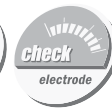


HI 120 • HI 121 • HI 122 • HI 123

**Wide Screen Professional pH Meters**

with Calibration Check™ and Automatic Data Logging

**Wide Display and Printing Capabilities**

HI 120 series Calibration Check™ pH meters feature electrode response and condition monitoring and enhanced diagnostic messages during calibration. These meters use HANNA's "P" series of electrodes. For more accuracy, this series also checks if the measurement is outside the calibration range and warns the user in case measurements are too far outside the calibration points. You can calibrate up to 5 buffer values using the standard 7 buffers that are automatically recognized, or by using 2 custom buffer values. The buffer(s) used during calibration are displayed on the LCD even when in measurement mode.

HI 122 and HI 123 have a built-in impact printer which uses regular paper and does not fade with time. These models allow the user to print detailed information in four languages for specific help screens, GLP, logging and instrument set-up. Models HI 121 and HI 123 have dual inputs to measure both pH and ISE simultaneously.

Users can Log-on-demand up to 50 samples (50 samples per channel for dual channel meters). These meters have automatic data logging of up to 1000 points (1000 points per channel for dual channel meters) with flexible starting and stopping criteria.

**Key Features**

- Calibration Check™ electrode response monitoring
- Out of calibration range warning
- GLP capabilities
- Auto-hold
- Separate pH and ISE channels (HI 121 & HI 123)
- 5 calibration points with 2 custom buffers
- Large, custom LCD
- Built-in impact printer (HI 122 & HI 123)
- High and low audible alarms

H A N N A ' S   E X C L U S I V E   C A L I B R A T I O N   C H E C K ™

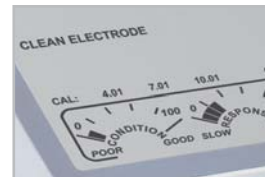
Calibration Check performs a set of diagnostic tests during calibration using the history of electrode slope and offset to detect problems that can cause loss of accuracy. Calibration Check™ Features are: • Enhanced Calibration Messages • Electrode Condition on LCD Display • Electrode Response Time on LCD Display • Calibration Alarm Time-Out • Out of Calibration Range



*Out of calibration range warning: measuring samples outside the calibration range may result in loss of accuracy.*



*Contaminated buffer warning a contaminated buffer solution causes erroneous calibration curve resulting in loss of accuracy during measurement.*



*Clean pH electrode warning: a dirty pH electrode causes erroneous calibration curve resulting in loss of accuracy during measurement.*



*Check pH electrode warning: this message is displayed in the event the junction of the pH electrode is clogged.*

# Wide Screen Professional pH Meters

with Calibration Check™ and Automatic Data Logging



## Printing ( HI 122 & HI 123 )

A complete set of information based on the measured, set or recorded data can be printed. Data can be printed on demand (for current reading in measurement mode, GLP and SETUP modes) or automatic (for AutoLOG and Log on demand modes).

Information includes: GLP pH • GLP Rel mV • GLP ION (HI 123) • Instrument Setup • Setup Report • Set Autolog Interval • Log On Demand • Start Autolog

