods



HI 4221 and HI 4222 are research grade pH, ORP and temperature benchtop meters. HI 4222 also incorporates ISE measurements and dual channels with a separate temperature input and support the external reference electrodes required by half cell pH and ISE sensors.

The user interface of both instruments are customizable and the HI 4222 is capable of displaying two channels at the same time. These meters are capable of 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 exclusive Calibration Check™ diagnostics system ensures accurate pH 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 during calibration. After the guided calibration process, the 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 8 standard (1.68, 3.00, 4.01, 6.86, 7.01, 9.18, 10.01 and 12.45) and up to 5 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 4222 also features Manual Selection and Custom Standard ISE calibration up to five points, with standard solutions and up to 5 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 10 profiles can be saved and recalled for both instruments, eliminating the need to reconfigure each time when a different electrode is used. User definable configurations can include: temperature compensation modes in accordance with each parameter, isopotential points for pH and ISE (HI 4222 only), measurement units of ISE concentrations, ISE electrode type (HI 4222 only), and temperature units.

Three selectable logging modes are available: Automatic, Manual and AutoHold logging. Up to 100 logging lots with 10,000 records each can be stored for automatic or manual mode, and up to 100 ISE methods reports (HI 4222 only). 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 4221	HI 4222
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 ⁻⁷ to 9.99 x 10 ⁻¹⁰ concentration
	Resolution	-	1; 0.1; 0.01; 0.001 concentration
	Accuracy	-	±0.5% (monovalent ions); ±1% (divalent ions)
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 5 custom buffers	
	ISE	-	automatic, up to five point calibration, five fixed standard solutions available for each measurement unit, and five user defined standards
pH Calibration Check™		yes	
Relative mV Offset Range		±2000 mV	
Input Channel(s)		1 pH/ORP	2 pH/ORP/ISE
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	
pH Electrode		HI 1131B glass body pH electrode with BNC connector 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	settable between one and max log time	
	Type	automatic, log on demand, auto HOLD	
Replatinization		yes	
Display		color graphic LCD with on-screen help, graphing, language selection and custom configuration	
PC Connection		USB and RS232	
Power Supply		12 VDC adapter (included)	
Environment		0-50°C (32 to 122°F) (273 to 323K) RH max 95% non-condensing	
Dimensions		160 x 231 x 94 mm (6.3 x 9.1 x 3.7")	
Weight		1.2 Kg (2.64 lbs.)	

ORDERING INFORMATION

HI 4221-01 (115V), HI 4221-02 (230V), HI 4222-01 (115V) and HI 4222-02 (230V) are supplied with HI 1131B pH electrode, HI 7662-T temperature probe, HI 76404N electrode holder, HI 70004 pH 4.01 buffer solution sachet, HI 70007 pH 7.01 buffer solution sachet, HI 700661 electrode cleaning solution sachet (2), HI 70715 electrolyte solution (30 mL), 12 VDC adapter and instructions.

ELECTRODES

- HI 1131B Glass body pH electrode with BNC connector and 1 m (3.3') cable
- HI 7662-T Stainless steel temperature probe with 1 m (3.3') cable

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 7004L pH 4.01 buffer solution, 500 mL
- HI 7007L pH 7.01 buffer solution, 500 mL
- HI 7010L pH 10.01 buffer solution, 500 mL
- HI 7061L Electrode cleaning solution, 500 mL
- HI 70300L Electrode storage solution, 500 mL

ACCESSORIES

- HI 76404N Electrode holder
- 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 and ISE Section 4.