

HI 3220 • HI 3221 • HI 3222

pH/ORP/ISE Graphic LCD pH Benchtop Meters

- One or two input channels
- pH Calibration Check™
- Five point pH calibration with seven standard and five custom buffers
- Stability, interval and log on demand logging
- Up to 400 log on demand records and 600 automatic logging records
- Messages on the graphic LCD for an easy and accurate calibration
- Multi-language support
- GLP features
- PC interface via USB



HANNA's HI 3220, HI 3221 and HI 3222 benchtop instruments feature up to five point pH calibration with a choice of five custom buffers and seven standard buffers.

HI 3222, HI 3221 and HI 3220 feature an interactive user support interface that assists you before, during and after measurement. On-screen tutorials guide users through set-up, calibration and measurement while context sensitive help of any screen is available at a push of a button. The help screen includes language specific assistance for menu parameters, calibration, logging, contact and accessory information for your instrument.

These instruments feature HANNA's exclusive Calibration Check™, a diagnostics system that 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. Throughout the calibration process, users are guided step-by-step by the on-screen tutorial. After calibration, the probe condition is evaluated and an indicator is displayed informing the user of the overall pH electrode status.

Both the HI 3220 and HI 3221 are equipped with one input channel. HI 3222 is equipped with two input channels for simultaneous measurements. Having these two channels eliminates the need for swapping probes and recalibrating.

These instruments can measure using ORP electrodes (pH channel input), thanks to their capability to measure mV with a resolution up to 0.1 mV. The HI 3221 and HI 3222 can use ISE electrodes in the ppm scale (pH channel input) and provides a choice of measurement units (ppb, ppm, molarity, weight/volume %). The electrode type and unit selection capability and the ISE calibration in up to five calibration standard solutions (HI 3222 only) make these instruments very useful for a large range of concentration solutions measurements.

SPECIFICATIONS	HI 3220	HI 3221	HI 3222
Range			
pH	-2.0 to 20.0; -2.00 to 20.00; -2.000 to 20.000 pH		
mV	±2000 mV		
ISE	–	1.00 E-3 to 1.00 E5 concentration	1.00 E-7 to 9.99 E10 concentration (choice of units)
Temperature	-20.0 to 120.0 °C (-4.0 to 248.0°F)		
Resolution			
pH	0.1; 0.01; 0.001 pH		
mV	0.1 mV		
ISE	–	3 digits 0.01; 0.1; 1; 10 concentration	
Temperature	0.1°C (0.1°F)		
Accuracy			
pH	±0.01; ±0.002 pH		
mV	±0.2 mV		
ISE	–	±0.5% of reading (monovalent ions), ±1% of reading (divalent ions)	
Temperature	±0.2°C (±0.4°F) (excluding probe error)		
Calibration			
pH	up to five point calibration, seven standard buffers available (1.68, 4.01, 6.86, 7.01, 9.18, 10.01, 12.45) + five custom buffers		
ISE	–	up to two point calibration, six standard solutions (0.1, 1, 10, 100, 1000, 10000 ppm)	up to five point calibration, six standard solutions (in units selected)
Slope	from 80 to 110%		
pH Calibration Check™	yes		
Rel mV Offset Range	±2000 mV		
Temperature Compensation (pH)	manual or automatic from -20.0 to 120.0°C (-4.0 to 248.0°F)		
Input Channels	1	1	2
pH Electrode	HI 1131B pH electrode with glass body, BNC connector and 1 m (3.3') cable (included)		
Temperature Probe	HI 7662-T temperature probe, stainless steel with 1 m (3.3') cable (included)		
Logging	log on demand 200 samples	log on demand 300 samples	log on demand 400 samples
Lot Logging	5, 10, 30 seconds; 1, 2, 5, 10, 15, 30, 60, 120, 180 minutes (max 600 samples)		
PC Connectivity	opto-isolated USB (with optional HI 92000 software)		
Input Impedance	10 ¹² Ohms		
Power Supply	12 VDC adapter (included)		
Environment	0-50°C (32 to 122°F) RH max 55% non-condensing		
Dimensions	235 x 207 x 110 mm (9.2 x 8.14 x 4.33")		
Weight	1.8 kg (4 lbs.)		

ORDERING INFORMATION

HI 3220-01 (115V), HI 3220-02 (230V), HI 3221-01 (115V), HI 3221-02 (230V), HI 3222-01 (115V) and HI 3222-02 (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 7071S electrolyte solution (30 mL), 12 VDC adapter and instructions.

ELECTRODES

All electrodes part numbers ending in "B" are supplied with a BNC connector and 1 m (3.3') cable, as shown below:

- HI 1043B** Use: strong acid/alkalis; Glass-body, double junction, refillable, combination pH electrode
- HI 1053B** Use: emulsions; Glass-body, triple ceramic, refillable, combination pH electrode
- HI 1083B** Use: biotechnology; Glass-body, open junction, refillable, combination pH electrode
- HI 1131B** Use: general purpose; Glass-body, single junction, refillable, combination pH electrode
- HI 3230B** Use: general purpose; Plastic-body, gel-filled, combination platinum ORP electrode
- HI 7662-T** Stainless steel temperature probe with 1 m (3.3') cable

SOLUTIONS

- HI 5004L** pH 4.01 buffer solution, 500 mL
- HI 5007L** pH 7.01 buffer solution, 500 mL
- HI 5010L** pH 10.01 buffer solution, 500 mL
- HI 7020L** ORP test solution @200-275 mV, 500 mL
- HI 7021L** ORP test solution @240 mV, 500 mL
- HI 7022L** ORP test solution @470 mV, 500 mL
- HI 7091L** Reducing pretreatment ORP solution, 500 mL
- HI 7092L** Oxidizing pretreatment ORP solution, 500 mL
- HI 7071** 3.5M KCl + AgCl electrolyte solution, 30 mL (4), for single junction electrodes
- HI 7082** 3.5M KCl electrolyte solution, 30 mL (4), for double junction electrodes
- HI 7061L** Electrode cleaning solution, 500 mL
- HI 70300L** Electrode storage solution, 500 mL

ACCESSORIES

- HI 740155** Plastic refilling pipette (20)
- 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.