SPECIFICATIONS		HI 120	HI 121	HI 122	HI 123
Range	pH	-2.00 to 16.00 pH / -2.000 to 16.000 pH			
	mV	±999.9 and ±2000 mV			
	Selective Ions	—	0.001 to 19999 ppm	—	0.001 to 19999 ppm
	Temperature	-20.0 to 120.0°C			
Resolution	pH	0.01 pH / 0.001 pH			
	mV	0.1 mV / 1 mV			
	Selective Ions	—	0.001 / 0.01 / 0.1 / 1 ppm	—	0.001 / 0.01 / 0.1 / 1 ppm
	Temperature	0.1°C			
Accuracy (@20°C)	pH	±0.01 pH / ±0.002 pH			
	mV	±0.2 mV (±699.9 mV) / ±0.5 mV (±999.9 mV) / ±1 mV (±2000 mV)			
	Selective Ions	—	±0.5% f.s.	—	±0.5% f.s.
	Temperature	±0.4°C			
BNC Inputs		1 for pH electrode	2 for pH electrode and/or ISE electrode	1 for pH electrode	2 for pH electrode and/or ISE electrode
Calibration Check	status of electrode condition and response time, status of the buffer solutions during calibration				
Relative mV Offset Range	±2000 mV				
pH Calibration	automatic, up to 5 point calibration standard with 7 buffers (1.68, 4.01, 6.86, 7.01, 9.18, 10.01, 12.45) + 2 custom buffers				
ISE Calibration	—		automatic, 1 or 2 point with 5 standard values (0.1, 1, 10, 100, 1000 ppm)	—	automatic, 1 or 2 point with 5 standard values (0.1, 1, 10, 100, 1000 ppm)
Temperature Compensation	automatic or manual, -20.0 to 120°C (-4 to 248°F)				
pH Electrode	HI 1131P, glass body, refillable, BNC + pin connectors, 1 m cable (included)				
Temperature Probe	HI 7662-T with 1 m (3.3') cable (included)				
Input Impedance	10 <sup>12</sup> Ohm				
Log-on-demand	50 samples	100 samples	50 samples	100 samples	
Automatic Logging	1000 samples	2000 samples	1000 samples	2000 samples	
PC Connection	RS232 serial port, optoisolated				
Printer	—				built-in, with 44 mm plain paper
Power Supply	12 Vdc adapter (included)				
Environment	0 to 50°C (32 to 122°F); RH max 95%				
Dimensions / Weight	280 x 203 x 84 mm (11.0 x 8.0 x 3.3") / 1.9 kg (4.2 lbs.)				

### ORDERING INFORMATION

**HI 120-01** (115V) and **HI 120-02** (230V), **HI 121-01** (115V) and **HI 121-02** (230V), **HI 122-01** (115V) and **HI 122-02** (230V) and **HI 123-01** (115V) and **HI 123-02** (230V) are supplied with HI 1131P pH electrode with BNC connector and 1 m cable, HI 7662-T stainless steel temperature probe, pH 4 and 7 buffer solutions, 12 Vdc power adapter and instructions. HI 122 & HI 123 are supplied with (5) paper rolls.

### ELECTRODES

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

- HI 1043P** Use: *strong acid/alkalis*; Glass-body, double junction, refillable, combination pH electrode
- HI 1053P** Use: *emulsions*; Glass-body, triple ceramic, refillable, combination pH electrode

- HI 1083P** Use: *biotechnology*; Glass-body, open junction, refillable, combination pH electrode
- HI 1131P** Use: *general purpose*; Glass-body, single junction, refillable, combination pH electrode
- HI 7662-T** Temperature probe

### SOLUTIONS

- HI 5004** pH 4.01 buffer solution, 500 mL
- HI 5007** pH 7.01 buffer solution, 500 mL
- HI 5010** pH 10.01 buffer solution, 500 mL
- HI 54710** pH 4.01, pH 7.01 and pH 10.01 buffer solution, 500 mL ea.
- HI 70300L** Electrode storage solution, 500 mL
- HI 7071** 3.5M KCl + AgCl Electrolyte, (4) 30 mL, for single junction electrodes
- HI 7072** 1M KNO<sub>3</sub> Electrolyte, (4) 30 mL
- HI 7082** 3.5M KCl Electrolyte, (4) 30 mL, for double junction electrodes
- HI 7073L** Protein cleaning solution, 500 mL

- HI 7074L** Inorganic cleaning solution, 500 mL
- HI 7077L** Oil & Fat Cleaning Solution, 500 mL

### ACCESSORIES

- HI 710032** (10) Plain paper rolls (HI 122)
- HI 710033** Replacement ink cartridge (HI 122)
- HI 76405** Electrode holder
- HI 92000** Windows® compatible software
- HI 920010** RS232 cable for PC connection



HI 710032 — Plain Paper Rolls