HI 3512

Two Channel, pH/ORP/ISE, EC/TDS/NaCl/Resistivity Benchtop Meter

- pH Calibration Check™ and electrode condition
- Up to five point pH calibration
- pH calibration with up to seven standard and two custom buffers
- EC calibration for up to two calibration points
- Messages on the graphic LCD for an easy and accurate calibration
- Contextual help at the touch of a button
- Multi-language support
- Automatic logging interval up to 600 records
- Log on demand up to 400 samples
- GLP features
- PC interface via USB

The HI 3512 is a 2 channel professional benchtop meter with a graphic LCD, designed to provide accurate laboratory results. Channel 1 features pH/ORP/ISE and temperature measurement capability while channel 2 measures EC/TDS/NaCl/Resistivity and temperature.

The pH channel offers up to five point pH calibration with seven standard buffers (pH 1.68, 4.01, 6.86, 7.01, 9.18, 10.01 and 12.45) and up to two custom buffers.

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 probe condition is evaluated and an indicator is displayed informing the user of the overall pH electrode status.

This instrument can measure using ORP electrodes (pH channel input), thanks to their capability to measure mV with a resolution up to 0.1 mV and ISE electrodes on ppm scale (pH channel input). The electrode type and unit selection capability and the ISE calibration in up to five calibration standard solutions make this instrument very useful for a large range of concentration solution measurements.

The EC channel offers up to two calibration points with 7 memorized standards (0.00 µS/cm, 84.0 µS/cm, 1.413 mS/cm, 5.00 mS/cm, 12.88 mS/cm, 80.0 mS/cm and 111.8 mS/cm). The EC channel supports autoranging, manual ranging and lock of the user selected range, temperature compensation selection, temperature reference selection (15 °C, 20 °C or 25 °C) and temperature coefficient set.

TDS factor can be set between 0.40 and 1.00.

pH and EC channels also provide user selectable "out of calibration range" warnings and a "calibration timeout" to remind the user when a new calibration is necessary.

Messages on the graphic LCD offer directions for easy and accurate calibration for both channels as well as diagnostics to alert the user when calibration or measurement issues are detected.

Other features of the HI 3512 include log-on-demand of up to 400 samples, automatic logging interval with log on stability feature of up to 600 records, auto HOLD that freezes the first stable reading on the LCD display, GLP to view the last calibration data for pH, rel mV, ISE, EC or NaCl and PC interface via USB.

SPECIFICATIONS		HI 3512
pH	Range	-2.0 to 20.0; -2.00 to 20.00; -2.000 to 20.000 pH
	Resolution	0.1 pH; 0.01 pH; 0.001 pH
	Accuracy	±0.01 pH; ±0.002 pH
mV	Range	±2000.0 mV
	Resolution	0.1 mV
	Accuracy	±0.2 mV
ISE	Range	1.00 E-7 to 9.99 E10 conc.
	Resolution	3 digits 0.01, 0.1, 1, 10 conc.
	Accuracy	±0.5% of reading (monovalent ions); ±1% of reading (divalent ions)
Temperature Channel 1	Range	-20.0 to 120.0 °C (4.0 to 248.0 °F)
	Resolution	0.1 °C (0.1 °F)
	Accuracy	±0.2 °C (±0.4 °F) (excluding probe error)
Relative mV Offset Range		±2000 mV
pH Calibration		up to five point calibration, seven standard buffers available (1.68, 4.01, 6.86, 7.01, 9.18, 10.01, 12.45), and two custom buffers
Calibration Check™		yes
Slope Calibration		from 80 to 110%
pH Temperature Compensation		manual or automatic from -20.0 to 120.0 °C (-4.0 to 248.0 °F)
pH Electrode		HI 1131B glass body pH electrode with BNC connector and 1 m (3.3') cable (included)
Temperature probe		HI 7662-T temperature probe with 1 m (3.3') cable (included)
ISE Calibration		up to five-point calibration points 6 standard solutions available (0.1, 1, 10, 100, 1000, 10000 ppm)
EC	Range	0.001 µS/cm to 400 mS/cm (shows values up to 1000 mS/cm actual conductivity); 0.001 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 (autoranging)
	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; 1 mS/cm
	Accuracy	±1% of reading (±0.01 µS/cm or 1 digit whichever is greater) excluding probe error
Resistivity	Range	1.0 to 99.9 ohms; 100 to 999 ohms; 1.00 to 9.99 Kohms; 10.0 to 99.9 Kohms; 100 to 999 Kohms; 1.00 to 9.99 Mohms; 10.0 to 100.0 Mohms (autoranging)
	Resolution	0.1 ohm; 1 ohm; 0.01 Kohms; 0.1 Kohms; 1 Kohms; 0.01 Mohms; 0.1 Mohms
	Accuracy	±1% of reading (±10 ohms or 1 digit whichever greater) excluding probe error
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 g/L; 10.00 to 99.99 g/L; 100.0 to 400.0 g/L (autoranging)
	Resolution	0.001 ppm; 0.01 ppm; 0.1 ppm; 0.001 g/L; 0.01 g/L; 0.1 g/L
	Accuracy	±1% of reading (±0.05 ppm or 1 digit whichever greater) excluding probe error
	Factor	0.40 to 1.00
Salinity	Range	% NaCl: 0.0 to 400.0 %
	Resolution	0.1 %
	Accuracy	±1% of reading excluding probe error
Temperature Channel 2	Range	-20.0 to 120°C
	Resolution	0.1°C
	Accuracy	±0.2 °C (excluding probe error)
EC Calibration		automatic up to two points with seven memorized standards (0.00 µS/cm, 84.0 µS/cm, 1.413 mS/cm, 5.00 mS/cm, 12.88 mS/cm, 80.0 mS/cm, 111.8 mS/cm)
Constant Cell Setup		0.010 to 10.000
NaCl Calibration		max. one point only (with HI 7037 standard)
EC Probe		HI 76310 platinum four ring conductivity/TDS probe with 1 m (3.3') cable (included)
Temperature Source		automatic from sensor inside the probe; manual entry
EC Temperature Compensation		NoTC, MTC, ATC
Reference Temperature		15, 20, 25 °C
Temperature Coeficient		0.00 to 10.00 %/°C
Log On Demand		400 samples
Lot Logging / Interval		5, 10, 30 seconds; 1, 2, 5, 10, 15, 30, 60, 120, 180 minutes, AutoEnd (max 600 samples)
PC interface		opto-isolated USB
Input Impedance		10^{12} ohms
Power Supply		12 VDC adapter (included)
Environment		0 to 50 °C (32 - 122 °F) RH max 55% non-condensing
Dimensions / Weight		235 x 207 x 110 mm (9.2 x 8.14 x 4.33") / 1.8 Kg (4 lbs.)

ORDERING INFORMATION

HI 3512-01 (115V) and **HI 3512-02** (230V) is supplied with HI 76310 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 6016 pH 1.679 buffer solution, 500 mL
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 6124 pH 12.450 buffer solution, 500 mL
HI 7030L 12880 µS/cm calibration 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 calibration solution, 500 mL
HI 7035L 111800 µS/cm calibration solution, 500 mL
HI 7039L 5000 µS/cm calibration 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 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*, ISE *Section 4* and Conductivity *Section 6*.